



2009 ANNUAL REPORT

Prepared For The

City of Beachwood



ROBERT C. KLAIBER, JR., P.E., P.S.
CUYAHOGA COUNTY SANITARY ENGINEER

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March 22, 2010

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

Dear Mayor Gorden,

As the County Sanitary Engineer, I am pleased to submit the 2009 Annual Report for the City of Beachwood. The Sanitary Engineering Division's calendar year of 2009 proved a success. As we continue to increase our responsibilities of sanitary and storm sewerage maintenance throughout the County, we have had the opportunity to increase our personnel as result. At a time during economic decline and job losses, the Sanitary Engineering Division is fortunate and proud having the ability to extend opportunity during this monetary climate.

This report contains a detailed overview of the work completed within your municipality, including operating expenses for the past year. As in past annual reports the following information is accessible; the cleaning and inspecting of system mainlines, locations of construction activity, inflow/infiltration study areas, house visits, televised inspections, and the cleaning and inspecting of house lateral connections.

I am pleased and grateful for the opportunity serving as your County Sanitary Engineer. I will continue diligently to meet the varying needs and concerns of your community.

Respectfully submitted,

Office of the County Sanitary Engineer

Robert C. Klaiber, Jr., P.E., P.S.

CC: Tom Kreczko, P.E., P.S.
Dale Pekarek



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Mission Statement

"Our mission is to protect, preserve and promote the public health and welfare of Cuyahoga County residents by managing, maintaining and operating wastewater infrastructure."

Robert C. Klaiber, Jr., P.E., P.S.

OVERVIEW

The Cuyahoga County Sanitary Engineering Division (CCSE) was established in 1919 to administer the authority vested in the Board of County Commissioners in matters of wastewater, storm water, and water supply management. State law extends the Board of County Commissioners authority to create and maintain a Sanitary Engineering Division under the supervision of a registered professional engineer. Robert C. Klaiber, Jr., P.E., P.S. has been the Sanitary Engineer of Cuyahoga County since 2004.

Mr. Klaiber's 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 Sanitary Engineer.

The Sanitary Engineering Division (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.

Engineer Klaiber directs an operation which encompasses 31 communities and maintains nearly 1,060 miles of sanitary sewers, treats millions of gallons of wastewater, operates 45 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. In addition, standards for any system connected to, or served by a County owned improvement, are established and enforced.

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.



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GOALS

The goals of the Sanitary Engineering Division are to:

- 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;
- 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.

ENGINEERING SERVICES

- 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)

FACILITIES OPERATION AND MAINTENANCE

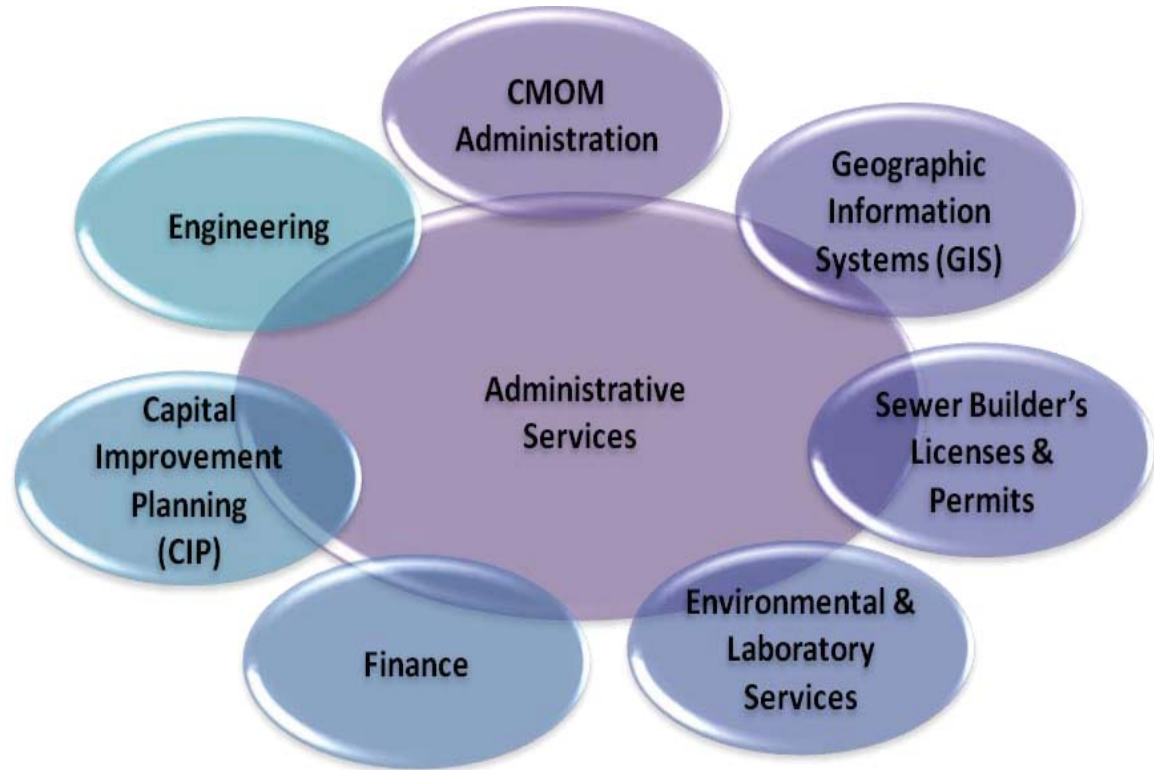
- Operation and maintenance of wastewater treatment plants and pumping stations
- Inspection of new wastewater collection and transportation systems within County sewer districts
- Issuance of connection permits
- Issuance of sewer builders' licenses
- Development, implementation and monitoring of safety guidelines
- Laboratory testing of wastewater to determine extent of pollutants and necessary treatment process adjustments



