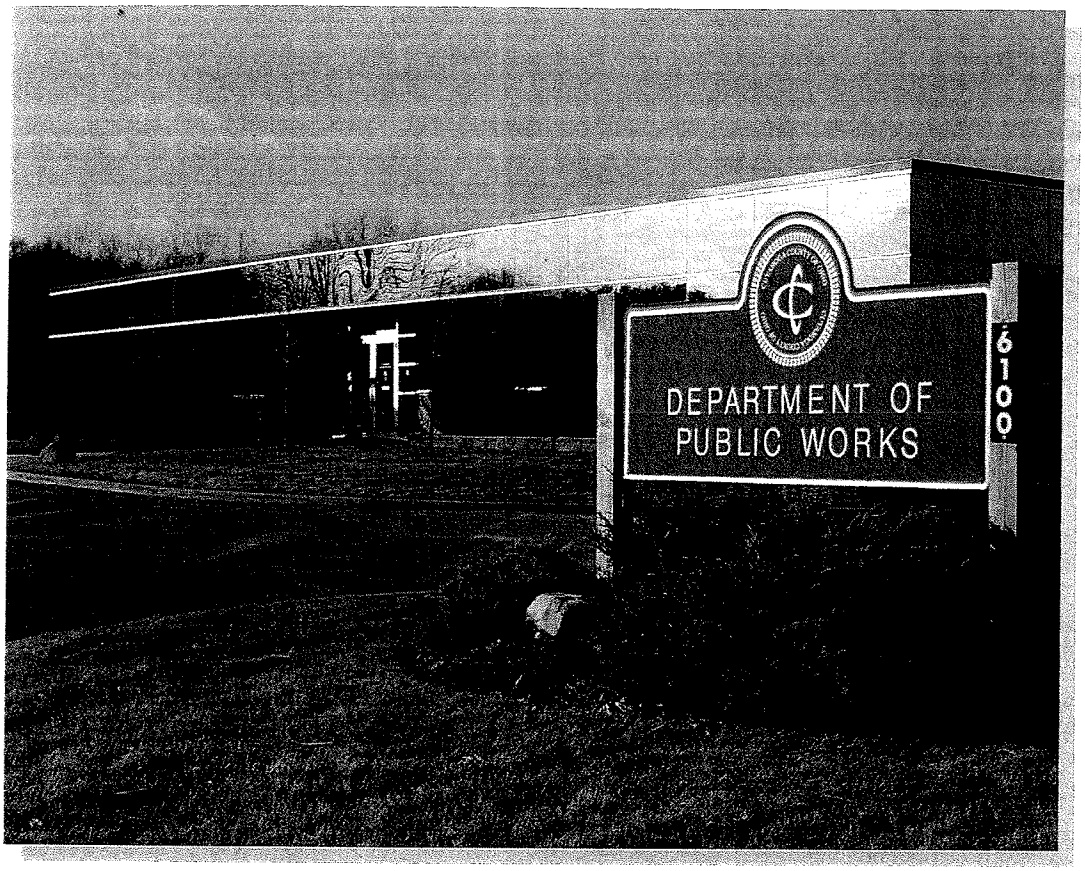


2014 ANNUAL REPORT

Prepared For The:

VILLAGE OF MAYFIELD

cc: Mayor
Council
Dept. Heads

APR 01 2015

CUYAHOGA COUNTY
DEPARTMENT OF PUBLIC WORKS

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."

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 2012, the Sanitary Engineering Division (formerly CCSE) became a part of the Cuyahoga County Department of Public Works, and now operates under the County Executive Armond Budish.

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 34 communities and maintains nearly 1,200 miles of sanitary sewers, treats millions of gallons of wastewater, operates 51 sewage-pumping stations, and maintains 2 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 (NEORSD), 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.

GOALS OF THE PUBLIC WORKS DEPARTMENT

- 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.

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 & 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

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.

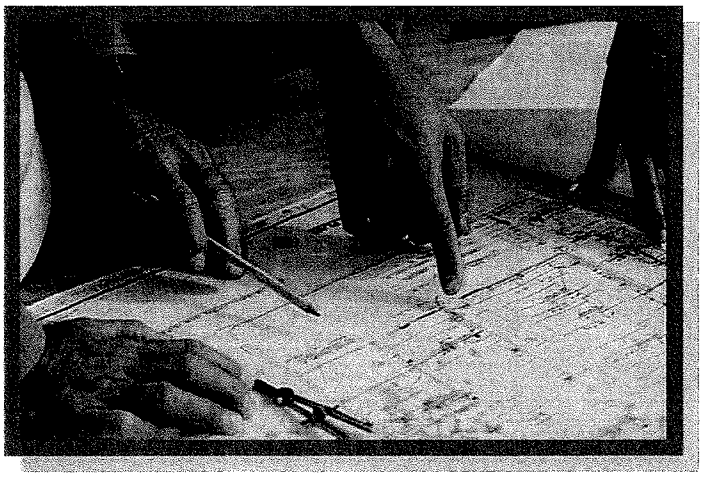
The Department of Public Works has an Inflow and Infiltration section within the Lateral Service Department. This section uses various tools; flow meters to monitor sanitary mainlines during both dry and wet weather conditions as well as measuring wastewater flows coming into treatment plants and water 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-four 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.



