



Cuyahoga County
Together We Thrive

2018 Annual Report

Prepared for the: **City of Beachwood**



By the: **Department of Public Works**





March 18, 2019

The Honorable Martin S Horwitz
City of Beachwood
25325 Fairmont Boulevard
Beachwood, Ohio 44122

Dear Mayor Horwitz,

As Director of Public Works, I am pleased to submit the 2018 Annual Report for the City of Beachwood. Our work within the communities focuses on addressing the infrastructure needs of the sewer collection system, as well as meeting Ohio EPA goals. Our goal is to provide a high level of service in a cost-effective manner by striving to improve our efficiency throughout the County. We continue to maintain a second maintenance shift to reduce overtime, which also allows us to work more efficiently in areas where normal workday traffic would be problematic.

This report is a detailed overview of the work completed within your municipality in the past year and is organized as follows:

- Overview
- Sewer Collection System Jet Cleaning and Television Inspection Summaries
- Plan Approvals Summary
- Service Program Summary
- Community Operating and Capital Expenses

The County is now emailing the annual reports, which are also available on our website at:
<http://publicworks.cuyahogacounty.us/en-US/Sewer-Maintenance-Services.aspx>

My staff is available to meet with you at your convenience should you wish to discuss this report or any of the services that our department provides.

On behalf of the entire Cuyahoga County Department of Public Works, we are pleased and grateful for the opportunity to be of service to you and your community.

Respectfully submitted,

Michael W. Dever, MPA
Director of Public Works

Cc: (with attachments)
Chris Arrietta, Service Director
Joseph Ciuni, P.E., P.S., Engineer

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OVERVIEW



Established in 1919, the office of the Cuyahoga County Sanitary Engineer was created to provide administrative authority in matters of wastewater, storm water, and water supply management. In 2012, the Sanitary Engineering Division (formerly CCSE) became a part of the Cuyahoga County Department of Public Works (CCDPW), and now operates under County Executive Armond Budish.

The Sanitary Division's focus is on the maintenance and repair of aging sewer lines, sewer system needs assessment, engineering feasibility studies, and other infrastructure-related issues. These areas all have a direct impact on commercial and residential development, job creation, and expanding the tax base in the communities served by the Department of Public Works. Furthermore, the Sanitary Division is a major source of technical information for communities (mayors, municipal engineers, and service directors), which provides them with guidance for making infrastructure decisions within their community. The Sanitary Division has considerable experience in the maintenance, repair, and rehabilitation of sanitary and storm sewer systems, as well as significant expertise with respect to the operation and maintenance of pump stations and wastewater treatment plants.

The Sanitary Engineering Division of Public Works currently operates in 38 communities by agreement. Pursuant to such agreements, the Sanitary Division maintains more than 1,200 miles of sanitary sewers and 1,100 miles of storm sewers, operates 63 sewage-pumping stations, and maintains two wastewater treatment plants. Working in cooperation with the Ohio Environmental Protection Agency (Ohio EPA), the Northeast Ohio Regional Sewer District (NEORS), the Cuyahoga County Board of Health (CCBH), and the various communities, the Sanitary Division works to maintain water quality. This is done through the construction of new sanitary sewers, maintenance of existing sewer systems, and the investigation and remediation of illicit discharges (sanitary sewage which is improperly discharged into storm sewers).

All funds used for operation, maintenance, rehabilitation, and repair of the sewerage system are generated through fees and assessments. (Funding is not via the County's General Fund to perform these activities.)

The Department of Public Works has been in the forefront of regionalism efforts within the County. With services provided to more than half of the County's 59 communities, the Sanitary Division continues to maintain reasonable rates and improve infrastructure throughout the area.





