Wooster Water Utilities

2024 Annual Report

Mike Fritz, Manager

Water Production

Water Recovery

Distribution

Collection

Meters

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WATER PRODUCTION OPERATIONS

The City of Wooster Water Production Facility (WPF), now in its 27th year of operation, continues to perform well. The overall reliability of the plant systems has been excellent with the aid of our well-trained and attentive operations and maintenance staff.

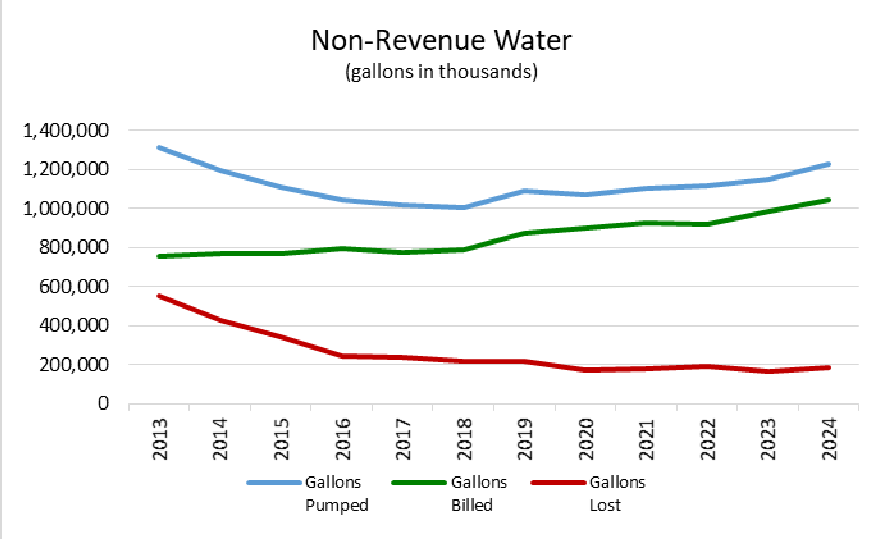
Finished water pumped to the city in 2024 increased by 77 million gallons from the previous year for a total of 1.23 billion gallons. The high duty pumps sent an average of 3.36 million gallons per day of finished water into the distribution system. The peak pumping day occurred on March 15 when 4.397 million gallons of finished water was pumped into the city. The average per capita usage of water in 2024 was 123 gallons per day based on population data of 27,232. (This average factors in significant industry usage.)

Unaccounted for water decreased when compared to the previous year. These losses are attributed to service line leaks, distribution line losses (main line valve leaks, main line leaks) and hydrant leaks. In 2024, the entire system was leak surveyed twice. There were 12 public and 11 private leaks identified and repaired.

ANNUAL WATER FACILITY PRODUCTION

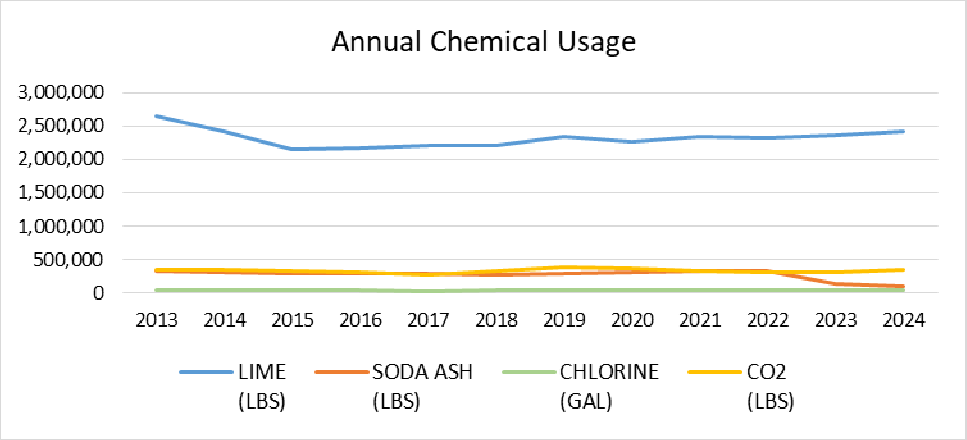
Year	Total Million Gallons Finished Water	Average Chemical Cost Per Million Gallons	Average Hardness Raw Water mg/L	Average Hardness Finished Water mg/L
2013	1,312	$230.73	365	108
2014	1,197	$231.55	365	107
2015	1,113	$212.79	358	103
2016	1,036	$207.51	364	104
2017	1,019	$212.24	357	104
2018	1,008	$210.58	367	119
2019	1,088	$208.63	352	109
2020	1,073	$207.44	347	106
2021	1,102	$207.48	351	101
2022	1,114	$207.45	352	101
2023	1,153	$496.64	353	112
2024	1,200	$534.81	330	112

GALLONS PUMPED VS GALLONS BILLED (in thousands)				
Year	Gallons Pumped	Gallons Billed	Gallons Lost	Loss %
2013	1,312,736	759,870	552,866	42%
2014	1,197,309	766,965	430,344	36%
2015	1,111,605	768,536	343,069	31%
2016	1,044,260	797,950	246,310	24%
2017	1,018,920	777,150	241,770	24%
2018	1,005,609	787,834	217,775	22%
2019	1,088,808	871,565	217,243	20%
2020	1,073,089	902,620	170,469	16%
2021	1,102,080	924,467	177,613	16%
2022	1,115,383	923,167	192,216	17%
2023	1,152,578	987,247	165,331	14%
2024	1,230,275	1,046,640	183,635	15%



The chemical cost per million gallons of treated water in 2024 was $534.81 while the total cost of WPF operations and personnel was $2,422 per million gallons of treated water. Plans for 2025 are to eliminate soda ash from the treatment process and add phosphate.

