



Cuyahoga County
Together We Thrive

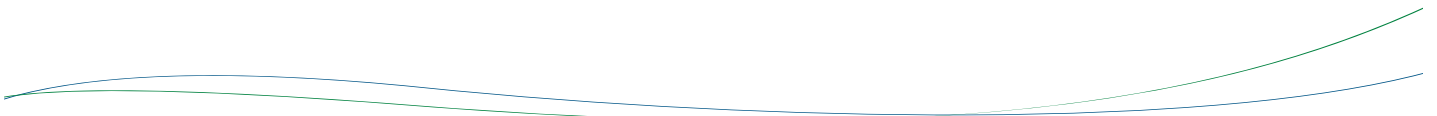
2016 ANNUAL REPORT

Prepared For The:

City of Middleburg Heights

By the 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 (NEORS), 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.

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.

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

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**

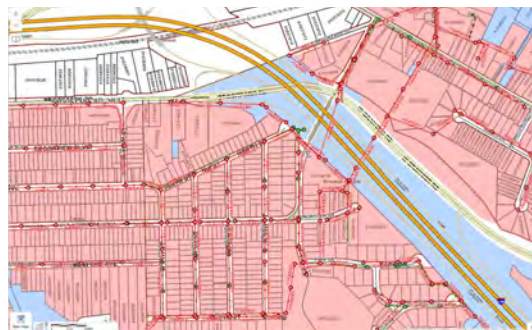
Finance provides support services to various units within the Public Works Department. Automated cost accounting programs and systems ensure accurate tracking and monitoring of expenditures, revenues, rate structures and other data that provide financing for capital projects and operational budgets. 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 NEORS to better identify areas of responsibility.

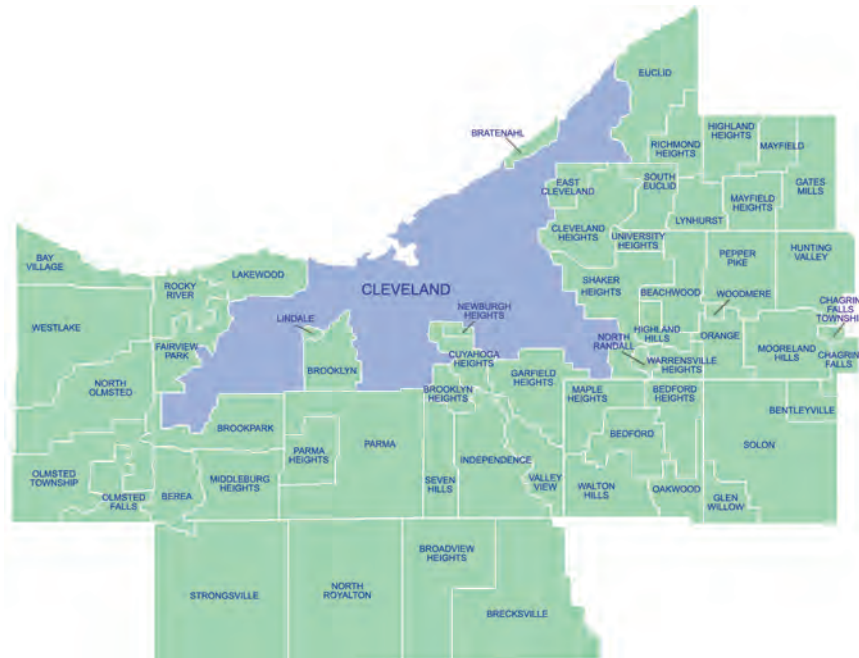


APPENDIX DESCRIPTION*

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 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 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



