



2020 Annual Report

Wooster Water
Utilities

Nathan W. Coey, Manager

Wooster
**Water
Utilities** 

"Safety, Reliability, and Excellence!"





Wooster Water Utilities Mission and Vision

Purpose

The purpose of the Wooster Water Utilities (WWU) 2020 Annual Report is to summarize major accomplishments, major projects, data and performance metrics, goals completed and 2021 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 quality of life, and plan for the future. We will endeavor to accomplish this mission in the most efficient and fiscally responsible manner possible, and in accordance 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, environmentally conscious, and dedicated 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. *The Daily Mission of Clean water is defined by our values.*

Accountability – As an organization we accept responsibility for our stewardship decisions and actions. We will deliver cost effective and efficient services with the objective of doing our work right the first time. We are concerned about our natural, historic, 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 public 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 of 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 a community leader.
- ◆ 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 operations with data management to gauge current and future trends.
- ◆ Recruit, train, and develop staff in step with the department 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 in a professional and ethical manner.
- ◆ 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 that will meet the citizen’s needs. We commit to our core values with open communication with the public and solicit feedback in order to achieve our goals. In doing so, we will:

- ◆ Operate in a manner that supports public trust and confidence.
- ◆ Be responsible in the use of all public resources.
- ◆ Ensure regulatory and customer expectations in an anticipatory manner 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 in which to live 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 safety of the public, resources, and employees.
- ◆ Eliminate and gauge potential risks that could affect the 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 manner that ensures the integrity of the infrastructure. Safe water is the standard for our citizens and the focus of our daily mission. Our focus is on public health producing a safe product in all aspects. Safety is a focus on the people trusted to operate the infrastructure to ensure quality in every drop to our citizens.

Reliability

We work to ensure reliability of the customers we serve. It is our duty as stewards to ensure the infrastructure investments are well maintained to ensure quality of life. We are diligent in our operational methods to ensure high quality water every day. We honor the trust from 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 2020 Annual Report Introduction

Water is essential to life. Elemental carbon is referred to 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 major organs containing a higher percent and even human bones are 30% water. Water is vital to life.

The City of Wooster is home to a great deal of innovation 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 suspect in quality. The nation was gripped in death tolls related to communicable 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 ground water source with a focus on public health. The study determined a safe ground water source at the site of the first treatment plan 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 Nov. 19th, 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, always changing and producing. The City of Wooster plays a vital role in the water cycle. Natural water is drawn from the ground and treated for drinking water. The water used by customers contains contaminants accrued in the process, as water serves as the universal solvent. The wastewater is treated and delivered back to nature to start the natural and manmade cycle again. Nature serves as a standard of quality in the water cycle. Facilities are operated in a manner that is sustaining in all forms and to bring it to the purest level possible.

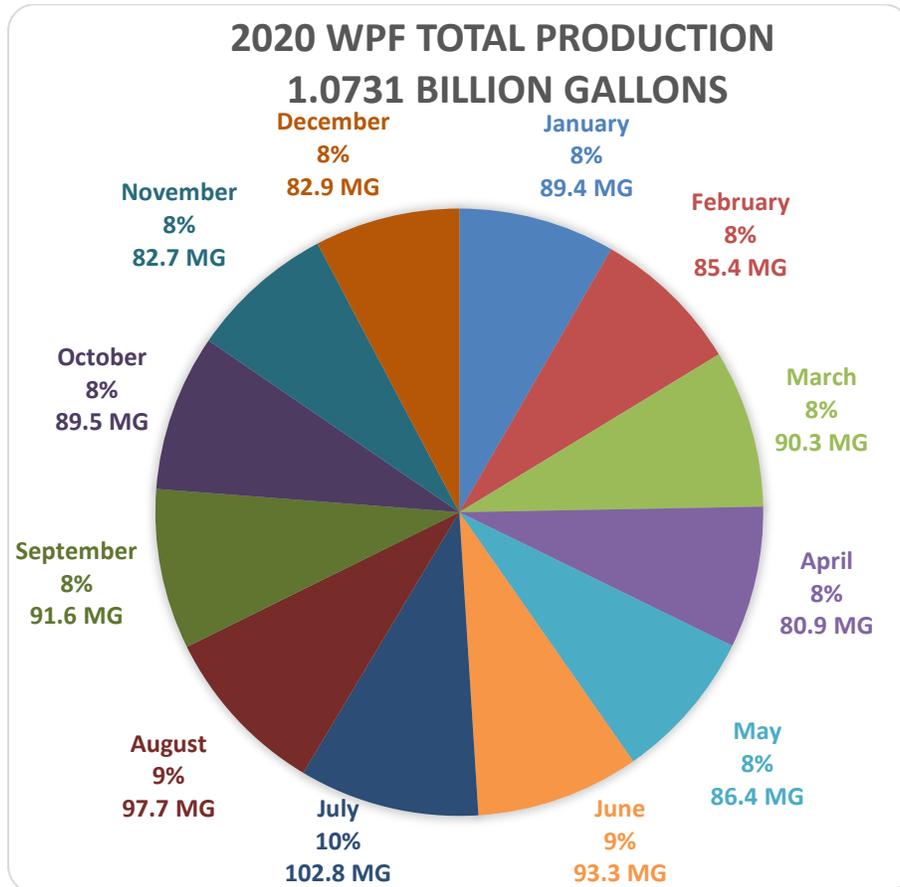
The daily mission of clean water requires our respect and diligence as front line defenders of the environment and public health.

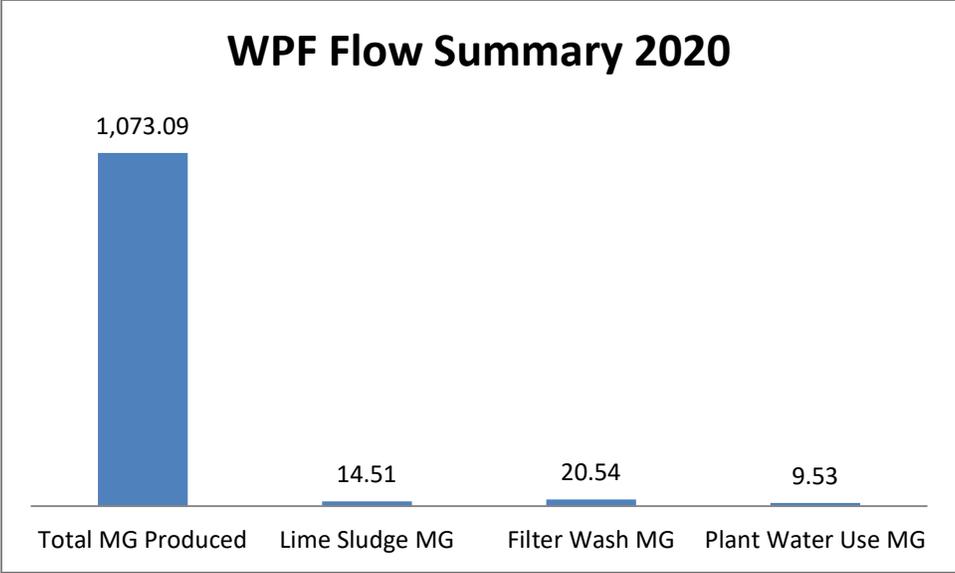
Wooster Water Utilities (WWU) is owned and operated by the City of Wooster, Ohio. Services provided include water treatment and distribution, wastewater treatment and collection, and any service to ensure the delivery and treatment of water for the citizens of Wooster. WWU services a current population of nearly 27,000 people with 9,907 active utility accounts, in a nearly 17 square mile service area. WWU has a total of 33 employees and operated with an 8.9 million dollar approved budget in 2019.

Water Production Information

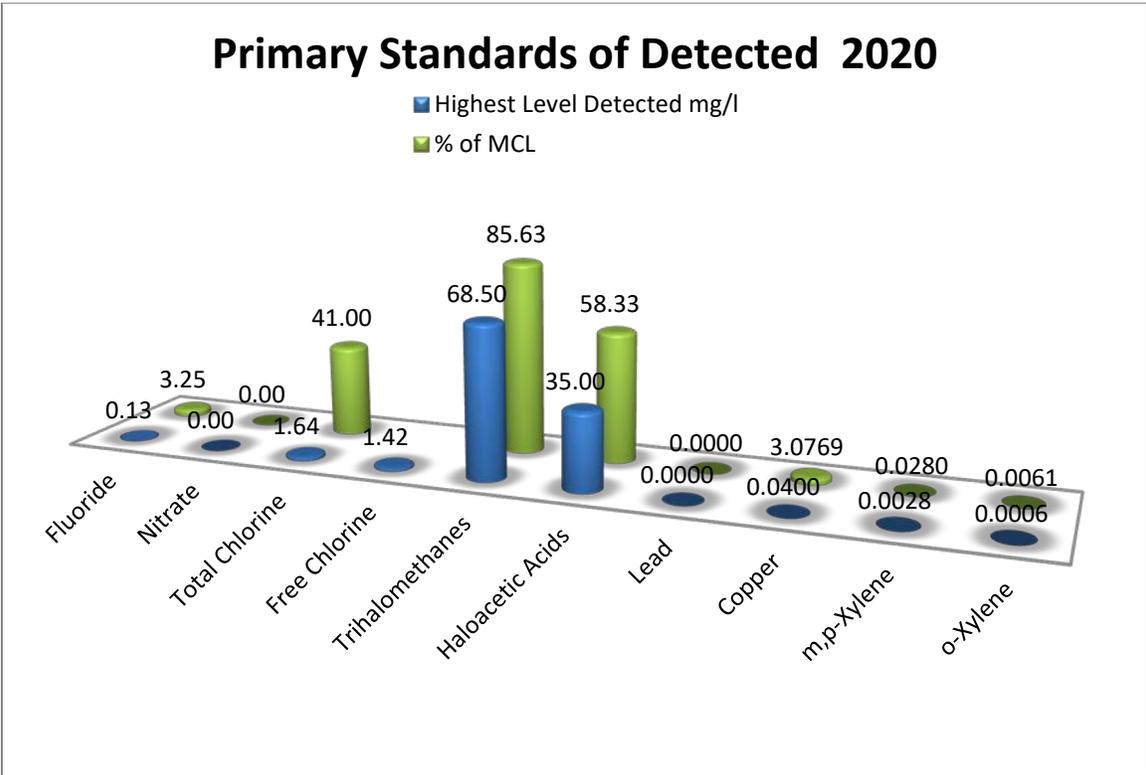
Water Production Facility (WPF) infrastructure assets include two separate source water wellfields with a total of nine wells, eight interceptor wells, and over four dozen ground water monitoring wells. Additional water assets include a water treatment facility, nine finished water storage tanks, five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

In 2020, the Water Production Facility treated and delivered 1.0731 billion gallons of drinking water to the customers. The average daily flow production in 2020 was 2.93 million gallons, or 48.03% of the facility design capacity of 6.1 million gallons per day. Compared to 2019 totals and averages, 2020 indicates a total flow decrease of 1.45% to the total and average presumably related to the pandemic onset and arguably water loss reduction. It is also important to note, while growth is observed, plumbing equipment efficiencies indicate water conservation. The facility was designed with the use of 87 gallons per day / capital, at current flow rates the population equivalent is 33,687. The design capacity of the facility has the ability to produce enough water for a population of 70,000 people.





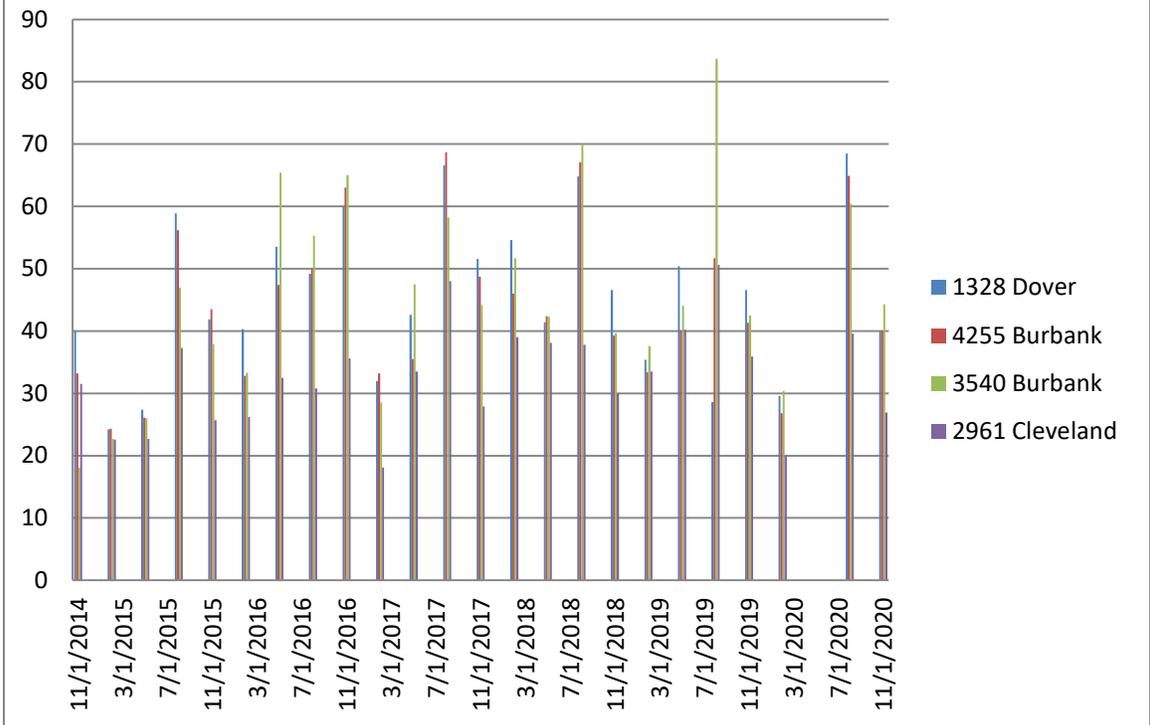
For the sake of this report, the data provided below relates to finished water treatment levels in comparison to OEPA Maximum Contaminate Levels (MLC's). Any parameters below detectable limits were not used in this report as, results below detectible limits are not required in the annual OEPA required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



