

Capacity, Management, Operation and Maintenance (CMOM) Program

Introduction

This document constitutes the Capacity, Management, Operation & Maintenance Program for the Cobb County Water System (CCWS). The format of the Program follows the outline of the Environmental Protection Agency's Proposed Rule to Protect Communities from Overflowing Sewers, Paragraph 122.42 (2), Components of CMOM Program, dated January 2001.

Within the following text are references to several appended items, integral parts of the base document, which follow and are attached to the text. Also referenced in the text are a variety of supporting items, such as report data, charts, and maps, which substantiate a particular section of the CMOM Program. These periodic report data are not attached to the CMOM document but are included, in their most recent version, on the CCWS web site, CMOM link. They are updated at various intervals (weekly, monthly, bi-monthly, etc.) during the CCWS fiscal year by different sections within the CCWS. They are identified in the CMOM text that follows as Periodic Report Data.

This document, its appendices, and supporting data are presented on the CCWS web site. This form of resresentation allows the CCWS CMOM Program to be available to interested parties and current each time it is accessed on the web site for review.

1.0 Goals

The Cobb County Water System (CCWS) operates and maintains approximately 2,500 miles of sanitary sewer and thirty-eight wastewater lift stations. Continuing growth, urbanization, changing hydrologic conditions, and age contribute to strain on this infrastructure. In addition, new regulations will impose additional issues and constraints. The purpose of this document is to detail a formal Capacity, Management, Operations and Maintenance (CMOM) Program. The Program's approach is environmentally conscientious and cost-effective. The Program elements outline and provide specific activities and reporting procedures to document the conduct of the Program. Current and anticipated federal and state requirements will be satisfied.

The Program's goals are:

- Properly manage, operate and maintain, at all times, all parts of the collection system.
- Provide adequate capacity to convey base flows and peak flows for all parts of the collection system.
- Take all feasible steps to stop, and mitigate the impact of, sanitary sewer overflows for all parts of the collection system.
- Provide notification to parties with a reasonable potential for exposure to pollutants associated with an overflow event.
- Develop a written summary of the CCWS CMOM Program and make it available to any member of the public upon request.

2.0 Administrative and Maintenance Functions

2.1 CCWS Organization

The Cobb County Water System includes five major operating groups: Operations, Engineering & Records, Business Services, Stormwater Management, and Solid Waste (Appendix 1). The operations and maintenance activities related to the sanitary sewer system are directly the responsibility of the Operations Group, supported by the Engineering Group in the areas of system mapping and GIS, infiltration/inflow reduction, and contractor procurement and inspection.

The Operations Group comprises the System Maintenance Division, the Water Protection Division and the Dispatch Center. The Dispatch Center operates 24 hours per day seven days per week. The System

Maintenance Division is responsible for the operation and maintenance of the wastewater collection system and the water distribution system networks owned by Cobb County. Five municipalities within the County own and operate their own networks. The Cobb County-Marietta Water Authority provides treated water. The Water Protection Division provides wastewater treatment services, an equipment maintenance facility, an environmental compliance office that includes a laboratory, and technical communications and data support services.

2.1.1 System Maintenance Division

The System Maintenance Division has the prime responsibility for the operation and maintenance of the sanitary sewer system. To perform this function, the Division is staffed for 97 fulltime positions and one part-time position. All are organized into 27 water/sewer three-member crews, 11 supervisory/management personnel, and 5 office personnel. The crews, along with their respective superintendents and supervisors, are assigned to one of four geographic zones. Responsibilities related to the sanitary sewer system include response to emergencies such as sewer spills, response to customer calls; sewer line preventive maintenance; location of facilities; identification of system inadequacies; and other related functions.

There are eleven authorized sewer crews consisting of thirty-four crewmembers. These crews perform maintenance work on both collection and service lines and tap installation. Two hydraulic cleaning crews and one video inspection crew support them. All crew chiefs have either Water Distribution Operator or Wastewater Collection System Operator Certifications. In addition, two of the four System Maintenance Division Superintendents and the Division Manager have Wastewater Collection System Operator Certifications. Appendix 2 presents a complete organizational chart of the Cobb County Water System - System Maintenance Division.

2.1.2 Water Protection Division

Operation and maintenance of the County's thirty-eight wastewater lift stations, as well as the CCWS four wastewater reclamation facilities, is the responsibility of the Water Protection Division. This Division includes 140 fulltime positions, organized generally into seven sections supporting the four reclamation facilities, laboratory services, equipment maintenance, and data communications. The pump stations are generally the responsibility, from an operation and maintenance perspective, of the reclamation facility to which they are tributary. Related activities are discussed in some detail in a subsequent section of this document.

The Central Maintenance Section provides emergency major vehicle maintenance support to Cobb County Water System. It acts as a liaison with the Cobb County Fleet Maintenance group that provides routine maintenance and repair for all vehicles. In addition, the Section provides pump maintenance and building and grounds maintenance.

The Technical Support Section provides electronics, operations systems, and communications technical support to the four water reclamation facilities (WRF) and the lift stations. The Technical Support Section supports the automation efforts of the WRFs and associated communication efforts via voice, data and the SCADA telemetry system (LAN/WAN capacity).

The Laboratory Section is divided into two functional areas, Analytical and Environmental Compliance (EC) section. The Analytical Section supports the WRFs, EC, and Stormwater with traditional laboratory testing/verification for such tests as bacterial, metals, toxics, organics, and chemicals

The Environmental Compliance Section was developed to implement and enforce regulations to protect the citizens of Cobb County, the processes and equipment of the Cobb County Water Reclamation Facilities (WRF), its collection systems, the receiving waters of the Chattahoochee and Etowah drainage basins, and the lives and health of personnel working in the treatment plants and collection systems. EC operates the following programs; Grease Trap, Backflow Prevention, Industrial Pretreatment and Permitting, and Adopt-A-Stream.

2.1.3 Engineering & Records Division

The Engineering & Records Division includes 37 staff members and an additional 30-person consultant team comprising the Construction Management Services (CMS) Section. The responsibilities of the various sections within the Division have been established to integrate effectively with each other and with the remaining CCWS Divisions to provide an efficient and comprehensive organization.

The Engineering Section includes five professional engineers and two project managers whose general responsibility is to ensure that Cobb County's water and wastewater infrastructure is sufficient and appropriate to meet the needs of its customer base. Specific responsibilities of this group include:

- Long-term technical planning for water and wastewater facilities.
- Collection and distribution system modeling.
- Development and implementation of the Capital Improvement Program (CIP).
- Development and maintenance of design and construction standards.
- Procurement of consultant and contractor services as needed.
- Design and construction of required facilities.
- Implementation of sewer system rehabilitation projects.
- Technical assistance to other groups within the organization.

Public interface with the Division is primarily through the Technical Support Section. Included in this Section are six support technicians who deal with customer inquiries and requests that are related to system records; a three-person zoning/plan review team; and two data management specialists. The responsibilities of the Technical Support Section are summarized:

- Collection and maintenance of records important to management of water and wastewater infrastructure.
- Updating and manipulation of the GIS water and wastewater elements.
- Evaluation of zoning requests with respect to water and wastewater issues.
- Review of development plans for proposed construction to ensure compliance with County requirements.
- Interaction with customers needing resolution of issues related to infrastructure mapping or location.
- Generation of appropriate maps for use by other sections.

The Infiltration/Inflow Section was established in 1990 as a result of the recognition of the impact of I/I on collection and treatment of wastewater. Included are eleven positions, including 3 three-man field crews, whose focus is the identification of I/I sources. One or more of the crews generally works in concert with specialty firms during large inspections or smoke testing projects. Specific responsibilities of the section include:

- Sewer system investigation activities, including visual inspection, smoke testing, dye testing, and internal inspection.
- Identification of any sources of extraneous flow into the sewer system.
- Ensuring that all defects identified are described with sufficient clarity as to allow an appropriate determination of the urgency of repair.
- Execution of the Division's program of long-range flow monitoring and augmentation with temporary meters where appropriate.
- Acquisition of GPS coordinates for all wastewater facilities.
- Inspection of sewer stream crossings to ensure integrity.
- Performance of special studies as may become necessary.

The Inspection Section consists of four inspectors and a supervisor. It is generally tasked to ensure that facilities constructed by private enterprise for dedication to the Water System are constructed in accordance with approved plans and specifications. Some specific responsibilities include:

- Review of all submitted development plans for consistency with Cobb County requirements and practicality considering existing field conditions.
- Inspection of developer water and wastewater infrastructure to be accepted by Cobb County as it is installed.
- Final inspection and acceptance of dedicated infrastructure.
- Inspection of commercial water taps into County water lines.
- Performance of fire flow tests and related investigations.
- Ongoing review and field check of existing water and sewer maps.

