CITY OF FINDLAY

WATER POLLUTION

CONTROL CENTER

2014

ANNUAL REPORT

Introduction

The annual report of operations of the Water Pollution Control Center for the year ending December 31, 2014 is respectfully submitted here in. The year 2014 started out with record cold temperatures and snowfall that we thought would never end. It then progressed into a year in which we continued to build and strengthen our crew. We are operating at full staff for the first time in many years and 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 2014.

The key processes of operations at the WPCC include:

- Provide Wastewater Treatment that Meets or Exceeds NPDES Permit to Maintain 100% Compliance
- 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

The Water Pollution Control Center (WPCC) is comprised of three units, Water Pollution Control, Sewer Maintenance, and Stormwater Maintenance. Each unit operates under separate budgets with Stormwater Maintenance being a subunit of Sewer Maintenance. All are under the direction of the Superintendent of the Water Pollution Control Center (WPCC).

Water Pollution Control Employees:

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

Sewer Maintenance Employees:

- Bob Courtney
- Terry Grohoske
- Dave Holman
- Mark Routzon
- Bret Vaughan
- Dan Gonzalez
- Chris Kolhoff
- Jared Sines
- Mike Stillberger
- Steve Watkins

Stormwater Employees:

- Dana Cramer
- George Elston

The WPCC employs many staff members that are licensed with the State of Ohio in waste water 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 13 employees, 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	Mark Routzon	Class 1
Chris Kolhoff	Class 1	Mike Stillberger	Class 1

In the year 2014, the City of Findlay WPCC completed its eighty-first year of operation treating 3.893 billion gallons of sewage which was down from 2013's total of 4.444 billion gallons. The daily total for sewage treated was 10.706 million gallons per day in 2014, down from 2013's daily average of 12.163 million gallons per day. Additional data on flow and solids disposal is available in the graphs included with this report.

Construction of the Bar Screen is in full swing and should see completion in early 2015. The building has started to take shape but there is still much work to be done on the splitter box, the 36" effluent line that runs from the screen to the building to the junction box, and the tie-ins to the existing force mains. Monthly progress meetings continue and allow for communication between the design engineers, contractor and city officials. The bar screen will allow for the removal 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. We are anxious to get this new addition to the plant up and running.

In November of 2014, the Plant Maintenance Department completed the second and final phase of a major lighting upgrade here at the plant. All outdated lighting has now been replaced with more efficient LED bulbs in anticipation of a cost savings on the monthly electric bill. The project was funded partially by incentives from AEP.

In June, the WPC Maintenance Department installed an upgraded septage receiving station with a rock trap at the plant. This upgrade will help keep large rocks and other debris out of the system and ensure more accurate totals of septage being disposed of. When a customer connects their hose to the station, they can login in and pump out by following the onscreen instructions. Upon logging in, the terminal verifies that the customer is an authorized user, their account is in good standing, and it records the transaction as it happens to allow for the most accurate, current, billing as possible.

In November, the WPC Maintenance and Sewer Maintenance Departments cooperated to make improvements at the west park storm water retention pond. The pond, which is located off Lagrange Street, was built in the early eighties and in dire need of cleaning and upkeep. The project posed a unique challenge because the pond had to be dewatered while still maintaining operation of the pump station. In order to drain the pond effectively, we also had to clean 500ft of the drainage ditch which is located along I-75 and is maintained by the State. This required a permit because of environmental issues. We utilized our emergency pump at the pump station and ran almost 1,200 feet of discharge hose to the drainage ditch. The project removed between 80 and 100 tandem axle dump truck loads or approximately 1500 cu/yards of cattails, sediment, and other vegetation from the pond and the ditch. As the pictures show, the final product reveals a much more efficient and eye appealing retention pond. All work was funded with money appropriated for ditch maintenance projects.

Before

After

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. After lengthy delays by the EPA, we received word in late December 2014 that the plan had been reviewed and needed only one modification before it would be accepted. The requested change was made and the final draft of the Long Term Control Plan for Combined Sewer Overflows was resubmitted. Upon receiving word of final approval, the City has two months in which to implement the plan. Flow meters have been selected and will be ordered as the first step towards implementation. The long term goal is to reduce overflow events and to eliminate as many discharge points as possible. Efforts to decrease the number of CSO's have continued in 2014. The process will be further described later on in the report.