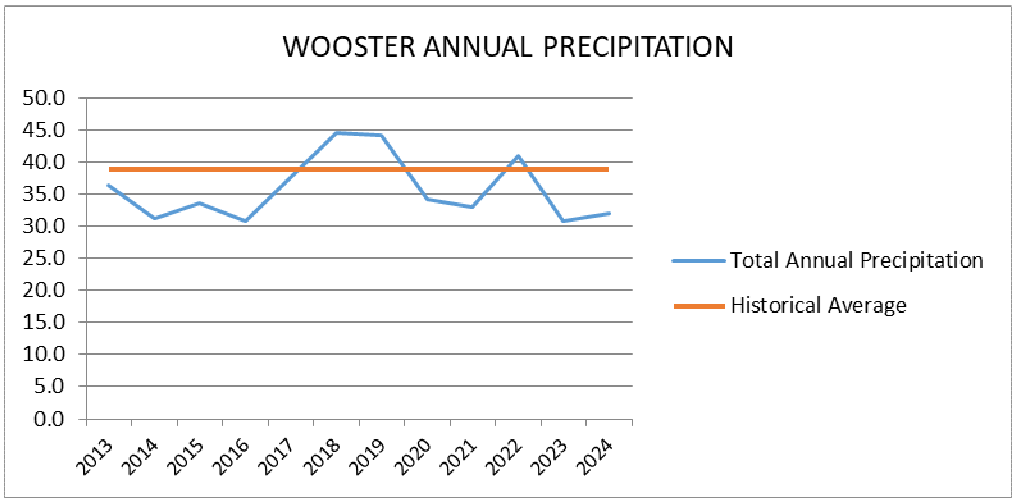
ANNUAL CHEMICAL USAGE				
YEAR	LIME (LBS)	SODA ASH (LBS)	CHLORINE (GAL)	CO2 (LBS)
2013	2,647,538	335,271	42,947	346,816
2014	2,424,685	315,308	40,206	352,278
2015	2,157,529	295,341	33,852	326,458
2016	2,165,766	287,543	39,353	305,167
2017	2,205,395	284,636	33,631	274,472
2018	2,213,615	278,182	35,966	326,574
2019	2,347,060	293,973	38,028	380,975
2020	2,275,302	304,033	37,045	367,164
2021	2,351,707	323,444	38,970	327,616
2022	2,326,375	333,850	44,269	319,448
2023	2,362,020	146,760	40,860	305,407
2024	2,419,640	96,000	37,068	349,182



Sludge, a byproduct of the lime and soda ash softening process, is pumped to the sludge lagoon at the Water Resource Recovery Facility. There were 7.13 million gallons of lime sludge pumped to the WRRF in 2024. The sludge is held in a storage lagoon until it can be transported to farm fields for agricultural use.

The CFAES reports of 2024 show 31.9 inches of precipitation in the Wooster area compared to 30.9 inches in 2023. The average rainfall is 38.9 inches for the Wooster community. For the year 2024, the area was 7 inches below the normal precipitation.

WOOSTER ANNUAL PRECIPITATION (CFAES WEATHER STATION)		
Year	**Total Annual Precipitation**	**Change from Normal Precipitation (38.9")**
2013	36.4	-6.43%
2014	31.2	-19.79%
2015	33.5	-13.88%
2016	30.9	-20.57%
2017	37.5	-3.60%
2018	44.5	14.40%
2019	44.1	13.37%
2020	34.2	-12.08%
2021	33.0	-15.17%
2022	41.0	5.40%
2023	30.9	-20.62%
2024	31.9	-17.92%



Production of safe and satisfactory drinking water throughout 2024 was indicated by negative E-Coli bacteria results in samples of finished water collected from representative points of the distribution system. There were a total of 1,018 bacteria tests completed including Wooster distribution, new water lines, water line breaks, depressurization events, boil advisories, outside water systems and private wells.

South Well Field Contamination Management

Since 1985, the City has operated interceptor wells and packed media stripping towers to remove volatile organic contamination from the South Well Field. The interceptor wells protect the City's production wells from the contamination plume migrating further into the South production wells. In addition, the operations staff conducts a semiannual testing event of monitoring wells in and around the South Well Field to record movement and levels of contaminants found in the ground water. Twelve test wells are measured for water depth, tested for turbidity, pH, conductivity and sampled for volatile organics. In 2024, the packed media stripping towers treated 426 million gallons of contaminated water then discharged into the Little Apple Creek. Since 2023, the City discovered PFAS in both production wells and interceptor wells. In April of 2024, USEPA issued rules requiring monitoring PFAS with maximum contaminant limits taking effect in 2027.

Due to the high levels of PFAS in Wells S-1 and S-2, the City removed those wells from service in February of 2024. PFAS in the drinking water produced at the facility has been below detection for the regulated PFAS since February. Continued management of the contamination includes sampling finished water, raw water, production, interceptor and monitoring wells on a quarterly basis for both VOCs and PFAS. Well S-1 will be replaced in 2025 with Well S-4. Well S-2 will be replaced in 2026 with Well S-5. Long-term plans for contamination management for the South Well Field will include transition from VOC treatment of interceptor well discharge to PFAS treatment of interceptor well discharge. State and Federal EPA have not developed rules for limiting PFAS discharges to receiving streams.

Special Water Production Projects Completed in 2024

- Abandoned North Well Field #3 and #4 production wells due to age, condition and lack of capacity
- Replacement of Bulk Water Station at WPF
- Replacement of Melrose Booster pumps with higher capacity pumps, motors and drives
- Replacement of Long Road Booster Station with new building, higher capacity pumps, motors and drives. New building includes backup power generator on site
- Completed siting and permitting for new production Well S-4 to replace capacity of Well S-1 that was removed from service

Water Production Goals and Objectives for 2025

- Paint Long Road tank
- Refurbish Madison Booster Station with new electric service, pumps, piping, etc.
- Continue improvements to operations and maintenance of interceptor wells to include well cleaning and pump replacement of I-4 and I-6 wells.
- Complete construction of Well S-4 and put in service by end of 2025
- Complete siting and permitting Well S-5
- Replacement of WPF HVAC systems for lab and lower level of WPF
- Complete install of backup generator at Well S-3
- Complete install of WPF electric service and automatic transfer switch
- Complete installation of phosphate feed system at WPF to improve operations and reduce chemical costs