Prior to 1995, inspection services for water and sewer projects constructed by Cobb County were provided either by the design engineer or by the Inspection Section. Recognizing the expense and marginal effectiveness of this approach, the Water System decided to outsource these inspection services with a single contractor with personnel based at Water System offices. While the Inspection Section continues to deal with private construction projects, this Construction Management Services Section now provides construction services on County water and sewer projects. Related activities include:

- Construction inspection for County water and sewer installation projects.
- Provision of associated construction services including quantity verification, estimate review, change order development, final inspection, project closeout, and review of record drawings.
- Survey and design services for small water and sewer projects, most notably sewer lines needed to relieve septic tank subdivisions.
- Inspection of sewer stream crossings.
- Periodic support of the County's stormwater management program as needed.

2.1.4 Business Services Division

The Business Services Division supports the collection system effort directly through two sections. The Administrative Support Services Section maintains the Warehouse, staffed by one supervisor and six technicians. Approximately half of the warehouse assets support directly the collection system effort.

In addition, the Business Services Division Administration Accounting Section function as fiscal project managers of the CCWS Capital Improvement Program. One supervisor and three accounting personnel staff this section. Approximately one half the efforts of this section support directly the collection system effort.

Additionally, the activities of this Division include:

- Financial planning.
- Water and sewer rate development.
- Revenue forecasts and collection.
- Customer billing.
- Customer service.
- Meter maintenance.
- Personnel coordination.
- Customer interaction.
- Accounting.

2.1.5 Support from Other County Agencies

The System Maintenance Division is assisted by other Cobb County Government agencies in the maintenance and operation of the wastewater collection system. The Cobb Department of Transportation provides information on permits for right of way construction by copy of the CDOT Utility Permit Request. These permits allow the System Maintenance crews to monitor utility rights-of-way for potential damage to sewer infrastructure during construction.

The Cobb County Community Development Agency's Building Inspections Section inspects all sewer tap installations either directly or through builder certifications.

The Cobb County Information Services Agency supports the countywide Geographic Information System through base maps and other technical support.

2.2 Sanitary Sewer Overflow Reporting Requirements

The Sanitary Sewer Overflow Reporting Procedures are designed to comply with the reporting requirements set forth in Chapter 391-3-6 of the Georgia Environmental Protection Division's Rules and regulations for Water Quality Control, as amended.

The Operations Group is alerted to potential sanitary sewer overflows through telephone calls originating from customers, environmental groups, regulatory agencies, CCWS employees, and other County agencies. The calls are received by the Dispatch Center. Dispatch is in constant communication with System Maintenance Division personnel, including both supervisors and field crews.

All calls are logged into the CCWS computerized maintenance management system (CMMS). All potential sanitary sewer overflows are reported to the appropriate zone Superintendent (during normal duty hours) or to the Superintendent or Supervisor on call (on standby duty hours). System Maintenance Division personnel and equipment are then sent to the site, normally accompanied by the Superintendent or Supervisor, to address the problem area.

The Dispatch Center maintains an emergency contact list. Two three-man crews are available to handle any emergency repairs after normal duty hours (including weekends and holidays). These crews are provided with pagers and/or hand held radios for immediate response. There also are on-call employees available to access the warehouse to provide supplies not carried on the service trucks. The Route Maintenance Division has crews on call to maintain the lift stations in case of sanitary sewer overflows at those locations.

The standard operating procedures for responses to sanitary sewer overflows are presented later in this document.

3.0 Legal Authority

The general legal authority necessary for implementing the CMOM Program is found in the Cobb County Water and Wastewater Ordinance of the Cobb County Water System as amended. The authority for this ordinance is derived from the Official Code of Cobb County Georgia. This ordinance regulates the use of the County water and wastewater systems. It sets forth uniform requirements for persons who cause wastewater to be discharged into the collection and wastewater treatment system of the county and enables the county to comply with all applicable state and federal laws required by the Clean Water Act of 1977, as amended and the General Pretreatment Regulations (40 CFR 403), as amended.

3.1 Infiltration/Inflow Control (Sec. 122-153)

In 1991, the CCWS initiated a more detailed and systematic program to address the infiltration/inflow issue through the completion of a countywide wastewater flow-monitoring program. This effort resulted in an estimate of sanitary flow, infiltration, and inflow for each of the 60 basins within the County. This study also identified the basins in which I/I reduction was deemed to be potentially most cost-effective. This work serves as the basis for direction of the CCWS infiltration and inflow reduction efforts.

3.2 Sewer Design and Construction

The Cobb County Water and Wastewater Ordinance (Section 122-127), updated in March 2002, requires for County approval of construction plans for all wastewater facilities prior to the commencement of construction. Technical requirements are provided in a document entitled Cobb County Development Standards and Specifications, adopted by the Board of Commissioners under authority of the Constitution of Georgia (1983) and the Official Code of Georgia.

3.3 Sewer Rehabilitation

The Cobb County Water and Wastewater Ordinance (Section 122-57) provides the authority for entry upon easements for a number of purposes, including the repair and maintenance of wastewater facilities.

3.4 Satellite Systems

The CCWS receives wastewater flows from six municipalities and five counties through a series of inter-governmental agreements. These eleven systems are defined as Municipal Satellite Collections. The municipalities and counties, with their volumes of flow defined respective to “Small Collection Systems” as specified in the NPDES regulations, are:

- Atlanta, City of. *
- Austell, City of. **
- Bartow County. *
- Cherokee County. *
- Douglas County. *
- Fulton County. ***
- Kennesaw, City of. **
- Marietta, City of. ***
- Powder Springs, City of. *
- Smyrna, City of. ***

* <1.0 MGD ** 1.0 MGD – 2.5 MGD *** >2.5 MGD

The volumes of flow from the Municipal Satellite Systems indicate the level to which each system will be required to develop their own CMOM Program.

3.5 Pretreatment Program

The Cobb County Industrial Pretreatment Program was drafted and subsequently adopted by the Cobb County Board of Commissioners in 1983. The Georgia Environmental Protection Division gave final approval of the program in October 1985. The Environmental Compliance Section of the CCWS administers the Industrial Pretreatment Program. The program ensures that industries pre-treat their discharges to the public sewer system without adverse effects on the collection system or water reclamation facilities.

3.6 Environmental Compliance

The Environmental Compliance Section was developed to implement and enforce regulations to protect the citizens of Cobb County, the processes and equipment of the CCWS collection and treatment systems, the receiving waters of the Chattahoochee and Etowah drainage basins, and the lives and health of personnel working in these facilities.

3.6.1 Sewer Use Ordinance

Chapter 122, Utilities, in the Official Code of Cobb County Georgia, sets forth uniform requirements for persons who cause wastewater to be discharged into the wastewater collection and treatment system of the County and enables the County to comply with all applicable state and federal laws required by the Clean Water Act of 1977, as amended and the General Pretreatment Regulations (40 CFR 403) as amended. Article 2, Division 2 authorizes enforcement for violations to wastewater discharge prohibitions. Violations are defined in section 122-41. Enforcement actions are described in section 122-42 through section 122-50. A variety of actions are available for enforcement, depending on the severity and cause of the violation.

Section 122-53 allows the CCWS Director to immediately halt a discharge that reasonably appears to present imminent endangerment to the health or welfare of the public or wastewater treatment and collection personnel.

Section 122-55 defines bypassing and under what conditions it is permissible. Section 122-57 and 122-58 gives authorized employees and representatives of the County the right to enter premises and obtain samples or records pertinent to discharges to the County water system.

The responsibilities of the Industrial Monitoring and Restaurant Grease Trap Programs are contained in Division 6, Non-Domestic Use of Public Wastewater Facilities. Section 122-181 lists prohibited discharges specifically and those implied from state and federal pretreatment standards. This section is the basis for specific discharge limitations in permits issued to industrial users. Sections 122-182 through 122-187 delineate the administration of the Industrial Pretreatment Program. Additional requirements for significant industrial users are listed. Information that an industry must provide to receive a discharge permit is specified, as is the administration of the permitting system including conditions and procedures for permit modification. The specific contents of a permit are also in this section. It contains the requirement for publication of the names of permit violators.

