2020 Annual Summary

Water & Wastewater Departments

Submitted by

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2020 Summary

2020 will be a year remembered for many different reasons. It was a year of unsettling, turbulent, and at times bleak political and economic turmoil, and social unrest. But ultimately 2020 will be remembered as the year of the global health pandemic known as COVID-19. Arriving seemingly overnight in March, the pandemic instantly changed the way the world operated and few who lived through it will soon forget the changes it made in their everyday life. From profound health concerns, widespread closures and shutdowns, supply shortages, work and travel disruptions, day to day head counts of those affected, quarantines, and hygiene instructions, it was a very troubling year in which to navigate.

The pandemic certainly affected the way the Garrettsville Water and Wastewater Departments, which are administrated by the Board of Public Affairs (BPA), operated. From project revisions in March (some projects shelved for months, others for the entire year), policy changes (extended billing periods, late fee charges suspended for the year, water terminations suspended for months, re-introduction of payment plans that were just eliminated in 2019), and changing day-to-day work practices (altering work days or locations, temporarily suspending field related tasks such as meter replacements or valve exercising, setting up separate work stations, personal hygiene alterations such as disposable gloves, masks, and sanitizers), and holding every BPA meeting between April and December virtually.

But despite all the turmoil, economic uncertainty, and other challenges brought on from the pandemic (including having 3 of the 5 full time staff test positive for COVID-19 and being quarantined for at least two weeks each), both Departments operated the entire year at levels meeting or exceeding state permit requirements. The Departments not only fulfilled permit requirements, but also performed some needed improvements and prepared the Village to perform a major water main improvement project in 2021.

Water Treatment Department Highlights

The major improvement for the Water Department is the upcoming South Street Water Main Replacement Project. The purpose of this important project is to replace approximately 3,000 feet of 113-year-old problematic water main. After finding out that the Phase I portion of the project had been downgraded (late 2019) from a Round 34 funded project to an ‘alternate’ project by the Ohio Public Works Commission (OPWC), the Village decided to investigate other means of funding and possibly combining both Phase I and Phase II as a single project. In mid-February, the Village nominated the combined project to the Division of Environmental and Financial Assistance (DEFA) for funding hoping to secure a low interest loan. Then in late July OPWC informed the Village that they were selected to receive a part of the Round 34 grant for Phase I that was applied for in 2019. The funding was reduced to a 55/45% split but they also offered a zero percent 20-year loan to help offset the grant reduction. The Village submitted a revised Round 34 application in August that was approved. On the heels of this application the Village also submitted a pre-application for Round 35 funding for Phase II which was pre-approved in September and became a funded project waiting for formal approval in January 2021. At this time, the Village also found out they had secured a low or no interest loan for the entire (Phase I and Phase II) project amount from DEFA. Having obtained multiple financial avenues to fund the

project, the Village surveyed both phases in late August, began design work in October, and performed soil test boring along the project site on 12/31/2020. If all goes as planned the Village will receive approximately $618,000 in grants and a $250,000 zero percent loan from OPWC and can choose to borrow the balance of the project cost (approximately $250,000) from DEFA.

Some of the improvements completed in 2020 at the **Water Treatment Plant (WTP)** included draining and cleaning the Brosius Road Reservoir to prepare for needed repair work that was completed in the Fall. This included excavating and exposing the structure's leaking southwest wall, extending the 12" overflow pipe approximately 10', pouring a new support pillar, relocating the overflow pad, and repairing the damaged interior and exterior walls. Other significant improvement work performed:

- Installed approximately 90 feet of 4" drainpipe along the WTP driveway to channel water away from the main building.
- Replaced the second high-service pump control valve and isolation gate valve in the high service pump room.
- Replaced faulty telemetry transmitter and receiver that were damaged in an electrical storm in September.
- Installed a second portable dehumidifier in the filter room.
- Replaced corroded nuts and bolts, then painted high-service room piping.
- Replaced Filters #1 and #3 backwash gate valves.
- Updated electrical service in the filter room and garage.

