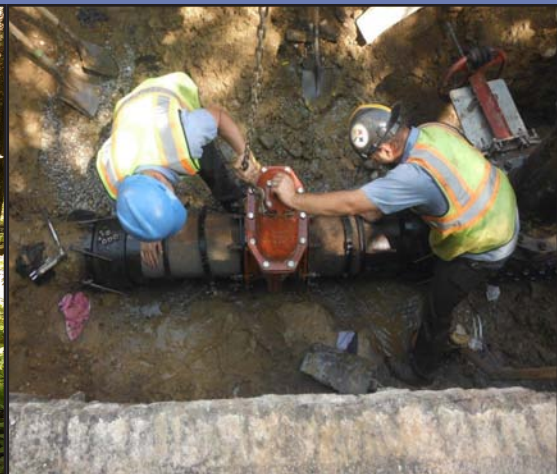


# 2017 Annual Report

Division of Water and Wastewater  
City of Newark, Ohio



CITY OF NEWARK  
DIVISION OF WATER AND WASTEWATER

# Division of Water and Wastewater

City of Newark, Ohio



• • • • •  
Our Mission: "To provide essential services that protect public health, preserve the environment and support sustainable growth of the community."

Updating and maintaining infrastructure can be a slow, frustrating and expensive process, so when a major construction project reaches a milestone it can be a day to celebrate. We had one of those days this past year. In late fall, after a number of years of planning and more than two years of construction, the work on the "Square" was substantially completed and the street around the courthouse was finally opened for through traffic. While the project is not completely finished, with work still continuing to the north, the new infrastructure and associated improvements are having a tremendous impact on the City. As with any utility, there is always the next project to start planning and developing. As of the end of 2017, the City has not yet received Ohio EPA approval of the mandated Long-Term Control Plan (LTCP) which is critical to the work we have to plan for over the next decade. We anticipate this approval coming in the first quarter of 2018, however, we are moving forward with proposed projects in order to both take care of existing failing infrastructure and help us to meet future LTCP goals.

Along with the underground infrastructure work, we continue to work on maintaining and upgrading our plant facilities. Designs for upgrading the anaerobic digester system at the Wastewater Treatment Plant were completed this past year and the project will be out for bid in early January of 2018. This project will be a major undertaking for the plant operating staff as the old equipment is taken out of service and new equipment installed. Digester construction will not be completed until mid-year 2019. This project is critical to our overall capital improvement plans as we make every effort to maintain top quality facilities.

Water treatment facilities work is vital as we try to meet our goal to provide safe potable water at an economical price. Plans were started in 2017 to install riverbank filtration wells. In the last quarter of 2017, work has begun to test the area north of the treatment for viable water sources. If these test areas produce satisfactory results, large scale riverbank filtration wells will be designed in the first half of 2018. This new water source will help provide an extra barrier of protection to our raw water source and likely reduce operating cost by utilizing natural filtration thereby reducing chemical cost due to high turbidity during rain events.

Once again, we have **many challenges and plenty of opportunities to meet our goals**. All of this highly technical work requires a solid financial base in order to sustain the debt incurred. While Newark's rates are very reasonable, there is always the question, are they proper to provide the correct level of service. We continuously assess the ramifications of timely capital improvements versus maximum capital life. Striking the right balance between what is affordable and maintaining a sustainable infrastructure presents a difficult challenge and is a primary task of running an effective utility. We feel confident that our daily **goal of quality and reliable service at an affordable rate will be attainable with strategic planning and quality personnel dedicated to providing top quality service.**

Water Administrator

Roger Loomis

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# Section 1

## Financials





# "How you pay for it matters"

## Division Statistics

<b>Wastewater Department</b>		<b>Water Department</b>	
Active Customers	17,068	Active Customers	18,575
Million Gallons Treated	2,764	Total Volume Billed (MG)	2,057
Miles of Sewer Line	182	Total Water Produced (MG)	2,717
Miles of Combined Line	57	Miles of Water Line	195
Lift Stations	16	Booster Stations	3
		Storage Facilities	2

## Division Rates Compared to Other Local Rates

Debt Service Cover Ratio/% Debt/Working Capital Days      Wastewater - 1.5, (26%), 377    Water - 0.97, (26%), 87

