CITY OF FINDLAY

WATER POLLUTION

CONTROL CENTER

Introduction

The annual report of operations of the Water Pollution Control Center for the year ending December 31, 2018 is respectfully submitted herein. We wish to acknowledge the initiative and cooperation exhibited by those employees listed below in their outstanding operation and maintenance of the wastewater system throughout the year 2018.

The Water Pollution Control Center (WPCC) is comprised of three departments, Water Pollution Control, Sewer Maintenance, and Stormwater Maintenance. Each department operates under separate budgets and are all under the direction of Dave Beach, Superintendent of the Water Pollution Control Center (WPCC).

The Key Processes of Operations at the WPCC include:

- Provide Wastewater Treatment that Meets or Exceeds our National Pollutant Discharge Elimination System (NPDES) Permit
- Meet Regulatory Reporting Requirements Set Forth in NPDES
- Ensure Reliable and Valid Analytical Lab Data
- Operation and Maintenance of Wastewater Collection System
- Maintain Stormwater Collection System
- Operation and Maintenance of Sanitary & Storm Pumping Stations
- Condition and Dispose of Biosolids
- Floodwater Management

Water Pollution Control Employees:

- Raul Amesquita
- Joel Borer
- Seth Cole
- James Fox
- Dave Frantz
- Joshua Gearing
- Gary Hayden
- Matt Karl
- Savannah Kline
- Tom Moses
- Werner Roesch
- Seth Rosselit
- Mark Stears
- Todd Ward
- Jason Wolfarth

Sewer Maintenance Employees:

- Levi Bishop
- Jeremy Craft
- Bob Courtney
- Parker Dukes
- Dan Gonzalez
- Dave Holman
- Chris Kolhoff
- Michael Stillberger
- Isaac Theis
- Brent Vaughan

Stormwater Employees:

- Dana Cramer
- George Elston

The WPCC employs many staff members that are licensed with the State of Ohio in wastewater treatment and collection. To keep their licensure they must participate in continuing education and continually meet the standards set forth by the Ohio EPA.

The following employees are licensed by the Ohio Environmental Protection Agency:

Waste Water Operator Licenses:

Dave Beach	Class 4	Seth Cole	Class 3
Jason Wolfarth	Class 4	Werner Roesch	Class 2
David Frantz	Class 3	Seth Rosselit	Class 2
Mark Stears	Class 3	Joel Borer	Class 1
Raul Amesquita	Class 3	Josh Gearing	Class 1

Waste Water Collection Licenses:

Robert Courtney	Class 2	Mike Stillberger	Class 1
Chris Kolhoff	Class 1		

2018 Annual Report
Water Pollution Control

In the year 2018, the City of Findlay WPCC completed its eighty-fifth year of operation by treating 4.552 billion gallons of sewage, which was 723 million gallons more than 2017.The average daily total for sewage treated was 12.52 million gallons per day which increased from 2017's daily average of 10.49 million gallons per day. Additional flow data can be found in the graphs included with this report.

The WPCC has an approved Ohio Environmental Protection Agency Sludge Management Plan and continues to meet all state and federal regulatory requirements for disposal in a landfill. The wastewater biosolids (sludge) generated at the WPCC is conditioned on four belt filter presses located in the Solids Processing Building. 1,962.45 dry tons of biosolids were treated and disposed of at the Hancock County Landfill in 2018. This treatment resulted in an average of 13.26 dry tons per day of operation of the belt filter presses.

In an effort to preserve equipment and cut down on repairs, the City invested in a bar screen that went into operation on August 4, 2015 at the Water Pollution Control Center. In 2018, it removed 8,560 pounds or 23.45 pounds of debris per day from the raw wastewater entering the WPCC. The bar screen will allow for the continued removal of large objects such as rags, plastics, solids, and other debris from the waste stream preventing damage and clogging of downstream equipment, piping, and appurtenances.