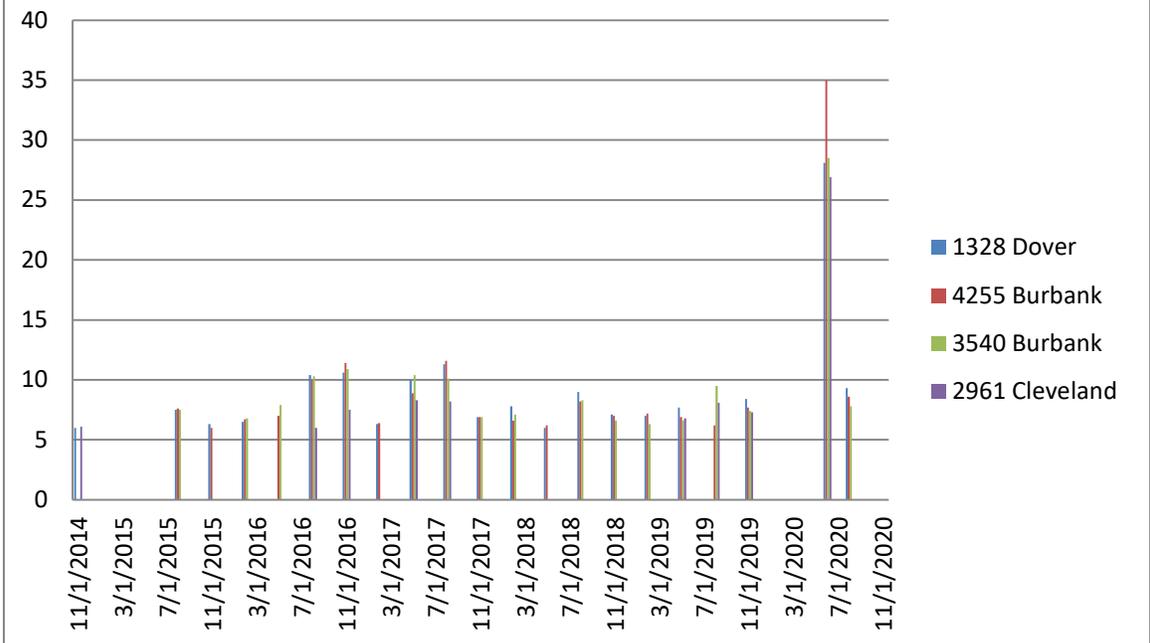
Based on the 2020 data, the following summary relates to WPF.

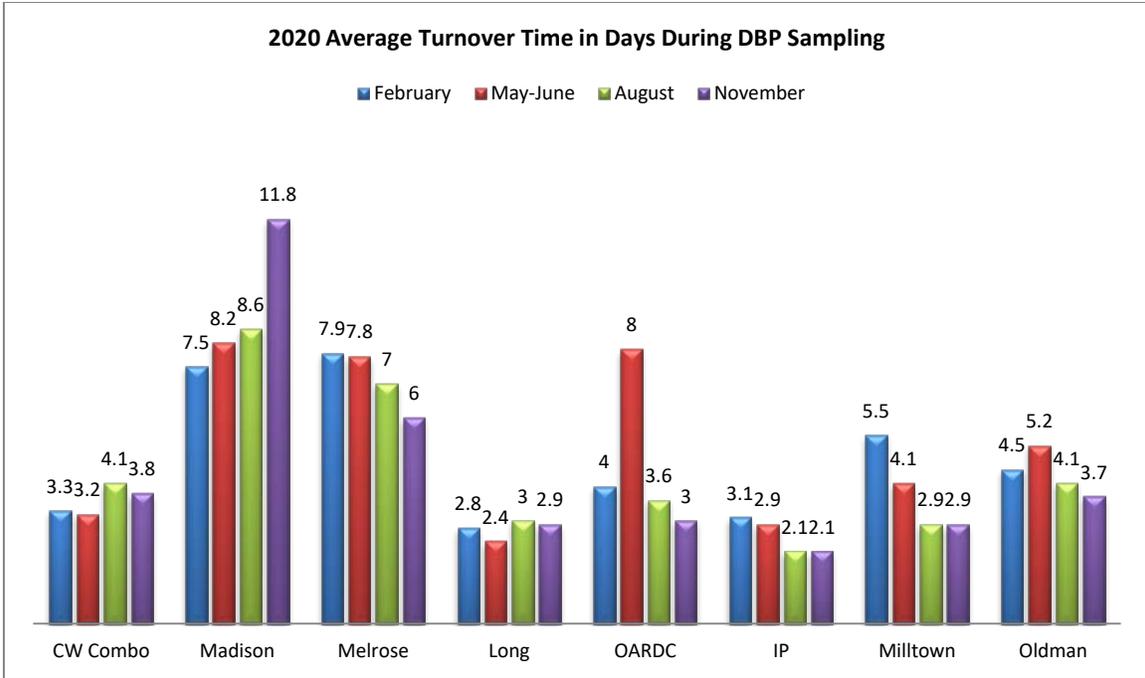
- Data summary indicates full compliance on all testing standards regulated by the Safe Drinking Water Act.
 - The Water Production Facility was 100% compliant with all federal and state regulations. This is a calculation of total days in compliance throughout the year.
 - Due to a miscommunication with the Agency related to COVID protocols, the second quarter set of disinfection byproduct samples were not collected at the proper frequency. Even though the samples were collected under UCMR4, it is a frequency sampling matter which will require that omission to be shared in the annual drinking water quality report.
- Trihalomehtanes (TTHM) and haloacetic acids are monitored as disinfection by product (DBP). The MCL established at the federal and state level as disinfection byproducts have the potential to be carcinogenic in very high ranges. Sampling occurs in parts of the system furthest away from the source and relates to water turn over in the system. This includes quarterly sampling at four different monitoring locations each quarter. While the highest level detected in 2020 at the furthest part of the system for TTHM indicated 85% of the MCL, the Agency prescribed running average formula indicates a much lower average result of 48, with a range of 20 to 68 which are below MCL's. Similarity the HAA5 results indicated the highest level detected was 58% of the MCL with the average of 12 and ranges of zero to 35, all with in standards.
 - Based on the average water age during the DBP sampling periods the Madison and Melrose tank consistently (during that period) indicate an older water age that can contribute to the test results observed during the 3rd quarter.
 - It is important to note historically 3rd quarter testing in the system has been higher due to elevated ambient temperatures. Furthermore, this directly relates to tank turn over percentages. This theory is further supported by efficient system operations and significant reduction in non-revenue water coupled with end use water smart fixtures. See chart below in relation to historical TTHM testing and tank turnover. A goal of 5 days or less in turnover is to reduce the potential for disinfection by product levels and system efficiencies.

TTHM Results

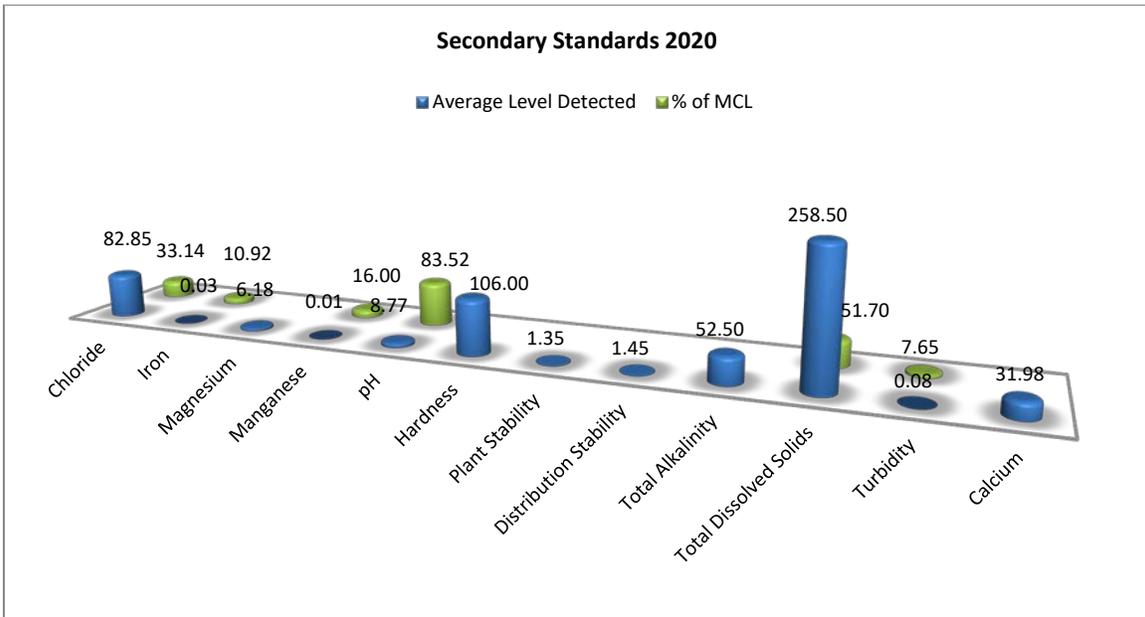


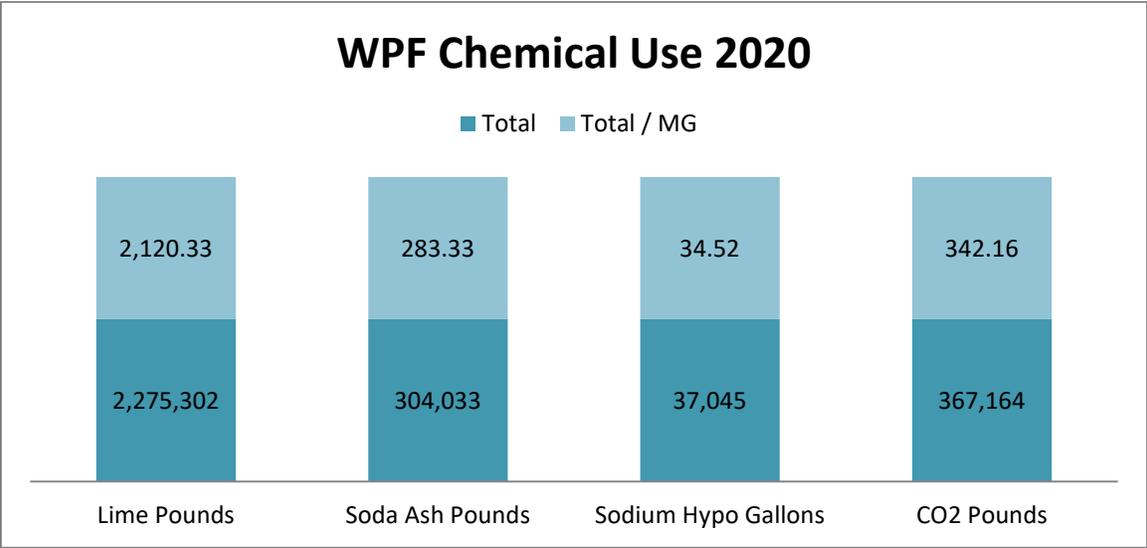
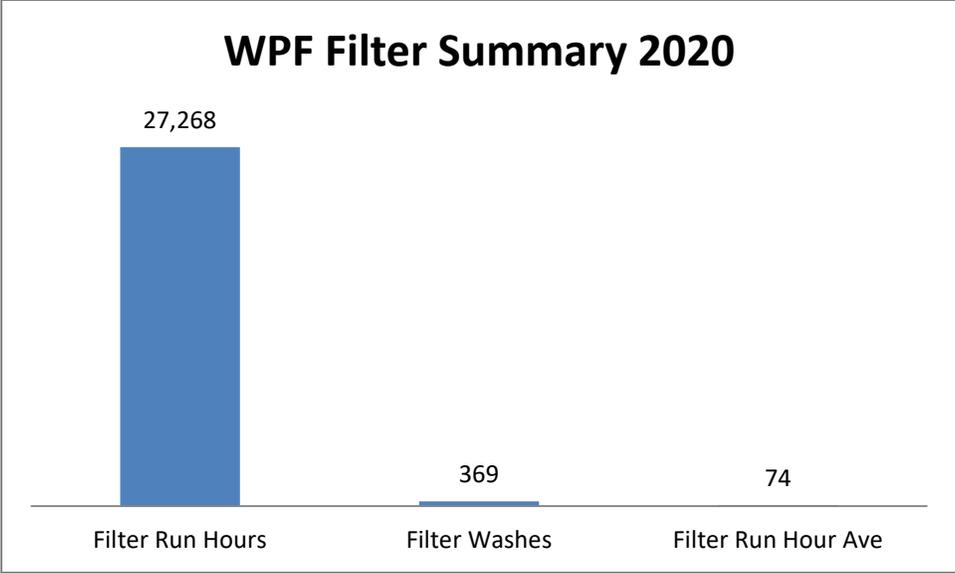
HAA5 Results

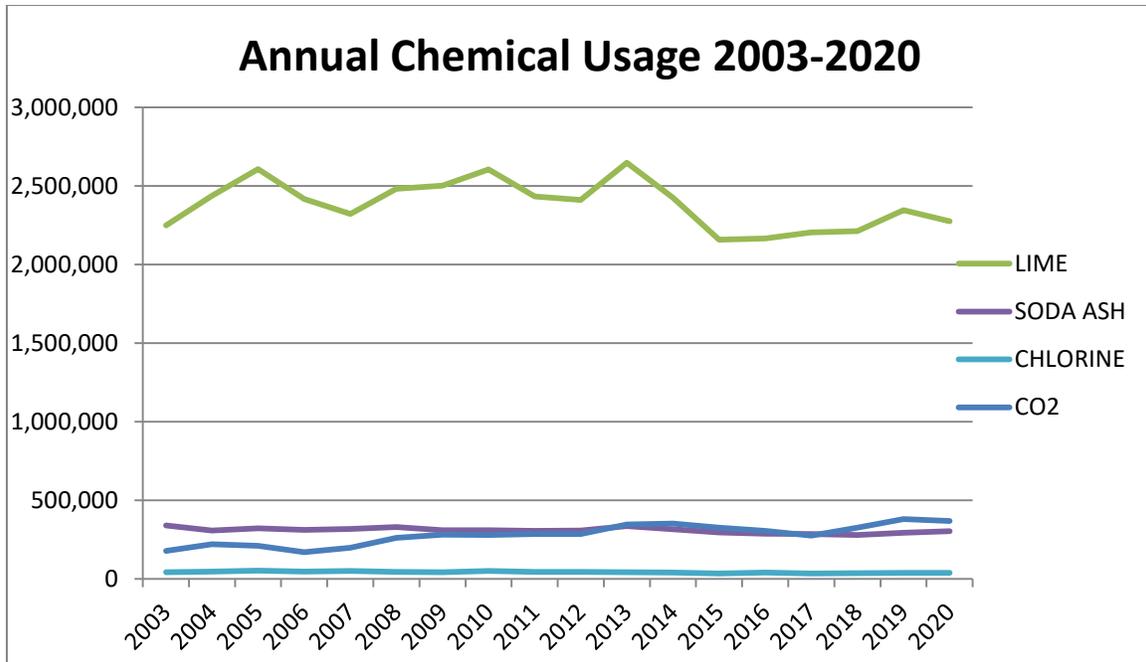




Secondary standards data is provided to show over all water quality as it relates to aesthetics and treatment related goals. This is an indicator of water quality at expected standards based on process control.





