Metropolitan Sewer District of Greater Cincinnati

OPERATION AND MAINTENANCE PROGRAM

Wastewater Collection Division

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DECEMBER 1999
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MSD

OPERATION AND MAINTENANCE PROGRAM

DECEMBER 1999

(REVISED February 2002)

Prepared for

The Metropolitan Sewer District

of

Greater Cincinnati

OPERATION AND MAINTENANCE PROGRAM

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1.0 INTRODUCTION

1.1 Purpose, Objectives and Goals

This report is entitled an "Operation and Maintenance Plan." It describes programs and procedures currently undertaken by the Metropolitan Sewer District of Greater Cincinnati (MSD) in the management of its operation and maintenance programs for the wastewater collection systems.

This report is not an operation and maintenance manual. It does not provide detailed descriptions of specific operation and maintenance functions or system components. These descriptions are provided elsewhere. Rather, this report presents a functional overview of programs, equipment and personnel in place to manage sewer operations on a daily basis for MSD.

The Wastewater Collection (WWC) Division is responsible for all sewer related maintenance and repair functions at MSD. In addition the WWC Division is involved in a host of other activities including but not limited to preventive maintenance, emergency maintenance, information gathering, system monitoring scheduling, data and project tracking, contract administration, design and construction administration, and vehicle, building and equipment maintenance.

Although many of these tasks can be considered routine, others are "emergencies" and can not be anticipated. The WWC Division is aware that the reputation of MSD in the eyes of the public depends on how it responds to these "emergencies." It should be stated that the majority of "routine" work done by the WWC Division is to address potential problem areas in the collection systems before

they become "emergencies." The Division expends a significant effort in the following work areas:

- Root and debris removal,
- Internal inspection by TV to detect pipe failures before they occur and locate sources of inflow and infiltration,
- Internal/re-lining sewers to restore their structural integrity to pipelines and reduce the risk of failures.

Although it is impossible to detail every function performed by the WWC Division, Chapter 5.0 of this report emphasizes 5 principal areas of responsibility:

Area	Section
• "Request for Service" Procedures	5.1
• Preventive Maintenance	5.2
• Emergency / Reactive Maintenance	5.3
• Maintenance Management System	5.4
• Monitoring/Information Gathering	5.5

These topics emphasize the WWC Division's response capabilities to preventive and emergency maintenance in addition to other areas such as maintenance management.

This report is intended to supplement and be consistent with existing emergency plans and standard operating procedures. Many of the procedures followed by the WWC Division are outlined in the Wastewater Collection Division Training Manual, which was prepared in 1992.

It is hoped that the reader will gain an appreciation of the level of commitment provided by MSD through its WWC Division to protect human health and the environment by its programs and activities.

1.2 Updating and Maintenance of the Plan

It is recommended that MSD update the Plan on an as-needed basis to reflect revisions to the NPDES permit and new initiatives that are being undertaken by the WWC Division. MSD shall report any such modifications to this Plan in the annual report required by Paragraph IX.C of the Consent Decree.

2.0 THE MSD ORGANIZATION

The Department of Sewers of the City is responsible for the management and operation of MSD. The head of the Department of Sewers is the Director who is primarily responsible for the administration of the entire sewer system, including design, construction, repair, maintenance and operation of all sewers and sewage treatment facilities. The Director manages five operating divisions: the Administration Division, the Engineering Division, the Wastewater Treatment Division, the Industrial Waste Division, and the Wastewater Collection (WWC) Division.

The Director is primarily responsible for coordinating the overall operation of MSD. The Administration Division is responsible for all personnel, accounting, budgeting, safety and training.

The Engineering Division is responsible for the planning and administration of capital projects, the extension of service permits, rules, regulations and legislation, and maintaining all sewer records.

The Engineering Division is also responsible for planning, evaluating, and development of projects; development, management, and implementation of the capital improvement program; acquisition of easements and property; preparation and presentation of all legislation required to complete a project; and project management from conception through design, construction, completion, and acceptance of the project with the goal of project completion on time and within budget.

The Wastewater Treatment Division has the responsibility for operating and maintaining all wastewater treatment plants, package treatment plants, pumping stations and performing all actual treatment of sewage.

The Industrial Waste Division is responsible for regulating industrial waste discharges, pretreatment and surcharge programs, sampling and analytical laboratory operations.

The Wastewater Collection (WWC) Division is responsible for inspection, maintenance, repair and rehabilitation of the wastewater collection system including all combined sewers, sanitary sewers, combined sewer outlets and appurtenances.

3.0 THE WASTEWATER COLLECTION DIVISION

3.1 Organizational Description

The WWC Division is responsible for the inspection, maintenance, and repair and rehabilitation of the wastewater collection system, which includes all combined sewers, separate sanitary sewers, combined sewer regulators and appurtenances. A table of organization is presented in Figure 1. The WWC Division is organized into 8 functional areas illustrated in Figure 2 and introduced below.

Area	Primary Function(s)
1. Engineering	• Emergency Repair • Internal Rehabilitation • Special Investigations
2. Reactive Sewer Maintenance and Regulator Maintenance	• Reactive TV inspection and flush/vac cleaning • Combined Sewer maintenance
3. Repair Districts (West and East)	• General sewer repair and maintenance for east and west parts of the District
4. Support and Flow Monitoring	• Flow Monitoring Program • Rain Gauge Network
5. Preventive Sewer Maintenance and Equipment Maintenance	• Preventive TV inspection and flush/vac cleaning • Equipment Maintenance and Purchasing • Fleet Maintenance
6. Maintenance Planning and Scheduling	• Scheduling of work orders based on priority

7. Dispatch Office	• Request for Service Calls • Maintains Records
8. Payroll, Stockroom and Human Resources	• Internal Support functions for the Division

The purpose of the above listing is to highlight primary functions of the 8 groups. These designations reflect normal day-to-day operations. As can be seen, much of the work done by the WWC Division relates to information gathering, scheduling, coordination and preventive maintenance. A brief description of each area is below.

1. Engineering: The Engineering Group oversees traditional engineering work undertaken in the WWC Division including planning, design and construction. The WWC Division undertakes a substantial amount of work each year to repair and replace failed elements of the collection system in need of emergency attention. In addition, the Division administers a substantial and well established program to internally line sewer pipes with cured-in-place-pipe (CIPP). This program has been pivotal in restoring the structural integrity of many systems considered to be either partially or fully deteriorated. It is believed that this program has substantially reduced emergency or reactive maintenance work throughout the District.

   The Engineering Group also performs and oversees projects called "Special Investigations." These projects entail an evaluation of a study area to determine the cause and potential solutions for problems such as frequent water-in-basement complaints.

2. Reactive Sewer Maintenance and Regulator Maintenance:
This group performs reactive TV inspection and flush/vac cleaning as requested by the First Response Team, other sections within the Division or work requested by other divisions of MSD.

Much of MSD is served by combined sewers, particularly the older parts of the city and downtown. As such, the WWC Division spends a substantial effort to inspect, clean and maintain combined sewers, interceptors and control structures. Details on operation and maintenance of these sewers may be found in the documents entitled:

Greater Cincinnati Combined Sewer Overflow Operational Manual for the Little Miami Service Area, 1994, updated 1997.

Greater Cincinnati Combined Sewer Overflow Operational Manual for the Mill Creek Service Area, 1994, updated 1997.

Greater Cincinnati Combined Sewer Overflow Operational Manual for the Muddy Creek Service Area, 1994, updated 1997.

Although the teams in this group are assigned to perform work in the combined sewer systems, they are available for special assignments or emergencies as they arise.

3. Repair Districts (West and East):
The Repair District Teams perform minor repairs on various elements of the collection systems. Although their work is

generally divided into east and west areas, they are available for special assignments.

4. Support and Flow Monitoring:

   This group helps other functional groups including Engineering with the collection of flow and rain data from flow meters and the rain gage network. In addition, this group installs flow meters and helps maintain equipment.

5. Preventive Sewer Maintenance and Equipment Maintenance:

   This group is principally responsible for work related to scheduled preventive maintenance TV inspection and flush/vac sewer cleaning operations including "on road" and "off road" locations. WWC has built TV inspection and flush clean functionality into four-wheel drive tractors to service the remote "off road" sewer locations. This group also oversees equipment purchasing and maintenance scheduling for the Division, including coordination with the Municipal Garage.

6. Maintenance Planning and Scheduling:

   This group is important to the Division in that it schedules and coordinates "work order" projects based on information collected from response teams. This group provides an important interface with recommendations made from a "complaint" or "Request for Service" response calls once the immediate problem has been addressed. For example, if the recommendation from a "complaint" or "Request for Service" response call is to clean or TV inspect sections of sewer line, this group creates a work order and schedules the project.

7. Dispatch Office:

   The Dispatchers are the first line of contact with the public. The Dispatch Office is used to keep reports once the Response Teams are done with a call. All records are maintained in an organized manner and available to MSD personnel.

   Dispatchers collect information over the telephone in a calm, friendly and professional manner. This task may be complicated by the fact that the person calling may be upset, confused or unknowledgeable about the problem being experienced. During normal working hours, the Dispatchers work out of the WWC Division at 225 W. Galbraith Road. During evenings and weekends, calls are received by the dispatcher at the "after hours" desk of MSD at 1600 Gest Street, who in turn dispatch First Response Teams or contact "on-call" supervisors if the reported problem warrants additional evaluation or supervision. The Dispatchers have the authority to cross over MSD division lines to obtain the assistance of any supervisor to secure any equipment that may be necessary to resolve the problem.

8. Payroll, Stockroom and Human Resources:

   This group provides administrative support to the WWC Division.

   Each of these functional areas include a Supervisor to report to the Superintendent.

Supervisors hold positions of supervisory authority under the Superintendent and are senior operations staff and Division engineers. Supervisors work with the crews to resolve sewer maintenance problems and serve as a liaison between the crews and the Superintendent. During normal working hours, there are a number of supervisors who can handle problems as they arise. During evenings and weekends, problems are referred to the "Supervisor on Call" or the second backup "Supervisor on Call." Supervisors on Call are changed on a rotating basis once every month.

