



## 2011 ANNUAL REPORT

*Prepared For The:*

# *CITY OF BEACHWOOD*



CUYAHOGA COUNTY  
DEPARTMENT OF PUBLIC WORKS

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## CUYAHOGA COUNTY DEPARTMENT of PUBLIC WORKS

March 31, 2012

The Honorable Merle S. Gorden  
City of Beachwood  
25325 Fairmont Boulevard  
Beachwood, Ohio 44122

Dear Mayor Gorden:

It is with great pride that I present to you the 2011 Annual Report for the Cuyahoga County Department of Public Works Sanitary Service. This report contains a detailed overview of the components that bring together the agency, information on work completed within your municipality, including operating expenses over the past year. As in previous reports, we have included maps displaying the following: the cleaning and inspection of system mainlines, locations of construction activity, inflow and infiltration areas of study, house visits, and the cleaning and inspection of lateral connections, as it pertains to the service in which we provide to you.

This year has been a dynamic one for Cuyahoga County. We have implemented many changes to better our department and this can be felt by the communities we service. We are continuously striving to incorporate best practices into the way we perform each day, and I am confident that this agency has the tools to offer you the highest level of both customer service and innovative technologies. The Charter's creation of the Department of Public Works has afforded us the ability to utilize a larger and more diverse work force, and thus be able to better dispatch staff to your community during high-volume rain events. It is our obligation to provide the most effective level of water pollution control possible.

Our joined efforts here are key to promoting regionalism and play an integral role in the further development of this region. It is my honor to serve your community and to continue to diligently meet the varying needs of all of Cuyahoga County.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Bonita G. Teeuwen', is written over a horizontal line.

Bonita G. Teeuwen, P.E.  
Director of Public Works

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## OVERVIEW

Originally established in 1919, the Sanitary Engineering Division was created to administer authority in matters of wastewater, storm water, and water supply management. In 2011, the Sanitary Engineering Division (formerly CCSE) became a part of the Cuyahoga County Department of Public Works, and now operates under the County Executive Ed FitzGerald.

Our focus on needs assessment, engineering feasibility studies, maintenance and repair of aging sewer lines, 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 of sanitary and storm sewer lines, many of which are old and have performed beyond their design life. Moreover, the Division has much expertise with respect to wastewater treatment plants and pump stations.

Public Works directs an operation which now encompasses more than 33 communities and maintains nearly 1,200 miles of sanitary sewers, treats millions of gallons of wastewater, operates 46 sewage-pumping stations, and maintains 3 wastewater treatment plants throughout Cuyahoga County. The Division also has agreements with municipal corporations for the establishment, operation, and maintenance of sanitary sewers.

Working in cooperation with the Ohio Environmental Protection Agency (Ohio EPA), the Northeast Ohio Regional Sewer District (NEORS), the City of Cleveland Division of Water, and the Cuyahoga County Board of Health; the Division manages a Capital Improvement Program (CIP) used for upgrading or replacing the existing infrastructure and for expanding sewers to non-sewered areas. The CIP includes information about project type, location, funding, preliminary engineering, and final plan development.

All operating funds for the Division are created through fees and assessments. The Division does not receive a subsidy through the County General Fund; however, it does use the General Fund's bonding capacity.

The Department of Public Works has been in the forefront of regionalism efforts, and with services provided to over half of the 59 communities within county lines, the office continues to maintain reasonable rates and improved infrastructure throughout the area.

## MISSION STATEMENT

“To provide and maintain a safe and efficient regional infrastructure system for residents, employees, businesses and visitors through innovative solutions, high-quality workmanship and superior customer service.”



- 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 entire sewerage system;
- Increase efficiency to reduce operating cost and produce more available funding for capital improvement projects;
- Operate wastewater treatment plants in compliance of National Pollution Discharge Elimination System (NPDES) permit parameters;
- Provide guidelines for new construction through use of *Uniform Standards for Sewerage Improvements*;
- Review and approve new improvement plans; and
- Provide infrastructure needs assessment for communities.