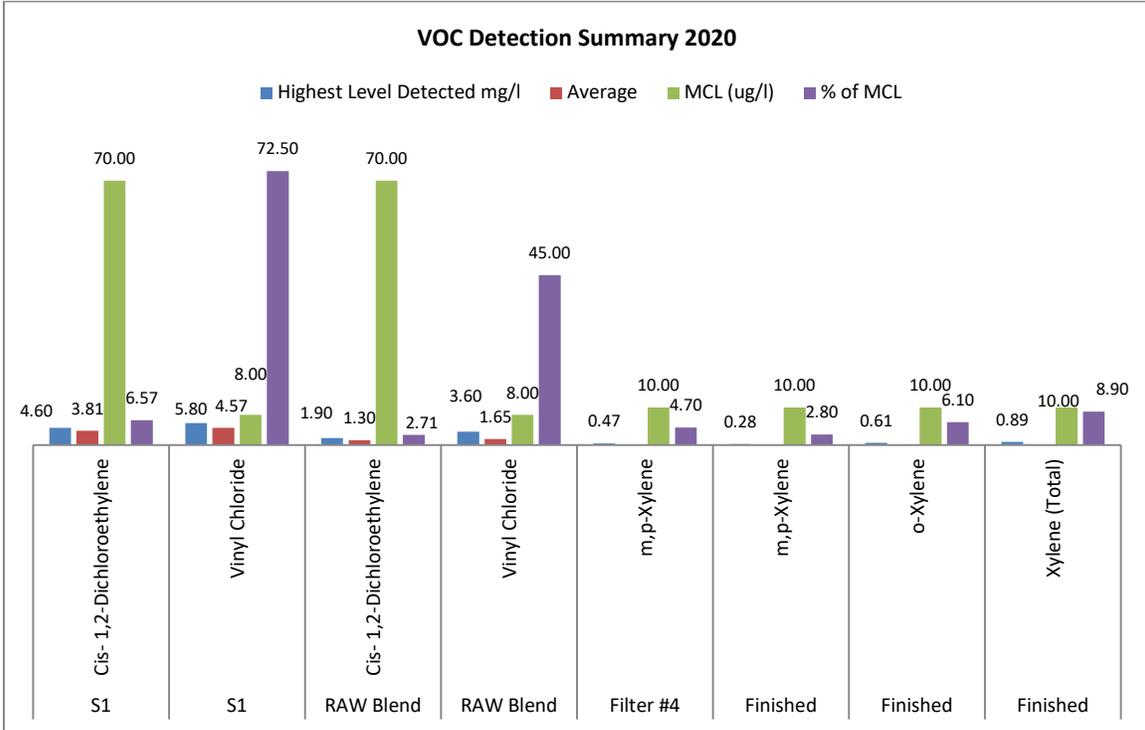


2020 chemical usage in comparison to 2019 indicates a reduction of total amount of lime, sodium hypochlorite and CO2 with a total pounds reduction of 85,569 and gallons reduction of 983. Soda ash indicated a slight increase of 10,060 pounds. However with that increase, the net savings of reduced use is indicative to the utilization of third shift operations.

A total of 4,222.7 dry tons of spent lime residual was removed from the storage lagoon and applied to farm fields for beneficial reuse. A total cost in 2020 was \$358,929.5 in contractual services or \$84.98 per dry ton. While liquid slurry is pumped to trucks for hauling the end product tonnage is required for reporting.

In the 1980's, 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 in the aquifer to mitigate pollution movement in the aquifer the source water. Through an OEPA approved testing and operational technique the contamination is closely monitored, in some cases on a bi-weekly basis. The detected contaminates fall into a general category as "Volatile Organic Compounds" (VOC), specifically the Wooster testing focuses on cis-1,2 – Dichlorethylene and Vinyl Chloride . The VOC testing is included as it related to treatment target levels in the blended source water. The testing reference serves as treatment goals in the removal of VOC's. 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 2020 a total of 256 million gallons of interceptor (aquifer hydraulic barrier) water was pumped at an average of .695 million gallons per day. It is imperative to share this effort as 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 to provide the best water to our citizens. This 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.

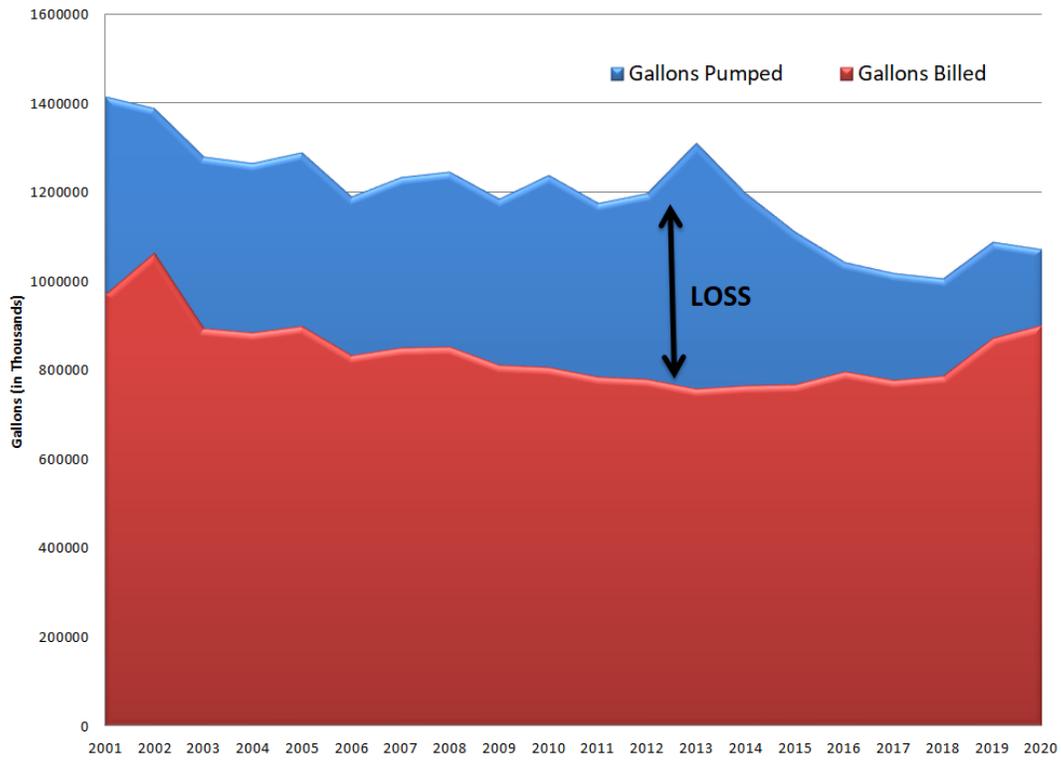


- Vinyl chloride testing is required as it relates to the South Wellfield contamination detected in 1986. An intricate testing and monitoring program is in place to effectively remove VOC's along with stripper towers in the treatment plant. The monitoring program is in place to ensure compliance and proper treatment techniques. While the highest level of vinyl chloride detected in 2020 was at 72.5% of the agreed trigger level of 8 ug/l, the average test results for the year resulted in levels are well below or non-detect. If in the event of 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 the 70% of the MCL level (for all VOC's) 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. This is due to one of the most proactively tested aquifers in the state along with an ultimate safeguard of VOC stripping treatment unit in the production process.



- The ratio of employee to annual total gallons treated is equal to 134 million gallons / employee or a 1.47% decrease compared to 2019 data.
- The operation and maintenance cost per million gallons treated is equal to \$4,315.59 or \$4.31 to treat 1,000 gallons. While this is a positive indicator in an often unpredictable environment, it indicates a commitment stewardship.
- Through collaborative city wide department efforts the non-revenue water percent has been on a decline since 2013. 2019 saw a historic NRW reduction to 19.95%. 2020 efforts resulted in an additional reduction to 15.86% or an overall 21% decrease from 2019. The progress of this is nothing short of amazing and true team work on display.

Non Revenue Water 2001-2020



Year	Gallons Produced	Gallons Billed	NRW%	Customer Accts
2013	1,312,736,000	759,870,000	42.12	9,812
2014	1,197,307,000	766,965,000	35.94	9,818
2015	1,116,050,000	768,536,000	31.14	9,857
2016	1,044,260,000	797,950,000	23.59	9,869
2017	1,018,920,000	777,150,000	23.73	9,892
2018	1,008,588,000	787,834,000	21.89	9,907
2019	1,088,808,000	871,567,000	19.95	9,892
2020	1,073,089,000	902,620,000	15.86	9,918
Total	8,859,758,000	6,432,492,000		

- **Water Production Special Projects Completed in 2020**
 - A major improvement is currently 3rd shift at the facility 5 days a week. This has provided improved water qualities, efficiencies and exhibitiveness to our commitment to excellence.
 - OEPA approved an ORC hour reduction during the week to 20 hours, minimum of 4 hours at 5 days per week.
 - Participation in state wide PFAS testing and communication to stakeholders and customers regarding the process. Results were all below detectable limits and no additional actions needed at this time.
 - At the time of this report the Source Water Protection Program final draft document has been submitted to the Ohio EPA for endorsement. As a function of this program a SWPP Task Force has been created of staff member to ensure task and goal completion.
 - Emergency Contingency Plan update along with provisions to exercise topics in the plan (hands on or table top) on an annual basis. An emergency power outage exercise and SOP was created on this program.
 - S1 well rehabilitations of the pump and a new VFD.
 - S2 well rehabilitations including a new VFD with fiber optic controls to improve operator flexibility.
 - At the time of this report the new Bulk Water Sales System is fully functional.
 - Major improvements to the WPF softeners with new coatings, new drive bearings and new cathodic protection equipment.
 - Clearwell 1 was updated with new vent system and new coatings.
 - Portions of the building were power washed and cleaned.
 - Annual wellfield monitoring and testing.
 - Cleaned and replaced stripper tower media at the plant and in the field.
 - An in tower level sensor was installed at the Melrose tank to reduce pressure swings related to demand and delay (or inaccuracies) in the base external PSI control gauge.
 - OEPA Water Laboratory Certifications were completed virtually this year.
 - Test of the operator down system and standard improvements to the process with WARCOG.

- **WPF 2021 Goals and Initiatives; “Intentional Progress”**
 - Repave hard surfaces at the facility.
 - Replace sodium hypochlorite storage tanks.
 - 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.
 - Engineering study on Long Road tank and booster improvements.
 - IP tank update with new coatings.

- Work with stakeholders to continue progress regarding NRW. At this point to place a numerical goal on percent reduction would be difficult. Goal is to work at a level where NRW is below 15%.
 - Work with stakeholders to continue progress regarding backflow program. Focus in 2021 is to take steps to include device compliance in known fire systems. Goal to also complete 1,000 general surveys.
 - Increase system turnover and distribution water quality. The goal is to be at or 5 days on all monthly averages. This will be improved by the addition of the third shift operator at the treatment facility. Producing and providing water with a focused control with staff coverage maximization.
 - Rebuild #4 High Duty Pump. This pump is original to the facility and has not had a major overhaul since it was put into service in 1998. It is one of four pumps that convey water from the onsite storage tanks into the Low Pressure zone.
 - Facility SCADA hardware and software upgrade.
- **2020 Talent Review**
 - At the time of this review, a plan for Operator Schedule Reform is underway. The goal is to improve quality of work/home life while maintaining facility coverage 24 hours per day.
 - Based on the 2018 AWWA Benchmarking Survey data related to current service commitments and division statistics, the staffing level is adequate. 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, .37 MGD per FTE is the average based on 2020 data or a .8% decrease from the previous year. This means that less than 25% of survey participants are at or 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 current pandemic world. The facility is currently operated during the course of three shifts or 24 hours per day, 5 days a week. The new schedule implementation is focus to ensure coverage 24/7 with current FTE. Operational and water quality stability based on demand is required to maintain commitments and to provide steady around the clock water production. With the implementation of staff optimization plans there is not currently a need to add to the FTE level at the WPF.
 - Schedule reform will provide a clearer picture of true needs once staffing is maximized to the fullest potential. A simplified and clear picture of the operator coverage will utilize all staff in a manner related to business function.
 - 2021 talent goals include full shift coverage 7 days week with the schedule reform. This is driven by business needs with a continual focus on the pursuit of efficient operations. Full operational coverage will provide an anticipated level

of efficiencies (chemical quantity reduction), water quality improvements and full operator coverage 7 days a week with current FTE levels.

