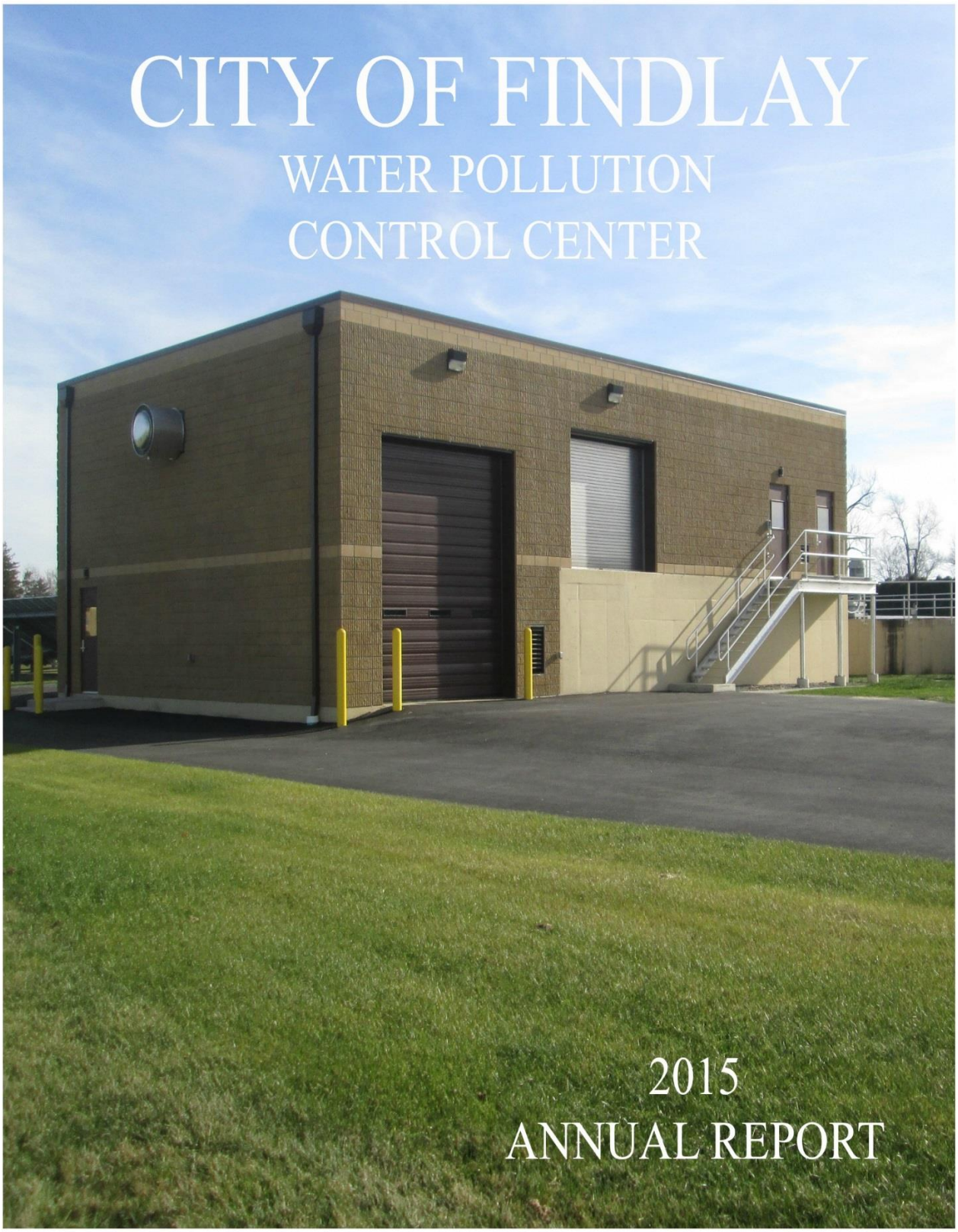
CITY OF FINDLAY

WATER POLLUTION CONTROL CENTER



2015 ANNUAL REPORT

Introduction

The annual report of operations of the Water Pollution Control Center for the year ending December 31, 2015 is respectfully submitted herein. I 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 2015.