- Capital improvement planning
- Plan review and approval of all new sewer improvements within the County sewer districts
- Construction management
- Geographic information systems (GIS)
- Project design
- Engineering analysis (required for operation of facilities and the collection system)
- Operational checks (EPA permit compliance)

- Operation and maintenance of wastewater treatment plants and pumping stations
- Inspection of new wastewater collection and transportation systems within County sewer districts
- Issuance of connection permits
- Issuance of sewer builders' licenses
- Development, implementation and monitoring of safety guidelines

## GOALS OF THE PUBLIC WORKS DEPARTMENT

## ENGINEERING SERVICES

## FACILITIES OPERATION & MAINTENANCE



## ADMINISTRATIVE SUPPORT SERVICES

In addition to the extensive maintenance services we offer, our administrative support includes the following:

- Capacity, Management, Operation, and Maintenance (CMOM) Program as regulated through the US EPA to help prevent Sanitary Sewer Overflows (SSO's)
- Maps and spatial analysis for design and service management
- Geographical information systems for development and implementation
- Record keeping, as-built plans and test tee location
- Fiscal oversight of annual operating budget and capital improvement budget
- Grant and loan administration
- Licensing and permitting of over 200 contractors
- Inspection of sewers and project oversight
- Design and review of construction projects and analysis of field testing

# Maintenance Services

Mainline  
Sewer  
Cleaning

Lateral &  
Mainline  
Sewer  
Repair

Lateral  
Cleaning  
(From  
Test Tee  
to  
Mainline)

Smoke  
& Dye  
Testing

Digital  
Video  
Inspection

Treatment  
Plant &  
Pump  
Station  
Maintenance  
&  
Operation

24-Hour  
Call  
Out  
Services

## SUMMARY OF SERVICE DELIVERY

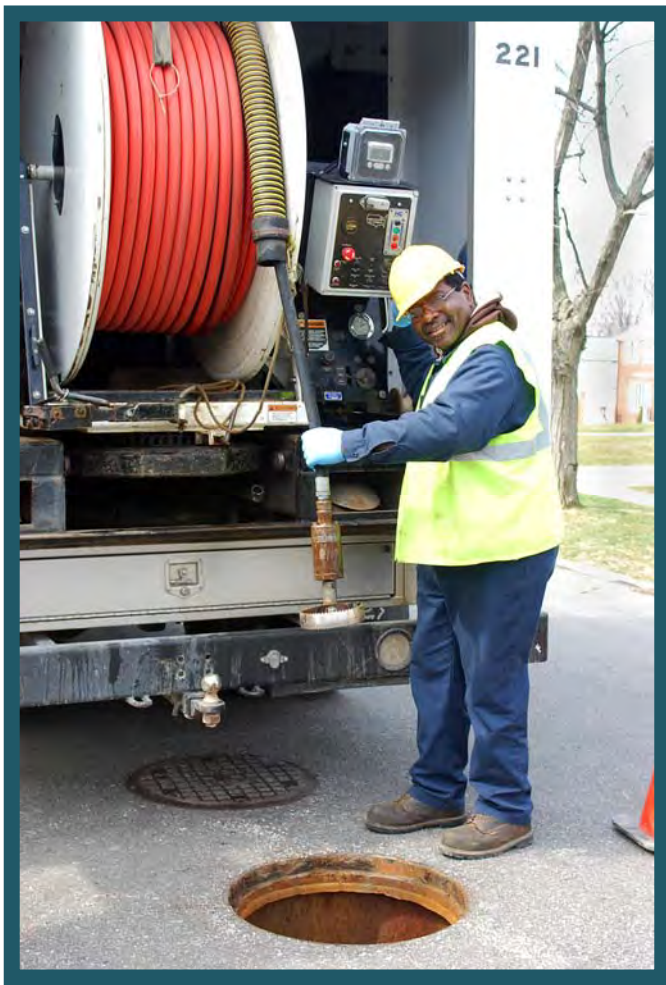
- High-pressure jetting of street sewer from the right-of-way, approximately 1,200 miles of sanitary sewers.
- Point repairs as well as capital improvement projects
- Cleaning of line from right-of-way to the house, approximately 7,500 houses annually
- Inflow and Infiltration testing and solutions
- Televising of lines for identifying possible failures or deficiencies
- Licensed wastewater operators to monitor the condition of the treatment plants and pumping stations, as well as implement upgrades and preventative maintenance.
- Emergency maintenance and 24- hour on-call team for resident issues

## INTERNAL STRUCTURE OF THE DIVISION

### SEWER MAINTENANCE

The Sewer Maintenance section provides a full-service program to clean, evaluate, maintain structural integrity, and perform construction on sanitary and storm sewers. The general program consists of cleaning all sanitary sewers every three years and televising all sanitary sewers every six years, which is well within the NEORSD's

*"Best Management Practices"* guidelines.