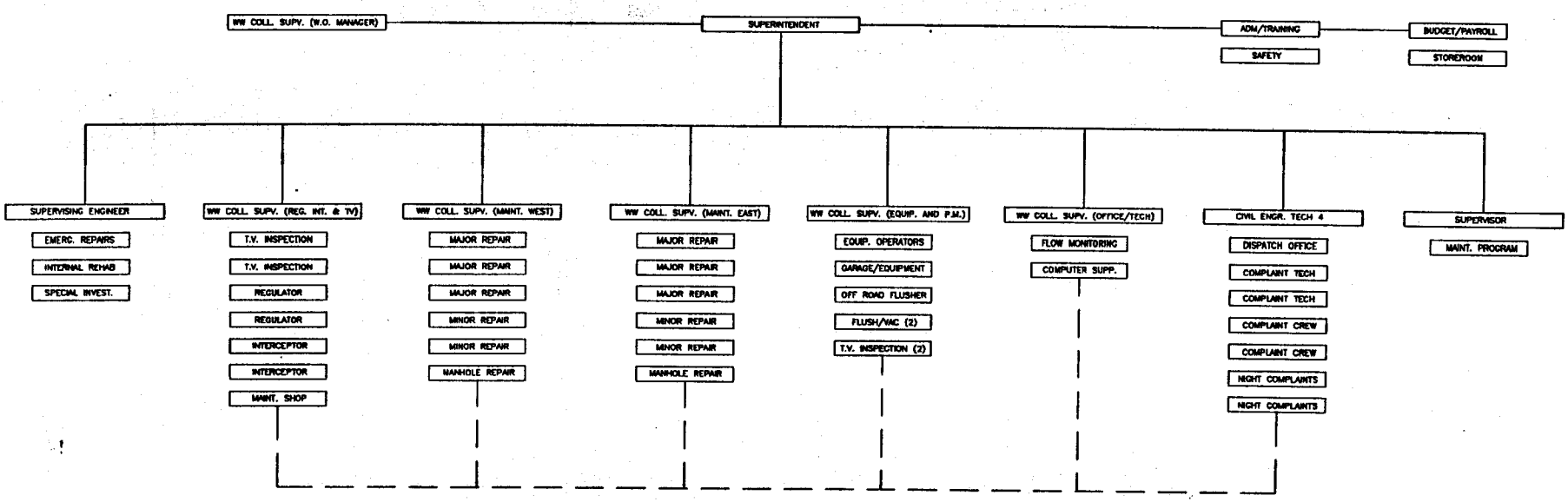
The Superintendent is in charge of the WWC Division and reports to the Director. Although the Superintendent will normally not be personally involved in most service calls, he/she is administratively responsible for activities performed by the Division, including all fiscal and budgetary matters and coordination with the Director's office. The Superintendent also is a valuable technical resource who is knowledgeable in the design, construction and maintenance of collection systems and is therefore, frequently involved in devising strategies and directing actions to solve the most complicated problems.

In no way does this completely describe all work done by these groups nor reveal how they interact with each other. As will be seen in Chapter 5.0 under the "Request for Service" procedures, all groups interact and coordinate to resolve sewer related problems that arise. Although personnel assigned to each group generally perform functions of that particular group, there is a substantial overlap that occurs in solving sewer problems. Most

personnel are trained to perform multiple tasks and can be assigned to other groups on a temporary or permanent basis, if necessary.

Figure 1

Table of Organization



EMERGENCY REPAIRS
ENGINEER
ENGINEER
WW. COLL. INSPECTOR

INTERNAL REHAB
ENGINEER
CET-4
CET-1

SPECIAL INVEST.
CET-3
CET-2

T.V. INSPECTION/FLUSH-VAC (2)
WW. COLL. INSPECTOR (T.V.)
WW. COLL. INSPECTION (F/V)

REGULATOR
WW. COLL. INSPECTOR
UTIL. LABORER

INTERCEPTOR
UTIL. LABORER SA/3
UTIL. LABORER

MAINT. SHOP
FAC. MAINT. SPEC.
FAC. MAINT. SPEC.
UTIL. LABORER
WW. COLL. INSPECTOR
UTIL. LABORER

MAJOR REPAIR
S.M. CREW LEADER
WW. COLL. PIPELAYER
TRUCK DRIVER
MEO 1

MINOR REPAIR
WW. COLL. CREW LEADER
MEO 1
UTIL. LABORER
TRUCK DRIVER

MANHOLE REPAIR
WW. COLL. CREW LEADER
UTIL. LABORER
UTIL. LABORER

PERSONNEL POOL
UTIL. LABORER
UTIL. LABORER

MAJOR REPAIR
S.M. CREW LEADER
WW. COLL. PIPELAYER
TRUCK DRIVER
MEO 1

MINOR REPAIR
WW. COLL. CREW LEADER
MEO 1
UTIL. LABORER
TRUCK DRIVER

MANHOLE REPAIR
WW. COLL. CREW LEADER
UTIL. LABORER
UTIL. LABORER

PERSONNEL POOL
UTIL. LABORER
UTIL. LABORER

FLUSH-VAC TANDEM AXEL
WW. COLL. INSPECTOR
UTIL. LABORER

OFF-ROAD FLUSHER
MEO 2
MEO 3
UTIL. LABORER

SPOILS HAULING/STOCKROOM LOAD-OUT
TRUCK DRIVER

GARAGE PARTS RUNNER
UTIL. LABORER

GRIT PIT/CRANE WORK
MEO-3

T.V. INSPECTION
WW. COLL. INSPECTOR (T.V.)
CET-1

FLOW MONITORING
CET-4 (OFFICE)
CET-3
CET-2

COMPUTER SUPP.

DISPATCH OFFICE
CET-2
CET-1
CET-1

COMPLAINT TECH
CET-2

COMPLAINT CREW #1
(MAIN LINE RODDER TRUCK)
WW. COLL. CREW LEADER
UTIL. LABORER

COMPLAINT CREW #2
(MAIN LINE FLUSH TRUCK)
WW. COLL. CREW LEADER
UTIL. LABORER

NIGHT COMPLAINTS
WW. COLL. CREW LEADER
UTIL. LABORER
UTIL. LABORER

ADMINISTRATION/TRAINING
ADM. ASST. 2
ADM. ASST. 1
CET-3

SAFETY
CET-1

BUDGET/PAYROLL
ADM. ASST. 2
ADM. ASST. 1
CET-3

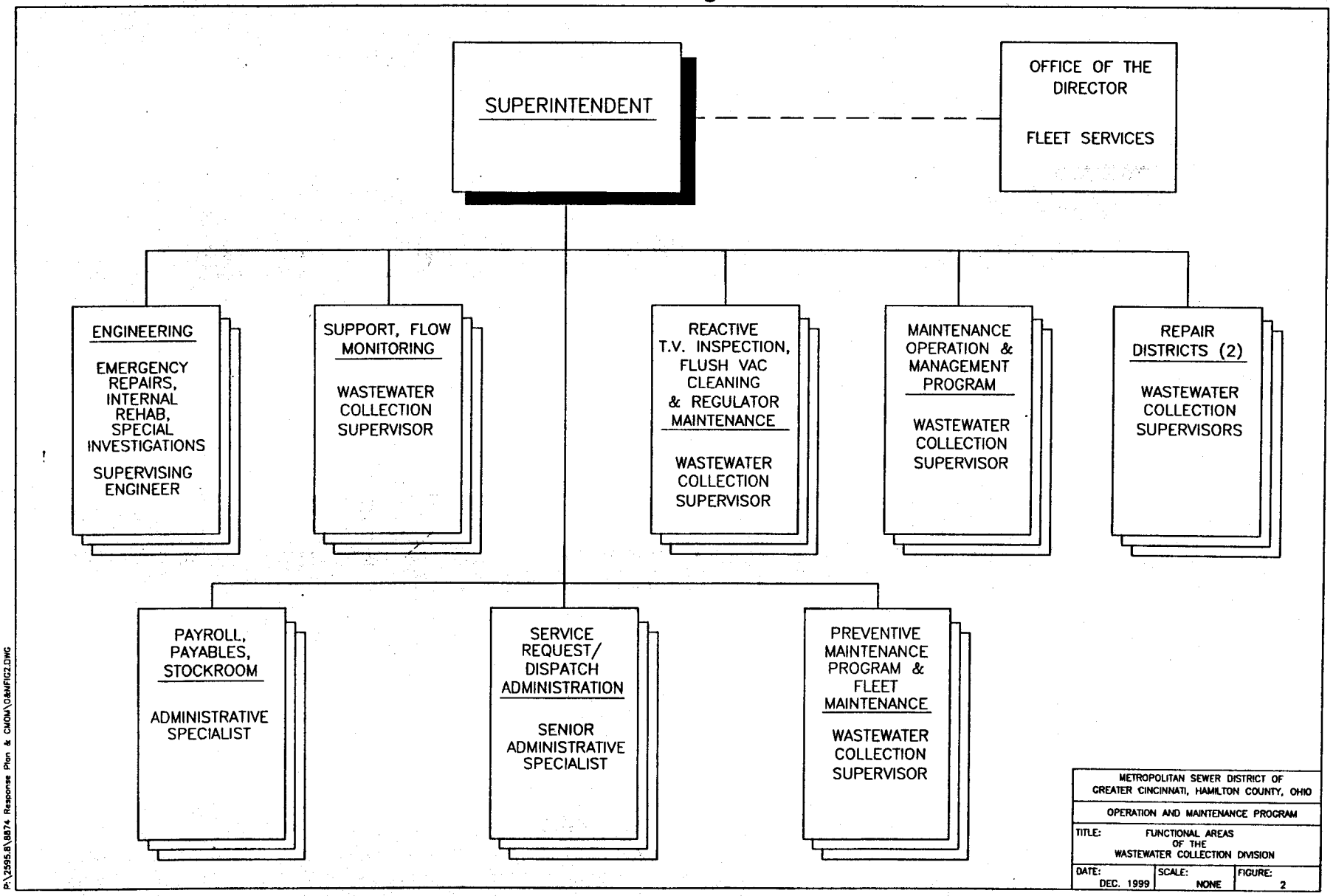
STOREROOM
SUPVR. STOREKEEPER
STOREKEEPER

METROPOLITAN SEWER DISTRICT OF GREATER CINCINNATI, HAMILTON COUNTY, OHIO		
OPERATION AND MAINTENANCE PROGRAM		
TITLE: TABLE OF ORGANNIDATION OF THE WASTEWATER COLLECTION DIVISION		
DATE: DEC. 1999	SCALE: NONE	FIGURE: 1

P:\2595.8\8874 Response Plan & CMOM\FIG1.DWG

Figure 2

Functional Diagram



3.2 Facility and Equipment Description

3.2A Physical Facility

WWC Division operates from a complex at 225 West Galbraith Road and is the headquarters for all sewer maintenance activities undertaken by the District. The facility is centrally located within the county which provides crews timely response to collection system problems.

Besides providing offices and conference space for technical and support personnel, the complex also features large enclosed vehicle and equipment parking, vehicle repair, storage areas and well stocked and organized material storage areas both under roof and in a yard areas behind the complex.