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 the 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
- Operation and Maintenance of Wastewater Collection System
- Operation and Maintenance of Sanitary & Storm Pumping Stations
- Condition and Dispose of Biosolids
- Ensure Reliable and Valid Analytical Lab Data
- Maintain Stormwater Collection System
- Meet Regulatory Reporting Requirements Set Forth in NPDES
- Floodwater Management

Water Pollution Control Employees:

- Raul Amesquita
- David Beach
- Russell Boes
- Joel Borer
- Seth Cole
- James Fox
- Dave Frantz
- Joshua Gearing
- Gary Hayden
- Matt Karl
- Amanda Mooney
- Tom Moses
- Werner Roesch
- Mark Stears
- Todd Ward
- Jason Wolfarth

Sewer Maintenance Employees:

- Joe Arras
- Bob Courtney
- Dan Gonzalez
- Terry Grohoske
- Dave Holman
- Chris Kolhoff
- Mark Routzon
- Michael Stillberger
- Bret Vaughan
- Steve Watkins

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	Russell Boes	Class 3
Jason Wolfarth	Class 3	Seth Cole	Class 3
David Frantz	Class 3	Werner Roesch	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 1	Mike Stillberger	Class 1
Chris Kolhoff	Class 1	Steven Watkins	Class 1

2015 Annual Report
Water Pollution Control

In the year 2015, the City of Findlay WPCC completed its eighty-second year of operation by treating 4.213 billion gallons of sewage, 320 million gallons more than 2014.The average daily total for sewage treated was 11.528 million gallons per day which was also up from 2014's daily average of 10.706 million gallons per day. Additional data on flow 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 WPC is conditioned on four belt filter presses located in the Solids Processing Building. 1,976.70 dry tons of biosolids were treated and disposed of at the Hancock County Landfill in 2015. This treatment resulted in an average of 12.05 dry tons per day of operation of the belt filter presses. In January, the WPC Maintenance Department installed a new solids process conveyor in the solids processing building to replace an outdated system that was in constant need of costly repairs. The conveyor, which transports the dewatered sludge cake from the belt filter presses to the truck for disposal, had been in service since 1988 and had long outlived its useful life. The entire project was performed in-house and completed in less than one week.

In May, Kirk Brothers was contracted to complete the bar screen project. Construction of the bar screen is now essentially complete with only a couple of items left to be finished up. The bar screen has been in operation since August 4th and has effectively removed 4,060 lbs. of debris from the raw wastewater entering the WPCC. The bar screen should 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. The WPCC previously used grinders to reduce debris to a passable size before entering the influent pump station but they were found to be inefficient at removing debris and in need of frequent mechanical repairs.

In July, the Plant Maintenance Department and Buckeye Pump replaced the valve vault, valve piping, and service doors at the Lima Avenue Pump Station. During the replacement it was discovered that the force main was also in need of repair. In an effort to avoid an emergency situation, over 1000 feet of 4" cast iron force main piping was replaced with 6" poly piping by a private contractor.

The City of Findlay has continued work on the Long Term Control Plan for Combined Sewer Overflows. In November of 2013, the first draft of the Long Term Post Construction Compliance Monitoring Plan submitted to the Ohio EPA for approval. It outlined the location of existing combined sewer outfalls (CSO's) in the system, identified the most active, set guidelines for inspection and sample collection, and developed forms to report the findings. In January of 2015, we received a letter of LTCP Post-Construction acceptance from the Ohio EPA. Flow meters were ordered in February and installation and training started in May. The wet weather in June and July made installation a struggle but the final flow meter was installed in August and data is now being collected and recorded from these CSO locations. The EPA requires that we monitor and report flow data from the five most active CSO's for a minimum of 24 months to adequately characterize any remaining volumes and occurrences for CSO's. The data collected from these flow meters will be integral in planning for the future.

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 three years of operation it has generated 2,460,273 kilowatt hours (kWh) of electrical power with an estimated retail value of $190,000.03. The solar panels covered about $1/6^{th}$ of the total plant electric bill this year.

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 their unwanted prescription drugs by flushing them down their toilets. The collection for a twelve month period totaled 32 boxes, weighing 1,120.9 pounds. In addition to prescription drugs, residents are also

given the opportunity to dispose of mercury. In 2015, there were many opportunities for mercury disposal including; weekly collections at Litter Landing, a single day collection held out on County Road 140, and two drive up collections that yielded a total of 41 pounds of mercury. We are again 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 October of 2015, we hosted an all-day field trip for over one hundred third graders from Wilson Vance Elementary. The students took wastewater tours, watched large equipment demonstrations, and enjoyed a solar field presentation by Jim Northrup from Marathon. It was a fun and educational day for everyone involved!