The Division cleans approximately 7,500 house connections annually. The goal is to reduce basement flooding through inflow/infiltration reduction, reduce blocked mains, clean service connections and maximize sewer capacity.

The Department of Public Works has an Inflow and Infiltration section within the Lateral Service Department. This section uses various tools; flow meters to monitor sanitary mainlines during both dry and wet weather conditions as well as measuring wastewater flows coming into treatment plants and water flows in storm sewers. Smoke and dye testing can isolate areas affected by excessive volumes of clean runoff into the sanitary sewer system. When used

in unison, meters can detect extraneous water while smoke and dye testing can identify illegal downspout connections. Meters can also detect rainwater infiltrating through the ground and into sanitary sewers through bad pipe joints and cracked or broken pipe.



## ENGINEERING

The Engineering 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.

This section oversees capital construction projects that include financing in the forms of grants and loans obtained from the State of Ohio, as well as saving through maintenance efficiencies. These funds are utilized for lining, repairing, replacing, and rehabilitating existing sanitary and storm sewerage systems.

The Engineering Section reviews design plans for approximately eighty-five construction projects per year on behalf of thirty-three communities. It 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. In addition, the Engineering Section maintains files and legal libraries of pertinent federal, state, and local regulations and renders technical assistance to other sections regarding these regulations.



### INSPECTION/PERMITS

The Inspection and Permit section operates in 33 suburban communities. This section's major functions include: the licensing, bonding and permitting over 200 contractors, construction inspection of sanitary and storm sewers; which includes: residential, commercial, and industrial; along with the inspection of wastewater treatment plants and pumping stations. This section also maintains the permanent records for sewerage construction projects and provides information to all County departments, engineering consulting firms, contractors, and the public.

## ENVIRONMENTAL SERVICES

### ■ Wastewater Treatment Plants

The County operated 3 wastewater treatment package plants. These facilities treated 147 million gallons of wastewater per year. 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.



### ■ Pumping Stations

The County operates 46 pumping stations throughout the 33 service communities. A Supervisory Control and Data Acquisition (SCADA) system monitors 36 of the stations. The system provides alarms and operational status through a central computer that is accessed from a remote computer providing 24 hour monitoring. It is our goal to upgrade all County operated pump stations and to expand the SCADA system to all new projects. Our maintenance staff consists of professional mechanics 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.

## ENVIRONMENTAL SERVICES, continued

### ■ 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, and improvement recommendations are set forth by such agency based on these items, as well.

The United States EPA contacted our agency in July of 2009 to meet with 14 communities concerning the status of sanitary sewer overflows (SSO's). To date, 16 communities within our county lines have been approved by the EPA, with 8 others awaiting approval. In an attempt to become more proactive in the prevention of SSO's, this agency has taken a stance to further train the staff and enforce this program.



## INFORMATION TECHNOLOGY

The Information Technology (IT) Section 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. In addition, the computerized mapping program catalogues the location of sewer systems and performs analysis on spatial data. This ability supports the planning, designing, and maintenance of sewer systems, as well as ensuring user fees are appropriately assessed and collected. Furthermore, the mapping program now features attached permits and engineering drawings.

In 2011 the IT Section installed an image server to store TV inspection videos, photos, permits and engineering drawings for rapid retrieval. The IT Section also initiated field-testing of the new Work-order Management System; installed a wireless network with wi-fi adapters in our TV Inspection vehicles to aid in the downloading of inspection data; and began scanning the archive of paper records from our TV Inspection and Lateral Services Department.



## FINANCE SECTION

The Finance Section 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 planning for capital projects and operational budgets. All systems and programs are operated under generally accepted accounting principles.

The Finance Section oversees an annual sanitary operating budget in excess of \$14 million and an annual capital improvement budget of \$5- \$10 million. The capital improvement plan is administered by this section and revenues, as well as expenditures, are approved and monitored for each individual improvement. Finance is responsible for accounts receivable, accounts payable, cost accounting, audit, inventory control, vehicle inventory management, capital project financing, purchasing, and the assessment of users fees.