3.2B Equipment

The WWC Division owns and has ready access to a sizable arsenal of equipment to perform sewer maintenance and repair work for nearly every foreseeable situation. Equipment was purchased based on the needs of the MSD collection systems including difficult to access areas. As such, the WWC Division owns a wide array of equipment in the following categories:

APV 4x4 Pickup Trucks
APV Suburban 4x4
Air Blowers
Arrow Board Trailer
Inflatable Boat
Boom Trucks
Chipping Hammers
Clay Spades
Cleaning Machines
Cleaning Machine/Truck
Compactors
Complaint Trucks
Complaint Flusher
Compressor
Concrete Vibrator
Cranes
Dump Trucks
Dump Operator Vehicles
Dump Seal Tight Trucks
Dump Tandem Axle Trucks
Excavator Trackhoe
Extendahoe Loaders
Flusher
Flusher Vacuum Trucks
Forklifts
Fuel Tank Truck
Gang Trucks
Hydraulic Alternator
Hydraulic Drill
Hydraulic Power Source
Hydraulic Power Truck
Hydraulic Wrench
Light Plant
Light Truck Loader
Loader Rubber Tire
Loader Truck
Riding Mower
Off-Road Flusher
Outboard Motor
Paving Breakers
Pickup Trucks
Pickup/4x4 Trucks
Portable Flushers
2 Inch Trash Pumps

6 Inch Trash Pumps
Hydraulic Pumps
Sump Pumps
Rock Drills
Electric Rodders
Gas Rodders
Rodder Trucks
Saws
Salt Spreaders
Circular Saws
Pneumatic Saws
Walk Behind Saws
Scooter
Smoke Generators
Sweeper
Trucks
TV Vans
Tampers
Truck Carrier
Truck Dozer
Tractor
Beaver Tail Trailers
Boat Trailer
Drag Trailers
Tilt Trailers
Utility Tool Box Trailers
Utility Trailers
Trench Digger
Utility Pickup/4x4/Plow
Extended Vans
Mini Vans
Win. Vans
Welder
Hydraulic Winch

MSD shall maintain adequate equipment to appropriately operate, repair and maintain its wastewater collection system. MSD currently owns the equipment set forth in Appendix A. If there is any change to this Appendix, MSD shall provide a revised appendix to EPA and OEPA in the annual report required by Paragraph IX.C of the Consent Decree.

3.3 CAGIS

The Cincinnati Area Geographic Information System (CAGIS) is a countywide computerized mapping system which includes physical features (roadways, pavement, buildings), natural features (rivers, topography, land use), utility information (sewers, manholes, water, gas, electric), and property information (property lines, address, property owner). MSD operates and maintains sewer system data in CAGIS, including manhole location, manhole numbering, sewer line information, pump station location, and treatment plant location. This system integrates database information in a graphical interface to view mapped information such as sewers, property lines, roadways, buildings, etc. on a single map. MSD has expanded the use of the system to include tracking of all "Request for Service" calls, tracking of various completed maintenance activities, proposed improvements projects, new development, etc.

All complaint (First Response) teams, special investigation teams, and TV crews are equipped with laptop computers loaded with ArcView 3.1 and CAGIS data. This enables them to be able to quickly respond to sewer problems in the field without having to call back in the office for prints to be pulled from microfiche film and then have this information relayed to them over the radio.

If a sewer segment is found to be in need of maintenance the exact segment is identified and sent to the Division's Maintenance Planning and Scheduling group. The maintenance work identified is entered into the database and scheduled.

The various databases in use at the WWC Division are linked together using the sewer segment ID. So it is very important that the field crews are identifying the sewer segment the same way as the databases.

4.0 SEWER SYSTEM DESCRIPTION

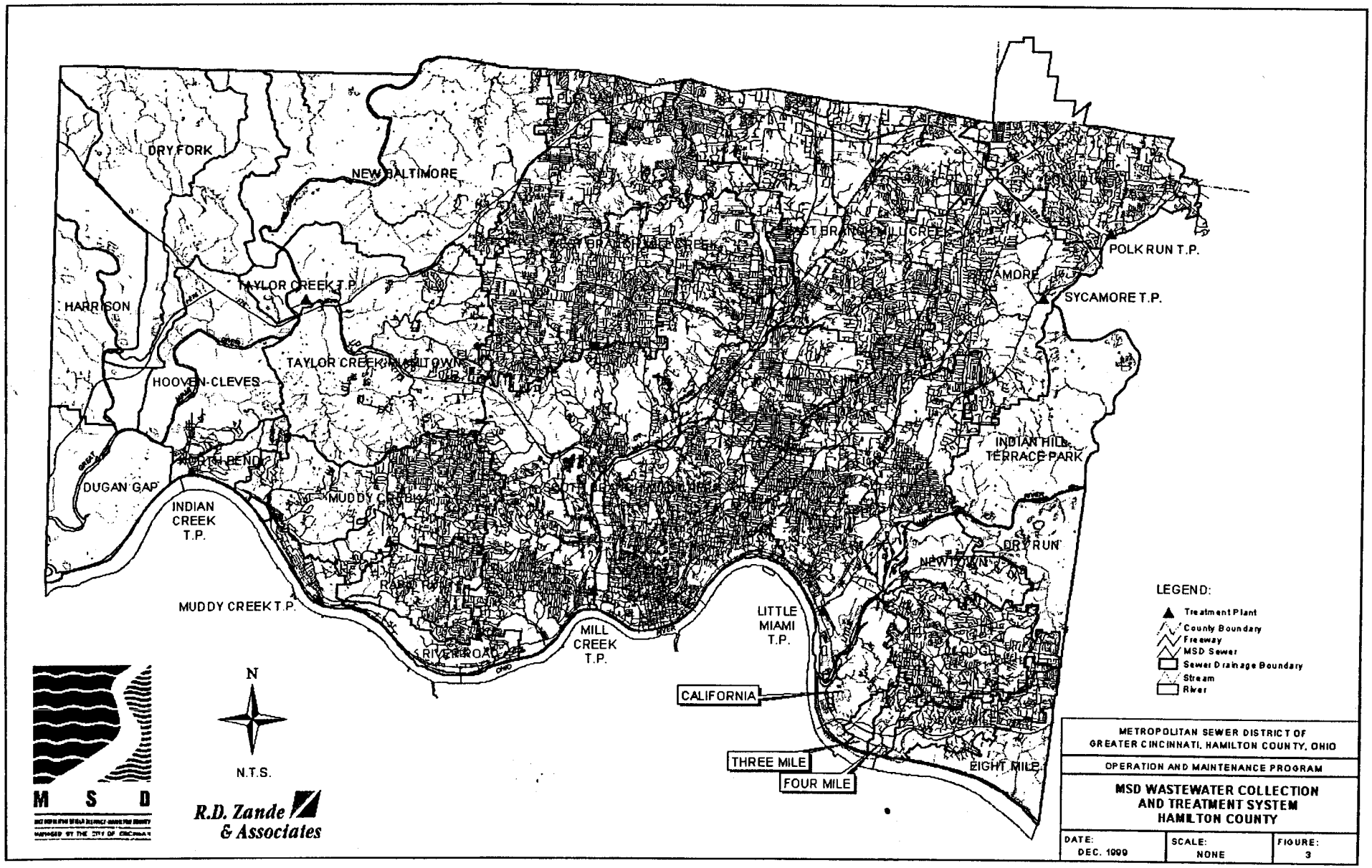
MSD is a county sewer district established on April 10, 1968, in accordance with resolutions of the Board of County Commissioners of Hamilton County and Ordinances of the City of Cincinnati. Prior to 1968, the County and the City maintained separate sewage operations. As part of this agreement, the City gave the County the right to use all of the City's existing sanitary sewers and sewage disposal facilities, while the County assumed the obligation to provide sewage treatment to 23 separate municipalities located within Hamilton County.

MSD services all of the unincorporated areas of the County, minor sections of Warren and Clermont Counties and all of the cities and villages within the County which have sanitary or combined sewers, except the Villages of Glendale and Terrace Park and the City of Harrison. All households which have sanitary sewers available must be connected to such sanitary sewers. There are large portions of the County that are not sewered.

Figure 3 is a large scale map of the collection system for MSD.

Figure 3

MSD Sewer System Map



The area served by MSD encompasses over 400 square miles and includes 33 municipalities and unincorporated areas of Hamilton County. The collection systems operated and maintained by MSD provide service to approximately 800,000 Hamilton County residents with more than 200,000 sewer connections. The system includes over 3,150 miles of sanitary and combined sewers, 7 major wastewater treatment plants, numerous package treatment plants and package lift stations, and 8 major pumping stations.

5.0 OPERATION AND MAINTENANCE PROGRAM

As is seen from the discussion in Chapter 3.0, the WWC Division is involved in a number of wide-ranging activities including but not limited to preventive maintenance, emergency maintenance, information gathering, system monitoring scheduling, data and project tracking, contract administration, design and construction administration, and vehicle, building and equipment maintenance.

For the purpose of clarity, it should be stated that the discussion presented in Chapter 3.0 emphasizes activities generally considered to be routine or "non-emergency." The following topics emphasize other aspects of the WWC Division's response capabilities for preventive and emergency maintenance, the Division's maintenance management system, and other monitoring and information gathering activities.

This plan will be subject to modification by the Director of MSD to account for changes in circumstances such as changes in the configuration of MSD facilities, the purchase of new equipment, changes in regulatory requirements, the development of new technologies, or changes in industry standards/best management practices. MSD shall report any such modifications to this report in the annual report required by Paragraph IX.C of the Consent Decree.

5.1 "Request for Service" Procedures

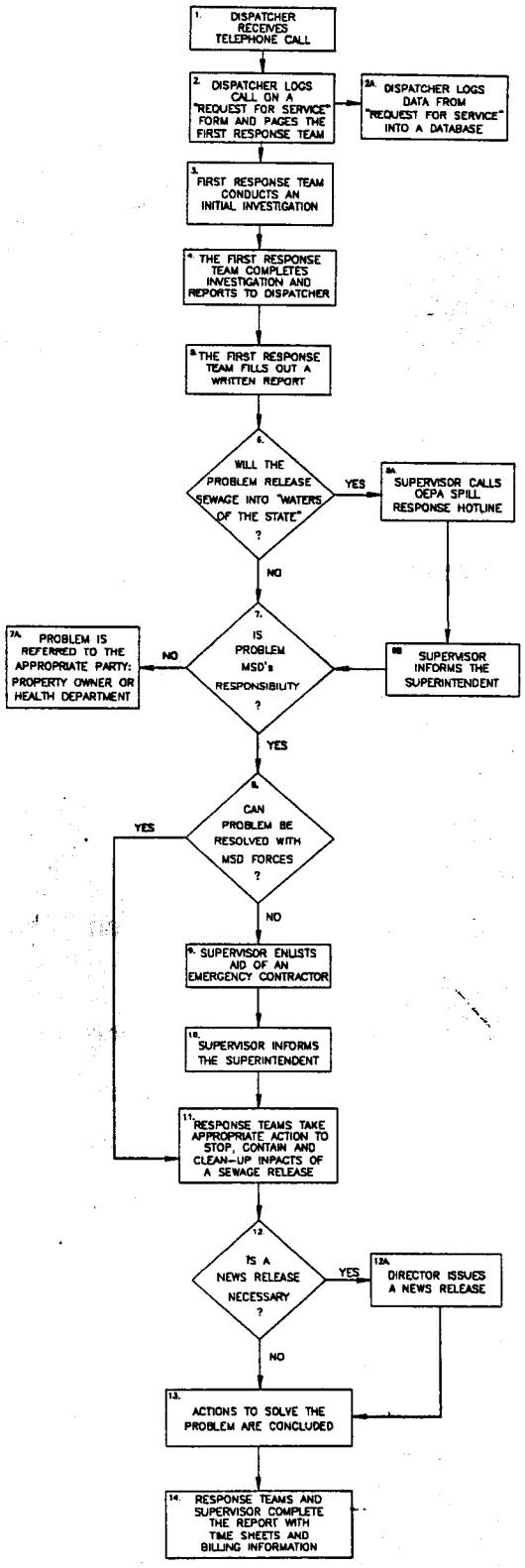
"Request for Service" or "Complaint" calls are those initialed by the public in response to sewer related problems. Typically those may include water-in-basement complaints, or reports of sewage in creeks. In many instances these calls end up being false alarms in that no real problem is occurring and the caller only perceived that a problem was occurring. In other instances, MSD finds that the "problem" is due to problems with building service lines (e.g. building service laterals) on private property or a sewer line owned by a homeowners association.