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.

Throughout the year there was only one violation of the city's NPDES permit. We exceeded the weekly total suspended solids effluent loading limit. This was caused by debris plugging return sludge lines and return sludge pumps on clarifiers #3 and #5. The addition of the screen building will help decrease the likelihood of this happening in the future.

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 2016 objectives of:

- Continued compliance on the Combined Sewer Overflow Long Term Control Plan
- Continue Large Diameter Sewer Cleaning
- Continue the Ditch Maintenance Program
- Continue the Sewer Lining Program
- WPC/SM Cold Storage Building Construction
- Sewer Separation at G & H Streets
- SCADA System Upgrade

2015

ANNUAL SUMMARY OF OPERATIONS

MONTH	FLOW (MILLION GALLONS)		
	TOTAL	*AVG/DAY*	*PEAK*
JANUARY	302.475	9.757	20.820
FEBRUARY	249.935	8.926	14.395
MARCH	475.077	15.325	33.730
APRIL	416.971	13.899	32.368
MAY	296.026	9.549	33.735
JUNE	561.355	18.712	35.550
JULY	589.746	19.024	32.542
AUGUST	290.577	9.373	16.690
SEPTEMBER	246.533	8.218	12.000
OCTOBER	227.767	7.347	21.555
NOVEMBER	219.612	7.320	10.520
DECEMBER	337.301	10.881	34.975
2015 TOTAL	**4,213.375**		
2015 AVERAGE	**351.115**	**11.528**	**24.907**
2014 TOTAL	3,892.512		
2014 AVERAGE	324.376	10.706	21.272
2013 TOTAL	4,444.227		
2013 AVERAGE	370.352	12.163	27.569

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ANNUAL SUMMARY OF OPERATIONS

MONTH	SUSPENDED SOLIDS MG/L		5-DAY CBOD MG/L		AMMONIA MG/L	
	RAW	*FINAL*	*RAW*	*FINAL*	*RAW*	*FINAL*
JANUARY	153	2.09	137	2.05	15.5	0.010
FEBRUARY	153	2.35	138	2.25	16.3	0.012
MARCH	139	7.91	111	2.91	12.6	0.050
APRIL	77	2.00	101	1.86	13.2	0.000
MAY	129	1.48	126	1.52	16.3	0.015
JUNE	58	1.45	56	1.27	7.4	0.010
JULY	76	1.35	53	1.30	6.3	0.000
AUGUST	119	2.00	103	1.29	12.6	0.000
SEPTEMBER	116	2.09	108	1.18	15.7	0.000
OCTOBER	188	3.27	157	1.30	19.7	0.028
NOVEMBER	167	2.10	144	2.00	18.8	0.000
DECEMBER	171	2.70	132	1.78	16.4	0.070
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	4.2
2015 AVERAGE	**129**	**2.57**	**114**	**1.73**	**14.2**	**0.016**
2014 AVERAGE	131	2.67	131	1.64	15.0	0.054
2013 AVERAGE	136	2.25	120	1.61	14.1	<0.10

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ANNUAL SUMMARY OF OPERATIONS

MONTH	TOTAL PHOSPHORUS MG/L		COD MG/L	E. COLI #/100ML
	RAW	*FINAL*	*FINAL*	*FINAL*
JANUARY	3.2	0.62	13	
FEBRUARY	3.7	0.86	18	
MARCH	2.9	0.65	14	
APRIL	2.6	0.57	17	
MAY	3.2	0.82	18	39
JUNE	1.5	0.48	10	73
JULY	1.8	0.40	3	69
AUGUST	3.5	0.70	13	74
SEPTEMBER	3.4	0.82	15	118
OCTOBER	4.5	0.90	19	45
NOVEMBER	4.4	0.79	15	
DECEMBER	4.2	0.59	18	
NPDES LIMIT	***N/A***	***1***	***N/A***	***126/100ML***
2015 AVERAGE	3.24	0.68	14.42	69.67
2014 AVERAGE	3.26	0.74	11.67	30.67
2013 AVERAGE	3.10	0.64	13.00	48.00