Section 122-185 addresses sampling and testing procedures. Industries must use an independent laboratory for their analyses unless otherwise approved by the County. The requirement for a certified laboratory analyst to perform analyses is found here.

Section 122-186 contains reporting requirements. The authority to require specific types of reports from the industrial user are in this section, including: baseline monitoring reports, compliance schedules, compliance reports, reports of changed conditions. Confidential information, maintenance records, notification of discharge of hazardous waste, certification statements, and reports from unpermitted users. All industrial users must submit some of these reports to Cobb County; other reports may be required only under certain conditions.

Section 122-187 requires users to provide pretreatment facilities, if necessary, to comply with discharge limitations. Requirements for maintenance and operation of the facilities are also in this section.

The establishment and administration of the High Strength Surcharge Program is in section 122-189. This program is designed to recoup the cost of treating high strength wastewater, i.e., wastewater that has higher concentrations of specific constituents than domestic wastewater. This section contains the sampling procedure and billing calculations.

Leaking underground storage tank remediation is addressed in section 122-191. Since these projects present some unique conditions, they have specific requirements. Requirements for the permit application, equipment, frequency of sampling, and permit parameters and limits are in this section.

Accidental discharges are addressed in section 122-192. Significant contributing industries must provide protection from accidental discharges. Facilities to prevent accidental discharges must be provided and maintained. They also must have a slug control plan. Specific reporting procedures in case of an accidental discharge are also found here.

Wastes that are hauled, primarily septic tank wastes, are regulated in section 122-193. Discharging grease trap waste into the County wastewater system is specifically prohibited in this section.

Section 122-248, pollution of streams or soil, provides a local remedy for stream and soil offenses that do not fall under federal or state laws. This section permits the County to take any of the enforcement actions in Division 2 of the ordinance.

3.6.2 Grease Trap Program

The Grease Trap Program is addressed in section 122-188. This section requires all food establishments, or any company that exceeds the wastewater limits for fats, oil, and grease to have a grease recovery system. All new restaurants must have grease traps approved by the CCWS Engineering and Records Division. Completed exterior grease trap manifests must be sent to the CCWS Office of Environmental Compliance every three months, within fourteen days after the grease trap has been pumped. Pumping

and dumping occurs when a waste hauler dumps grease (or other wastes) into a manhole. This practice is illegal throughout the CCWS.

Each food establishment that has, or is required to install, an active interior recovery device must register it with the CCWS for the purpose of obtaining a discharge permit. Discharge permits are reviewed annually. Permits for establishments found to be in compliance with existing federal, state, and local laws and regulations will be renewed.

4.0 Measures and Activities

4.1 Maintenance Facilities and Equipment

The CCWS maintains several facilities to support the collection system program. Most activities are conducted in a 25,300 square foot Operations Center, which houses all collection system crews, supervisors, superintendents, and administration. Five acres of the surrounding grounds are devoted to parking for the crew vehicles and trailers, equipment, materials, and supplies. Also located in this compound are a 20,000 square foot Central Maintenance facility and a 27,000 square foot warehouse. Adjacent to the warehouse is a 17,500 square foot storage facility. The Central Maintenance facility and the warehouse facility are jointly and equally utilized by the wastewater collection system and water distribution system efforts. In addition, the CCWS maintains a 27,000 square foot Customer Service facility that houses the Engineering and Records Division and a 20,000 square foot laboratory, which serves the wastewater collection system efforts through chemical analyses.

The Route Maintenance Section of the Water Protection maintains 38 wastewater lift stations throughout the county. There are three work crews assigned to check lift stations and keep them in good working order. These lift stations are constantly monitored by the Supervisory Control and Data Acquisition (SCADA) system. Maintenance records are available for review in the Route Maintenance Division office.

CCWS use of chemical feed equipment is very limited. Use of hydrogen sulfide control is confined to three lift stations. The Route Maintenance Section maintains this equipment along with their other duties. Maintenance records are available for review in the Route Maintenance Section office.

While the System Maintenance Division has some construction capability, this function is usually limited to emergency repairs. If necessary, emergency repairs also can be performed by approved contractors through an accelerated procurement process. Small projects, which are not of an emergency nature, are generally performed through one of several annual Unit Price Contracts. Consultants working through the Engineering Group design larger projects, such as sewer replacement or rehabilitation and lift station upgrades. These consultants are procured through a normal bid process. Inspection services for all types of projects undertaken by contractors are provided through a joint venture of construction management consultants working within the Engineering Group. In general, contractors provide a one-year warranty for work performed, after which time operation and maintenance responsibilities revert to the CCWS.

The System Maintenance Division crews use a wide and extensive variety of equipment including backhoes, extend-a-hoes, track hoes, tractors, rear end and front end loaders, dump trucks, utility crew trucks with trailers, pickup trucks, utility vehicles, hydraulic jet cleaners, vacuum pump trucks, hydraulic pumps, video inspection vans, portable video equipment, gas detectors, and safety equipment. A complete list of all System Maintenance Division Vehicles and Major Equipment can be found on the CCWS website link to CMOM, Periodic Report Data 1.

In addition to the equipment assigned directly to the System Maintenance Division, the Engineering and Records Division's I&I Section also utilizes specialized equipment in their mission to eliminate sources of infiltration and inflow from the sanitary sewer system. Equipment assigned directly to the I/I Section includes:

- 1 - Truck-mounted CCTV Unit with Tilt & Pan Capabilities - Tractor Propelled.
- 2 - Portable Push-Rod CCTV Units.

- 1 - Pipe-Cam Unit.
- 2 - Trailer Mounted Jetting Units.
- 1 - Argo, 8 Wheel Drive ATV.
- 3 - GPS Units.
- 3 - Handheld Manhole Tagging Units.
- 13- Permanent Flow Meters with Modem Link to a Central Computer.
- 4 - Remote Rain Gauges with Modem Link to a Central Computer.
- 6 - Temporary Flow Meters and Laptop Computer for Downloads.
- 10- Flow Isolation Weirs Sized for 8" up to 18" Pipe.
- 4 - Smoke Blowers.

4.2 Collection System Maps – Geographic Information System

The CCWS maintains a CAD-based map of the entire sewer system. The map is available in a large quick reference 24" x 36" format and also in a 12" X 24" book format. The map is updated as additional information is received. To facilitate information storage and retrieval, the sewer system has been segmented into 60 individual basins. These basin labels, and the underlying manhole numbering system, were established in 1990.

The CCWS has successfully converted from a manually drawn, paper mapping system, to a Geographic Information System (GIS) based on aerial photography. All graphic information from the old system has been entered into the computerized mapping system, and the assignment of identifying labels to all manholes is complete. All manholes and sewer reaches are attached logically to the underlying ORACLE database. To allow complete integration with the CCWS-CMMS, a program is being conducted to assign street address to all CMMS assets using the GIS ORACLE database.

The system allows access to virtually all information retained about a particular system element (such as technical data, related work orders, photographs, and videos) through graphic selection using a local intranet web page. This system is already functional and interface with the appropriate databases is continuing. All auxiliary data management systems that are implemented by the CCWS are required to conform with the protocols needed for interface to the GIS and the underlying ORACLE database.

Recognizing that significant error will likely be associated with the transfer of available graphic data (e.g. hand-drawn maps) into the GIS, the CCWS has also undertaken a program to obtain accurate positions for manholes within the system through the use of Global Positioning System (GPS) technology. All infiltration/inflow source detection projects now require generation of manhole coordinates as a part of the manhole inspection process, and CCWS infiltration/inflow staff are also equipped with GPS units. It is anticipated that maintenance crews will ultimately carry GIS maps in their trucks and utilize GPS navigation technology to quickly and accurately locate manholes.

4.3 Information Management - Computerized Maintenance Management System

To manage a maintenance program, the System Maintenance Division utilizes a proprietary software utility management program or computerized maintenance management system (CMMS). This information management program is used for asset management, work order management, scheduled/preventive maintenance system, customer service, and parts inventory warehousing control. Asset systems being used include wastewater and water infrastructure. The program uses Oracle relational multiple databases to number and track all assets. It also can report on various queries (lookups) and perform costing reports. With other report engines, such as Crystal Reports, MS Access, etc., custom reports can be developed. The CMMS is being expanded to include other CCWS Divisions and other Cobb County agencies. For example, the Cobb County Fire Department compiles work orders for the maintenance of fire hydrants. Other CCWS Divisions use the CCMS to forward work orders to the System Maintenance Division. These Divisions include the Engineering and Records Division, the Business Services Division, and the Water Protection Division. As discussed under Collection System Maps – GIS above, the CMMS program also interfaces with GIS mapping.