Although not all "Request for Service" or "complaint" calls are bonafide emergencies, all require a prompt response. The "Request for Service" procedures outlined here provide insight into the coordinated efforts of all members of the WWC Division and how they work together as an integrated team.

"Request for Service" calls also provide the WWC Division with valuable information. For example, a sewer line may need frequent root removal. In this manner, this particular line may be added to the pool of root removal project sites and scheduled in the future as "preventive maintenance" rather than "emergency or reactive maintenance."

The process utilized by MSD to respond to "Request for Service" or "complaint" calls is defined in the Process Flowchart shown in Figure 4. This procedure includes all calls received at MSD, regardless of whether a sewer overflow has occurred.

Figure 4



METROPOLITAN SEWER DISTRICT OF GREATER CINCINNATI, HAMILTON COUNTY, OHIO		
OPERATION AND MAINTENANCE PROGRAM		
TITLE: "REQUEST FOR SERVICE" PROCESS FLOWCHART		
DATE: DEC. 1999	SCALE: NONE	FIGURE: 4

Each step of the flowchart is described below.

Step 1 - Dispatcher Receives Telephone Call

Request for service calls are received by the Dispatch Office at the following telephone numbers:

Monday-Friday.....352-4900
7:30 a.m. - 4:00 p.m.
After Hours.....244-5500

Calls received during normal working hours are taken by the Dispatch Office at 225 W. Galbraith Road, the WWC Division. Calls received after hours are taken by the after-hours Dispatcher at the MSD Main Office at 1600 Gest Street.

Step 2 - Dispatcher Logs Call on a "Request for Service" Form and Pages the First Response Team

At this time, the Dispatcher manually logs key information onto the "Request for Service" form and then enters it into a Foxpro database. Information to be obtained is as follows:

- Name of the person calling,
- Address and phone number of the person calling,
- Time and date the call was received,
- Location, and,
- Details of the problem.

A reproduction of the "Request for Service" form is attached as Appendix "B".

Dispatchers are trained to elicit information on the exact nature and magnitude of the problem, including whether the sewer problem is on private property or in the MSD owned main-line sewer.

Also, during this step the Dispatcher pages crews by radio to respond to the service call. Depending upon the location and nature of the problem, one of three types of crews may respond:

- Technician in van,
- 2 person crew in rodder truck, and
- 3 persons in a complaint/rodder truck (after hours crew).

Step 2A - Dispatcher Logs Data from "Request for Service" into a Database

Information from the telephone call is entered into a Foxpro database. This database is made available to all MSD divisions; however other divisions cannot change information entered by the WWC Division.

Step 3 - First Response Team Conducts an Initial Investigation

During this step, the crew arrives on site and locates the problem. Each First Response Team is provided with a laptop computer. Using ArcView, they can access Cincinnati Area Geographic Information System (CAGIS)

mapping of the area. This will provide information on features including sanitary sewers, combined sewers, waterlines, gas lines, properties, roadways and rivers/streams. This information is particularly valuable to track the ultimate destination of a sewer overflow and in the event that bypass pumping is to be set-up.

At this time, the First Response Team is responsible for assessing the cause of the problem and making an initial determination of the level of effort required to correct the problem. First Response Teams try to "plan for the worst and hope for the best." In this manner, they can avoid unnecessary delays and difficulties that can occur by underestimating the situation initially.

Step 4 - The First Response Team Completes Investigation and Reports to Dispatcher

At this point, the First Response Team has evaluated the situation and made a report to the Dispatcher. The Dispatcher in turn notifies the appropriate Supervisor, if field conditions warrant their direct involvement.

Step 5 - The First Response Team Fills Out a Written Report

This is a continuation of the previous step. Findings of the investigation are logged in a written report, which is a continuation of the original "Request for Service" document. This information is then returned to the Dispatch Office for proper logging.

Step 6 - Will the Problem Release Sewage into "Waters of the State"?

At this point the First Response Team has evaluated the situation and reported to the Dispatcher if sewage will be released to the Waters of the State. The Dispatcher, in turn, notifies the Supervisor. The Supervisor, or his designee, places the call to the OEPA.

Step 6A - Supervisor Calls OEPA Spill Response Hotline

The spill response hotline for the Ohio EPA, Southwest District Office is 1-800-282-9378.

Step 6B - Supervisor Informs the Superintendent

The preceding steps may all occur within a timeframe of several hours. The problem may be resolved or well under control before the Superintendent can be made aware of the particular situation. The need to inform the Superintendent at this time should be determined on a case-by-case basis utilizing the judgment and experience of those persons involved. The Superintendent must be made aware of a problem in the event of the following situations:

- Releases of sewage into the environment,
- Events that may gain the attention of the media or the public-at-large, and
- Problems that cannot be resolved quickly or where an emergency contractor is needed.

Step 7 - Is Problem MSD's Responsibility?

From this step forward, the initial determination has been made as to the likely cause of the problem and the Supervisor assists with an appropriate course of action. The first question pertains to ownership of the sewer line. If the problem is on private property, then Step 7A is undertaken. If the problem is in the building service line in the public right-of-way, MSD will assist the homeowner with bypass pumping. If the problem is in the main-line sewer owned by MSD, then one proceeds to Step 8.

Step 7A - Problem is Referred to Appropriate Party: Property Owner or Health Department

In some instances, service calls may be received for private sewers. MSD has no jurisdiction over these lines. Accordingly, these service calls are referred to City or County Boards of Health, whichever is appropriate. Telephone numbers are provided in Chapter 5.0.

Step 8 - Can Problem be Solved with MSD Forces?

During this step, the team and Supervisor decide whether the problem can be handled with MSD forces alone or if emergency contract assistance is needed. In many instances, the First Response Team on-site is fully capable of resolving the problem. In other instances, additional MSD maintenance teams may be paged.

Step 9 - Supervisor Enlists Aid of an Emergency Contractor

Occasionally, a problem will be encountered, such as a main-line sewer break, when an emergency contractor is brought in to solve the problem. This generally occurs when problems are large and beyond the resources of the MSD staff and crews.

Step 10 - Supervisor Informs the Superintendent

This step is essentially a repeat of Step 6B. In this situation, it is customary to inform the Superintendent.

Step 11 - Response - Take Appropriate Action to Stop, Contain and Clean-up Impacts of a Sewage Release

The previous steps describe the decision-making process to assess the impact of a problem, to assess the degree of MSD responsibility and to mobilize the appropriate resources. During this step the First Response Team, in house maintenance crews and emergency contractors take appropriate action to stop, contain and clean-up impacts of a sewage release. *These procedures are described in Section 4.2 of the Metropolitan Sewer District of Greater Cincinnati's "Sewer Overflow Response Plan."* All of the actions therein described may be undertaken sequentially or concurrently.

Step 12 - Is a News Release Necessary?

In general, the Division's response to problems is so fast that problems are solved before the public can even become aware. However, there are other instances, due to magnitude, location and time of the problem that the Superintendent and Director may decide to issue a news release.

Step 12A - Director Issues a News Release

Under this step, the Director's office issues a news release of the problem, its cause and actions being taken to resolve it.

Step 13 - Actions to Solve the Problem are Concluded

At this point, all work to correct and remediate the problem is completed.

Step 14 - Response Teams and Supervisor Complete the Report with Time Sheets and Billing Information

This is the final step in the response flowchart where all paperwork on the incident is completed and returned to the Dispatch Office. The report is a continuation of the original "Request for Service". The report is also used as a repository for billing and cost information.

Once the "complaint" file is closed, the Division will review the file to determine if a "work order" is necessary. This is discussed in Section 5.4

5.2 Preventive Maintenance

The previous section outlines "Request for Service" procedures utilized by the WWC Division. Although the WWC Division recognizes that some emergencies are inevitable, the Division places a premium on preventive maintenance to minimize the occurrence of future "emergencies."

Many of the programs administered by the WWC Division were introduced in Chapter 3.0 along with a discussion as to which functional group was in principal charge. Although many of the Division's specific procedures relating to preventive maintenance are outlined in the Wastewater Collection Division Training Manual, 1992, the Division relies on the use of CCTV to provide information to MSD that feeds the subsequent maintenance activities. In part, information obtained from CCTV is entered into the database described in Section 5.4.

For the purpose of preventive maintenance the WWC Division generally selects lines to be CCTV inspected on the following basis:

- Sewers tributary to known SSO locations
- Sewers located in areas of reported basement flooding
- Sewers located in areas of repeated requests for service
- Sewers located in areas of planned public improvement

Information gained from CCTV work is entered into the database described in Section 5.4. This tool allows the WWC Division to decide which lines need additional maintenance and repair, what type of action is appropriate; and when this work may be required.

Based on the findings obtained from CCTV, the WWC Division may perform one or more of the following activities:

- Perform additional line cleaning/root removal
- Perform minor repairs
- Perform special investigation and/or flow monitoring
- Re-line fully or partially deteriorated lines using CIPP pipe
- Recommend a Capital Improvement Project

Each of these activities is described further below:

Perform Additional Root Removal and Sewer Cleaning

In many instances the WWC Division will discover that the available capacity in a sewer line may be reduced by the presence of roots, grit material and other debris. By removing these obstructions, the available capacity in a line can be effectively restored.

Perform Minor Repairs

In other instances, CCTV inspection work will reveal situations where a minor repair is warranted. Typical minor repairs

performed by the WWC Division include point repairs on main line sewers, manholes, building service laterals or force mains.

Perform Special Investigations and/or Flow Monitoring

Special investigation projects entail an evaluation of a study area to determine the cause and potential solutions for problems such as frequent water-in-basement complaints. These investigations typically include flow monitoring and engineering evaluations.

Re-line Fully or Partially Deteriorated Lines Using CIPP Pipe

The WWC Division has found this program pivotal in restoring the structural integrity of many systems considered to be either partially or fully deteriorated. It is believed that this program has substantially reduced emergency or reactive maintenance work throughout the District.