	Granville	Heath	Johnstown	SWLCWS	Cols	Lancaster	Newark
<b>Water</b>	\$29.28	\$46.24	\$48.28	50.06	31.86	\$52.04	\$22.56
<b>Wastewater</b>	\$37.02	\$48.33	\$47.00	130.62	37.32	\$68.45	\$29.99
<b>Total</b>	<b>\$66.30</b>	<b>\$94.57</b>	<b>\$95.28</b>	<b>153.62</b>	<b>69.18</b>	<b>\$120.49</b>	<b>\$52.55</b>



## Operating Expenses

*(excluding capital items and projects)*

<b>Wastewater</b>		<b>Water</b>	
Administration	\$1,957,520	Administration	\$1,626,408
Treatment	\$2,412,702	Treatment	\$2,548,509
Sewer Maintenance	\$ 478,983	Distribution	\$1,322,102
Environmental Lab	\$ 319,295	Meter Shop	\$ 209,258
Debt Retirement	\$2,289,290	Debt Retirement	\$2,000,020
<b>Total</b>	<b>\$7,457,787</b>	<b>Total</b>	<b>\$7,706,296</b>

## Revenues

<b>Wastewater</b>		<b>Water</b>	
Rental <i>(sewer service)</i>	\$3,384,960	Sales	\$5,643,358
Administration	\$1,287,903	Bulk Water	\$ 36,796
Debt Retirement	\$2,855,133	Delinquent	\$ 240,345
Surcharge	\$ 416,717	Meters	\$ 19,194
Capacity Fees	\$ 82,979	Permits	\$ 15,580
Trucked Wastes	\$ 187,700	Capacity Fees	\$ 78,047
Transfers	\$ 326,569	Deposits	\$ 181,158
Miscellaneous*	\$ 28,986	On Account	\$ 276,179
		Miscellaneous*	\$1,154,529
<b>Total</b>	<b>\$8,590,434</b>	<b>Total</b>	<b>\$7,701,067</b>

\*Includes \$842,069 in transfers from sewer fund and \$201,699 from stormwater for water administration costs.



# Section 2

## Department Overview





# Water Office

## Accomplishments - 2017

- ▶ Added new modules to our current Customer Information System, which now allows our customers access to real-time online account information.
- ▶ Completed a front office renovation with a sleek new look.
- ▶ Upgraded security system and cameras throughout the building.
- ▶ Our Meter Technician, Bob Walton, attended a weeklong Badger Meter Training Session in Milwaukee, WI. As a result, we have purchased a meter testing device which allows him to test larger meters by himself. A much more efficient process.
- ▶ Customer Service answered 16,003 phone calls with an average wait time of 1:21. Busiest phone day was 4/3/17 with 107 answered calls. Wednesdays are the busiest day of the week with 9:00am -9:59am being the busiest time of day.

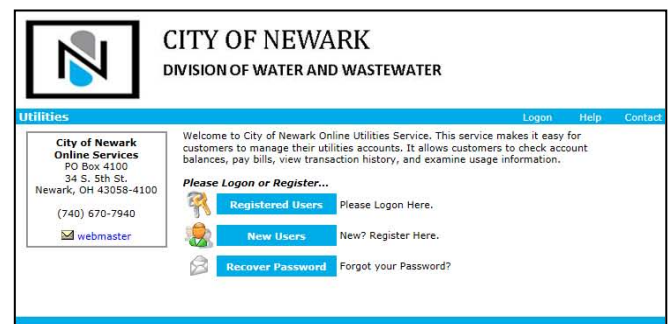
## Top 5 Consumers of Water & Wastewater Services

Owens	798,083 gpd
Anomatic	427,417 gpd
Tamarack Farms Dairy	186,698 gpd
Licking Memorial Hospital	122,204 gpd
Mobile Power Wash (Industrial Water)	70,129 gpd

## Goals - 2018

- ▶ Continue Customer Service Skills Training to assist us with our goal of providing exceptional customer service.
- ▶ Establish procedures to incorporate GeoAsset Routing software into a usable system which will provide more efficient customer service.
- ▶ Have analytics created to combine AMI and CIS data to optimize reporting on customer usage.
- ▶ Implement CSR quality assurance measures to monitor our interactions with the public to enhance customer satisfaction.