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 and 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 two years of power generation, it has generated 1,574 mega-watt hours (MWh) of electrical power with an estimated retail value of $113,208.

The WPC once again partnered with the City of Findlay Health Department, 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 spring collection totals for both the drive up event and the permanent boxes totaled 715.75 pounds and the fall collections yielded 367 pounds of prescription medication. 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 192 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 kids, 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.

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 WPC is pleased to report that our laboratory, once again, received an acceptable rating on all parameters that were tested for pertaining to 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 one violation of the city's NPDES permit. We exceeded the final effluent discharge limitation by impeding the growth of Ceriodaphnia Dubia. Upon retesting it was found that we had returned to compliance.

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. 2,250.66 dry tons of biosolids were treated and disposed of at the Hancock County Landfill in 2014. This treatment resulted in an average of 14.16 dry tons per day of operation of the belt filter presses. A new conveyor that transports sludge from the presses to the trucks for disposal has been ordered and will be installed in 2015.

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 2015 objectives of:

- Solids Processing Conveyor Replacement
- Implementation of Combined Sewer Overflow Long Term Control Plan
- Continue Large Diameter Sewer Cleaning
- Continue the Ditch Maintenance Program
- Continue the Sewer Lining Program
- Brandman Area Sewer Diversion and CSO Removal
- West Park Sanitary Sewer Construction Phase 4
- Sewer Separation at G & H Streets
- Combined Sewer Seperation W. Lincoln Street and W. Hardin Street

2013-2014
COMPARISON OF OPERATIONS

REMOVAL OF SUSPENDED SOLIDS	
2013 *RAW TO FINAL*	*2014* *RAW TO FINAL*
98.40%	98.00%

REMOVAL OF 5-DAY C.B.O.D.	
(Carbonaceous Biochemical Oxygen Demand)	
2013 *RAW TO FINAL*	*2014* *RAW TO FINAL*
98.70%	98.70%

REMOVAL OF AMMONIA	
2013 *RAW TO FINAL*	*2014* *RAW TO FINAL*
99.90%	99.64%

REMOVAL OF TOTAL PHOSPHORUS	
2013 *RAW TO FINAL*	*2014* *RAW TO FINAL*
79.40%	77.30%

COST OF OPERATION		
	2013	*2014*
PAYROLL & BENEFITS	$1,182,113	$1,117,325
UTILITIES (electric, water & sewage)	$477,594	$514,899
CHEMICALS	$46,650	$57,817
EQUIPMENT MAINTENANCE	$65,493	$56,192
MISCELLANEOUS	$195,889	$186,479
CAPITAL EQUIPMENT	$29,206	$144,004
OPERATING COST TRANSFER	$640,118	$603,184
TOTAL	$2,637,063	$2,679,900
COST PER MILLION GALLONS	$594	$689

2014

ANNUAL SUMMARY OF OPERATIONS

MONTH	FLOW (MILLION GALLONS)		
	TOTAL	*AVG/DAY*	*PEAK*
JANUARY	390.765	12.605	30.627
FEBRUARY	424.519	15.161	34.412
MARCH	442.847	14.285	28.570
APRIL	508.140	16.938	34.365
MAY	302.674	9.764	15.902
JUNE	313.954	10.465	19.575
JULY	251.371	8.109	13.920
AUGUST	244.998	7.903	12.990
SEPTEMBER	262.302	8.743	23.175
OCTOBER	233.167	7.522	10.161
NOVEMBER	250.005	8.334	16.578
DECEMBER	267.770	8.638	14.990
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

2014

ANNUAL SUMMARY OF OPERATIONS

MONTH	SUSPENDED SOLIDS MG/L		5-DAY CBOD MG/L		AMMONIA MG/L	
	RAW	*FINAL*	*RAW*	*FINAL*	*RAW*	*FINAL*
JANUARY	100	1.96	117	1.61	13.8	0.000
FEBRUARY	99	2.25	103	1.75	12.0	0.000
MARCH	89	2.10	110	1.67	10.9	0.042
APRIL	110	3.60	107	2.05	10.8	0.006
MAY	148	2.77	147	1.95	14.2	0.000
JUNE	131	3.05	129	1.76	14.0	0.022
JULY	135	1.83	138	1.22	16.6	0.010
AUGUST	141	2.52	123	1.57	16.9	0.450
SEPTEMBER	145	3.09	128	1.68	16.5	0.031
OCTOBER	170	3.04	148	1.48	18.2	0.040
NOVEMBER	148	3.75	162	1.55	18.1	0.041
DECEMBER	161	2.10	161	1.39	18.2	0.007
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
2014 AVERAGE	**131**	**2.67**	**131**	**1.64**	**15.0**	**0.054**
2013 AVERAGE	136	2.25	120	1.61	14.1	<0.10