4.4 Information Management - Overflow Correction Prioritization

The Georgia Environmental Protection Division has defined in Section 391-3-6 of the Water Quality

Control Act two areas as requiring Emergency Actions. The first titled "Major Spill" being defined in two parts: (I) The discharge of pollutants into the waters of the State by a Publicly Owned Treatment Work (POTW) that exceeds the weekly average permitted effluent limit for Biochemical Oxygen Demand (5 day) or Total Suspended Solids by 50 percent or greater for any one day. (II) Any discharge of raw sewage that (1) is in excess of 10,000 gallons or (2) results in a water quality violation in the waters of the State. The term "consistently exceeding an effluent limitation" means a POTW exceeding the 30 day average limit for biochemical oxygen demand or total suspended solids for at least five days out of each seven day period during a total period of 180 consecutive days.

The CCWS has established a reporting method (Appendix 3) to assure compliance with the reporting requirements in its permits. It clearly delineates responsibilities from the moment the spill or violation is identified to (if required) the stream sampling program subsequently put in place. Every employee in a supervisory role has been trained in these procedures.

Even though a permit violation does not fall into either of the categories under 391-3-6-.05 "Emergency Actions", minor excursions are scrutinized to determine the cause so appropriate action(s) can be taken to correct the problem and put in place some method to lessen the possibility of it occurring in the future.

4.5 Routine Preventive Operation and Maintenance

4.5.1 Collection System

The CCWS has more than 125,000 sewer customers in unincorporated Cobb County and the City of Acworth, Ga. It is the responsibility of the System Maintenance Division to maintain more than 2,500 miles of sewer lines to serve these customers. There are fifteen three-man crews assigned to these duties. Four rod crews that unstop backed up sewer lines, four repair crews that dig up and repair sewer lines, one night crew, one camera crew that uses a sewer inspection camera to pinpoint problems in sewer lines, one hydraulic cleaning crew that uses a high pressure cleaning truck to clean grease and debris out of sewer lines, and four multi-purpose crews. There are always two crews on call 24 hours a day. Service and maintenance records from the CMMS are available for review in the System Maintenance Division office.

Routine maintenance and inspection of the sewer system in Cobb County is generally the responsibility of the System Maintenance Division. Emphasis is placed on areas where roots, debris deposition, grease, or other discontinuities within the pipeline restrict design flow conditions with the potential for causing wastewater overflows and spills. In addition, the Infiltration/Inflow Section of the Engineering and Records Division performs frequent inspections of areas where extraneous flows are thought to be entering the system, primarily along creeks or in other low-lying areas. This effort, combined with I/I source detection contracts, results in a visual inspection of manholes in suspect areas not less frequently than once every three years. Manholes in critical areas are inspected more frequently. In response to increased awareness of potential issues along the Chattahoochee River, the CCWS has implemented a program that will assure that manholes within the Chattahoochee River National Recreation Area are inspected no less often than twice per year.

Periodic report Data 2 presents the CCWS Service Area Manhole Inspections information. These data detail our latest efforts in inspecting our entire sewer system, the reaches inspected, by whom, and the state of the inspection. A map is attached, delineating the basins referred to in the tabular data.

4.5.2 Infiltration/Inflow Control

While Cobb County has historically been cognizant of infiltration/inflow issues and the elimination of extraneous flows from the sewer system, greater emphasis was placed on this issue in 1991. At that time, an I/I Section was established from employees of the System Maintenance Division. The charge of this Section, currently staffed by 11 employees with appropriate equipment, is to identify and mitigate sources of infiltration and inflow into the system. To date, the Water System has spent in excess of \$30 million on mitigation of I/I sources, in addition to several major interceptor replacement projects which have also eliminated historic problems. Because of the commitment to this problem and the availability of necessary funding, any significant identified sources are repaired, either immediately by Water System forces or as a

part of a larger contracted project.

Concurrent with establishment of the I/I program, a comprehensive evaluation of I/I within the County was undertaken through a Consultant. The initial step in this process was the development of detailed flow monitoring within the targeted basins. While the initial countywide monitoring effort included basins comprising on the order of 200,000 linear feet of sewer, the follow-up monitoring effort included only about 30,000 linear feet per monitor. Each of these smaller basins was evaluated with respect to infiltration and to inflow, and a recommendation was made for each of the two parameters. In general, if an area was considered cost-effective for inflow removal, manhole inspection, smoke testing, dye testing, and repair were recommended. If an area was considered cost-effective for infiltration removal, manhole inspection, sewer cleaning, television inspection, and repair were recommended. For areas where both infiltration and inflow appeared excessive, all of these activities were recommended.

The initial model flow monitoring study identified the Upper Nickajack Creek area as the highest priority for I/I reduction. This conclusion was supported by the occurrence of occasional overflows in the area. The source detection program identified a need for approximately 44-point repairs and 99,000 linear feet of sewer lining or replacement. In addition, background flows were such that a relief sewer line was needed. I/I sources on private property were not addressed. The program was successful in eliminating overflows and reducing infiltration, but inflow peaks did not appear to have been mitigated as effectively. Additional smoke testing of portions of the system led to the conclusion that inflow sources on private property play a more significant role than was initially thought in increased flow levels during rainfall events.

Smoke testing has taken place throughout the County system and initial rehabilitation programs have been completed in several other basins, including Mud, Olley, Noses, Little Noonday, and Rubes Creeks. In addition, the City of Acworth sewer system, now owned by the CCWS, has been completely inspected and a significant amount of rehabilitation work has been done in areas directly tributary to Lake Acworth to ensure protection of water quality. The Kennesaw sewer system was acquired by Cobb County in 2005, and inspection efforts have proceeded in this area.

One of the early decisions which was made by the CCWS with respect to the design of rehabilitation efforts was to reject the concept of "comprehensive" or "cluster" repair, which requires that all reaches within a problem area be lined or replaced, in favor of a more reasoned approach which considered the likelihood of I/I problems within each reach in an area. The comprehensive approach is based on an assumption that repair of any sewer segment will increase the probability of infiltration into adjacent segments. While this may be true for certain topographic and soil conditions and will clearly result in elimination of more flow, it is substantially more costly than the combination of reach-by-reach and comprehensive analysis that was utilized. Post-rehabilitation inspection of rehabilitated areas has not identified the migration of infiltration on which concept the comprehensive rehabilitation approach is partially based.

While the traditional approach to infiltration and inflow reduction undertaken by the Water System in the initial years of the program has benefited the system substantially by reducing infiltration levels and providing needed structural reinforcement, the program has not been as effective in reducing peak wet weather flow rates as was initially expected. This is thought to be related to the fact true peak flow rates in the system are limited by pipe capacities. It is considered likely that peak inflow potential has been reduced significantly, but, because of pipe capacity limitations, the impact does not completely manifest itself.

In response to this issues, and recognizing that the most critical areas identified by the original flow monitoring effort have been addressed, the CCWS has adjusted its approach to infiltration/inflow reduction by slowing the traditional source detection efforts and proceeding into other projects, which may prove more beneficial. Less conventional activities that are now a part of the I/I program include:

1. Removal of beaver dams and relocation of beavers (by Federal authorities) to reduce the frequency and severity of flooding along low-lying areas.

2. Raising of manholes along selected creeks where flood levels, even in the absence of beaver dams, have substantially exceeded historic high water levels.
3. Working with homeowners to ensure that significant inflow sources associated with private residences are repaired.
4. Developing a means to smoke test private systems and to ensure that needed repairs are accomplished.
5. Inspecting manholes and providing for locked, bolt-down manhole covers, particularly along creeks, more frequently to ensure that covers are intact and that manholes have not been damaged.

It is anticipated that an expansion of I/I reduction efforts, as outlined above, will be effective in reducing peak flow rates. It should be noted that the private property issues mentioned are fraught with potential liability and other legal concerns. While some success has been encountered in dealing with individual residences, an acceptable approach to private systems has not yet been fully formulated.

4.5.3 Lift Stations

There are thirty-eight wastewater lift stations currently included in the CCWS wastewater collection system. These range in size from the Sweetwater and Nickajack stations, each of which has a capacity in excess of 30 million gallons per day, to several smaller stations, which serve only portions of residential areas. All but five of the stations are submersible in type and some efforts have been made to standardize with respect to pump manufacturer to facilitate repairs. All stations have a secondary power source with automatic transfer of power within less than one minute of primary source failure. The CCWS is currently in the midst of a long-term program to eliminate lift stations, primarily because of operation costs and reliability issues.