## New Online Service



## **Account Delinquency Report**

Amount Delinquent as of 12-31-2017 (>90 days)  
\$167,000

Amount Delinquent as of 12-31-2016 (>90 days)  
\$200,000

*Delinquent Collection: Delinquent amounts are being collected through withholding of services, placing liens on properties and in-house collection services.*





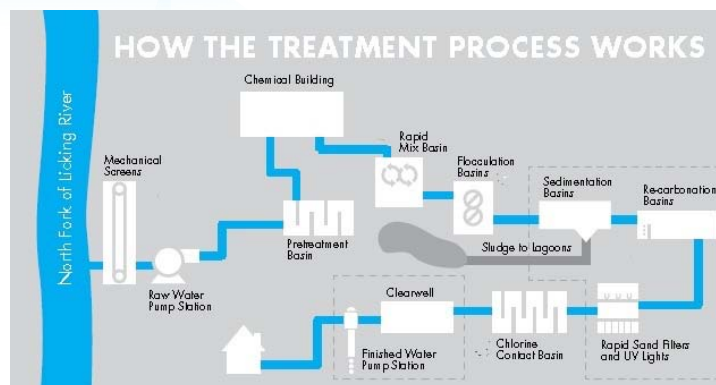
# Water Treatment Plant

## Ohio EPA Chemical Monitoring Averages for 2017

pH	8.84	S.U.
Phen. Alk.	3.1	mg/L
Total Alkalinity	43.4	mg/L
Stability	0.34	mg/L
Hardness	122	mg/L
Phosphorus	0.79	mg/L
Free Chlorine	1.22	mg/L
Combined Chlorine	0.04	mg/L
Fluoride	0.92	mg/L
Nitrate	1.36	mg/L
Turbidity	0.07	NTU
TOC (raw)	2.93	mg/L
TOC (finished)	1.43	mg/L

## Accomplishments - 2017

- Installed venturi system for lime dust venting.
- Began Riverbank Filtration System study.
- Began design for PLC upgrade.
- Dredged river for improved water storage.
- Began 1<sup>st</sup> year backflow program.
- 10 MGD High Service pump & motor repaired.
- #2 rapid mixer motor repaired.
- Replaced 2<sup>nd</sup> flocculation basin motor.
- Lab room floor replaced.
- Lead and Copper sampling from 53 sites.
- Backwash control system upgrade continues.
- Backwash pump #1 repaired.
- Media inspection and evaluation for 6 of 10 filters
- Replaced 75% of existing lights with LED.



## Production Data from 2017

Daily Average Production	7.45	MGD
Yearly Total Production	2,717.5	MG

## Goals - 2018

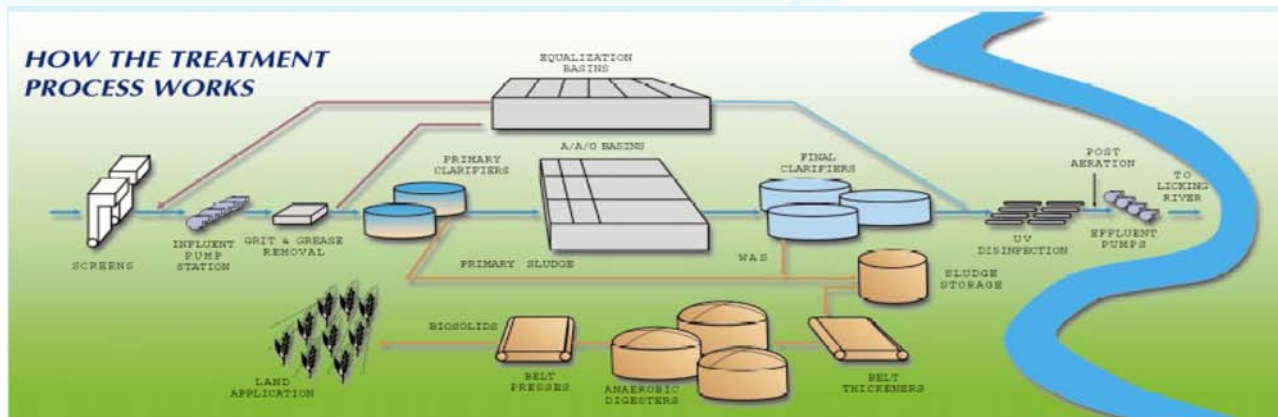
- Replace 3<sup>rd</sup> flocculation basin motor.
- Continue river dredging.
- Replace #4 & #9 filter effluent valve
- Continue Riverbank Filtration System study, design.
- Continue PLC upgrade plan.
- Extend fiber optic cable to WTP.
- Replace flat roof on chlorine building.
- Begin dredging #3 lime lagoon.
- Inspect and evaluation the media of remaining 4 filters.
- Replace remaining 25% lights with LED
- Paint lime silos.