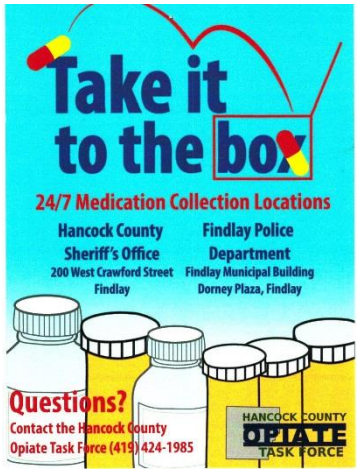
Plant maintenance made several improvements throughout 2018. In the plant maintenance shop, a new vehicle lift was added and a floor drain replacement project was completed. They also replaced the VFD in the Influent Pump Station, and made various upgrades to several other pump stations.

The City of Findlay has continued work on the Long Term Control Plan for Combined Sewer Overflows. The LTCP, which was submitted to the OEPA in 1998, listed eight recommended improvements to the City's system. Since submitting the plan, the City has completed all eight of these improvements. To evaluate whether the improvements were successful in achieving the goal stated in the LTCP, the City is required by their current NPDES permit to submit the following documents:

1. Long-Term Control Plan Post-Construction Compliance Monitoring Plan. The purpose of this report was to develop a plan for monitoring CSO location activity for a 24-month period, in order to adequately characterize any remaining overflow volumes and occurrences following completion of the recommended improvements listed in the LTCP. This report was submitted to the OEPA in November 2013 and approved on January 15, 2015. Findings from this report will be used to develop the Long-Term Control Plan Completion Evaluation Report.

2. Long-Term Control Plan Completion Evaluation Report. This report is to evaluate if the projects completed by the City met the goals of the LTCP submitted in 1998. This is accomplished in part by using the findings from the Long Term Control Plan Post-Construction Compliance Monitoring Plan and evaluating the hydraulic performance of the City's sewerage system. The Evaluation Report was submitted to the Ohio Environmental Protection Agency on January 29, 2018.

The City of Findlay WPCC continues to partner with Marathon Petroleum Corporation on a ground-mounted 975.88 kilowatt (kW) solar energy facility composed of four sub array systems. The project was constructed as a research and development project to better understand the potential advantages and disadvantages of solar energy. The electrical power it generates is donated to the Water Pollution Control Center. Over 6,000 solar panels were used to complete the project including tracking and fixed solar panels from both SHARP and KYOCERA brands. The facility went on line on November 5, 2012 and in its six years of operation it has generated 4,787,803 kilowatt hours (kWh) of electrical power with an estimated retail value of $410,481. The solar panels generated 627,565 kWh this year, which is about 1/9th of the total kWh used by the plant in 2018.



The WPC once again partnered with the Hancock County Board of Alcohol, Drug Addiction, and Mental Health Services, The University of Findlay, the Findlay Police Department, and Rader Environment Services to hold semi-annual drive-up collections of prescription drugs. In addition to these events, there are also permanent collection boxes at the Hancock County Sheriff's Office and the City of Findlay Police Department, which were installed in 2011 to allow the citizens of Findlay and Hancock County an alternative to disposing of their unwanted prescription drugs by flushing them down their toilets. In 2018, 358 pounds of medical collection drugs were destroyed. We are pleased with the success of these efforts and will continue to promote proper disposal of these common contaminants.

The WPCC staff continues to conduct tours for school age children, citizen groups, and University of Findlay students who are interested in wastewater management. These tours provide a general overview of the treatment process and focus on pollution prevention as well as ways that we can keep our storm water system cleaner. In 2018, the University of Findlay, students from Liberty Benton schools, and members of Hancock County Leadership group toured the plant and listened to a brief presentation.

Laboratory testing, to assure compliance with the NPDES permit limits, is performed at the WPCC and several outside laboratories. Two full-time laboratory technicians are required to monitor the specified parameters. The WPCC is pleased to report that our laboratory, once again, received an acceptable rating on all parameters that were tested as part of the annual DMR-QA (Discharge Monitoring Report & Quality Assurance) study. This study involves purchasing samples with unknown values and running the tests through our lab. The results are then sent back to the company for evaluation and the evaluation is then forwarded to the USEPA.

There were no violations of the WPCC NPDES permit during 2018.