SUMMARY OF SERVICE DELIVERY

Services provided to full-service communities include engineering, inspection, maintenance, and operation of wastewater collection systems. In partial service communities, services are provided to the area's tributary to County owned facilities upon request. The Division has met its commitment to users in the following areas:

- Develop financing plan and manage capital construction projects
- Obtain alternate funding grants to offset costs of construction
- Review construction plans in over thirty communities
- Develop computerized mapping program to identify the location of sewer systems and structures
- Record keeping, as built plans and test tee locations
- Maintain approximately 1,060 miles of sanitary sewers; clean approximately 4,800 house connections annually
- Operate and maintain 45 wastewater pump stations, throughout the County



ADMINISTRATIVE SUPPORT SERVICES

- Data management/mapping program
 - Geographical and non-geographical information systems (development and implementation)
 - Maps and spatial analysis for design and service management
- Finance management
 - Fiscal oversight of annual operating budget in excess of \$12 million
 - Fiscal oversight of annual capital improvement budget of \$6 million
 - Manage automated cost accounting systems for monitoring and tracking revenues and expenditures
 - Determination and assessment of user fees for 135,000 plus parcels



INTERNAL STRUCTURE OF THE DIVISION

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 wastewater treatment facilities.

This section oversees capital construction projects that include monies in the form of grants obtained from the State of Ohio. These funds are utilized for lining, repairing, replacing, and rehabilitating existing sanitary and storm sewerage systems.

The Engineering Section reviews design plans for approximately fifty construction projects per year on behalf of thirty-one communities. It also coordinates and analyzes the results of field testing and flow monitoring in order to detect and eliminate storm water inflow/infiltration into the sanitary sewer system.

In addition, the Engineering Section coordinates and processes legislation, maintains files and legal libraries of pertinent federal, state, and local laws and renders technical assistance to other sections regarding changes in laws or regulations.

INFORMATION TECHNOLOGY

The Information Technology (IT) Section provides computer and analytical support to internal end users and communities within the CCSE. 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 2009 the IT Section continued to work with the consulting firm of Woolpert, Inc. to create a custom work order management system to track activities and expenses for the Sewer Maintenance, Engineering, Permits & Inspection and Environmental Services Sections. Much of the hardware to implement the system was purchased during the year. A new web-based time management system was put into place during the last quarter of 2009. The system enables supervisors to monitor their employees' time and attendance anywhere Internet connectivity is available. Also in 2009, the IT Section entered into a contract with the County Recorder's Office to convert more than 20,000 engineering drawings from 35mm aperture card microfilm

to computer image files. In 2009 digital images of numerous sewer plans were received from the cities of Parma and Garfield Heights. This section also continued its scanning operation of old hardcopy engineering drawings. The IT Section is actively pursuing information sharing with other governmental agencies to develop a more accurate and complete set of sanitary, storm, and home septic systems data.

INSPECTION/PERMITS

The Inspection and Permit section operates in 31 suburban communities. This section's major functions include: the licensing and permitting over 200 contractors, 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.