2014

ANNUAL SUMMARY OF OPERATIONS

MONTH	TOTAL PHOSPHORUS MG/L		COD MG/L	E. COLI #/100ML
	RAW	*FINAL*	*FINAL*	*FINAL*
JANUARY	2.6	0.60	17	
FEBRUARY	2.5	0.67	17	
MARCH	2.4	0.66	16	
APRIL	2.3	0.57	11	
MAY	3.2	0.85	22	16
JUNE	3.1	0.82	12	58
JULY	3.5	0.90	3	37
AUGUST	3.9	0.81	4	6
SEPTEMBER	3.5	0.85	5	15
OCTOBER	4.1	0.79	5	52
NOVEMBER	4.0	0.76	13	
DECEMBER	4.0	0.62	15	
NPDES LIMIT	***N/A***	***1***	***N/A***	***126/100ML***
2014 AVERAGE	3.26	0.74	11.67	30.67
2013 AVERAGE	3.10	0.64	13.00	48.00
2012 AVERAGE	3.70	0.69	14.00	47.00

2014

ANNUAL SUMMARY OF OPERATIONS

MONTH	DISSOLVED OXYGEN (PPM)		
	FINAL EFFLUENT	*BLANCHARD RIVER ABOVE*	*BLANCHARD RIVER BELOW*
JANUARY	9.4	13.5	13.4
FEBRUARY	9.6	13.6	12.6
MARCH	9.5	12.6	11.0
APRIL	9.3	11.4	11.4
MAY	8.7	10.1	9.5
JUNE	8.3	6.6	6.6
JULY	7.9	8.9	8.6
AUGUST	8.0	7.9	6.7
SEPTEMBER	8.1	7.1	6.4
OCTOBER	8.5	8.5	7.4
NOVEMBER	8.9	10.2	8.3
DECEMBER	8.9	11.0	9.6
NPDES PERMIT (SUMMER) 5/01-10/31	6.7		
NPDES PERMIT (WINTER) 11/01-4/30	5.3		
2014 AVERAGE	8.8	10.1	9.3
2013 AVERAGE	8.8	10.5	10.1
2012 AVERAGE	8.6	9.7	9.2

2014

SOLIDS PROCESSING

ANNUAL REPORT

MONTH	OPERATING HOURS				TOTAL OPERATING
	1	2	3	4	HOURS
JANUARY	20.00	155.00	145.00	103.75	423.75
FEBRUARY		129.00	122.00	114.00	365.00
MARCH		154.75	148.50	142.00	445.25
APRIL		149.75	141.75	135.50	427.00
MAY		133.00	124.50	118.75	376.25
JUNE	63.25	20.25	104.00	97.25	284.75
JULY	109.75		104.50	94.25	308.50
AUGUST	115.75		109.75	100.00	325.50
SEPTEMBER	112.50		94.75	101.50	308.75
OCTOBER	118.25		111.50	100.25	330.00
NOVEMBER	112.25	33.75	114.25	72.75	333.00
DECEMBER	136.25	135.75	128.75		400.75
TOTAL	788.00	911.25	1,449.25	1,180.00	4,328.50
AVERAGE	98.50	113.91	120.77	107.27	360.71

2014

SOLIDS PROCESSING

ANNUAL REPORT

MONTH	AVERAGE COST $/TON	POLYMER COST TOTAL,$	POLYMER USAGE GALLONS	AVERAGE SOLIDS CAPTURE,%
JANUARY	17.48	3,058.80	282.96	0.96
FEBRUARY	18.66	2,632.13	243.49	0.95
MARCH	18.59	3,210.68	297.01	0.96
APRIL	17.42	3,044.31	281.62	0.96
MAY	16.45	2,673.10	247.28	0.95
JUNE	15.92	1,942.02	179.65	0.97
JULY	15.07	2,122.65	196.36	0.95
AUGUST	15.93	2,238.86	207.11	0.93
SEPTEMBER	16.06	2,116.06	195.75	0.92
OCTOBER	15.28	2,266.97	209.71	0.94
NOVEMBER	14.41	2,391.17	221.20	0.96
DECEMBER	15.91	2,903.13	268.56	0.96
TOTAL		30,599.88	2,830.70	
AVERAGE	16.43			0.95

