



Cuyahoga County
Together We Thrive

2021 Annual Report

Prepared for the: **City of Shaker Heights**



By the: **Department of Public Works**





March 21, 2022

The Honorable David E. Weiss
City of Shaker Heights
3400 Lee Road
Shaker Heights, Ohio, 44120

Dear Mayor Weiss,

As the Director of Public Works, I am pleased to submit the 2021 Annual Report for the City of Shaker Heights. Our work within the communities, including yours, focuses on addressing infrastructure needs and meeting Ohio EPA goals for collection system operation and maintenance. We continue to provide efficiency for sanitary and storm sewer maintenance throughout the County by maintaining a second shift to enable us to reduce overtime and to work in areas where normal working hour traffic is problematic. Our goal is always to provide a high level of service in a cost-effective manner.

The Covid-19 Pandemic has affected our Public Works Department as it has affected all communities in Cuyahoga County. Through the work of our dedicated staff members, we have been able to continue to provide reliable maintenance services throughout our service area during this difficult time and we will continue to provide quality service for our member communities throughout the year.

This annual report contains a detailed overview of the work completed within your municipality in the past year. The overview of the work performed includes the following: collection system jet cleaning and TV inspection history, plan approval status, service program summary details and community operating and capital expenses.

The annual report for this and previous years is also available on our website at <https://cuyahogacounty.us/publicworks/services/sewer-maintenance-services>

The Rules and Regulations and Uniform Standards and Details issued by the County continue to be available on our web site:

<https://www.cuyahogacounty.us/publicworks/services/design-and-construction/sanitary-design/sanitary-design-construction-drawings-and-standards>

My staff is available to meet with you at your convenience should you wish to discuss this report or any of the services that our department provides. I am pleased and grateful for the opportunity of serving you through the Cuyahoga County Department of Public Works.

Respectfully submitted,

Michael W. Dever, MPA, Director
Department of Public Works

cc: (with attachments)

Patricia Speese, Service Director
Joseph Ciuni, P.E., P.S., Engineer



The Power of Consolidation

2501 Harvard Avenue – Newburgh Heights

Sanitary Engineering, Road & Bridge & Fleet Management are consolidated at one location



The Harvard Avenue Maintenance Yard facility is home to approximately 180 staff members and is geographically centralized in Cuyahoga County to better serve the surrounding communities.

- ADA-compliant design for all Office, Conference , and Training Room areas
- Conference and Training Rooms for up to 200 visitors
- Fleet Maintenance Area features: 9 static lifts and 3 mobile lifts
- Vehicle fueling areas for both Diesel and Gasoline
- Interior Vehicle Wash Bay
- LED Lighting for Interior Office, Garage, Exterior Parking Lot and Site Lighting
- Materials Storage Yard
- Dispatch Area
- Permits Area





SANITARY FLEET FACTS

THE POWER OF REGIONALISM



Current vehicles & equipment	Quantity
House Trucks	13
Specialized Plate Truck & specialized vehicles for catch basin repair	7
Combination Jet-Vac & Straight Jet Trucks	12
TV Camera Trucks	7
Backhoes, Mini Excavators & Rubber Wheel Loader	7
Class 5 Dump Trucks	6
Construction trucks	8
1-ton trucks for pump station service	5
43,000 to 53,000 GVWR single-axle dump trucks	6
58,000 to 60,000 GVRW tandem axle dump trucks	9
Class 550 with crane for pump station service	3
20-25 ton trailers	11
Small Trailers	13



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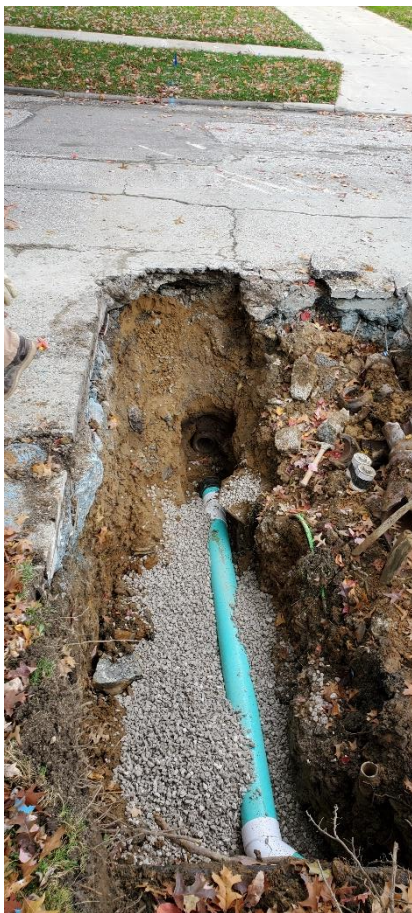
Contact Information.....Rear Folio



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 (CCDPW), and now operates under County Executive Armond Budish.