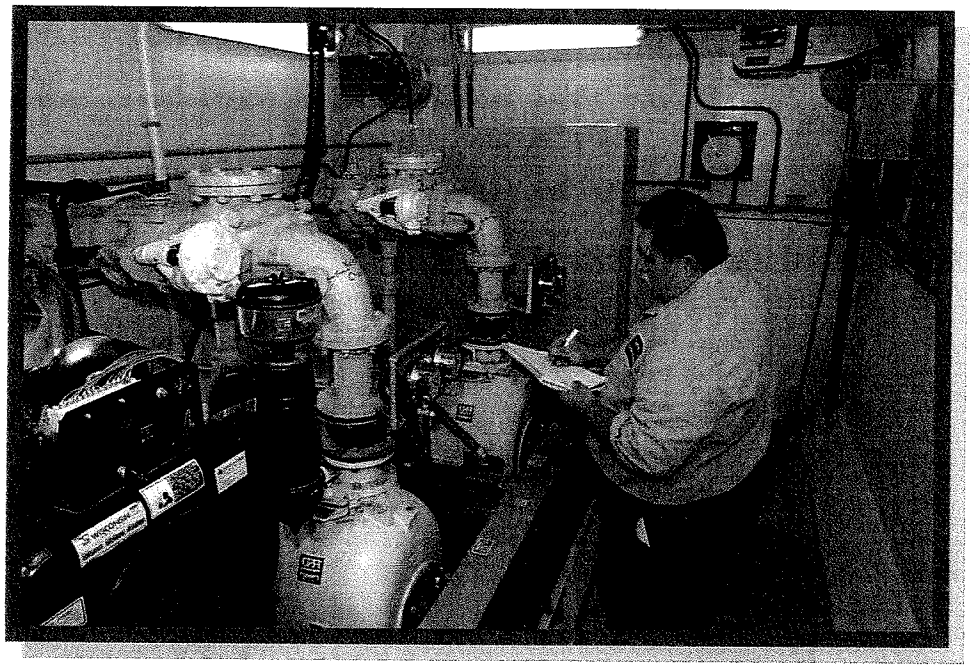
INSPECTION/PERMITS

The Inspection and Permit section operates in 34 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 2 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

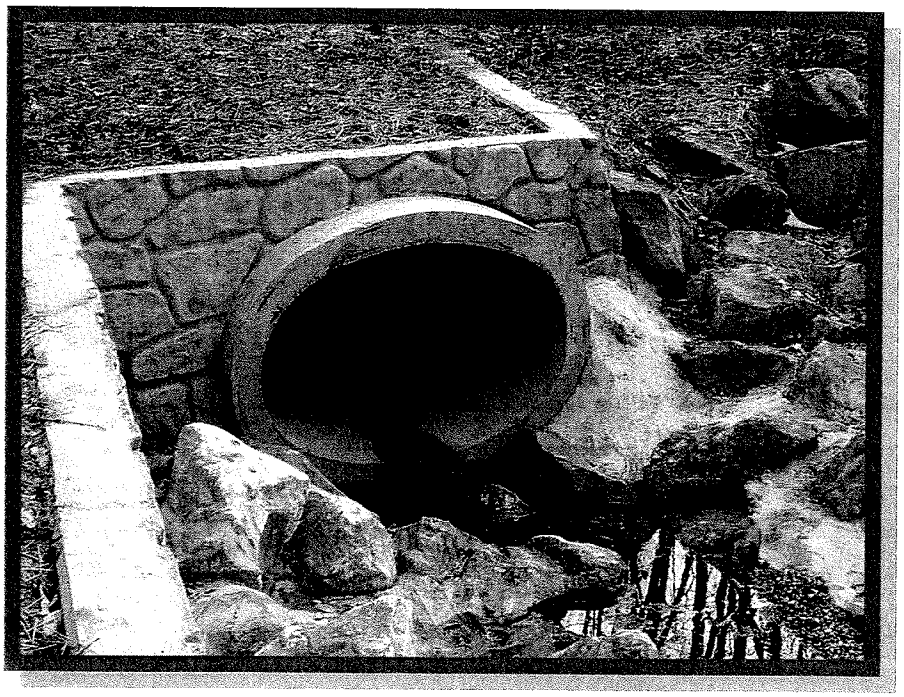
The County operates 51 pumping stations throughout the 34 service communities. A Supervisory Control and Data Acquisition (SCADA) system monitors 41 of the stations. The system provides alarms and operational status through a central computer that is accessed from a remote computer providing 24 hour 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. Improvement and recommendations are provided by such agencies based on deficiencies identified in the sanitary sewer system.