Recommend a Capital Improvement Project

In other instances the WWC Division will work with other divisions in MSD to formulate a capital improvement project.

Annual Preventive Maintenance Target Goals

Wastewater Collection System gravity sewer information:

- 2,900 miles (total) of combined and sanitary sewers
- 612 miles of sewer off-road (524 miles between 8" & 42" high pressure cleaning possible)
- 2,288 miles accessible by truck

The Wastewater Collection Division is presently implementing a Preventive Maintenance Program for Sewer Cleaning, CCTV Inspection and Sewer Rehabilitation.

Targeted yearly production rates for this program are:

• CCTV or sonar sewer inspection on-road	150 miles
• CCTV or sonar sewer inspection off-road	40 miles
• High pressure cleaning of sewers on-road	150 miles
• High pressure cleaning of sewers off-road	35 miles
• Root cutting and/or chemical treatment of roots (mileage will be measured from MH to MH for this specific operation) (the target goals are based on work identified by CCTV or inspection)	10 miles
• Sewer rehabilitation and/or lining (the target goals are based on work identified by CCTV or inspection)	10 miles
• Manhole rehabilitation (the target goals are based on work identified by CCTV or inspection)	150 MH/year

The actual performance output of various maintenance tasks will vary from year to year. In order to meet the minimum annual performance standards, MSD may average the two previous years with the present reporting year to establish an annual performance value for Consent Decree reporting purposes.

5.3 Emergency / Reactive Maintenance

The WWC Division understands that while emergencies are unavoidable and cannot be always anticipated, it is imperative to know how to respond when an "emergency" does occur. The "Request for Service" procedures in the earlier part of this chapter provide an introduction to the types of actions typically

undertaken by First Response Teams when encountering a problem.

The WWC Division has the philosophy: "plan for the worst and hope for the best." In this manner the Division avoids the potential problem initially of under mobilizing its forces to address a sewer problem. This helps them avoid losing valuable time, which could make a bad situation even worse. Overall, the Division's First Response Teams have developed the skill through experience and training to report problems accurately and initiate bypass pumping and spill containment without delay.

Emergency contractors are used to assist the WWC Division with larger maintenance and repair projects. Currently, 6 firms are under contract with MSD. The conditions may vary to a degree as to when emergency contractors are mobilized; however emergency contractor are generally used for larger maintenance and repair projects, or to repair problems that may tend to release large amounts of sewage into "waters of the state."

5.4 Maintenance Management System

The Metropolitan Sewer District of Greater Cincinnati (MSD) has developed a program with the goal of creating a comprehensive database that tracks pending and completed work as well as aids in the cost estimating and invoicing of work orders that are received. In addition to this the District wanted the information made easily available for everyday use.

The tracking system is a linking of graphical and attribute data displayed through ArcView and FoxPro software respectively for this system. The graphical data consists of manhole and sewer segment identification from the CAGIS system. The attribute data consists of data entered directly from work orders issued for maintenance or inspection.

5.4A The Maintenance Process

Request for Maintenance Work

The request can come from other MSD departments, other Wastewater Collection Sections, MSD contractors, Municipalities, city departments as well as from homeowners. The "Request for Service" is entered into the complaint tracking database and referred to the Maintenance and Inspection Supervisor. The information entered is:

Who requested the work,
What type of work is to be done,
Where is the work to be performed (address),
When the request was made, and
Why the work is being requested.

Graphically Assigning the Work

The ArcView mapping system utilities CAGIS database information. Once ArcView is accessed the Maintenance and Inspection Supervisor can see buildings, streets,

manholes, sewers (with flow directional arrows), along with various other shape files. From the sewer shape file we can find out the sewer size, length, upstream and downstream manhole numbers (e.g. sewer segment). At this point the Maintenance and Inspection Supervisor can see if any work has been done to this sewer segment or is pending. A map is then generated of the project area.

Databases

The WWC Division utilizes a computerized management system to handle work orders.

Information from each complaint or work order is entered into the maintenance database. Maintenance database fields are as follows:

Complaint/work order date	Pipe size
Upstream manhole	Maintenance number
Type of work	Pipe length
Downstream manhole	Estimated cost
Complaint/work order address	Sewer segment
Who is performing maintenance work	

This information is saved as a pending job. Maintenance work can then be assigned by type of work, municipality, and/or other considerations.

Once the maintenance work order is completed the data from the work sheets is entered into a database. This

database is able to compare MSD job cost to that of contractors performing the same types of work.

The Division has found these databases to be very useful in scheduling preventive maintenance such as root removal. Root removal from sewer lines is a continuous maintenance problem that needs to be performed on a regular basis for some sewer segments. By searching the database MSD is able to determine what sewer segments need periodic maintenance and how often.

Sections 5.4B through 5.4E discuss the databases in more detail.

5.4B Maintenance Tracking Database

All collection system maintenance activities are recorded and tracked in a computerized Maintenance Tracking Database. This work includes TV inspection, flushing, root cutting, flush vac, TV inspection of tap, grouting, etc. Work orders are generated from the "Request for Service" process, the preventative maintenance program, or other sources. The work request is entered into the system and assigned by the WWC Supervisor to an MSD maintenance crew or an emergency contractor. As work is completed, information from the field crew is entered into the database. The system tracks the status of the work (assigned, complete, not complete), the type of work (flush, flush vac, TV, root cut, etc.), and any findings from the field crew (debris, grease, pipe condition, etc.).

This system is also utilized to schedule preventative maintenance work and automatically generate work orders for various tasks (root cut, flush vac, etc.). All maintenance activities are included in this system to provide a comprehensive record of all maintenance work completed throughout the system. A reproduction of the Maintenance Tracking form is included in the Appendix.

5.4C TV Inspection Database

A TV Inspection database is also utilized to monitor the condition of the system and automatically generate work orders for preventative maintenance. As the TV investigation of a section of sewer is conducted, the crew enters the findings of the inspection into the database on the laptop computer. This includes structural and maintenance ratings of "1" to "4" to indicate the condition of the pipe. A rating of "1" indicates no further action required, "2" indicates a slight concern and that the section of pipe should be re-inspected in the future, "3" indicates a problem that should be scheduled for repair, and "4" indicates a significant problem that should result in immediate repair. Data collected on the laptop computer in the field is transferred into the main computer system in the WWC Division office. The system automatically generates reports of the daily inspections and sections ranked "4" are immediately assigned to a repair crew. Any segments ranked "3" are reviewed to determine the extent of the repair required and are scheduled for repair, rehabilitation, or

replacement. The system will also automatically generate work orders at the prescribed interval for preventative maintenance work. A reproduction of the TV Inspection Report form is included in the Appendix.

5.4D Project Tracking Database

Repair projects, such as main line repair, joint repair, building lateral repair, force main repair, pipe collapse, etc. are tracked in a Project Tracking database system. As repair projects are generated, they are added to the system to be scheduled and tracked through completion. The project is assigned a project number, the type and description of work, location, site conditions, and any other essential information is included in the database and utilized to schedule the necessary crew and equipment. The project is assigned to a MSD repair team or contracted to an emergency contractors. Upon completion of the project, information from the repair team is added to the system, including length of pipe repaired or replaced, supplies used to complete the project, and any other comments. A reproduction of the Project Tracking form is included in the Appendix.

All of the TV, "Request for Service," Project Tracking and the Maintenance Tracking Database information can be linked to CAGIS and can be mapped or compared to the data and any other data in the system. They can also be cross referenced through the Project Number, Maintenance Number, address, or manhole number.

5.4E Inventory Management System

Collection system maintenance equipment and replacement parts are maintained at the WWC Division. Supplies and equipment used for collection system repair and maintenance include pipe, manhole castings, fittings, clamps, gaskets, precast manhole components, grout, specialty tools, compressors, hydraulic pumps hand tools, bypass pumps, hose, etc. The WWC Division maintains an inventory of replacement parts presently valued at approximately $764,000. The supply is monitored and maintained through the use of a computerized inventory control system. Inventory is maintained at "set levels" based on consumption and delivery schedules of the various supplies. The computer system automatically generates orders for supplies when the inventory drops to the "set level" to optimize the use of available storage space. Materials that require longer delivery are generally ordered in larger quantities at less frequent intervals, while materials that can be provided on a short delivery time are ordered more often.

5.5 Monitoring/Information Gathering

The WWC Division is involved with the collection of primary data through the flow monitoring program contracts with professional services firms. Three examples are these are the SSO monitoring program, the CSO monitoring program, and the in-stream program. Each is introduced below.

SSO Monitoring

This program is discussed in the report entitled Sanitary Sewer Overflow Monitoring and Reporting Plan, as revised January 2002. This program has been in place since 1992 and originated with the Ohio EPA Director's Final Findings and Orders issued September 22, 1992.

CSO Monitoring

The current CSO Monitoring Program originated in 1991 with the issuance of a new NPDES Permit 1PX00022*AD for all CSOs in the MSD service area. Previously CSOs were coupled with NPDES permits for the 3 wastewater treatment plants which are served, in part, by a combined sewer system.

Instream Monitoring

The NPDES Permit 1PX00022*AD for all CSOs in the MSD service area requires that water quality and biological studies are conducted for all the receiving streams to document impacts from CSOs, on a rotating basis. Instream monitoring for the three receiving streams has been ongoing since 1994.