WATER PRODUCTION EMPLOYEE ROSTER
1020 Old Columbus Road

Utilities Manager: ..... Mike Fritz (WS3)

Water Production Supervisor: .....Robert King (WS3, WW1)

Laboratory Technician: ..... Derek Sigler (WS3, WW1)

Operators: .....Jeff Buck (WS1)
..... Kevin Cormany (WS1, WR1)
.....Emma Fox (WS2, WR1)
..... James Goon (WS2)
.....Wanjin Kwon (WS2)
.....Nathan Wichterman (WS2)

Plant Mechanic: ..... Rory Reed (WR2)

Office Specialist: .....Pam Corbett

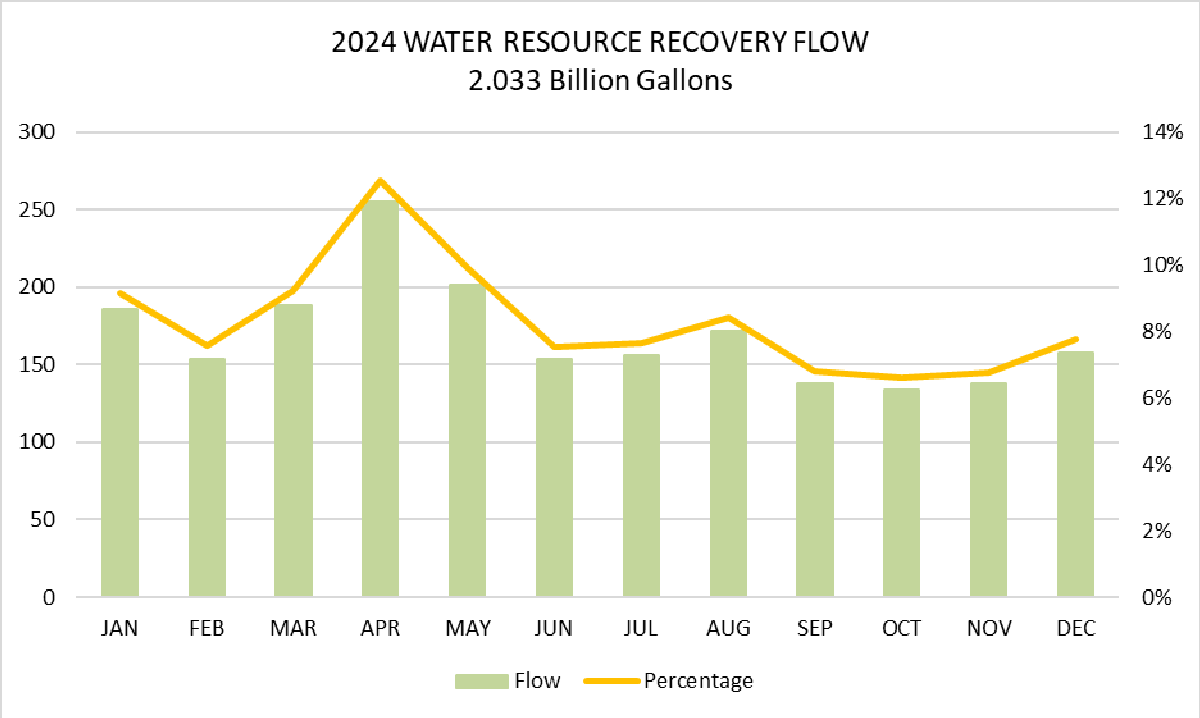
OHIO EPA CERTIFICATIONS
WC – Wastewater Collection (2 is highest level)
WD – Water Distribution (2 is highest level)
WS – Water Supply (4 is highest level)
WW – Wastewater Treatment (4 is highest level)

WATER RESOURCE RECOVERY OPERATIONS

The Water Resource Recovery Facility (WRRF) treated a total of 2.033 billion gallons of wastewater with the average daily flow being 5.556 million gallons per day (MGD), receiving a peak daily flow of 18.04 million gallons on April 2, 2024. This represents a decrease of 14 million gallons compared to 2023. The flow design of the facility is for 7.5 million gallons per day with a hydraulic maximum of 27 million gallons.

In contrast to the wastewater treated at WRRF, the Water Production Facility produced an average of 3.36 MGD. The disparity of 2.196 MGD between water produced and wastewater treated in 2024 is attributed to a combination of precipitation entering the WRRF through the combined sewers and collection system infiltration (1.413 MGD) sewer only customers (.783 MGD). The infiltration component of this disparity continues to be actively monitored and addressed.

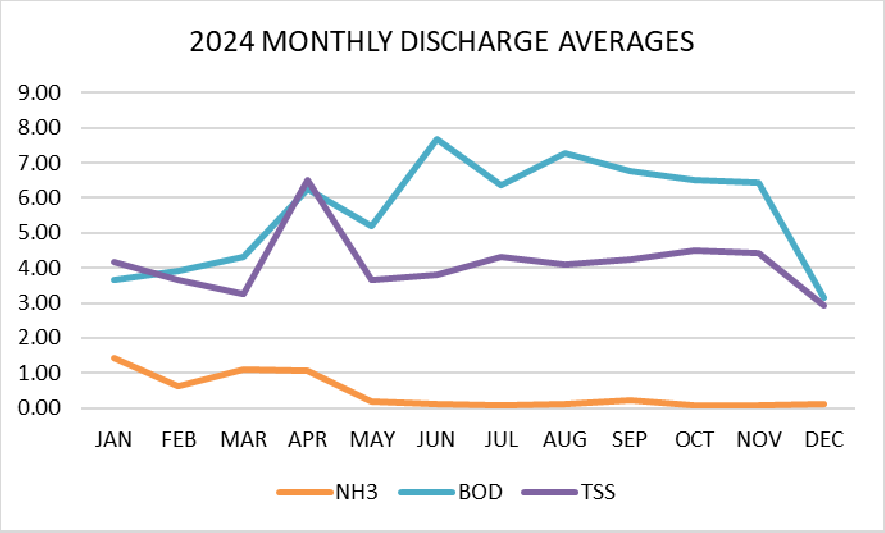
2024 WATER RESOURCE RECOVERY FLOW		
Month	**Flow Totals**	**Percentages**
JAN	186.1343312	9%
FEB	153.5936956	8%
MAR	188.0597448	9%
APR	255.4053063	13%
MAY	201.4429626	10%
JUN	153.5083017	8%
JUL	155.7389174	8%
AUG	171.3983989	8%
SEP	138.3151474	7%
OCT	134.0475519	7%
NOV	137.6994245	7%
DEC	158.0398691	8%
Total	**2033.383651**	



WRRF cost per million gallons of treated wastewater in 2024 was $872 for O&M and the total cost of WRRF operations and personnel was $1,600/MG.