The Water Pollution Control Center also has an approved Ohio Environmental Protection Agency Industrial Pretreatment Program to regulate the disposal of industrial wastewater into the sanitary wastewater collection system. The Water Pollution Control Center is the legal authority responsible for the management, testing, and record keeping of the program. Audits of the program and inspections are performed annually by the Northwest District Office of the Ohio EPA and tri-annually by the State Office of the Ohio EPA. Inspection reports from all EPA agencies have been above average and the City of Findlay is meeting all federal requirements at this time. The WPCC works closely with local industries in the pretreatment of their individual discharges and has developed an excellent cooperative spirit to ensure compliance with the pretreatment program. At present, all industrial dischargers are in compliance with current regulations and their continued cooperation is anticipated.

In looking ahead to next year, we continue to focus on meeting our key processes while working towards the 2019 objectives of:

- Continued compliance on the Combined Sewer Overflow Long Term Control Plan
- Continue the Annual Sewer and Manhole Lining Program
- UV System Upgrade Phase 2
- Clarifier 1 & 2 Rehab
- Phosphorus Optimization Evaluation Plan
- Madison and Monroe Sewer Replacement
- Blanchard Street Sewer Replacement
- West Main Cross Sewer Replacement
- SR 12 and Davis Street Sewer Repairs
- Cimarron Court Drainage Project

2018

ANNUAL SUMMARY OF OPERATIONS

MONTH	FLOW (MILLION GALLONS)		
	TOTAL	*AVG/DAY*	*PEAK*
JANUARY	373.241	12.040	26.866
FEBRUARY	489.619	17.486	33.566
MARCH	434.034	14.001	34.173
APRIL	474.697	15.823	34.809
MAY	307.415	9.917	13.017
JUNE	367.799	12.260	28.501
JULY	285.178	9.199	12.837
AUGUST	361.525	11.662	25.020
SEPTEMBER	304.462	10.149	16.258
OCTOBER	328.674	10.602	18.626
NOVEMBER	449.583	14.986	35.685
DECEMBER	376.006	12.129	24.696
2018 TOTAL	**4,552.233**		
2018 AVERAGE	**379.353**	**12.521**	**25.338**
2017 TOTAL	3,829.408		
2017 AVERAGE	319.117	10.497	22.177
2016 TOTAL	3,701.812		
2016 AVERAGE	308.484	10.120	20.770

2018

ANNUAL SUMMARY OF OPERATIONS

MONTH	SUSPENDED SOLIDS MG/L		5-DAY CBOD MG/L		AMMONIA MG/L	
	RAW	*FINAL*	*RAW*	*FINAL*	*RAW*	*FINAL*
JANUARY	131	3.96	101	2.35	11.8	0.030
FEBRUARY	110	5.10	90	2.85	9.6	0.040
MARCH	118	3.59	100	2.50	10.7	0.030
APRIL	110	4.14	78	2.00	8.2	0.020
MAY	137	2.87	115	2.35	13.8	0.040
JUNE	128	2.52	108	2.00	12.3	0.030
JULY	155	2.00	129	2.64	15.6	0.030
AUGUST	144	2.65	114	1.96	13.4	0.030
SEPTEMBER	151	2.45	119	1.85	15.5	0.050
OCTOBER	141	2.91	115	1.57	16.0	0.090
NOVEMBER	117	3.22	83	1.82	9.8	0.020
DECEMBER	136	2.48	100	2.48	11.3	0.020
NPDES LIMIT (SUMMER)	5/01-10/31	14	N/A	10	N/A	0.91
NPDES LIMIT (WINTER)	11/01-4/30	18	N/A	13	N/A	3.5
2018 AVERAGE	**132**	**3.16**	**104**	**2.20**	**12.3**	**0.036**
2017 AVERAGE	127	2.66	101	2.15	12.9	0.036
2016 AVERAGE	138	3.08	104	2.17	14.6	0.039