GOALS

The Sanitary Engineering Division of Public Works has three (3) major goals:



1. Operate and maintain the sanitary sewerage systems to assist the communities in meeting the goals and objectives of the EPA Capacity Management Operation and Maintenance (CMOM) guidelines.
2. Provide guidelines for design and construction through the County's "Uniform Standards for Sewerage Improvements" and "Rules and Regulations."
3. Issue sewer connection permits and provide construction inspection for new sanitary sewers and new connections to existing sanitary sewers.

The goals of the Sanitary Engineering Division with respect to the maintenance and repair of sewers are accomplished through the activities of our three main Sanitary Division groups working together: Maintenance Services; Engineering & Construction Services; and, Administrative Services.

MAINTENANCE SERVICES

- Reduction of the number of flooded basements by maintaining existing capacity in the collection systems, minimize the inflow/infiltration of storm water to the sanitary system, and evaluate the structural integrity of the sewerage system;
- Optimization of maintenance efficiency to reduce operating costs and provide more available funds for capital improvement projects and repairs;
- Operation of wastewater treatment plants in compliance with the National Pollution Discharge Elimination System (NPDES) permit parameters;
- Maintenance and inspection of the existing collection system to achieve EPA CMOM maintenance goals;
- Operation and maintenance of pumping stations;
- Performance of Illicit Discharge Detection and Elimination Services





ENGINEERING AND CONSTRUCTION SERVICES

- Preparation of Task Orders for repairs and rehabilitation;
- Plan review and approval of all new sewer improvements within the County service area;
- Performance of engineering analyses (required for operation of facilities and the collection system);
- Capital improvement planning;
- Construction management and inspection;
- Provision of guidelines for new construction through use of the CCDPW *Uniform Standards for Sewerage Improvements*;
- Provision of infrastructure needs assessment for communities;
- Project design;
- Construction inspection of new wastewater collection systems within the county service area; and,
- Record keeping of as-built plans and test tee locations.



ADMINISTRATIVE SERVICES

- Issuance of connection permits;
- Maintenance of Record Drawings;
- Provision of Geographical Information Systems (GIS) for development and implementation;
- Fiscal oversight of annual operating budget and capital improvement budget;
- Administration of Grants and loans; and,
- Licensing and permitting of more than 200 contractors.

SUMMARY OF COUNTY-WIDE MAINTENANCE SERVICES

SEWERS

- High-pressure jetting of sewers in the right-of-way, approximately 304 miles of sewers in 2018;
- Point repairs of sewers, force mains, and structures; 3,443 construction visits;
- Cleaning of service laterals, including emergency maintenance and 24-hour on-call team for resident issues;
- TV inspection of approximately 259 miles of sewers to provide condition ratings, failures and/or deficiencies;
- I/I investigation and remediation, 485 visits;
- Implementation of preventative maintenance and upgrades to treatment plants and pumping stations, as well as the provision of licensed operators to monitor the condition of those facilities.





The Maintenance Services Department provides a full-service program to clean sewers, provide National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) condition ratings of sewers, maintain the structural integrity of the sewer systems, and perform repairs on sanitary and storm sewers. The objective of the program is the cleaning of all sanitary sewers every three years and performing video inspection every six years. This time line is well within the NEORS's "Best Management Practices" guidelines.

■ HOUSE LATERAL SERVICES

The Maintenance Services House Lateral Service Department cleaned 8,847 house connections in 2018. The goal is to alleviate sewer back-ups by clearing blocked mains and cleaning service connections to restore sewer capacity.

The House Lateral Service Department also performs flow monitoring for Inflow and Infiltration (I&I) analysis, dye testing, smoke testing, and lateral sewer inspection to identify I&I sources and locations of illicit discharges. The Department works with the communities, the Ohio EPA and the NEORS to protect local waterways.

■ PUMPING STATIONS

The County operates 63 pumping stations throughout the 38 communities pursuant to the maintenance agreements. A Supervisory Control and Data Acquisition (SCADA) system monitors the stations. The system provides alarms and operational status through a central computer, providing 24-hour monitoring. New pump stations are added to the SCADA system as they come on-line. Our maintenance staff consists of experienced operators and technicians enabling us to repair most problems in-house, therefore keeping costs down. Their preventive maintenance program and dedication to the job has reduced emergency call-outs and overflows.