Polymer cost/gal *$10.81*

2014

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	7,558,094	4,891,877	2,666,217	181.76	0.95	15.98
FEBRUARY	6,378,688	3,833,835	2,544,853	151.01	0.98	15.50
MARCH	7,579,748	4,732,400	2,847,348	184.14	0.97	15.50
APRIL	6,969,242	4,690,525	2,278,717	182.30	0.97	16.30
MAY	6,550,328	4,430,000	2,139,535	163.64	0.91	15.72
JUNE	5,423,063	3,332,500	2,090,563	126.66	0.93	15.64
JULY	5,759,028	3,486,400	2,272,628	184.29	0.97	15.83
AUGUST	5,581,150	3,664,425	1,970,725	213.55	0.93	15.53
SEPTEMBER	3,844,953	3,144,900	1,777,451	201.90	1.03	15.46
OCTOBER	4,124,514	3,402,135	2,245,091	207.21	1.06	15.95
NOVEMBER	4,348,446	3,715,700	2,398,658	207.96	1.05	15.55
DECEMBER	5,891,159	4,735,875	2,357,066	246.24	0.93	15.47
TOTAL	70,008,413	48,060,572	27,588,852	2,250.66		
AVERAGE	5,834,034	4,005,048	2,299,071	187.56	0.97	15.70

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. Flood information is also supplied to the news media when river levels pose a threat to the community. The Blanchard River hit flood stage only one time in 2014. The highest recorded elevation for the year was 12.19 feet which occurred on February 22 &23rd.

The average temperature for the year 2014 was 48.3° which was 1.9° lower that the historical average of 50.2°. It also ranks as the 5th coolest year since 1935 when the WPCC began recording temperature data. On January 6th, the City of Findlay recorded a new record low of -15 degrees below zero as the lowest temperature of the year. The highest temperature of the year was recorded on September 5th when the mercury reached 96 degrees Fahrenheit. The year 2014 recorded a total of three days at 90° or above compared to eleven days in 2013 and twenty seven days in 2012. The year 2014 recorded 15 days at 0° or below. There were no high temperature records broken or tied but two low temperature records were matched and four fell to 2014. 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.

<u>New Temperature Records</u>:

- ***January 6th -15° Old Record -13° (1924)***
- ***January 7th -14° Old Record -10° (1912)***
- ***February 11th -8° Old Record -7° (1912)***
- ***November 21st 11° Old Record 13° (1964)***

Total precipitation for 2014 was 31.99 inches, which was 4.03 inches below the one-hundred twenty year average of 36.02 inches. April had the greatest amount of monthly precipitation at 5.05 inches and the month of March had the least at 1.05 inches. No rainfall records were tied or broken in 2014. September 10th recorded the largest single day rainfall at 3.34 inches and was one of the two days of the year in which we received more than one inch of rain.

The WPC recorded 196 days with precipitation which accounts for 54% of the days in 2014. Out of those 196 days, 129 days or 66% had measurable amounts of precipitation of more than 0.01".

The year 2014 recorded a total annual snowfall of 42.3 inches, which is 15.6 inches above the one hundred and twenty year average of 26.7 inches. The record for latest measurable snowfall was broken when we received 1.2" of snow on April 15th. The seasonal snowfall for the winter of 2013-2014 totaled 46.5 inches and ranks as the 6th highest snowfall total for a season since the WPCC began recordkeeping in 1894. The month of February was the snowiest month with 14.4 inches recorded.

