

Cuyahoga County Together We Thrive

2016 ANNUAL REPORT Prepared For The: City of Brooklyn

By the DEPARTMENT OF PUBLIC WORKS









Department of Public Works

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.

Our focus on maintenance and repair of aging sewer lines, needs assessment, engineering feasibility studies, as well as other infrastructure-related issues, has a direct impact on commercial and residential development, job creation, and expanded tax base in the communities served by the Department of Public Works.

This Division is a major source of information and guidance that mayors, municipal engineers, and service directors rely on when making infrastructure decisions within their community. The Division has considerable experience in the maintenance, repair, and rehabilitation of sanitary and storm sewer lines. Moreover, the Division has much expertise with respect to the operation and maintenance of pump stations.

The Sanitary Engineering Division currently operates in 38 communities. It maintains more than 1,200 miles of sanitary sewers, operates 56 sewage-pumping stations, and maintains two wastewater treatment plants. The Division performs these services on county-owned facilities and through community agreements. Storm sewer maintenance is also provided in a number of communities.

Working in cooperation with the Ohio Environmental Protection Agency (Ohio EPA), the Northeast Ohio Regional Sewer District (NEORSD), various communities, and the Cuyahoga County Board of Health; 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 operating funds for the Division are generated through fees and assessments. The Division does not receive a subsidy from the County's general fund.

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 has three (3) major goals.

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- 1. Operate and maintain the sanitary sewerage systems within the communities to meet 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 Division are attained through the activities of our three (3) main groups working together: Maintenance Services; Engineering and Construction Services; and, Administrative Services.

MAINTENANCE SERVICES

- Reduce the number of flooded basements by decreasing mainline blockage, minimize the inflow/ infiltration of storm water in the sanitary system, and evaluate the structural integrity of the sewerage system;
- Increase efficiency to reduce operating costs and provide more available funds for capital improvement projects;
- Operate wastewater treatment plants in compliance of National Pollution Discharge Elimination System (NPDES) permit parameters;
- Maintain and inspect the existing collection system to meet EPA CMOM maintenance goals;
- Operate and maintain pumping stations; and operational checks (EPA permit compliance).

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.



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ADMINISTRATIVE SERVICES

- Issuance of connection permits;
- Issuance of sewer builders' licenses;
- Mapping and spatial analysis for design and service management;
- 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 MAINTENANCE SERVICES

Sewers

- High-pressure jetting of sewers in the right-of-way, approximately 320 miles of sewers;
- Point repairs of sewers, force mains, and structures;
- Cleaning of service laterals, more than 8,000 houses annually;
- Inflow and Infiltration testing;
- Televising of lines to identify possible failures or deficiencies, approximately 280 miles of sewers;
- Licensed operators to monitor the condition of the treatment plants and pumping stations, as well as implement upgrades and preventative maintenance; and,
- Emergency maintenance and 24-hour on-call team for resident issues.



The Sewer Maintenance section provides a full-service program to clean, evaluate, maintain structural integrity, and perform construction 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.

The Division cleans more than 8,000 house connections annually. The goal is to alleviate sewer backups by clearing blocked mains and cleaning service connections to restore sewer capacity.

The Department of Public Works has an Inflow and Infiltration (I&I) section within the Lateral Service Department. This section uses flow meters to monitor sanitary mainlines during both dry and wet weather conditions to quantify wastewater flow in the system. Smoke and dye testing is used to identify sources of clean water into the sanitary sewer system. When used in unison, the flow quantification and source identification can identify sewers in need of rehabilitation or capacity enhancement.



PUMPING STATIONS

The County operates 56 pumping stations throughout the 38 service communities. 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 mechanics and electricians 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 are set for each facility 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 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 such agencies based on deficiencies identified in the sanitary sewer system.

We continue to work with the NEORSD through their community discharge program and the Ohio EPA to ensure that our department's best practices meet the CMOM goals.

Department of Public Works

SUMMARY OF ENGINEERING AND CONSTRUCTION SERVICES

This section provides technical services to its customers including 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 through in-house personnel supplemented with two outside contractors. Task orders for repair and rehabilitation are issued 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.