2018
ANNUAL SUMMARY OF OPERATIONS

MONTH	TOTAL PHOSPHORUS MG/L		COD MG/L	E. COLI #/100ML
	RAW	*FINAL*	*FINAL*	*FINAL*
JANUARY	2.9	0.59	9	
FEBRUARY	2.4	0.60	15	
MARCH	2.6	0.59	7	
APRIL	2.2	0.57	5	
MAY	3.2	0.88	15	97
JUNE	2.9	0.71	9	31
JULY	3.9	0.84	7	29
AUGUST	3.6	0.76	7	13
SEPTEMBER	3.7	0.85	13	38
OCTOBER	3.8	0.83	9	37
NOVEMBER	2.7	0.57	21	
DECEMBER	2.9	0.61	6	
NPDES LIMIT	***N/A***	***1***	***N/A***	***126/100ML***
2018 AVERAGE	3.07	0.70	10.25	40.83
2017 AVERAGE	3.04	0.71	10.25	80.17
2016 AVERAGE	3.54	0.72	12.17	38.33

2018

ANNUAL SUMMARY OF OPERATIONS

MONTH	DISSOLVED OXYGEN (PPM)		
	FINAL EFFLUENT	*BLANCHARD RIVER ABOVE*	*BLANCHARD RIVER BELOW*
JANUARY	9.1	16.5	14.0
FEBRUARY	9.2	15.0	13.0
MARCH	9.2	12.8	12.5
APRIL	8.9	12.1	11.7
MAY	8.2	9.0	8.6
JUNE	7.7	7.8	7.5
JULY	7.6	7.4	7.5
AUGUST	7.4	9.6	7.7
SEPTEMBER	7.5	10.8	7.8
OCTOBER	7.8	7.4	7.0
NOVEMBER	8.2	9.9	9.7
DECEMBER	8.9	10.5	10.4
NPDES PERMIT (SUMMER) 5/01-10/31	6.7		
NPDES PERMIT (WINTER) 11/01-4/30	5.3		
2018 AVERAGE	8.3	10.7	9.8
2017 AVERAGE	8.3	9.8	9.5
2016 AVERAGE	8.3	9.4	9.2

2018

SOLIDS PROCESSING

ANNUAL REPORT

MONTH	OPERATING HOURS				TOTAL OPERATING
	1	2	3	4	HOURS
JANUARY	156.00	154.25		146.25	456.50
FEBRUARY	112.75	107.25		101.50	321.50
MARCH	152.00	145.50		139.00	436.50
APRIL	143.50	41.00	95.00	126.50	406.00
MAY	138.75		135.75	129.25	403.75
JUNE	117.75		111.75	105.75	335.25
JULY	116.25	73.50	108.25	29.25	327.25
AUGUST	130.00		124.00	118.00	372.00
SEPTEMBER	94.00	37.25	89.50	51.00	271.75
OCTOBER	118.00	112.50	107.50		338.00
NOVEMBER	128.25	122.50	115.50		366.25
DECEMBER	109.25	103.25	97.25		309.75
TOTAL	1,516.50	897.00	984.50	946.50	4,344.50
AVERAGE	126.38	99.67	109.39	105.17	362.04

2018

SOLIDS PROCESSING

ANNUAL REPORT

MONTH	AVERAGE COST $/TON	POLYMER COST TOTAL,$	POLYMER USAGE GALLONS	AVERAGE SOLIDS CAPTURE, %
JANUARY	11.41	2,290.95	284.59	0.97
FEBRUARY	10.43	1,662.97	206.58	0.97
MARCH	9.98	2,014.11	250.20	0.97
APRIL	10.98	2,164.97	268.94	0.98
MAY	11.21	2,224.46	276.33	0.99
JUNE	11.63	1,844.01	229.07	0.99
JULY	12.43	1,750.15	217.41	0.98
AUGUST	12.22	1,944.16	241.51	0.99
SEPTEMBER	13.42	1,562.83	194.14	0.99
OCTOBER	16.21	2,198.62	273.12	0.98
NOVEMBER	16.37	2,596.85	322.59	0.99
DECEMBER	14.40	1,955.10	242.87	0.99
TOTAL		24,209.18	3,007.35	
AVERAGE	12.56			0.98