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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, this is well within the NEORS D's "best management practices" guidelines. The Division cleans approximately 4,800 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 Sanitary Engineering Division has an Inflow and Infiltration section. 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.

ENVIRONMENTAL SERVICES

● **Wastewater Treatment Plants**

The County operates 3 wastewater treatment package plants. These facilities treat 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.

● **Water Quality Control Lab**

The Water Quality Control Laboratory provides required analytical data for process control and for the monthly operating reports as enforced by the Ohio EPA for wastewater treatment plants. The Laboratory also collaborates with the Cuyahoga County Soil and Water Conservation District to analyze soil samples. This analysis of lawn and garden soils helps to determine the quantity of fertilizer necessary, thereby reducing the discharge of excess chemicals and nutrients into our waterways, which in turn aids the communities with their Phase II NPDES Storm water Permit. The Laboratory worked for the Ohio Department of Health analyzing the beach samples from Ashtabula to Lorain Counties.



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● Pumping Stations

The County operates 45 pumping stations throughout the 31 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.

The United States EPA contacted CCSE in July of 2009 to meet with 14 communities concerning the status of sanitary sewer overflows. The meeting was held at the CCSE facility in August, and from that meeting we are proud to have added 4 communities to the 12 already approved by the US EPA. An updated check-list has been submitted for each community's approval, and again the stipulation that any sanitary sewer overflows be reported to the Ohio EPA. In response, our agency has enhanced its sanitary sewer overflow procedures and notifications.

CAPACITY, MANAGEMENT, OPERATION AND MAINTENANCE PROGRAM (CMOM)

FINANCE SECTION

The Finance Section provides support services to various units within the Sanitary Engineering Division. 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 operating budget in excess of \$12 million and an annual capital improvement budget of \$6 million. The capital improvement plan is administered by this section and revenues, as well as expenditures, are approved and monitored for each individual improvement. This section is responsible for accounts receivable, accounts payable, cost accounting, inventory control, vehicle inventory management, capital project financing, purchase of supplies and equipment and determination and assessment of users fees.

**SANITARY
Engineer**

Robert C. Klaiber, Jr., P.E., P.S.



APPENDIX DESCRIPTION*

The following appendices contain a variety of reports representing the services provided to communities in 2009. The CCSE 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, (sanitary and combination sewers) 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 hardcopy 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.

* Please note: These appendix reports are provided only to communities for which the specific service is provided by CCSE. 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.

Section A-1

Community Streets Jet Cleaned*

* No service provided if section is blank

Collection System Jet Cleaning - 2009

BEACHWOOD

STREET	NUMBER OF SEGMENTS	JET FT
BEACON	3	695.0
BRYDEN	1	64.0
BRYDEN ROAD	22	4,808.0
COMMERCE PARK	10	2,524.0
CONCORD	8	1,492.0
CONCORD EASEMENT	2	394.0
HALBURTON	10	1,561.0
NORTH SHAKER BOULEVARD	8	2,366.0
SOUTH WOODLAND	9	1,848.0
WOODSIDE EASEMENT	2	510.0
GRAND TOTAL:	75	16,262.0

Section A-2

Community Streets TV Inspected*

* No service provided if section is blank

Collection System TV Inspection - 2009

BEACHWOOD

STREET	NUMBER OF SEGMENTS	TV FT
ANNESLEY ROAD	13	2,624.0
BEACON	9	1,696.0
BERNWOOD ROAD	3	653.0
BERWOOD ROAD	1	346.0
BRIDGETON DRIVE	1	23.0
CEDAR EASEMENT	1	525.0
COMMERCE PARK	14	3,551.0
COMMUNITY DRIVE	5	1,285.0
CONCORD	11	2,514.0
CONCORD EASEMENT	2	396.0
HENDON ROAD	4	797.0
HIGHPOINT	4	866.0
HURLINGHAM ROAD	5	1,308.0
NORTH SHAKER	1	363.0
NORTH SHAKER BOULEVARD	7	1,993.0
PARK EAST DRIVE	7	1,511.0
UNION CIRCLE	2	468.0
GRAND TOTAL:	90	20,919.0

