

2021 Annual Report

Wooster Water
Utilities

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"Safety, Reliability, and Excellence!"



Wooster Water Utilities 2021 Annual Report

Table of Contents

Section	Page
<u>Introduction</u>	3
<u>Water Production</u>	8
<u>Water Recovery</u>	24
<u>Systems</u>	34
<u>Manager Goals</u>	42
<u>2019 Strategic Plan Review</u>	45
<u>Executive Summary</u>	53
Quarterly Data Report	60



Wooster Water Utilities Mission and Vision

Purpose

The purpose of the Wooster Water Utilities (WWU) 2021 Annual Report is to summarize accomplishments, significant projects, data and performance metrics, completed goals, and 2022 future goals.

The content of this report and reviews are from the Utilities Manager. Future updates and plan reviews will include the best effort to communicate the operation of the WWU with contribution from leadership staff.

Our Mission

The mission of the City of Wooster is to partner with our community to deliver services, conserve resources, protect the quality of life, and plan for the future. We will endeavor to accomplish this mission in the most efficient and fiscally responsible manner possible according to the City of Wooster's Core Values. *The Daily Mission of Clean Water is our resolve.*

Our Vision

Stakeholders, customers, and peers recognize our utility as a leader of excellence. Our focus is to be the epitome of public servanthood, stewardship, environmental consciousness, and dedication to our community. *The Daily Mission of Clean Water is our vision.*

Our Values

Our values create cultural expectations and define the pursuit of excellence in public servanthood. *Our values represent the Daily Mission of Clean water.*

Accountability – As an organization, we accept responsibility for our stewardship decisions and actions. We will deliver cost-effective and efficient services to do our work right the first time.

We are concerned about our natural, historical, economic, and aesthetic resources and endeavor to enhance their sustainability for future generations. In doing so, we will:

- ◆ Accept the anticipation of public trust, and our mission is outward focused on general quality of life.
- ◆ Active communication with our stakeholders in transparency and to build trust.
- ◆ Ensure operational strategies to meet regulatory standards.
- ◆ Provide timely reports to stakeholders regarding department activities.
- ◆ Provide open hours and tours related to department operations.
- ◆ Gauge stakeholder satisfaction through intentional public surveys.

Continuous Improvement – We provide the highest quality service with the resources available by promoting innovation and flexibility to meet the changing needs in the community. In doing so, we will:

- ◆ Accept the belief that excellence includes continual growth and improvement.
- ◆ Continuing education of the staff and stakeholders in the daily mission of clean water.
- ◆ Ensure operational strategies are in line with regulatory expectations and future trends.

Leadership & Management – We value the importance of serving as a role model and mentor within the organization and community. We make decisions that show responsible management of all our resources. In doing so, we will:

- ◆ Accept our role as community leaders.
- ◆ Prioritize public health and public safety.
- ◆ Utilize leading-edge technology to create sustainable operations.
- ◆ Manage all department affairs to ensure integrity and reliability.
- ◆ Update and implement standard operating procedures.
- ◆ Evaluate processes with data management to gauge current and future trends.
- ◆ Recruit, train, and develop staff according to the department's mission and goals.

Respect & Communication – We are honest and treat our coworkers and the public with courtesy and dignity. We promote professional and friendly communication while providing excellent customer service at all times. In doing so, we will:

- ◆ Understand that our position anticipates healthy communication and respect with all stakeholders, customers, elected officials, and coworkers.
- ◆ Honor our commitments and focus on public satisfaction.
- ◆ Be humble and compassionate.
- ◆ Ensure an attitude exemplary of public stewardship.
- ◆ Be honest in all communications.
- ◆ Be creative and flexible.

Honesty & Integrity – We set high standards for our personal, professional, and organizational conduct and act with integrity as we strive to attain our mission. In doing so, we will:

- ◆ Adhere to high standards.
- ◆ Be transparent and reliable.
- ◆ Operate professionally and ethically.
- ◆ Be honest in all communications.
- ◆ Operate in a manner that would safeguard public confidence publically and privately.

Stewardship & Trust – We understand our responsibility to use public funds wisely. We will faithfully deliver services and make decisions to meet citizens' needs. We commit to our core values with open communication with the public and solicit feedback to achieve our goals. In doing so, we will:

- ◆ Operate in a manner that supports public trust and confidence.
- ◆ Be responsible for the use of all public resources.
- ◆ Ensure regulatory and customer expectations in an anticipatory way that honors commitment and stewardship.
- ◆ Serve as an advocate at local, state, and federal levels on behalf of the general public.
- ◆ Recognize the value of stewardship and the solemn oath of public wellbeing and health.
- ◆ Openly engage stakeholders in the department activities and gauge satisfaction.
- ◆ Be driven by excellence in producing quality products and services.

Safety – We use education, prevention, and enforcement methods to protect life and property in our business and residential neighborhoods. Our safety awareness will maintain our infrastructure and facilities to provide a safe environment for life and work. In doing so, we will:

- ◆ Accept the significance of our role and trust to operate on behalf of the most vulnerable in our community.
- ◆ The very mission is focused on public safety and health.
- ◆ Provide education programs for the stakeholders.
- ◆ Provide training and education to ensure the public's safety, resources, and employees.
- ◆ Eliminate and gauge potential risks that could affect public health and wellbeing.

In addition to the core values, the slogan of Wooster Water Utilities is as follows:

"Safety, Reliability, and Excellence!"

Safety

We work in a method that ensures the integrity of the infrastructure. Safe water is the standard and expectation of our citizens and the focus of our daily mission. Our focus is on public health, producing a safe product in all aspects. Safety focuses on the people trusted to operate the infrastructure to ensure quality in every drop to our citizens.

Reliability

We work to ensure the reliability of the customers we serve. Our duty as stewards is to provide that infrastructure investments are well maintained to ensure the quality of life. We are diligent in our operational methods to ensure high-quality water every day. We honor the trust of our citizens by sharing information on the process and product quality.

Excellence

Excellence, every day, the mission of clean water is the expected standard. Citizens expect excellence in service provided, federal and state regulators require excellence, and the science of water treatment requires a commitment to excellence. As a life sustainer, water treatment must be approached with reverence understanding the solemn oath to the citizens as we serve at the frontline as defenders of public health and wellbeing. We expect the best from our infrastructure, consultants, strategic partners, and employees in our pursuit of excellence.





WWU 2021 Annual Report Introduction

Water is essential to life. Elemental carbon is the "building block of life"; everything we see contains carbon. Water is the sustainer of life. It is no coincidence that the sphere on which we live is 71% water, and the human body includes the same carbon to water ratio. Up to 60% of the human body is water, with human organs containing a higher percent and even human bones are 30% water. Water is vital to life.

The City of Wooster is home to many innovations and progressive efforts to ensure health and quality of life. In 1894, Minor Scovel reported to the Wooster Water Commission to help find sustainable water sources. The water service for the growing Wooster community was sporadic and questionable. The nation was gripped in death tolls related to infectious diseases, specifically those spread by poor water use and discharge practices. Scovel shared with the commission a case of typhoid fever that was spread from a water reservoir to the public. Scovel urged elected officials to find a groundwater source focusing on public health. The study determined a safe groundwater source at the site of the first treatment plant near Old Mansfield Road. However, it took nearly 40 years before Scovel's recommendation became a reality. The report urged elected officials to spend no more than \$40,000 to build a modern water treatment plant to ensure public health. Scovel stated in the report, ***"Poor water is dear, and pure water is cheap at any prices."*** Citation from *Report of the Water Extension Commission to the City Council of Wooster, Ohio November 19, 1894*

The dawn of modern civilization and supporting infrastructure for a growing population created publically owned water management works. Every day, every citizen uses or discards water in one form or another. The water cycle is nonstop, always moving, constantly changing, and producing. The City of Wooster plays a vital role in the water cycle. Natural water is drawn from the ground and treated as drinking water. The water used by customers gathers contaminants accrued in the process, as water serves as the universal solvent. The wastewater is treated and delivered to nature to start the natural and manufactured cycle again. Nature serves as a standard of quality in the water cycle. Facilities are operated in a manner sustaining in all forms and bringing it to the purest level possible.

The daily mission of clean water requires our respect and diligence as frontline defenders of the environment and public health.

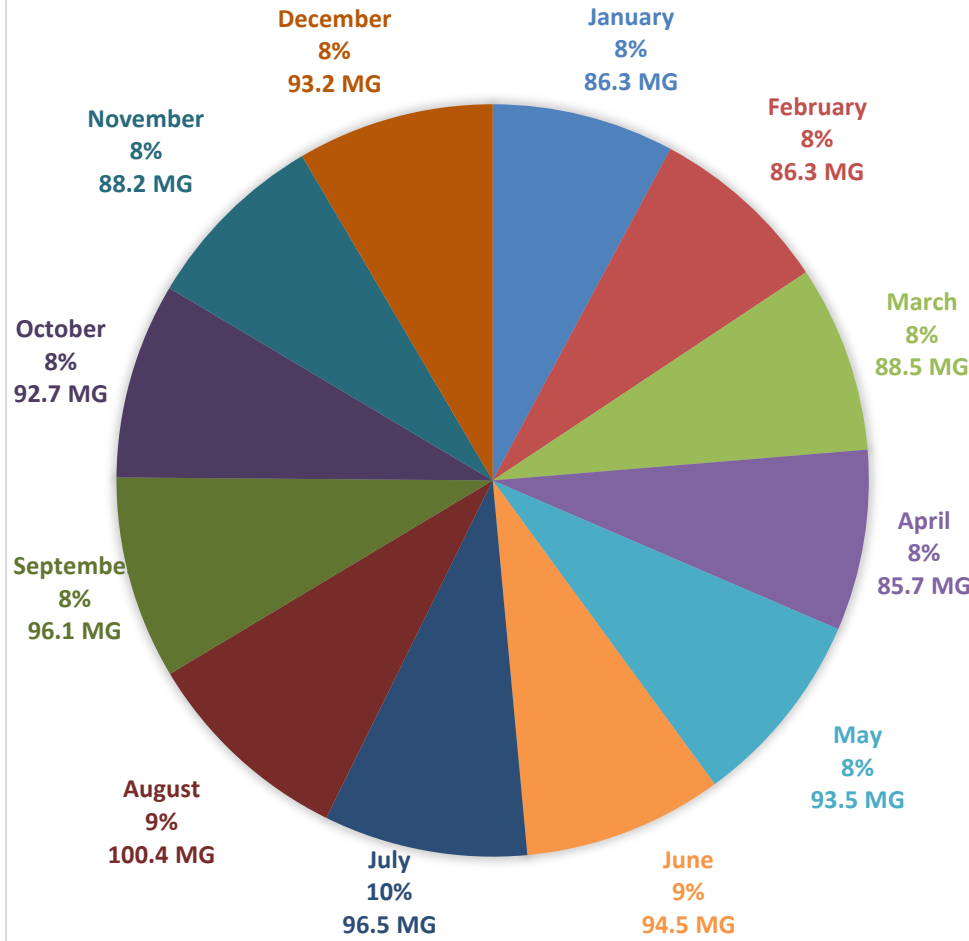
Wooster Water Utilities (WWU) is owned and operated by Wooster, Ohio. Services provided include water treatment and distribution, wastewater treatment and collection, and any service to ensure water delivery and treatment for Wooster's citizens. WWU services nearly 27,000 people with 9,907 active utility account in an almost 17 square mile service area. WWU has 32 employees and operated with an 8.9 million dollar approved budget in 2019.

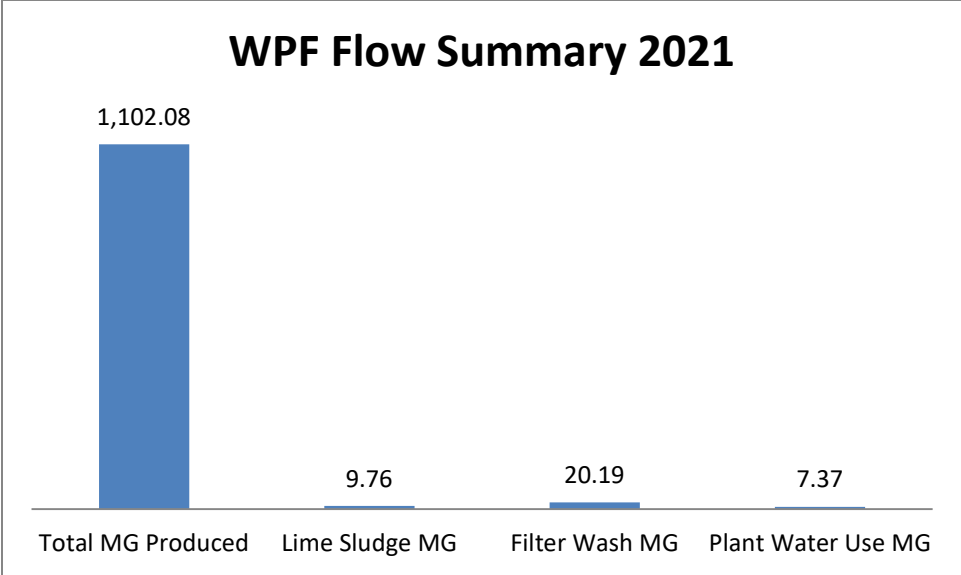
Water Production Information

Water Production Facility (WPF) infrastructure assets include two separate groundwater wellfields with nine wells, eight interceptor wells, and over four dozen groundwater monitoring wells. Additional water assets include a water treatment facility, nine finished water storage tanks, five water booster stations, 145 miles of mainline inventory, a staff of twelve individuals, facilities, and necessary equipment for the facility's function. The current facility classification by the OEPA is a class 3 water treatment facility. The process includes groundwater sources, coagulation, flocculation, iron removal, softening, sedimentation, VOC removal, recarbonation, filtration, disinfection, and solids handling. The facility has been in operation since 1998.

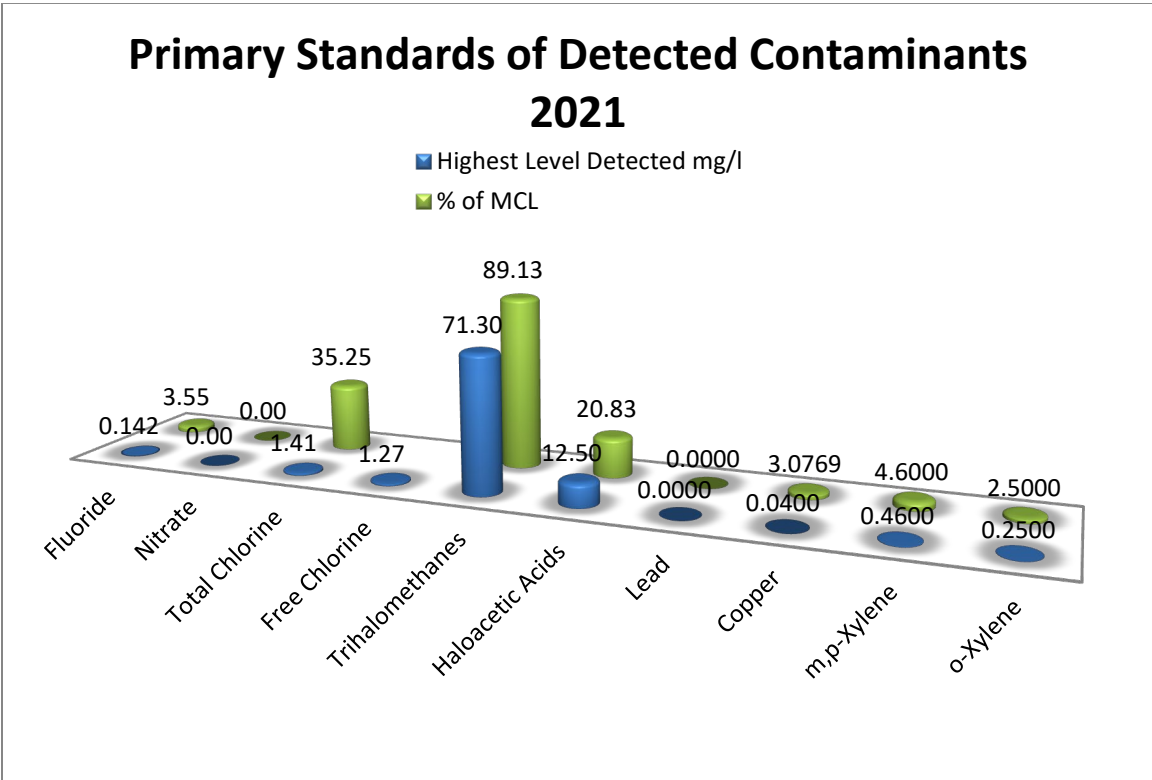
In 2021, the Water Production Facility treated and delivered 1.10208 billion gallons of drinking water to the customers. The average daily flow production in 2021 was 3.03 million gallons or 49.62% of the facility design capacity of 6.1 million gallons per day. Compared to 2020 totals and averages, 2021 indicates a total flow increase of 3% to the total and average. The facility was designed using 87 gallons per day/capital; at current flow rates, the population equivalent is 34,791. The facility's design capacity can produce enough water for a population of 70,000 people.

2021 WPF TOTAL PRODUCTION 1.102 BILLION GALLONS





For the sake of this report, the data provided below relates to finished water treatment levels in comparison to OEPA Maximum Contaminate Levels (MLC's). Any parameters below detectable limits were not used in this report as results below detectible limits are not required in the annual OEPA required "Consumer Confidence Report." The purpose of this data is to indicate efforts to monitor operations concerning treatment standards continually. The data provided in this report will be used as future benchmark results in facility optimization and future guidance reports.