Polymer cost/gal *$8.05*

2018

SOLIDS PROCESSING ANNUAL REPORT

MONTH	TOTAL SLUDGE DEWATER & SUPNT. GALLONS	DEWATERED SLUDGE GALLONS	SUPERNANT GALLONS	DEWATERED SLUDGE DRY TONS	AVG. SOLIDS FEED %	AVG. SOLIDS CAKE %
JANUARY	9,279,583	6,223,400	3,056,183	200.82	0.96	15.60
FEBRUARY	6,774,782	4,014,712	2,760,070	159.38	1.05	16.40
MARCH	8,300,273	5,163,375	3,136,898	201.75	1.05	17.30
APRIL	7,561,156	4,644,350	2,916,806	197.13	1.13	17.80
MAY	7,980,272	5,045,290	2,934,982	198.42	1.06	16.80
JUNE	6,714,908	3,988,130	2,726,778	158.51	1.09	17.60
JULY	7,326,333	4,161,410	3,164,923	140.83	0.96	16.90
AUGUST	7,712,078	4,700,850	3,011,228	159.12	0.92	16.50
SEPTEMBER	5,747,110	3,304,210	2,442,900	116.44	0.96	16.10
OCTOBER	6,870,905	4,032,565	2,838,340	135.62	0.96	15.40
NOVEMBER	6,832,050	4,348,870	2,483,180	158.64	0.96	15.70
DECEMBER	6,423,690	2,680,700	3,742,990	135.79	0.92	15.60
TOTAL	87,523,140	52,307,862	35,215,278	1,962.45		
AVERAGE	7,293,595	4,358,989	2,934,607	163.54	1.00	16.48

2017-2018
COMPARISON OF OPERATIONS

REMOVAL OF SUSPENDED SOLIDS	
2017 *RAW TO FINAL*	*2018* *RAW TO FINAL*
98.76%	97.61%

REMOVAL OF 5-DAY C.B.O.D.	
(Carbonaceous Biochemical Oxygen Demand)	
2017 *RAW TO FINAL*	*2018* *RAW TO FINAL*
97.89%	97.88%

REMOVAL OF AMMONIA	
2017 *RAW TO FINAL*	*2018* *RAW TO FINAL*
99.97%	99.71%

REMOVAL OF TOTAL PHOSPHORUS	
2017 *RAW TO FINAL*	*2018* *RAW TO FINAL*
76.88%	77.20%

COST OF OPERATION		
	2018	*2017*
PAYROLL & BENEFITS	$1,302,579	$1,137,006
UTILITIES (electric, water & sewage)	$598,278	$562,779
CHEMICALS	$59,371	$56,974
EQUIPMENT MAINTENANCE	$105,091	$74,242
MISCELLANEOUS	$257,778	$186,078
CAPITAL EQUIPMENT	$175,036	$323,137
OPERATING COST TRANSFER	$654,069	$639,063
TOTAL	$3,152,201	$2,979,278
COST PER MILLION GALLONS	$692.45	$805

Weather Data

On September 19, 1934 the Sewage Treatment Works became a National Weather Service station for the City of Findlay and that tradition continues today at the Water Pollution Control Center. Weather records are on file dating back to 1894 for temperature, precipitation amounts, wind direction, and sky conditions. River levels are also monitored and supplied to the news media when they pose a threat to the community.

The average temperature for the year 2018 was 50.6°F which was .2 °F below the historical average of 50.4°F. The lowest temperature of the year was -10°F recorded on January 2nd .There was a total of six (6) days at 0°or below this year. The highest temperature of the year was recorded five times when the mercury reached 93°F. There were two (2) record highs set or tied throughout the year and one (1) record low. The year 2018 recorded a total of eighteen (18) days at or above 90°F but failed to reach 100°F even once. The historical record low temperature of minus 21° was recorded on January 13, 1912 and February 20, 1929. The highest temperature on record was 109° recorded on July 24, 1934.

