



Cuyahoga County
Together We Thrive

2017 Annual Report

Prepared for the:

City of Beachwood



By the: **Department of Public Works**





March 1, 2018

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

Dear Mayor Horwitz,

As the Director of Public Works, I am pleased to submit the 2017 Annual Report for the City of Beachwood. Our work within the communities, including yours, focuses on addressing infrastructure needs and meeting Ohio EPA goals for collection system operation and maintenance. We have continued to improve our efficiency for sanitary and storm sewer maintenance throughout the County by maintaining a second shift to enable us to reduce overtime and to work in areas where normal working hour traffic is problematic. Our goal is to provide a high level of service in a cost-effective manner.

This report contains a detailed overview of the work completed within your municipality in the past year. The overview of the work performed includes the following: collection system jet cleaning and TV inspection, project review status, service program summary details, as well as community operating and capital expenses.

The County is transitioning to emailing the annual reports and will continue to do so going forward. For your convenience, this year we are also providing you with three (3) hard copies of the report but in the future hard copies will only be available by request. The report is 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.

I am pleased and grateful for the opportunity of serving you through the Cuyahoga County Department of Public Works.

Respectfully submitted,

Michael W. Dever, MPA, Director
Department of Public Works

cc: (with attachments)
Dale Pekarek, 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, and now operates under County Executive Armond Budish.

The Division's focus is on the maintenance and repair of aging sewer lines, needs assessment, engineering feasibility studies, as well as other infrastructure-related issues, all of which 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 Division is a major source of technical information for mayors, municipal engineers, and service directors and provides them with guidance for making infrastructure decisions within their community. The Division has considerable experience in the maintenance, repair, and rehabilitation of sanitary and storm sewer lines, as well as significant expertise with respect to the operation and maintenance of pump stations.

The Sanitary Engineering Division of Public Works currently operates in 38 communities by agreement. Pursuant to such agreements, it maintains more than 1,200 miles of sanitary sewers and 800 miles of storm sewers, operates 56 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, and various communities the Division works to maintain water quality through the identification and investigation of illicit discharges as well as the construction of new sanitary sewers.

All funds used for maintenance and repair of the sewers and other sewage facilities are generated through fees and assessments. The Division does not receive a subsidy from the County's general fund to perform such maintenance activities.

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





GOALS

The Sanitary Division of the Department 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 the design and construction through the “*Uniform Standards for Sewerage Improvements*” and the “*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 Department of Public Works with respect to the maintenance and repair of sewers are attained through the activities of our three main groups working together: Maintenance Services; Engineering & Construction Services; and, Administrative Services.

MAINTENANCE SERVICES

- Reduce 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;
- Increase maintenance efficiency to reduce operating costs and provide more available funds for capital improvement projects and repairs;
- Operate wastewater treatment plants in compliance of National Pollution Discharge Elimination System (NPDES) permit parameters;
- Maintain and inspect the existing collection system to achieve EPA CMOM maintenance goals;
- Operate and maintain pumping stations;
- Illicit Discharge Detection and Elimination Services





ENGINEERING AND CONSTRUCTION SERVICES

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



ADMINISTRATIVE SERVICES

- Issuance of connection permits;
- Issuance of sewer builders' licenses;
- Maintenance of Record Drawings;
- Geographical Information Systems (GIS) for development and implementation;
- Fiscal oversight of annual operating budget and capital improvement budget;
- Grant and loan administration; 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 244 miles of sewers in 2017;
- Point repairs of sewers, force mains, and structures; 3,881 construction visits
- Cleaning of service laterals, including emergency maintenance and 24-hour on-call team for resident issues;
- Televising of lines to provide condition ratings and to identify possible failures or deficiencies, approximately 212 miles of sewers;
- Inflow and Infiltration, 804 visits;
- Licensed operators to monitor the condition of the treatment plants and pumping stations, as well as implement upgrades and preventative maintenance.





The Maintenance Services section provides a full-service program to clean, provide NASSCO PACP condition ratings, maintain structural integrity, 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 which is well within the NEORSD's "Best Management Practices" guidelines.