6.0 APPENDICES

DECEMBER 1999

(REVISED February 2002)

APPENDIX	TITLE
A	Wastewater Collection Division Equipment List
B	"Request for Service" Forms
C	Maintenance Tracking Database Form
D	TV Inspection Database Form
E	Project Tracking Database Form

APPENDIX "A"

Wastewater Collection Division Equipment List

Equipment Number	Description	Equipment Type
30682	Chev. S-10 Blazer 4 Dr. 4X4	APV
40603	Chev. S-10 Blazer 2 Dr. 4X4	APV
40604	Chev. S-10 Blazer 2 Dr. 4X4	APV
50601	Chev. S-10 Blazer 2 Dr. 4X4	APV
50602	Chev. S-10 Blazer 2 Dr. 4X4	APV
60600	Ford Explorer XL 2Dr. 4X4	APV
60601	Ford Explorer XL 2Dr. 4X4	APV
60681	Ford Explorer XL 4Dr. 4X4	APV
60682	Ford Explorer XL 4Dr. 4X4	APV
70604	Chev. S-10 Blazer 2 Dr. 4X4	APV
70605	Chev. S-10 Blazer 2 Dr. 4X4	APV
70609	Chev. S-10 Blazer 4 Dr. 4X4	APV
70610	Chev. S-10 Blazer 4 Dr. 4X4	APV
90681	Ford Explorer XL 4Dr. 4X4	APV
30690	Chev. K2500 Suburban 4X4	APV Suburban
00690	Chev. K2500 Suburban 4X4/Diesel	APV Suburban
70865	Chev. K2500 Suburban 4X4/Diesel	APV Suburban
66900	Air System Ventilating Blower	Air Blower
66901	Air System Ventilating Blower	Air Blower
66902	Air System Ventilating Blower	Air Blower
53900	Power Flash Arrow Board	Arrow Board Trailer - Mounted
86535	Hand Held Blower	Blower
38550	Achilles Inflatable Boat	Boat Inflatable
11810	Chev. Truck/Diesel w/ 4 Ton Crane	Boom Truck
91810	Chev. Flat Bed/Diesel w/ Stinger Crane	Boom Truck
41810	Chev. Rear Mtd. Boom Truck	Boom Truck
61811	Chev. C60 Utility Boom Truck w/Compressor	Boom Truck
09483	Kent Chipping Hammer	Chipping Hammer
09504	Sullair Chipping Hammer	Chipping Hammer
26540	Pneumatic Chipping Hammer	Chipping Hammer
26541	Pneumatic Chipping Hammer	Chipping Hammer
26542	Pneumatic Chipping Hammer	Chipping Hammer
05325	Kent Clay Spade	Clay Spade
26622	Kent Clay Spade	Clay Spade
26623	Kent Clay Spade	Clay Spade
26624	Kent Clay Spade	Clay Spade
76621	Hatco Clay Spade	Clay Spade
76622	Hatco Clay Spade	Clay Spade
76623	Hatco Clay Spade	Clay Spade
76624	Hatco Clay Spade	Clay Spade
03465	Sreco Flexible Bucket Machine	Cleaning Machine
03466	Sreco Flexible Bucket Machine	Cleaning Machine
03467	Sreco Flexible Bucket Machine	Cleaning Machine
03468	Sreco Flexible Bucket Machine	Cleaning Machine
04423	Flexible Bucket Machine	Cleaning Machine
23465	Sreco Truck-Loading Sewer Cleaning Machine	Cleaning Machine/Truck Loader
66675	Stone Vibratory Compactor	Compactor
66676	Stone Vibratory Compactor	Compactor

Equipment Number	Description	Equipment Type
76677	Wacker Flat Plate Compactor	Compactor
01924	Int'l. Util./Complaint/Diesel	Complaint
01928	Int'l. Util./Complaint/Diesel	Complaint
11917	Int'l. Util./Complaint/Diesel	Complaint
11918	Int'l. Util./Complaint/Diesel	Complaint
11922	Int'l. Util./Complaint/Diesel	Complaint
11923	Int'l. Util./Complaint/Diesel	Complaint
91920	Chev. Util./Complaint/Diesel ('98T)	Complaint
41917	Chev. Complaint Truck/Diesel	Complaint
91921	Chev. Util./Complaint Flusher/Diesel	Complaint Flusher
13555	Grimmer Schmidt 175 CFM Compressor	Compressor
13556	Grimmer Schmidt 175 CFM Compressor	Compressor
23555	Grimmer Schmidt 175 CFM Compressor	Compressor
23556	Grimmer Schmidt 175 CFM Compressor	Compressor
53557	Grimmer Schmidt 175 CFM Compressor ('99T)	Compressor
73560	Grimmer Schmidt 175 CFM Compressor	Compressor
83555	Grimmer Schmidt 175 CFM Compressor ('99T)	Compressor
93556	Grimmer Schmidt 175 CFM Compressor	Compressor
33558	Grimmer Schmidt 175 CFM Compressor	Compressor
33559	Grimmer Schmidt 175 CFM Compressor	Compressor
53560	Grimmer Schmidt 175 Compressor	Compressor
53561	Grimmer Schmidt 175 Compressor	Compressor
63555	Smith 160 GP Compressor	Compressor
73555	Smith 160 GP Compressor	Compressor
73556	Smith 160 GP Compressor	Compressor
26660	Minnich Pneu. Concrete Vibrator	Concrete Vibrator
36670	Wyco Electric Concrete Vibrator	Concrete Vibrator
05104	Grove Hydraulic Crane 15 ton/Diesel	Crane
25850	Little Giant Crane	Crane
55850	Little Giant Truck-Mounted Crane	Crane
30950	Chev. Dump/Diesel	Dump
30951	Chev. Dump/Diesel	Dump
40953	Chev. Kodiak Dump/Diesel	Dump
40954	Chev. Kodiak Dump/Diesel	Dump
50953	Chev. Kodiak Dump	Dump
50952	Chev. Kodiak Dump	Dump
50956	Chev. Kodiak Dump	Dump
50957	Chev. Kodiak Dump	Dump
10945	Chev. Dump/Oper./Diesel	Dump Operator's
10946	Chev. Dump/Oper./Diesel	Dump Operator's
10947	Chev. Dump/Oper./Diesel	Dump Operator's
10948	Chev. Dump/Oper./Diesel	Dump Operator's
40951	Chev. Kodiak Oper. Dump/Diesel	Dump Operator's
40952	Chev. Kodiak Oper. Dump/Diesel	Dump Operator's
50950	Chev. Kodiak Oper. Dump	Dump Operator's
50951	Chev. Kodiak Oper. Dump	Dump Operator's
50954	Chev. Kodiak Oper. Dump	Dump Operator's
50955	Chev. Kodiak Oper. Dump	Dump Operator's
80953	Int'l 4900 4X2 Operator's Dump/Diesel	Dump Operator's
80954	Int'l 4900 4X2 Operator's Dump/Diesel	Dump Operator's

Equipment Number	Description	Equipment Type
80955	Int'l 4900 4X2 Operator's Dump/Diesel	Dump Operator's
80951	Int'l 4900 4X2 Operator's Dump/Diesel	Dump Operator's
80952	Int'l 4900 4X2 Operator's Dump/Diesel	Dump Operator's
70950	Ford Dump/Diesel w/ Seal Tight Body	Dump Seal Tight
90950	Chev. Dump/Diesel w/ Seal Tight Body	Dump Seal Tight
50990	Chev. Tandem-Axle Dump Truck	Dump Tandem-Axle
70980	Int'l 4900 Tandem-Axle Dump/Diesel	Dump Tandem-Axle
05495	John Deere 690B Track Backhoe/Diesel	Excavator Track
15832	Case 580SK 4X4 Extendahoe Loader/Diesel	Extendahoe Loader
35830	John Deere 310D 4X4 Extendahoe Loader/Diesel	Extendahoe Loader
45830	John Deere 310D 4X4 Extendahoe Loader/Diesel	Extendahoe Loader
55831	Case 580SL 4X4 Extendahoe Loader/Diesel	Extendahoe Loader
65831	John Deere 310D 4X4 Extendahoe Loader/Diesel	Extendahoe Loader
65832	John Deere 310D 4X4 Extendahoe Loader/Diesel	Extendahoe Loader
75831	Case 580SL 4X4 Extendahoe Loader/Diesel	Extendahoe Loader
75832	Case 580SL 4X4 Extendahoe Loader/Diesel	Extendahoe Loader
85833	Case 580SL 4X4 Extendahoe Loader/Diesel	Extendahoe Loader
85834	Case 580SL 4X4 Extendahoe Loader/Diesel	Extendahoe Loader
11530	Chev. Vactor/Diesel	Flusher
71890	Ford L8501 Vactor 2103 Flusher/Vac Truck	Flusher Vacuum Truck
81892	Sterling L8501 Vactor 2103 Flusher/Vac Truck	Flusher Vacuum Truck
91891	VACTAINER TRUCK	Flusher Vacuum Truck
91892	VACTAINER TRUCK	Flusher Vacuum Truck
92670	Toyota Forklift/Diesel	Forklift
92671	Toyota Forklift/Diesel	Forklift
51750	Ford F700 Fuel Tank Truck	Fuel Truck
11916	Int'l. Util./Gang/Diesel	Gang
11919	Int'l. Util./Gang/Diesel	Gang
41923	Chev. Gang Truck	Gang
61917	Chev. C3500HD Gang Truck	Gang
71925	Chev. C3500HD Gang Truck	Gang
71926	Chev. C3500HD Gang Truck	Gang
71927	Chev. C3500HD Gang Truck	Gang
71928	Chev. C3500HD Gang Truck	Gang
81915	Chev. C3500HD Gang Truck	Gang
06796	Honda Portable Generator	Generator
06797	Honda Portable Generator	Generator
06798	Honda Portable Generator	Generator
06799	Honda Portable Generator	Generator
16792	Gillette Brushless Generator	Generator
46793	Pow'r Gard 3000W Generator	Generator
56790	Pow'r Gard 3000W Generator	Generator
56791	Pow'r Gard 3000W Generator	Generator
66791	Pow'r Gard OHV3000 Generator	Generator
66792	Pow'r Gard OHV3000 Generator	Generator
66793	Pow'r Gard OHV3000 Generator	Generator
96495	Stanley Hyd. Alternator 3000 Watts	Hydraulic Alternator
07875	Stanley Hyd. Drill	Hydraulic Drill
06831	Stanley Hyd. Pwr Source (mtd on 5467 trl)	Hydraulic Power Source
53870	Stanley Hyd. Power Source/Diesel	Hydraulic Power Source

Equipment Number	Description	Equipment Type
73780	Thompson Hyd. Power Source/Diesel	Hydraulic Power Source
73781	Thompson Hyd. Power Source/Diesel	Hydraulic Power Source
01800	Chev. Util./Hyd. Pump Truck/Diesel	Hydraulic Power Truck
21800	Chev. Util./Hydraulic Truck/Diesel	Hydraulic Power Truck
07850	Stanley Hyd. Wrench	Hydraulic Wrench
53840	Over Lowe Portable Light Plant	Light Plant
45871	Mustang 940 Loader with backhoe,auger,and sweeper	Light Track Loader
06147	Case W18 Wheel Loader/Diesel	Loader Rubber Tire
25812	John Deere 444E Wheel Loader/Diesel	Loader Rubber Tire
05815	John Deere 445G Track Loader/Diesel	Loader Track
05816	John Deere 655B Track Loader/Diesel	Loader Track
92831	Kut Kwick Slopemaster 60" Mower	Mower Riding
55810	John Deere 7800 Tractor Loader/Flusher	Off-Road Flusher
07414	Mariner Outboard Motor	Outboard Motor
09545	Sullair Paving Breaker	Paving Breaker
09560	Chicago Pneumatic Paving Breaker	Paving Breaker
09561	Chicago Pneumatic Paving Breaker	Paving Breaker
09564	Jaeger Paving Breaker	Paving Breaker
09587	Chicago Pneumatic Paving Breaker	Paving Breaker
26561	Kent Paving Breaker	Paving Breaker
26562	Kent Paving Breaker	Paving Breaker
26563	Kent Paving Breaker	Paving Breaker
76562	Hatco Paving Breaker	Paving Breaker
76563	Hatco Paving Breaker	Paving Breaker
76564	Hatco Paving Breaker	Paving Breaker
40816	Chev. C3500 Pickup w/PG	Pickup
60888	Ford F350 Pickup w/Dual Rear Wheels	Pickup
70805	Chev. C3500 Pickup w/PG	Pickup
70829	Chev. K3500 4X4 P.U. w/PG	Pickup/4X4
66923	Ridgid Kollman Portable Water Flusher	Portable Flusher
66924	Ridgid Kollman Portable Water Flusher	Portable Flusher
86692	Gorman-Rupp Model 12A1-13 2" Trash Pump	Pump 2 in. Trash
86693	Gorman-Rupp Model 12A1-13 2" Trash Pump	Pump 2 in. Trash
23630	Gorman Rupp 6" Trash Pump	Pump 6 in. Trash
23631	Gorman Rupp 6" Trash Pump	Pump 6 in. Trash
93630	Gorman-Rupp Model 16C20-F5L	Pump 6 in. Trash
93631	Gorman-Rupp Model 16C20-F5L	Pump 6 in. Trash
93632	Gorman-Rupp Model 16C20-F5L	Pump 6 in. Trash
09757	Stanley Hydraulic Pump 450 GPM	Pump Hydraulic
09765	Stanley Hydraulic Pump 450 GPM	Pump Hydraulic
56750	Stanley 2-1/2 in. Hydraulic Pump	Pump Hydraulic
56751	Stanley 2-1/2 in. Hydraulic Pump	Pump Hydraulic
76750	Thompson 6 in. Hydraulic Pump	Pump Hydraulic
76751	Thompson 6 in. Hydraulic Pump	Pump Hydraulic
76752	Thompson 4 in. Hyd. Pump	Pump Hydraulic
76753	Thompson 4 in. Hyd. Pump	Pump Hydraulic
76754	Stanley 4 in. Hydraulic Pump	Pump Hydraulic
76755	Thompson 6 in. Hyd. Pump	Pump Hydraulic
76756	Thompson 6 in. Hyd. Pump	Pump Hydraulic