The Sanitary Division's focus is on the maintenance and repair of aging sewer lines, sewer system needs assessment, engineering feasibility studies, and other infrastructure-related issues. These areas all have a direct impact on commercial and residential development, job creation, and expanding the tax base in the communities served by the Department of Public Works. Furthermore, the Sanitary Division is a major source of technical information for communities (mayors, municipal engineers, and service directors), which provides them with guidance for making infrastructure decisions within their community. The Sanitary Division has considerable experience in the maintenance, repair, and rehabilitation of sanitary and storm sewer systems, as well as significant expertise with respect to the operation and maintenance of pump stations and wastewater treatment plants.



The Sanitary Engineering Division of Public Works currently operates in 38 communities by agreement. Pursuant to such agreements, the Sanitary Division maintains more than 1,500 miles of sanitary sewers and 1,100 miles of storm sewers, operates 65 sewage-pumping stations, and maintains one wastewater treatment plant. Working in cooperation with the Ohio Environmental Protection Agency (Ohio EPA), the Northeast Ohio Regional Sewer District (NEORS), the Cuyahoga County Board of Health (CCBH), and the various communities, the Sanitary Division works to maintain water quality. This is done through the construction of new sanitary sewers, maintenance of existing sewer systems, and the investigation and remediation of illicit discharges (sanitary sewage which is improperly discharged into storm sewers).

All funds used for operation, maintenance, rehabilitation, and repair of the sewerage system are generated through fees and assessments. (Funding is not via the County's General Fund to perform these activities.)

The Department of Public Works has been in the forefront of regionalism efforts within the County. With services provided to more than half of the County's 59 communities, the Sanitary Division continues to maintain reasonable rates and improve infrastructure throughout the area.



GOALS

The Sanitary Engineering Division of Public Works has three (3) major goals:



1. Operate and maintain the sanitary sewerage systems to assist the communities in meeting the goals and objectives of the EPA Capacity Management Operation and Maintenance (CMOM) guidelines.
2. Provide guidelines for design and construction through the County's *"Uniform Standards for Sewerage Improvements"* and *"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 Sanitary Engineering Division with respect to the maintenance and repair of sewers are accomplished through the activities of our three main Sanitary Division groups working together: Maintenance Services; Engineering & Construction Services; and Administrative Services.

MAINTENANCE SERVICES

- Reduction of the number of flooded basements by maintaining existing capacity in the collection systems, minimize the inflow/infiltration of storm water to the sanitary system, and evaluate the structural integrity of the sewerage system;
- Optimization of maintenance efficiency to reduce operating costs and provide more available funds for capital improvement projects and repairs;
- Operation of wastewater treatment plants in compliance with the National Pollution Discharge Elimination System (NPDES) permit parameters;
- Maintenance and inspection of the existing collection system to achieve EPA CMOM maintenance goals;
- Operation and maintenance of pumping stations;
- Performance of Illicit Discharge Detection and Elimination Services





ENGINEERING AND CONSTRUCTION SERVICES

- Preparation of Task Orders for repairs and rehabilitation;
- Plan review and approval of all new sewer improvements within the County service area;
- Performance of engineering analyses (required for operation of facilities and the collection system);
- Capital improvement planning;
- Construction management and inspection;
- Provision of guidelines for new construction through use of the CCDPW *Uniform Standards for Sewerage Improvements*;
- Provision of infrastructure needs assessment for communities;
- Project design;
- Construction inspection of new wastewater collection systems within the county service area; and,
- Record keeping of as-built plans and test tee locations.



ADMINISTRATIVE SERVICES

- Issuance of connection permits;
- Maintenance of Record Drawings;
- Provision of Geographical Information Systems (GIS) for development and implementation;
- Fiscal oversight of annual operating budget and capital improvement budget;
- Administration of Grants and loans; and,
- Licensing and permitting of more than 200 contractors.