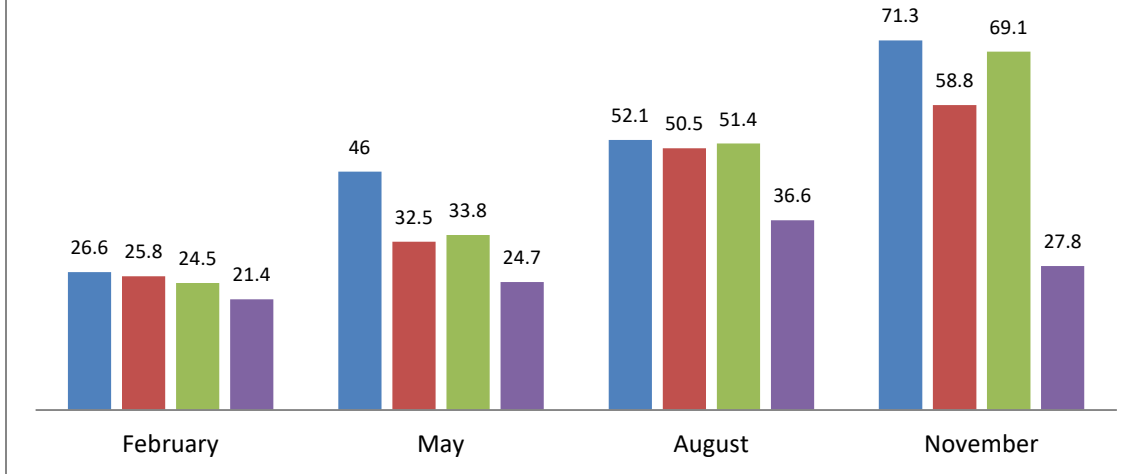


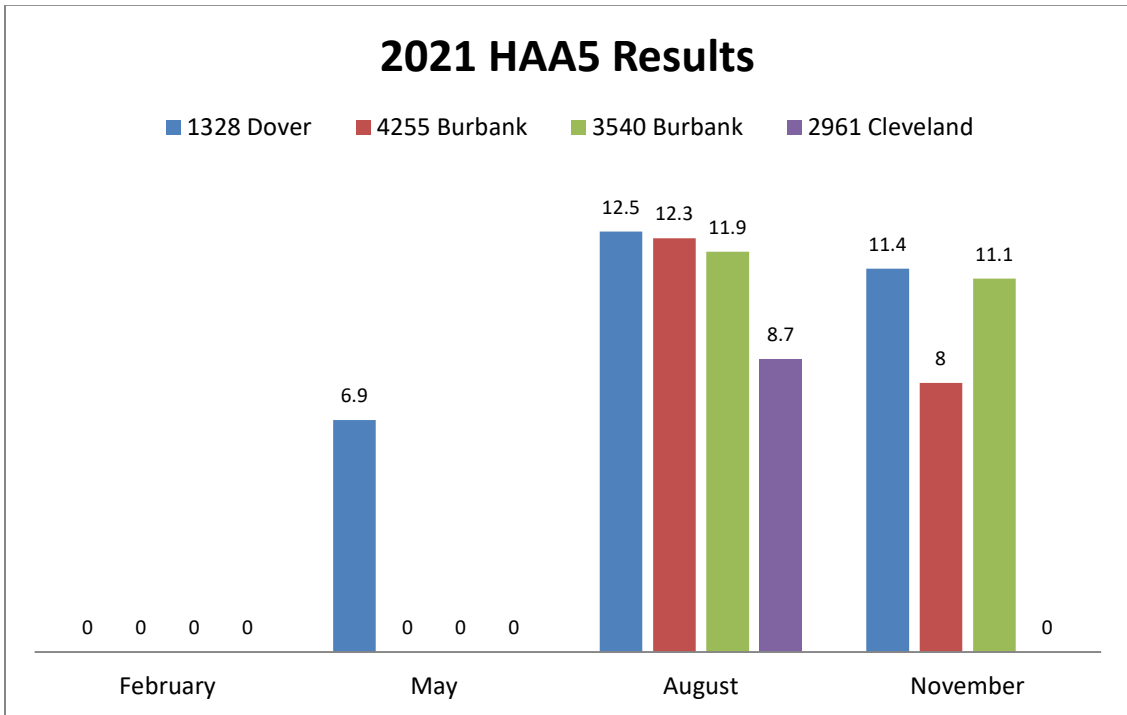
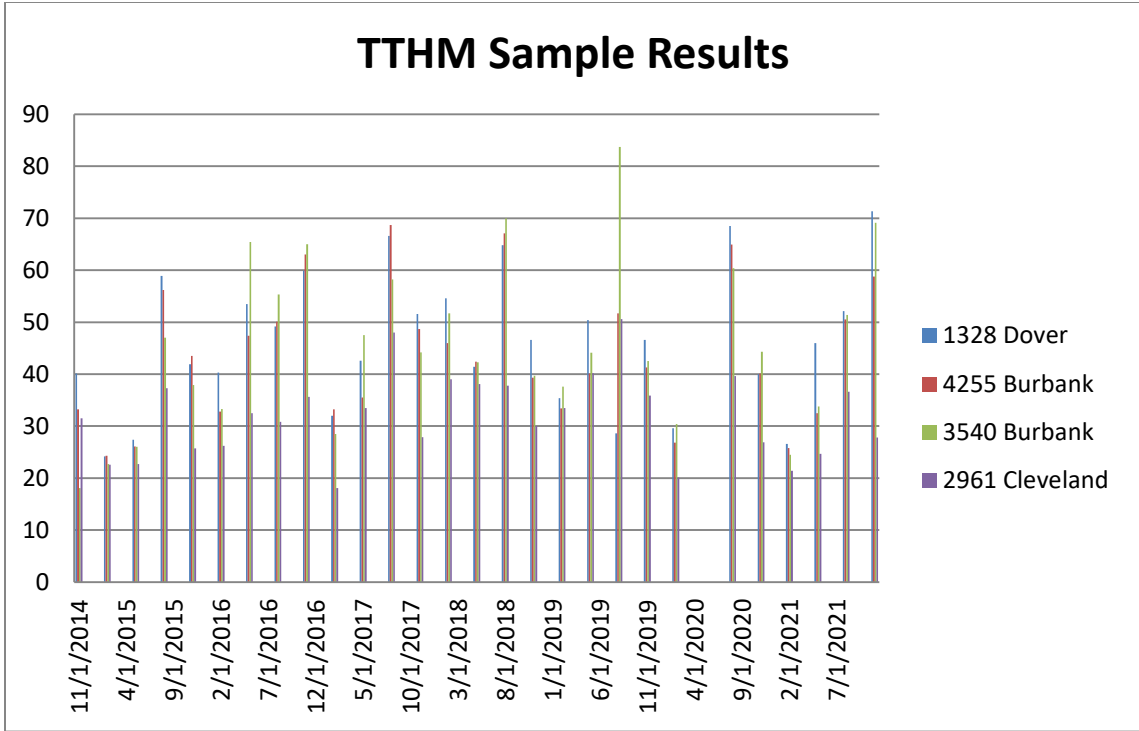
Based on the 2021 data, the following summary relates to WPF.

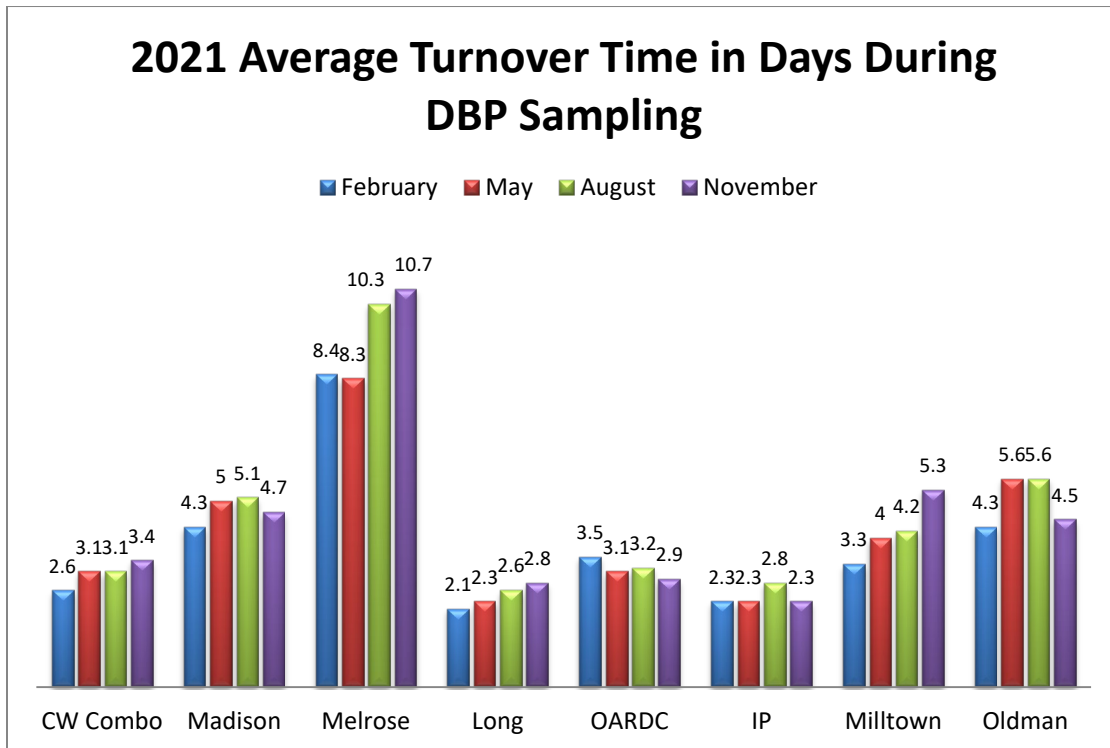
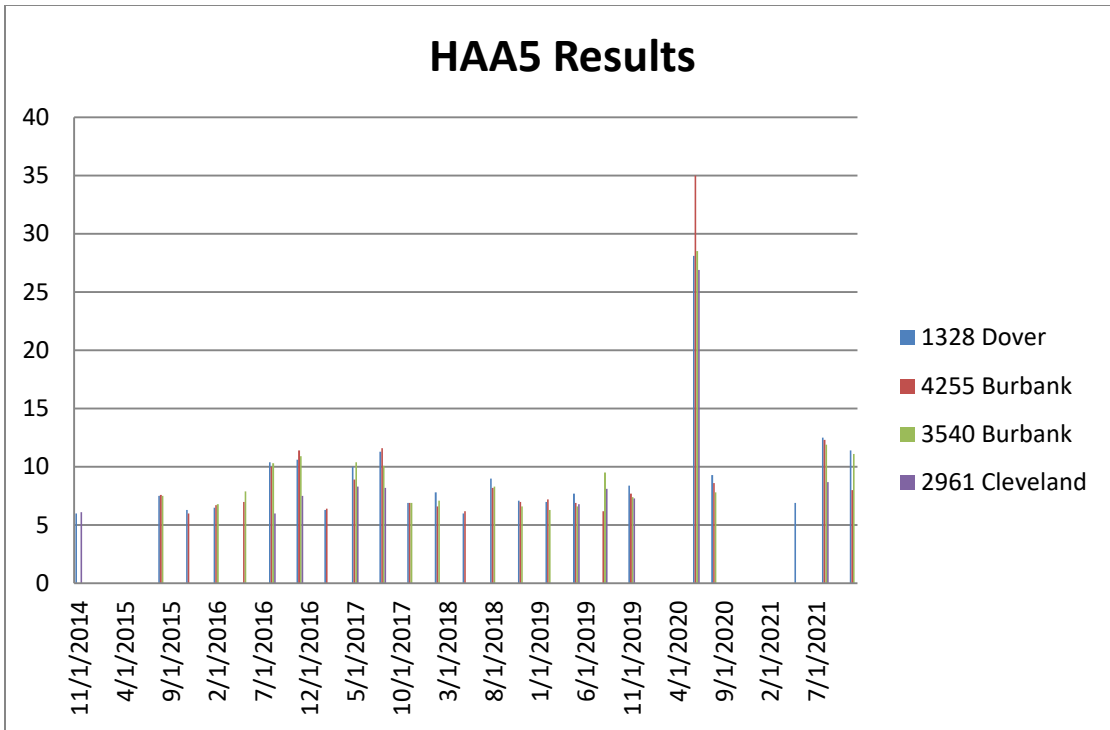
- Data summary indicates full compliance with all testing standards regulated by the Safe Drinking Water Act.
 - The Water Production Facility was 100% compliant with all federal and state regulations to calculate total days in compliance throughout the year.
- Trihalomehtanes (TTHM) and haloacetic acids are monitored as disinfection byproducts (DBP). The MCL was established at the federal and state level as disinfection byproducts can be carcinogenic in very high ranges. Sampling occurs in parts of the system furthest away from the source. It relates to water turnover in the system, which includes quarterly selection at four different monitoring locations each quarter. While the highest level detected in 2021 at the furthest part of the system for TTHM indicated 89% of the MCL, the Agency prescribed running average formula suggests a much lower average result of 49, with a range of 21 to 71, which are below MCL's. Similarly, the HAA5 results indicated the highest level detected was 21% of the MCL with an average of 7.7 and ranges of zero to 12.5, all within standards.
 - Based on the average water age during the DBP sampling periods, the Melrose tank consistently indicates older water age due to storage capacity and demand in that zone. The second and third-quarter results indicate Madison and Oldman to be above the five-day goal.
 - Historically, it is essential to note that 3rd quarter testing in the system has been higher due to elevated ambient temperatures. Furthermore, this directly relates to tank turnover percentages. This theory is supported by efficient system operations and a significant reduction in non-revenue water coupled with end-use water-smart fixtures. See the chart below concerning historical TTHM testing and tank turnover. A goal of 5 days or less in turnover is to reduce the potential for disinfection byproduct levels and system efficiencies.

2021 TTHM Results

■ 1328 Dover ■ 4255 Burbank ■ 3540 Burbank ■ 2961 Cleveland



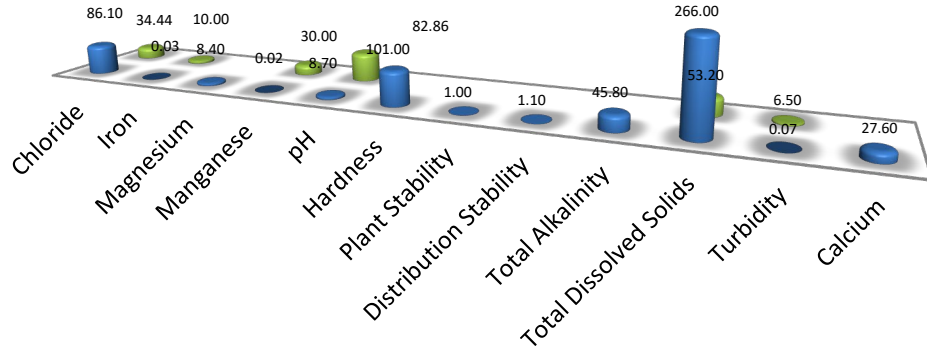




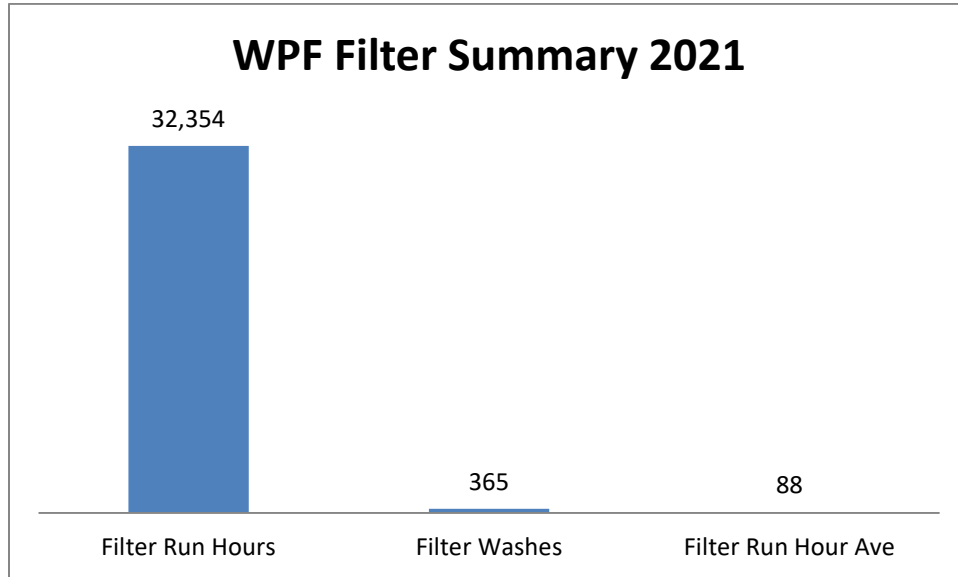
Secondary standards data shows overall water quality related to aesthetics and treatment-related goals as an indicator of water quality at expected standards based on process control.