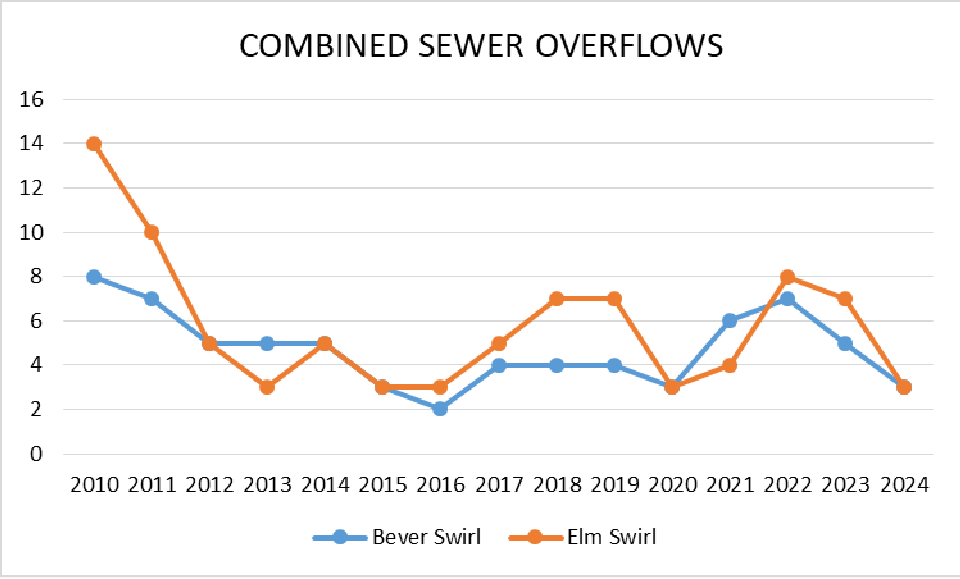
The typical strength of wastewater is calculated in relation to three basic attributes: Carbonaceous Biochemical Oxygen Demand (CBOD), Suspended Solids (SS) and Ammonia (NH3). An additional indication of wastewater strength, Chemical Oxygen Demand (COD) is used primarily by our industrial users because of the repeatability and speed in which information can be derived by testing. The average daily strength of the raw wastewater treated at this facility in the calendar year 2024 was 14,931 pounds of CBOD, 10,252 pounds of TSS and 874 pounds of NH3. When compared to the facility's design, the plant is operating at 68% CBOD loading, 38% TSS loading, and 43% Ammonia loading. Regarding the removal efficiency of these parameters, the plant removed 98%, 98%, and 98%, respectively.

2024 MONTHLY DISCHARGE AVERAGES (in mg/l)			
MONTH	**NH3**	**BOD**	**TSS**
JAN	1.43	3.7	4.17
FEB	0.63	3.9	3.67
MAR	1.10	4.3	3.25
APR	1.06	6.3	6.50
MAY	0.19	5.2	3.67
JUN	0.11	7.7	3.80
JUL	0.09	6.4	4.31
AUG	0.11	7.3	4.08
SEP	0.24	6.8	4.25
OCT	0.09	6.5	4.50
NOV	0.07	6.4	4.42
DEC	0.13	3.2	2.92



The ongoing sanitary/storm water separation projects continue to show improvement on controlling surface water from entering the City collection system and overloading the hydraulic capacity of the treatment plant. The combined sewer overflow structures that allow raw wastewater to enter the Apple Creek were activated 6 times during 3 separate storm events in 2024. As part of the City's long-term control plan, the goal is to only activate the overflows when a 5-year storm event occurs.

NUMBER OF OVERFLOWS BY YEAR			
YEAR	Bever Swirl (003)	Elm Swirl (004)	Total
2010	8	14	22
2011	7	10	17
2012	5	5	10
2013	5	3	8
2014	5	5	10
2015	3	3	6
2016	2	3	5
2017	4	5	9
2018	4	7	11
2019	4	7	11
2020	3	3	6
2021	6	4	10
2022	7	8	15
2023	5	7	12
2024	3	3	6



Industrial Pretreatment/Biosolids Program

The City of Wooster's Sewer Use Ordinance and Enforcement Response Guide provide the legal authority to enforce the Ohio EPA approved pretreatment program of the city as well as U.S. EPA regulations. A conscious effort is made through training, continued education and Ohio EPA's numerous websites and links to keep current with rule changes pertaining to pretreatment. Modification requests will be submitted for EPA approval, when deemed necessary.

The primary objectives and activities of the Pretreatment Program are to:

- Protect the environment and public health and safety.
- Protect the sewers and wastewater treatment plant from damage due to an accidental or deliberate discharge of pollutants.
- Provide safe working conditions for sewer utility workers.
- Locate all industrial users and identify the pollutants they discharge.
- Issue discharge permits to industrial users (IUs) classified by the POTW as a significant industrial user (SIU).
- Sample and analyze the wastewater discharge from IUs and conduct yearly inspections.
- Investigate instances of noncompliance with pretreatment standards and permit requirements.
- Collect samples in order to surcharge industries for high-strength wastes.

Pretreatment operating procedures that are in place are adequate and are followed to meet program goals. All industrial sampling and reporting requirements were met this pretreatment year. Annual industrial inspections were completed in March 14, 2024.