- At the time of this report a water operator will retire effective April 1, 2021.
- When annual daily flow average exceeds 3.1 MG an additional Professional Operator will be requested. This will be a total of 10 FTE's. Shift TBD based on business function.
- When 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 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 expected increase in total facility flow and full shifts around the clock.
- When annual daily flow average exceeds 3.4 MGD, an additional Plant Mechanic will be requested. This will be a total of 13 FTE's to ensure increased service commitments.
- When facility average production reaches 4.5 the facility operation versus demand needs will be evaluated to determine optimum staffing levels.
 - The talent review indicators were created based on AWWA data and focus 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 provide focus as it relates to staffing levels in relation rates and use of contractual services. At any time the business model should allow for considerations as it relates 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 the ability to develop and retain the workforce. The goal now and as we move into the future is to establish a structure in line with needs and ability for individual growth within the drinking water facility division.



Water Resource Recovery Information

Water Resource Recovery Facility (WRRF) 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 function of the facility.

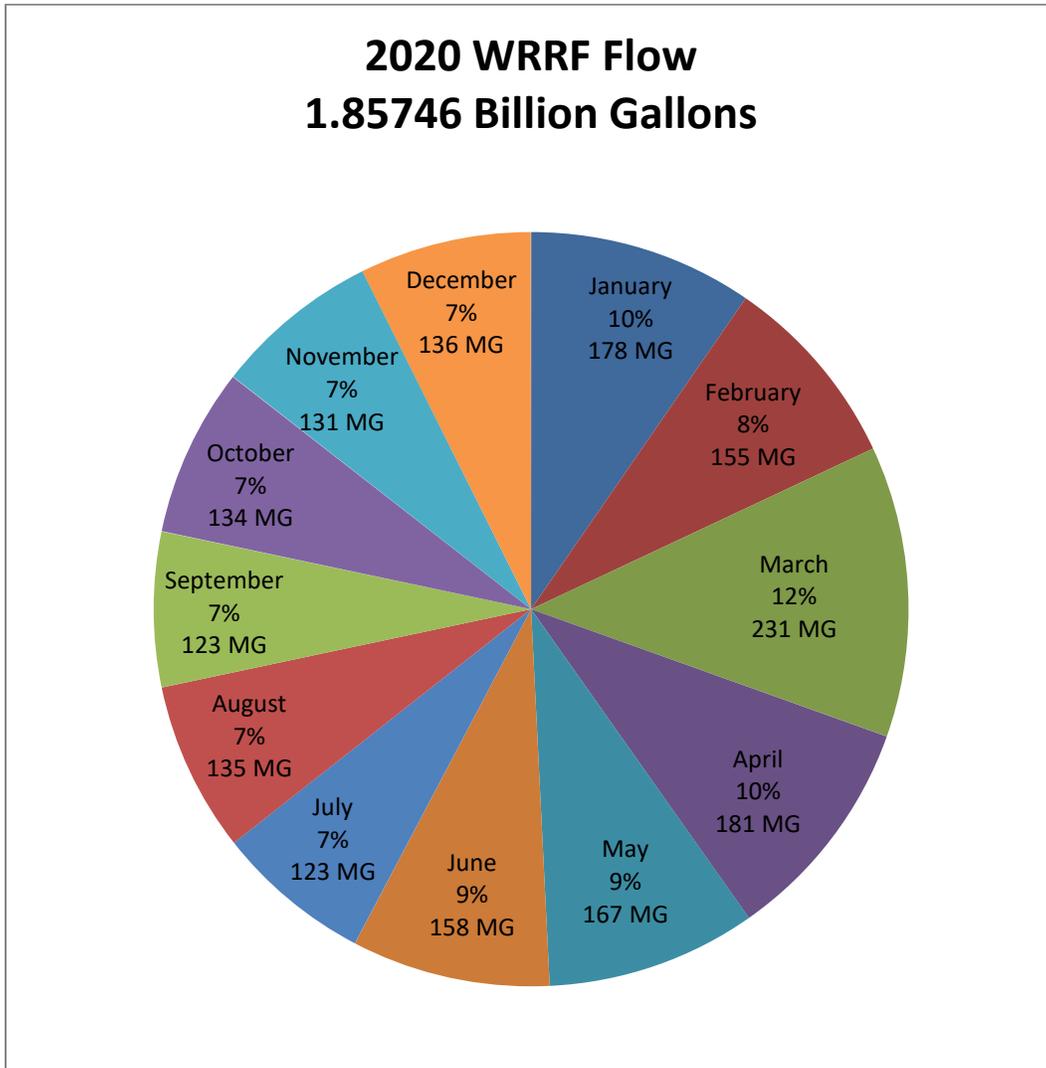
Wastewater treatment for the citizens of Wooster has been in operation at the current site since 1938. The facilities went through upgrades in 1965, 2007, and 2014. In 2009, the OEPA placed enforcement actions against Wooster due to the under performance of the 2007 upgrade. Wooster has spent millions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

The Ohio EPA Class 4 facility includes a vertical loop reactor system, a modification of the traditional oxidation ditch activated sludge process with a storm flow mode of operation. The processes 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 prior to discharge to the Killbuck Creek to enter back into the natural water cycle.

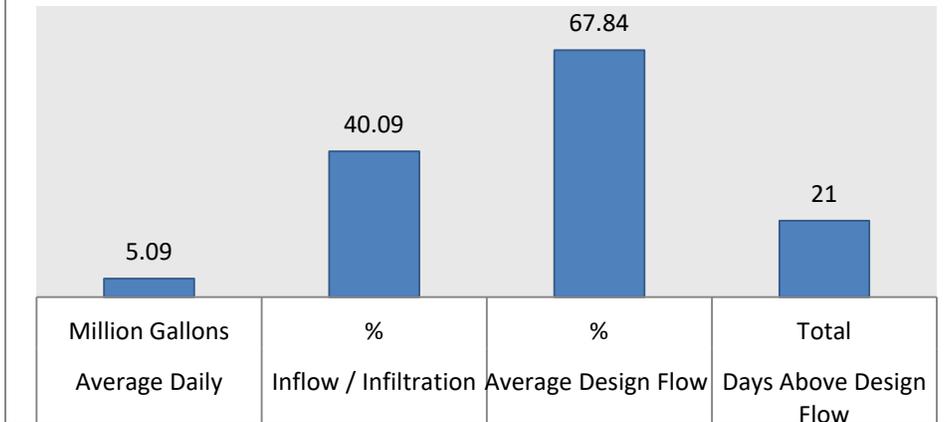
The 2014 upgrade, through a cooperative effort with an outside entity, the facility was converted to full co-generation. The ability to receive outside waste streams to support the energy needs of the facility also creates a revenue stream. The facility currently accepts semi-solid and liquid waste streams to the facility through hauling fees paid for by the waste generator. The facility is selective at the acceptance of other municipal biosolids, food processing wastes, and septic system waste. The facility serves as a power station for the WRRF and the WPF.

In 2020, the Water Resource Recovery Facility received, treated, and discharged 1.85746 billion gallons of recovered water back into the natural water cycle. The average daily flow in 2020 was 5.08 million gallons, or 67.84% of the facility design capacity of 7.5 million gallons per day. Compared to 2019 totals and averages, 2020 indicates a total flow decrease of 9% with the average and total flows. This reduction could be an indicator of flow reduction as observed with water production and directly correlates with precipitation. The facility was designed with the peak high flow rate of 27 million gallons per day. The average daily flow design level was exceeded 21 times in 2020 directly related to the 34.24 inches of precipitation for the calendar year. The data collected from the OARDC weather station indicates 2020 received 10 inches less of precipitation compared to 2019, thus indicative of the lower flows. Based on available data of metered water usage, nearly 40.09% of the annual flow rate is directly related to inflow and infiltration (I&I) sources. Based on traditional design data, the current facility should support a population equivalent of 70,000 people. However, specific design and loading criteria must be evaluated as growth, regulations, and treatment technologies change.

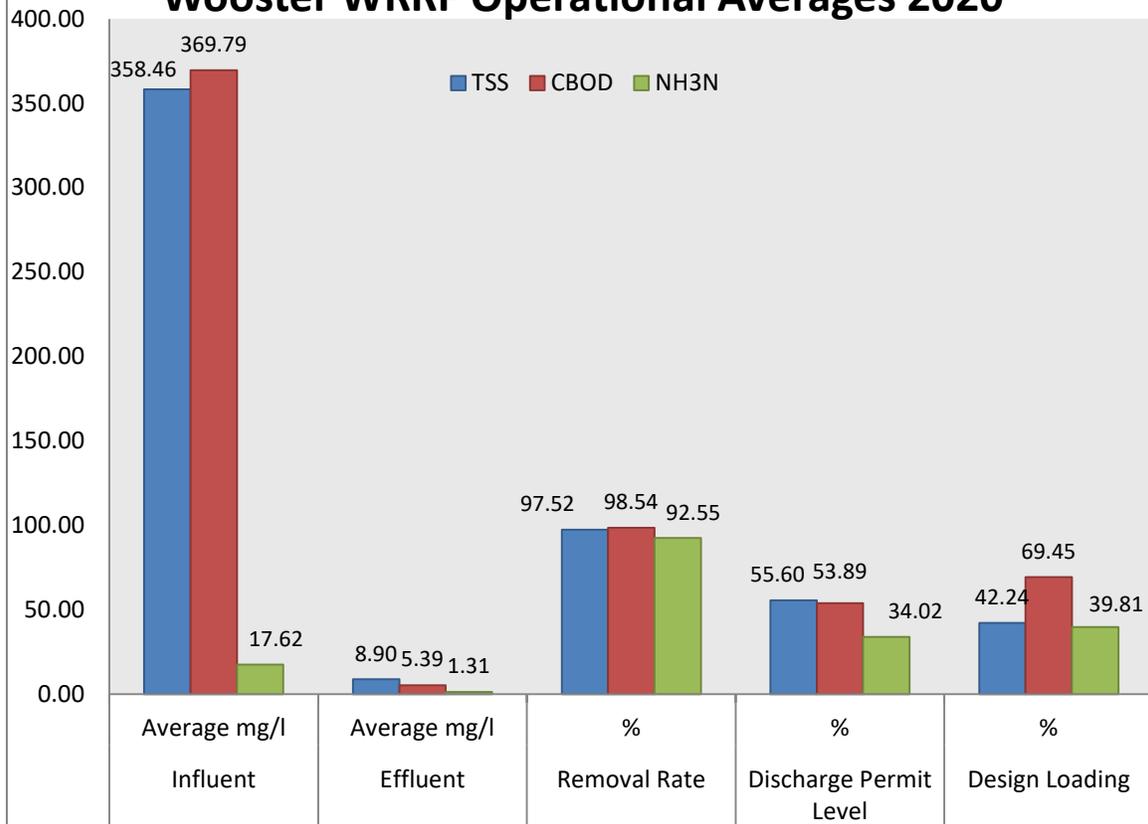
For the sake of this report, the data provided below relates to discharge treatment levels in comparison to OEPA permitted discharge levels. Levels are established by the regulatory community to ensure public health, healthy aquatic life at the receiving stream, and the removal of pollutants into the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