## 10 MGD HS & Backwash Pump Repairs





# Wastewater Treatment Plant



## 2017 Plant Operation Data: Annual Average

Ave. Flow MGD	Raw Suspended Solids mg/l	Final Suspended Solids mg/l	% Removal Suspended Solids	Raw CBOD mg/l	Final CBOD mg/l	% Removal CBOD	Raw Ammonia mg/l	Final Ammonia mg/l	% Removal Ammonia
7.5	130.3	2.0	98.4%	102.3	2.4	97.6%	11.1	02.9	97.4%

## Accomplishments - 2017

- ▶ Reconditioned #3 Influent Pump and Motor.
- ▶ Rebuilt #2 Parkson Influent Screen.
- ▶ Rewired 100' light pole and changed to LED lamps.
- ▶ Continued working on the Anaerobic Digester Upgrades Project, selecting equipment and process types
- ▶ Painted all interior piping and Non-Potable Water System equipment in the Effluent Pump Building
- ▶ Replace all sludge scrapers and wheels on Primary Clarifiers.
- ▶ Continued a detailed study to establish limitations on Nitrogen, Phosphorus, and Sulfur loadings from local industry.
- ▶ Upgraded to VOIP Phone System.
- ▶ Tested and Cleaned all Primary Breakers and Switchgear.
- ▶ Solar Array was completed in October and is currently providing a portion of electric power to the Wastewater Treatment Plant.

## Goals - 2018

- ▶ Start construction for rehabilitation of Anaerobic Digesters.
- ▶ Recondition #4 Influent Pump and Motor.
- ▶ Continue to upgrade outdoor lighting with LED fixtures
- ▶ Continue asphalt and concrete repairs
- ▶ Rewire at least two more 100' light poles
- ▶ Begin working on items from Phase II of our Long Term Control Plan



WWTP Solar Array



# Water Distribution

## Accomplishments - 2017

- Renewed/replaced 146 lead water services.
- Installed 2,600' of 6" ductile iron water main along Harris Avenue.
- Ran leak detection of +42 miles of water main.
- Disconnected 38 abandoned water services.
- Repaired 41 water main breaks.
- Completed the Annual Fire Hydrant flushing program.
- Replaced 13, Repaired 123, Painted 526 fire hydrants.
- Flow tested 37 Fire Hydrants.
- Continued the Valve Maintenance Program: Repaired 67, Replaced 13, Worked 1,213
- Recorded 5,623 curb box location in GPS.
- Assisted the contractor numerous times on the Downtown Renovation Project.



Line Stop at 1<sup>st</sup>  
and East Main  
Street



Line stop  
installation on  
the Square on  
some 100+ year  
old pipe

## Goals - 2018

- Upgrade water main on Morgan Avenue..
- Continue to upgrade old galvanized water services.
- Continue fire hydrant flushing in warmer months.
- Resume valve maintenance program.
- Continue leak detection and location program.
- Continue GPS programming eventually recording all water curb box locations





# Sewer Maintenance

## Accomplishments - 2017

- Responded to 17 plugged sewer orders on city mains.
- Responded to 80 sewer orders that were on property owners.
- Televised just more than 120,000 feet (almost 23 miles!) of sewer mains.
- Pressure cleaned (“jet”) a bit more than 156,000 feet (34+ miles!) of sewer mains.
- Inspected CSO’s 73 times after every moderate to heavy rain event.
- Manholes Worked, 152 repaired or replaced.
- Manhole Inspections Worked, 1,123.



## Goals for 2018

- Continue televising sewer mains to determine where repairs are needed. All in an effort to reduce the chances of a catastrophic sewer failure.
- Complete upgrade of sanitary and storm lift stations with SCADA monitoring system.
- Continue to monitor CSO’s for Long Term Control Plan (LTCP).
- Continue with preventive maintenance work on manholes and sewer mains to provide customers with reliable and uninterrupted service.
- Continue to be heavily involved in the Downtown Renovation – Phase I.





# Safety & Training

Safety continues to play a critical role in our daily activities within the Division of Water and Wastewater. In 2017, the division incurred 1 accident while working 103,327.25 hours. This accident was recorded as a “lost time” accident resulting in an employee missing 26 days of work. This resulted in an accident rate of 1.94 which is significantly lower than the industry average of 6 and was lower than our accident rate for 2016 which was 7.68.