<u>New Snowfall Records</u>:

Latest Measurable Snowfall April 15, 2014 1.2" Old Record April 14, 1907 0.5"

2013-2014
TEMPERATURE AND PRECIPITATION DATA

MONTH	*AVERAGE TEMPERATURE* *(DEGREES)*				*PRECIPITATION* *(INCHES)*			
	2013		*2014*		*RAINFALL*		*ANNUAL SNOWFALL*	
	MAX	*MIN*	*MAX*	*MIN*	*2013*	*2014*	*2013*	*2014*
JANUARY	37	21.4	27.5	8.8	2.98	2.00	2.1	16.3
FEBRUARY	34.5	20.9	27.7	11.4	1.95	2.76	2.9	14.4
MARCH	41.1	27.3	41	22.2	1.25	1.05	6.2	6.7
APRIL	59.5	37.8	61.1	39.5	5.34	5.05	T	1.2
MAY	75.1	53.3	72.8	50.9	1.55	1.87		
JUNE	79.9	60.8	81.2	62	4.62	4.59		
JULY	81.3	64.3	78.8	59.7	9.42	2.02		
AUGUST	79.9	60.7	81.5	62.1	3.24	2.56		
SEPTEMBER	76	54.4	74.6	53.4	2.66	4.87		
OCTOBER	63.4	44.8	61.4	42.7	4.29	1.89		T
NOVEMBER	45.6	31	43.5	28.2	2.19	1.77	T	3.7
DECEMBER	35.6	22.7	39.4	27.3	3.38	1.56	6.6	T
TOTAL					**42.87**	**31.99**	**17.8**	**42.3**
AVERAGE	**59.1**	**41.6**	**57.5**	**39.0**				
2014 YEARLY AVERAGE	**50.3**		**48.3**					
HISTORICAL AVERAGE	50.2				36.02		26.7	

Introduction

The Sewer Maintenance unit 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. The preventive maintenance program conducted by the Sewer Maintenance Unit allows for the cleaning of all City sanitary sewers every eight (8) years and additional cleaning of areas that historically have sewer problems.

The Sewer Maintenance Unit maintains 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 need to be maintained or replaced (as needed) on a weekly bases to ensure efficient pumping and proper flows from the Lift Stations.

A total of one hundred and nine (109) complaints of sewer problems were investigated in the year 2014. Four percent (4%) of these complaints were due to a problem within the City's sewer system. The remaining ninety-six percent (96%) of complaints were determined to be in the homeowner's sewer. Eleven percent (11%) of the 109 calls were received during nonscheduled work hours and required employees to be called in to work.

As part of our preventative maintenance program, a total of 39 miles of sanitary sewer were cleaned by a high-pressure water sewer cleaner and vacuum truck that we call the sanitary vactor. This removed 1,551 cubic feet of debris from the City's sanitary system. The sanitary and storm vactors also cleaned various building drains for other City departments, tanks and basins at the Water Pollution Control facility, the Water Treatment Plant, the City swimming pool, and even the lift station wet wells.

Vactor

A private contractor was also hired to clean large diameter sewers which range from 36 to 66 inches and removed 100 yards of debris from 5,580 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.

In 2014, a private contractor treated 5,520 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. The City of Findlay also treated 5,460 feet of sanitary sewer for grease build up, which has been a big cause of sanitary sewer back-ups around the restaurant areas.

The Sewer Maintenance Unit utilizes a self-propelled main line camera, a manhole camera, a lateral inspection camera, and a jetter assisted camera 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 manhole conditions without entering the manhole. In 2014, 86,938 feet of sewer were inspected 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 was no sewer lining completed in 2014 but it is expected that the program will resume in 2015.

Before lining

After lining

The Sewer Maintenance Unit, 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 2014 the Sewer Maintenance Unit had requests for 7,013 sewer locates. This is down from the high in 2005 of seven thousand eight hundred and thirty nine (7,839). Throughout the

year, the Sewer Maintenance Unit repaired 5 sanitary sewer pipe and 6 storm sewer pipes, which had either collapsed or were damaged by utilities.

Efforts to decrease the number of combined sewer overflows (CSO's) have continued with adjustments being made to a known CSO at First Street and Bank Street. Twenty four (24) feet of 12 inch SDR-35 PVC pipe was installed from the sanitary manhole at the intersection of Fifth Street and Williams Street to the sanitary manhole on the S/E corner of Fifth and Williams Streets which is the 30 inch S/E interceptor sewer. This will either eliminate the CSO altogether or it will greatly reduce the amount of flow discharged into the overflow.

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.

The Sewer Maintenance Unit repairs manholes, constructs new manholes, 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.