All industrial users that meet the criteria, as established by the EPA, of a Significant Industrial User (SIU) or Categorical Industrial User (CIU) are monitored for compliance with categorical and/or local limits for conservative and conventional pollutants. Additional sampling is done to ensure non-domestic wastewater dischargers are in compliance with local limits. Currently, the city has 9 permitted SIUs, 5 of which are CIUs, and monitors numerous other non-significant dischargers for compliance.

In addition to quarterly compliance sampling, several industrial users discharging higher than normal conventional pollutants are sampled weekly for Chemical Oxygen Demand (COD) and Total Suspended Solids (TSS). The analytical results of those samples are averaged for each month and a sewer surcharge for high-strength waste is billed accordingly. These surcharge fees brought in more than $388,746 last year.

One industry will be published in the public notices section of The Daily Record in 2025 for 2024 significant violations of either local City of Wooster limits or EPA pretreatment violations. This industry is:

- Rayco

The City of Wooster Pretreatment Program is financed through the city sewer fund. No financing problems were experienced in this pretreatment year or are anticipated for the next pretreatment year. All financing needed for the administration of the program is available.

All U.S. and Ohio EPA reporting requirements for the WRRF biosolids program were met in 2024. In 2024, the WRRF contracted with Burkey Excavating to land apply biosolids. The equivalent of 7.3 million gallons of biosolids was land applied in 2024.

Special Water Resource Recovery Projects Completed in 2024

- 5 Lift stations communications converted to fiber optics
- Melrose lift station refurbished
- Aeration basin air delivery was automated
- Aeration basin 5 was converted to fine air
- Waste lines were added to final clarifiers 5 & 6
- Installed pretreatment samplers at 2 of the largest industrial customers

Water Resource Recovery Goals and Objectives for 2025

- Complete headworks project
- Complete aeration tanks 1 & 2 project
- Replace effluent pump 4
- Convert all lift stations to fiber optics
- Complete UV disinfection system project
- Start ADS project
- Replace HVAC units for administration building
- Renovate Cleveland Road North lift station
- Renovate Deer Creek lift station
- Continued staff training and development
    - Continue to write and update SOPs for all processes
    - Maintain 100% staff certification

WATER RESOUCE RECOVERY EMPLOYEE ROSTER
1123 Old Columbus Road

Utilities Manager: ..... Mike Fritz (WS3)

Supervisor: ..... Chad Frank (WR4)

Master Operator: ..... Andrew Blowers (WR4)

Laboratory Technicians: ..... Cody Bower (WR3, WS3)
..... Donavon Reichert (WR3, WS2)

Pretreatment/Biosolids Coordinator: ..... Adam Wilford (WR3)

Operators: ..... Dana Bower (WR1)
..... Patrick Carnahan (WR1)
..... John Durell (WR2)
..... Mike Hershberger (WR1)
..... Mike McCaskey (WR1, WS1)
..... Coleman Quay (WR3)

Plant Mechanics: ..... Randy Harper

Office Specialist: ..... Pam Corbett

OHIO EPA CERTIFICATIONS
WC – Wastewater Collection (2 is highest level)
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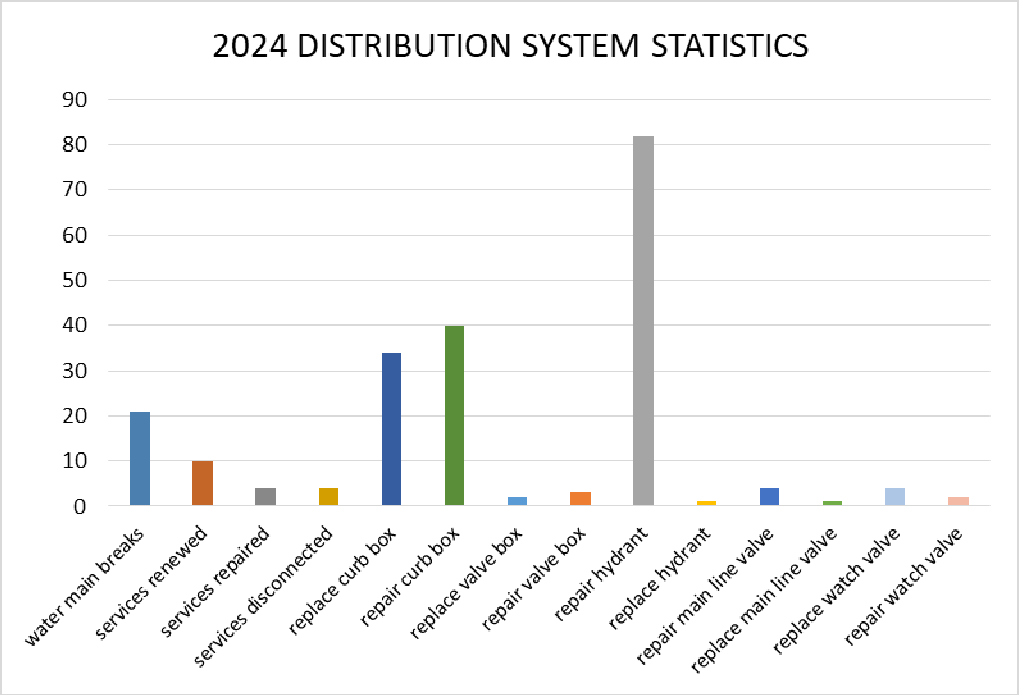
DISTRIBUTION & COLLECTION OPERATIONS