SUMMARY OF COUNTY-WIDE MAINTENANCE SERVICES

- **SEWERS**
 - High-pressure jetting of sewers in the right-of-way, approximately 317 miles of sewers in 2021;
 - Point repairs of sewers, force mains, and structures; 2,848 construction visits; and 1,066 catch basins cleaned;
 - Cleaning of 8,321 service laterals, including emergency maintenance and 24-hour on-call team for resident issues;
 - TV inspection of approximately 248 miles of sewers to provide condition ratings, failures and/or deficiencies;
 - I/I investigation and remediation, 341 visits;
 - Implementation of preventative maintenance and upgrades to treatment plants and pumping stations, as well as the provision of licensed operators to monitor the condition of those facilities.





The Maintenance Services Department provides a full-service program to clean sewers, provide National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) condition ratings of sewers, maintain the structural integrity of the sewer systems, and perform repairs 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. This timeline is well within the NEORS D's "Best Management Practices" guidelines.

▪ **HOUSE LATERAL SERVICES**

The Maintenance Services House Lateral Service Department cleaned 8,321 house connections in 2021. The goal is to alleviate sewer back-ups by clearing blocked mains and cleaning service connections to restore sewer capacity.

The House Lateral Service Department also performs flow monitoring for Inflow and Infiltration (I&I) analysis, dye testing, smoke testing, and lateral sewer inspection to identify I&I sources and locations of illicit discharges. The Department works with the communities, the Ohio EPA and the NEORS D to protect local waterways.

▪ **PUMPING STATIONS**

The County operates 65 pumping stations throughout the 38 communities pursuant to the maintenance agreements. A Supervisory Control and Data Acquisition (SCADA) system monitors the stations. The system provides alarms and operational status through a central computer, providing 24-hour monitoring. New pump stations are added to the SCADA system as they come on-line. Our maintenance staff consists of experienced operators and technicians enabling us to repair most problems in-house, therefore keeping costs down. Their preventive maintenance program and dedication to the job has reduced emergency callouts and overflows.





▪ **WASTEWATER TREATMENT PLANT**

The County operates one package wastewater treatment plant. The standards are set by the Ohio EPA through a 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 plant and make necessary process adjustments to meet the requirements of 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 sewer 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 the agencies based on deficiencies identified in the sanitary sewer system.

We continue to work with the NEORS (through their community discharge program) and with the Ohio EPA to ensure that our Sanitary Division’s best practices meet the CMOM goals.





SUMMARY OF ENGINEERING & CONSTRUCTION SERVICES

The Engineering and Construction Services Departments provide technical services to the communities including, but not limited to, capital project planning, grant and loan administration, design engineering, construction management, as well as inspection of sanitary and storm sewers, pump stations, and wastewater treatment facilities.

The sewer repair and rehabilitation program is managed by in-house personnel. A Sanitary Division engineer is assigned to each community to provide an individual contact for sewer related issues. Under the existing sewer maintenance agreements (based on video inspection information and requests from the communities), the County issues Task Orders for repair and rehabilitation by our personnel, supplemented by three third-party contractors.

In 2021, on behalf of member communities, design plans were reviewed for nearly 50 construction projects. The Sanitary Engineering Division also coordinates and analyzes the results of field testing and flow monitoring to detect and eliminate storm water inflow/infiltration (I/I) from the sanitary sewer system and illicit discharges to the storm sewer system. Record drawings are prepared, scanned, and filed for record keeping. Information on new sewers and service connections are provided to our IT personnel for incorporation into the County's Geographical Information System (GIS).

The Sanitary Engineering Division and the Construction Department also oversee capital construction projects, including the development of 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 of all new sanitary sewers and for the connection of service laterals to existing sewers. The Inspectors ensure that projects are constructed in conformance to design plans, specifications, and the County's *"Uniform Standards."*