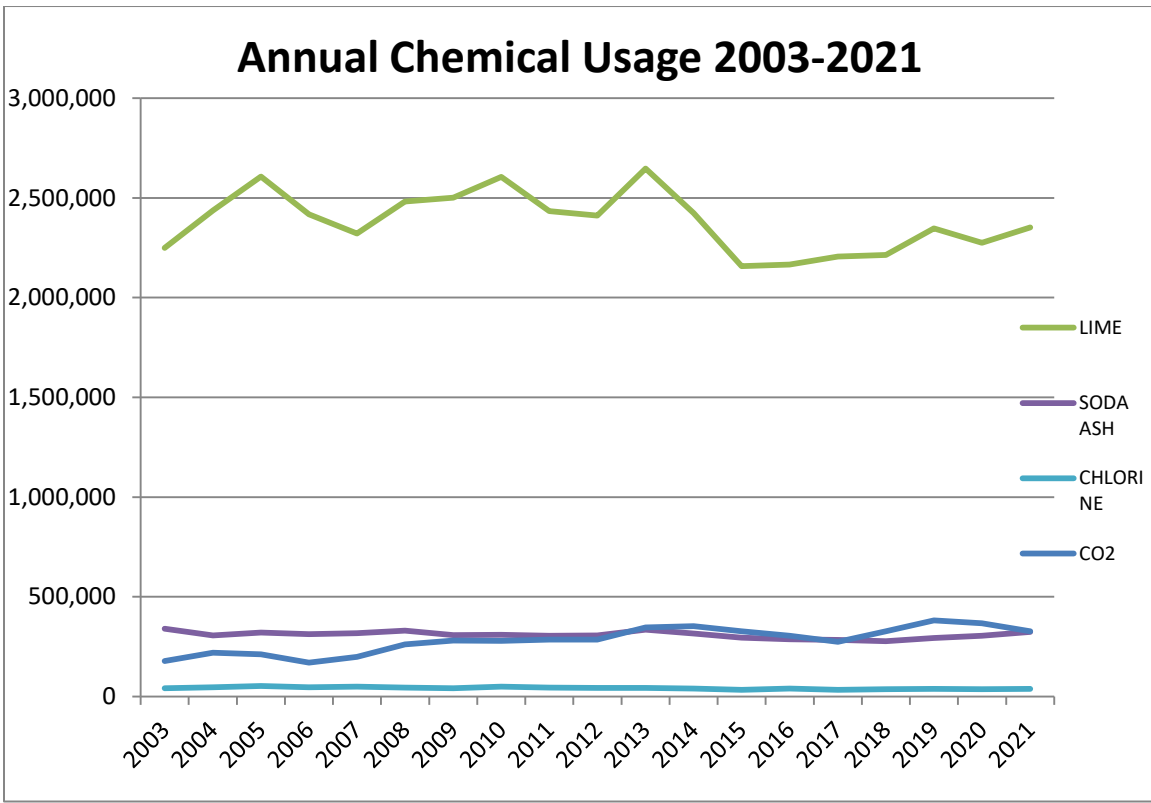
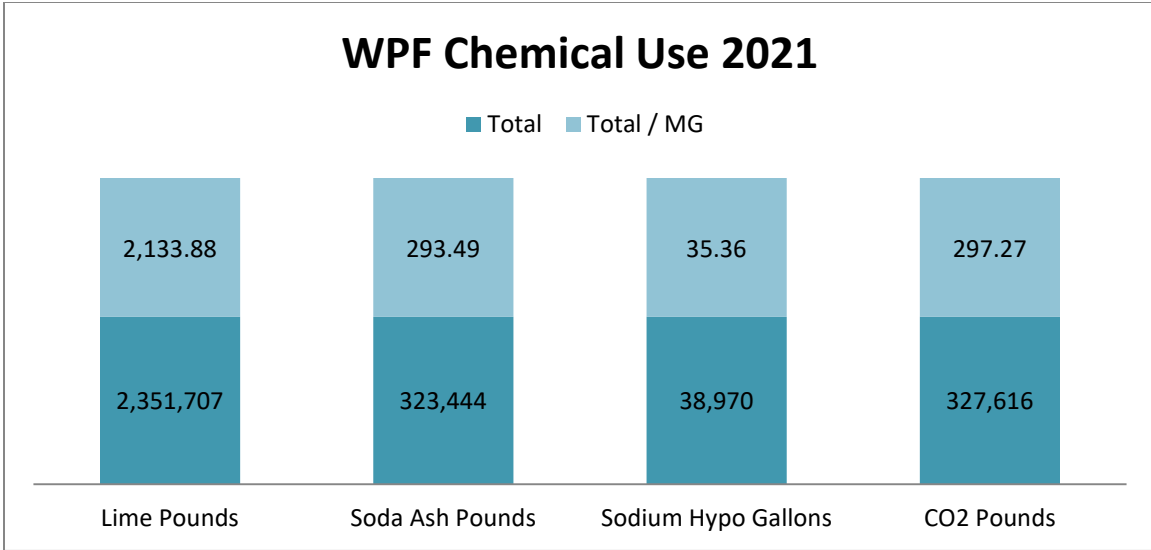
Secondary Standards 2021

■ Average Level Detected
■ % of MCL



WPF Filter Summary 2021

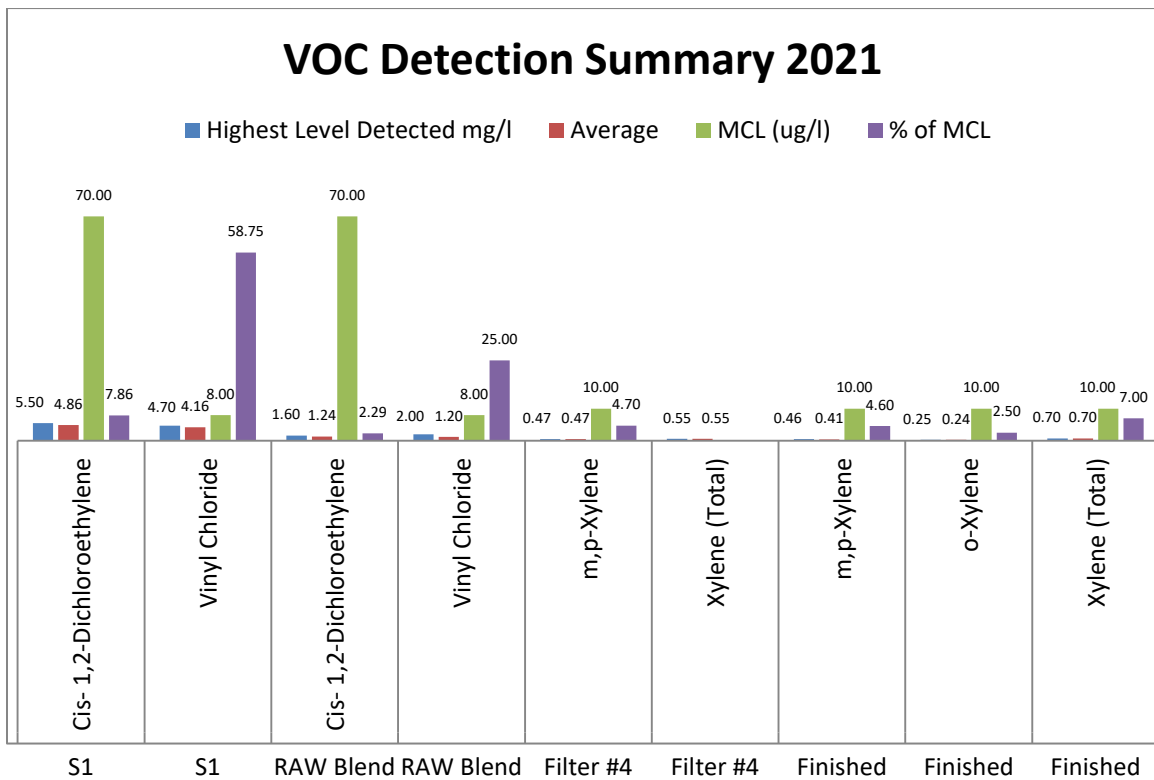




2021 chemical usage in comparison to 2020 indicates an increase of lime, soda ash, and sodium hypochlorite and a reduction of carbon dioxide use. Lime use increase was 3.35%, or 76,405 pounds. Soda ash use increase was 6.38%, or 19,411 pounds. Sodium hypochlorite use increase was 5.19% or 1,925 gallons. Carbon dioxide use reduction was 10.7 or a decrease of 39,548 pounds.

A total of 4,956.99 dry tons of spent lime residual was removed from the storage lagoon and applied to farm fields for beneficial reuse. A total cost in 2021 was \$367,312.95 in contractual services or \$74.10 per dry ton. While liquid slurry is pumped to trucks for hauling, the end product cargo is required for reporting.

In the 1980s, contaminants were detected in the Wooster South Wellfield, specifically the S-1 production well. Significant testing continues under the guidance of the Ohio EPA regarding the detected contaminants. A series of interceptor wells were installed to create a hydraulic barrier to mitigate pollution movement in the source water aquifer. Through an OEPA approved testing and operational technique, the contamination is closely monitored, in some cases on a bi-weekly basis. The detected contaminants identified in a general category as "Volatile Organic Compounds" (VOC), specifically the Wooster testing focuses on cis-1,2 – Dichloroethylene and Vinyl Chloride. The VOC testing is included as it relates to treatment target levels in the blended source water. The testing reference serves as treatment goals in the removal of VOCs. The trigger for operational changes is when the blended source water MCL is exceeded on two consecutive samples. To date, no VOC's or MCL's have been detected in the filtered or finished water. In 2021 a total of 202 million gallons of the interceptor (aquifer hydraulic barrier) water was pumped at an average of .55 million gallons per day. It is imperative to share this effort. It has no direct correlation to delivering water to our customers; it is a financial and environmental witness to our stewardship to protect this great resource and provide the best water to our citizens. The data equates to an estimate (difficult to separate) of \$100,000 worth of electrical cost and 3 million dollars of 30 years to ensure the finest product possible.



- Vinyl chloride testing is required relative to the South Wellfield contamination detected in 1986. An intricate testing and monitoring program is in place to effectively remove VOCs along with stripper towers in the treatment plant. The monitoring program is in place to ensure compliance and proper treatment techniques. While the highest level of vinyl chloride detected in 2021 was at 25% of the agreed trigger level of 8 ug/l, the average test results for the year resulted in levels being well below or non-detect. Suppose a trigger level exceedance after two consecutive samples well-pumping operations will change and additional testing under the VOC Contingency Plan. We will continue to monitor and utilize 70% of the MCL level (for all VOCs) as an indicator to gauge any changes in the system. It is important to note no VOC's have been detected in the filter or finished water from the facility. The Wooster source water is one of the most proactively tested aquifers in the state, along with an ultimate safeguard of the VOC stripping treatment unit in the production process.



- The ratio of employee to annual total gallons treated equals 122 million gallons/employee, a slight decrease compared to 2020 data.
- The operation and maintenance cost per million gallons treated equals \$3,548.15 or \$3.55 to treat 1,000 gallons. While this is a positive indicator in an often unpredictable environment, it indicates commitment stewardship. Due to efficiency measures, this cost was reduced by \$.8 per 1,000 gallons compared to 2020. The data indicates efforts to stabilize expenses through intentional operational techniques multiyear supply and service contracts. This calculation includes any operating capital updates.

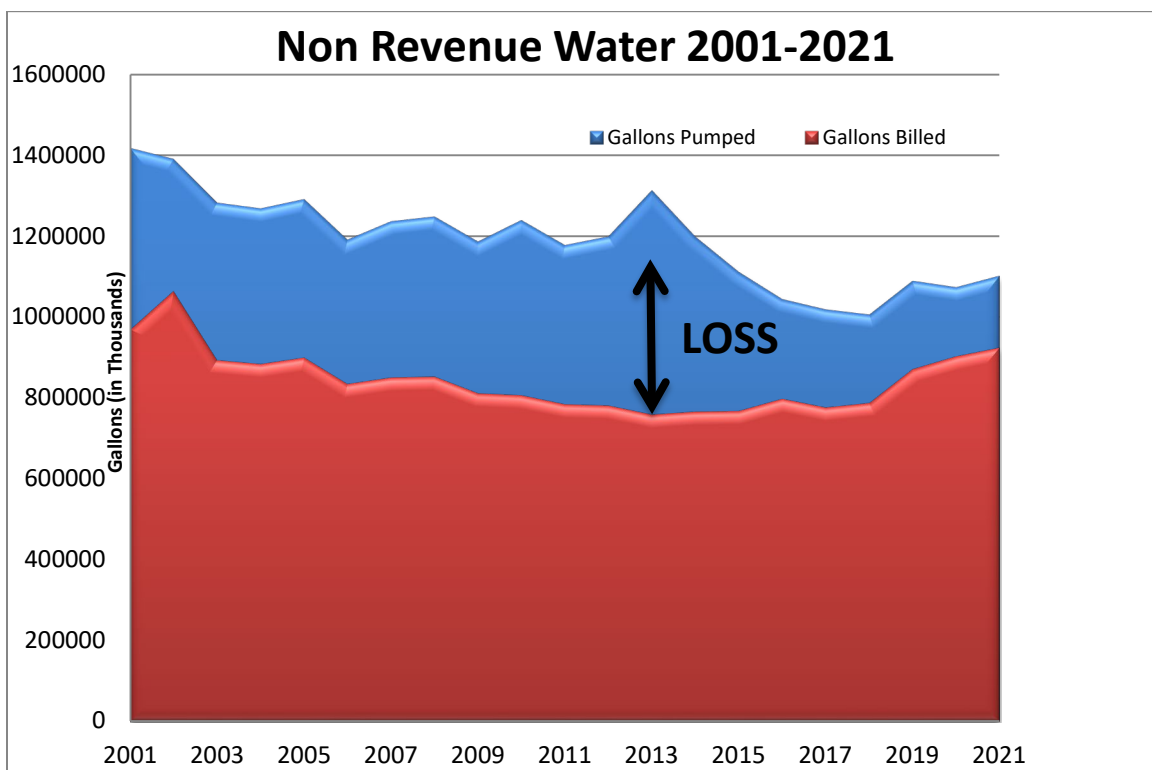
2020 Expense

WRRF O&M	Sewer Cost / MG	Sewer Cost / 1,000 gallons
\$6,677,765.35	\$3,595.11	\$3.60
WPF O&M	Water Cost / MG	Water Cost / 1,000 gallons
\$4,790,505.26	\$4,346.79	\$4.35
Utilities O&M Total		
\$11,468,270.61		

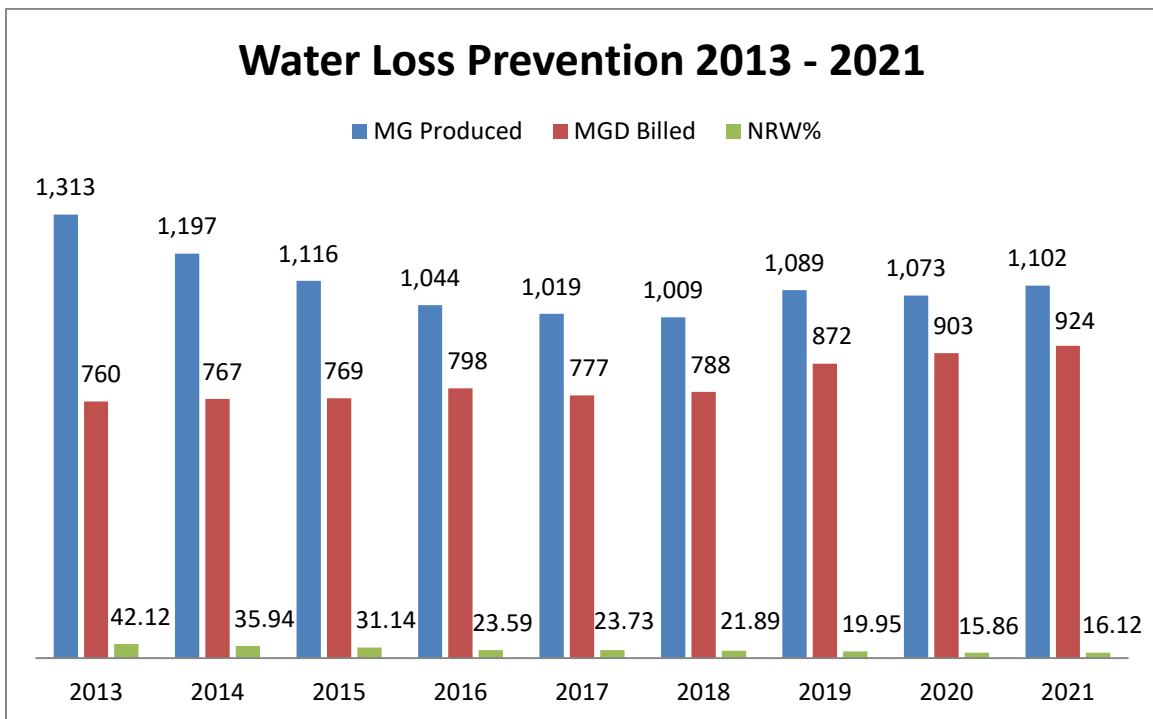
2021 Expense

WRRF O&M	Sewer Cost / MG	Sewer Cost / 1,000 gallons
\$5,125,504.79	\$2,848.69	\$2.85
WPF O&M	Water Cost / MG	Water Cost / 1,000 gallons
\$3,807,481.69	\$3,548.15	\$3.55
Utilities O&M Total		
\$8,932,986.48		

- Through collaborative city-wide department efforts, the non-revenue water percent has declined since 2013. 2019 saw a historic NRW reduction to 19.95%. 2020 efforts resulted in an additional decrease to 15.86%. The 2021 efforts indicate 16.18% of non-revenue water—equally respectable understanding the increased demand from 2020 to 2021. As a result of research and comparison, an Ohio system under 25 years of age (treatment facility and infrastructure) includes a single tower, flat elevation, and no booster stations, which indicates an average of 11% unaccounted water. The Wooster water system is built on a hill with elevation changes, different pressure zones, and production data shows impressive efforts and practices. The progress in this prevention program is nothing short of excellent and authentic teamwork on display.



Year	Gallons Produced	MG Produced	Gallons Billed	MGD Billed	NRW%	Customer Accts
2013	1,312,736,000	1,313	759,870,000	760	42.12	9,812
2014	1,197,307,000	1,197	766,965,000	767	35.94	9,818
2015	1,116,050,000	1,116	768,536,000	769	31.14	9,857
2016	1,044,260,000	1,044	797,950,000	798	23.59	9,869
2017	1,018,920,000	1,019	777,150,000	777	23.73	9,892
2018	1,008,588,000	1,009	787,834,000	788	21.89	9,907
2019	1,088,808,000	1,089	871,567,000	872	19.95	9,892
2020	1,073,089,000	1,073	902,620,000	903	15.86	9,918
2021	1,102,080,000	1,102	924,467,000	924	16.12	9,935
Total	9,961,838,000	9,962	7,356,959,000	7,357		88,900
Average	1,106,870,889	1,107	817,439,889	817	26	9,878
Max	1,312,736,000	1,313	924,467,000	924	42	9,935
Min	1,008,588,000	1,009	759,870,000	760	16	9,812



- **Water Production Special Projects Completed in 2021**

- A significant improvement is that the facility is staffed 24/7 with six operators. The current staffing level has improved water qualities, efficiencies, and exhibit to our commitment to excellence.
- The Contact Softener painting project was completed along with the new operating hardware for the units. This project was a significant effort to invest in this equipment for another 20 years of stable service.
- The Production Facility received a software and hardware update to the SCADA system.
- The Oldman tower and Clearwells were power washed.

- Additional efforts due to oversight from the OEPA regarding the Backflow Prevention Program. Divison is dedicating an FTE to help with this project. In 2021 a total of 235 inspections were completed regarding the status of the 525 non-residential accounts the OEPA wanted clarity.
- The hard surfaces were sealed.
- The Sodium Hypochlorite tanks were replaced.
- Portions of the building were power washed and cleaned.
- Annual wellfield monitoring and testing.
- The Backflow and SWPP Task Forces were formed and commenced meeting and goals.
- Standard Operating Procedure updates.
- Emergency Contingency Plan was updated.
- Landscaping improvements at the facility.
- Updates to online materials and public information included a short video about facility operations.
- Staff attended the "Building Trust Experience" with Bruce Hendrick.
- The Chevy Colorado was fitted with a body cap for well sampling work.
- General maintenance and roofing work on the facility and booster stations.