Data regarding the Fresh Water Pump Stations and Wastewater Lift Stations are presented in Periodic Report Data 3. These data describe the specific lift station, the basin in which it is located, the pumps available, the design requirement, and the design available.

Lift station maintenance histories are maintained in the CCMS to aid in the development of an appropriate preventive maintenance program and provide data for station evaluation. Weekly, monthly, semi-annual, and annual maintenance activities are scheduled and tracked by the system.

Responsibility for lift station maintenance is divided among four locations. Personnel assigned to the Northwest, Noonday Creek, and South Cobb Water Reclamation Facilities (WRFs) are responsible for stations tributary to those facilities, particularly with respect to routine inspections and preventive maintenance. South Cobb WRF personnel also address stations within the R.L. Sutton WRF drainage basin. In addition, the Central Maintenance section staff, located adjacent to Operations Center on South Cobb Drive, assists with any unusual issues. This allows for a more rapid response in the event that emergencies do arise. Equipment allocated to the System Maintenance Division, such as pumping vehicles, is also available should the need arise.

Monitoring of the lift station network is currently provided by a telemetry and SCADA system which generates and stores critical operational information, such as pump run times, wet well status, power status, and other operational data. Utilizing advanced radio technology with extensive functionality, the system provides remote operational control of the facilities, a benefit during emergency or other abnormal conditions. Alarm status signals are provided to the CCWS Dispatch Center, which is monitored at all times. Should a station require immediate attention, the Dispatch Center will contact the specific WRF responsible for the station.

4.5.4 Easement Clearing

The CCWS generally holds a twenty-foot wide permanent easement along its sewer lines. While some other individual or entity normally owns the underlying property, the CCWS has the right to access and maintain the line. This is not an issue in areas where sewers cross undeveloped property; however, substantial opposition from homeowners and, occasionally, environmentalists has arisen when easement clearing is needed in developed or environmentally sensitive areas.

Prior to 1998, clearing was performed by qualified contractors on a bid basis or, in some instances, by sewer rehabilitation contractors, as required for necessary repairs. In the five years prior to 1998, approximately 600,000 linear feet were addressed, generally in response to a need for access and recognizing customer-related constraints.

In response to an increasing need for unimpeded access to remote sewer lines, the CCWS adopted a more aggressive approach to easement clearing using a ten-foot path. During FY 2000, approximately 60 miles of clearing was conducted in two phases. A third phase from the FY2000 budget started in January 2001 and included an additional 50 miles of clearing. The FY 2001 budget included a fourth phase of clearing of approximately 50 miles. In FY 02 & 03, approximately 125 miles of clearing will be accomplished. It is anticipated that this program will substantially enhance the CCWS ability to effectively operate its sewer system. In addition, cleared areas will be mowed annually.

4.5.5 Hydraulic Cleaning/Television Inspection

Pipeline hydraulic cleaning and television inspection are performed as a part of routine maintenance in areas where deposition issues are chronic or in response to immediate flow problems. The hydraulic cleaning is effective in reducing material that becomes deposited in lines with minimal slopes and in areas of high commercial activity. Television inspection is an aide in identifying lines with obstructions, with corrosion problems, and with potential failure possibilities. Both cleaning and television inspection are performed by crews from the System Maintenance Division and the Infiltration/Inflow Section as well as qualified contractors.

In FY 2000, over 444,000 linear feet of line were hydraulically cleaned and over 292,000 linear feet were television inspected. The Sope, Willeo, Nickajack, and Noonday Creek basins were initially targeted. The FY 02-03 budget will include 450,000 linear feet. The goal of the CCWS is to perform similar cleaning efforts every year with a priority being those portions of the collection system that present the greatest problem regarding sanitary overflows. Further, on-going investigations will result in a list of critical areas, which will require attention on an even more frequent basis. The specific reaches to be included in subsequent efforts will be continually adjusted to address changing needs and priorities.

4.5.6 Root Control

The intrusion of roots into sewer lines, particularly collector sewers in established subdivisions, is an ongoing concern of the CCWS. Extensive root intrusion, if allowed to continue without attention, can result in reduced system capacity and, ultimately, blockage of the pipe. Problems associated with root intrusion are sometimes exacerbated by the presence of grease in the flow stream, which tends to attach to any roots present and cause more rapid impact on flow conditions.

Historically, these issues have been addressed through pipeline cleaning efforts by the System Maintenance Division, which generally consisted of mechanical removal of roots. Beginning in 1993, however, the CCWS initiated a program of chemical root treatment utilizing a foaming root control agent specifically constituted for this purpose. Application of the agent, which is performed by a specialty contractor, includes isolation of a manhole reach by installation of plugs and complete filling of the isolated area, including the downstream portion of tributary laterals. The foam is allowed to remain in the pipe for a prescribed period of time, depending on the size and quantity of roots (in some cases, as long as three or four hours). After the foam is allowed to drain and the line is returned to service, roots within the pipe become brittle and break off in small pieces. The foam also creates a seal at open joints within the pipe to prevent further root intrusion. The process carries a two-year warranty, which can be renewed by re-treatment.

The CCWS uses GIS to map the areas that have been treated with chemical root control. These data, in coordination with sewer overflow data, allow the CCWS to identify problem areas and use chemical root control as a preventive maintenance tool.

The chemical agent utilized has been approved by both the Environmental Protection Agency and the appropriate State agency responsible for pesticide use. The principal component is Diquat Dibromide, a non-systemic toxin that inhibits future root intrusion and is non-carcinogenic. This compound is formulated

such that it will have no impact on downstream treatment processes.

Because of the warranty issues associated with the root control program, scheduling of applications is detailed and the applications must be accomplished in a timely manner. Work is done through an annual unit price contract. Work scheduled within a particular time frame includes previously treated areas where warranty renewal requires re-treatment and any areas identified through the television inspection program or maintenance activities where roots are a problem.

Since project implementation, in 1993, over 2 million linear feet have been treated. An average of over 400,000 linear feet are treated annually. To date in FY 2003, over 400, 000 feet have been treated.

4.5.7 Grease Trap Program

Grease control within the sanitary sewer system is generally accomplished through two basic mechanisms: grease is prevented from entering the system through enforcement of the ordinances governing the Grease Trap Program (Section 122-188 of the Cobb County Code); and grease which does enter the system is addressed by the System Maintenance Division.

The Grease Trap Program was implemented in 1992 and requires all new facilities, which utilize grease, to install exterior grease traps unless physical constraints of the site are such that such installation is not possible. Under no circumstances does the ordinance allow for the installation of a passive interior device. It does allow for the installation of an approved active interior trap provided it can be demonstrated that it will meet compliance limits. Proper maintenance is required if active interiors are used. All interior trap installations must be reviewed and approved by the CCWS Engineering Division.

Existing facilities, which have grease traps but do not meet current code requirements are required to comply if existing traps are undersized or poorly maintained, or if they can be shown to contribute to sewer line blockages. All facilities must retain a three-year maintenance history for traps.

The Environmental Compliance Section recently modified the section of Cobb County Code covering grease traps to facilitate some important initiatives. The section covering manifesting was expanded to require mandatory quarterly reporting by all restaurants. This requirement is meant to complement the existing requirement for quarterly pumping. The manifesting will provide the county with a reliable source of information on pumping frequency of all restaurants within the county as well as provide valuable information on the activities of the haulers. Restaurants that are not properly reporting and haulers with irregular manifests will be investigated. This information will help target field operations and allow for a more efficient use of resources. Restaurants also will be issued a permit, which will create more accountability and provide more leverage for enforcement. All annual visits will be free but the ordinance revision will now require a \$50 fee for any subsequent visit required by restaurant non-compliance.

As a result of the increased work load associated with manifest review and data base maintenance, combined with a more aggressive field program, the Grease Trap Program has been separated from the industrial monitoring program, with a coordinator position and a tech position dedicated exclusively to grease traps. Industrial monitoring will provide field assistance whenever necessary. These staff members inspect each grease trap within the County on an annual basis. Should any significant deficiency be noted at a particular site, the site is revisited until compliance is achieved. Failure to comply with provisions of the program places them in violation of county code and may result in enforcement action. Enforcement action is a seven-day notice, a citation, and finally termination of service. At this time, there are approximately 1,400 active grease traps within the County.