SUMMARY OF ADMINISTRATIVE SERVICES

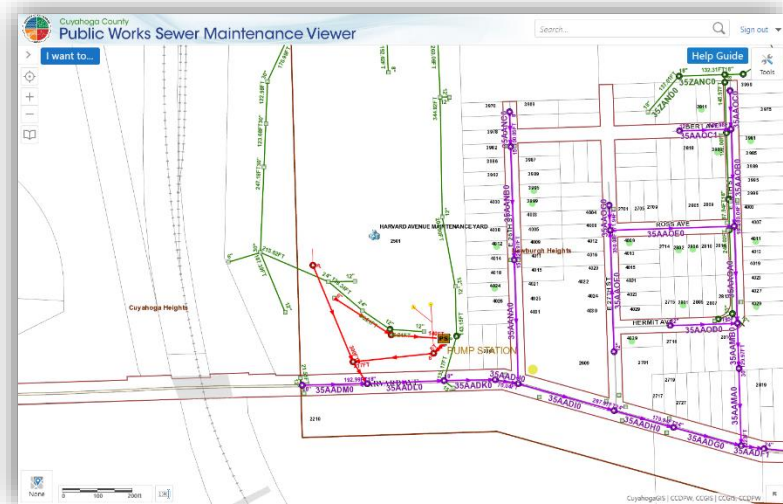
■ PERMITS

The County issues residential and commercial sewer service connection permits for 38 communities. Only contractors registered with the Department of Public Works can obtain a permit. The permit process includes inspection by the County to ensure that the work is performed in conformance to the “Uniform Standards and Details”. Permanent records of all sewer connections are maintained by the County.

■ INFORMATION TECHNOLOGY

Information Technology (IT) provides computer and analytical support to internal end-users and to the communities serviced by the CCDPW. IT is responsible for the design, implementation, and maintenance of our Geographical Information System (GIS), other relational database systems, and guiding data acquisition tasks throughout the CCDPW. The GIS mapping program catalogues the location of sewer systems and performs analysis on spatial data. This information supports the planning, design, and maintenance of sewer systems, and ensures user fees are appropriately assessed and collected. Furthermore, the mapping program features access to information regarding permits that are on record.

Our Geographical Information System is continually being updated and 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 NEORSRD to improve services and foster collaboration.



■ FINANCE

The Finance Department provides support services to various units within the CCDPW. 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 CCDPW oversees an annual storm and sanitary sewer operating budget of more than \$25 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.

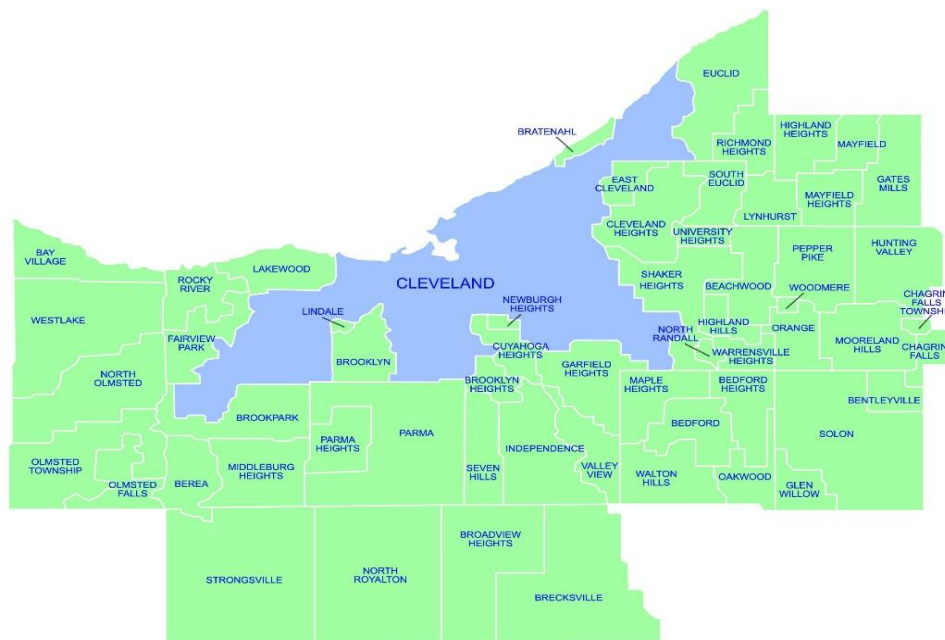


Appendix Description*

The following appendices contain a variety of reports representing the services provided to member communities in 2021. The CCDPW follows a manhole-to-manhole, sewer segment-based accounting method for jet cleaning and TV (video) inspection maintenance services. The first two appendices contain listings of the collection system cleaned and inspected for the year by street. The next appendix lists the plan approvals for the more significant projects submitted to, reviewed, and approved by the Engineering Department 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 services including house visits, inflow/infiltration studies, construction activity, operating expenses, and capital project costs contracted for the community.