Section A-1

Community Streets Cleaned*

* No service provided if section is blank

Collection System Jet Cleaning

MIDDLEBURG HEIGHTS

STREET		NUMBER OF SEGMENTS	JET FT
TYPE	SANITARY	Street Count 46	
	ALDERSYDE DRIVE	4	854
	ALDERSYDE EASEMENT	1	181
	BAGLEY EASEMENT	2	405
	BAGLEY ROAD	3	407
	BALDWIN CREEK DRIVE	1	109
	BARDBURY AVENUE	5	1,514
	BARRIEMORE AVENUE	5	1,297
	BENNINGTON BOULEVARD	2	294
	BIG CREEK PARKWAY	6	796
	BRIARCLIFF EASEMENT	4	504
	BRIARCLIFF PARKWAY	19	4,079
	BRINBOURNE AVENUE	7	1,917
	BUNKER HILL ROAD	5	1,185
	BYRON BOULEVARD	10	2,342
	BYRON EASEMENT	2	461
	CLAREMONT AVENUE	4	763
	CONCORD TRAIL	7	1,308
	CRAIGMERE DRIVE	14	3,510
	ELDERDALE DRIVE	5	1,483
	FARNUM AVENUE	3	866
	FOWLES ROAD	7	1,914
	FREEWAY CIRCLE	7	823
	GERALD DRIVE	9	1,705
	GLENRIDGE AVENUE	8	2,234
	GRANT BOULEVARD	6	1,445
	KLEIN DRIVE	3	888
	KLEIN EASEMENT	4	740
	LANIER DRIVE	2	742
	LEXINGTON GREEN	3	740
	MIDDLEBROOK BOULEVARD	3	746
	MONTGOMERY ROAD	4	610
	NETHERSOLE DRIVE	2	255
	PACKARD CIRCLE	9	1,508
	PARKLAWN AVENUE	10	2,963
	PEARL ROAD	2	832

Collection System Jet Cleaning

MIDDLEBURG HEIGHTS

STREET	NUMBER OF SEGMENTS	JET FT
SAINT ANDREWS COURT	13	2,598
SARATOGA ROAD	8	1,146
SMITH EASEMENT	2	543
SMITH ROAD	22	4,570
SPRAGUE EASEMENT	6	1,526
STONYBROOK DRIVE	6	1,785
UHLIN EASEMENT	1	300
WEBSTER ROAD	7	1,722
WEST 130 STREET	6	1,589
WILLIAMSBURG COURT	7	1,749
YORKTOWN LANE	3	923
Total:	269	60,871

TYPE	STORM	Street Count	43
	ALDESYDE DRIVE	3	765
	BALDWIN CREEK DRIVE	17	2,886
	BARDBURY AVENUE	9	2,556
	BARRIEMORE AVENUE	6	1,494
	BENNINGTON BOULEVARD	12	2,294
	BRIARCLIFF EASEMENT	1	180
	BRIARCLIFF PARKWAY	12	2,842
	BRINBOURNE AVENUE	8	2,216
	BUNKER HILL ROAD	3	880
	BYRON BOULEVARD	6	1,388
	BYRON EASEMENT	2	459
	CONCORD TRAIL	9	1,542
	CRAIGMERE DRIVE	29	8,307
	ELDERDALE DRIVE	8	2,396
	FAIRWEATHER DRIVE	1	205
	FARNUM AVENUE	8	2,002
	FIRST AVENUE	2	489
	FOWLES ROAD	14	2,455
	GLENRIDGE AVENUE	13	3,345
	GRANT BOULEVARD	6	2,012
	INDIAN CREEK DRIVE	29	5,218
	KLEIN DRIVE	10	2,055
	LANIER DRIVE	4	1,506

Collection System Jet Cleaning

MIDDLEBURG HEIGHTS

STREET	NUMBER OF SEGMENTS	JET FT
LEXINGTON GREEN	3	690
MARKAL DRIVE	6	937
MOHAWK TRAIL	15	3,902
MONTGOMERY ROAD	7	1,138
NETHERSOLE DRIVE	1	100
OLD PLEASANT VALLEY ROAD	7	1,736
PACKARD AVENUE	1	335
PACKARD CIRCLE	6	766
PARKLAWN AVENUE	9	2,526
PINEWOOD DRIVE	5	1,024
SARATOGA ROAD	5	626
SHAWNEE EASEMENT	5	2,650
SHAWNEE TRAIL	8	2,366
STONYBROOK DRIVE	4	1,005
TIMBER LANE	5	817
TRENTON EASEMENT	1	170
TRENTON TRAIL	9	2,046
UHLIN EASEMENT	7	1,708
WEBSTER ROAD	8	1,829
YORKTOWN LANE	4	1,180

Total:	328	77,043
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Annual Report Jet Cleaning