- **WASTEWATER TREATMENT PLANTS**

The County operates two package wastewater treatment plants. The standards for each facility are set by the Ohio EPA through a National Pollution Discharge Elimination System (NPDES) permit. The support staff consists of wastewater operators, licensed by the Ohio EPA, who monitor the conditions of the plants and make necessary process adjustments to meet the requirements of each NPDES permit.



- **CAPACITY, MANAGEMENT, OPERATION, AND MAINTENANCE PROGRAM (CMOM)**

The CMOM Program is a set of “best management practices” that have been developed by the industry and are applied over the life cycle of the sewer collection system. It is these general practices that are taken into consideration when a system is being reviewed by a federal or state agency. Improvement and recommendations are provided by the agencies based on deficiencies identified in the sanitary sewer system.

We continue to work with the NEORS (through their community discharge program) and with the Ohio EPA to ensure that our Sanitary Division’s best practices meet the CMOM goals.





SUMMARY OF ENGINEERING & CONSTRUCTION SERVICES

The Engineering and Construction Services Departments provide technical services to the communities including, but not limited to, capital project planning, grant and loan administration, design engineering, construction management, as well as inspection of sanitary and storm sewers, pump stations, and wastewater treatment facilities.

The sewer repair and rehabilitation program is managed by in-house personnel. A Sanitary Division engineer is assigned to each community to provide an individual contact for sewer related issues. Under the existing sewer maintenance agreements (based on video inspection information and requests from the communities), the County issues Task Orders for repair and rehabilitation by our forces, supplemented by two third-party contractors.

In 2018, on behalf of member communities, design plans were reviewed for nearly 50 construction projects. The Sanitary Engineering Division also coordinates and analyzes the results of field testing and flow monitoring to detect and eliminate storm water inflow/infiltration (I/I) from the sanitary sewer system and illicit discharges to the storm sewer system. Record drawings are prepared, scanned, and filed for record keeping. Information on new sewers and service connections are provided to our IT personnel for incorporation into the County's Geographical Information System (GIS).

The Sanitary Engineering Division and the Construction Department also oversee capital construction projects, including the development of financial packages in the form of grants and loans obtained from the State of Ohio. These funds are utilized for lining, repairing, replacing, and rehabilitating existing sanitary and storm sewerage systems.

The Construction staff provides inspection of all new sanitary sewers and for the connection of service laterals to existing sewers. The Inspectors ensure that projects are constructed in conformance to design plans, specifications, and the County's *"Uniform Standards."*