This annual report, along with a map showing areas where collection system mainlines were jet cleaned and TV inspected, locations where construction crew activities were provided, house visits where house lateral connections needed to be cleaned or inspected, is available on our website at <https://cuyahogacounty.us/publicworks/services/sewer-maintenance-services>. 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 specific services are provided by the CCDPW. 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 for your community, then there is also no corresponding report. Furthermore, certain specific member communities are provided limited maintenance only on County improvement mainlines and/or facilities.



Community Streets Cleaned*



Section A-1

*No service provided if section is blank

2021 Collection System Jet Cleaning SHAKER HEIGHTS

STORM

Street Count: 5

STREET

Jet footage # of segments

BELVOIR BOULEVARD	252	1
BRYDEN ROAD	364	3
CHAGRIN BOULEVARD	0	1
HERMITAGE ROAD	176	1
SOMERSET DRIVE	160	1
2021 JET STORM TOTAL:	952	7

Community Streets Inspected*



Section A-2

*No service provided if section is blank

Plan Approvals*



Section A-3

*No service provided if section is blank

Service Program Summary*



Section A-4

*No service provided if section is blank

City of Shaker Heights

<u>Type</u>	<u>Community Total</u>
Sanitary Sewers Manholes	586,290 Feet 2,358 (Approximately)

2021 Service Program

<u>Program</u>	<u>2021 Activity</u>
1) High Pressure Jet Cleaning Sanitary - 0 Feet Storm - 952 Feet	952 Feet
2) House Service	411 Calls
3) Television Inspection Sanitary - 0 Feet Storm - 0 Feet	- Feet
4) Construction Activities	- Job(s)
5) Dye Testing	40 Test(s)
6) Construction Permits Issued (Commercial) (Residential)	- -
7) Plan Approvals	- Plan(s)
8) Construction Inspection a) Main Lines Inspected b) Public R.O.W. Service Laterals c) Commercial/Residential Service Laterals	- Feet - Feet - Feet
9) Catch Basins Cleaned	1

Community Operating Expenses*



Section A-5

*No service provided if section is blank

City of Shaker Heights

2021 Operating Expenses

<u>Activity</u>	<u>Cost</u>
1. Maintenance of Sanitary Sewerage Systems	\$161,040
2. Pump Station Operation and Maintenance	\$ 0
3. Wastewater Treatment Plant Maintenance	\$ 0
4. Engineering and/or Inspection	\$12,230
5. Capital Expenses (See Section A-6 if any)	\$76,544
Total Operating Expenses:	\$249,814

Community Capital Expenses*



Section A-6

*No service provided if section is blank

City of Shaker Heights

2021 Capital Expenses

Chagrin Boulevard Repair	\$ 3,000
Douglas/Calverton Road Lining	\$ 73,544
Total Capital Expenses:	\$ 76,544



CONTACT INFORMATION

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David Ray, P.E, P.S.	Cuyahoga County Engineer
Thomas P. Sotak, P.E	Deputy Chief - Engineering
Bryan J. Hitch	Deputy Chief - Maintenance
Mellany M. Seay	Finance & Operations Administrator
Nichole L. English, P.E	Planning & Programming Administrator
Laura A. Weber, P.E	Chief Section Engineer Sanitary
Edward V. Premen, M.B.A.	Business Services Manager

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Sewer Maintenance.....	John Gribble, Senior Supervisor(216) 443-8227
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Construction (EAST).....	Dave Novak, Supervisor(216) 348-4238
Construction (WEST).....	Mitchell Holt, Supervisor(216) 348-3849
Sewer Jetting.....	Tom Noy, Supervisor(216) 348-3901
Televised Inspection.....	Todd Swindell, Supervisor(216) 443-8224
Pump Station Operations.....	Robert Dietrich, Supervisor(216) 698-8482
Sewer Maintenance(2 nd).....	John Campbell, Supervisor(216) 443-8226
Sewer Maintenance(2 nd).....	Pat Mauk, Supervisor(216) 443-8229



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Cuyahoga County Department of Public Works

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