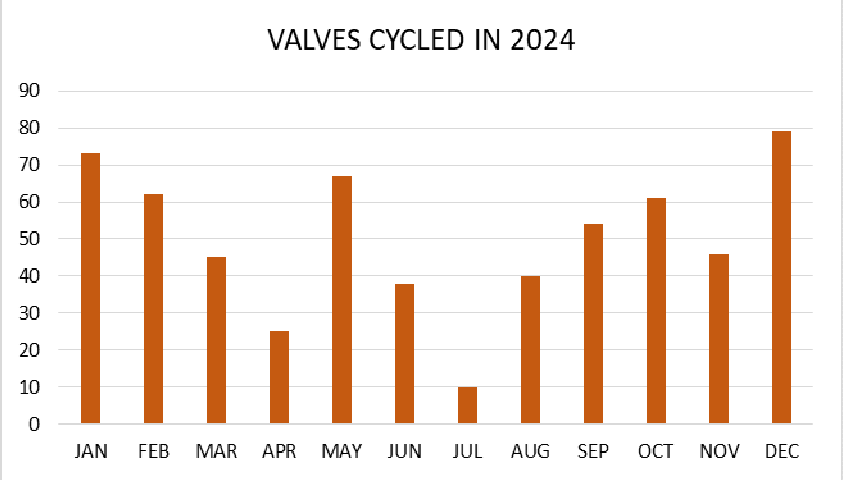
The Distribution & Collection Subdivision (D&C) is responsible for the maintenance and operation of all the City's underground water utilities and the metering system. As part of the ongoing water loss reduction program, D&C completed 2 full sonic leak detection survey rounds of the distribution system.

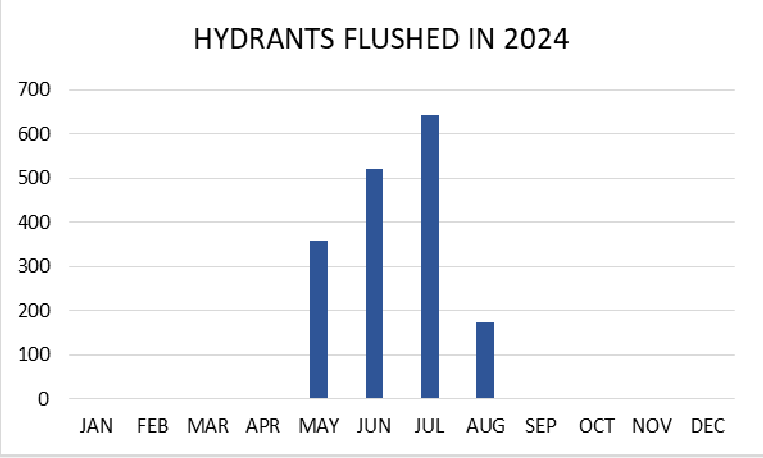
2024 Distribution & Collection Highlights

- 600 Water main valves cycled
- 82 Hydrants repaired
- 74 Curb boxes repaired or replaced
- 21 Main breaks repaired
- 1,694 Hydrants flushed
- 10.7 Miles of sanitary mains jetted
- 10.2 Miles of sanitary mains televised
- 3.9 Miles of sanitary mains root treated
- 318 Delinquent water shut offs
- 1,992 Meter work orders processed

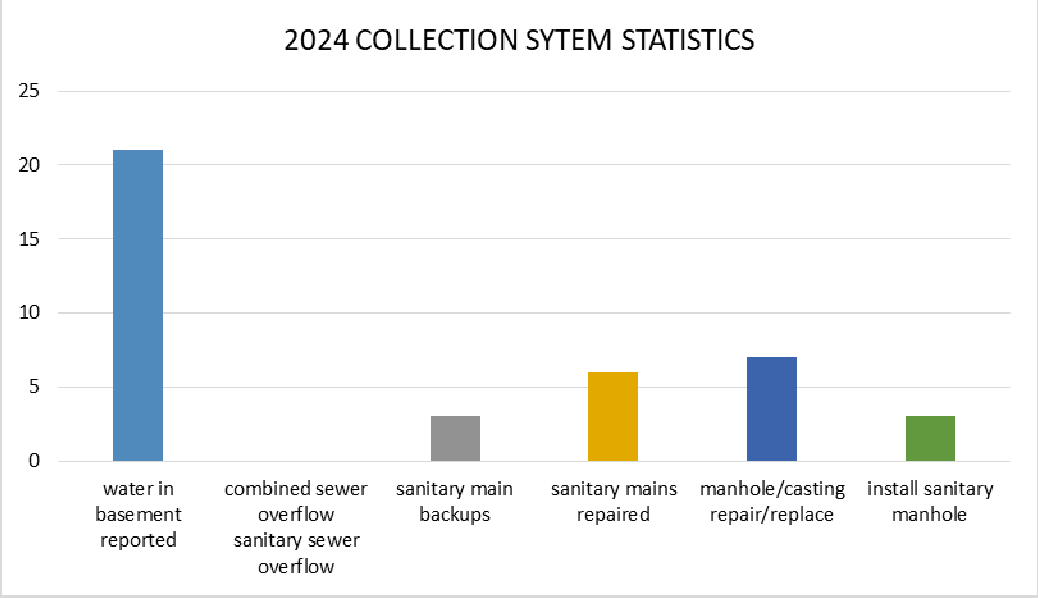
2024 DISTRIBUTION SYSTEM STATISTICS													
TASK	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**TOTALS**
main line valves cycled	73	62	45	25	67	38	10	40	54	61	46	79	**600**
water main breaks	1	1	4	1	1	0	2	3	1	2	3	2	**21**
services renewed	0	0	0	1	0	0	2	1	5	1	0	0	**10**
services repaired	1	0	1	0	0	2	0	0	0	0	0	0	**4**
services disconnected	0	0	0	0	0	0	2	2	0	0	0	0	**4**
replace curb box	1	4	2	3	3	5	2	3	5	2	3	1	**34**
repair curb box	3	3	2	2	3	4	8	3	3	3	3	3	**40**
replace valve box	0	0	0	0	1	0	0	0	0	0	1	0	**2**
repair valve box	0	0	0	0	1	0	0	0	0	0	2	0	**3**
repair hydrant	1	0	0	0	5	20	30	24	1	1	0	0	**82**
replace hydrant	0	0	0	0	0	0	0	1	0	0	0	0	**1**
repair main line valve	1	1	0	0	0	0	1	0	0	0	1	0	**4**
replace main line valve	0	1	0	0	0	0	0	0	0	0	0	0	**1**
replace watch valve	1	1	0	0	0	0	0	0	1	0	0	1	**4**
repair watch valve	0	0	1	0	0	1	0	0	0	0	0	0	**2**
hydrants flushed	0	0	0	0	358	521	642	173	0	0	0	0	**1,694**