Wooster WRRF 2020 Flow Data Total Flow 1,857,460,000 gallons

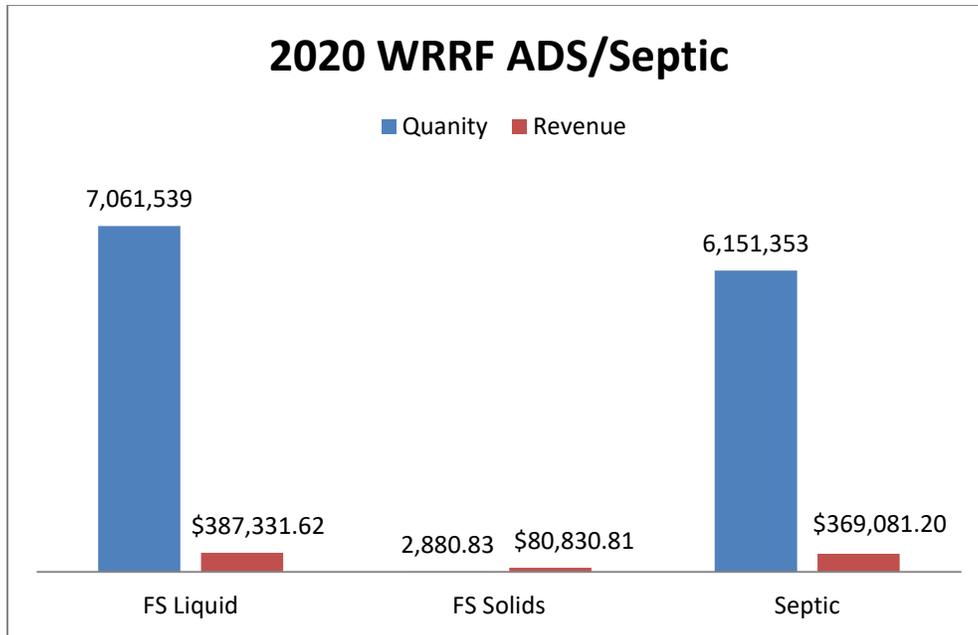


Wooster WRRF Operational Averages 2020

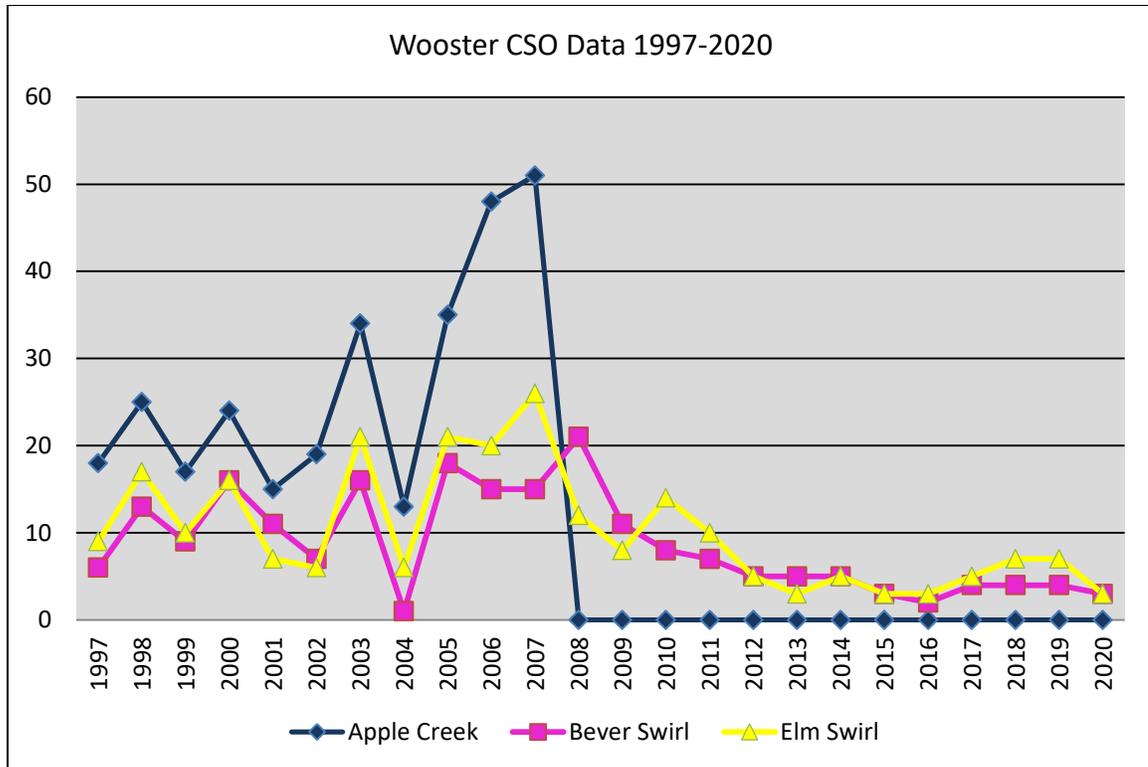


Based on the 2020 data, the following summary relates to WRRF.

- The Water Recovery Facility indicates 100% average compliance related to average pollutant removal rates. The facility 94% compliant with all federal and state regulations. This is a calculation of months in full compliance throughout the year. Related to high flows there were acute exceedances of ammonia exceedances in April that indicates monthly exceedance of mg/l and kg/day of stream loading. In August the solids loading to the stream indicated exceedance of the mg/l and slightly under the kg/day stream loadings.
- Across the most common pollutant levels, the facility is greater than 92% on removal rates. It is important to note regarding other parameter annual averages that discharge quality is exceptional: Nitrate/Nitrite 6.7 mg/l, total phosphorus .47 mg/l, total kjeldahl nitrogen 3.19 mg/l and biannual testing of discharge in a certified laboratory indicates no toxic fish mortality.
- The data indicates the facility, on average operates below all design loading rates. While this data point serves as a trend indicator, the important data set is the removal rate with capacity for future growth.
- The facility operated at 67.84% of the average design flow includes the contributed level of inflow and infiltration. While the facility is meeting regulatory requirements, future consideration includes additional I & I removal to ensure the investments meet growth requirements. The past several years indicate highest levels of recorded perception amounts (with the exception of 2020) which contribute directly the average daily flow calculation.
- The ratio of employee to annual total gallons treated is equal to 137 million gallons / employee or a 15.9% increase from 2019.
- The annual operation and maintenance cost per million gallons treated is equal to \$3,349.82 or \$3.35 to treat 1,000 gallons. While this is a positive indicator in an often unpredictable environment, it indicates a commitment stewardship.
- The facility created 1.85 mega-watts of electricity or 27% of annual power needs for both treatment facilities. This is a 45% reduction from 2019 due to major maintenance needs on the combined heat and power unit and unreliable contractual services. A total of 5 months in 2020 resulted in no power production. The power created would be enough to power 198 homes over the course of a year. The estimated cost savings of electricity production versus purchasing electricity from the grid is equal to \$79,337.66.
- The facility generated \$837,243 in revenue from the acceptance of third party waste to the recovery facility. A total of 13,212,892 gallons in liquid feedstock and regional septage was accepted in 2020. This is a combination of liquid and solid feedstock material for the digester facility and septic tipping fees to the liquid treatment stream. Third party product acceptance provides the ability to create natural gas to power the electric generator. Compared to the previous year revenue was decreased by 7.5% due to maintenance issues the prevented acceptance to the digester facility intermittently.



- A total of 3,794 dry tons or 18,230,500 gallons of class A biosolids were provided to local agricultural fields for soil enrichment and ultimate reduction of commercial fertilizers. Related to 2019 data there was an increase of 11% of total gallons hauled in 2020. The beneficial reuse disposal cost was equal to \$.05 / gallon or \$911,525 for the year.
- The WRRF facilitates an Industrial Pretreatment Program to meet regulatory requirements. In 2020 the WRRF experienced no spills, interferences or toxin discharges directly attributable to industrial dischargers. Annual inspections are conducted on the Significant Industrial User(s) in the collection system. Additional sampling occurs to ensure the dischargers to the public system are in compliance. In the event of non-compliance surcharges are issued when waste concentrations are over the local limits. In 2020, a total of \$597,942 industrial surcharge fees were issued a 34% increase from the previous year.
- Significant efforts have been made to reduce inflow and infiltration with investment in the elimination of multiple combined sewer overflow discharges. Improvements have realized with minimal CSO discharges through direct management of 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 6 events, a 54% reduction from 2019.



- **Special Projects and Accomplishments Completed in 2020**

- Finished Biosolids Loadout Tank construction started.
- Liquid and solid feedstock and septic acceptance fees were increased to ensure operational costs of the third party acceptance system. All liquid was increased to \$.08/gallon and solids increased to \$37/dry ton.
- Henry Street lift station rehabilitation completed.
- Participants in the state wide testing of sewage for Covid19.
- Obtained a 20 hour ORC staffing reduction for the facility. This equates to a minimum of 4 hours per day, 5 days a week.
- Started additional upstream and downstream testing as due diligence related to facility performance.
- Total rehabilitation of the two influent fine screens. Major overhaul and improvements specific to facility.
- Improvement to facility data tracking.
- Replacement of a digester mixer.
- Multiple issues with the macerator failure prompted evaluation of another product for implementation.
- Feedstock to digester feed line failed twice and lead to proactive replacement of a fitting on another line.

- Electrical repairs to the phosphorus removal tank mixers.
 - In house operator treatment course completed.
 - Test of the operator down system and standard improvements to the process with WARCOG.
 - Contractual services for belt filter press service and solids to landfill due to poor weather and full lagoons early 2020.
 - Extensive analytics related to poor UV performance. Significant man-hours to isolate issue and found lamps and jackets are not proper for out flows.
 - Updated local limits related to the pretreatment program.
 - In house confined space training for the staff.
 - Reinstated the Master Operator with a focus on succession planning.
- **WRRF 2021 Goals and Initiatives; “Intentional Progress”**
 - Continue to improve ADS operation by improving feedstock quality, producing consistent kilowatts, and automation updates to ensure reliability. A business plan for the function of this service will be completed in 2021. The project is on hold until clarity is reliability is in place with a service contractor. An ambitious goal is to create 70% of energy facility needs and maintain 1 million dollars in feed stock and septic receiving revenue at the close of 2021.
 - The Finished Biosolids Loadout Tank will be in service by 3rd quarter 2021. This will allow additional gas harvesting and containment to reduce the likelihood of open air odor release during hauling operations. This will improve public relations and streamline hauling processes.
 - Improve the septic receiving station with improvements to aeration and control. Also plan to hire a consultant to review options for optimization.
 - Continue employee training and education.
 - Continue to update SOP’s and Emergency Plans.
 - Hard surface paving project and lagoon/septic receiving drive improvements.
 - Clarifier 5 and 6 mechanical drive unit replacement.
 - Office, locker and restroom improvements in the original control building.
 - Influent lift station pipe and supports rehabilitation. Consideration for emergency bypass operations.
 - Engineering design study for the potential single septic and digester receiving station. Focus is debris screening and optimizing treatment capacities.
 - Funds for CHP improvements, gas scrubbing system, total machine overhaul additional boiler and potential engineering design services as required. Investment to ensure the highest output and operation possible.
 - Improvements to operating mechanisms for the Gravity Thickener, special considerations due to the cover.
 - Facility SCADA hardware and software upgrade.

- Repair supports and pipe work in the influent flow structure.

- **2021 Talent Review**
 - At the time of this review, a plan for Operator Schedule Reform is underway. The goal is to improve quality of work/home life while maintaining facility coverage 24 hours per day.
 - Based on the 2018 AWWA Benchmarking Survey data related to current service commitments and division statistics, the staffing level is adequate. The aggregate data for MGD of wastewater processed per employee indicates a median of .19 and 75th percentile of .26. Based on the current WRRF staff level, .38 MGD per FTE is the average based on 2020 data or a 14.7% decrease compared to the previous year. The reduction is largely due to the reduced flow total at the facility in 2020 compared to the previous year. This means that less than 25% of survey participants are at or 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 current pandemic world. Additional considerations of staffing do not include the advanced liquid and solids treatment streams along with third party waste acceptance and power generation.
 - Schedule reform will provide a clear picture of true needs once staffing is maximized to the fullest potential. A simplified and clear picture of the operator coverage will utilize all staff in a manner related to business function.
 - When third party acceptance totals 14,000,000 gallons and \$1,000,000 in two consecutive years; an additional 2nd Shift Professional Operator will be requested. This will offset the duty time related to service with consistent revenue. This would result in a total of 13 FTE's at the facility.
 - When the facility reaches an average daily flow of 5.5 MG for two consecutive years; two additional Professional Operators will be requested. The addition will include a 1st and 3rd shift for a total of 9 operators, 3 for each shift and a total of 15 FTE's. This will support expected increase in total facility flow and full shifts around the clock.
 - When facility average daily flow reaches 6.0 MGD, the facility operation versus demand needs will be evaluated to determine optimum staffing levels.
 - The talent review indicators were created based on AWWA data and focus 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 provide focus as it relates to staffing levels in relation rates and use of contractual services. At any time the business model should allow for considerations as it relates 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 the ability to develop and retain the workforce. The goal now and as we move into the future is to establish a structure in line with needs and ability for individual growth within the water recovery facility division.



Distribution, Collection, and Meter Information

The Distribution, Collection, and Meter (DCM) division works to 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 manholes, metering units for the 9,918 (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.

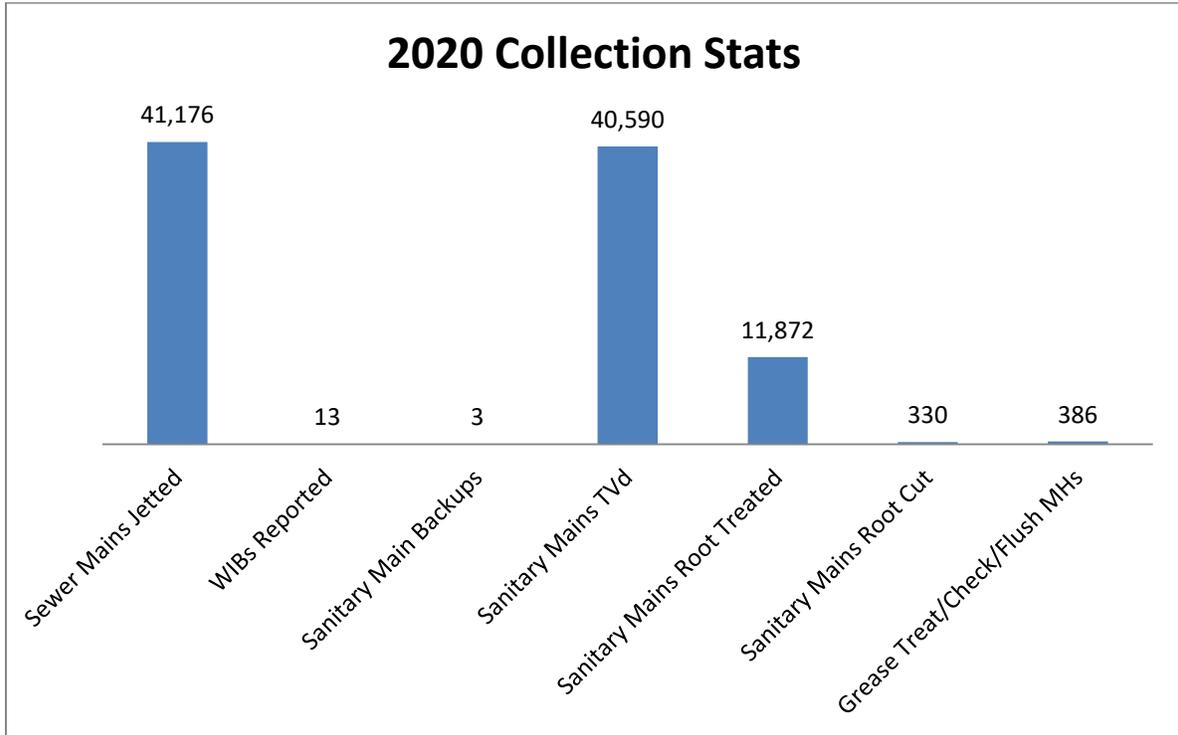
For the sake of this report, the data provided below relates to tasks completed in the mission of providing service to customers. While the data provided is not intended to quantify all the DCM workflow, but to provide a view of currently tracked tasks. For example, the total number of water main breaks in 2020 totaled 24 which is a 31% reduction compared to previous year. While this is specific to the Wooster system, the data can be compared to other similarly sized communities in the future. It is however important to note that the work that goes into each main line job. Tasks include mobilization, isolation, exaction, repair, restoration, and communication with the public. On average, four employees are needed to complete the work on an average of six hours each job. Unfortunately, the 576 man hour estimate in 2020 includes work after normal business hours and usually in unfavorable weather. This does not account for material and consumables such as fuel during the job.