Significant improvements completed in 2020 for the **Water Treatment Well Field**:

- Completed installation of the second of three phases of the underground 3-phase electric.
- Removed #19 pump for refurbishing, plus cleaned and inspected the well, as normally done every five years as part of the Department's maintenance plan.
- Replaced all three lightening arrestors and 3-phase cut outs on wellfield electric pole.
- Replaced battery charging regulator in the wellfield standby generator.

The **Water Treatment Distribution** continued to require many person-hours to maintain service quality and in 2020, despite some work stoppages and work procedure alterations, those daily monitoring challenges were met. Staff spent two full weeks performing bi-annual system wide hydrant flushing, almost 200 hours performing weekly dead-end flushing and water storage overflowing procedures, replaced 92 malfunctioning water meters, prepared and delivered approximately 90 water use graphs, and handed out hundreds of past due water notices.

Other Water Treatment distribution work performed:

- In year six of a ten-year maintenance contract with a local painting company, both metal drinking water storage tanks were drained, cleaned, and inspected. The Park Avenue tower had a new cathodic protection system installed during the tank shut down.
- Located and manually exercised all 239 water main valves and 215 fire hydrant watch valves.
- Replaced four yard hydrants in the Park Cemetery and two yard hydrants in the Village Park.
- Removed and had eight fire hydrants recoated. Staff also primed and painted four hydrants and repaired ten curb boxes.

- Repaired two severe 6" water main breaks on South Street.
- Repaired three 3/4" Village water service line leaks. Located and inspected three 3/4" water service breaks on homeowner properties.
- Installed location flags on 20 selected fire hydrants and adopted and began installing a new hydrant color coding system using reflective markers.
- Had all nine Village backflow devices tested and oversaw the testing of all 112 other backflow prevention devices within the Village distribution system
- Performed approximately 500 distribution chlorine residual tests.
- Completed annual Lead and Copper testing. All ten test results were below regulatory level limits.

For the seventh year, Water Plant production has trended low compared to levels prior to the new water meter system and monthly billing being implemented. The WTP pumped just over 70 million gallons - a daily average of 193,000 gallons per day.

During the year, the Water Department updated the Water Contingency Plan, the Total Coliform Sample Plan, a Non-revenue/Water Loss Report (8%), the Ohio Department of Natural Resources (ODNR) Ground Water Withdrawal Report, and a Consumer Confidence Report. The department also participated in the 32nd round of the Ambient Ground Water Testing with the Ohio EPA, performed daily chlorine residuals, weekly iron and manganese and bacterial testing, and performed required sampling of drinking water for disinfection byproducts - Total Trihalomethane (TTHM), Haloacetic acids (HAAS5), nitrate, inorganics, synthetic organic chemicals (SOC's), and per and polyfluoroalkyl substances (PFA's).

Both raw wells were again tested in 2020. Well #19 was sampled in July and had hardness levels at 296 mg/l, iron at 1.863 mg/l, manganese at 0.272 mg/l, E. coli and Total Coliform Negative (safe). Well #20 was sampled in August and had hardness at 284 mg/l, iron at 1.387 mg/l, manganese at 0.232, E. coli and Total Coliform results as Negative (safe).

The mal-functioning AMR water meter battery failure problem that began in August 2017 continued all through 2020. During the year 118 additional meters were discovered malfunctioning. By year-end approximately 515 meters had been replaced since August 2017.

Other Work at the Water Department in 2020:

- Provided required asset management metrics update for 2019 to the Ohio EPA.
- Installed new 4G cellular card in fire alarm panel.
- Provided systemwide updates and GIS mapping to the Insurance Services Office, Inc. (ISO) during their 5-year inspection of the Village fire protection system.
- Replaced faulty fire alarm sensor in high service room.
- Flushed and cleaned potassium permanganate system.
- Performed 293 manual backwashes on the rapid sand filters.
- Cleaned waste basin and waste pump station.
- For the twenty-first year in a row, a water quality report was prepared and mailed out to all Village water customers.