Grand Total:	597	137,914
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Section A-2

Community Streets Inspected*

* No service provided if section is blank

Collection System TV Inspection

MIDDLEBURG HEIGHTS

TYPE	STREET	NUMBER OF SEGMENTS	TV FT
	SANITARY	Street Count 34	
	ALDESYDE DRIVE	3	815
	ALDESYDE EASEMENT	2	305
	BARDBURY AVENUE	5	1,511
	BARRIEMORE AVENUE	4	981
	BIG CREEK PARKWAY	10	2,092
	BRIARCLIFF EASEMENT	3	107
	BRIARCLIFF PARKWAY	10	2,165
	BRINBOURNE AVENUE	7	1,895
	BUNKER HILL ROAD	4	981
	BYRON BOULEVARD	7	1,602
	CONCORD TRAIL	6	1,005
	CRAIGMERE DRIVE	11	2,574
	ELDERDALE DRIVE	5	1,421
	FARNUM AVENUE	6	1,221
	FOWLES ROAD	2	689
	GERALD DRIVE	10	1,492
	GLENRIDGE AVENUE	14	3,497
	INDIAN CREEK DRIVE	1	170
	KLEIN DRIVE	5	1,430
	KLEIN EASEMENT	2	370
	LANIER DRIVE	3	911
	LEXINGTON GREEN	2	284
	MARKAL DRIVE	4	1,003
	MIDDLEBROOK BOULEVARD	3	1,091
	MIDDLEBURG HEIGHTS BOULEVARD	1	124
	PACKARD CIRCLE	7	1,313
	PARKLAWN AVENUE	6	1,541
	PEARL ROAD	1	425
	SARATOGA ROAD	9	1,345
	SPRAGUE EASEMENT	1	100
	STONYBROOK DRIVE	5	1,126
	WEBSTER ROAD	3	905
	WILLIAMSBURG COURT	8	2,055
	YORKTOWN LANE	3	902
	Total:	173	39,447

Collection System TV Inspection

MIDDLEBURG HEIGHTS

STREET		NUMBER OF SEGMENTS	TV FT
TYPE	STORM	Street Count	38
	BELFAIR DRIVE	6	1,105
	BELMEADOW DRIVE	6	943
	BLUE SPRUCE OVAL	1	200
	BRINBOURNE AVENUE	1	297
	BUCKINGHAM COURT	1	108
	BUNKER HILL ROAD	3	881
	CANTERBURY DRIVE	2	261
	CLAREMONT AVENUE	7	1,238
	CONCORD TRAIL	10	1,556
	COTTONWOOD OVAL	1	160
	CRAIGMERE DRIVE	13	3,594
	CRAIGMERE EASEMENT	6	1,107
	DOGWOOD CIRCLE	2	490
	ELDERDALE DRIVE	3	503
	ELMDALE ROAD	6	1,509
	FAIRWEATHER DRIVE	6	1,238
	HEMLOCK LANE	3	681
	HUMPHREY ROAD	1	265
	INDIAN CREEK DRIVE	5	716
	KIWANIS DRIVE	2	683
	LARES LANE	1	29
	LEXINGTON GREEN	3	386
	MARKAL DRIVE	2	561
	MIDDLEBROOK BOULEVARD	10	5,597
	MOHAWK TRAIL	15	3,258
	NEWTON ROAD	10	1,815
	OLD PLEASANT VALLEY ROAD	17	2,950
	PAULA DRIVE	18	3,577
	PEARL ROAD	1	420
	PECAN OVAL	1	155
	PINEVIEW COURT	5	1,022
	SANDALHAVEN DRIVE	2	615
	SARATOGA ROAD	9	1,222
	SENECA TRAIL	2	291
	SHAWNEE TRAIL	9	2,649
	WHITE OAK CIRCLE	1	45

Collection System TV Inspection

MIDDLEBURG HEIGHTS

STREET	NUMBER OF SEGMENTS	TV FT
WOOD CREEK DRIVE	6	1,424
YORKTOWN LANE	3	780
	Total:	200
		44,331
Annual Report TV Inspection	Grand Total:	373
		83,778