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. This could be in the form of service requested by the customer or service initiated by city services. DCM works close with Utility Billing to ensure timely delivery of service not limited to accurate meter reading, meter replacement, and service verification.

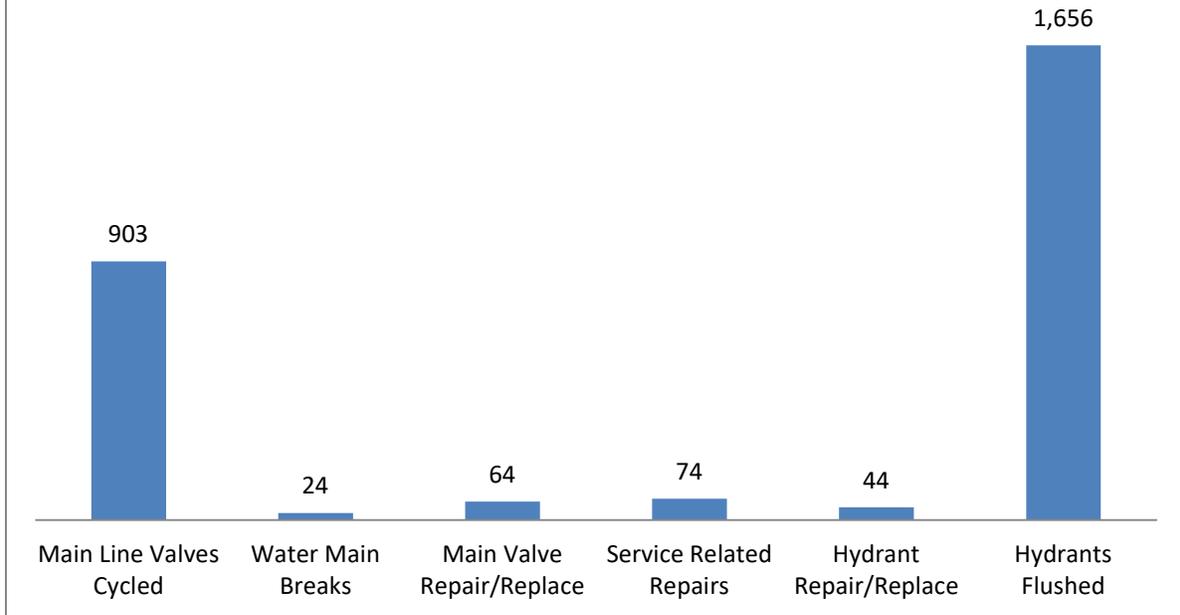


Based on the 2020 data, the following summary relates to DCM.

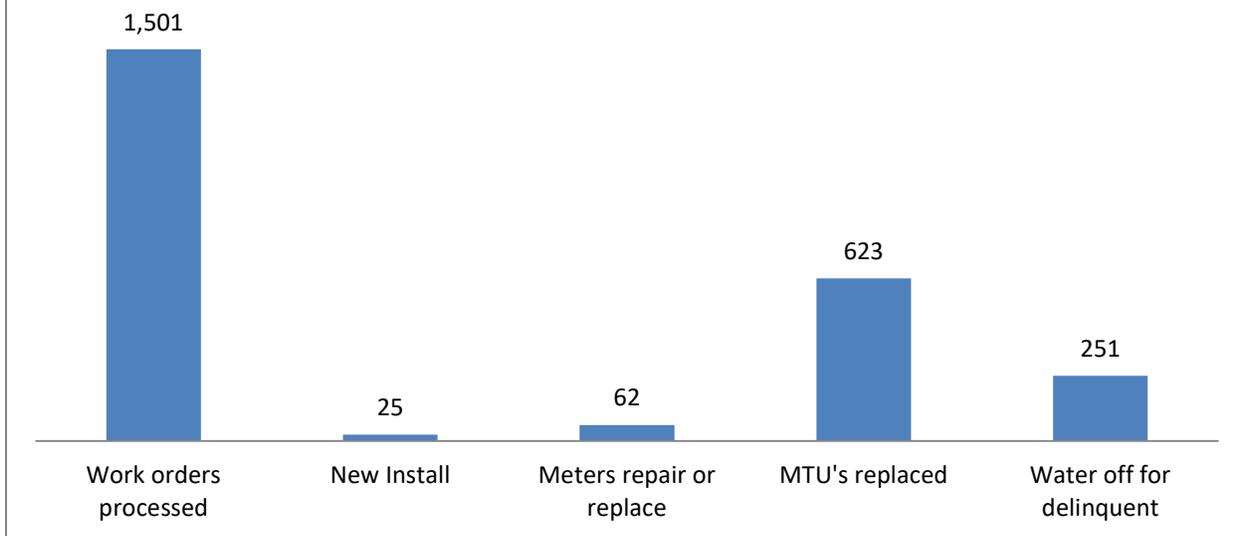
- Basic data summary indicates the vital support service provided through DCM. While the treatment of distributed and collected water is vital to a community, infrastructure support ensures the integrity of expected level of service.



2020 Distribution Stats



2020 Meter Stats

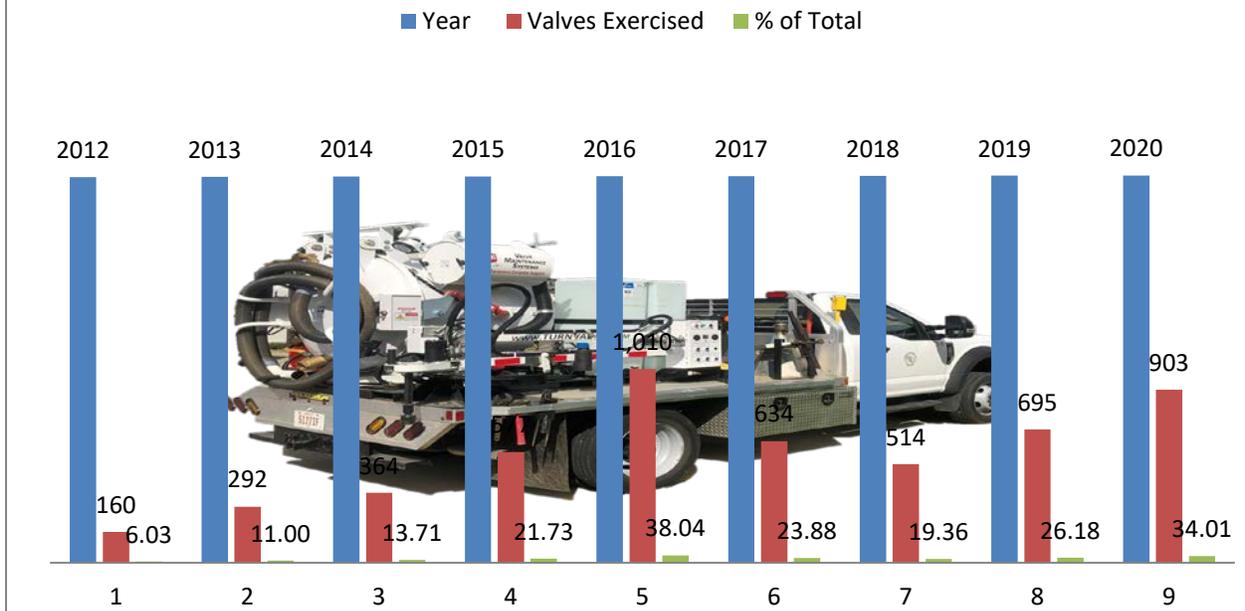




DCM Benchmarking Data

- A total of 1,501 work orders were completed for the 10,474 (average of water 9,918 and 11,031 sewer) customer accounts. This equates to a ratio of 14 service orders / 100 customer accounts. In 2020 there was an 18% decrease of work orders compared to 2019.
- A total of 623 meter transmitting units (MTU's) were replaced in comparison to 87 meters. 2020 data indicates a decrease of 15% in MTU replacement and 40% decrease in meter replacement compared to 2019. Reduction is not indicative of any service quality drop off but possible fruits of labor to date.
- A total of 251 accounts were disconnected due to delinquency. This represents 2.5% of the customer base. This is indicative of excellence in customer service and collection efforts. A 2019 comparison indicates a 36% reduction of disconnected accounts due to delinquency. This speaks to the testament of the customer service from DCM and the Billing staff, more so during the pandemic.
- A total of 903 water main valves were exercised to ensure proper operation in the event of required isolation. This represents 34% of the total valves indicated in the GIS system. Compared to 2019 a total increase of 23% additional valves was exercised in 2020.

2012-2020 Valve Exercise Data



- A combined average of 41,176 feet of sanitary main line was preventively cleaned and televised. This represents over 4.8% of the current main line inventory. The ability to conduct this work in house provides an estimated cost savings of \$85,000 versus contractual fees. 2020 efforts resulted in a decrease of 19% compared to 2019.
- In 2020 a total of 24 water main breaks surfaced and were repaired. The 2020 unplanned main line water service disruptions are equal to 2.8 disruptions / per 100,000 feet of system inventory or a 31% reduction compared to 2019.
- The 2020 unplanned main line sewer service disruptions are equal to 1.8 disruptions / per 100,000 feet of system inventory. This data set totals main block and SSO/WIB events with a total of 16 or a 14% decrease compared to 2019.
- All fire hydrants were flushed in 2020.



- **Special Projects and Accomplishments Completed in 2020**
 - Tow motor safety training and confined space training.
 - Meter bypasses survey work.
 - The leak detection program continues to provide return on investment in the form of water loss reduction.
 - A used loader was purchased under the 2020 capital plan to increase efficiencies.
 - Seasonal mowing of right of way areas related to pipe line infrastructure.

- **DCM 2021 Goals and Initiatives; “Intentional Progress”**
 - Focused efforts with Engineering to locate and eliminate sanitary inflow and infiltration.
 - Exercise 34% of the main line valve inventory.
 - Clean and televise 60,000 feet of sanitary main line.
 - 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.

- **2020 Talent Review**
 - Based on current service commitments and division needs the staffing level is adequate. 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 a 990 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 customer account total exceeds 9,999 and if WRRF hits 5.5 MGD and/or WPF 3.3 MGD, the addition of a Utility Operator Trainee will be requested for a total of 11 FTE’s.
 - When the customer account total exceeds 10,250, the addition of a Utility Technician will be requested for a total of 12 FTE’s.
 - When the customer account total exceeds 10,275, the addition of a Utility Operator will be requested for a total of 13 FTE’s.
 - Comparatively, anytime there is an increase of FTE at the treatment facilities are prompted regarding staffing level indicators, DCM staffing shall also be reviewed as it relates to account and service totals.
 - The talent review indicators were created based on AWWA data and focus 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 provide focus as it relates to staffing levels in relation rates and use of contractual services. At any time the business model should allow for considerations as it relates to continuity of service.
- In the future, based on service needs, the suggested structure will provide opportunities based on the qualified level of applicants. This will be driven by the future applicant credentials. The continuity of excellent customer service hinges on the ability to develop and retain the workforce. The goal now and as we move into the future is to establish a structure in line with needs and ability for 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 expectation levels and regulatory standards is the best way to instill public confidence. Ultimately the driver is based on the ability to provide economical goods at an intentional return rate for continual successful service operation and financial vitality. Staffing challenges as we move into the future are not unique to this industry; however it does require an intentional focus on a Wooster specific plan of attack. It requires a focus on “Intentional Progress”!

- **2021 Talent Goal 1**
 - Successfully implement Operator Schedule Reform to ensure a balance of folks working at the facilities around the clock every day. The focus of this change is better work/home balance for employees. Provide a standard work schedule week to week. Set a standard for coverage and communication in the department.
 - Goal remains under review.
- **2021 Talent Goal 2**
 - Work with leadership and HR to update job descriptions to reflect relevant standard operating procedures specific to performance and title. Understanding specific functions of each position allows for summary and testing regarding skills required for position.
 - Identify critical positions that will be needed to support continuity. Proviso, current data indicates all occupied positions is critical to service delivery
 - Manager will work with Supervisors to ensure talent knowledge and skill level and to complete this goal by December 31, 2021
- **2022 Talent Goal 3**
 - Establish intentional efforts to provide individual and positional focused growth opportunities. Implement a progressive training module program with a focus to encourage development with incentivized growth. Incentives embrace college education, distance learning, certification programs and emotional intelligence quotient to provide growth opportunities. This will also provide future vertical movement in the organization with methods to cultivate future leadership potential. Focused means to identify high potential talent. Target goal completion by December 31, 2021.

- On average a total of 630 hours of training were completed by the staff. It equates to 18.5 hours / FTE / year. The 2018 AWWA Benchmarking survey indicated a media of 13.9 hours / FTE / year of survey participants. Indeed an example of commitment to talent.
 - It is a requirement for staff to maintain OEPA certifications, as such they are required to maintain certifications while in their specific position. There is no limitation to training opportunities, staff are encouraged to speak with their supervisor to tailor career training related to individual and organizational goals.
- **2020 Goal 3**
 - Incorporate additional in house training methods to ensure retention of required skills and knowledge supporting talent continuity. This correlates with item 1, ensuring effective training and expectations of talent focus and task completion. With the goal to update SOP and training modules, there is opportunity to gain OEPA certification contact hour approval for the in house training efforts. Goal to have 5 modules approved and in use by December 31, 2021.
- **Weakness/Concern** There is no plan or promotional pathway in the ranks to elevate the workforce based on talent performance and initiative. Any organization lateral 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 prior to position vacancy. Emphasis to prepare and develop with a concentration on talent with successors in place prior to any vacancy; yields continuity. Without an established talent growth plan; **there is or 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 her at Wooster to help develop a long term action plan in the future.
- **Annual Review 1** Preparation regarding retirement. 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 response regarding competition. Annual review of relevant compensation as it relates to positions. WWU leadership will collaborate for this annual review for information incorporation in the annual report and succeeding budgetary year.