Design plans are reviewed for more than 50 construction projects per year on behalf of member communities. Engineering also coordinates and analyzes the results of field testing and flow monitoring in order 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 GIS.

These departments 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 and specifications and the *"Uniform Standards."*







SUMMARY OF ADMINISTRATIVE SERVICES

PERMITS

This department operates in 38 member communities and its major functions include the licensing, bonding, and permitting of more than 200 contractors. They also maintain the permanent records for sewer construction projects and provide information to all county departments, engineering consulting firms, contractors, and the public.

FINANCE

Finance provides support services to various units within the Public Works Department. 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 Department of Public Works oversees an annual storm and sanitary sewer operating budget in excess of \$15 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.

INFORMATION TECHNOLOGY

Information Technology (IT) provides computer and analytical support to internal end-users and communities within the department. It is responsible for the design, implementation and maintenance of geographical map-based and other relational database systems, as well as guiding data acquisition tasks throughout the Division. The computerized 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 and engineering drawings.

Our Geographical Information System (GIS) is continually being 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 better identify areas of responsibility.





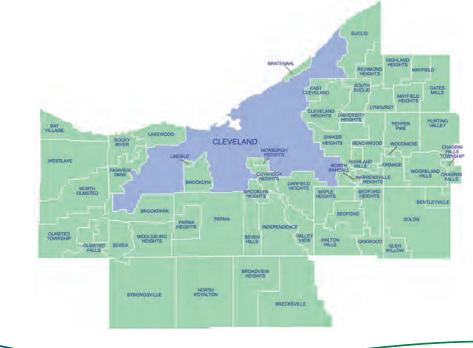
Department of Public Works

APPENDIX DESCRIPTION*

The following appendices contain a variety of reports representing the services provided to communities in 2016. The Public Works Department follows a manhole-to-manhole, sewer segmentbased 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 and 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 operating expenses, capital project costs contracted for the community, as well as additional services including house visits, inflow/infiltration studies, and construction activity.

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. A CD containing the map with the Annual Report is available upon request.

* **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.





Cuyahoga County Together We Thrive





Community Streets Cleaned*

Collection System Jet Cleaning BROOKLYN

	STREET	NUMBER OF SEGMENTS	JET FT
TYPE	SANITARY	Street Count 39	
	AUTUMN LANE	11	2,782
	BENTWOOD DRIVE	7	1,790
	BIDDULPH ROAD	1	256
	BROOK LANE	8	2,240
	BROOKHIGH DRIVE	4	1,058
	BROOKPORT DRIVE	5	1,575
	CASCADE CROSSING	7	1,181
	CASCADE CROSSING EASEMENT	1	188
	DEBORAH LYNN DRIVE	2	637
	ELIZABETH LANE	3	690
	FAIRWAY DRIVE	6	1,187
	FOREST EDGE DRIVE	5	1,162
	GLEN DANIEL CIRCLE	1	326
	HARMONY LANE	3	752
	HEATHER LANE	4	1,061
	IDLEWOOD DRIVE	20	5,179
	KENNEDY DRIVE	3	805
	KEY COMMONS	10	2,332
	KEY COMMONS EASEMENT	1	164
	MELODY LANE	2	504
	MEMPHIS AVENUE	5	911
	MEMPHIS VILLAS SOUTH	2	301
	MICKA DRIVE	1	192
	MORTON AVENUE	1	300
	RICHARD DRIVE	8	1,494
	RIDGE ROAD	1	272
	ROADOAN EASEMENT	2	670
	ROADOAN ROAD	12	3,604
	ROCKLAND DRIVE	6	1,637
	SAYBROOK DRIVE	5	911
	SHADY LANE	4	1,012
	SOUTHFIELD AVENUE	1	156
	SOUTHWOOD DRIVE	12	3,083
	SPRINGWOOD DRIVE	6	1,571
	SUMMER LANE	13	2,702