▪ HOUSE LATERAL SERVICES

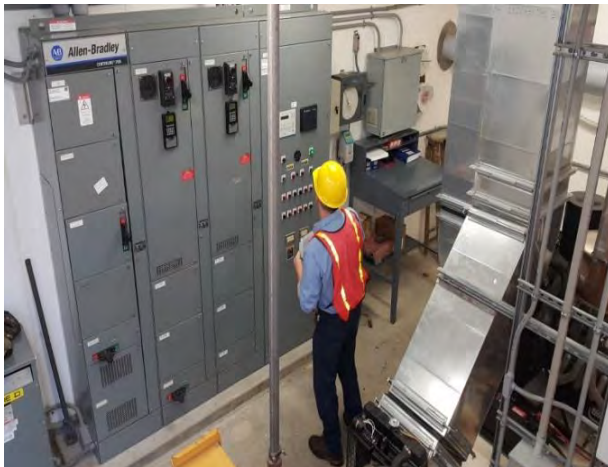
The Division cleaned 9,694 house connections in 2017. The goal is to alleviate sewer back-ups by clearing blocked mains and cleaning service connections to restore sewer capacity.

The House Lateral Service Department performs flow monitoring for Inflow and Infiltration (I&I) analysis and performs smoke testing, dye 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 NEORSD to protect local waterways.

▪ PUMPING STATIONS

The County operates 56 pumping stations throughout the 38 communities pursuant to maintenance agreements. A Supervisory Control and Data Acquisition (SCADA) system monitors the stations. The system provides alarms and operational status through a central computer that is accessed from a remote computer providing 24-hour monitoring. New pump stations are added to the SCADA 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 the 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.

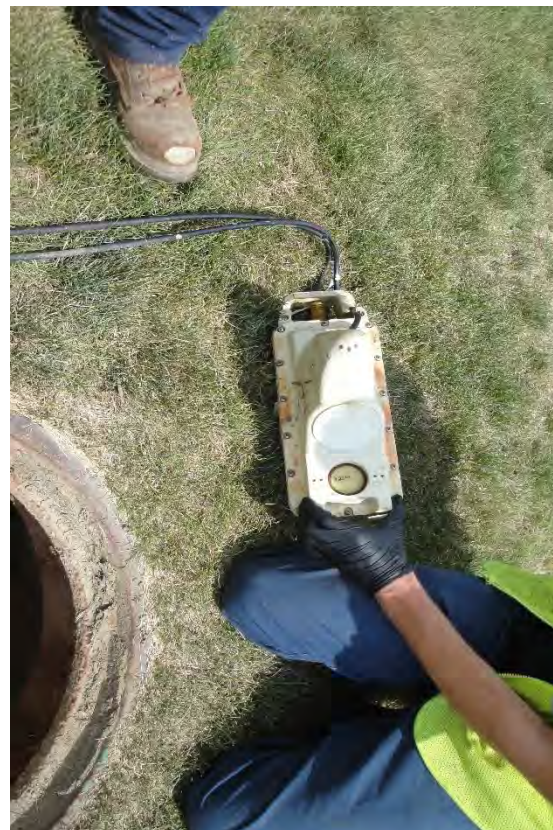


■ **CAPACITY, MANAGEMENT, OPERATION, AND MAINTENANCE PROGRAM (CMOM)**

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 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 NEORSR through their community discharge program and the Ohio EPA to ensure that our department’s best practices meet the CMOM goals.





SUMMARY OF ENGINEERING & CONSTRUCTION SERVICES

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

A sewer repair and rehabilitation program is managed by in-house personnel supplemented with two third-party contractors. Under the existing sewer maintenance agreements, the communities issue Task Orders to the County for repair and rehabilitation based on video inspection information and requests from the communities. A specific Engineer is assigned to each community to provide an individual contact for collection system related issues.

In 2017, design plans were reviewed for nearly 50 construction projects on behalf of member communities. Engineering also coordinates and analyzes the results of field testing and flow monitoring to detect and eliminate storm water inflow/infiltration from the sanitary sewer system and illicit discharges to the storm sewer system. Record drawings are prepared, then scanned and filed for record keeping. Information on the new sewers and service connections are provided to our IT personnel for incorporation in the County's Geographical Information System (GIS).

Engineering and construction also oversee capital construction projects and develop 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 for all new sanitary sewers and service laterals connecting to existing sewers. The Inspectors ensure that projects are constructed in conformance to design plans, specifications and the *"Uniform Standards."*