As required by OSHA and the City of Findlay's confined space entry policy, all confined space entries must be documented. During 2014, seventeen (17) entries were required by maintenance personnel to the sewer system. The Sewer Maintenance Unit uses an enclosed trailer to allow all confined space equipment to be readily available at the job site. This reduces entry time and provides a safer entry procedure with all the equipment closely at hand.

The Sewer Maintenance Department and the Water Pollution Control Department also 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 increased numbers of sewer concerns during the two high water events this year.

During 2014, approximately thirty-five percent (35%) of the Sewer Maintenance Unit man-hours were spent maintaining sanitary sewers, forty percent (40%) on storm sewers and the remaining twenty five percent (25%) 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	4,060		0		9	18	0	0	0	0	0	9	1,075	0
FEBRUARY	0	0	0		0		8	16	0	0	0	0	0	10	0	0
MARCH	0	0	10,362		1,783		38	40	0	0	15	0	13	15	6,657	500
APRIL	0	0	7,718	234	230	5	46	52	0	0	44	1	4	26	7,030	1,238
MAY	0	0	10,115	342	960	15	80	310	0	6	55	1	2	10	14,758	220
JUNE	0	0	25,640	454	0	0	247	851	0	7	38	0	3	7	15,829	0
JULY	0	0	27,967	28	0	0	421	2,770	0	0	76	0	2	5	6,804	0
AUGUST	0	0	28,301	24	0	0	175	1,414	0	0	57	0	3	3	12,018	0
SEPTEMBER	0	0	26,727	222	0	0	107	808	0	0	16	0	2	7	13,512	0
OCTOBER	0	0	28,274	100	0	0	65	101	0	0	46	7	2	8	9,255	0
NOVEMBER	0	0	12,195	109	0	0	82	554	0	0	2	4	4	2	0	0
DECEMBER	0	0	25,026	38	0	0	204	1,871	0	0	2	4	1	7	0	0
TOTAL	0	0	206,385	1,551	2,973	20	1,482	8,805	0	13	351	17	36	109	86,938	1,958
2013 TOTAL	0	0	225,279		6,999		2,569		0	4	357		36	130	35,429	190

*** 2014 IS THE FIRST YEAR FOR TRACKING AMOUNT OF DEBRIS REMOVED & CONFINED SPACE ENTRIES**

2014 Annual Report
Stormwater Maintenance Unit

The Stormwater Maintenance unit 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, 1,482 catch basins along with 2,973 feet of storm sewer were cleaned. These efforts removed 8,805 cubic feet of debris from the stormwater system. A total of thirteen (13) catch basins were rebuilt and three hundred fifty one (351) were repaired.

Several stormwater projects were also completed this year. Installation of two hundred (200) feet of new eight (8) inch storm sewer and three catch basins at the Water Pollution Control Plant was completed to relieve ground water around the clarifier tanks and drive ways. A long overdue capital project to install one thousand sixty (1,060) feet of ten (10) inch storm sewer and five new catch basins was completed on Bank Street and Oakland Avenue. These changes created an outlet for storm water drainage that has been a problem for years. More concerns were addressed when we investigated multiple reports of street flooding in the Colonial Heights subdivision during heavy rain events. In Dalzell Ditch, we found that about 300 feet of 15 inch pipe had been stacked on top of one another and covered with dirt. The combination of these pipes and the debris that collected there was causing a back-up of the storm sewer collection system that discharges to the ditch. Our crews worked to remove all of the 15 inch pipe. We also removed all the dirt and debris that had collected and reshaped the banks of the ditch. As the pictures show, the changes in the ditch were dramatic and we have had no reports of flooding in this area during recent rain events.

In 2014 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, mapping of all outfalls and ditches within the city limits was completed allowing for each one to be recorded, sized, and photographed. Dry weather screening of these locations is planned for the summer of 2015. The Municipal Operations Pollution Prevention/Good Housekeeping Program was implemented 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. 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. Ordinances for Illicit Discharge and Pre/Post Construction Stormwater Management have also been developed and are being finalized so they can go to council for approval.

In an effort to decrease stormwater pollution, the Public Works department with partial funding from the Stormwater Maintenance unit put in 2,402 man hours on the street sweepers in 2014. This sweeping removed 1,176 cubic yards of debris from the streets and prevented this pollution from entering into the storm sewer system and then into the receiving streams.