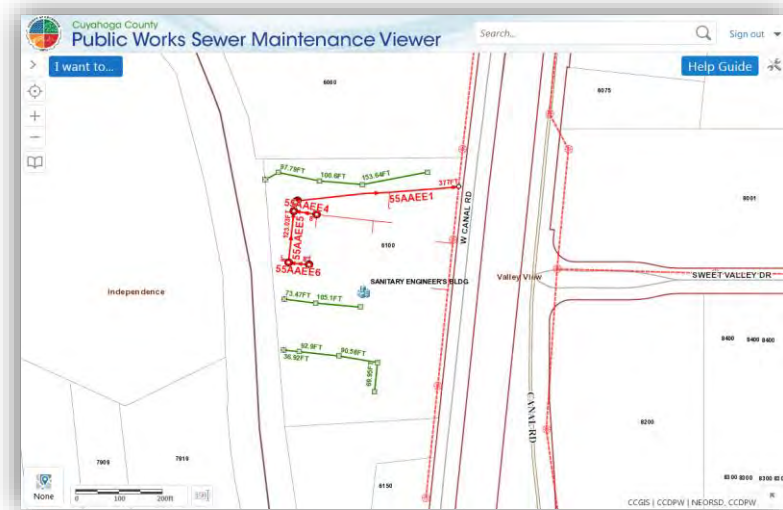
SUMMARY OF ADMINISTRATIVE SERVICES

■ PERMITS

In the 38 communities, pursuant to the sewer maintenance agreements, Administrative Services major functions include issuance of Sewer Connection Permits and the registration of licensed and bonded contractors. These contractors are then able to obtain connection permits and install sanitary sewers within the member communities. The Sanitary Division also maintains permanent records of sewer construction projects and provides information to all County departments, municipalities, engineering firms, contractors, and the public.

■ INFORMATION TECHNOLOGY

Information Technology (IT) provides computer and analytical support to internal end-users and to the communities serviced by the CCDPW. IT is responsible for the design, implementation, and maintenance of our Geographical Information System (GIS), other relational database systems, and guiding data acquisition tasks throughout the CCDPW. The GIS mapping program catalogues the location of sewer systems and performs analysis on spatial data. This information supports the planning, design, and maintenance of sewer systems, and ensures user fees are appropriately assessed and collected. Furthermore, the mapping program features access to information regarding permits that are on record.



Our Geographical Information System is continually being updated and expanded to include information on repair and rehabilitation activities as well as system maintenance and inspection activities. Information is shared between the County, member communities, and the NEORSD to improve services and foster collaboration.

■ FINANCE

The Finance Department provides support services to various units within the CCDPW. Automated cost accounting programs and systems ensure accurate tracking and monitoring of expenditures, revenues, rate structures, and other data that provide financing for capital projects and operational budgets. All systems and programs are operated under generally accepted accounting principles. The CCDPW oversees an annual storm and sanitary sewer operating budget of more than \$17 million. Finance is responsible for accounts receivable, accounts payable, cost accounting, audit, inventory control, capital project financing, purchasing, and sewer assessment revenue management for member communities.