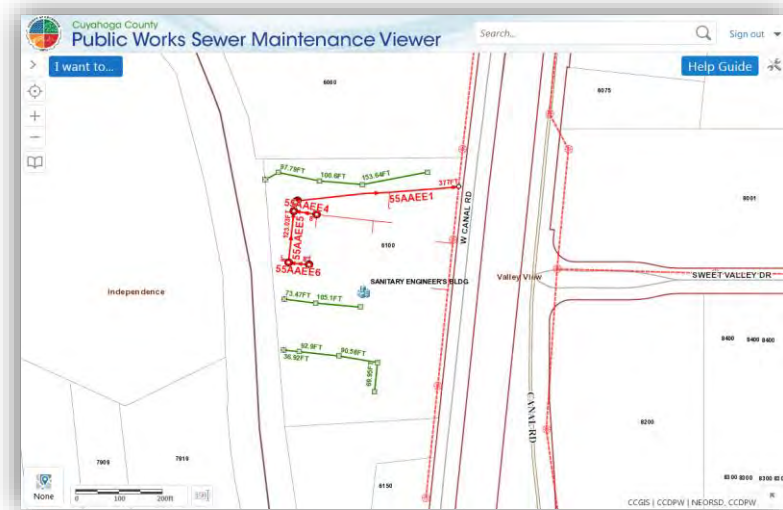
SUMMARY OF ADMINISTRATIVE SERVICES

■ PERMITS

This department operates in 38 communities pursuant to sewer maintenance agreements. Its major functions include issuance of sewer connection permits and the registration of licensed and bonded contractors able to obtain connection permits and install sanitary sewers within the member communities. The Department also maintains the permanent records for sewer construction projects and provide information to all county departments, engineering consulting firms, contractors, and the public.

■ INFORMATION TECHNOLOGY

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



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

Finance provides support services to various units within the Department of Public Works. 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. Public Works oversees an annual storm and sanitary sewer operating budget of more than \$18 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.

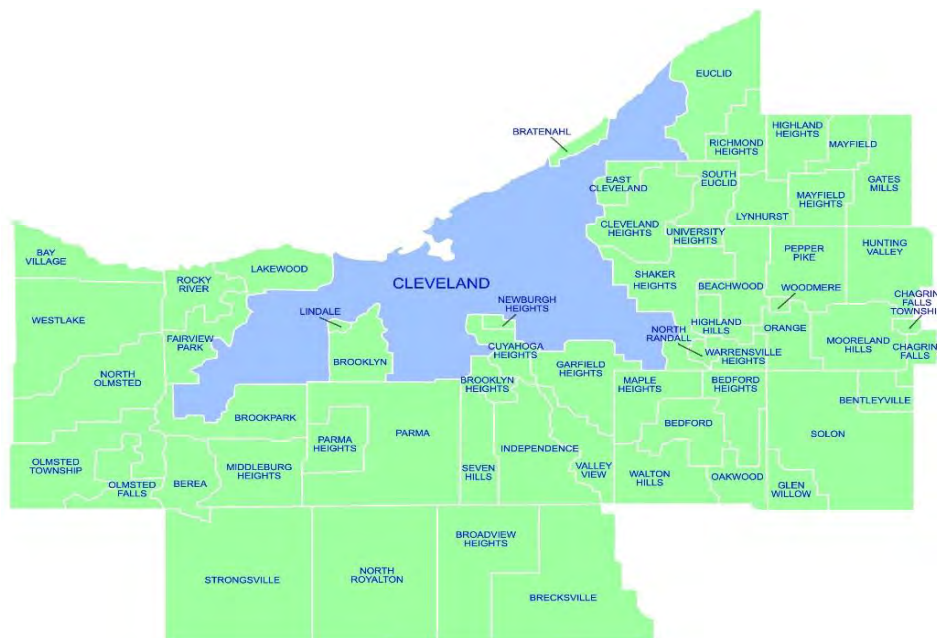


APPENDIX DESCRIPTION*

The following appendices contain a variety of reports representing the services provided to communities in 2017. The Public Works Department follows a manhole-to-manhole, sewer segment-based accounting method for jet cleaning and TV (video) inspection maintenance services. The first two reports contain listings of the collection system cleaned and inspected for the year by street. The following report discloses the more significant projects submitted and reviewed by the Permit and Engineering & Construction Departments 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, and construction activity, operating expenses, and capital project costs contracted for the community.

A map showing areas where collection system mainlines were jet cleaned and TV inspected, construction crew activity locations, house visits and if house lateral connections needed to be cleaned or inspected 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 the specific service is provided by the Department of Public Works. 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 to your community, then there is no corresponding report. Certain communities are provided limited maintenance on county improvement mainlines and/or facilities only.