Despite the accomplishments of the Grease Trap Program, grease accumulations within the system remain a significant problem area. Grease contributors include apartments, individual homes, and some public schools, which are not yet required to comply with all conditions of the Program. The presence of grease in the system normally becomes apparent when it attaches to intruding roots or other system discontinuities and impedes flow. The System Maintenance Division addresses these situations by either mechanical removal of the grease or by application of a chemical solvent to reduce roots. Also, a new biologically active substance has been developed that breaks down the grease chemical bond. This agent

is being pilot tested to determine its efficiency. It is anticipated that the more aggressive cleaning, television inspection, and root control programs discussed above will significantly reduce the impact of grease on operation of the sewer system.

4.5.8 Aerial Sewer Stream Crossing Inspection and O&M Program

The Cobb County Water System (CCWS) operates and maintains approximately 2,500 miles of sanitary sewer with approximately 1,450 aerial sewer stream crossings of eight-inch size and above. Parts of the system are over fifty years old. Increasing urbanization, with a subsequent increase in impervious acreage, have caused increased runoff in terms of quantity and velocity in area streams. These factors have served to undermine and endanger the aging aerial stream crossings and to some degree expose previously buried stream crossings.

The purpose of this program is to develop a formal aerial sewer stream crossing inspection and operation & maintenance program, which will include an inspection schedule with a frequency adequate to identify required preventive and routine maintenance for the Cobb County Water System's aerial sewer stream crossings. In addition, such program addresses the requirements of a Georgia Environmental Protection Division Consent Order, a draft of which was dated June 13, 2002.

This program also is being developed to supplement the CCWS Capacity, Management, Operation & Maintenance (CMOM) program, and to satisfy the provisions of the GA EPD regarding their Comprehensive Consent Order to Address Sanitary Sewer Overflows (SSOs) in the Zero Tolerance Area.

An inventory of all aerial sewer stream crossings was initiated by the CCWS in 2000. As of May 2003, 1165 aerial sewer crossings have been inspected, about 80% of the total system inventory. Of these inspections, 41 have been deemed to be in poor condition with 29 having heavy debris.

The goal of the inspection program is to inspect, remove debris, and repair as required, all major sewer trunk crossings eight inches or more in diameter within the major drainage basins, and then perform a scheduled, regular, preventive maintenance inspection. To conduct the initial inspections, a process was developed that included the completion of an inspection form and digital photographs of the crossing. A copy of the form is included as Appendix 4. The form was designed to allow the inspectors to grade each crossing to determine the severity of any debris removal or repair that may need to be made. Additional data on the crossing such as manhole numbers both upstream and downstream, general condition, type of crossing, easement condition, and a sketch were completed.

The CCWS will use the CMMS to store all inventory and inspection data, all digital photographs, and to generate preventive maintenance work orders for periodic inspection of all sewer aerial crossings. From an initial inspection, each crossing will be graded to determine the frequency of future inspections. Larger line crossings suspended over major streams will be inspected more frequently than smaller line crossings that may only be partially exposed in smaller streams. The digital photographs from the initial inspection will be compared to subsequent inspections and photographs to adjust the inspection frequency in addition to the inspection grade. The work order system will automatically generate work orders to conduct repeat inspections. GIS maps, which track the stretches of all stream basins inspected to date are maintained.

For continued, future inspection, one of three groups of inspectors may be used. Two-person crews from the System Maintenance Division, the Inflow & Infiltration section and the Construction Management Services Section of the Engineering and Records Division may be called upon to perform these inspections.

4.6 Collection System and Treatment Facilities Capacity

Capacity requirements for both the wastewater collection and wastewater treatment systems serving Cobb County are described in the Master Plan adopted by the Board of Commissioners in 1993. The Plan is based on projected build-out demand for the service area and anticipated infiltration/inflow levels. The Plan is used to identify the ultimate capacity requirements for interceptor sewers such that any necessary

upgrades in the near term will be adequate to meet future needs. While the population projections utilized in the development of future flow estimates may be slightly less than current population projections, increased emphasis on water conservation has essentially offset this variance. Although this issue is of some import with respect to treatment facility sizing, the effectiveness of the County's efforts in reducing infiltration and inflow is of much greater significance in sizing pipelines.

With the population growth of Cobb County being among the highest in the nation, assessment of the capacity of the collection system and the treatment facilities is an ongoing project. The CCWS uses flow projections based on historical data to identify system requirements and to eliminate inflow and infiltration of ground water in the annual updating of the capital improvement plan.

Flow projections are developed and charted for the four water reclamation facilities to allow infrastructure planning and trends. The flow projection charts (Appendices 5) were developed using regression analysis of actual flow data. The projections were extended to determine future plant flows. Two projections were made, one with a short and one with a long time period, which usually results in higher projected flows.

Other projections are made for plant design flows; using regression analysis to determine projected maximum monthly flows for future years. The projection is stair-stepped as it examines the highest monthly flow for each year. This projection assists in the determination of when flows will exceed plant capacities. As the projected flows cross the maximum monthly flow/year line, operational problems and the need for additional capacity can be predicted.

To monitor changes in flow patterns in the collection system and the effectiveness of the infiltration/inflow program over time, the Water System has implemented a long-term flow-monitoring program, initially including 13 flow meters located at key points along major interceptors. Information from these meters is telemetered to the Water System's Engineering Division to allow real-time flow analysis. The system is scheduled for upgrade in 2004. Six additional meters are available for temporary installation in basins where more detailed information is required. Results from the flow-monitoring program are utilized to prioritize basins for infiltration/inflow evaluation and to determine when improvements recommended in the Master Plan are required.

4.7 Rehabilitation Identification and Prioritization

The CCWS System Maintenance Division and the Engineering Division meet bi-weekly to determine the need for sewer rehabilitation projects and their priority. Both the design and construction management sections of the Engineering Division are represented.

For each project the following are discussed:

- An assignment is made to a representative from each division. These two individuals assume responsibility for the project until completion.
- The project status is determined and all impediments to its completion determined.
- The costs and projected completion date are updated.

The timetable for each project is updated in graphical form, titled the Survey/Design/Bid/Construction Schedule. A copy of the most recent version of this timetable may be found in the CCWS web site link to the CMOM Program as Periodic Report Data 4. Categories of schedules covered include:

- Currently Advertised.
- Next to Advertise.
- Review/Easement Acquisition/Permitting.
- In Design.
- In Survey.
- Survey to be Scheduled.
- Direction/Authorization Needed.

4.8 Training

The Cobb County Water System uses the formal technical training program offered by Cobb County as well as specialized CCWS technical and safety training programs. A training bulletin, "On Track for Training", is published quarterly by the County. Courses are offered in computer skills, employee development, specialty and technical, and safety and loss prevention, among others. Specialized training for supervisors is included in the classes offered.

Specialized technical training offered by the CCWS includes training for all levels of wastewater and water certification as required by the State of Georgia, Secretary of State. This includes wastewater collection system operator, water distribution system operator, wastewater treatment operator, industrial, and laboratory certifications. Operator certification training is made available both through the Georgia Water And Wastewater Institute as well as specialized in-house training classes from the Chattahoochee Technical College. In addition, operator certification renewal points are obtained by employees through local and regional programs presented by the Georgia Water & Pollution Control Association and sponsored by the CCWS.

Additional specialized technical training classes for certification in Confined Space Entry, Trenching & Shoring, and Flagging are offered to CCWS employees with a pay incentive upon completion. Also offered are classes in Commercial Drivers License, Defensive Driving, Back Injury Prevention, Work Zone Safety, and Competent Person. On the job training is provided and required for emergency sanitary sewer spill response procedures.

4.9 Safety Program

The Operations Group of the CCWS employs a full-time Safety & Training Officer responsible for the Group's Safety Program. The goal of the Safety Program is to establish and maintain safe work practices in the CCWS based on all federal, state, and local laws, standards, codes, procedures, and guidelines. The Safety Program includes safety training classes, loss prevention programs, safety inspections, and accident investigations. The Safety Training Officer oversees the functions of the CCWS Safety Board, maintains an emergency procedures manual, and coordinates damage claims with the Cobb County Risk Management office.

Safety policies and procedures are implemented with the approval of the Department Manager. The CCWS has a written safety policy and provides a Safety Manual to all employees. Safety Training meetings are held monthly to discuss existing safety policies and implementation of new safety procedures and policies. In attendance are the Safety Training Officer and representatives from System Maintenance, Storm Water, Customer Service, Engineering, and the Wastewater Protection Divisions of the CCWS.