Equipment Number	Description	Equipment Type
86750	Stanley 4 in. Hyd. Pump	Pump Hydraulic
86751	Thompson 4 in. Hyd. Pump	Pump Hydraulic
86752	Thompson 4 in. Hyd. Pump	Pump Hydraulic
96750	Stanley 4 in. Hyd. Pump for EQ#93870	Pump Hydraulic
96751	Stanley 4 in. Hyd. Pump	Pump Hydraulic
96752	Stanley 4 in. Hyd. Pump	Pump Hydraulic
96753	Stanley 4 in. Hyd. Pump	Pump Hydraulic
96755	Stanley 2-1/2 in. Hyd. Pump	Pump Hydraulic
96756	Thompson 4 in. Hyd. Pump	Pump Hydraulic
96757	Thompson 4 in. Hyd. Pump	Pump Hydraulic
96758	Stanley 2-1/2 in. Hyd. Pump	Pump Hydraulic
36941	Thor Pneu. Sump Pump	Pump Sump
96940	Jersamatic Pneu. Sump Pump	Pump Sump
96941	Jersamatic Pneu. Sump Pump	Pump Sump
96942	Jersamatic Pneu. Sump Pump	Pump Sump
46941	Thor 2-1/2" Sump Pump	Pump Sump
66940	Chicago Pneumatic 2 1/2" Sump Pump	Pump Sump
66941	Chicago Pneumatic 2 1/2" Sump Pump	Pump Sump
09631	Chicago Rock Drill	Rock Drill
09634	Grander Denver Rock Drill	Rock Drill
16929	Ridgid Kollmann K-1500SP Electric Mole	Rodder Electric
46920	Ridgid Kollmann K-1500SP Electric Mole	Rodder Electric
46921	Ridgid Kollmann K-1500SP Electric Mole	Rodder Electric
46922	Ridgid Kollmann K-1500SP Electric Mole	Rodder Electric
56920	Ridgid Kollmann K-1500 BSP Electric Mole	Rodder Electric
56921	Ridgid Kollmann K-1500 BSP Electric Mole	Rodder Electric
56922	Ridgid Kollmann K-1500 BSP Electric Mole	Rodder Electric
66920	Ridgid Kollmann K-1500SP Electric Mole	Rodder Electric
66921	Ridgid Kollmann K-1500SP Electric Mole	Rodder Electric
66922	Ridgid Kollmann K-1500SP Electric Mole	Rodder Electric
76927	Ridgid Kollmann K-1500SP Electric Mole	Rodder Electric
76928	Ridgid Kollmann K-1500SP Electric Mole	Rodder Electric
23487	Sreco Sewer Rodder/Gasoline	Rodder Gas
23489	Sreco Sewer Rodder/Gasoline	Rodder Gas
46924	Sreco Sewer Rodder	Rodder Gas
56924	Sreco Sewer Rodder/Gasoline	Rodder Gas
56925	Sreco Sewer Rodder/Gasoline	Rodder Gas
01830	Int'l. Truck w/ Hyd. Rodder/Diesel	Rodder Truck
21830	Int'l. Power Rodder	Rodder Truck
71830	Ford F350 Rodder Truck ('98T)	Rodder Truck
86459	CHAIN SAW	SAW
86460	CHAIN SAW	SAW
86461	CHAIN SAW	SAW
47575	Meyer Salt Spreader	Salt Spreader
97575	Meyers Salt Spreader	Salt Spreader
56480	Stihl Circular Saw	Saw Circular
56504	Stihl Circular Saw	Saw Circular
56505	Stihl Circular Saw	Saw Circular
56507	Stihl Circular Saw	Saw Circular
56508	Stihl Circular Saw	Saw Circular

Equipment Number	Description	Equipment Type
56509	Stihl Circular Saw	Saw Circular
76481	Stihl Circular Saw	Saw Circular
76483	Stihl Circular Saw	Saw Circular
46485	Thor Pneu. Hand Circular Saw	Saw Pneumatic
67850	Saw-Tec Pneumatic Concrete Saw	Saw Pneumatic
67851	Saw-Tec Pneumatic Concrete Saw	Saw Pneumatic
94471	Norton Concrete Saw	Saw Walk Behind
94472	Norton Concrete Saw	Saw Walk Behind
09049	Cushman Elec. Motor Scooter	Scooter
86950	Turbo Smoke Generator	Smoke Generator
86951	Turbo Smoke Generator	Smoke Generator
62570	Tennant Sweeper 275 LP ('99T)	Sweeper
91916	UTILITY TRUCK	TRUCK
92692	Off Road Tractor w/ TV Equipment	TV Tractor
81465	Chev. TV Van/Diesel	TV Van
91465	Chev. TV Van/Diesel	TV Van
81466	Ford E Super Duty Iner-City Van w/ Cues TV System	TV Van
00870	Chev. TV Van/Diesel	TV Van
09000	Kent Tamper	Tamper
09001	Kent Tamper	Tamper
09651	Kent Tamper	Tamper
09652	Ingersoll-Rand Tamper	Tamper
06760	Bombardier J-5F Crawler Tractor	Track Carrier
45670	Case 850E Track Dozer/Diesel	Track Dozer
90980	Int'l. Tractor/Diesel	Tractor
40981	Int'l. Tractor/Diesel	Tractor
37478	Trail King TK24 12 ton Beaver Tail Trailer	Trailer Beaver
77477	Trail King TK24 12 ton Beaver Tail Trailer	Trailer Beaver
87476	Trail King TK24 Beaver Tail Trailer	Trailer Beaver Tail
97454	Tee Nee Boat Trailer	Trailer Boat
47477	Trail King 40 Ton Trailer	Trailer Drag
87477	Trail King TK50 Drag Trailer	Trailer Drag
07475	Eager Beaver Trailer/tandem tilt	Trailer Tilt
17475	Eager Beaver Tilt Top Trailer	Trailer Tilt
27475	Eager Beaver Tilt Top Trailer	Trailer Tilt
27476	Eager Beaver Tilt Top Trailer	Trailer Tilt
27477	Eager Beaver Tilt Top Trailer	Trailer Tilt
37477	Eager Beaver Tandem Axle Trailer	Trailer Tilt
09406	Utility Tool Box Trailer	Trailer Tool Box
09407	Utility Tool Box Trailer	Trailer Tool Box
09408	Utility Tool Box Trailer	Trailer Tool Box
09410	Utility Tool Box Trailer	Trailer Tool Box
09413	Utility Tool Box Trailer	Trailer Tool Box
05467	Trailer only/Hyd. Pwr. Source EQ# 6831	Trailer Utility
34030	Queen City Mfg. Cargo Trailer	Trailer Utility
57453	Trail King 5 Ton Utility Trailer	Trailer Utility
04801	Ditch Witch Trench Digger 2'x 6'	Trench Digger
71920	Dodge Ram 3500 Utility P.U. 4X4 w/Plow & PG	Utility Pickup/4X4/Plow
40862	Chev. Sport Van Ext. S.W. Van	Van Extended

Equipment Number	Description	Equipment Type
40863	Chev. Sport Van Ext. S.W. Van	Van Extended
50856	Dodge Ram Wagon 3500 Ext. S.W. Van	Van Extended
50857	Dodge Ram Wagon 3500 Ext. S.W. Van	Van Extended
60849	Chev. G30 Ext. S.W. Van	Van Extended
60847	Chev. G30 Ext. S.W. Van	Van Extended
70860	Ford E250 HD Ext. S.W. Van	Van Extended
70670	Chev. Venture S.W. Van w/AC	Van Mini
70847	Ford E250 HD Win. Van	Van Win
70848	Ford E250 HD Win. Van	Van Win
70853	Ford E250 HD Win. Van	Van Win
90843	Ford E250 HD Win. Van	Van Win
90844	Ford E250 HD Win. Van	Van Win
90845	Ford E250 HD Win. Van	Van Win
96880	Miller cart mounted welder	Welder
27850	Ramsey Hydraulic Winch	Winch

APPENDIX "B"

"Request for Service" Forms

Metropolitan Sewer District
Wastewater Collection

Date:_____

Request for Service

Time:_____

Caller Info

Received by:_____

First Name_____ Last Name_____

Agency_____ Phone: Business_____

Address_____ Home_____

Location

Address_____

Near Intersection_____

City/Township_____ Sub Area_____Zip Code_____

Details_____

Comments

Job Order

Address_____

Foreman_____

Repair_____

ST_____SW_____SOD_____R/W_____

Est. Days_____

Size of Cut_____

Number_____

UT#_____WW_____

On Site

Date:_____ Unit Responding:_____

Time Received:_____ Arrived:_____ Finish:_____

Condition Found and Temporary Action Taken (Make All Referrals by Name - Do Not Use Radio Numbers)

Pump#	P/U Pump	EIB	Office Use

Final Disposition

Metropolitan Sewer District
Wastewater Collection Division

Date:

Time:

COMPLAINT FORM

Received:

CALLER INFORMATION

Name:

Agency: Business Phone:

Address: Home Phone

PROBLEM LOCATION

Address: City/Township:

Nearest Intersection:

Detailed Location Information:

Condition Reported:

Comments:

ON SITE INSPECTION

Date: Unit Number:

Dispatch Time: Arrival Time: Completion Time:

Condition Found:

Action Taken:

Comments:

Job Order:

Last Referral: Last Referral Date:

For:

FINAL DISPOSITION

By: Date: / / Responsibility of:

APPENDIX "C"

Maintenance Tracking Database Form

Assigned To:

Maintenance #

Work Date:

Date Assigned: Project Name: Work Type Completed:

Section Completed:

Contact Person: Phone#: Job Completed:

Complaint Information:

Sewer Segment: Type of Work: Pipe Dia: Length: Off Road: Emergency:

Remarks:

Hydrant Location:

Meter#: Pumped: Weather: Temp: Traffic Control:

Equipment / Personnel	Number / Name	Hours: Regular:	Overtime:

Field Notes:

Quantity:

DEBRIS	GREASE	ROOTS	OTHER..	Cleaned	Root Cut	TVed	Sonar	Jts Grouted, Taps Cut, MH Baited, ETC.....