New Record High Temperatures:

- ***February 20th 72° Old Record 68° (2016)***

Total precipitation for 2018 was 37.99 inches, which was 1.9 inches above the one hundred and twenty-three year average of 36.09 inches. August had the greatest amount of monthly precipitation at 5.65 inches and July had the least at 1.82 inches. No rainfall records were tied or broken in 2018. October 6th recorded the largest single day rainfall at 1.63 inches and was one of the seven days of the year in which we received more than one inch of rain. The Blanchard River did not exceed flood stage of 11 foot in 2018, but did reach action stage four times. The WPCC recorded 198 days with precipitation, which accounts for more than 50% of the days in 2018. Out of those 198 days, 134 days or 68% had measurable amounts of precipitation of more than 0.01".

The year 2018 recorded a total annual snowfall of 20.0 inches, which is 6.5 inches below the one hundred and twenty-four year average of 26.5 inches. The month of January was the snowiest month with 7.0 inches recorded. There were no snowfall records set in 2018.

2017-2018
TEMPERATURE AND PRECIPITATION DATA

MONTH	*AVERAGE TEMPERATURE* *(DEGREES)*				*PRECIPITATION* *(INCHES)*			
	2017		*2018*		*RAINFALL*		*ANNUAL SNOWFALL*	
	MAX	*MIN*	*MAX*	*MIN*	*2017*	*2018*	*2017*	*2018*
JANUARY	64	-1	27.5	8.8	3.63	1.99	1.7	7.9
FEBRUARY	49.8	30.5	27.7	11.4	1.84	3.81	2.4	4.8
MARCH	46.7	29.8	41	22.2	2.59	2.73	2.3	3.1
APRIL	67.1	44.9	61.1	39.5	3.2	2.66	T	1
MAY	69	49.9	72.8	50.9	6.39	2.52	T	0
JUNE	81.1	60.1	81.2	62	5.76	4.72		
JULY	82	64.5	78.8	59.7	8.65	1.82		
AUGUST	79.3	59.7	81.5	62.1	2.42	5.25		
SEPTEMBER	76.5	56.3	74.6	53.4	2.06	2.26		
OCTOBER	66.5	47.7	61.4	42.7	2.27	3.74		0
NOVEMBER	49.6	33	43.5	28.2	5.82	3.61	3.2	3.2
DECEMBER	33.9	19.3	39.4	27.3	0.98	2.88	T	T
TOTAL					**45.61**	**37.99**	**17.8**	**20**
AVERAGE	**63.8**	**41.2**	**57.5**	**39.0**				
YEARLY AVERAGE	**52.6**		**48.3**					
HISTORICAL AVERAGE	50.4				36.09		26.5	

2018 Annual Report
Sewer Maintenance Department

The Sewer Maintenance department maintains a sanitary sewer system that reaches far outside the City of Findlay corporation limits. The sanitary sewer system has over 16,999 customers and is estimated to consist of two hundred and ninety five (295) miles of sewers and several thousand manholes. They also maintain 15.1 miles of sanitary force mains from various pump stations located both within the City of Findlay corporation limits and in the outlying area. Located on these force mains are 35 air relief valves that require weekly maintenance and replacement as needed to ensure efficient pumping and proper flows from the lift stations to the plant.

A total of one hundred and forty eight (148) reports of sewer problems were investigated in the year 2018. About 4% percent (4%) of the reports were due to a problem within the City's sewer system while the remaining ninety-six percent (96%) were determined to be in the homeowner's sewer. Twelve percent (12%) of the 148 calls were received during nonscheduled work hours and required employees to be called in to work.

As part of a preventive maintenance program, all City sanitary sewers are cleaned every eight (8) years and those areas that historically have sewer problems are monitored and cleaned more often. In 2018, a total of 49.7 miles of sanitary sewer were cleaned by a high-pressure water sewer cleaner and vacuum truck called the sanitary vactor. This cleaning removed 563 cubic feet of debris from the City's sanitary system. The sanitary and storm vactors are often used to help other City departments with cleaning projects. The Water Treatment Plant, Water Pollution Control facility and even the City swimming pool have all utilized the vactor for the cleaning of tanks, basins, wet wells, or drains. In 2018, the vactor crews also assisted the Water Distribution department with hydro-excavation on several water main breaks during and after work hours.