Training continues to be an important part of our daily duties. Training whether done under the category of “Safety” or “Education” are tracked by this department. Training time is then logged as “contact hours” which are then used by employees to re-new individual job required OEPA licenses. During 2017, the Division of Water and Wastewater made available a total of 49 contact hours per employee through 59 in-house educational training sessions. In all, employees earned 371 creditable hours. Safety training accounted for 203.5 of the 371 hours. Some of this year’s topics included Working in Cold Weather, Fall Protection and What You Need To Know About Safety Data Sheets. Employees again received a refresher in Confined Space Entry Procedures. Confined spaces are a serious danger in the water and wastewater industry and yearly refresher training is a top priority. This year, employees were offered the opportunity to take an Adult CPR class. A total of 15 employees participated and have renewed or earned their CPR certification. “Hands on training” was held this year as employees refreshed themselves with installation of flood control gates and repair / maintenance of fire hydrants.

In an effort to keep current with new equipment and products the Division uses many resources. This past year, 20 “hot topic” webcasts from the Ohio and US EPA, the Water Environment Federation, and the American Water Works Association were used to help address those comprehensive issues. Working with our online training provider, 360water.com, employees have access to training that is site specific to the Newark Water and Wastewater Treatment Plants. The online training website contains 31 wastewater and 7 water site specific courses. We further provided 3 training courses on our asset management program, Lucity as well as 24 general utility topics. This past year employees earned 126 hours of EPA approved training from use of this website.

Safety Coordinator

Ed Nutter



Employees training on flood gate installation





# Section 3

## Project Overview

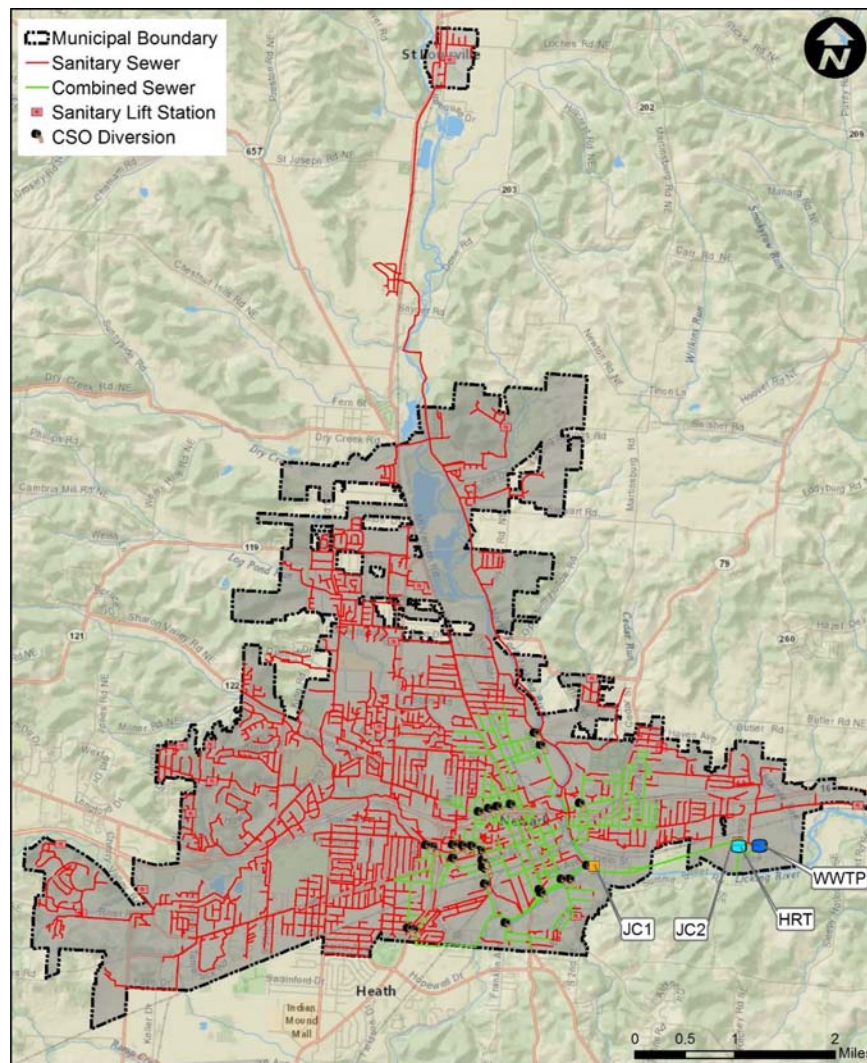






## Long Term Control Plan Phase II

After completing all of the sewer line installations and the High Rate Treatment Facility that were included in Phase I of our Long Term Control Plan, we were required to develop a Phase II Long Term Control Plan. Phase II required us to characterize our sewer system through modeling and other means as appropriate for a range of storm events, and to determine the CSO occurrences and impacts remaining after completing the CSO reduction projects in Phase I. We were required to evaluate controls necessary to achieve 90, 95, 99 and 100 percent capture of these remaining overflows. This characterization has been completed, and an updated collection system model was created that will serve as the basis for future projects.