APPENDIX "D"

TV Inspection Database Form

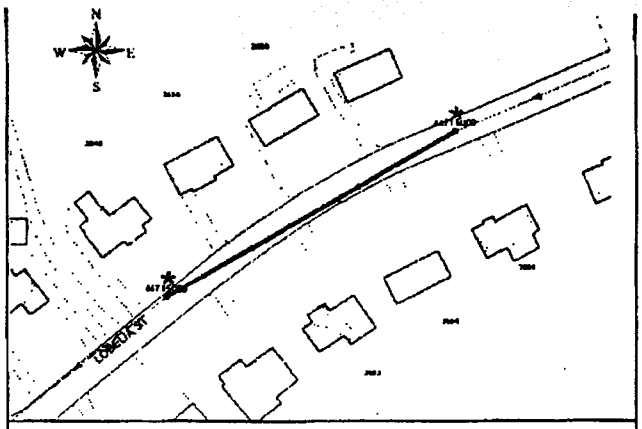
S830J6MLB

TV INSPECTION REPORT

Metropolitan Sewer District
Wastewater Collection Division

Sewer Segment: 44715009-44715008

M S D *Maintenance Number: 00944-99*



TV Date: **September 03, 1999**

Municipality: **BLASH**

US Address: **3565 LOBELIA**

DS Address: **3547 LOBELIA**

Sewer Segment: **44715009-44715008**
Type of Pipe: **CONCRETE** Length: **300.21'**
Pipe Size: **12"** US MH Depth: **10.40'**
Section Length: **3'** DS MH Depth: **7.90'**

Video Tape No: **4428**
Start: 00:24.27
Stop: 00:33.11
Structural Rating: **4** *1-ok 2-future eval 3-need work 4-emergency*
Maintenance Rating: **1**

Start Manhole: 44715009
Type of TV: MAINLINE
Direction: DS

12 / 9 / 3 / 6

Crewleader: WUEST
Work Location: STREET PAVEMENT
Surface Cover:
Weather: SUNNY WARM

Footage	Condition	Degree	Clock	Comments
0.0	START INSPECTION			
3.1	TAP		9	
24.5	TAP		3	
75.8	TAP		9	
93.0	PIPE W/ PONDING	HEAVY		
93.0	PIPE W/ PONDING	BEGIN		
102.0	PIPE W/ PONDING	END		
102.0	PIPE W/ DEBRIS	BEGIN		CHOKE
102.1	PIPE W/ DEBRIS	END		
123.8	TAP		3	
165.0	TAP BREAK IN		9	
200.5	TAP W/ DEBRIS	LIGHT	3	
224.0	PIPE W/ HOLE	HEAVY	3	ABOUT 6" X 6"
224.7	TAP W/ BROKEN PIPE	MEDIUM	9	1ST JOINT OFFSET 1" MUD EXPOSED
259.2	PIPE W/ HOLE	HEAVY		HALF PIPE MISSING, OBSTRUCTING FLOW
259.5	REVERSE INSPECTION			

Inspector's Comments:

: of pipe missing 6" x 6" hole at 224' and half pipe missing at 259.2' with piece of pipe obstructing flow, tved from ds end, heavy cracks with 30% shape loss, from 15' to 40.8'

has image

Video Tape No: 4428
Start: 00:49.13
Stop: 00:51.34
Structural Rating: 4 1-ok 2-future eval 3-need work 4-emergency
Maintenance Rating: 1

Start Manhole: 44715008
Type of TV: MAINLINE
Direction: US

12 9 3 6

Crewleader: WUEST
Work Location: STREET PAVEMENT
Surface Cover:
Weather: SUNNY WARM

Footage	Condition	Degree	Clock	Comments
0.0	START INSPECTION			
4.0	TAP		9	
15.0	CRACK - QUADRANT	BEGIN		
15.0	CRACK - QUADRANT	HEAVY		
19.1	PIPE COLLAPSED (PARTIAL)			17% SHAPE LOSS
37.2	TAP BREAK IN		9	
40.8	PIPE W/ HOLE	HEAVY		PIECE OF PIPE BLOCKING FLOW
40.8	COMPLETE INSPECTION			

Inspector's Comments:

has image

APPENDIX "E"

Project Tracking Database Form

Metropolitan Sewer District of Greater Cincinnati
Wastewater Collection Division
Project Tracking Form

Project No. 00681-99

Enter Date: 07/20/1999

Complaint Tracking Information

Date: 07/14/1999 Address: 687 W KEMPER RD

Address: 687 W KEMPER RD

Intersection:

Mun_twnshp FORPK Sub_area

Location BETWEEN SIDEWALK AND STREET

Manhole From: 35205002

Manhole To: 35204020

Condition Reported (Max of 50 Char.)

WIB

Charge_to:

Contractor: SCHWEITZER CONSTRUCTION CO

Contract No. / Cost Center:

Project Engineer: PETE CALDWELL

Project Inspector: DAN DUNCAN

Crew Leader/ eman: MIKE MOORE

Project Classification

Contractor - Open Trench Excavation

- [ ] Main Line New Installation
- [ ] Main Line Replacement
- [x] Main Line Repair
- [ ] Main Line Bulk Head
- [ ] Main Line Fill, Seal and Abandon
- [ ] Force Main Replacement
- [ ] Force Main Repair
- [ ] Force Main Valve Replacement
- [ ] Force Main Valve Repair
- [ ] Low Pressure Force Main Replacement
- [ ] Low Pressure Force Main Repair
- [ ] Low Pressure Force Main Valve Replacement
- [ ] Low Pressure Force Main Valve Repair
- [ ] Building Lateral New Installation
- [ ] Building Lateral Replacement
- [ ] Building Lateral Repair
- [ ] Building Lateral Relocate
- [ ] Manhole New Installation
- [ ] Manhole Replacement
- [ ] Manhole Repair
- [ ] Manhole Rehabilitation
- [ ] Manhole Raise
- [ ] Encasement Installation
- [ ] Encasement Repair

Other

Start: 07/15/1999 Finish: 07/19/1999

Estimated Days to Complete: 3.0

Cut Size: Length 12 Width 5

Avg_depth 14.0

Street Opening Permit:

Utilities: 715-025-011

Water Works: CWW

OVERALL PROJECT DIFFICULTY: EASY (Easy,Moderate,Difficult)

Project No. 00681-99 Enter Date: 07/20/1999

Soil Conditions: ☐ Rock ☒ Clay ☐ Silt / Sand Other

Surface Conditions: ☐ Asphalt ☐ Concrete ☐ Sidewalk ☐ Driveways ☐ Unimproved ☐ Off Road/Creek Other sod

Utilities: NONE (Light, Medium, Heavy) ☐ Water ☐ Electric ☐ Sewer ☐ Gas ☐ Telephone/Cable Other

Pumping Required: ☐ Dewatering ☐ Bypass Pumping

Excavation: ☐ No Shoring ☒ Trench Box ☐ Open Sheeting ☐ Closed Sheeting ☐ Tunnel Liner ☐ Soldier Pile/Lagging ☐ Horizontal Tunneling ☐ Horizontal Boring ☐ Sheet Piling Other

Backfill: ☒ Excavated Soil ☐ Controlled Density ☐ Compacted Granular ☐ Flash Fill

Other

Pipe Materials

Item	Material	Type sdr35,etc.	Size	Length	Quantity
pe, PVC, SDR-35 12"	PVC		12	10.00	1

Concrete Encasement

Height (feet)	Length (feet)	Width (feet)

Fill, Seal, and Abandon

Pipe Diameter (inches)	Pipe Length (feet)

Tunneling / Boring

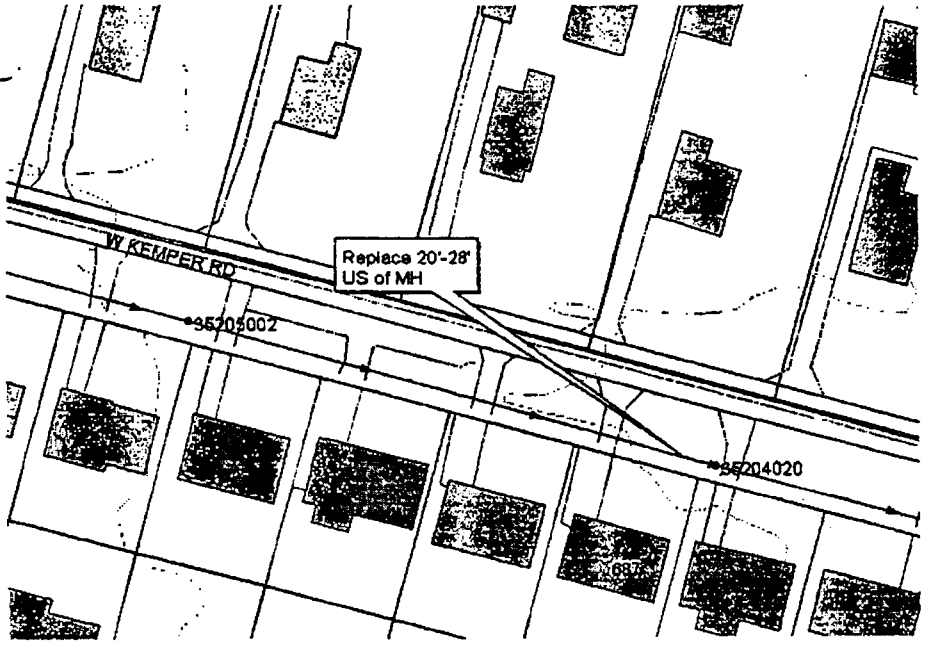
Casing/Liner Plate Diameter (inches)	Length (feet)

Project No. 00681-99 Enter Date: 07/20/1999

Restoration

Material	Type	Address	Qty	Unit

Sketch



Comments

REPLACED 10' OF 12" BROKEN SEWER ALONG ROAD. RESODDED SITE.

Printed on 08/13/1999 Submit By: PETE CALDWELL Submit Date:08/03/1999