The United States EPA contacted our agency in July of 2009 in response to our CMOM's Report. In general, our Management, Maintenance and Operational processes meet the standard of the United States EPA. The main issue identified by them as a deficiency relate to any sanitary sewer overflows (SSO's). As we work with the communities to eliminate these overflows, the United States EPA has notified us that we have eliminated the noted deficiencies to our CMOM's Report and that we are in compliance with these "best management practices".



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 2014 the IT Section completed their migration and upgrade of the GIS system to an ESRI-based enterprise environment. They also began the creation and testing of Web-based GIS viewers as well as a Viewer to aid in the fee assessment process, all of which will be rolled out in 2015. They also implemented a new email system and upgraded cellular services.

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 2014. 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 DVD 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 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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Collection System Jet Cleaning - 2014

Mayfield Village

STREET	NUMBER OF SEGMENTS	JET FT
BEECH HILL	2	446
BETA DRIVE	19	4,296
BETA EASEMENT	3	1,173
BONNIEVIEW	6	1,877
BRAMBLEWOOD LANE	8	2,228
BUTTERNUT	2	361
CREEKWOOD LANE	1	340
DEEPWOOD LANE	1	340
EASTGATE DRIVE	6	1,367
GLENVIEW	6	1,661
HUNT CIRCLE	2	331
KENWOOD	5	1,110
MEADOWOOD DRIVE	5	1,137
OAKWOOD DRIVE	4	1,065
S.O.M. CENTER	2	306
SANDALWOOD DRIVE	6	1,418
SENECA	6	1,691
THORNAPPLE DRIVE	11	2,257
TIMBERLINE TRAIL	3	790
WALNUT	5	1,079
WILDWOOD TRAIL	8	2,244
WILSON MILLS ROAD	4	541
Grand Total:	115	28,058

Collection System TV Inspection - 2014

Mayfield Village

STREET	NUMBER OF SEGMENTS	TV FT
AINTREE PARK DRIVE	3	454
BEECH HILL	6	1,621
BETA EASEMENT	2	801
BRAMBLEWOOD LANE	5	1,540
EASTGATE DRIVE	8	1,519
HUNT CIRCLE	1	120
LANDER	7	2,003
MEADOWOOD DRIVE	9	1,952
NORMAN LANE	3	851
OAKWOOD DRIVE	1	248
S.O.M. CENTER	4	1,255
THORNAPPLE DRIVE	5	870
VILLAGE TRAILS	4	821
WILDWOOD TRAIL	7	1,956
WILSON MILLS EASEMENT	6	1,602
WILSON MILLS ROAD	2	322
WORTON PARK DRIVE	3	1,058
Grand Total:	76	18,993

CCSE Project Reviews

Project ID	*Project Name*	*Municipality*	*Review Date*	*Approved*
14-013	MEADOWOOD DR & EASTGATE DR	MAYFIELD VILLAGE	4-Nov-14	Y
14-027	E. COMMONS CONDOMINIUM OFFICE DEVELOPMENT	MAYFIELD VILLAGE	18-Aug-14	N

Village of Mayfield

Type	Community Total
Sanitary Sewers	100,412 Feet
Manholes	480 (Approximately)

2014 Service Program

Program	2014 Activity
1) High Pressure Cleaning*	28,058 Feet
2) House Service	139 Calls
3) Television Inspection*	18,993 Feet
4) Construction Activities	33 Job(s)
5) Smoke and Dye Testing	7 Test(s)
6) Construction Permits Issued	
(Commercial)	2
(Residential)	5
7) Plan Review	2 Plan(s)
8) Capital Projects	275 Feet (Sewer Lines Inspected)

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

Village of Mayfield

2014 Operating Expenses

	Activity	Cost
1.	**Maintenance of Sanitary Sewerage Systems**	**$176,642**
2.	**Pump Station Operation and Maintenance**	**$95,798**
3.	**Waste Water Treatment Plant Maintenance**	**$ 0**
4.	**Engineering and/or Inspection**	**$32,874**
5.	**Capital Expenses (See Section A-6 if any)**	**$88,203**
	Total Expenses:	$393,517

Village of Mayfield

2014 Capital Expenses

Thornapple Pump Station Loan Payment	**$**	**68,150**
Hickory Hills WWTP Loan Payment	**$**	**20,053**

Total Capital Expenses:	$	88,203

CONTACT INFORMATION

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David E. Marquard, P.E.,P.S. ..... Design & Construction Administrator

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Bryan J. Hitch..... Maintenance Superintendent

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Lateral Services (House Crews) John Gribble, Supervisor (216) 443-8227	*Inflow & Infiltration* Suzanne Britt, Supervisor (216) 443-3533
Construction Mitch Holt, Supervisor (216) 443-8229	*Televised Inspection* Todd Swindell, Supervisor (216) 443-8224
Sewer Jetting Guy Swindell, Supervisor (216) 443-8226	*Pump Station Operations* William Applegarth, Supervisor (216) 443-8295