## Anaerobic Digester Rehabilitation



Anaerobic Digester #3



Boiler - Digester Heater

The anaerobic digesters are important for their ability to reduce the amount of organic material to be hauled, for treating organic material to make it suitable for land application, and to produce biogas. Biogas is scrubbed and used for plant heating needs along with sale to our local natural gas utility.

### Gas Scrubbing Plant







# Riverbank Filtration System PLC Upgrade Project

**Estimated Engineering Budget: \$ 500,000**

**Estimated Date of Completion: 2019**



The Water Treatment Facility currently has two major projects in the planning/design stage, Riverbank Filtration (RBF) and Programmable Logic Controllers (PLCs) upgrade. The RBF is a cost-effective, natural pre-treatment technology that uses Mother Nature's geology instead of chemicals to pre-treat surface water and groundwater supplies. The design is to draw water from an aquifer that will have similar water qualities as our current source water (North Fork Licking River) without high levels of turbidity (particles in water) during or after a rain event. The water quality will also be more consistent and therefore the annual chemical cost should be less. Arcadis engineering firm was selected in the second quarter of 2016. The project will include an Aquifer Testing Program and technical report that will include conducting a detailed compilation and evaluation of existing hydro geological information and conducting exploratory drillings with test wells prior to the design of the riverbank filtration system. The total engineering budget for the project, including studies, design and construction management is estimated to be \$500,000. Four test well sites have been selected and approved by Ohio EPA. The drilling is scheduled to begin January 2018.

The Programmable Logic Controllers (PLCs) upgrade is also part of this project, which will include higher cyber security and a new SCADA system. SCADA (Supervisory control and data acquisition) is an automation control system. Water basic SCADA information from sensors or manual inputs are sent to PLCs or RTUs (remote terminal units), which then send that information to computers with SCADA software. SCADA software analyzes and displays the data in order to help operators and other workers to monitor treatment operations, tank levels and enables operators to make dosage adjustments to chemical feed systems. The project will also include a fiber optic cable to be installed from the water office to the water treatment facility. This will increase the reliability of service and provide a more secure network. The estimated project cost for fiber optic cable is around \$175,000. The construction is scheduled to be completed before the end of 2019.



# Section 4

## Division Personnel







**Avg. Age as of 12/2017 – 49.08**

**Avg. Years of Service with the City - 15.82**

\*includes service time outside Division of Water and Wastewater

### Over 30 Years of Service

Stan Vinning	Wastewater	1974
Don Dyar	Water Plant	1977 & 11
Roger Loomis	Water Office	1985
Mark Wachter	Water Plant	1986
John Kreager	Dist./Collection	1986

### 25 to 29 Years of Service

Dave Moran	Meter Shop	1987
Randy McDaniel	Env. Lab	1988
Ed Nutter	Water Office	1988
Jon Moulton	Wastewater	1989
Trent Johnson	Meter Shop	1990
Nancy Taylor	WW Lab	1990
Trent Johnson	Meter Shop	1990

### 20 to 24 Years of Service

Bryan Curry	Wastewater	1993
David Wells	Distribution	1993
Elizabeth Beckman	Water Office	1995*
Russ Livingston	Water	1995
Joe Hickman	Water Office	75 & 06
Jeff Postle	Distribution	1996
Paula Glosser	Water Office	1996*
Teresa Robb	Water Office	1996*
Andrea Beichler	Water Office	1997
Cindy Veatch	Water Office	1997

### 15 to 19 Years of Service

Catherine Austin	Water Office	2000
Keith Hampshire	Water	2000
Mary Hull	Water Office	2001*
Clint White	Wastewater	2001

### 10 to 14 Years of Service

Drew Forgrave	Dist/Collection	2003
Bill Charles	Water	2004
Jeremy Moore	Distribution	2004
James Robb	Collection	2004
Angela Reischman	WW Lab	2004
Trophy Iler	Collection	2005*
Troy Burden	Collection	2005*
Shawn Wagner	Water	2005

### Retired - 2017

Dave Moran	Meter Shop	30 years
Darin Wise	Wastewater	25 years
Cindy Veatch	Water Office	20 years