Main Goals of the Water Department for 2021

- Replace WTP automated instrumentation controls.
- Update water meter reading system to 4G cellular technology.
- Perform South Street Water Main Replacement Project.
- Repair #20 raw well pump.
- Replace insect screening & vent system on the Brosius Road Reservoir.
- Review mixer alternatives for the Industrial Drive standpipe.
- Replace roof on storage building.
- Complete phase III of wellfield electric line burial project.

Wastewater Treatment Department Highlights

The Village had one permit violation that occurred during the year which happened on Labor Day when 3.25" of precipitation fell within an 11-hour period. This heavy rainfall created area wide flooding and surcharged the collection system causing a bypass of the plant of approximately 80,000 gallons. This bypass was the 13th since 1990. Despite this one operational setback the facility treated almost 81 million gallons of sanitary sewage (a daily average of 220,000 gallons per day) and obtained removal efficiencies of 99.5% BOD (Biochemical Oxygen Demand removals) and suspended solids reductions of 99.7%. The Village renewed its five-year National Pollutant Discharge Elimination System Permit (NPDES). And for the fifth year in a row, copper levels remained low enough that the Village could land apply 349,000 gallons of biosolids during the summer.

Several needed improvements were completed in 2020 at the **Wastewater Treatment Plant (WWTP)** included draining and cleaning both clarifiers and installing new collector systems which included new drive chains, sprockets, and new stainless steel weir gates.

Other improvement work performed:

- Replaced nonfunctioning aerator/mixer #2 and leaking floatation device in the flow equalization basin.
- Installed a new 4" ultrasonic water meter.
- Installed a new influent sampler and a new sludge pump for the influent pump station.
- Installed two new window mounted air conditioning units in the operations building.
- Replaced O2 sensors and the gas pressure regulatory to the two standby generators.
- Replaced drive belts and pressure gauges on the Republic blowers.
- Replaced damaged time relay in #2 HSI blower and temperature sensor on #4 Republic blower.
- Replaced gutter deicer system on the operations building.
- Excavated and rebuilt broken influent plug valve to waste basin #3.

Other Work Performed at WWTP in 2020:

- Cleaned flow equalization basin, grease trap, influent pump station, and influent piping.
- Preventative maintenance was performed on both facility standby generators.
- Re-calibrated flow meters, thermometers, and analytical balance.
- Replaced damaged retaining ring on south clarifier idler sprocket.
- Replaced the south clarifier shear pin eight different times.
- Installed a 4G cellular card in the fire alarm system.
- Replaced faulty solenoid valve on the seal water system.
- Rebuilt sewer smoking machine.

Significant improvements completed in 2020 for the **Sanitary Sewer Collection System** which included:

- Installed replacement check valves, stainless steel discharge piping, chains, pump pedestals, starter relay and coils in the Brosius Road lift station.
- Installed a new safety entrance lid and replaced guide rails, guide bracket, discharge piping, check valves, chains, and pump pedestals in the Davis Street lift station.
- Installed a new control panel on the Industrial Drive lift station.
- Ordered and built new enclosures for new 4G cellular alarm systems for all five lift stations.
- Purchased new replacement sludge pumps for Center Street and Shawnee Trail lift stations.
- Replaced a faulty battery in the Center Street lift station.

Other Work Performed in the **Collection System** in 2020:

- Contracted a company to clean all five lift stations and Village trouble areas including all of Maple and State Streets, plus sections of Center, Park, Freedom, North, Davis, Water, Windham, and South Streets to remove root and grease build-up.
- Staff continued bi-weekly cleaning of all probes in the four lift stations that utilize them.
- For the seventh year in a row a contractor was hired to perform annual preventative maintenance testing on all Village sludge pumps located in the lift stations, the WTP waste basin, the WWTP influent pump station, and the flow equalization basin.
- Cleaned and re-filmed the entire Fox Hollow subdivision sanitary and storm sewers.
- Assisted the Village Street Department to locate, clean, film and replace sections of storm sewer along Maple Avenue and Water Street.
- Performed yearly residential, commercial, and industrial metal sampling.
- Performed five smoke tests at specific sites – mainly to support home construction or repair work.