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ANNUAL SUMMARY OF OPERATIONS

MONTH	DISSOLVED OXYGEN (PPM)		
	FINAL EFFLUENT	*BLANCHARD RIVER ABOVE*	*BLANCHARD RIVER BELOW*
JANUARY	9.4	12.2	11.4
FEBRUARY	9.6	14.2	12.5
MARCH	9.4	12.6	11.4
APRIL	8.7	10.4	10.2
MAY	8.2	9.3	9.1
JUNE	8.1	8.5	8.4
JULY	8.0	8.2	8.2
AUGUST	8.0	8.0	7.6
SEPTEMBER	7.9	7.4	7.3
OCTOBER	8.1	8.4	6.6
NOVEMBER	8.3	8.6	8.1
DECEMBER	8.6	12.6	11.2
NPDES PERMIT (SUMMER) 5/01-10/31	6.7		
NPDES PERMIT (WINTER) 11/01-4/30	5.3		
2015 AVERAGE	8.5	10.0	9.3
2014 AVERAGE	8.8	10.1	9.3
2013 AVERAGE	8.8	10.5	10.1

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SOLIDS PROCESSING

ANNUAL REPORT

MONTH	OPERATING HOURS				TOTAL OPERATING
	1	2	3	4	HOURS
JANUARY	143.25	135.25	127.25		405.75
FEBRUARY	109.75	105.25	100.25		315.25
MARCH	121.00	114.50	106.50		342.00
APRIL	166.75	157.75	148.75		473.25
MAY	116.75	119.50	112.75		349.00
JUNE	119.75	113.00	107.25		340.00
JULY	118.00	146.00	138.50		402.50
AUGUST	118.50	135.00	129.25		382.75
SEPTEMBER	133.50	127.00	120.50		381.00
OCTOBER	143.75	126.75	130.75		401.25
NOVEMBER	118.00	111.50	105.00		334.50
DECEMBER	115.25	54.75	125.75	69.50	365.25
TOTAL	1,524.25	1,446.25	1,452.50	69.50	4,492.50
AVERAGE	127.02	120.52	121.04	69.50	374.38

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SOLIDS PROCESSING

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MONTH	AVERAGE COST $/TON	POLYMER COST TOTAL,$	POLYMER USAGE GALLONS	AVERAGE SOLIDS CAPTURE,%
JANUARY	14.14	2,939.34	271.91	0.97
FEBRUARY	14.72	2,149.14	198.81	0.96
MARCH	16.06	2,297.24	212.51	0.96
APRIL	15.85	3,428.17	317.13	0.97
MAY	16.88	2,528.13	233.87	0.97
JUNE	15.84	2,463.16	227.86	0.97
JULY	16.32	2,916.32	269.78	0.97
AUGUST	16.94	2,747.46	254.16	0.96
SEPTEMBER	17.46	2,756.66	255.01	0.96
OCTOBER	17.90	2,906.81	268.90	0.96
NOVEMBER	18.88	2,423.06	224.15	0.95
DECEMBER	18.97	2,778.17	257.00	0.95
TOTAL		32,333.66	2,991.09	
AVERAGE	16.66			0.96

Polymer cost/gal *$10.81*

2015

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	6,595,017	4,261,075	2,333,942	210.57	1.09	17.40
FEBRUARY	5,855,373	3,601,050	2,254,323	146.39	0.99	15.00
MARCH	5,173,252	3,324,450	1,848,802	143.22	1.05	14.60
APRIL	7,258,476	4,913,175	2,345,301	217.21	1.07	15.70
MAY	6,521,164	4,204,800	2,316,364	154.83	0.89	15.90
JUNE	6,207,520	3,630,900	2,576,620	156.49	1.05	17.40
JULY	6,386,075	3,984,300	2,401,775	181.17	1.11	19.00
AUGUST	6,166,683	3,961,425	2,205,258	166.04	1.01	17.20
SEPTEMBER	6,409,541	4,424,025	1,985,516	159.36	0.88	15.90
OCTOBER	7,085,687	4,621,650	2,464,037	166.03	0.87	15.20
NOVEMBER	6,405,796	3,781,275	2,624,521	130.90	0.83	15.10
DECEMBER	7,031,706	4,139,550	2,892,156	144.49	0.84	14.90
TOTAL	77,096,290	48,847,675	28,248,615	1,976.70		
AVERAGE	6,424,691	4,070,640	2,354,051	164.73	0.97	16.11