Section A-3

Projects Status*

* No service provided if section is blank

CCSE PROJECT REVIEWS

MUNICIPALITY BEACHWOOD

PROJECT 09-026 2009 PUMP STATION RENOVATIONS-BERNWOOD

STAGE 1 2009 PUMP STATION RENOVATION BERNWOOD

Review Date	Approved	Revise	Comments
03-AUG-09	N	N	STAGE SUBMITTED
03-AUG-09	N	N	6 SETS OF SHOP DRAWINGS TO CHUCK ALTHOFF
10-AUG-09	N	N	SUB # 01- HOIST & CHAIN SHOP DRAWINGS SUBMITTED: 6 COPIES OF STANDBY GENERATOR 6 COPIES CONTROL ENCLOSURE WITH LOCK 6 COPIES THHN/THHW ELECTRICAL RACEWAY
17-AUG-09	N	N	6 SETS HOLLOW METAL DOOR AND FRAME SHOP DRAWINGS TO CHUCK ALTHOFF
28-AUG-09	N	N	6 SETS SHOP DRAWINGS: SUBMERSIBLE NON-CLOG PUMPS, VALVES & PUMP CONNECTOR SUBMITTED
23-SEP-09	N	N	PROJECT SCHEDULE SUBMITTED

Section A-4

Service Program*

* No service provided if section is blank

City of Beachwood

<u>Type</u>	<u>Community Total</u>
Sanitary Sewers	293,708 Feet
Manholes	1,385 (Approximately)

2009 Service Program

<u>Program</u>	<u>2009 Activity</u>
1) High Pressure Cleaning*	16,262 Feet
2) House Service	1 Call
3) Television Inspection*	20,919 Feet
4) Construction Activities	3 Jobs
5) Smoke and Dye Testing	4 Tests
6) Construction Permits Issued (Commercial)	3
(Residential)	5
7) Plan Review	1 Plan(s)
8) Capital Projects	0 Feet (New Sewer Lines Inspected)

*Information includes footages for sanitary (collection system) and storm sewers.

Section A-5

Community Operating Expenses

City of Beachwood
2009 Operating Expenses

<u>Activity</u>	<u>Cost</u>
1. Maintenance of Sanitary Sewerage Systems	\$76,965.00
2. Pump Station Operation and Maintenance	\$33,135.00
3. Waste Water Treatment Plant Maintenance	\$.00
4. Engineering and/or Inspection	\$36,169.00
5. Capital Expenses (See Section A-6 if any)	\$43,516.00
6. Sanitary Overhead	\$7,594.00
 Total Expenses:	 \$197,379.00

Section A-6

Community Capital Expenses

* No service provided if section is blank

City of Beachwood

2009 Capital Expenses

Sewer Re-Lining \$ 43,516

Total Capital Expenses: \$ 43,516

Contact Information

<u>Address</u>	<u>Web Address</u>
Cuyahoga County Sanitary Engineering 6100 West Canal Road Valley View, Ohio 44125	www.sanitaryeng.cuyahogacounty.us
<u>Phone Numbers</u>	
<u>Administration</u> (216) 443-8215	<u>Dispatch</u> (216) 443-8201
<u>Sanitary Engineer</u> Robert C. Klaiber, Jr., P.E., P.S.	
<u>Chief of Staff</u> Thomas Roche	
<u>Deputy to the Sanitary Engineer</u> Michael W. Dever, MPA	
<u>Fiscal Officer</u> Michael W. Chambers, CPA	
<u>Chief Engineer</u> William Schneider, P.E. (216) 443-8205	<u>Sewer Maintenance</u> Bryan J. Hitch (216) 443-8219
<u>Environmental Services</u> Ann McCready-Gliha (216) 443-8203	<u>Construction</u> Gary Green (216) 443-8225
<u>Fiscal</u> Edward Premen (216) 443-8237	<u>Inflow & Infiltration</u> John P. Neff (216) 443-8229
<u>Laboratory Services</u> Suzanne Britt (216) 443-8278	<u>Inspection and Permits</u> James Johnson Jr. (216) 443-8208
<u>Facility Manager & Safety</u> Thomas Regas (216) 443-8234	<u>House Crews</u> James Swedyk (216)443-8227
<u>Information Technology</u> Leon Ozbek (216) 443-8238	<u>Sewer Jetting</u> Guy Swindell (216) 443-8226
<u>Treatment Plant Operations</u> Robert Martz (216) 443-8222	<u>Televised Inspection</u> Richard Apanaites (216) 443-8224

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Inspection/Permits216 443-8209
Laboratory216 443-8278
Sewer Maintenance216 443-8277
Safety & Security216 443-8218