4.10 Replacement Parts

The CCWS maintains a fully stocked warehouse with all necessary materials and equipment required to make emergency repairs. All of the equipment is maintained in excellent working condition. The CCWS-CMMS (utility management program), on an as required basis, generates maintenance schedules. The average age of the equipment is less than 7 years.

Vehicles are serviced approximately every four months. Periodic vehicle servicing is accomplished through the CMMS. The Cobb County Fleet Maintenance and CCWS Central Maintenance Section keep records of vehicle and serviceable equipment maintenance, respectively.

A complete inventory of replacement parts needed for maintenance of the sanitary sewer system, as well as pump stations, is available at the Central Warehouse building located at the Operations Center on South Cobb Drive. In addition, replacement parts for lift stations are also maintained at the Water Reclamation Facility responsible for those lift stations. These inventories are controlled through the existing computerized maintenance management system. The central inventory is the responsibility of the CCWS Warehouse Manager. Inventories are replenished as required through the operating budget of the System Maintenance Division or the Water Protection Division.

The replacement parts program is managed through the computerized maintenance management system. This software has features that allow maintenance personnel to know what parts are needed for a particular piece of equipment, where to find them, how to track their use, and to what extent replacement parts should be warehoused.

Each piece of plant equipment and lift station equipment has a record. In that record is found where that piece of equipment is installed or stored if it is a spare, and which parts are required for repair and how many of each are needed. Each part also has records to enable maintenance workers to find where the parts are stored and how many are on hand. It also can be determined if a part is stored in another location that may be easier to access at the time it is needed. When parts are taken out of stock and used it is noted on the work order for cost information and at the same time deducted from inventory. Periodically, a report can be generated to determine the number of parts in stock at any particular moment.

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5.0 Design and Performance Provisions

5.1 Sewer and Pumps Requirements and Standards

The design and installation of sanitary sewer lines is governed by the Official Code of Cobb County Georgia, originally adopted in 1977 and amended thereafter, and the Cobb County Development Standards, adopted by the Board of Commissioners on May 14, 2002. These documents provide design criteria (Development Standards, Section 410.06 and Section 600 Standard Details); material requirements (Development Standards, Section 504.02); installation requirements (Development Standards, Section 504.03.02); testing requirements (Development Standards, Section 504.03.04); and inspection requirements (Development Standards, 410.06.03). Standards for pump station design and construction have been issued because Cobb County discourages the use of pump stations. These standards require:

- **Approved Plans.** All sewer line installation or modification requires authorization by the Cobb County Water System after review and approval of appropriate plans (Development Standards, 103.59).
- **Inspection.** All sewer line installation or modification requires inspection by the Cobb County Water System or its agents (Development Standards, 410.06.03). At this time, private development projects which are to be dedicated to the County upon completion are inspected by personnel of the Inspection Section of the Engineering & Records Division. Projects constructed by contractors directly for the Water System are inspected by a consultant to the Water System.
- **Testing.** All new sewer lines must meet maximum infiltration requirements. All new PVC sewer lines must meet deflection requirements (Development Standards, 504.03.04).
- **Warranty.** The Developer and/or Contractor must provide a one-year warranty for repair and maintenance of all new sewer lines (Development Standards, 103.59.03).
- **Record Drawings.** Record drawings of sewer installations must be provided prior recording of final plat or processing of final pay estimate as appropriate (Development Standards, 103.59.02).
- **Acceptance.** At the conclusion of the warranty period, the County or its agents will perform a final inspection. Once all outstanding issues are satisfactorily addressed, the sewer installation will be accepted by the County for perpetual maintenance (development Standards, 103.59.03).

5.2 Inspection Procedures and Specifications

Inspection of all wastewater facilities within the County is provided by the Cobb County Water System. An Inspection Section, within the Engineering and Records Division, which includes five inspectors and a supervisor, is responsible for inspection and approval of private projects, most of which are dedicated to the County upon acceptance. For construction projects undertaken directly by the County, a consultant team, including a total of 30 inspectors, provides construction inspection and administration. The consultant team interacts with the CCWS staff directly on project construction issues, but reports

ultimately to the Manager of the Engineering and Records Division.

Inspection Specifications are as discussed above.

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6.0 Monitoring, Measurement, and Program Modifications

6.1 Program Implementation and Effectiveness

The CCWS utilizes a proprietary utility computerized maintenance management system (CMMS) to more effectively administer the sanitary sewer network program management efforts. This system includes modules used to track work orders, schedule preventive maintenance activities, and control system inventories. Data are written to the same ORACLE database that is accessed by the GIS. This allows for both historical archiving and immediate retrieval of data matching selected sort keys. The utility management system used is by Hansen Information Technologies. This system, in addition to providing complete maintenance management capabilities, allows access to all maintenance records through graphical interface with the GIS.

A summary of the anticipated functionality of the system is provided below:

- Inventory capability for all water, sewer, storm water, and treatment facility assets.
- Reporting and archiving of inspection results.
- Convenient accesses to historical information such as spills and spill locations.
- Preventive maintenance scheduling.
- Customer service call tracking.
- Work order management.
- Costing of repair efforts, including manpower tracking.
- Purchase order generation.
- Graphical interface to GIS.

The Operations Group is alerted to corrective maintenance response through telephone calls originating from customers, environmental groups, regulatory agencies, and other County agencies. The calls are received by the Dispatch Center, which is in constant communication with maintenance personnel, including both supervisors and field crews. The Dispatch Center operates 24 hours per day.

All calls are logged into the CCWS-CMMS. If the call is an emergency or potentially emergency in nature, it is reported to the Superintendent responsible for the zone in which the problem was identified (during normal working hours) or to the Superintendent or Supervisor on call (at other times). Appropriate maintenance personnel and equipment will then be sent to the site, normally accompanied by the Superintendent or Supervisor, to address the problem area.

If a call is considered routine in nature, Dispatch will generate a Service Request through the CMMS, which is reviewed by the Superintendent of the appropriate zone. The Service Request may be archived for future reference, combined with other Service Requests related to the same issue, or converted into a Work Order and scheduled for investigation by field crews. All calls or other inquiries are maintained in the CMMS database for future review and analysis.

Multiple water and wastewater crews are available during normal working hours, including two heavy construction crews, to respond to corrective maintenance issues. A crew is composed of three members, a crew chief, and two utility workers. Crewmembers designated as equipment operators are often substituted for utility workers. These crews, as well as the swing shift and on-call crews, are structured to achieve a goal of response to a spill within one hour of notification. Two swing shift crews, one for water and one for wastewater, operate from mid-afternoon to midnight. At night and on weekends, two crews are immediately available on first call to address water and wastewater issues, and two additional crews

for water and wastewater are available on second call. A Superintendent or Supervisor is on call during swing shift hours and at night and on weekends to be used as required. In the event of predicted severe weather, additional crews will generally be kept in the Operations Center to address potential emergencies.

6.2 Program Updates

The CCWS-CMOM Program is updated based on reports generated at varying periods including weekly and bi-weekly, monthly and bi-monthly, quarterly, and annually. Updates are presented through the CMOM link to the CCWS web site as Periodic Report Data.

In addition to these reports, management, on a daily basis, reviews an internally generated Work Summary and a Summary of Work Order Activity which show all the work activities, including any sanitary sewer overflow, that have occurred for the previous 24-hour period. This information is summarized weekly in the Weekly Report Recap, which is presented in the CMOM link to the CCWS web site as Periodic Report Data 5. This report summarizes the number of major spills, their location, and their amount. It also summarizes the amount of televised inspection on sewer infrastructure and hydraulic flushing. These amounts are shown both in tabular and graphical format. The report also monitors the amount of activity and labor costs in each of four zones according to a specific type of activity. Finally, the report summarizes each work order produced with detailed information regarding activity, zone, and resolution.

On a monthly basis, all spills that have occurred during the month are summarized and tabulated in a Monthly Spill Report, which is presented in the CMOM link to the CCWS web site as Periodic Report Data 6.

In addition to these Operations Group reports, Business Services Division accounting reports also are generated to show expenditures versus budget. Also, bi-weekly staff meetings are held with the System Maintenance Division Manager and key staff and the Engineering and Records Division Manager and key staff to discuss and coordinate capital improvement program and rehabilitation program projects. Finally, weekly meetings are held with the System Maintenance Division Manager and all Zone Superintendents and Supervisors.