- **WPF 2022 Goals and Initiatives; "Intentional Progress"**
 - Complete filter media replacement in at least one of the filters, possibly two if quotes are better than expected.

- Install a flow meter for S1 for control optimization.
 - IP tank update with new coatings.
 - Work with stakeholders to continue progress regarding NRW. To place a numerical goal on percent reduction would be difficult. The goal is to work at a level where NRW is at 15%.
 - Work with stakeholders to continue progress regarding the backflow program.
 - Increase system turnover and distribution water quality. The goal is to be at or five days on all monthly averages. Efforts to improve may include software and technology changes.
 - Reinvest as needed with pumps and motors.
 - Replace Well 3 at the North Well Field due to failure. This project is currently being prepped for bidding.
 - Industrial Park tower is scheduled for full blast and new coatings.
 - Filter media replacement.
 - Continue employee training and education.
- **Talent Review**
 - The Operator Schedule Reform is in place. The goal is to improve work/home life quality while maintaining facility coverage 24 hours per day. The six operators work 10-hour shifts with three days off.
 - The staffing level is adequate based on the AWWA Benchmarking Survey data related to current service commitments and division statistics. The aggregate data for MGD of water produced per employee indicates a median of .23 and 75th percentile of .29. Based on the current WPF staff level, .34 MGD per FTE is the average based on 2021 data or a slight decrease from the previous year. This means that less than 25% of survey participants are less than our current staffing level. While staffing level is currently meeting operational needs, we are limited in extended absence coverage, not uncommon but pause for review in the present pandemic world. The facility is presently operated during three shifts or 24 hours per day, 7 days a week. Operational and water quality stability based on demand is required to maintain commitments and provide steady water production around the clock. With the implementation of staff optimization plans, there is no need to add to the FTE level at the WPF.
 - 2022 talent goals include the addition of a full-time Facility Supervisor due to a late 2020 vacancy. The expansion of this team member is driven by business needs with a continual focus on the pursuit of efficient operations.
 - At the time of this report, there are no planned vacancies, and the goal is to remain whole for the entire calendar year.
 - There is currently an ongoing review regarding adding another facility operator to serve as a Shift Support Operator. Due to this position covering any shift at any time, there will be a consideration for this position to have high-level certifications, shift differential, or some incentive to encourage applicants.

- When the annual daily flow average exceeds 3.1 MG, an additional Professional Operator/Mechanic will be requested. This will be a total of 10 FTE's. Shift TBD based on business function.
- When the annual daily flow average exceeds 3.2 MG, an additional Professional Operator will be requested. This will be a total of 11 FTE's. Shift TBD based on business function.
- When the annual daily flow average exceeds 3.3 MG, an additional Professional Operator will be requested. This will be a total of 12 FTE's. Shift TBD based on business function.
 - By an average daily flow of 3.3 MG, a total of 9 Professional Operators will be on staff, 3 for each shift and a total of 12 FTE's. This will support the expected increase in total facility flow and full shifts around the clock.
- An additional Plant Mechanic will be requested when an annual daily flow average exceeds 3.4 MGD. This will be a total of 13 FTE's to ensure increased service commitments.
- When average facility production reaches 4.5, facility operation versus demand needs will be evaluated to determine optimum staffing levels.
 - The talent review indicators were created based on AWWA data and focused on the 2019 Staffing Review. The annual report will include talent review, and if staffing levels require adjustment, it will be considered during the succeeding year budget review process.
 - It is imperative to review the methods and means to ensure proper staffing with future suggested intervals. Specifically, budgetary forecasts will focus on staffing levels concerning rates and the use of contractual services. At any time, the business model should allow for considerations related to continuity of service.
 - In the future, based on service needs, the suggested structure will provide opportunities based on the qualified level of applicants. The continuity of excellent customer service hinges on developing and retaining the workforce. The goal now and as we move into the future is to establish a structure in line with needs and individual growth within the drinking water facility division.



Water Recovery Information

Water Recovery Facility (WRF) assets include 171 miles of sanitary sewer main, ten sanitary sewer lift stations, and a modern treatment facility with anaerobic digestion, including the co-generation of methane gas and electrical energy for facility operation. Additional assets include a staff of twelve individuals, facilities, and necessary equipment for the facility's function.

Wastewater treatment for the citizens of Wooster has been in operation at the current site since 1938. The facilities went through upgrades in 1965, 2007, and 2014. In 2009, the OEPA placed enforcement actions against Wooster due to the underperformance of the 2007 upgrade. Wooster has spent millions of dollars to address treatment inadequacies and collection system improvements over the past decade.

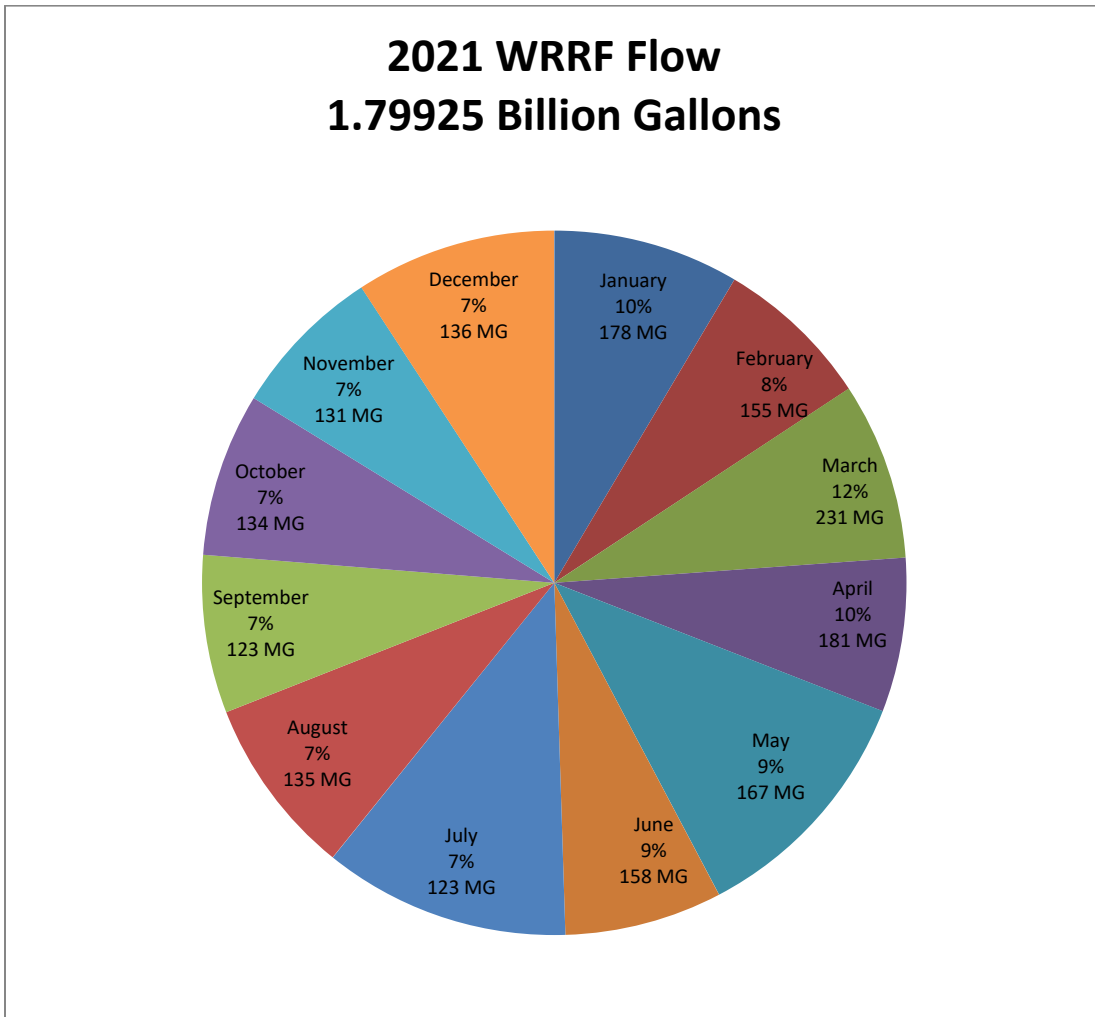
The Ohio EPA Class 4 facility includes a vertical loop reactor system, modifying the traditional oxidation ditch activated sludge process with a storm flow mode of operation. The strategies include grit and grease removal, primary settling tanks, vertical loop reactor, final settling tanks, anaerobic digester, biological phosphorus removal, ultraviolet disinfection, and post aeration. The facility plays a vital role in the local water cycle to eliminate pollutants in the wastewater before discharge to the Killbuck Creek to enter back into the natural water cycle.

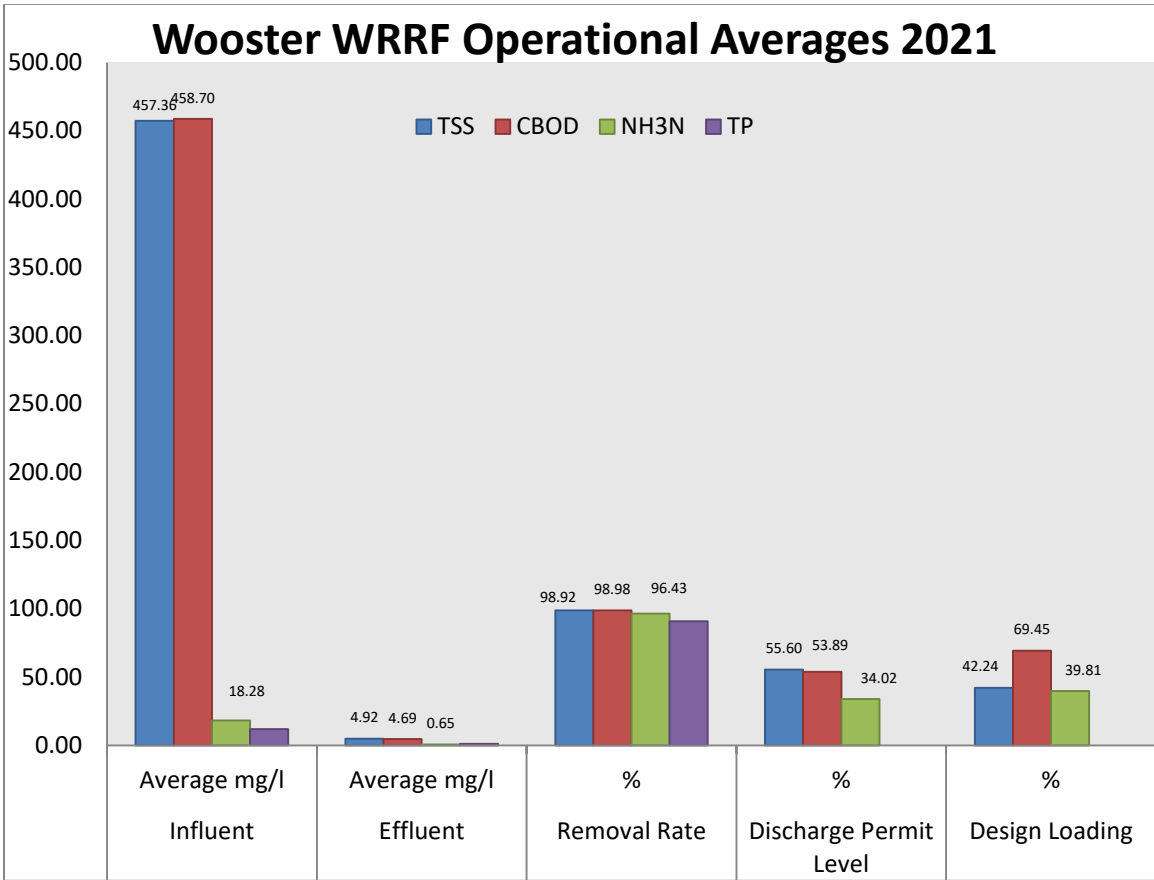
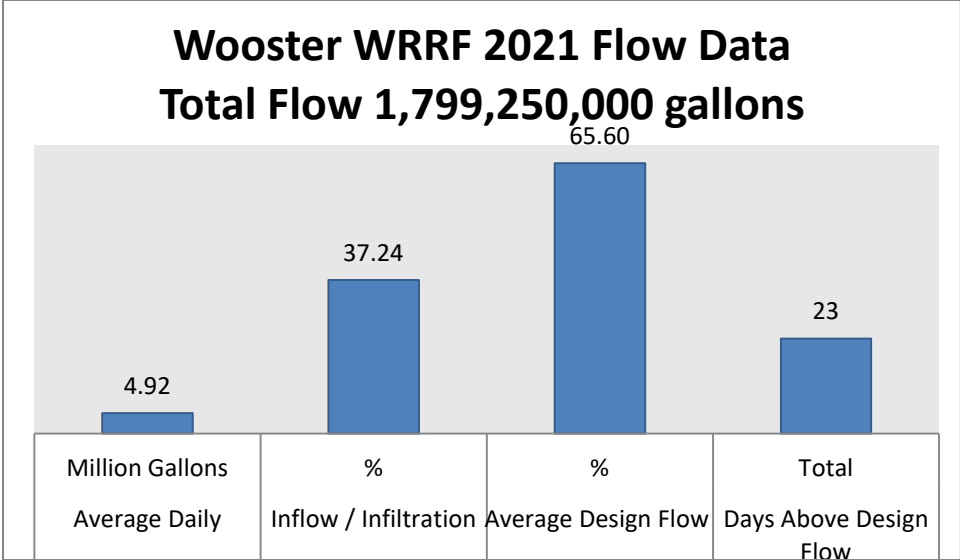
The 2014 upgrade, through a cooperative effort with an outside entity, the facility was converted to full co-generation. Receiving outside waste streams to support the facility's energy needs creates a revenue stream. The facility currently accepts semi-solid and liquid waste streams through hauling fees paid for by the waste generator. The facility is selective at getting municipal biosolids, food processing wastes, and septic system waste. The facility serves as a power station for the WRF and the WPF. Feedstock acceptance was paused due to equipment failure and code-related matters. Due to aeration basin five loss, septic acceptance was halted in November 2021.

In 2021, the Water Resource Recovery Facility received, treated, and discharged 1.799 billion gallons of recovered water back into the natural water cycle. The average daily flow in 2021 was 4.92 million gallons or 65.6% of the facility design capacity of 7.5 million gallons per day. Compared to 2020 totals and averages, 2021 indicates a total flow decrease of 3.25% with the average and total flows. This reduction could mean flow reduction as observed with water production and directly correlates with precipitation. The facility was designed with a peak high flow rate of 27 million gallons per day. The average daily flow design level was exceeded 23 times in 2021, directly related to the 32.96 inches of precipitation for the calendar year. The data collected from the OARDC weather station indicates 2021 received 1.28 inches less precipitation compared to 2020, thus indicative of the lower flows. Based on available data of metered water usage, nearly 37.24% of the annual flow rate is directly related to inflow and infiltration (I&I) sources. 2021 calculation indicates a 7% decrease of I&I-related flows. This can be attributed to lower precipitation and annual efforts to improve sewer system infrastructure. Based on traditional design data, the current facility should support a population equivalent to

70,000 people. However, specific design and loading criteria must be evaluated as growth, regulations, and treatment technologies change.

For the sake of this report, the data provided below relates to discharge treatment levels in comparison to OEPA permitted discharge levels. The regulatory community establishes levels to ensure public health, healthy aquatic life at the receiving stream, and remove pollutants into the natural water cycle. The purpose of this data is to indicate efforts to monitor operations concerning treatment standards continually. The data provided in this report will be used as future benchmark results in facility optimization and future guidance reports.





Based on the 2021 data, the following summary relates to WRF.

- The Water Recovery Facility indicates 100% average compliance related to average pollutant removal rates.
- Facility operation indicates total solids removal of 98.9%, CBOD removal of 98.9%, ammonia, nitrogen removal of 96.4%, and phosphorus removal of 90.8%. It is important to note regarding other parameter annual averages that discharge quality is exceptional: Nitrate/Nitrite 7.76 mg/l, total Kjeldahl nitrogen 3.99 mg/l, orthophosphate .61 mg/l, and biannual testing of discharge in a certified laboratory indicates little fish mortality in a laboratory setting.
- The data indicates the facility operates below all design loading rates on average. While this data point serves as a trend indicator, the critical data set is the removal rate with capacity for future growth.
- The facility operated at 65.6% of the average design flow, including inflow and infiltration. While the facility meets regulatory requirements, future consideration includes additional I & I removal to ensure the investments meet growth requirements.
- The employee to annual total gallons treated equals 164 million gallons/employee or .45 MG with a 19% increase from 2020 due to two fewer employees than the previous year.
- The annual operation and maintenance cost per million gallons treated equals \$2,848.69 or \$2.85 to treat 1,000 gallons. While this is a positive indicator in an often unpredictable environment, it indicates commitment stewardship. Due to efficiency measures, this cost was reduced by \$.75 per 1,000 gallons or a 20% cost reduction compared to 2020. The data indicates efforts to stabilize expenses through intentional operational techniques multiyear supply and service contracts. This calculation includes any operating capital updates; this is an essential factor as there was no power production in 2021, reduced hauling costs, along with reduced revenue via feedstock and septic receiving.