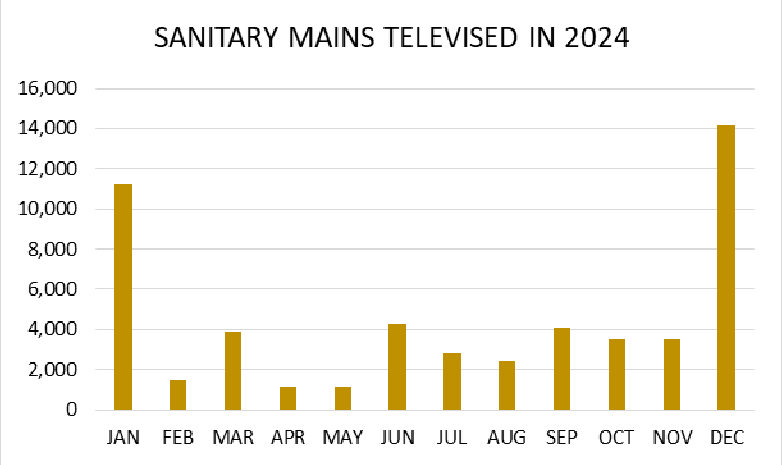

2024 DISTRIBUTION SYSTEM STATISTICS
90
80
70
60
50
40
30
20
10
0
water main breaks
services renewed
services repaired
services disconnected
replace curb box
repair curb box
replace valve box
repair valve box
repair hydrant
replace hydrant
repair main line valve
replace main line valve
replace watch valve
repair watch valve

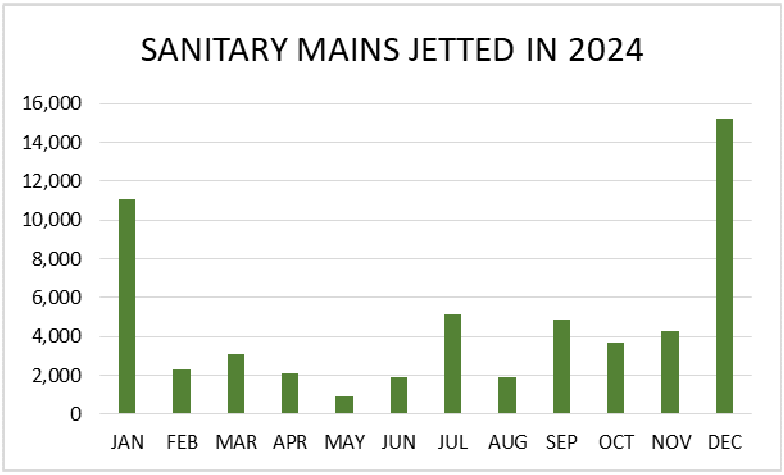

VALVES CYCLED IN 2024
90
80
70
60
50
40
30
20
10
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC

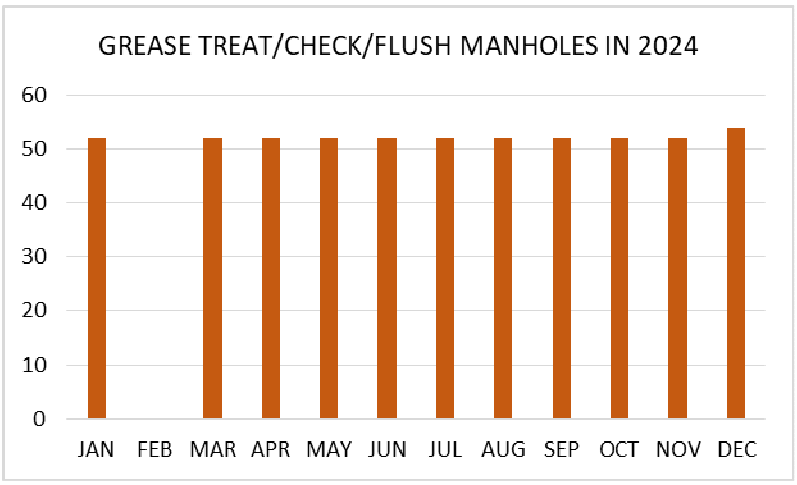

HYDRANTS FLUSHED IN 2024
700
600
500
400
300
200
100
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC

2024 COLLECTION SYSTEM STATISTICS													
TASK	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**TOTALS**
sanitary mains jetted	11,084	2,311	3,115	2,100	917	1,915	5,109	1,895	4,865	3,666	4,301	15,238	**56,516**
water in basement reported	6	2	2	0	2	1	2	4	1	1	0	0	**21**
combined sewer overflow sanitary sewer overflow	0	0	0	0	0	0	0	0	0	0	0	0	**0**
sanitary main backups	2	0	1	0	0	0	0	0	0	0	0	0	**3**
sanitary mains televised	11,227	1,439	3,883	1,158	1,161	4,299	2,833	2,418	4,078	3,527	3,517	14,155	**53,695**
sanitary mains root treated	0	0	0	0	10,000	10,481	0	0	0	0	0	0	**20,481**
sanitary mains root cut	0	485	96	0	0	0	0	0	0	0	0	0	**581**
grease treat/check/flush manholes	52	0	52	52	52	52	52	52	52	52	52	54	**574**
sanitary mains repaired	0	1	2	2	0	0	1	0	0	0	0	0	**6**
manhole/casting repair/replace	2	5	0	0	0	0	0	0	0	0	0	0	**7**
install sanitary manhole	0	0	0	2	0	1	0	0	0	0	0	0	**3**






SANITARY MAINS JETTED IN 2024
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC