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

STREET		NUMBER OF SEGMENTS	JET FT
TYPE	SANITARY	Street Count 44	
	BEACHWOOD BOULEVARD	14	3,127
	BISCAYNE BOULEVARD	4	988
	BLOSSOM LANE	5	1,193
	BRENTWOOD ROAD	11	3,050
	BRIAN DRIVE	9	1,814
	BRIDGETON DRIVE	6	1,288
	BUCKHURST DRIVE	13	3,026
	CARDINGTON DRIVE	6	1,241
	CEDARVIEW DRIVE	4	1,208
	CENTRAL PARKWAY	5	607
	COMMUNITY DRIVE	3	908
	DEBORAH DRIVE	11	1,865
	DEPTFORD DRIVE	2	603
	EAST BAINTREE ROAD	9	2,169
	EAST GROVELAND ROAD	9	2,569
	EAST SILSBY ROAD	7	1,626
	EDGEHILL DRIVE	5	971
	EDGEWOOD ROAD	4	1,233
	ELMHURST DRIVE	6	1,590
	ENTERPRISE PARKWAY	12	2,405
	FAIRMOUNT BOULEVARD	1	381
	FERNWOOD DRIVE	6	1,293
	GLENHILL DRIVE	9	1,137
	GREENLAWN AVENUE	11	2,841
	GREENWICH LANE	2	510
	HALCYON ROAD	11	2,986
	HILLTOP DRIVE	10	2,521
	LARCHMONT DRIVE	4	1,196
	LYNDWAY ROAD	12	2,282
	MAIDSTONE LANE	8	1,940
	MARGOT COURT	2	627
	ORCHARD WAY	3	561
	PENSHURST DRIVE	14	2,876
	RANCH ROAD	6	1,336
	RICHMOND ROAD	30	6,966

Collection System Jet Cleaning

BEACHWOOD

STREET	NUMBER OF SEGMENTS	JET FT
SCIENCE PARK DRIVE	7	1,936
SHAKER BOULEVARD	3	952
SITTINGBOURNE LANE	11	2,044
SOUTH WOODLAND ROAD	20	5,137
TIMBERLANE DRIVE	14	2,617
TUNBRIDGE LANE	4	1,117
TWICKENHAM DRIVE	10	2,424
WENDOVER DRIVE	11	2,274
WOODWAY ROAD	5	1,242
Total:	359	82,677

TYPE	STORM	Street Count	4
	ENTERPRISE PARKWAY	14	2,054
	MELDON BOULEVARD	3	784
	RICHMOND ROAD	34	7,574
	SCIENCE PARK DRIVE	6	1,561
	Total:	57	11,973

Annual Report Jet Cleaning

Grand Total: 416 94,650



Community Streets Inspected*



Section A-2

*No service provided if section is blank

Collection System TV Inspection

BEACHWOOD

	STREET	NUMBER OF SEGMENTS	TV FT
TYPE	SANITARY	Street Count 52	
	BEACHWOOD BOULEVARD	15	2,929
	BISCAYNE BOULEVARD	7	1,117
	BLOSSOM LANE	5	1,307
	BRENTWOOD ROAD	11	2,259
	BRIAN DRIVE	10	1,721
	BRIDGETON DRIVE	6	1,062
	BRUCEFIELD ROAD	4	682
	BUCKHURST DRIVE	12	2,686
	CAMPUS ROAD	1	188
	CARDINGTON DRIVE	7	1,350
	CEDARVIEW DRIVE	6	1,572
	CENTRAL PARKWAY	4	554
	COMMUNITY DRIVE	13	2,939
	CRAFTON ROAD	3	385
	DEBORAH DRIVE	7	1,085
	DEPTFORD DRIVE	2	642
	EAST BAINTREE ROAD	9	1,989
	EAST GROVELAND ROAD	8	1,897
	EAST SILSBY ROAD	7	1,624
	EDGEHILL DRIVE	5	970
	EDGEWOOD ROAD	5	1,590
	ELMHURST DRIVE	6	1,315
	ENTERPRISE PARKWAY	9	1,575
	FAIRMOUNT BOULEVARD	1	283
	FERNWOOD DRIVE	5	952
	GLENHILL DRIVE	9	1,145
	GREENLAWN AVENUE	11	2,748
	HALBURTON ROAD	1	125
	HALCYON ROAD	12	3,128
	HILLTOP DRIVE	10	2,521
	LARCHMONT DRIVE	4	806
	LETCHWORTH ROAD	5	1,303
	LYNDWAY ROAD	5	778
	MAIDSTONE LANE	15	2,598
	MARGOT COURT	2	630
	ORCHARD WAY	3	561