Collection System Jet Cleaning BROOKLYN

STREET		NUMBER OF SEGMENTS	JET FT	
SUNNY LANE		6	1,270	
TIEDEMAN EASEMENT		5	897	
TIEDEMAN ROAD		19	3,267	
WINTER LANE		3	597	
	Total:	216	50,716	
TYPE STORM		Street Count	1	
ROADOAN ROAD		1	300	
	Total:	1	300	
Annual Report Jet Cleaning	Grand Total:	217	51,016	

Community Streets Inspected*

Collection System TV Inspection BROOKLYN

	STREET	NU	JMBER OF SEGMENTS	TV FT
ΤΥΡΕ	SANITARY		Street Count 2	L
	AUTUMN LANE		9	2,021
	BEHRWALD AVENUE		1	0
	BROOK LANE		5	1,262
	BROOKHIGH DRIVE		3	769
	DEBORAH LYNN DRIVE		2	643
	ELIZABETH LANE		1	150
	FAIRWAY DRIVE		3	317
	HARMONY LANE		4	210
	HEATHER LANE		2	486
	IDLEWOOD DRIVE		6	1,453
	KENNEDY DRIVE		3	469
	MELODY LANE		4	1,074
	MICKA DRIVE		1	185
	RIDGE ROAD		2	128
	ROADOAN ROAD		3	582
	SHADY LANE		4	1,024
	SOUTHWOOD DRIVE		15	3,280
	SPRINGWOOD DRIVE		4	1,066
	SUMMER LANE		14	3,130
	SUNNY LANE		6	1,249
	WILLIAMSTON ROAD		3	838
		Total:	95	20,336
ΤΥΡΕ	STORM		Street Count 4	
	BEECH AVENUE		1	233
	BROOKHIGH DRIVE		1	301
	RIDGE ROAD		3	405
	ROADOAN ROAD		4	614
		Total:	9	1,553
Annual Report TV In	spection	Grand Total:	104	21,889

Projects Status*

Brooklyn Project Review

Project ID	Project Name	Approval Date
 14-057 (1)	MENARDS (REVISED PLANS)	19-Oct-2016

Service Program*

City of Brooklyn

Community Total

<u>Type</u>

Sanitary Sewers Manholes	191,802 Feet 798 (Approximately)
2016 Service Program	L
<u>Program</u>	2016 Activity
1) High Pressure Jet Cleaning Sanitary – 50,716 Feet (99.4%) Storm – 300 Feet (.6%)	51,016 Feet
2) House Service	290 Calls
3) Television Inspection Sanitary – 20,336 Feet (92.9%) Storm – 1,553 Feet (7.1%)	21,889 Feet
4) Construction Activities	130 Job(s)
5) Smoke and Dye Testing	14 Test(s)
6) Construction Permits Issued (Commercial) (Residential)	4 1
7) Plan Review	1 Plan(s)
8) Construction Inspection a) Main Lines Inspected b) Service Laterals Inspected	- Feet 312 Feet
9) Catch Basin Cleaning	12

Community Operating Expenses

City of Brooklyn

2016 Operating Expenses

Activity		<u>Cost</u>	
1.	Maintenance of Sanitary Sewerage Systems	\$390,590	
2.	Pump Station Operation and Maintenance	\$ 0	
3.	Waste Water Treatment Plant Maintenance	\$ 0	
4.	Engineering and/or Inspection	\$75,191	
5.	Capital Expenses (See Section A-6 if any)	\$972,956	

Total Operating Expenses:

\$1,438,737

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Community Capital Expenses

City of Brooklyn

2016 Capital Expenses

Ridge Road Reimbursement (NEORSD)	\$ 45,033
Ridge Road Repair	\$ 812,409
Associate Avenue Lining	\$ 14,158
Roadoan/Behrwald Avenue Repair	\$ 31,115
Outlook Drive Repair	\$ 27,836
Roadoan Road Repair	\$ 18,961
Brookpark Road Repair	\$ 19,671
Sewer Repair Loan Repayment	\$ 3,773

Total Capital Expenses:

\$ 972,956

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