Additional 2021 Manager Goals

- 2021 focus is “Intentional Progress” and how we can view the what and why and are we utilize efficient, reliable methods in all functions.
- Complete a Biosolids/Bioenergy Business Plan to guide operations into the future. This goal will include analysis with a consultant to review all options. This is a requirement as portions of the facility built by Quasar has limitations as it relates to redundancies. Since the achievement of a Class A treatment process, we need process contingencies in place to ensure that (additional heat sources/backups) along with review to ensure facility optimization.
- Strong focus on SOP development and training related to the subject. Vision is to have a library of video procedures to ensure continuity with operations. This includes updates to emergency plans and contingency plans.
- Complete the 2021 Annual Review to include updates to the Staffing and Succession Plan and Strategic Plan. Moving forward the yearly report will include 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 utilities 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 great customer service in response and resolve.
- Continue to meet and exceed regulatory limits on all treated water.
- Continue to update and track performance data for practical use and direction.
- Implement a “Water Fest” or open house to the public in efforts of community education. This was to happen in the fall of 2020 but due to the pandemic plans were shelved. Currently evaluating options for a digital format.
- Investigation and repairs to ensure water loss percentage below 15%.
- Investigation and repairs to reduce sanitary inflow and infiltration, year one goal is to obtain viable metrics that effort are working. 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 be a focus in 2021 as it relates to “Intentional Progress” and 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

This portion of this document will cover 2019 Strategic Plan goals that were completed and initiatives for focus or completion in 2020.

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 utility strategic 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 current 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 ranks 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** is the focus on producing potable water, treated effluent, and process residuals in compliance with regulatory and reliability requirements and consistent with customer, public health, and ecological needs. In addition, **Customer Satisfaction** is included in this review category with the focus 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 as it relates to consistent proven efforts to provide high quality treated water to the community. Product quality has been the driver on 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 be a focus regarding emerging contaminants and regulatory changes. There is no current, intentional product messaging in place outside of basic regulatory requirements. WWU has received national recognition on efforts; 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 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 all media type.	A well informed customer is a confident customer.

- Employee / Leadership Development (ED), Priority 3, Rating 5
 - **Employee / Leadership Development** recruits and retains a workforce that is competent, motivated, adaptive, and safe-working. 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 opportunities for professional and leadership development 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 of duties. 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 certification and continuing education resources are stout.
 - Weakness. WWU currently does not have a succession plan in place to ensure professional development and talent preservation. There is not a plan in place to ensure 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 be the envy of 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 threat of a workforce nearing retirement age and the in 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 pathway for succession.
Employee Satisfaction Survey.	Provide annual survey 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** focus is 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 adoption of improvements.
- Strength. WWU has done a remarkable job reducing the percentage of non-revenue water since the year 2000. A collaborative approach through several departments has yielded a high success rate. Wooster is committed to operational efficiency. Efforts are currently underway to complete a water system hydraulic model along with future considerations for a sewer system hydraulic model.
- Weakness. WWU currently does not have an aggressive plan in place 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 difficult 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. Without direct data management and performance indicators in place, it may be difficult to adapt quickly to any regulatory changes.
 - 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 efficiently meter water use.	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, base line indicators.	Reduction in SSO's 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 full life-cycle cost of the utility and 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 have full understanding of current debt and budget figures outside of the operations budget. 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 important 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 which serves as an indicator of 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 provides a comparison as it does show consistency. Wooster has a solid capital improvement plan in place 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 is quite possible it makes better sense in the bill format. The ability to transparently communicate rate structure (at this time the reviewer may not be able to effectively communicate) 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 threat of the ever-changing national and global economics. 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.	Public understands rates and provides feedback.

- Infrastructure Stability (IS), Priority 5, Rating 2
 - **Infrastructure Stability** is the understanding of conditions and of 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 customer, community, and regulator-supported service levels, and consistent 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 as it relates to collaborative efforts Wooster Engineering. The reviewer finds the recent past and current infrastructure reinvestment efforts to be outstanding. Wooster has a plan into the future to continue with the commitment to excellence and commitment to outstanding 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 weakness in this category.
 - Opportunity. WWU has the potential to become a premier leader in utility management. Recommend the completion of the Water Asset Management Plan and then use the same model to proactively create a plan for the sewer system.
 - Threat. The threat of aging infrastructure nationwide is gaining attention at state and federal legislators. While identifying critical infrastructure age and condition will present 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.	Message of excellence to customers and regulators.
Consider Sewer Asset Management Plan.	Follow the model in the WAMP and build 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 Resiliency** focus is to ensure 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 common theme with categories. Efficiency, with focus on organizational values, begins with data management.** Operational Resiliency, Operational Optimization and Product Quality improvements share common future performance indicators; it begins with properly 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 specific regulatory standard. It is appropriate for an operation of this size to establish specific 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 difficult to identify said goals (benchmarks, operational set points) 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 easily gauged internally. Recommend the completion of the Water Asset Management Plan and then use the same model to proactively create a plan for the sewer system.
 - Threat. Three categories (Product Quality, Operational Optimization, and Operational Resiliency) share a symbiotic relationship as it relates to current inefficiencies tracking and managing data. Improvement or impairment in any of the 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 program 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.

2020 WWU Annual Report Executive Summary

Dear Stakeholders,

I am pleased to share with you the Wooster Water Utilities (WWU) 2020 Annual Report. The goal of this report is to condense all progress, projects, challenges, and accomplishments during the 2020 calendar year. In review, 2020 was a very successful year in the overall mission in our 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 there is a staff of 35 individuals that work around the clock to make clean water a reality.

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 that is 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 1.0731 billion gallons of drinking water to the customers. The average daily flow production in 2020 was 2.93 million gallons, or 48.03% of the facility design capacity of 6.1 million gallons per day. Compared to 2019 totals and averages, 2020 indicates a total flow decrease of 1.45% to the total and average presumably related to the pandemic onset and arguably water loss reduction. The facility was designed with the use of 87 gallons per day / capital, at current flow rates the population equivalent is 33,687.
- The operation and maintenance cost per million gallons treated is equal to \$4,315.59 or \$4.31 to treat 1,000 gallons. While this is a positive indicator in an often unpredictable environment, it indicates a commitment to stewardship.
- Through collaborative city wide department efforts the non-revenue water percent has been on a decline since 2013. 2020 saw a historical NRW reduction to 15.86% which is a 21% reduction from the previous record achieved in 2019. The progress of this is nothing short of amazing and true teamwork on display.
- A total of 4,222.7 dry tons of spent lime residual was removed from the storage lagoon and applied to farm fields for beneficial reuse. A total cost in 2020 was \$358,929.5 in contractual services or \$84.98 per dry ton. While liquid slurry is pumped to trucks for hauling the end product tonnage is required for reporting.
- Statewide PFAS testing program indicated Wooster is below detectable limits in all categories.
- Source Water Protection Plan update submission is to the Ohio EPA for endorsement of the program.
- Softener painting project is completed with new coatings, cathodic protection and drive units.
- Clearwell painting project is completed with new coatings and improvements to the vent systems.

The Water Resource Recovery Facility (WRRF) plays a vital role in the local water cycle. The water used by our customers has to be treated prior to natural water cycle entry. The focus of proper water treatment has made illness like typhoid fever and dysentery a matter of the past. The ingenuity of the facility correlates to the spirit of this community to utilize daily waste and create self-sufficient power.

WRRF Data Highlights

- The Water Recovery Facility indicates 100% average compliance related to average pollutant removal rates. The facility is 94% compliant with all federal and state regulations with a calculation of months in full compliance throughout the year. Related to high flows there were acute exceedances of ammonia in April that indicates monthly exceedance of mg/l and kg/day of stream loading. In August, the solids loading to the stream indicated exceedance of the mg/l and slightly under the kg/day stream loadings.
 - Across the most common pollutant levels, the facility is greater than 92% on removal rates. It is important to note regarding other parameter annual averages that discharge quality is exceptional: Nitrate/Nitrite 6.7 mg/l, total phosphorus .47 mg/l, total kjeldahl nitrogen 3.19 mg/l and biannual testing of discharge in a certified laboratory indicates no toxic fish mortality.
- The Water Resource Recovery Facility received, treated, and discharged 1.85746 billion gallons of recovered water back into the natural water cycle. The average daily flow in 2020 was 5.08 million gallons, or 67.84% of the facility design capacity of 7.5 million gallons per day. Compared to 2019 totals and averages, 2020 indicates a total flow decrease of 9%.
 - The average daily flow design level was exceeded 21 times in 2019 directly related to the 34.24 inches of precipitation for the calendar year. Based on available data of metered water usage, nearly 40.09% of the annual flow rate is directly related to inflow and infiltration (I&I) sources. Based on traditional design data, the current facility should support a population equivalent of 70,000 people.
- The annual operation and maintenance cost per million gallons treated is equal to \$3,349.82 or \$3.35 to treat 1,000 gallons. While this is a positive indicator in an often unpredictable environment, it indicates a commitment to stewardship.
- The facility created 1.85 megawatts of electricity or 29% of annual power needs for both treatment facilities. The power created would be enough to power 198 homes over the course of a year. Compared to the previous year electric production was decreased by 45% largely due to major maintenance on the combined heat and power unit and unreliable contractual service. While the unit was out of service for 5 months during 2020 the estimated cost savings of electricity production versus purchasing electricity from the grid is equal to \$82,506.71.
- The facility generated \$837,243 in revenue from the acceptance of third party waste to the recovery facility. Third party product acceptance provides the ability to create natural gas to power the electric generator. Compared to the previous year revenue was decreased by 21% largely due to significant maintenance that prevented acceptance of waste intermittently through the year.

- A total of 3,794 dry tons or 18,230,500 gallons of class A biosolids were provided to local agricultural fields for soil enrichment and ultimate reduction of commercial fertilizers. Related to 2019 data there was an increase of 11% of total gallons hauled in 2020. The beneficial reuse disposal cost is equal to \$.05 / gallon or \$911,525 for the year.
- The WRRF facilitates an Industrial Pretreatment Program to meet regulatory requirements. In 2019 the WRRF experienced no spills, interferences or toxin discharges directly attributable to industrial dischargers. Annual inspections are conducted on the Significant Industrial User(s) in the collection system. Additional sampling occurs to ensure the dischargers to the public system are in compliance. In the event of non-compliance surcharges are issued when waste concentrations are over the local limits. In 2020, a total of \$597,942 industrial surcharge fees were issued a 34% increase from the previous year.
- The Biosolids Storage tank is underway with expected substantial completion in June 2021.

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 disruption in service can happen, it is often unpredictable. Regardless of time and weather the crew will respond and address repairs in a safe and expedient method. Without a vast network of pipes the treatment facilities can not meet the expectations of our customers.

DCM Data Highlights

- Through collaborative city wide department efforts the non-revenue water percent has been on a decline since 2013. 2020 saw a historical NRW reduction to 15.86% which is a 21% reduction from the previous record achieved in 2019. The progress of this is nothing short of amazing and true teamwork on display.
- A total of 1,501 work orders were completed for the 10,474 customer accounts. This equates to a ratio of 14 service orders / 100 customer accounts. In 2020 there was a 18% decrease of work orders compared to 2019.
- A total of 737 meter transmitting units (MTU's) were replaced in comparison to 145 meters replaced. 2020 data indicates an increase of 12% in MTU replacement and 16% decrease in meter replacement compared to 2019. Reduction is not indicative of any service quality drop off but possible fruits of labor to date.
- A total of 251 accounts were disconnected due to delinquency. This represents 2.5% of the customer base. This is indicative of excellence in customer service and service collection efforts. A 2019 comparison indicates a 36% reduction of disconnected accounts due to delinquency. This speaks to the testament of the customer service from DCM and the Billing division, more so during the pandemic.
- A total of 903 water main valves were exercised to ensure proper operation in the event of required isolation. This represents 34% of the total valves indicated in the GIS system. Compared to 2019 a total increase of 23% additional valves was exercised in 2020.

- A combined average of 41,176 feet of sanitary main line was preventively cleaned and televised. This represents over 4.8% of the current main line inventory. The ability to conduct this work in house provides an estimated cost savings of \$85,000 versus contractual fees. 2020 efforts resulted in a decrease of 19% compared to 2019.
- In 2020 a total of 24 water main breaks surfaced and were repaired. The 2020 unplanned main line water service disruptions are equal to 2.8 disruptions / per 100,000 feet of system inventory.
- The 2020 unplanned main line sewer service disruptions are equal to 1.8 disruptions / per 100,000 feet of system inventory. This data set totals main block and SSO/WIB events with a total of 16 or a 14% decrease compared to 2019.



2020 WWU Annual Report Summary

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.

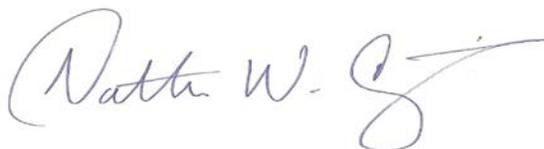
The mission of WWU includes a healthy dose of challenge that drives growth. In the pursuit of our mission of clean water, challenges must be converted to solutions and achievements. This report is intended to share critical data points and goals completion. Success and progress is attributed to the talented 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 in a responsible and respectable manner. We appreciate your support as we meet every challenge with a resolve for solution.

The goal of this document is to provide an intentional, internal review of current operations and current goals and initiatives. An additional goal is to be transparent and to provide educational information to the reviewer. This report also provides goals 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 the ability to meet and implement the goals set forth in this document.

The WWU Annual Report will be provided to the Director of Administration for the dissemination to elected body and the general public. The document will also be published to 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 greatly on the ability share the message and efforts with the public in full transparency.

WWU welcomes questions and comments 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 at the end.