Main Goals for the Wastewater Treatment Department for 2021

- Continue CIPP (Cured in Place Pipe) installation program for sanitary sewer trouble areas.
- Install replacement transfer switch and enclosure at the Center Street lift station.
- Upgrade controls for two Aqua-Aerobic System tertiary filters.
- Install 4G cellular alarm panels in all five lift stations.
- Complete smoking the balance of the Village collection system.
- Continue to monitor and reduce copper levels to ensure that the WWTP can meet discharge permit limits and that the Village can continue land application disposal practices.

WTP and WWTP Combined Efforts

Between April and July, Department Operator, Howard Moore, began training and assisted in the conversion to a new water utility billing software company, Muni-Link Inc. He also helped set up credit card and scanning devices for customer payment options and an online account management system that went live in July. Moore and Sheehan also assisted in performing a "catch-up" or reconciliation bill in September that aligned water and sanitary sewer charges to cover the prior month usage for each billing cycle.

During 2020, ten separate commercial power outages occurred that affected plant operations. These events ranged from localized outages that only affected various lift stations or individual treatment facilities, to ones that caused system-wide prolonged outages, requiring *manual* operations of the two plants and constant monitoring of the flow levels in the lift stations. One of these isolated outages occurred on Christmas morning at 3:15 a.m.

Personnel met with solar power companies to consider renewable power options for the two facilities, but these efforts were shelved due to the pandemic. Solar power options may be reconsidered in 2021.

Other work performed for the combined departments in 2020:

- Staff completed monthly meter reading and newly adopted water termination processing.
- Staff load-tested standby generators at all five lift stations as well as the WTP, wellfield, and WWTP monthly.
- Staff responded to two discoloration complaints, two odor complaints, and three wet yard concerns (staff used leak detection equipment but found no leak). Personnel also checked on eight backed-up sanitary sewer calls (all but one were homeowner lateral issues), and approximately 215 different utility location-markings including all Zupancic Drive, Liberty Street between Water Street and Windham Street for sidewalk installation work, Maple Avenue and Northgate for paving work, South Street along the water main replacement site (three separate times), and Fox Hollow Subdivision in preparation of utility re-filming tasks.
- Area contractor performed biannual preventive maintenance on standby generation units for the lift stations and at both WTP and WWTP facilities.
- Performed annual maintenance testing on the fire alarm system devices at both plants.

In the area of plant personnel:

- Employees attended three workshops (two virtual workshops, one in-class) as a requirement for licensing renewal.
- Staff finished entering repair data history from 2010 to 2020 on the Village collection system and began posting on-line notification of depressurization alerts.
- Due to the pandemic, personnel gave only one tour of the two plants to four students and adults.
- The WWTP again hosted a Hiram College environmental class that performed macroinvertebrate sampling of Eagle Creek River as part of a class project.
- In October, operator Brandon Nutter passed the Ohio Wastewater I license examination.

Even though the Village suspended bi-annual Tier 3 testing in 2020 on area resident-owned wells and the Village water source, the BPA, in an effort to protect its drinking water supply, continued to review monthly area hydro-fracking and source water pollution issues.

The two departments sold eight new residential permits (six water and sewer and two sewer only) and one new commercial water/sewer permit. Two new computers were installed to allow for more efficient daily data collection – one in the WWTP office and one in the WTP office.

The Village received 46.39” of precipitation in 2020.

The intention of this report is to briefly outline and record significant events that occurred at the Garrettsville Water and Wastewater Treatment Facilities in 2020. For more detailed information and/or any questions related to this report, please contact Jeff Sheehan, Utilities Superintendent.