Vactor

Additional preventative efforts included the application of grease treatment to 5,425 feet of sanitary sewer to decrease grease build up and treatment of 6,029 feet of sanitary sewer by private contractor to decrease the effect of tree root intrusion on the sewers. The root treatment process involves the spraying of foam on the roots within the sewer system which kills the roots without harming the tree. This helps to reduce sewer blockages within the lines and cuts down on the frequency that cleaning is required. A rat control maintenance program is also in place for the City sewers.

Throughout the year, five (5) sanitary sewer pipes and four (4) storm sewer pipes were repaired which had either collapsed or were damaged. The Sewer Maintenance Department also repaired manholes, constructed new manholes, adjusted castings to grade, and conducted dye tests.

The Sewer Maintenance Department, along with the Water Distribution Department, is required to locate and mark sewers and related structures as part of the Ohio Utilities Protection Service. During 2018, there were seven thousand four hundred and forty five (7,445) requests for sewer locates. This is down from the previous year's high in 2018, of seven thousand eight hundred and thirty five (7,835).

As required by OSHA and the City of Findlay's confined space entry policy, all confined space entries must be documented. During 2018, we had twenty two (22) entries that were required by maintenance personnel to the sewer system. The Sewer Maintenance Department uses an enclosed trailer to allow the confined space equipment to be readily available at the job site. This reduces entry time and provides a safer entry procedure with all equipment close at hand.

In 2018, one hundred and three thousand seven hundred and thirty three (103,733) feet of sanitary sewer and twenty one thousand and fifty one (21,051) feet of storm sewer were televised and assigned a rating based on their condition.

The televising program has allowed us to determine the sewers most in need of attention as we plan our sewer lining project. Sewer lining literally creates a "pipe" within the existing pipe and it restores the structural integrity of the original sewer line without digging it up. It is a cost effective alternative to sewer replacement that prevents root intrusion, stops infiltration and leaks into the sewer, increases flow rates, and is corrosion resistant to the hydrogen sulfide gas which is created within the sanitary sewer system. The sewer lining project for 2018 is going to run into 2019 and it is expected that the program will continue in 2019-2020.

The Sewer Maintenance and the Water Pollution Control Departments play an integral role in keeping the residents of Findlay safe when the Blanchard River nears and exceeds flood stage. They worked tirelessly along with the authorities to barricade and close flooded streets as well as responding to an increased number of sewer concerns during flood events.

Installation of flap gates on all Combined Sewer Overflows has also continued to prevent surcharging of the sewer system during flood conditions. Additional flap gates are installed on storm sewers to help minimize street flooding during high water levels of the Blanchard River and its tributaries.

During 2018, approximately forty percent (40%) of the Sewer Maintenance Unit man-hours were spent maintaining sanitary sewers, forty percent (40%) on storm collection system and the remaining twenty percent (20%) on building and equipment maintenance, vacation, sick leave, confined space entry training and equipment use and various other safety training.

2018
SEWER MAINTENANCE
ANNUAL REPORT OF OPERATIONS

MONTH	CLEANING									CATCH BASINS		CONFINED SPACE ENTRIES	MANHOLES ADJUSTED #	SEWER CALLS #	ISSUE WITH CITY SEWER #	TELEVISED	
	BUCKET		VACTOR						JET								
	SANITARY FEET	STORM FEET	SANITARY FEET	DEBRIS REMOVED FT3	STORM FEET	DEBRIS REMOVED FT3	BASINS #	DEBRIS REMOVED FT3	FLUSHING FEET	REPAIRED #	PATCHED #					SANITARY FEET	STORM FEET
JANUARY	0	0	5,900	9	0	0	0	0	0	0	0	0	1	13	2	8,870	90
FEBRUARY	0	0	10,404	8	0	0	0	0	0	0	2	0	1	25	1	5,854	0
MARCH	0	0	19,090	19	180	0	8	0	0	2	4	5	20	20	2	9,168	2,218
APRIL	0	0	33,130	18	0	0	15	0	0	0	32	0	2	15	0	4,293	4,102
MAY	0	0	10,020	13	280	3	188	707	0	6	9	4	2	16	0	3,561	4,668
JUNE	0	0	12,335	45	0	0	271	2,020	0	9	13	0	1	13	0	6,271	6,376
JULY	0	0	16,735	172	915	6	434	3,030	0	4	8	0	0	7	0	10,193	1,862
AUGUST	0	0	20,789	74	0	0	396	3,030	0	0	8	1	1	10	0	10,587	40
SEPTEMBER	0	0	24,013	39	0	0	532	4,040	0	2	4	5	5	8	0	13,254	0
OCTOBER	0	0	28,335	76	0	0	538	3,939	0	1	26	1	1	7	1	16,337	169
NOVEMBER	0	0	13,135	16	755	2	160	1,414	0	0	4	2	2	10	0	6,554	1,218
DECEMBER	0	0	15,695	74	0	0	347	2,525	0	1	15	4	2	4	0	8,791	308
TOTAL	0	0	209,581	563	2,130	11	2,889	20,705	0	25	125	22	38	148	6	103,733	21,051
2017 TOTAL	0	0	238,059	595	1,678	0	2,543	19,897	300	9	235	2	27	145	11	48,044	200