2020 Expense

WRRF O&M	Sewer Cost / MG	Sewer Cost / 1,000 gallons
\$6,677,765.35	\$3,595.11	\$3.60
WPF O&M	Water Cost / MG	Water Cost / 1,000 gallons
\$4,790,505.26	\$4,346.79	\$4.35
Utilities O&M Total		
\$11,468,270.61		

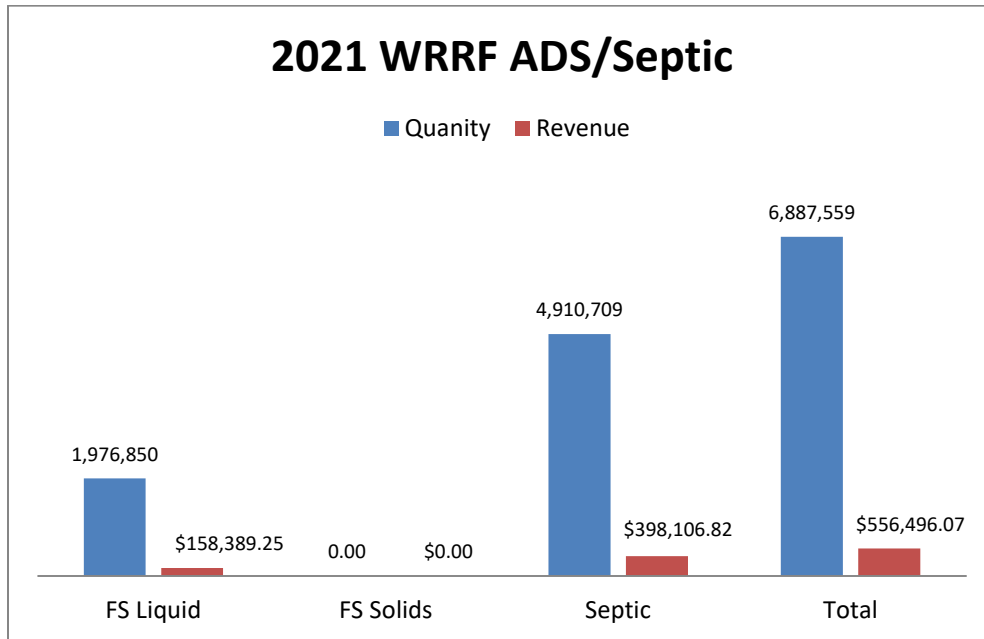
2021 Expense

WRRF O&M	Sewer Cost / MG	Sewer Cost / 1,000 gallons
\$5,125,504.79	\$2,848.69	\$2.85
WPF O&M	Water Cost / MG	Water Cost / 1,000 gallons
\$3,807,481.69	\$3,548.15	\$3.55
Utilities O&M Total		
\$8,932,986.48		

- The facility generated \$556,496 in revenue from the acceptance of third-party waste to the recovery facility. 6,887,559 gallons in liquid feedstock and regional septage were accepted in 2021. Compared to 2020, this equates to a 47% reduction in acceptance volume and a 33% reduction in revenue. The revenue was not in step with the gallons as

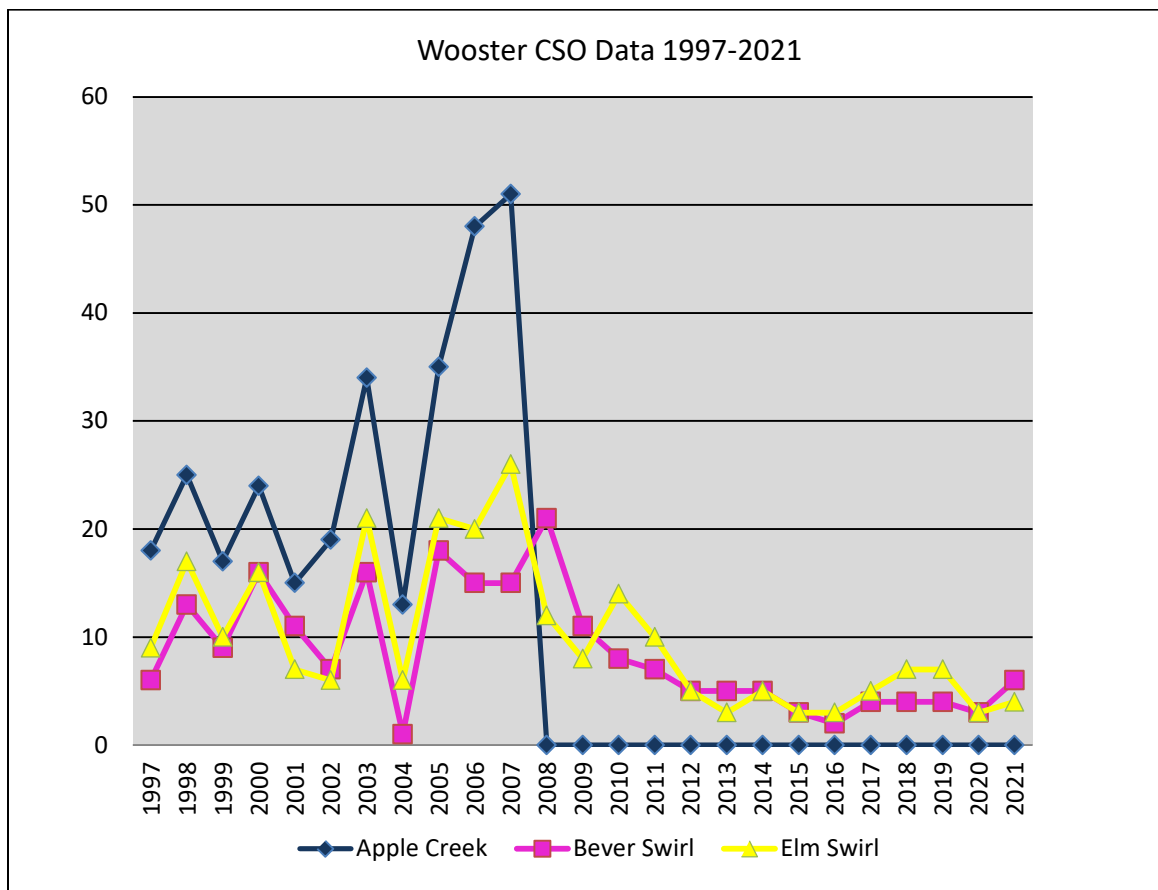
surcharges were enforced. Due to facility limitations, the reduced acceptance is with design improvements underway for future consideration at the digester facility.

- Due to the failed liquid stream tank currently under evaluation regarding septic reduction. All portions of the facility and efficient operation are under review. Again, it is imperative to note that even with the decrease in revenue and assumed benefits of power generation, there was an overall expense reduction of 20% in 2021. The data is indicative of the facility's operational baseline regarding financial commitments.



- A total of 2,181 dry tons or 16,691,782 gallons of class A biosolids were provided to local agricultural fields for soil enrichment and the ultimate reduction of commercial fertilizers. Compared to 2020 data, there was a decrease of 8% of total gallons hauled in 2021. The beneficial reuse disposal cost was equal to \$.03 / gallon or \$530,132 for the year. Due to a multiyear hauling contract, waste acceptance, and ultimate disposal, a total cost reduction of \$381,393 or 42% was gained in 2021.
- The WRF facilitates an Industrial Pretreatment Program to meet regulatory requirements. In 2021 the WRF experienced no spills, interferences, or toxin discharges directly attributable to industrial dischargers. Annual inspections are conducted on the collection system's Significant Industrial User(s). Additional sampling occurs to ensure the dischargers to the public system comply. In non-compliance, surcharges are issued when waste concentrations are over the local limits. In 2021, a total of \$690,909 industrial surcharge fees were given as a 15% increase from the previous year.
- Significant efforts have been made to reduce inflow and infiltration with investment in eliminating multiple combined sewer overflow discharges. Improvements have been

realized with minimal CSO discharges by directly managing a control plan and release structures. The Bever and Elm CSO flow control structures allowed for weather-related controlled release of diluted flow in a total of 10 events or 4 more than the previous year. While annual and average flow totals were lower than the last year, the activation of CSOs is due to several factors. Factors include rain intensity and duration, limitation of the headworks at the facility, and efforts in 2021, included maintenance of the structures that possibly indicated poor communication in the previous year related to potential events. Considerations are in place to improve communications and maintenance frequency to ensure proper account of the events. The future headworks improvements include anticipation of event reduction to remove facility front-end restrictions to allow for a full 27 MGD to the headworks.



- **Special Projects and Accomplishments Completed in 2021**
 - Finished Biosolids Loadout Tank captures potential odor-causing atmospheric release during hauling operations. The tank also provides an economical and efficient means of loading the trucks for land application. A tank can be filled in under 5 minutes.
 - Installed non-clog style Flygt pumps at the Nupp Lift Station.
 - WRF SCADA system communication study for improvements resulted in cell phone communication points at four locations.
 - Installation of a second boiler for the digesters to ensure Class A temperatures. This unit is designed to operate on biogas.
 - UV improvements and a study to determine future options for long-term disinfection reliability.
 - HVAC improvements and service on the units to ensure proper operation.
 - Improvements to the pumps, piping, and supports for the Storm Pump Wet Well.
 - Service and repair to the backup power generator.
 - Digester SCADA system hardware and software update.
 - RAS pump repairs and improvements.
 - Service and maintenance at the CSO Swirls.
 - Study and design contract with RETTEW to address deficiencies, code issues, and general improvements to the digester portion of the facility. The focus is on enhancements and options to sell gas to the utility provider.
 - Significant improvements on data tracking for facility operations.
 - Contract to repair and replace Final Tank return valves for 3 and 4.
 - Repairs to the Gravity Belt Thickener.
 - Adjustments to facility water use to improve unaccounted water.
 - Several pump repairs at stations and improvements to the Cleveland Road North discharge pipes.
 - Laboratory enforcement and tracking on waste loads indicated a phosphorus lock issue resulting from septic and dairy-related wastes.
 - Contract in place to clean out a digester related to design improvements.
 - Panel update to the Walmart station.
 - OEPA Air Permit updates.
 - Hard surface sealing.
 - Locker-room and building updates.

- **WRF 2022 Goals and Initiatives; "Intentional Progress"**
 - Design and construction to address digester system deficiencies.
 - Design and construction of aeration repairs to VLR 5.
 - Design Headworks Improvement Project.
 - Continue to improve operational techniques.
 - Continue to update Standard Operating Procedures.

- Continue employee training and education.



- **Talent Review**

- The Operator Schedule Reform is in place. The goal is to improve work/home life quality while maintaining facility coverage 24 hours per day. The six operators work four 10 hour shifts with three days off.
- The staffing level is adequate based on the 2018 AWWA Benchmarking Survey data related to current service commitments and division statistics. The aggregate data for MGD of wastewater processed per employee indicates a median of .19 and 75th percentile of .26. Based on the current WRF staff level, .45 MGD per FTE is the average based on 2021 data or a 15% increase compared to the previous year. The increase is due to the reduced staff count compared to 2020. There is currently a Supervisor and Mechanic vacancy. This means that less than 25% of survey participants are less than our current staffing level. While staffing level is now meeting operational needs, we are limited in extended absence coverage, not uncommon but pause for review in the present pandemic world. Additional staffing considerations do not include the advanced liquid and solids treatment streams and third-party waste acceptance and power generation.
- 2022 talent goals include the addition of a full-time Facility Mechanic (total of 2) due to a position vacancy in 2021. The expansion of this team member is driven by business needs with a continual focus on the pursuit of efficient operations.
 - At the time of this report, there are no planned vacancies, and the goal is to remain whole for the entire calendar year.
- There is currently an ongoing review regarding adding another facility operator to serve as a Shift Support Operator. Due to this position covering any shift at any time, there will be a consideration for this position to have high-level certifications, shift differential, or some type of incentive to encourage applicants.
- When third-party acceptance is activated, two Operators will be requested to cover first and second shift operations. The positions will cover all duties to ensure proper paperwork, sampling, and management of additional flows into the facility. The addition will offset the duty time related to service with consistent revenue and result in 15 FTE at the facility.
- Three additional Professional Operators will be requested when the facility reaches an average daily flow of 5.5 MG for two consecutive years. The addition will include other staff for all shifts for 9 operators, 3 for each shift, and a total of 18 FTE. This will support the expected increase in total facility flow and full shifts around the clock.
- When the facility's average daily flow reaches 6.0 MGD, the operation versus demand needs will be evaluated to determine optimum staffing levels.
 - The talent review indicators were created based on AWWA data and focused on the 2019 Staffing Review. The annual report will include

talent review, and if staffing levels require adjustment, it will be considered during the succeeding year budget review process.

- It is imperative to review the methods and means to ensure proper staffing with future suggested intervals. Specifically, budgetary forecasts will focus on staffing levels concerning rates and the use of contractual services. At any time, the business model should allow for considerations related to continuity of service.
- In the future, based on service needs, the suggested structure will provide opportunities based on the qualified level of applicants. The continuity of excellent customer service hinges on developing and retaining the workforce. The goal now and as we move into the future is to establish a structure in line with needs and individual growth within the water recovery facility division.



Distribution, Collection, and Meter Division Information

The Distribution, Collection, and Meter (DCM) division ensure proper service delivery to our customers. DCM assets include 171.3 miles of sanitary sewer main, 145.3 miles of water main, 1,258 fire hydrants, 2,655 water valves, 3,481 sanitary maintenance holes, metering units for the 9,935 (end of 2020) customer accounts, and a well maintained geographic information system (GIS) for the infrastructure location. DCM assets also include a workforce of ten individuals, facilities, sanitary sewer cleaning and televising equipment, excavation equipment, fleet vehicles, and all equipment necessary for task completion.

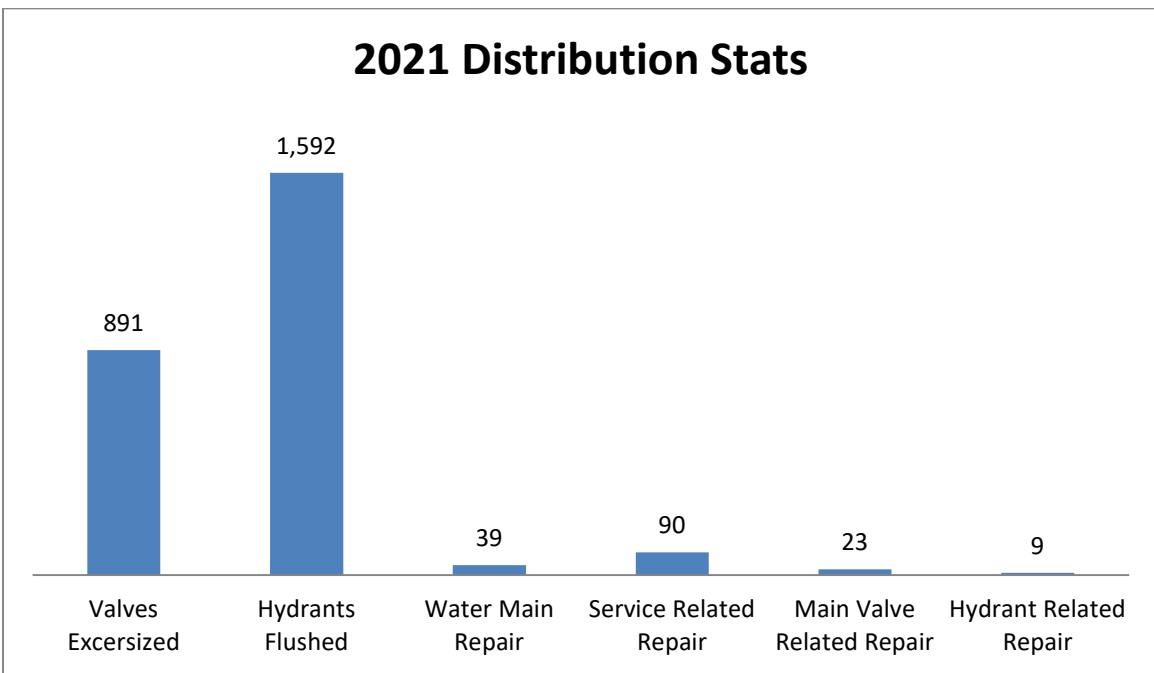
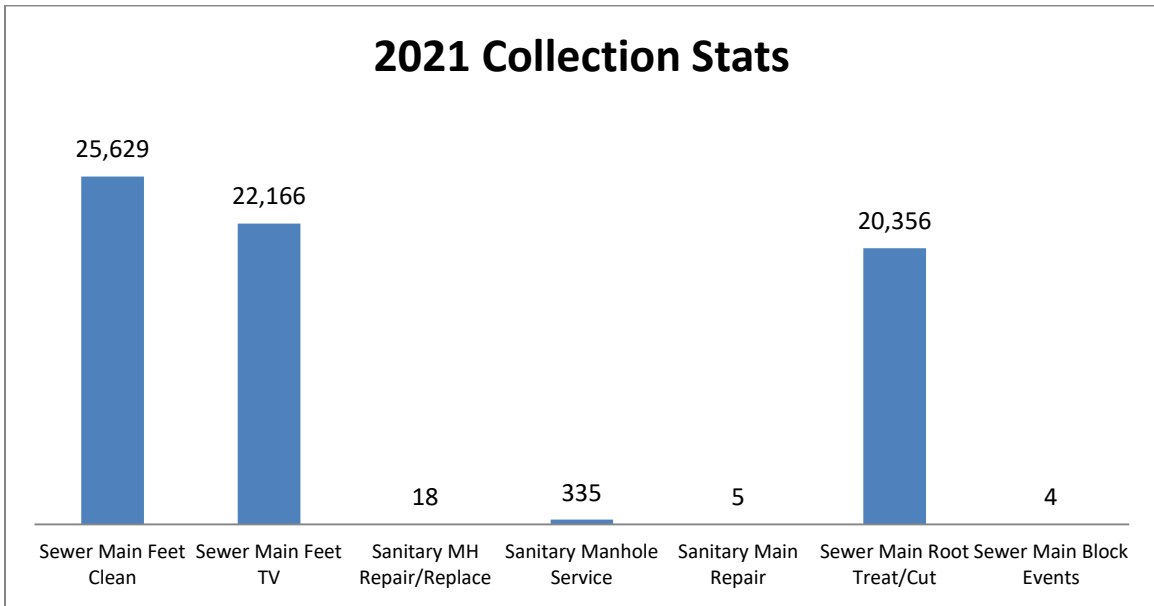
For the sake of this report, the data provided below relates to tasks completed in the mission of providing service to customers. While the data provided is not intended to quantify all the DCM workflow but to provide a view of currently tracked tasks. For example, the total number of water main leaks in 2021 totaled 39 which is 15 more than the previous year. While this is specific to the Wooster system, the data can be compared to other similarly sized communities in the future. However, it is essential to note that the work goes into each mainline job. Tasks include mobilization, isolation, exaction, repair, restoration, and communication with the public. On average, four employees are needed to complete the work on six hours each job. Unfortunately, the 936 man-hour estimate in 2021 includes work after regular business hours. The information does not account for material and consumables such as fuel during the job in unfavorable weather.