Collection System TV Inspection

BEACHWOOD

STREET	NUMBER OF SEGMENTS	TV FT
PARK EAST DRIVE	5	964
PENSHURST DRIVE	12	2,344
RANCH ROAD	8	1,169
RICHMOND ROAD	24	5,904
SCIENCE PARK DRIVE	7	1,945
SHAKER BOULEVARD	33	7,644
SITTINGBOURNE LANE	12	1,888
SOUTH WOODLAND ROAD	24	5,707
TIMBERLANE DRIVE	12	2,244
TUNBRIDGE LANE	10	2,081
TWICKENHAM DRIVE	10	2,421
UNION CIRCLE	2	466
WENDOVER DRIVE	8	1,964
WILLOW LANE	3	671
WIMBLEDON ROAD	3	1,029
WOODWAY ROAD	4	849
Total:	422	90,306

TYPE	STORM	Street Count	24
	ANNESLEY ROAD	11	1,986
	BEECHMONT COURT	1	275
	BISCAYNE BOULEVARD	1	155
	BRUCEFIELD ROAD	3	487
	CHAGRIN BOULEVARD	1	277
	CRAFTON ROAD	5	540
	DIANNE DRIVE	1	275
	DUFFIELD ROAD	9	1,862
	GREENLAWN AVENUE	4	901
	HAWTHORNE DRIVE	2	365
	HAZELMERE ROAD	9	1,683
	HENDON ROAD	6	1,486
	HURLINGHAM ROAD	5	788
	LETCHWORTH ROAD	5	901
	MELDON BOULEVARD	10	1,626
	NORTH WOODLAND ROAD	1	197
	RICHMOND ROAD	11	1,921
	SHAKER BOULEVARD	19	4,542

Collection System TV Inspection

BEACHWOOD

STREET	NUMBER OF SEGMENTS	TV FT
SHAKER CREST BOULEVARD	11	2,238
SOUTH WOODLAND ROAD	17	3,793
SULGRAVE ROAD	4	462
WILLOW LANE	4	547
WIMBLEDON ROAD	9	2,291
WOODSIDE LANE	7	1,666

Total:	156	31,264
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Annual Report TV Inspection

Grand Total:	578	121,570
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Project Review Status*



Section A-3

*No service provided if section is blank

Beachwood Project Review

Project ID	Project Name	Approval Date
16-007 (1)	Improvement Plans for Vanguard Beachwood	28-Apr-2017
16-054 (1)	Proposed Beachwood Fire Station No. 2	5-May-2017
17-011 (1)	24 Hundred Townhomes	6-Jun-2017
17-017 (1)	Beachwood Vascular	16-Jun-2017
17-030 (1)	Encore Medical Center	13-Oct-2017
17-018 (1)	Rose Senior Living Facility	8-Dec-2017

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	287,889 Feet
Manholes	1,356 (Approximately)

2017 Service Program

<u>Program</u>	<u>2017 Activity</u>
1) High Pressure Jet Cleaning Sanitary - 82,677 Feet Storm - 11,973 Feet	94,650 Feet
2) House Service	25 Calls
3) Television Inspection Sanitary - 90,306 Feet Storm - 31,264 Feet	121,570 Feet
4) Construction Activities	346 Job(s)
5) Smoke and Dye Testing	15 Test(s)
6) Construction Permits Issued (Commercial) (Residential)	7 13
7) Plan Review	6 Plan(s)
8) Construction Inspection a) Main Lines Inspected b) Service Laterals & Site Sewers Inspected	1,259 Feet 3,640 Feet
9) Catch Basins Cleaned	114

Community Operating Expenses*



Section A-5

*No service provided if section is blank

City of Beachwood
2017 Operating Expenses

<u>Activity</u>	<u>Cost</u>
1. Maintenance of Sanitary Sewerage Systems	\$889,373
2. Pump Station Operation and Maintenance	\$29,725
3. Waste Water Treatment Plant Maintenance	\$ 0
4. Engineering and/or Inspection	\$87,838
5. Capital Expenses (See Section A-6 if any)	\$485,489
 Total Operating Expenses:	 \$1,492,425

Community Capital Expenses*



Section A-6

*No service provided if section is blank

City of Beachwood

2017 Capital Expenses

North Woodland Road Lining	\$ 250,081
East Silsby Road Manhole Separation	\$ 81,586
Commerce Park Road Repair	\$ 21,500
East Baintree Road Repair	\$ 106,420
Greenlawn Avenue Repair	\$ 25,902
Total Capital Expenses:	\$ 485,489

CONTACT INFORMATION

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Michael W. Chambers, CPA.....	Finance & Operations Administrator
Bryan J. Hitch.....	Sewer Maintenance Superintendent
Hugh Blocksidge P.E.....	Chief Engineer Sanitary Design



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Cuyahoga County Department of Public Works

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Cuyahoga County
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