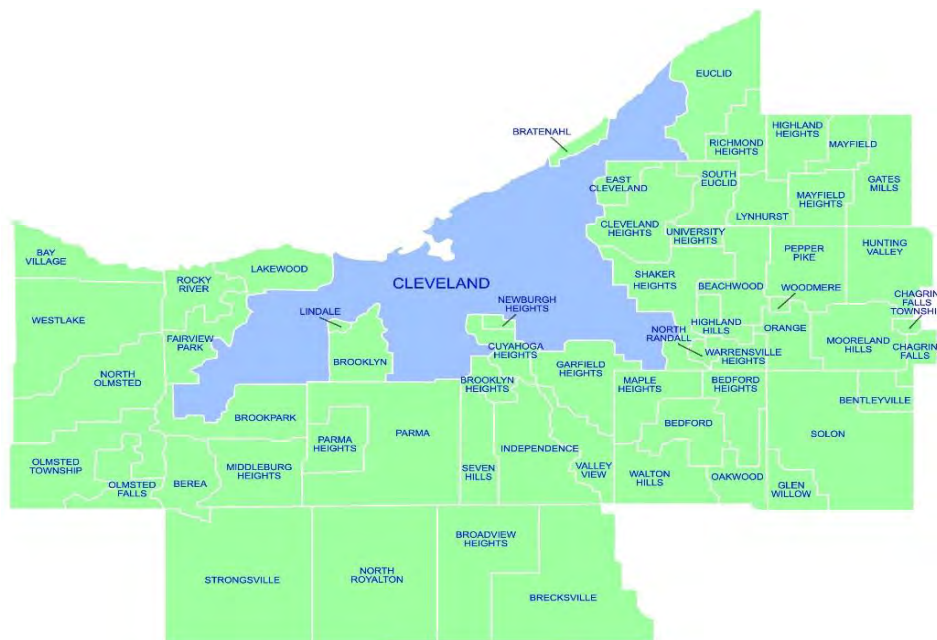


Appendix Description*

The following appendices contain a variety of reports representing the services provided to member communities in 2018. The CCDPW follows a manhole-to-manhole, sewer segment-based accounting method for jet cleaning and TV (video) inspection maintenance services. The first two appendices contain listings of the collection system cleaned and inspected for the year by street. The next appendix lists the plan approvals for the more significant projects submitted to, reviewed and approved by the Engineering Department during the year for your community. Smaller review services such as house connections or ongoing, intermittent review of large multi-phase projects spanning several years of development are not shown on this report. The final appendices provide a breakdown of services including house visits, inflow/infiltration studies, construction activity, operating expenses, and capital project costs contracted for the community.

This annual report along with a map showing areas where collection system mainlines were jet cleaned and TV inspected, and locations where construction crew activities (e.g., house visits, and where house lateral connections needed to be cleaned or inspected) were provided, is available on our website at <http://publicworks.cuyahogacounty.us/en-US/Sewer-Maintenance-Services.aspx>. Adobe Corporation's free reader software is required and can be downloaded from www.adobe.com.

* **Please note:** These appendix reports are provided only to communities for which specific services are provided by the CCDPW. For example, if regularly scheduled mainline cleaning service is not provided for your community, a map was not produced. Similarly, if project review or capital project management services are not provided for your community, then there is also no corresponding report. Furthermore, certain specific member communities are provided limited maintenance only on County improvement mainlines and/or facilities.





SANITARY FLEET FACTS

THE POWER OF REGIONALISM



Current vehicles & equipment	Quantity
House Trucks	12
Specialized Plate Truck & specialized vehicles for catch basin repair	5
Combination Jet-Vac & Straight Jet Trucks	12
TV Camera Trucks	7
Backhoes, Mini Excavators & Rubber Wheel Loader	10
Class 5 Dump Trucks	3
Construction trucks	7
1 ton trucks for pump station service	5
43,000 to 53,000 GVWR single-axle dump trucks	3
58,000 to 60,000 GVRW tandem axle dump trucks	8
Class 550 with crane for pump station service	2
20-25 ton trailers	10
Small Trailers	12





Community Streets Cleaned*



Section A-1

*No service provided if section is blank

Collection System Jet Cleaning

BEACHWOOD

SANITARY

<u>STREET</u>	Street Count: 12	
	# of segments	Jet Ft
BELVOIR BOULEVARD	3	299
CHAGRIN BOULEVARD	3	703
CONCORD DRIVE	4	940
EAST GROVELAND ROAD	1	280
FENWAY DRIVE	3	733
FERNWOOD DRIVE	4	729
HALWORTH ROAD	7	2,171
OLD GREEN ROAD	4	574
REXWAY ROAD	2	333
RICHMOND ROAD	6	882
SCIENCE PARK DRIVE	2	840
SITTINGBOURNE LANE	7	1,248
SANITARY TOTAL:	46	9,732

STORM

<u>STREET</u>	Street Count: 10	
	# of segments	Jet Ft
BEACON DRIVE	8	1,735
BRIAN DRIVE	2	537
BRYDEN ROAD	8	2,035
CONCORD DRIVE	1	63
CONCORD ROAD	6	1,238
EAST GROVELAND ROAD	1	280
EATON BOULEVARD	1	419
HALBURTON ROAD	16	3,316
LETCHWORTH ROAD	4	1,044
PENSHURST DRIVE	1	60
STORM TOTAL:	48	10,727
GRAND TOTAL:	94	20,459