The DCM is most often the face of the department to the customers. The nature of the service wing of the department includes direct customer interaction. Service commitments could be requested by the customer or initiated by city services. DCM works close with Utility Billing to ensure timely service delivery, not limited to accurate meter reading, meter replacement, and service verification.

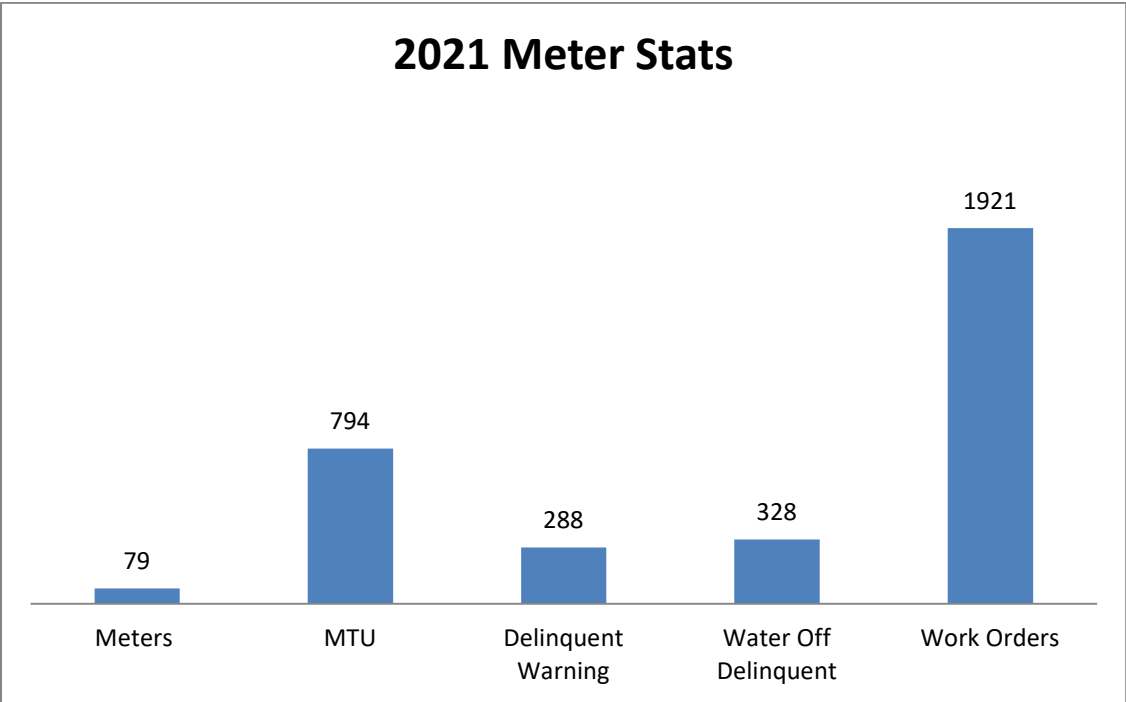


Based on the 2021 data, the following summary relates to DCM.

- The essential data summary indicates the vital support service provided through DCM. While the treatment of distributed and collected water is vital to a community, infrastructure support ensures the integrity of the expected level of service.

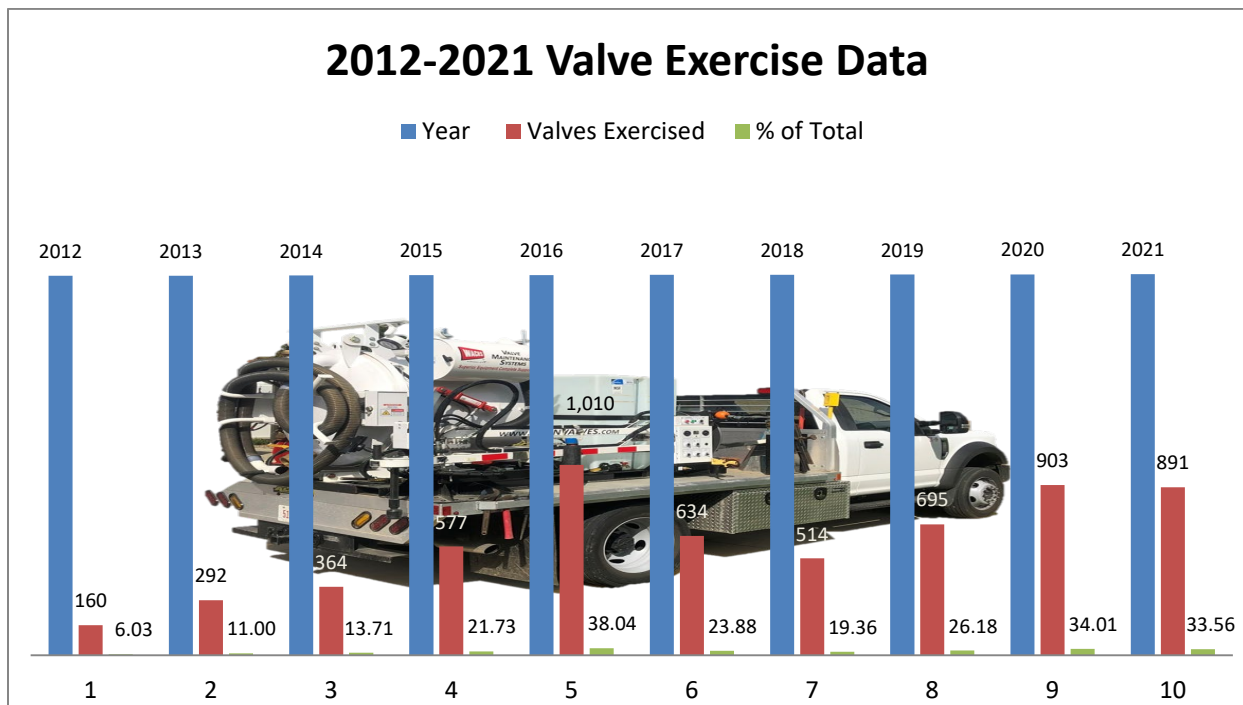


2021 Meter Stats



DCM Benchmarking Data

- A total of 1,921 work orders were completed for the 9,935 water customer accounts. The data set equates to a ratio of 19 service orders / 100 customer accounts. In 2021 there was a 27% increase in work orders compared to 2020.
- 794 meter transmitting units (MTU's) were replaced compared to 79 meters.
- A total of 328 accounts were disconnected due to delinquency. A total of 288 warning notices were issued to prevent a shut-off and represent 3.3% of the customer base. The data is indicative of excellence in customer service and collection efforts. The data speaks of DCM and Billing staff service excellence during the pandemic.
- A total of 891 water main valves were exercised to ensure proper operation in the event of required isolation. The data represents 33.6% of the total valves indicated in the GIS system. Compared to the record 2020 effort, 12 fewer valves were exercised in 2021.



- A combined average of 23,897 feet of the sanitary mainline was preventively cleaned and televised and represents over 2.63% of the current mainline inventory. The total for 2021 was reduced compared to 2020 due to the number of water main leaks. The ability to conduct this work in house provides an estimated cost savings of \$85,000 versus contractual fees. 2021 efforts resulted in a decrease compared to 2020.
- In 2021 a total of 39 water main breaks surfaced and were repaired. The 2021 unplanned mainline water service disruptions are equal to 5 disruptions / per 100,000 feet of the system inventory or a 37% increase compared to 2020.

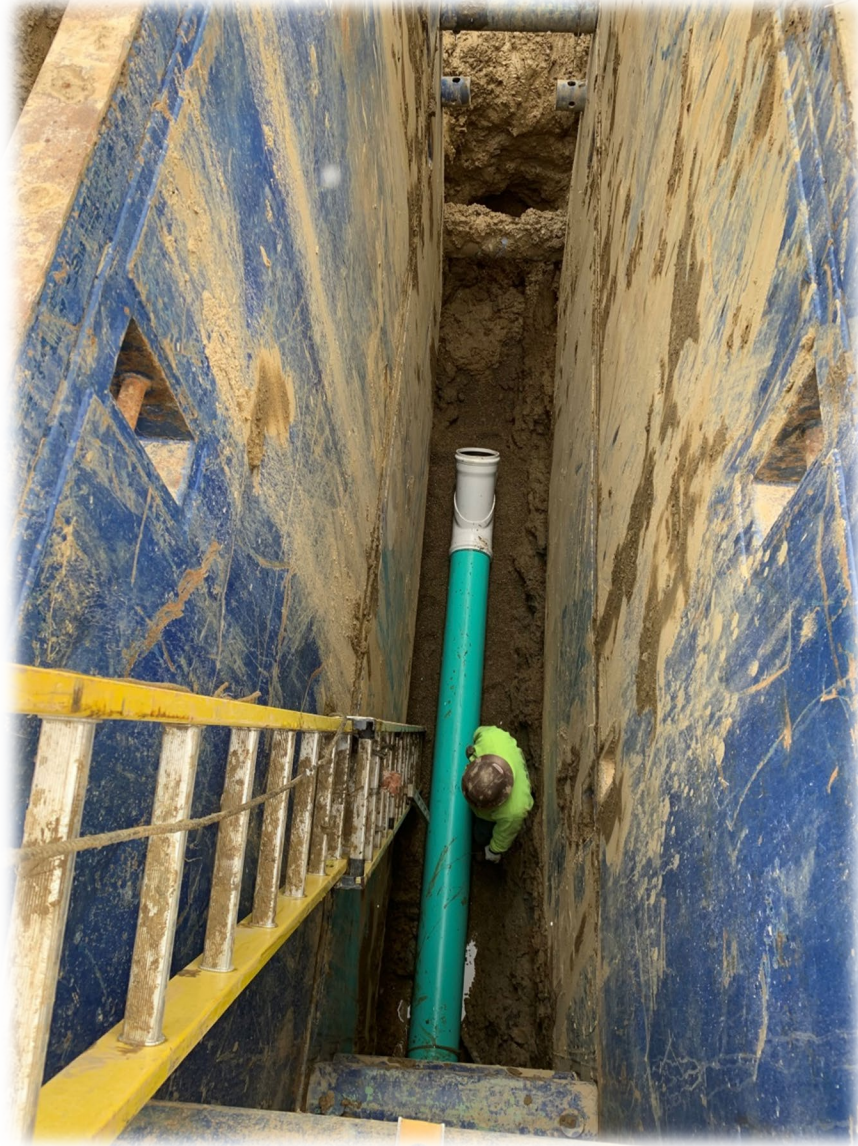
- The 2021 unplanned mainline sewer service disruptions are equal to 2.8 disruptions / per 100,000 feet of system inventory. This data set totals main block and SSO/WIB events with a total of 26 or a 37% increase compared to 2020.
- All fire hydrants were flushed in 2021.



- **Special Projects and Accomplishments Completed in 2021**
 - The duties and function of DCM are to ensure the highest level of service daily with a team of incredible integrity and talent.
 - A total of 1,921 work orders were completed for the 9,935 water customer accounts, which equates to a ratio of 19 service orders / 100 customer accounts. In 2021 there was a 27% increase in work orders compared to 2020.
 - 794 meter transmitting units (MTU's) were replaced compared to 79 meters.
 - A total of 328 accounts were disconnected due to delinquency. A total of 288 warning notices were issued to prevent shut-off, which represents 3.3% of the customer base. The data is indicative of excellence in customer service and collection efforts and speaks to the testament of the customer service from DCM and the Billing staff, more so during the pandemic.
 - A total of 891 water main valves were exercised to ensure proper operation in the event of required isolation and represent 33.6% of the total valves indicated in the GIS system. Compared to the record 2020 effort, 12 fewer valves were exercised in 2021.
 - A combined average of 23,897 feet of the sanitary mainline was preventively cleaned and televised and represents over 2.63% of the current mainline inventory. The total for 2021 was reduced compared to 2020 due to the number of water main leaks. The ability to conduct this work in house provides an estimated cost savings of \$85,000 versus contractual fees. 2021 efforts resulted in a decrease compared to 2020.
 - In 2021 a total of 39 water main breaks surfaced and were repaired. The 2021 unplanned mainline water service disruptions are equal to 5 disruptions / per 100,000 feet of the system inventory or a 37% increase compared to 2020.
 - The 2021 unplanned mainline sewer service disruptions are equal to 2.8 disruptions / per 100,000 feet of system inventory. This data set totals main block and SSO/WIB events with a total of 26 or a 37% increase compared to 2020.
 - Additional efforts due to oversight from the OEPA regarding the Backflow Prevention Program. Divison is dedicating an FTE to help with this project. In 2021 a total of 235 inspections were completed regarding the status of the 525 non-residential accounts the OEPA wanted clarity.
 - All fire hydrants were flushed in 2021.

- **DCM 2022 Goals and Initiatives: "Intentional Progress"**
 - Continue the efforts and intentional excellence in customer service.
 - Purchase a new camera truck.
 - Purchase a new work trailer.
 - Purchase a new dump truck.
 - Focused efforts to locate and eliminate sanitary inflow and infiltration.
 - Exercise 34% of the mainline valve inventory.
 - Clean and televise 40,000 feet of the sanitary mainline inventory.

- Continue efforts to locate and eliminate water main leaks.
 - Flush all fire hydrants in the system.
 - Continue to responsibly replace aged water meters in the system to ensure maximum use capture.
 - Continue to build on Backflow Prevention Program with inspections and end-user unit verification.
- **2021 Talent Review**
 - The staffing level is adequate based on current service commitments and division needs. Based on the 2018 AWWA Benchmarking Survey, the entire department equates to 309 customer accounts per FTE. This data indicates WWU is less than the 25th percentile of 367 or the median of 492 accounts per FTE. If the DCM staff are used in this comparison, 903 accounts per FTE is the total. Understanding that this staffing level is sufficient based on current trends, additions to the FTE would be appropriate under the following circumstances.
 - When the water customer account total exceeds 9,999, and if WRF hits 5.5 MGD and/or WPF 3.3 MGD, the addition of a Utility Operator Trainee will be requested for a total of 12 FTE's. There is a relationship with water customer count, water usage, and sewer use that increases man-hour work totals.
 - When the water customer account total exceeds 10,250, the addition of a Utility Technician will be requested for a total of 13 FTE's.
 - When the customer account total exceeds 10,275, the addition of a Utility Operator will be requested for a total of 14 FTE's.
 - Comparatively, anytime there is an increase of FTE at the treatment facilities prompted regarding staffing level indicators, DCM staffing shall also be reviewed related to account and service totals.
 - The talent review indicators were created based on AWWA data and focused on the 2019 Staffing Review. The annual report will include talent review, and if staffing levels require adjustment, it will be considered during the succeeding year budget review process.
 - It is imperative to review the methods and means to ensure proper staffing with future suggested intervals. Specifically, budgetary forecasts will focus on staffing levels concerning rates and the use of contractual services. At any time, the business model should allow for considerations related to continuity of service.
 - In the future, based on service needs, the suggested structure will provide opportunities based on the qualified level of applicants, driven by the future applicant credentials. The continuity of excellent customer service hinges on developing and retaining the workforce. The goal now and as we move into the future is to establish a structure in line with needs and individual growth within the service arm of Wooster Water Utilities.



Utilities Manager 2022 Vision and Goals, "Intentional Progress"

Talent Related

As with any business in the service industry, the challenges are universal, more so when the service is municipally supplied. While WUU operates as an enterprise fund under the delegation of the City, there has to be a balance with public funds while maintaining service expectations from the citizens. Providing cost conscientious services while maintaining service expectations and regulatory standards is the best way to instill public confidence. Ultimately, the driver delivers economic goods at an intentional return rate for successful service operation and financial vitality. Staffing challenges as we move into the future are not unique to this industry; however, it requires an intentional focus on a Wooster-specific plan of attack. It requires a focus on "Intentional Progress"!

- **2022 Talent Goal 1**
 - Select a Water Production Facility Supervisor to ensure stability. Select a Facility Mechanic for the Water Recovery Facility. Select an FTE for DCM. Evaluate the option for a Rotational Shift Operator for both facilities. This option will provide talent flexibility in absences.
 - The goal coincides with a plan for no vacancies in the division in 2022.
- **2022 Talent Goal 2**
 - Work with leadership and HR to update job descriptions to reflect relevant standard operating procedures specific to performance and title. Understanding particular functions of each position allow for summary and testing regarding skills required for the post.
 - Identify critical positions that will be needed to support continuity. Proviso, current data indicates all occupied positions is essential to service delivery
 - The Manager will work with Supervisors to ensure talent knowledge and skill level and to complete this goal by December 31, 2021
 - Ongoing goal.
- **2022 Talent Goal 3**
 - Establish intentional efforts to provide individual and positional focused growth opportunities. Implement a progressive training module program to encourage development with incentivized growth. Incentives embrace college education, distance learning, certification programs, and emotional intelligence quotient to provide growth opportunities. Focus on delivering future vertical movement in the organization with methods to cultivate future leadership potential—focused means identifying high potential talent.
 - Ongoing goal.
- **2022 Goal 3**

- Incorporate additional in-house training methods to ensure required skills and knowledge retention, supporting talent continuity. In 2021, Mike Maringer was the classroom trainer for WWU staff. He provided water, wastewater, and system-related training opportunities for the staff and will continue in 2022. This goal ensures practical training and expectations of talent focus and task completion. Intending to update SOP and training modules, there is an opportunity to gain OEPA certification contact hour approval for the in-house training efforts. Goal to have five modules approved and in use by December 31, 2022.
 - **Weakness/Concern** There is no plan or promotional pathway to elevate the workforce based on talent performance and initiative. Any lateral organization movements, position, or salary, is limited to need-based vacancy. Career-minded talent thirsts for a program to establish and achieve goals. Intentional organization (City) wide focused plan or promotional based directive to develop, retain and elevate the staff before position vacancy. Emphasis to prepare and grow with a concentration on talent with successors in place before any vacancy; yields continuity. Without an established talent growth plan, there can be no succession plan. Navigation of this weakness will continue to be a focus and a reality in play with this field and candidate market. This statement is also a declaration that I plan to work with the Director of Administration, Human Resources, and peers at Wooster to help develop a long-term action plan in the future.
 - **The WEA contract improvements have provided additional opportunities and incentives to encourage career growth.**
 - **Annual Review 1** Annually evaluate the talent numbers eligible for retirement. Identifying the talent and expertise level as it relates to ensuring service continuity. Establish time required to develop the ability and confidence of retained and recruited talent. WWU leadership will collaborate for this annual review for information incorporation in the annual report and succeeding budgetary year.
 - **Annual Review 2** Focus on long-term preservation of developed personnel. The climate in this industry is highly competitive regarding career opportunities and salary potential. It is prudent to be aware of the market and respond regarding the competition. Annual review of appropriate compensation as it relates to positions. WWU leadership will collaborate for this yearly review of information incorporation in the annual report and succeeding budgetary year.