Section A-3

Projects Status*

* No service provided if section is blank

Middleburg Heights Project Review

Project ID	Project Name	Approval Date
16-013 (1)	PROPOSED ROAD (BAGLEY/FRY CONNECTOR)	22-Aug-2016
16-019 (1)	IMPROVEMENT PLANS & SWP FOR NEWTON WOODS	18-Jul-2016

Section A-4

Service Program*

* No service provided if section is blank

City of Middleburg Heights

<u>Type</u>	<u>Community Total</u>
Sanitary Sewers	345,188 Feet
Manholes	1,503 (Approximately)

2016 Service Program

<u>Program</u>	<u>2016 Activity</u>
1) High Pressure Jet Cleaning	137,914 Feet
Sanitary – 60,871 Feet (44.1%)	
Storm – 77,043 Feet (55.9%)	
2) House Service	562 Calls
3) Television Inspection	83,778 Feet
Sanitary – 39,447 Feet (47.1%)	
Storm – 44,331 Feet (52.9%)	
4) Construction Activities	357 Job(s)
5) Smoke and Dye Testing	2 Test(s)
6) Construction Permits Issued	
(Commercial)	-
(Residential)	18
7) Plan Review	2 Plan(s)
8) Construction Inspection	
a) Main Lines Inspected	231 Feet
b) Service Laterals Inspected	1,832 Feet
9) Catch Basin Cleaning	23

Section A-5

Community Operating Expenses

City of Middleburg Heights

2016 Operating Expenses

<u>Activity</u>	<u>Cost</u>
1. Maintenance of Sanitary Sewerage Systems	\$925,697
2. Pump Station Operation and Maintenance	\$ 0
3. Waste Water Treatment Plant Maintenance	\$ 0
4. Engineering and/or Inspection	\$70,882
5. Capital Expenses (See Section A-6 if any)	\$989,809
Total Operating Expenses:	\$1,986,388

Section A-6

Community Capital Expenses

* No service provided if section is blank

City of Middleburg Heights

2016 Capital Expenses

Barriemore Avenue Repair	\$ 2,134
Bagley/Pleasant Valley Road Local Share	\$ 432,335
2015 Catch Basin Cleaning Reimbursement	\$ 29,994
Indian Creek/Arrowhead Trail Headwall Replacement	\$ 49,800
Eastland Road Culvert	\$ 110,869
Catch Basin Mapping	\$ 23,000
Pearl Road Manhole Repairs	\$ 84,122
Robert Drive Repair	\$ 14,563
Old Pleasant Valley Road Repair	\$ 26,795
Big Creek Parkway Lining	\$ 147,657
2016 Catch Basin Cleaning Reimbursement	\$ 33,550
Englewood Drive Drainage Ditch	\$ 22,650
Galemore Drive Lining	\$ 12,340
Total Capital Expenses:	\$ 989,809

CONTACT INFORMATION

Cuyahoga County Department of Public Works
6100 West Canal Road
Valley View, OH 44125

Email: Publicworks@cuyahogacounty.us
Website: Publicworks.cuyahogacounty.us

Michael W. Dever, MPA.....	Director of Public Works
David E. Marquard, P.E.,P.S.....	Design & Construction Administrator
Michael W. Chambers, CPA	Finance & Operations Administrator
Bryan J. Hitch.....	Sewer Maintenance Superintendent
Hugh Blocksidge, P.E.	Chief Engineer Sanitary Design

Department of Public Works Administrative Headquarters
2079 East Ninth Street – 5th Floor
Cleveland, Ohio 44115

Dispatch Office (216) 443-8201
Dispatch Email PWDispatch@cuyahogacounty.us

Administration (216) 348-3867

Inspection & Permits (216) 443-8211

Sewer Maintenance Gary Green, Senior Supervisor (216) 443-8225

Lateral Services (*House Crews*).. Suzanne Britt, Supervisor (216) 443-3533

Inflow & Infiltration Suzanne Britt, Supervisor (216) 443-3533

Construction (East) Mitch Holt, Supervisor (216) 443-8229

Construction (West) John Gribble, Supervisor (216) 443-8229

Sewer Jetting Guy Swindell, Supervisor (216) 443-8226

Pump Station Operations William Applegarth, Supervisor..... (216) 443-8295

Televised Inspection Todd Swindell, Supervisor (216) 443-8224



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