Community Streets Inspected*



Section A-2

*No service provided if section is blank

Collection System TV Inspection

BEACHWOOD

SANITARY

Street Count: 19

STREET	# of segments	TV FT
BELVOIR BOULEVARD	1	211
BISCAYNE BOULEVARD	1	215
BRIAN DRIVE	2	537
BRYDEN ROAD	2	442
DEBORAH DRIVE	1	1,033
EAST GROVELAND ROAD	3	811
FAIRMOUNT BOULEVARD	4	766
FENWAY DRIVE	1	742
FERNWOOD DRIVE	1	750
GREENLAWN AVENUE	1	1,120
GREENWICH LANE	1	700
HALBURTON ROAD	2	151
HALCYON ROAD	1	1,809
HALWORTH ROAD	1	2,145
LYNDWAY ROAD	1	271
OLD GREEN ROAD	3	534
REXWAY ROAD	3	640
RICHMOND ROAD	1	329
SITTINGBOURNE LANE	3	469
SANITARY TOTAL:	33	13,675

STORM

Street Count: 10

STREET	# of segments	TV FT
BRIAN DRIVE	2	537
BRYDEN ROAD	14	2,732
CONCORD DRIVE	7	1,283
EAST GROVELAND ROAD	1	302
EATON BOULEVARD	9	3,264
FAIRMOUNT BOULEVARD	2	608
HALBURTON ROAD	24	4,334
HAVEL DRIVE	4	737
LETCHWORTH ROAD	17	3,755
SITTINGBOURNE LANE	3	467
STORM TOTAL:	83	18,019
GRAND TOTAL:	116	31,694

Plan Approvals*



Section A-3

*No service provided if section is blank

Beachwood Plan Approvals

Project ID	Project Name	Approval Date
18-008	Bomba Tacos	13-Mar-2018
18-020	CUBE	15-May-2018

Service Program Summary*



Section A-4

*No service provided if section is blank

City of Beachwood

<u>Type</u>	<u>Community Total</u>
Sanitary Sewers	299,224 Feet
Manholes	1,357 (Approximately)

2018 Service Program

<u>Program</u>	<u>2018 Activity</u>
1) High Pressure Jet Cleaning Sanitary – 9,732 Feet Storm – 10,727 Feet	20,459 Feet
2) House Service	3 Calls
3) Television Inspection Sanitary – 13,675 Feet Storm – 18,019 Feet	31,694 Feet
4) Construction Activities	176 Job(s)
5) Dye Testing	3 Test(s)
6) Construction Permits Issued (Commercial) (Residential)	7 33
7) Plan Approvals	2 Plan(s)
8) Construction Inspection a) Main Lines Inspected b) Public R.O.W. Service Laterals c) Commercial/Residential Service Laterals	89 Feet 121 Feet 2,558 Feet
9) Catch Basins Cleaned	77

Community Operating Expenses*



Section A-5

*No service provided if section is blank

City of Beachwood
2018 Operating Expenses

<u>Activity</u>	<u>Cost</u>
1. Maintenance of Sanitary Sewerage Systems	\$401,220
2. Pump Station Operation and Maintenance	\$20,576
3. Waste Water Treatment Plant Maintenance	\$ 0
4. Engineering and/or Inspection	\$63,810
5. Capital Expenses (See Section A-6 if any)	\$89,270
 Total Operating Expenses:	 \$574,876

Community Capital Expenses*



Section A-6

*No service provided if section is blank

City of Beachwood

2018 Capital Expenses

Beachwood Boulevard Repair	\$ 19,406
Woodside and Cardington Storm Improvements	\$ 11,415
East Groveland Road Manhole Separation	\$ 58,449

Total Capital Expenses: **\$ 89,270**

CONTACT INFORMATION

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Website: Publicworks.cuyahogacounty.us

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David E. Marquard, P.E., P.S.	Design & Construction Administrator
Michael W. Chambers, CPA	Finance & Operations Administrator
Brian Stapleton	Deputy Chief of Maintenance
Bryan J. Hitch	Sewer Maintenance Superintendent
Hugh Blocksidge P.E.	Chief Engineer Sewer Operations



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Sewer Maintenance	Patrick Mauk, Supervisor(216) 348-3849
Sewer Maintenance	Lyle Plummer, Supervisor(216) 443-6174

Cuyahoga County

Department of Public Works

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