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

Wooster Water Utilities Quarterly Data Report

2020	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	89.412	85.448	90.263	80.941	86.432	93.317	102.785	97.743	91.589	89.525	82.7248	82.9092	89.42	1073.089	265.123	260.69	292.117	255.159
Water Production ADF	2.8842	2.9465	2.9117	2.698	2.7881	3.1106	3.316	3.153	3.053	2.888	2.75749	2.67449	2.93		2.91	2.87	3.17	2.773326667
Interceptor Flow MGD	19.48	19.078	20.346	22.749	22.585	20.68	23.93	22.065	19.569	21.008	21.27	21.07	21.15	253.83	58.904	66.014	65.564	63.348
Non-Revenue Water %	18.59	17.83	12.45	16.67	22.14	9.95	17.5	11.18	14.39	20.72	9.66	19.3	15.87		16.29	16.25	14.36	16.56
Lime Solids Hauled DT	847.34	0	0	0	1078.94		841.39	337.86		937.43	179.74		469.19	4222.7	847.34	1078.94	1179.25	1117.17
	Year Ave																	
I & I Est % at WRRF	49.92	45.16	61.04	55.28	48.26	40.96	16.93	27.71	25.90	33.34	37.20	39.36	40.09		52.04	48.17	23.51	36.63210883
	Year Ave																	
Water Recovery MGD	178.536	155.821	231.704	181.014	167.045	158.052	123.727	135.217	123.598	134.293	131.722	136.73	154.79	1,857.46	566.061	506.111	382.542	402.745
Water Recovery ADF	5.7592	5.5246	7.4743	6.0338	5.3885	5.2684	3.99	4.36	4.12	4.33	4.39	4.41	5.09		6.25	5.56	4.16	4.376666667
CSO Activated Events	0	0	2	1	0	2	0	1	0	0	0	0		6	2	3	1	0
SSO	0	0	0	0	0	0	0	1	0	0	0	0		1	0	0	1	0
WIB	1	0	3	2	0	3	0	1	0	2	0	1		13	4	5	1	3
ADF & Septage Revenue	\$65,188.88	\$66,825.44	\$93,040.58	\$72,224.98	\$80,104.80	\$99,641.75	\$81,556.21	\$38,892.15	\$69,438.55	\$61,124.04	\$49,693.69	\$59,512.56	\$69,770.30	\$837,243.63	\$225,054.90	\$251,971.53	\$189,886.91	\$170,330.29
Biosolids Hauled Gal.	661,500	1,714,100	289,000	4,203,000	1,898,900	2,178,800	2,711,650	1,301,750	446,900	1,545,200	1,279,700		1,657,318	18,230,500	2,664,600	8,280,700	4,460,300	2,824,900
Pretreatment Charges	\$42,343.54	\$67,873.13	\$48,219.72	\$42,276.86	\$38,804.15	\$29,301.86	\$40,193.11	\$55,370.15	\$50,791.25	\$50,647.03	\$77,682.84	\$54,438.82	\$49,828.54	\$597,942.46	\$158,436.39	\$110,382.87	\$146,354.51	\$182,768.69
KWH Produced Treatment	388,658	487,397	314,406	358,236	249,187	0	0	0	22,421	29,248	0	0	154,129	1,849,553	1,190,461	607,423	22,421	29,248
KWH Purchased Treatment	276,000	127,200	52,800	292,800	218,400	451,200	681,600	650,400	636,000	602,400	504,000	602,400	424,600	5,095,200	456,000	962,400	1,968,000	1,708,800
Purchase Cost Treatment	\$13,755.91	\$11,687.91	\$11,553.95	\$16,681.56	\$15,750.22	\$20,696.22	\$23,865.85	\$21,360.06	\$23,298.34	\$20,518.50	\$21,250.80	\$18,142.27	\$18,213.47	\$218,561.59	\$36,997.77	\$53,128.00	\$68,524.25	\$59,911.57
Production Cost Savings	\$16,671.71	\$20,907.18	\$13,486.63	\$15,366.74	\$10,689.02	\$0.00	\$0.00	\$0.00	\$961.76	\$1,254.61	0	0	\$6,611.47	\$79,337.65	\$51,065.52	\$26,055.76	\$961.76	\$1,254.61
	Year Ave																	
Sewer Main Feet Clean	4,108	3,395	1,887	700	3,678	3,756	4,315	1,892	2074	5225	3991	6155	3,431	41,176	9,390	8,134	8,281	15,371
Sewer Main Feet TV	2,941	5,847	3,533	1,244	3,286	2,914	3,435	1,601	2229	4498	3937	5125	3,383	40,590	12,321	7,444	7,265	13,560
Sanitary MH Repair/Replace	2	3	10	5	4	2	0	0	0	1	3	1		31				
Sanitary Manhole Service	0	50	50	49	52	41	0	52	0	52	0	40		386				
Sewer Main Root Treat/Cut	0	0	0	11,872	30	0	0	0	0	240	0	60		12,202				
Sewer Main Block Events	0	0	0	0	0	1	0	2	0	1	0	0		4				
Valves Excersized	97	93	80	4	57	65	113	44	64	62	114	110	75	903	270	126	221	286
Hydrants Flushed	0	0	0	0	112	385	266	349	310	234	0	0	138	1,656	0	497	925	234
Water Main Repair	1	3	1	1	1	1	1	4	1	2	3	5	2	24	5	3	6	10
Service Related Repair	5	4	10	2	3	6	7	11	3	6	9	8	6	74	19	11	21	23
Main Valve Related Repair	7	4	3	1	3	5	2	9	10	6	6	8	5.33	64	34	9	21	20
Hydrant Related Repair	1	0	1	2	1	0	0	2	20	16	1	0	3.67	44	7	3	22	17
Meters	17	11	7	5	8	6	9	8	7	6	1	2	7.25	87	85	19	24	9
MTU	5	18	34	1	1	67	122	87	130	67	61	30	51.92	623	57	69	339	158
Work Orders	83	107	98	19	22	82	181	229	236	177	183	84	125.08	1501	1417	123	646	444

**2020 City of Wooster Water Resource Recovery Facility
Benchmarking Performance Indicators**

Energy Production and Consumption

Electricity produced and delivered to WRRF and WPP from ADS facility

Month	*Treatment Facility Use				**= (WS) Water System/ Wells/Booster/ Towers		*** (SS) Sewer System Lift Stations	
	kWH Produced	KWH Purchased*	Total Monthly KWH*	Purchase Cost*	KWH ** WS	\$ ** WS	KWH *** SS	\$ *** SS
January	388,658	276,000	664,658	\$13,755.91	213,171	\$27,781.63	11,194	\$1,234.84
February	487,397	127,200	614,597	\$11,687.91	211,253	\$18,991.12	10,655	\$1,404.94
March	314,406	52,800	367,206	\$11,553.95	193,100	\$17,828.11	10,840	\$1,175.60
April	358,236	292,800	651,036	\$16,681.56	207,288	\$19,567.44	13,049	\$2,532.67
May	249,187	218,400	467,587	\$15,750.22	188,492	\$18,298.80	9,158	\$1,189.64
June	0	451,200	451,200	\$20,696.22	167,595	\$21,145.61	9,477	\$1,275.51
July	0	681,600	681,600	\$23,865.85	224,869	\$22,857.10	8,633	\$1,362.78
August	0	650,400	650,400	\$21,360.06	205,105	\$20,883.79	6,976	\$1,024.80
September	22,421	636,000	658,421	\$23,298.34	215,931	\$21,901.86	7,539	\$1,152.17
October	29,248	602,400	631,648	\$20,518.50	193,481	\$19,101.85	7,894	\$1,240.97
November	0	504,000	504,000	\$21,250.80	219,564	\$20,086.50	9,187	\$1,220.58
December	0	602,400	602,400	\$18,142.27	50,212	\$5,826.77	5,563	\$593.02
Average	154,129	424,600	578,729	\$18,213.47	190,838	\$19,522.55	9,180	\$1,283.96
Total	1,849,553	5,095,200	6,944,753	\$218,561.59	2,290,061	\$234,270.58	110,165	\$15,407.52

Ave \$/KW 0.042895586

Ave \$/KW \$0.10

Ave \$/KW \$0.14

Savings Calculator

Month	\$ Saved
January	\$16,671.71
February	\$20,907.18
March	\$13,486.63
April	\$15,366.74
May	\$10,689.02
June	\$0.00
July	\$0.00
August	\$0.00
September	\$961.76
October	\$1,254.61
November	\$0.00
December	\$0.00
Average	\$6,611.47
Total	\$79,337.66

Total Facility and System Use

Month	Water KWH	Water KWH \$	Sewer KWH	Sewer KWH \$
January	479,034	\$33,283.99	409,989	\$9,488.39
February	457,092	\$23,666.28	379,413	\$8,417.69
March	339,982	\$22,449.69	231,164	\$8,107.97
April	467,702	\$26,240.06	403,671	\$12,541.61
May	375,527	\$24,598.89	289,710	\$10,639.77
June	348,075	\$29,424.10	280,197	\$13,693.24
July	497,509	\$32,403.44	417,593	\$15,682.29
August	465,265	\$29,427.81	397,216	\$13,840.84
September	479,299	\$31,221.20	402,592	\$15,131.17
October	446,140	\$27,309.25	386,883	\$13,552.07
November	421,164	\$28,586.82	311,587	\$13,971.06
December	291,172	\$13,083.68	367,003	\$11,478.38
Average	Average 422,330	Average \$26,807.93	Average 356,418	Average \$12,212.04
Total	Total 5,067,962	Total \$321,695.22	Total 4,277,017	Total \$146,544.47

Month	Total MGD	
	Water	Sewer
January	89.412	178.536
February	85.448	155.821
March	90.263	231.704
April	80.941	181.014
May	86.432	167.045
June	93.317	158.052
July	102.785	123.727
August	97.743	135.217
September	91.589	123.598
October	89.525	134.293
November	82.7248	131.722
December	82.909	136.73
Average	89.4240667	154.78825
Total	1073.0888	1857.459
Max	102.785	231.704
Min	80.941	123.598
Op Staff	8	13.5
MGD/Emp	134.136	137.590

Month	Water PI	
	KWH/MG	AC\$/MG
January	5,357.61	\$372.25
February	5,349.36	\$276.97
March	3,766.58	\$248.71
April	5,778.31	\$324.19
May	4,344.77	\$284.60
June	3,730.03	\$315.31
July	4,840.29	\$315.25
August	4,760.09	\$301.07
September	5,233.15	\$340.88
October	4,983.41	\$305.05
November	5,091.15	\$345.57
December	3,511.95	\$157.81
Average	4,728.89	\$298.97
Max	5,778.31	\$372.25
Min	3,511.95	\$157.81

Month	Sewer PI	
	KWH/MG	AC\$/MG
January	2,296.39	\$53.15
February	2,434.93	\$54.02
March	997.67	\$34.99
April	2,230.05	\$69.29
May	1,734.32	\$63.69
June	1,772.82	\$86.64
July	3,375.12	\$126.75
August	2,937.62	\$102.36
September	3,257.27	\$122.42
October	2,880.89	\$100.91
November	2,365.49	\$106.06
December	2,684.14	\$83.95
Average	2,413.89	\$83.69
Max	3,375.12	\$126.75
Min	997.67	\$34.99

Total W & S Power Cost	\$468,239.69
Total KWH Use	9,344,979.00
Water Average Cost /MG	\$299.78
Sewer Average Cost /MG	\$78.90

Year	
Water MGD / Employee	134.14
Sewer MGD / Employee	137.59

Daily	
Water MGD / Employee	0.37
Sewer MGD / Employee	0.38

2020 City of Wooster Water Resource Recovery Facility
Benchmarking Performance Indicators

201 Expense

WRRF O&M	Sewer Cost / MG	Sewer Cost / 1,000 gallons
\$6,222,149.00	\$3,349.82	\$3.35
WPF O&M	Water Cost / MG	Water Cost / 1,000 gallons
\$4,631,013.00	\$4,315.59	\$4.32
Utilities O&M Total		
\$10,853,162.00		

W/S Combined AC\$/MG	MG
\$425.40	January 267.948
\$330.99	February 241.269
\$283.71	March 321.967
\$393.47	April 261.955
\$348.30	May 253.477
\$401.95	June 251.369
\$442.00	July 226.512
\$403.43	August 232.96
\$463.31	September 215.187
\$405.96	October 223.818
\$451.63	November 214.4468
\$241.76	December 219.639
	Total
	Average

Month	WRRF Natural Gas \$	mcf	WRRF Nat Gas Stations \$	mcf
January	\$4,333.40	896.5	\$179.58	0.7
February	\$2,997.62	586.5	\$567.80	0.6
March	\$4,667.45	943.1	\$787.70	0.5
April	\$1,593.01	306.9	\$170.30	0.3
May	\$1,067.39	194.9	\$319.09	0.8
June	\$1,851.71	362.8	\$208.83	0.9
July	\$1,959.72	383.7	\$165.34	0.5
August	\$5,797.17	1232.8	\$89.79	1.5
September	\$4,650.18	979.1	\$60.71	1.3
October	\$2,664.94	540	\$89.23	1.3
November	\$6,885.97	1465.4	\$89.24	1.4
December	\$9,020.41	1966.6	\$89.08	2
Average	\$3,957.41	821.525	\$234.72	
Total	\$47,488.97	9858.3	\$2,816.69	

WPF Natural Gas \$	mcf	DCM Gas	mcf
\$1,706.64	326.3	\$281.98	37.1
\$691.15	326.1	\$241.80	29.9
\$1,579.59	291.4	\$272.79	37.5
\$1,153.57	213.2	\$196.22	26.5
\$1,266.86	237.6	\$187.39	14.8
\$137.17	2.3	\$110.67	0
\$136.07	2.3	\$133.25	0.2
\$281.40	3.4	\$31.26	0.8
\$279.40	3.5	\$33.38	1.3
\$257.18	4.3	\$33.38	1.3
\$384.53	25.2	\$65.86	9.1
\$2,992.15	547.4	\$301.78	63.9
\$10,865.71		\$1,889.76	