## APPENDIX DESCRIPTION\*

The following appendices contain a variety of reports representing the services provided to communities in 2011. The Public Works Department follows a manhole-to-manhole, sewer segment-based accounting method for Jet Cleaning and TV 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 sections 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 are from the Finance and Billing section. These reports 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 is enclosed 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. The CD provided contains a PDF file of the map, which can be copied for distribution. Adobe Corporation's free reader software is required and can be downloaded from [www.adobe.com](http://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.



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[publicworks.cuyahogacounty.us](http://publicworks.cuyahogacounty.us) | [PublicWorks@cuyahogacounty.us](mailto:PublicWorks@cuyahogacounty.us)

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# Section A-1

## Community Streets Cleaned\*

\* No service provided if section is blank

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# Collection System Jet Cleaning - 2011

## Beachwood

STREET	NUMBER OF SEGMENTS	JET FT
BEACHWOOD	7	1,312
BEACHWOOD BOULEVARD	5	1,358
BLOSSOM LANE	5	1,194
BRENTWOOD	10	2,483
BUCKHURST	10	2,485
CEDARVIEW ROAD	4	1,208
CHAGRIN	3	256
COMMUNITY DRIVE	1	196
DEBORAH	8	1,332
DEPTFORD	2	622
EAST BAINTREE ROAD	4	937
EAST GROVELAND	1	363
EAST SILSBY	7	1,626
EAST SULGRAVE	1	25
EDGEHILL	5	970
EDGEWOOD	5	1,603
ELMHURST	5	1,286
FENWAY	3	736
FENWAY DRIVE	1	50
FERNWOOD	4	729
GLENHILL	3	290
GLENHILL DRIVE	5	651
GREEN ROAD	5	1,209
GREENLAWN	9	2,411
GREENWICH	4	859
HALCYON	4	1,126
HILLTOP	10	2,521
HILLTOP DRIVE	1	32
LARCHMONT DRIVE	3	881
LYNDWAY ROAD	8	1,652
MAIDSTONE LANE	9	2,252
MARGOT COURT	2	627
ORCHARD WAY	3	561
PARK EAST DRIVE	23	4,143
PENSHURST	17	3,632
RANCH	3	595
RANCH ROAD	3	696
RICHMOND	2	44

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# Collection System Jet Cleaning - 2011

## Beachwood

STREET	NUMBER OF SEGMENTS	JET FT
RICHMOND ROAD	1	27
SITTINGBOURNE	12	2,284
SOUTH GREEN ROAD	1	300
TIMBERLANE DRIVE	9	1,637
TUNBRIDGE	5	854
TWICKENHAM DRIVE	4	862
TWICKINGHAM	6	1,568
WENDOVER	11	2,284
WOODWAY	6	1,493
<b>Grand Total:</b>	<b>260</b>	<b>56,262</b>



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# Section A-2

## Community Streets Inspected\*

\* No service provided if section is blank

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# Collection System TV Inspection - 2011

## Beachwood

STREET	NUMBER OF SEGMENTS	TV FT
BEACHWOOD BOULEVARD	3	509
BRENTWOOD	7	1,524
BUCKHURST	8	1,746
BUCKHURST DRIVE	1	328
CHAGRIN	2	168
CONCORD	2	117
CONCORD EASEMENT	1	102
DEBORAH	6	1,016
EAST BAINTREE ROAD	5	1,192
EAST GROVELAND	6	1,359
EAST SILSBY	4	973
EAST SULGRAVE	1	22
EDGEWOOD	4	1,164
EDGEWOOD ROAD	1	357
ELMHURST	3	887
GREEN	2	441
GREENLAWN	9	2,351
GREENWICH	2	500
HALBURTON	3	945
HALCYON	8	1,947
HILLTOP	11	2,422
MAIDSTONE LANE	5	1,065
MARGOT COURT	2	619
PARK EAST DRIVE	1	74
PENSHURST	10	2,110
RICHMOND	2	67
SITTINGBOURNE	5	1,121
TUNBRIDGE	9	1,600
TWICKENHAM DRIVE	4	759
TWICKINGHAM	1	260
WENDOVER	8	2,129
WOODWAY	5	1,185
<b>Grand Total:</b>	<b>141</b>	<b>31,059</b>