GREASE TREAT/CHECK/FLUSH MANHOLES IN 2024
60
50
40
30
20
10
0
JAN
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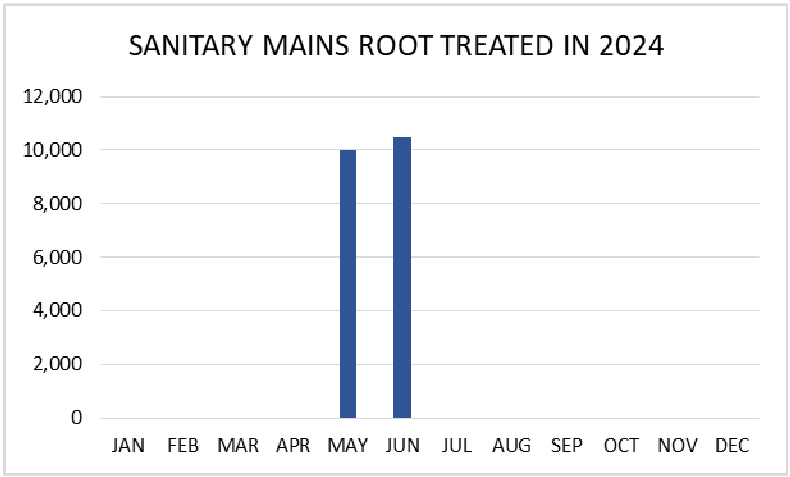
SANITARY MAINS ROOT TREATED IN 2024
12,000
10,000
8,000
6,000
4,000
2,000
0
JAN
FEB
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APR
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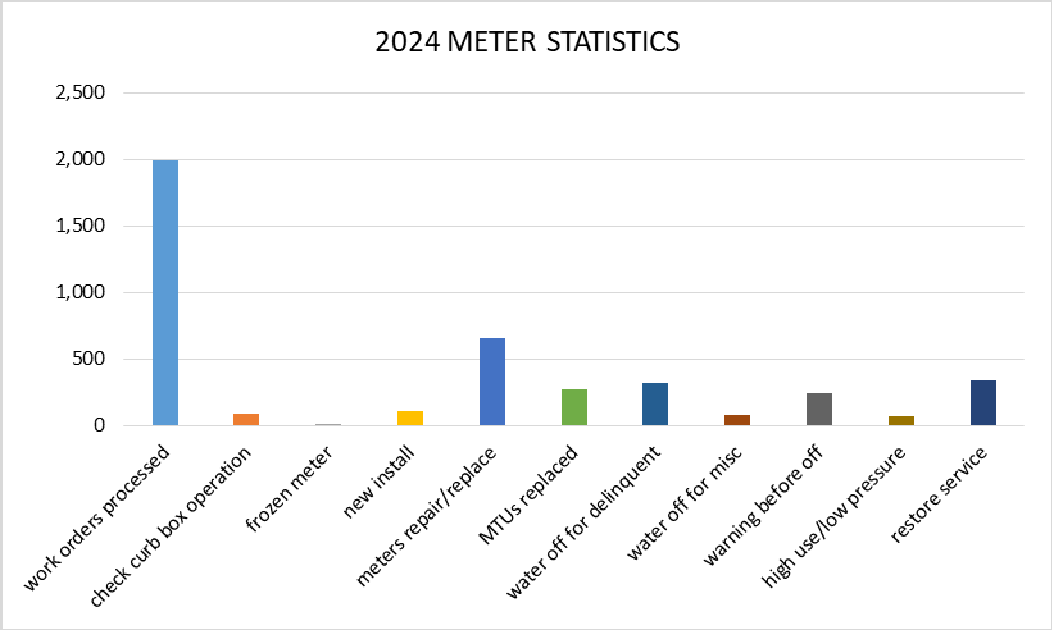
2024 METER STATISTICS													
TASK	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**TOTALS**
work orders processed	**112**	**123**	**162**	**169**	**158**	**142**	**158**	**186**	**188**	**146**	**198**	**250**	**1,992**
check curb box operation	1	8	8	6	7	6	7	15	5	17	9	4	**93**
frozen meter	0	0	0	1	0	0	0	0	0	0	0	1	**2**
new install	3	11	11	10	13	11	7	10	5	4	10	9	**104**
meters repair/replace	24	30	72	95	36	30	30	50	72	40	63	113	**655**
MTUs replaced	3	1	73	97	6	40	26	19	3	0	4	0	**272**
water off for delinquent	28	30	21	17	29	16	22	28	30	26	32	39	**318**
water off for misc	7	6	4	2	7	4	6	8	7	8	12	9	**80**
warning before off	17	8	19	11	23	11	29	18	25	14	27	45	**247**
high use/low pressure	1	3	4	3	7	6	8	8	11	9	4	4	**68**
restore service	28	26	28	25	38	21	23	30	30	28	37	26	**340**



Distribution & Collection Goals for 2025

- Jet 40,000 feet of sewer main.
- Televise 40,000 of main.
- Flush every hydrant in distribution system (1,555).
- Cycle 800 main water valves.

DISTRIBUTION & COLLECTION EMPLOYEE ROSTER
1514 West Old Lincoln Way

Utilities Manager: ..... Mike Fritz (WS3)

Distribution & Collection Supervisor: ..... Milan Steiner (WD2, WC2)

Utility Operators: ..... John Bender (WD2, WC1)
..... Ben Martin (WS2, WR2)

Utility Operator Trainees: ..... Jason Boreman (WD1)
..... Kyle Miller
..... John Rutter (WD2, WC1)
..... Rick Thompson (WD1)

Meter Technicians: ..... Joseph Geitgey (WD1)
..... Barb Hardin (WC1, WD1)
..... Jerry Hartzler (WD2)

Office Specialist: ..... Pam Corbett

OHIO EPA CERTIFICATIONS
WC – Wastewater Collection (2 is highest level)
WD – Water Distribution (2 is highest level)
WS – Water Supply (4 is highest level)
WW – Wastewater Treatment (4 is highest level)

Wooster vs Ohio Water Utility Rates

In the latest Ohio EPA rate survey (2022), when comparing Wooster's water and sewer rates to all other systems in Ohio; Wooster 2024 rates fall below the state average. Wooster's average annual cost is $869 for water and sewer compared to $967 for the average cost of the Ohio systems surveyed based on 4,000 gallons used per month.