6.3 Program Summary

This CMOM Program document, appendices, and supporting Periodic Report Data are presented on the CMOM link on the CCWS web site. The base document and appendices are updated as warranted and the Periodic Report Data are revised on a scheduled basis. Thus the CMOM Program is viewed as a working document with the most current data available that reflects the latest collection system changed conditions.

7.0 Overflow Emergency Response Plan

7.1 Awareness

The Dispatch Center maintains an emergency contact list showing whom to contact in case of emergency. Two three-man crews are available to handle any emergency repairs after regular business hours, on weekends, or on holidays. These crews are provided with pagers and/or hand held radios for immediate response. There are also on-call employees available to access the warehouse to provide supplies not carried on the service trucks. The Route Maintenance Division has crews on call to maintain the lift stations in case of emergency.

7.2 Response

When a wastewater spill problem has been identified that could be a potential hazard to the environment, standard procedures are followed as detailed in Appendix 3, EPD Notification Procedures – Wastewater Spill, and Appendix 6, Cobb County Water System – System Maintenance Division Sewer Overflow & Spill Procedures and Sanitary Sewer Flow Rates for Spill Determinations.

Notification to local media contacts and proper signage at the overflow location as required by EPD regulations is an operating policy of the CCWS. These procedures are detailed in Appendix 7, New Cobb County Wastewater Overflow Notification Process, Press Release, Local Media Contacts, Spill Report Sign, and Spill Report Data Form.

In addition, it is the policy of the CCWS to conduct an ecologically based assessment of aquatic receptors of wastewater spills to assess the need for stream remediation regardless of whether the spill has been categorized as major or minor. To fully assess the impact of a sewer spill on the aquatic environment physical, chemical, and biological parameters are examined as well as the stream and basin size. Each of these parameters provides additional information on the assimilative capacity of the stream and thus an indication of remedial measures required. Spills deemed to be significant in terms of physical impact to a stream are reported to the Georgia EPD, regardless of their initial classification.

Field investigations are accomplished through a cooperative effort between the Environmental Compliance Section and System Maintenance Division personnel. Physical and chemical parameters up to and including the full suite of water quality parameters may be used if deemed necessary. All biological sampling follows state guidelines and protocols for both fish and macro invertebrates sampling. Investigations of fish kills follow the state guidelines for fish kill assessments using the CCWS collectors permit issued by the Georgia Department of Natural Resources. Appropriate sections of the State of Georgia operating procedures for rapid bio assessment are referenced when evaluating physical conditions. The field observations, assessments and lab results are reviewed and a determination made of the severity of the spill. Stream cleanup procedures appropriate to the severity of the spill are performed.

7.3 Official Notification

To comply with State law, spills of raw wastewater, whether they originate from a manhole, a broken line, or through a designated bypass, are reported to the Georgia Department of Natural Resources Environmental Protection Division (EPD). Notification of a spill to EPD is made at the time of discovery; through the Dispatch Center (during off-duty hours) or through the appropriate Zone Supervisor, Plant Superintendent and/or the Division Manager or Operations Group Manager (during regular duty hours) immediately. All sewer backup calls are immediately assessed to determine if there is a related spill.

The Environmental Protection Division of the Georgia Department of Natural Resources requires direct notification to its Compliance Section (404-362-2680) in the event of sewer spills that reach a watercourse from CCWS sewer lines. If the volume of the spill is ultimately calculated to be in excess of 10,000 gallons or if a fish-kill is identified, the spill is deemed a major spill and a formal report is provided to the Compliance Section including identification of the cause of the spill; a description of activities required to eliminate the spill; an estimate of the total volume of the spill; an evaluation of the impact of the spill; and a description of the continuing monitoring program necessary to identify any future impacts. This monitoring effort normally includes testing the impacted watercourse for fecal coliforms, pH, dissolved oxygen, and temperature. This testing is performed daily for the first week following the spill, once per week for the next three weeks, once per week during the third month following the spill, and once per month during the twelfth month following the spill. If a spill volume is less than 10,000 gallons, no formal report is required after the initial notification to the Compliance Section; however, the event must be included in a monthly summary provided to the Compliance Section.

7.4 Training

All CCWS System Maintenance Division personnel have been trained as to the required overflow emergency response plan. Continued training is provided to all employees as they join the CCWS and as they progress in their advancement.

7.5 Emergency Operations

The prime function of the CCWS System Maintenance Division is emergency repairs. If necessary, emergency repairs also can be performed by approved contractors through an accelerated procurement process using previously negotiated Unit Price Contracts. CCWS System Maintenance Division personnel

recognize the priority placed on the correction of sewer overflows and respond accordingly.

8.0 System Evaluation and Capacity Assurance Plan

8.1 Hydraulic Evaluation and Capacity Enhancement Measures

The CCWS Engineering and records Division maintains the long-range hydraulic evaluation and capacity enhancement measures plan, including a 5-year Capital Improvement Plan (CIP), for all collection system improvements. The long-range plan includes the upgrade of existing lines, the installation of new lines, and the installation of lift stations. The Capital Improvement Plan is presented in the CMOM link in the CCWS web site as Periodic Report Data 7.

Two plans, initially generated by the CCWS in 1992, are the basis for wastewater management in the County. The first of these, Cobb County I/I Reduction Program, included flow monitoring for 66 individual basins within the County service area and provided estimates of base flows, infiltration, and inflow for each. Also provided were general recommendations for I/I reduction in each basin and projections of I/I rates remaining after rehabilitation. This study has served to prioritize I/I related activities since that time.

The second 1992 report, Sewer System Master Plan for Cobb County, provided a strategy for long-term capacity enhancements needed for the conveyance system. Base flows and remaining I/I after anticipated rehabilitation for each basin from the preceding study were used, along with the Atlanta Regional Commission growth projections, to determine ultimate capacity requirements throughout the interceptor network. A mathematical computer model of the network was developed and the capacity of each sewer reach was compared with both existing and future peak flows. This model, maintained by the CCWS, has served as the basis for completed replacement of the Rubes Creek and Little Noonday Creek interceptors, and for the development of the Chattahoochee Tunnel project. The model remains the guide with respect to ultimate capacities required for various interceptor corridors, although some replacement priorities have been shifted from those proposed in the study on the basis of reduced I/I flows in some areas.

Projects resulting from these two studies are included as a part of the CCWS Capital Improvements Program. This Program is funded from available revenues at an average level of about \$70 million per year. Projects include not only those referenced above, but also wastewater treatment, storm water management, water distribution, and sewer extensions.

A report, prepared quarterly, titled EPD Consent Agenda Progress Report, graphically summarizes all routine preventive operation and maintenance activities designed to ensure full design capacity in the collection system. Key elements presented include Manhole Inspections and Global Positioning System Installations, Manhole Repairs, TV Inspection, Root Control, Hydraulic Cleaning, Easement Clearing, Aerial Stream Crossing Inspections, and the Combined Totals by Fiscal Year. This Progress report is presented as Periodic Report Data 8 in the CMOM link in the CCWS web site.

8.2 Plan Updates

The Cobb County Board of Commissioners through a biennial budget process provides funding for operation, maintenance, and upgrade of the sanitary sewer system from system revenues. The approved FY 2003 Operating (non-personnel) Budget for the System Maintenance Division of \$8,113,569 includes \$1,000,000 for easement clearing, \$1,000,000 for chemical root control, and \$1,300,000 for repairs or upgrades, \$1,000,000 for manhole raising, and \$1,604,000 for sewer extensions. These budgetary items are administered through Unit Price Contracts. In addition, the Capital Improvement Program budget includes about \$24 million for sewer expansion, rehabilitation, replacement, and extension.

9.0 Program Audits

The foregoing Capacity, Management, Operation and Maintenance Program for the sanitary sewer system owned by the Cobb County Water System reflects the CCWS's commitment to the protection of the environment and continued provision of exemplary customer service. As indicated throughout this document, the CCWS has committed and is prepared to further commit the resources necessary to provide vigilance over the wastewater system. Necessary funds and staffing are available through operating and capital budgets and required contractual arrangements are either already in place or can be readily accomplished. This document will be updated annually through revised or new text plus appendices, as may be required, and the Periodic Report Data will be revised per schedule to reflect the CCWS commitment to its mission and to satisfy federal and state regulatory requirements.

10.0 Communications

The CMOM Program and Periodic Report Data are available in the most current version on the CMOM link to the CCWS web site. Printed copies of the Program will be made available to interested parties. In addition, interested parties are welcome to provide input to the CMOM Program as it is implemented and revised.