2014-2015
COMPARISON OF OPERATIONS

REMOVAL OF SUSPENDED SOLIDS	
2014 *RAW TO FINAL*	*2015* *RAW TO FINAL*
98.00%	98.00%

REMOVAL OF 5-DAY C.B.O.D.	
(Carbonaceous Biochemical Oxygen Demand)	
2014 *RAW TO FINAL*	*2015* *RAW TO FINAL*
98.70%	98.40%

REMOVAL OF AMMONIA	
2015 *RAW TO FINAL*	*2014* *RAW TO FINAL*
99.92%	99.64%

REMOVAL OF TOTAL PHOSPHORUS	
2014 *RAW TO FINAL*	*2015* *RAW TO FINAL*
77.30%	79.12%

COST OF OPERATION		
	2014	***2015***
PAYROLL & BENEFITS	$1,117,325	$1,131,417
UTILITIES (electric, water & sewage)	$514,899	$507,756
CHEMICALS	$57,817	$56,613
EQUIPMENT MAINTENANCE	$56,192	$65,804
MISCELLANEOUS	$186,479	$215,027
CAPITAL EQUIPMENT	$144,004	$75,585
OPERATING COST TRANSFER	$603,184	$615,977
TOTAL	**$2,679,900**	**$2,668,180**
COST PER MILLION GALLONS	$689	$633

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 2015 was 51.0°F which was only 0.8°F above the historical average of 50.2°F. February was the 2nd coldest on record with an average temperature of 15.1° F, bested only by February 1978 at 12.7°F. The lowest temperature of the year came in at -9°F on February 20th and was part of a 16 day stretch in which we set two new record lows when the temperatures did not rise above freezing at all. There were a total of thirteen (13) days at 0° or below this year. We also saw the warmest December on record with an average temperature of 42.3°F, besting the old record of 38.2°F set in 2006. There were four (4) record highs set or tied in December. The highest temperature of the year was recorded on July 29th and September 7th when the mercury reached 91°F. The year 2015 recorded a total of four (4) days at 90°F or above. 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 Low Temperatures:

- ***February 23rd -5° Old Record -4° (1939)***
- ***February 28th -3° Record 2° (1925, 2014)***

New Record High Temperatures:

- ***December 12th 68° Old Record 62° (1949)***
- ***December 23rd 63° Old Record 62° (1940)***

Total precipitation for 2015 was 39.57 inches, which was 3.52 inches above the one-hundred twenty one year average of 36.05 inches. June had the greatest amount of monthly precipitation at 7.87 inches and February had the least at 1.22 inches. No rainfall records were tied or broken in 2015. June 27th recorded the largest single day rainfall at 2.77 inches and was one of the seven days of the year in which we received more than one inch of rain. The Blanchard River exceeded flood stage three times in 2015, June 17th at 13.02 feet, June 28th at 11.83 feet, and December 28th at 11.83 feet. The WPCC recorded 173 days with precipitation which accounts for 47 % of the days in 2015. Out of those 173 days, 142 days or 83% had measurable amounts of precipitation of more than 0.01".

The year 2015 recorded a total annual snowfall of 31.5 inches, which is 4.8 inches above the one hundred and twenty one year average of 26.7 inches. The seasonal snowfall for the winter of 2014-2015 totaled 35.2 inches. There were no snowfall records set in 2015 and the month of January was the snowiest month with 14.0 inches recorded.