Additional 2022 Manager Goals

- 2022 focus remains on "Intentional Progress". How to view the what and why and utilize efficient, reliable methods in all functions.
- Complete Biosolids Improvements.
- Complete WRF Headworks design improvements.
- Design and construction of WRF disinfection methods.
- Construction and labor on WPF filter media replacement.

- Strong focus on SOP development and training related to the subject. The vision is to have a library of video procedures to ensure continuity with operations and includes updates to emergency plans and contingency plans.
- Complete the 2022 Annual Review to include the Staffing and Succession Plan, and Strategic Plan updates. Moving forward, the yearly report will consist of updates to documents on file, including the Digester Business Plan. The goal is to make this a comprehensive review and goal setting for the business needs of Wooster Water Utilities. This document will include data related to our participation in the annual AWWA Benchmarking Program.
- Continue with frequent product messaging regarding the services provided by WWU. We must be viewed as the professional authority in the water utility business.
- Continue improvements with backflow prevention and the aid of the Task Force with goal establishment and task completion.
- Build on our commitments in source water protection with SWPP Task Force with intentional goal establishment and task completion.
- Continue to provide excellent customer service in response and resolve.
- Continue to meet and exceed regulatory expectations on excellent treated water.
- Continue to update and track performance data for practical use and direction.
- Implement a "Water Fest" or open house in community education efforts to the public. The inaugural event was evaluated for the fall of 2020, but the pandemic plans were shelved.
- Investigation and repairs to ensure water loss percentage at 15%.
- Investigation and repairs to reduce sanitary inflow and infiltration, year one goal is to obtain viable metrics. Evaluation will be compared with water usage and perception totals.
- Work to complete the goals established in the 2019 Strategic Plan. Those items highlighted in yellow in the section below will continue to focus in 2022 on "Intentional Progress" and the pursuit of excellence. Strategic Plan will not be updated until current goals are completed.



SWPP TASK FORCE

WOOSTER WATER UTILITIES

2019 Strategic Plan Review Related

The following document section will review the 2019 Strategic Plan goals implemented for goal accomplishment in 2020. The goals continue to be a focal point for WWU improvements.

Utility Strategic Planning Background

In 2008, in a cooperative effort with the Water Environment Federation (WEF), American Water Works Association (AWWA), and the US EPA created the framework for strategic utility planning. The guidance document, "*Effective Utility Management, A Primer for Water and Wastewater Utilities,*" provided the "Ten Attributes of Effectively Managed Water Sector Utilities". Please see the diagram below regarding the recommended reviewable attributes.

Ten Attributes of Effectively Managed Water Sector Utilities

2019 Review Focus*



2019 WWU Strategic Plan Review Themes

The 2019 Wooster Water Utilities Strategic Plan includes the review of the following categories:

- ◆ Product Quality
- ◆ Employee Development
- ◆ Operational Optimization
- ◆ Financial Viability
- ◆ Infrastructure Stability
- ◆ Operational Resiliency

Theme review is based on lowest to highest ranking based on current known data and information. The ranking was completed by the Utilities Manager based on currently available information. The review provides an opportunity to review existing strengths and weaknesses. Attributes in the shaded graphic area are strong candidates for improvement efforts. For the sake of this review, even with progress, the ranking will be addressed of any positive change in future reports. Furthermore, the WWU Strategic Plan will be updated once all 2019 goals are achieved and focus on additional improvements. **Green** highlighted categories mean completion of initiative or progress; **yellow** highlighted categories mean incomplete or 2021 focus.

Wooster Water Utilities Attribute Ranking

Rating	Lower Achievement	5			ED			
		4		OO				
		3						OR
	Higher Achievement	2	PC				IS	
		1				FV		
			1	2	3	4	5	6
			More Important			Less Important		
Ranking								
						2019 Attributes Review		
R1	Effective, systematic approach and implementation; consistently achieve goals.					PC = Product Quality ED= Employee/Leadership Development OO= Operational Optimization FV= Financial Viability IS= Infrastructure Stability OR= Operational Resiliency		
R2	Workable systems in place ; mostly achieve goals.							
R3	Partial systems in place with moderate achievement, but could improve.							
R4	Occasionally address this when specific need arises.							
R5	No system for addressing this.							

- Product Quality (PC), Priority 1, Rating 2
 - **Product Quality** focuses on producing potable water, treated effluent, and process residuals in compliance with regulatory and reliability requirements and consistent with the customer, public health, and ecological needs. In addition, **Customer Satisfaction** is included in this review category, focusing on providing reliable, responsive, and affordable services in line with explicit, customer-accepted service levels. Receives timely customer feedback to maintain responsiveness to customer needs and emergencies.
 - Strength. WWU received high marks in this category related to consistent, proven efforts to provide high-quality treated water to the community. Product quality has been the driver of recent facility upgrades and system reinvestment. WWU has received national attention regarding practices. Continue 100% water compliance and improve recovery compliance percent.
 - Weakness. WWU currently does not have a path to gauge and react to customer satisfaction.
 - Opportunity. WWU has the potential to become a premier leader in utility management through intentional performance indicator tracking with a focus on product excellence and customer satisfaction.
 - Threat. The management of intentional product messaging is required in our sector. Public perception and satisfaction should focus on emerging contaminants and regulatory changes. There is no current, intended product messaging outside of basic regulatory requirements. WWU has received national recognition for its efforts; the outward focus must include state and regional awareness.

2019 Strategic Initiative Product Quality

Goals	Actions	Measure of Success
Improve data tracking and reporting.	Participate in the annual AWWA Benchmarking Survey.	Compare WWU benchmark data with national comparison.
Gauge customer satisfaction on an annual basis.	Produce customer surveys and communicate survey availability.	Utilize survey results to gauge and build customer satisfaction.
Update Standard Operating Procedures.	Intentional effort to update all plans and review of regulatory changes.	Procedures ensure compliance reliability and continuity.
Update Source Water Protection Plan.	Internal and consultant-based review of current and future protection needs.	Plan in place to ensure customer and regulatory confidence.
Active, intentional product messaging.	Public education; publications, open communication, and use of all media types.	A well-informed customer is a confident customer.

- Employee / Leadership Development (ED), Priority 3, Rating 5
 - **Employee / Leadership Development** recruits and retains a competent, motivated, adaptive, and safe-working workforce. Establishes a participatory, collaborative organization dedicated to continual learning and improvement. Ensures employee institutional knowledge is retained and improved upon over time. Provides a focus on and emphasizes professional and leadership development opportunities and strives to create an integrated and well-coordinated senior leadership team.
 - Strength. WWU has a diverse workforce with professional skills to ensure proper department execution. The ratio of certifications needs is healthy with the current staffing level. Intentional efforts through budgeting and policy are in place to provide professional growth opportunities for the staff. The certificate and continuing education resources are stout.
 - Weakness. WWU currently does not have a succession plan to ensure professional development and talent preservation. There is no plan to provide an intentional, specific focus on staff in all ranks.
 - Opportunity. WWU has the potential to become a premier leader in utility workforce training. The state-of-the-art facilities, technology, and equipment can envy many communities. Our organization can be a leader in workforce education internally and externally with a specific training plan. We have the opportunity to work with local higher learning institutions to continue to recruit homegrown talent.
 - Threat. WWU is not unique in the danger of a workforce nearing retirement age and the ability to recruit sufficient replacement talent. The threat is increased without employee satisfaction surveys—active engagement to build a workplace complementary to the changing workforce needs.

2019 Strategic Initiative	Employee / Leadership Development	
Goals	Actions	Measure of Success
Succession Plan, Staffing Plan.	Complete needs-based staffing plan and succession plan with strategic partners.	Ensure optimum staff levels and pathways for succession.
Employee Satisfaction Survey.	Provide annual surveys to staff to gauge satisfaction.	Adapt plans to address survey results.
Develop WWU Specific Training Modules.	Utilize educational partners for professional and leadership development.	Ability to promote and retain the workforce.
Develop internal training modules.	WWU-specific training based on SOP's and adapting to regulatory changes.	Educated workforce based on WWU goals and values.

- Operational Optimization (OO), Priority 2, Rating 4
 - **Operational Optimization** focuses on ensuring ongoing, timely, cost-effective, reliable, and sustainable performance improvements in all facets of its operations. Minimizes resource use, loss, and impacts from day-to-day operations. Maintains awareness of information and operational technology developments to anticipate and support timely improvements.
 - Strength. WWU has done a remarkable job reducing the percentage of non-revenue water since 2013. A collaborative approach through several departments has yielded a high success rate. Wooster is committed to operational efficiency. Efforts are underway to complete a water system hydraulic model and future considerations for a sewer system hydraulic model.
 - Weakness. WWU currently does not have an aggressive plan to address inflow and infiltration (I and I) into the collection system and, subsequently, the treatment facility. While Wooster has made excellent strides in addressing the combined sewer overflows, the nature of I and I remediation can be complex in a combined system.
 - Opportunity. WWU has the potential to ensure long-term system capacity by continuing to address non-revenue water loss and aggressive I and I elimination practices. Through concentrated efforts in data management, maintenance tracking, and resource allocation, improvements are achievable in this category along with Product Quality.
 - Threat. If left unchecked inefficient asset management can lead to a lack of customer confidence. Particularly, if loss margins are not maintained at healthy levels, rate increases could be met with opposition. It may be difficult to adapt quickly to any regulatory changes without direct data management and performance indicators.
 - Operational Optimization and Product Quality improvements share common future performance indicators; it begins with properly tracking and trending the data.

2019 Strategic Initiative	Operational Optimization	
Goals	Actions	Measure of Success
Reduce 2020 non-revenue water percent.	Continue to repair and delineate leaks. Continue to meter water use efficiently.	Overall percent reduction from 2019 to 2020.
Reduce I&I percentage (based on water meter use) in the system.	Study potential high ROI remediation areas through testing baseline indicators.	Reduction in SSOs and calculated I & I flow rates.
Data tracking software.	Purchase and build data for the tracking of operations and maintenance.	Consistent application of data regarding resource allocations.
Technology optimization review.	Review best practices; evaluate emerging technology for data collection and operation.	Utilize instant flow data in the operation of the department.

- Financial Viability (FV), Priority 4, Rating 1

- **Financial Viability** focus is on understanding the total life-cycle cost of the utility. It establishes and maintains an effective balance between long-term debt, asset values, operations and maintenance expenditures, and operating revenues. Establishes predictable rates consistent with community expectations and acceptability – adequate to recover costs, provide for reserves, maintain support from bond rating agencies, and plan and invest for future needs.
 - **Disclaimer.** At the time of this report, the reviewer does not fully understand current debt and budget figures outside of the operations budget. The future strategic review will provide additional to the overall financial health of the department.
- **Strength.** WWU has an excellent rate structure in place to ensure healthy fiscal operation. A 5% rate increase was put into place for 2019. In comparison to the OEPA Annual Rate Study (most recent report completed in November 2018), WWU is in line with averages in the state. It is essential to note the most recent data from the OEPA was for the 2017 calendar year. The annual average in the survey was equal to \$1,311, or water average of \$634, and sewer \$677 per year. WWU comparatively (at the ¾ meter rate) is \$1,270.92 annually or water average of \$689.04 and sewer \$581.88 per year. WWU is nearly 97% of the state average, indicating current cost trends. The average monthly uses of 7,756 gallons were used for the comparative calculation based on the OEPA criteria. While each community is unique with specific rate drivers, it compares as it shows consistency. Wooster has a solid capital improvement plan and has indicated excellence in this area.
 - The City has shown commitment to financial responsibility. Rates and review of rates are in place to recover costs, provide for reserves, maintain support from bond rating agencies, and plan and invest for future needs. High ranks in this category as the City has done an excellent job in financial resource management.
- **Weakness.** The reviewer finds the schedule of rates to be confusing and difficult to interpret. The reviewer feels this could be true for the general consumer. It may make better sense in the bill format. The ability to transparently communicate rate structure (at this time, the reviewer may not communicate effectively) falls in line with intentional messaging and branding.
- **Opportunity.** The reviewer has no comment on this category at the time of the report.
- **Threat.** WWU is not unique in the ever-changing national and global economic threat. At this time, the reviewer has no specific threats to review.

2019 Strategic Initiative	Financial Viability	
Goals	Actions	Measure of Success
Simplify schedule of fees.	Develop a plan to provide transparency and ease of interpretation.	The public understands rates and provides feedback.

- Infrastructure Stability (IS), Priority 5, Rating 2
 - **Infrastructure Stability** is the understanding of conditions and costs associated with critical infrastructure assets. Maintains and enhances the condition of all assets over the long-term at the lowest possible life-cycle cost and acceptable risk consistent with the customer, community, and regulator-supported service levels and compatible with anticipated growth and system reliability goals. Assures asset repair, rehabilitation, and replacement efforts are coordinated within the community to minimize disruptions and other negative consequences.
 - Strength. WWU received high marks in this category related to collaborative efforts Wooster Engineering. The reviewer finds the recent past and current infrastructure reinvestment efforts outstanding. Wooster has a plan into the future to continue with the commitment to excellence and commitment to exceptional service.
 - The Water Asset Management Plan has had a strong start with support from engineering.
 - Efforts are underway to complete a water system hydraulic modeling.
 - Weakness. The reviewer does not currently report a deficiency in this category.
 - Opportunity. WWU has the potential to become a premier leader in utility management. Recommend completing the Water Asset Management Plan and then using the same model to create a sewer system plan proactively.
 - Threat. The threat of aging infrastructure nationwide is gaining attention from state and federal legislators. While identifying critical infrastructure age and condition will present a focused pathway for rehabilitation, the threat is not removed. Infrastructure vigilance in evaluating, revitalizing, optimizing, and increasing the long-term reliability is the goal of any successful utility.

2019 Strategic Initiative	Infrastructure Stability	
Goals	Actions	Measure of Success
Complete update to the Water Asset Management Plan.	Review; collect the remaining data and information required in the document.	The message of excellence to customers and regulators.
Consider Sewer Asset Management Plan.	Follow the model in the WAMP and build the document.	Ahead of future regulations on this topic.
Continue to update and improve the GIS system.	Data review based on infrastructure age, rate of failure, and failure consequence.	Priority-based reinvestment to ensure long-term reliability.

- Operational Resiliency (OR), Priority 6, Rating 3
 - **Operational Resilience focuses on ensuring** utility leadership and staff work together to anticipate and avoid problems. Proactively identifies, assesses, establishes tolerance levels for, and effectively manages a full range of business risks (including legal, regulatory, financial, environmental, safety, security, and natural disaster-related) in a proactive way consistent with industry trends and system reliability goals.
 - **This category shares a common theme with categories. Efficiency, with a focus on organizational values, begins with data management.** Operational Resilience, operational Optimization, and Product Quality improvements share common future performance indicators; it starts with adequately tracking and trending the data.
 - Strength. WWU has worked well with the Engineering Division on efforts to date. Healthy efforts on GIS management, capital improvements, and operational improvements. The Water Asset Management Plan, rate structure, combined sewer improvements, capital improvement plan, and the bioenergy facility are examples of efforts and commitment in infrastructure resiliency.
 - Weakness. Very few tolerance levels exist for operations outside of the specific regulatory standard. It is appropriate for an operation of this size to establish precise tolerances for internal control instead of relying on regulatory levels. Without a clear definition of what data should be used and what it means, it is challenging to identify said goals (benchmarks, operational setpoints) and utilize performance indicators for management.
 - Opportunity. WWU has the potential to become a premier leader in utility management. Once data management tools and solid, specific operational plans (SOP's, Asset Management Plans, etc.) are in place, the objectives and goals can be identified, and performance quickly gauged internally. Recommend completing the Water Asset Management Plan and then using the same model to create a sewer system plan proactively.
 - Threat. Three categories (Product Quality, Operational Optimization, and Operational Resiliency) share a symbiotic relationship related to current inefficiencies in tracking and managing data. Improvement or impairment in any three common focus categories shares a combined trajectory.

2019 Strategic Initiative Operational Resiliency

Goals	Actions	Measure of Success
Implement a department-wide data management program.	Purchase and build data for the tracking of operations and maintenance.	Establish internal controls and performance indication tools.
Establish operational tolerances.	Build and utilize department-wide data management programs in all categories.	Ability to operate and manage operations intentionally.
Utilize succession/staffing plan ensures proper staff resources.	Complete staffing/succession plan to establish internal staffing controls.	Sufficient and prepared staff for now and the future.

2021 WWU Annual Report Executive Summary

Dear Stakeholders,

I am pleased to share the Wooster Water Utilities (WWU) 2021 Annual Report. This report aims to condense all progress, projects, challenges, and accomplishments during the 2021 calendar year. The content of this report indicates success in the mission and pursuit of "Safety, Reliability, and Excellence!" The City of Wooster embodies a proud tradition with a promising future. I see that same symbolism in WWU. When you take a drink of water or run a load of laundry, please know that a staff of nearly three dozen individuals work around the clock to make clean water a reality.

As a customer-owned utility, we are committed to providing reliable, high-quality water treatment services. The Annual Report is a tool to ensure effective management of essential service responsibilities to the citizens of the City of Wooster. We will continue to strive towards our mission of "Safety, Reliability, and Excellence!" to the extent if customers could choose their water utility, they would select Wooster.

The mission of WWU includes a healthy dose of challenge that drives growth. In pursuing our mission of clean water, challenges must be converted to solutions and achievements. This report is intended to share critical data points and goals completion. Success and progress are attributed to the talented people that work together with a common goal, to provide the best water and best service possible to our residents and customers. We will continue to strive for "Intentional Progress" as we seek to do our very best in every task. We will continue to make strides to maintain the water and wastewater infrastructure responsibly and respectably. We appreciate your support as we meet every challenge with a solution.