SEWER MAINTENANCE
COST OF OPERATION

	2018	2017
PAYROLL & BENEFITS	$721,520	$714,300
UTILITIES (electric, water & sewage)	$17,707	$14,994
WATER & SEWER LINE MAINTENANCE	$27,359	$13,455
VEHICLE & EQUIPMENT MAINTENANCE	$31,785	$16,103
FUEL	$22,847	$20,177
MISCELLANEOUS	$25,643	$21,344
CAPITAL EQUIPMENT	$8,500	$32,284
TOTAL	**$855,360**	**$832,657**

Stormwater Maintenance Department

The Stormwater Maintenance Department works in a combined effort with Sewer Maintenance to maintain and repair the storm sewer system within the City of Findlay corporation limits. The collection system consists of approximately six thousand four hundred (6,400) catch basins connected by an unknown amount of sewer line and manholes. Throughout the year, two thousand eight hundred and eighty nine (2,889) catch basins along with two thousand one hundred and thirty (2,130) feet of storm sewer were cleaned. These efforts removed twenty thousand seven hundred and sixteen (20,716) cubic feet of debris from the stormwater collection system. A total of one hundred twenty five (125) were patched.

In an effort to decrease stormwater pollution, the Public Works department with partial funding from the Stormwater Maintenance unit put in over 1,984 man hours on the street sweepers in 2018. This sweeping removed 1269 cubic yards of debris from the streets and prevented this pollution from entering into the storm sewer system and then flowing into the receiving stream.

With Ordinance 2015-37 and 2015-38 concerning illicit discharge, illegal connection control, drainage, and erosion and sediment control in place, Mitchell Heacock, in the Engineering Department has been able to put the Storm Water Management Plan (MS4) into action.
The plan addresses the following six minimum controls which were set forth by the OEPA:

- Public Education and Outreach
- Public Participation and Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post Construction Storm Water Management
- Pollution Prevention and Good Housekeeping

Each of these controls have BMPs (Best Management Practices) or activities which have measurable goals. Each of these goals have an implementation schedule to track the progress of the activities that are being achieved.

All City departments submitted their of Municipal Operations Pollution Prevention/Good Housekeeping reports which require each city department to complete quarterly non-stormwater inspections during dry weather, semi-annual stormwater inspections during rain events, and an annual site inspection report each year that sums up all findings from the year and explains the actions taken to correct any problems. There were again no significant issues found from this reporting.

Continued outreach to the public through the distribution of fliers in the water and sewer bills helps to alert residents of the hazards of storm water pollution and how they can prevent it. Educational materials were also provided during field trips and tours given at the WPCC.

STORMWATER MAINTENANCE COST OF OPERATION		
	2018	**2017**
PAYROLL & BENEFITS	$147,898	$149,220
WATER LINE, SEWER LINE, & CATCH BASIN MAINTENANCE	$41,763	$22,046
VEHICLE & EQUIPMENT MAINTENANC	$9,769	$5,404
STREET SWEEPING	$40,611	$31,700
MISCELLANEOUS	$7,083	$8,095
CAPITAL EQUIPMENT	$0	$0
TOTAL	**$247,124**	**$216,465**