2014-2015
TEMPERATURE AND PRECIPITATION DATA

MONTH	*AVERAGE TEMPERATURE* *(DEGREES)*				*PRECIPITATION* *(INCHES)*			
	2014		***2015***		***RAINFALL***		***ANNUAL SNOWFALL***	
	MAX	***MIN***	***MAX***	***MIN***	***2014***	***2015***	***2014***	***2015***
JANUARY	27.5	8.8	29.4	14.2	2.00	2.28	16.3	14
FEBRUARY	27.7	11.4	23.7	6.4	2.76	1.22	14.4	13.4
MARCH	41	22.2	43.3	25.4	1.05	1.98	6.7	4.1
APRIL	61.1	39.5	61.3	39.8	5.05	3.51	1.2	T
MAY	72.8	50.9	76.1	54.3	1.87	4.34		
JUNE	81.2	62	77.6	61.2	4.59	7.87		
JULY	78.8	59.7	80.6	62.3	2.02	7.22		
AUGUST	81.5	62.1	80.8	61.2	2.56	3.02		
SEPTEMBER	74.6	53.4	79.4	58.3	4.87	1.64		
OCTOBER	61.4	42.7	64.8	45	1.89	1.74	T	
NOVEMBER	43.5	28.2	55.9	37	1.77	1.49	3.7	T
DECEMBER	39.4	27.3	49.7	34.8	1.56	3.25	T	T
TOTAL					**31.99**	**39.56**	**42.3**	**31.5**
AVERAGE	**57.5**	**39.0**	**60.2**	**41.7**				
YEARLY AVERAGE	**48.3**		**50.9**					
HISTORICAL AVERAGE	50.2				36.05		26.7	

2015 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 over 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 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.

A total of one hundred (100) complaints of sewer problems were investigated in the year 2015. One percent (1%) of these complaints were due to a problem within the City's sewer system. The remaining ninety-nine percent (99%) of complaints were determined to be in the homeowner's sewer. Two percent (2%) of the 100 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 areas that historically have sewer problems are monitored and cleaned more often. In 2015, a total of 38 miles of sanitary sewer were cleaned by a high-pressure water sewer cleaner and vacuum truck that we call the sanitary vactor. This removed 191 cubic feet of debris from the City's sanitary system. The sanitary and storm vactors are also utilized to clean building drains for other City departments, various tanks and basins at the Water Pollution Control facility, the Water Treatment Plant, the City swimming pool and the wet wells at the lift stations.

Vactor

A private contractor was also hired to clean large diameter sewers which range from 36 to 66 inches. In 2015, they removed 115 yards of debris from 4,267 feet the city's main sanitary sewer trunk line. The purpose of these cleanings is to prevent blockages, maintain flow rates, and increase capacity to the Water Pollution Control plant.

Preventative efforts continued as a private contractor treated 6,784 feet of sanitary sewer for root intrusion. This process involves the spraying of foam on the roots within the sewer system which kills the roots without harming the tree. This process reduces sewer blockages within the lines and cuts down on the frequency that cleaning is required.

A self-propelled main line camera, a manhole camera, a lateral inspection camera, and a jetter assisted camera are utilized to inspect or "televise" sewers and their structures. The self-propelled main line camera was updated in 2009 to provide it with pan & tilt capabilities which allow it to look up sewer laterals from the main line sewer. The lateral camera can be used for the inspection of lines as small as two (2) inches and has been used in the past to aid the Traffic Unit in locating breaks in their electrical conduits. The manhole inspection camera and video recorder allows City employees to safely inspect and record sewer line conditions without entering the manhole. In 2015, 58,780 feet of sewer were televised by the main line camera 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 sewer system. There were 5,345 feet of sewers lined in 2015 and it is expected that the program will continue in 2016.

Before lining

After lining

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 2015, there was six thousand nine hundred and ninety one (6,991) requests for sewer locates. This is down from the high in 2005, of seven thousand eight hundred and thirty nine (7,839). Throughout the year, three (3) sanitary sewer pipes and two (2) storm sewer pipes were repaired which had either collapsed or were damaged by utilities.

As required by OSHA and the City of Findlay's confined space entry policy, all confined space entries must be documented. During 2015, only four (4) entries 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.

The Sewer Maintenance Department also repairs manholes, constructs new manholes, adjusts castings to grade, constructs drainage for localized storm water problems, conducts dye tests, conducts flow monitoring with two (2) portable flow monitors and maintains a rat control maintenance program in the City sewer system. In addition, smoke testing is conducted on the sewer system to inspect for sources of inflow and infiltration to the sanitary sewer system. In 2008, we also began plugging abandoned sanitary sewer laterals of properties demolished by the Findlay Public Works Department due to damage caused by the 2007 flood.

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 the three flood events this year.

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 2015, approximately thirty-five percent (35%) of the Sewer Maintenance Unit man-hours were spent maintaining sanitary sewers, forty-five percent (45%) 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.