This document aims to provide an intentional, internal review of current operations and current goals and initiatives. An additional goal is to be transparent and provide educational information to the reviewer. This report also provides objectives for the 2021 calendar year. Measures of success greatly depend on the ability to accomplish the goals referenced in this document. The focus of the 2021 plan and data presentation hinges on meeting and implementing the purposes outlined in this document.

The WWU Annual Report will be provided to the Director of Administration for dissemination to the elected body and the general public. The document will also be published on the City of Wooster's webpage. The Wooster Utilities Manager will provide regular updates on department progress on goals and measures of success. The effort to share this document internally and externally will provide direction and the opportunity for public interaction and dialog. WWU is here to serve the community, and success depends significantly on sharing the message and efforts with the public in complete transparency.

The Water Production Facility (WPF) is a life-sustaining resource for this community with a plentiful supply of water for now and the future. Water is a finite resource necessary to sustain life as we know it.

WPF Data Highlights

- The Water Production Facility was 100% compliant with all federal and state regulations.
- The Water Production Facility treated and delivered 1.10208 billion gallons of drinking water to the customers. The average daily flow production in 2021 was 3.03 million gallons or 49.62% of the facility design capacity of 6.1 million gallons per day. Compared to 2020 totals and averages, 2021 indicates a total flow increase of 3% to the total and average. The facility was designed using 87 gallons per day/capital; at current flow rates, the population equivalent is 34,791. The facility's design capacity can produce enough water for a population of 70,000 people.
- The operation and maintenance cost per million gallons treated equals \$3,548.15 or \$3.55 to treat 1,000 gallons. While this is a positive indicator in an often unpredictable environment, it indicates commitment stewardship. Due to efficiency measures, this cost was reduced by \$.8 per 1,000 gallons compared to 2020. The reduction suggests efforts to stabilize expenses through multi-year supply and service contracts through intentional operational techniques. This calculation includes any operating capital updates.
- Through collaborative city-wide department efforts, the non-revenue water percent has declined since 2013. 2019 saw a historic NRW reduction to 19.95%. Two thousand twenty efforts resulted in an additional decrease to 15.86%. The 2021 efforts indicate 16.18% of non-revenue water—equally respectable understanding the increased demand from 2020 to 2021. As a result of research and comparison, an Ohio system under 25 years of age (treatment facility and infrastructure) includes a single tower, flat elevation, and no booster stations, which indicates an average of 11% unaccounted water. Wooster's water system is built on a hill with elevation changes, different pressure zones, and production data means impressive efforts and practices. The progress in this prevention program is nothing short of excellent and authentic teamwork on display.
- A total of 4,956.99 dry tons of spent lime residual was removed from the storage lagoon and applied to farm fields for beneficial reuse. A total cost in 2021 was \$367,312.95 in contractual services or \$74.10 per dry ton. While liquid slurry is pumped to trucks for hauling, the end product cargo is required for reporting.
- A significant improvement is that the facility is staffed 24/7 with six operators. The current staffing level has improved water qualities, efficiencies, and exhibit to our commitment to excellence.
- The Contact Softener painting project was completed along with the new operating hardware for the units. This project was a significant effort to invest in this equipment for another 20 years of stable service.
- The Production Facility received a software and hardware update to the SCADA system.
- The Oldman tower and Clearwells were power washed.
- We increased inspection efforts due to oversight from the OEPA regarding the Backflow Prevention Program. Division is dedicating an FTE to help with this project. In 2021 a total of 235

inspections were completed regarding the status of the 525 non-residential accounts the OEPA wanted clarity.

- The hard surfaces were sealed.
- The Sodium Hypochlorite tanks were replaced.

The Water Recovery Facility (WRF) plays a vital role in the local water cycle. The water used by our customers has to be treated before natural water cycle entry. The focus on proper water treatment has made illnesses like typhoid fever and dysentery a matter of the past. The ingenuity of the facility correlates to the spirit of this community.

WRF Data Highlights

- The Water Recovery Facility indicates 100% average compliance related to average pollutant removal rates.
 - Facility operational data indicates total solids removal of 98.9%, CBOD removal of 98.9%, ammonia, nitrogen removal of 96.4%, and phosphorus removal of 90.8%. It is important to note regarding other parameter annual averages that discharge quality is exceptional: Nitrate/Nitrite 7.76 mg/l, total Kjeldahl nitrogen 3.99 mg/l, orthophosphate .61 mg/l, and biannual testing of discharge in a certified laboratory indicates little fish mortality in a laboratory setting.
- The Water Resource Recovery Facility received, treated, and discharged 1.799 billion gallons of recovered water back into the natural water cycle. The average daily flow in 2021 was 4.92 million gallons or 65.6% of the facility design capacity of 7.5 million gallons per day. Compared to 2020 totals and averages, 2021 indicates a total flow decrease of 3.25%.
 - The average daily flow design level was exceeded 23 times in 2021, directly related to the 32.96 inches of precipitation for the calendar year. Based on available data of metered water usage, nearly 37.24% of the annual flow rate is directly related to inflow and infiltration (I&I) sources. 2021 calculation indicates a 7% decrease of I&I-related flows from the previous year. The reduction can be attributed to lower precipitation and annual efforts to improve sewer system infrastructure. Based on traditional design data, the current facility should support a population equivalent to 70,000 people. However, specific design and loading criteria must be evaluated as growth, regulations, and treatment technologies change.
- The annual operation and maintenance cost per million gallons treated equals \$2,848.69 or \$2.85 to treat 1,000 gallons. While this is a positive indicator in an often unpredictable environment, it indicates commitment stewardship. Due to efficiency measures, this cost was reduced by \$.75 per 1,000 gallons or a 20% cost reduction compared to 2020. The decline suggests efforts to stabilize expenses through intentional operational techniques multi-year supply and service contracts. This calculation includes any operating capital updates. An important factor was that there was no power production in 2021, reduced hauling costs and revenue via feedstock and septic receiving.

- The facility generated \$556,496 in revenue from the acceptance of third-party waste to the recovery facility. 6,887,559 gallons in liquid feedstock and regional septage were accepted in 2021. Compared to 2020, this equates to a 47% reduction in acceptance volume and a 33% reduction in third-party revenue. The revenue was not in step with the gallons as surcharges were enforced. Due to facility limitations, the reduced acceptance is with design improvements underway for future consideration at the digester facility due to the failed liquid stream tank currently under evaluation regarding septic reduction. All portions of the facility and efficient operation are under review. Again, it is imperative to note that with the decrease in revenue and assumed benefits of power generation, there was an overall expense reduction of 20% in 2021. The current level is indicative of the facility's operational baseline regarding financial commitments.
- A total of 2,181 dry tons or 16,691,782 gallons of class A biosolids were provided to local agricultural fields for soil enrichment and the ultimate reduction of commercial fertilizers. Compared to 2020 data, there was a decrease of 8% of total gallons hauled in 2021. The beneficial reuse disposal cost was equal to \$.03 / gallon or \$530,132 for the year. Due to a multi-year hauling contract, waste acceptance, and ultimate disposal, a total cost reduction of \$381,393 or 42% was gained in 2021.
- The WRF facilitates an Industrial Pretreatment Program to meet regulatory requirements. In 2021 the WRF experienced no spills, interferences, or toxin discharges directly attributable to industrial dischargers. Annual inspections are conducted on the collection system's Significant Industrial User(s). Additional sampling occurs to ensure the dischargers to the public system comply. In non-compliance, surcharges are issued when waste concentrations are over the local limits. In 2021, a total of \$690,909 industrial surcharge fees were given as a 15% increase from the previous year.
- Finished Biosolids Loadout Tank completed that allows for the capture of potential odor-causing atmospheric release during hauling operations. The tank also provides an economical and efficient means of loading the trucks for land application. A tank can be filled in under 5 minutes.
- WRF SCADA system communication study for improvements that resulted in cell phone communication points at four locations.
- A second boiler for the digesters was purchased and installed to ensure Class A temperatures. This unit is designed to operate on biogas.
- Several UV improvements were completed, along with a study to determine future options for long-term disinfection reliability.
- After many years of postponement, there were improvements to the pumps, piping, and supports for the Storm Pump Wet Well.
- Service and repair to the backup power generator.
- SCADA system improvements to the digester hardware and software.
- RAS pump repairs and improvements.
- Service and maintenance at the CSO Swirls.

- Study and design contract with RETTEW to address deficiencies, code issues, and general improvements to the digester portion of the facility. The focus is on enhancements and options to sell gas to the utility provider.
- Significant improvements on data tracking methods and reporting for facility operations.
- Adjustments to facility water use to improve unaccounted water.
- Several pump repairs at stations and improvements to the Cleveland Road North discharge pipes.
- Laboratory enforcement and tracking on waste loads indicated a phosphorus lock issue. The initial investigation was a result of septic and dairy-related wastes.

The Distribution, Collection, and Meter Division (DCM) is the outward-facing service arm of WWU. DCM continued the proud tradition of managing the challenges of underground infrastructure. While service disruption can happen, it is often unpredictable. Regardless of time and weather, the crew will respond and address repairs safely and efficiently. Without a vast network of pipes, the treatment facilities can not meet our customers' expectations.

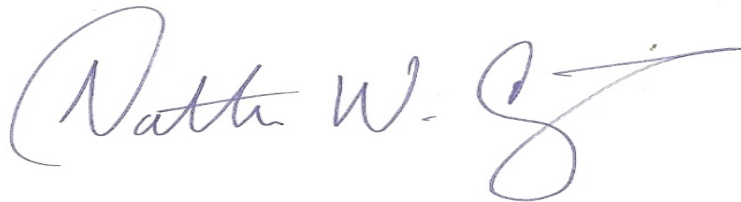
DCM Data Highlights

- Through collaborative city-wide department efforts, the non-revenue water percent has declined since 2013. 2020 saw a historical NRW reduction to 15.86%, and 2021 is in line with a total of 16.18%. The progress of this is nothing short of outstanding and true teamwork on display.
- A total of 1,921 work orders were completed for the 9,935 customer accounts; this equates to a ratio of 19 service orders / 100 customer accounts. In 2021 there was a 27% increase in work orders compared to 2020.
- 794 meter transmitting units (MTU's) were replaced compared to 79 meters.
- A total of 328 accounts were disconnected due to delinquency. A total of 288 warning notices were issued to prevent shut-off. The stat represents 3.3% of the customer base and indicates excellence in customer service and collection efforts. The effort speaks to the testament of the customer service from DCM and the Billing staff, more so during the pandemic.
- A total of 891 water main valves were exercised to ensure proper operation in the event of required isolation. The data represents 33.6% of the total valves indicated in the GIS system. Compared to the record 2020 effort, 12 fewer valves were exercised in 2021.
- A combined average of 23,897 feet of the sanitary mainline was preventively cleaned and televised. The data represents over 2.63% of the current mainline inventory. The total for 2021 was reduced compared to 2020 due to the number of water main leaks. The ability to conduct this work in house provides an estimated cost savings of \$85,000 versus contractual fees. The 2021 efforts resulted in a decrease compared to 2020.
- In 2021 a total of 39 water main breaks surfaced and were repaired. The 2021 unplanned mainline water service disruptions are equal to 5 disruptions / per 100,000 feet of the system inventory or a 37% increase compared to 2020.

- The 2021 unplanned mainline sewer service disruptions are equal to 2.8 disruptions / per 100,000 feet of system inventory. This data set totals main block and SSO/WIB events with a total of 26 or a 37% increase compared to 2020.
- There were increased efforts due to oversight from the OEPA regarding the Backflow Prevention Program. Divison is dedicating an FTE to help with this project. In 2021 a total of 235 inspections were completed regarding the status of the 525 non-residential accounts the OEPA wanted clarity.
- All fire hydrants were flushed in 2021.

WWU welcomes questions and comments regarding the Annual Report and the general management of services provided. Please feel free to contact:

Nathan W. Coey, Wooster Water Utilities Manager, 330-263-5284, ncoey@woosteroh.com

A handwritten signature in blue ink that reads "Nathan W. Coey". The signature is fluid and cursive, with a long horizontal stroke extending from the end of the name.

"Without continual growth and progress, such words as improvement, achievement, and success have no meaning." Benjamin Franklin



Wooster Water Utilities Quarterly Data Report

2021	January	February	March	April	May	June	July	August	September	October	November	December	Year Ave	Year Total	Q1	Q2	Q3	Q4
															Totals	Totals	Totals	Totals
Water Production MGD	86.3399	86.3055	88.4749	85.6836	93.4826	94.546	96.5491	100.472	96.111	92.73208	88.225	93.1565	91.84	1102.07818	261.1203	273.7122	293.1321	274.11358
Water Production ADF	2.7852	3.0823	2.845	2.856	3.1056	3.1515	3.1145	3.241	3.2037	2.99136	2.9408	3.005	3.03		2.90	3.04	3.19	2.979053333
Interceptor Flow MGD	19.514	15.435	12.128	8.15	8.586	8.798	9.136	22.999	30.449	25.372	19.619	22.137	16.86	202.323	47.077	25.534	62.584	67.128
Non-Revenue Water %	16.05	12.45	23.91	17.9	23.08	7.15	17.35	8.63	11.34	23.11	8.89	24.25	16.18		17.47	16.04	12.44	18.75
Lime Solids Hauled DT		129.69	847.29		994.09		2375.74			610.18			991.40	4956.99	976.98	994.09	2375.74	610.18
													Year Ave					
I & I Est % at WRRF	43.73	33.32	39.54	32.58	54.17	27.34	52.60	31.94	26.35	31.37	30.14	43.76	37.24		38.87	38.03	36.96	35.08792832
													Year Ave					
Water Recovery MGD	153.451	129.435	146.34	127.096	203.979	130.129	203.684	147.615	130.4925	135.111	126.293	165.6268	149.94	1,799.25	429.226	461.204	481.7915	427.0308
Water Recovery ADF	4.95	4.62	4.72	4.24	6.58	4.34	6.57	4.67	4.35	4.36	4.21	5.34	4.91		4.76	5.05	5.20	4.636666667
CSO Activated Events					2		6		2				10		0	2	8	0
SSO	0	0	0	1	0	2	2	0	0	0	0	0	5		0	3	2	0
WIB	0	3	1	1	6	1	2	0	2	1	0	0	17		4	8	4	1
ADF & Septage Revenue	\$72,273.25	\$47,505.60	\$91,893.60	\$92,004.80	\$79,771.60	\$46,981.82	\$44,780.80	\$36,639.60					\$63,981.38	\$511,851.07	\$211,672.45	\$218,758.22	\$81,420.40	\$0.00
Biosolids Hauled Gal.	2,573,825	282,400	3,862,100	2,480,500	1,843,800	491,700		2,189,600	113,600		2,008,600	845,657	1,669,178	16,691,782	6,718,325	4,816,000	2,303,200	2,854,257
Biosolids DT Hauled	293.62	17.84	570.86	302.88	319.47	64.04		298.57	23.69	77.89	134.33	77.58	198.25	2,180.77	882.32	686.39	322.26	289.80
Pretreatment Charges	\$51,864.10	\$89,243.46	\$83,586.24	\$51,523.14	\$69,650.76	\$73,360.83	\$23,072.36	\$32,547.99	\$62,291.96	\$38,237.42	\$46,643.04	\$68,887.58	\$57,575.74	\$690,908.88	\$224,693.80	\$194,534.73	\$117,912.31	\$153,768.04
KWH Produced Treatment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KWH Purchased Treatment	585,600	540,000	595,200	571,200	578,400	717,600	607,200	640,800	595,200				603,467	5,431,200	1,720,800	1,867,200	1,843,200	0
Purchase Cost Treatment	\$39,100.93	\$38,452.32	\$41,905.67	\$41,152.76	\$42,396.35	\$52,349.96	\$44,481.34	\$49,577.55	\$44,838.08				\$43,806.11	\$394,254.96	\$119,458.92	\$135,899.07	\$138,896.97	\$0.00
Production Cost Savings	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
													Year Ave					
Sewer Main Feet Clean	2,212	690	1,385	599	3,677	3,183	1,000	3,719	750	2052	0	6362	2,136	25,629	4,287	7,459	5,469	8,414
Sewer Main Feet TV	2,251	890	1,750	386	4,381	561	344	3,786	1310	1225	0	5282	1,847	22,166	4,891	5,328	5,440	6,507
Sanitary MH Repair/Replace	0	0	1	5	2	3	2	2	0	0	3	0	18					
Sanitary Manhole Service	31	52	50	0	52	0	0	50	50	0	50	0	335					
Sanitary Main Repair	0	0	0	1	0	3	0	0	0	1	0	0	5					
Sewer Main Root Treat/Cut	0	0	19,986	0	200	0	0	0	0	170	0	0	20,356					
Sewer Main Block Events	0	1	0	1	1	0	1	0	0	0	0	0	4					
Valves Excersized	148	53	84	99	32	60	125	62	56	80	70	22	74	891	285	191	243	172
Hydrants Flushed	0	0	1	110	246	539	391	305	0	0	0	0	133	1,592	1	895	696	0
Water Main Repair	6	15	0	0	3	1	4	1	0	1	5	3	3	39	21	4	5	9
Service Related Repair	13	6	9	11	7	7	6	4	3	8	10	6	8	90	28	25	13	24
Main Valve Related Repair	0	1	0	5	1	1	3	3	1	2	2	4	1.92	23	14	7	7	8
Hydrant Related Repair	0	1	3	1	1	1	0	0	1	1	0	0	0.75	9	7	3	1	1
Meters	6	5	7	8	14	6	2	7	11	3	5	5	6.583333333	79	74	28	20	13
MTU	7	25	80	105	99	97	104	94	71	48	53	11	66.17	794	112	301	269	112
Delinquent Warning	7	2	20	65	34	40	17	25	24	32	11	11	24.00	288	11	139		
Water Off Delinquent	30	22	31	17	28	22	18	36	17	27	35	34	27.33	328				
Work Orders	85	86	181	227	214	202	166	204	165	157	145	89	160.08	1921	1832	643	535	391

Lime Haul \$ To date \$367,312.95

Bio Haul \$ To date \$530,131.58