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# Section A-3

## Projects Status\*

\* No service provided if section is blank

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# CCSE PROJECT REVIEWS

MUNICIPALITY BEACHWOOD

PROJECT 11-026 PENSKE AUTOMOTIVE GROUP OIL SEPARATOR INSTALLATION

STAGE 1 PENSKE AUTOMOTIVE GROUP OIL SEPARATOR INSTALLATION

Review Date	Approved	Revise	Comments
09-JUN-11	N	N	STAGE SUBMITTED
10-JUN-11	N	N	THIS DATE RECEIVED SIX SETS PLANS - LOGGED IN AND TO J. KLINE
20-JUN-11	Y	N	THIS DATE PLANS APPROVED. TWO SETS SENT TO MICHAEL P. CYVAS AT T-K ENGINEERING, 6801 HOPKINS ROAD, MENTOR, OHIO 44060. CONTRACTOR TO PICK UP HIS SET THIS DATE ALSO.

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# Section A-4

## **Service Program\***

\* No service provided if section is blank

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City of Beachwood

<u>Type</u>	<u>Community Total</u>
Sanitary Sewers	282,377 Feet
Manholes	1,393 (Approximately)

2011 Service Program

<u>Program</u>	<u>2011 Activity</u>
1) High Pressure Cleaning*	56,262 Feet
2) House Service	13 Calls
3) Television Inspection*	31,059 Feet
4) Construction Activities	8 Job(s)
5) Smoke and Dye Testing	1 Test(s)
6) Construction Permits Issued (Commercial)	1
(Residential)	7
7) Plan Review	1 Plan(s)
8) Capital Projects	0 Feet (New Sewer Lines Inspected)

\*Information includes footages for sanitary and storm sewers.

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# Section A-5

## **Community Operating Expenses**

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City of Beachwood  
2011 Operating Expenses

<u>Activity</u>	<u>Cost</u>
1. Maintenance of Sanitary Sewerage Systems	\$90,919
2. Pump Station Operation and Maintenance	\$25,023
3. Waste Water Treatment Plant Maintenance	\$ 0
4. Engineering and/or Inspection	\$9,150
5. Capital Expenses (See Section A-6 if any)	\$ 0
6. Sanitary Overhead	\$7,959
 <b>Total Expenses:</b>	 <b>\$133,051</b>



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# Section A-6

## Community Capital Expenses

\* No service provided if section is blank

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# CONTACT INFORMATION

## Address

Cuyahoga County Department of Public Works  
 6100 West Canal Road  
 Valley View, OH 44125  
 Email: [Publicworks@cuyahogacounty.us](mailto:Publicworks@cuyahogacounty.us)  
 Website: [Publicworks.cuyahogacounty.us](http://Publicworks.cuyahogacounty.us)

Bonita G. Teeuwen, P.E..... Director of Public Works  
 Douglas L. Dillon, P.E., P.S. .... Design & Construction Administrator  
 Michael W. Dever, MPA.....Maintenance Administrator  
 Michael W. Chambers, CPA .....Fiscal Officer  
 Bryan J. Hitch..... Sewer Maintenance Administrator

<i>Dispatch Office</i> (216) 443-8201	<i>Dispatch Email</i> PWDDispatch@cuyahogacounty.us
<i>Administration</i> (216) 443-8215	<i>Inspection &amp; Permits</i> (216) 443-8211
<i>Engineering</i> William Schneider, P.E, Chief Engineer (216) 443-8205	<i>Sewer Maintenance</i> Gary Green, Senior Supervisor (216) 443-8225
<i>Lateral Services (House Crews)</i> John Gribble, Supervisor (216) 443-8227	<i>Inflow &amp; Infiltration</i> Suzanne Britt, Supervisor (216) 443-3533
<i>Construction</i> Mitch Holt, Supervisor (216) 443-8229	<i>Televised Inspection</i> Todd Swindell, Supervisor (216) 443-8224
<i>Sewer Jetting</i> Guy Swindell, Supervisor (216) 443-8226	<i>Pump Station Operations</i> William Applegarth, Supervisor (216) 443-8233