2015

SEWER MAINTENACE

ANNUAL REPORT OF OPERATIONS

MONTH	CLEANING									CATCH BASINS		CONFINED SPACE ENTRIES	MANHOLES ADJUSTED #	SEWER CALLS #	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	1,053	0	0	0	0	0	0	0	0	0	0	3	1,465	0
FEBRUARY	0	0	0	0	0	0	0	0	0	0	0	0	2	5	0	0
MARCH	0	0	17,090	34	16	0	82	606	0	0	6	2	16	6	0	0
APRIL	0	0	21,496	33	631	0	298	2,727	0	5	14	1	6	12	0	0
MAY	0	0	16,684	25	0	0	300	2,424	0	2	29	0	0	8	0	0
JUNE	0	0	8,195	2	0	0	185	2,020	0	4	22	0	0	11	8,314	0
JULY	0	0	20,894	22	1,065	5	91	707	0	0	25	0	1	18	10,964	355
AUGUST	0	0	30,375	30	1,186	2	229	1,919	0	0	30	0	8	10	3,795	210
SEPTEMBER	0	0	25,319	19	385	18	151	1,414	0	0	24	0	11	9	8,244	0
OCTOBER	0	0	26,905	20	230	0	367	3,232	0	0	16	1	5	6	12,488	0
NOVEMBER	0	0	21,060	3	0	0	392	3,838	0	0	32	0	1	7	9,172	0
DECEMBER	0	0	12,933	3	0	0	127	1,212	0	0	23	0	1	5	4,338	0
TOTAL	0	0	202,004	191	3,513	25	2,222	20,099	0	11	221	4	51	100	58,780	565
2014 TOTAL	0	0	206,385	1,551	2,973	20	1,482	8,805	0	13	351	17	36	109	86,938	1,958

SEWER MAINTENANCE
COST OF OPERATION

	2014	2015
PAYROLL & BENEFITS	$755,424	$764,077
UTILITIES (electric, water & sewage)	$13,483	$12,843
WATER & SEWER LINE MAINTENANCE	$21,069	$30,446
VEHICLE & EQUIPMENT MAINTENANCE	$17,078	$39,791
FUEL	$32,300	$25,771
MISCELLANEOUS	$28,602	$33,693
CAPITAL EQUIPMENT	$63,272	$135,818
TOTAL	**$931,228**	**$1,042,439**

2015 Annual Report
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, 2,222 catch basins along with 3,513 feet of storm sewer were cleaned. These efforts removed 20,099 cubic feet of debris from the stormwater collection system. A total of eleven (11) catch basins were rebuilt and two hundred twenty one (221) were repaired.

Through the Engineering Department, a private contractor installed a new sanitary sewer line in Westpark on Blaine and Elyria Street in preparation for removal of home sewage treatment systems (HSTS) to continue efforts to eliminate private septic systems.

In an effort to decrease stormwater pollution, the Public Works department with partial funding from the Stormwater Maintenance unit put in over 1,500 man hours on the street sweepers in 2015. This sweeping removed 979 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.

In 2015 the City of Findlay continued to work on its Storm Water Management Plan (MS4) with the all development and work being done in the Engineering Department by Mitchell Heacock. This 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 must have BMPs (Best Management Practices) or activities which have measurable goals. Each of these goals must have an implementation schedule to track the progress of the activities that are being achieved.

During the year, dry weather screening of outfalls and ditches within the city limits was completed in an effort to eliminate illicit discharge. All departments submitted their first year of Municipal Operations Pollution Prevention/Good Housekeeping reports which requires 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 the actions taken to correct any problems. We're happy to

report that there were no significant issues found from this reporting. Continued outreach to the public through the distribution of storm water pollution 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. In May of this year, Ordinance 2015-37 concerning Illicit Discharge and Illegal Connection Control and Ordinance 2015-38 concerning Drainage, Erosion and Sediment Control were finalized and approved by council to comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) permit process mandated by the Ohio Environmental Protection Agency.

STORMWATER MAINTENANCE COST OF OPERATION		
	2014	**2015**
PAYROLL & BENEFITS	$136,763	$135,527
WATER LINE, SEWER LINE, & CATCH BASIN MAINTENANCE	$17,356	$11,088
VEHICLE & EQUIPMENT MAINTENANCE	$2,994	$10,903
STREET SWEEPING	$40,049	$38,926
MISCELLANEOUS	$2,747	$10,758
CAPITAL EQUIPMENT	$0	$200,132
TOTAL	**$199,909**	**$407,335**