

SEWER SYSTEM MANAGEMENT PLAN



CARPINTERIA SANITARY DISTRICT

5300 Sixth Street
Carpinteria, CA 93013
805.684.7214

SEPTEMBER 2017



CARPINTERIA
Sanitary District

RESOLUTION NO. R-305

**RESOLUTION OF THE
BOARD OF DIRECTORS OF THE
CARPINTERIA SANITARY DISTRICT
CERTIFYING AN UPDATED SEWER SYSTEM MANAGEMENT PLAN**

WHEREAS, the Carpinteria Sanitary District is an enrollee in State Water Resources Control Board Order No. 2006-0003-DWQ - Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (hereinafter "WDR"); and

WHEREAS, the Carpinteria Sanitary District has prepared, maintained and implemented a Sewer System Management Plan pursuant to the requirements of the WDR; and

WHEREAS, the WDR requires the Sewer System Management Plan to be updated every five years and to be recertified by the governing board if significant updates to the plan are made; and

WHEREAS, the Carpinteria Sanitary District completed a comprehensive update to its Sewer System Management Plan in September 2017.

NOW, THEREFORE, IT IS HEREBY RESOLVED by the Board of Directors of **CARPINTERIA SANITARY DISTRICT** as follows:

The September 2017 Update to the Carpinteria Sanitary District Sewer System Management Plan is hereby recertified and approved for implementation.

PASSED, APPROVED, AND ADOPTED at the regular meeting of the Board of Directors of the Carpinteria Sanitary District held October 3, 2017, and carried by the following roll call vote:

AYES: Moorhouse, Modugno, Graf, Damron, Velasco

NAYS: None

ABSTENTIONS: None

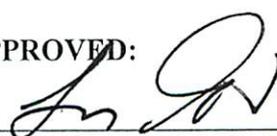
ABSENT: None

Resolution No. R-305 was thereupon declared, carried, and adopted.

Dated this 3rd day of October 2017.

We certify that the above is a true and correct copy of Resolution No. R-305, adopted by the Board of Directors of the Carpinteria Sanitary District on October 3, 2017.

APPROVED:



Lin Graf
President, Board of Directors

ATTEST:



Mike Damron
Secretary, Board of Directors



CARPINTERIA

Sanitary District

SEWER SYSTEM MANAGEMENT PLAN

UPDATED: September 2017

APPROVED:

A handwritten signature in dark ink, appearing to read 'Craig Murray', is written over a horizontal line.

Craig Murray, P.E.
General Manager

September 15, 2017

Date:

ADOPTED:

Lin Graf
President, Board of Directors

October 3, 2017

Date:

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INTRODUCTION

SSMP Requirement Background

In an effort to reduce the occurrences of sanitary sewer overflows (SSOs) within California, Statewide General Waste Discharge Requirements (General WDRs) were adopted on May 2, 2006, that imposed several new requirements on all agencies that operate wastewater collection systems. To date, the District has complied with all prescribed provisions, including enrollment in electronic spill reporting and the establishment of its legal authority to enforce sewer ordinances. The final provision requires the development and implementation of a written Sewer System Management Plan (SSMP) that complies with the following regulatory mandates:

- National Pollutant Discharge Elimination System (NPDES) Permit CA0047364 issued by the Central Coast Regional Water Quality Control Board on March 25, 2011;
- California Water Resources Control Board adopted Statewide General Waste Discharge Requirements for Wastewater Collection System Agencies (GWDR) on May 2, 2006.
- On July 26, 2013, the SWRCB authorized Order No. WQ 2013-0058-EXEC, Amending Monitoring and Reporting Program for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (Amended MRP). The Amended MRP became effective on September 9, 2013.

Document Organization

The organization of this document is based on the mandatory SSMP elements as outlined in the General WDRs. Each of the eleven elements as listed below forms a section of this document.

1. **SSMP Goals:** The goal of the SSMP is to provide a plan and schedule to properly manage, operate and maintain all parts of the sanitary sewer system to help reduce and prevent sanitary sewer overflows (SSOs), as well as to mitigate the impacts of any SSOs that do occur.
2. **Organization:** The SSMP must identify the name of the responsible or authorized representative, names and contact numbers for management, administrative, and maintenance personnel, and a chain of command for reporting SSOs.
3. **Legal Authority:** The Enrollee must demonstrate that it possesses the legal authority to:
 - a) Prevent illicit discharges to its sewer system.
 - b) Require that sewers be properly designed and constructed.
 - c) Ensure access for maintenance, inspection, and repair; limit the discharge of materials that may cause blockages.
 - d) Enforce violations of its sewer ordinances.

4. **Operation and Maintenance:** The SSMP must include an Operation and Maintenance (O&M) Program that includes mapping, a description of routine preventive maintenance activities, a rehabilitation and replacement plan, staff training, and an equipment list.
5. **Design and Performance:** The Enrollee must have design and construction standards and specifications for the installation of new and/or rehabilitated sewer systems and procedures and standards for inspecting and testing new or rehabilitated sewers.
6. **Overflow Emergency Response Plan:** The Enrollee shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment.
7. **FOG Control Program:** The Enrollee shall prepare and implement a FOG source control program if it is determined to be needed.
8. **System Evaluation / Capacity Assurance:** The Enrollee shall prepare and implement a capital improvement plan (CIP) that will provide hydraulic capacity for the appropriate design storm event including an evaluation, design criteria, capacity enhancement measures and a schedule.
9. **Monitoring and Measurement:** The Enrollee shall maintain relevant information to establish and prioritize activities, monitor the implementation, assess the PM program, update elements based on monitoring and evaluation, and identify and illustrate SSO trends.
10. **SSMP Program Audits:** The Enrollee shall conduct periodic internal compliance and effectiveness audits (at least biannually) and prepare a report.
11. **Communication Plan:** The Enrollee shall communicate on a regular basis with the public on the development, implementation, and performance of the SSMP

Each section contains a basic description of the District's approach to compliance or general management of the corresponding program component. Detailed supporting information, including corollary documents and plans, forms, and other items, are contained in a series of appendices attached to this SSMP.

District Service Area and Sewer Collection System

The Carpinteria Sanitary District (District), established in 1928, owns and operates approximately 46 miles of wastewater conveyance pipelines serving a population of 13,040 (2010 US Census). The District's 3.1 square mile service area is located within the Carpinteria Valley which is in the southwestern portion of Santa Barbara County, approximately 12 miles east of the City of Santa Barbara. Currently, the District serves approximately 6,683 customer connections, of which approximately 6,158 are residential and 525 are non-residential. There are approximately 4,400 individual parcels within the District's service area. The District is primarily comprised of residential development with limited commercial, light industrial, and agricultural land uses intermixed throughout its service area.



The wastewater collection system consists of nearly 960 access structures (manholes and cleanouts), 8 lift stations, 3 inverted siphons, 9 creek crossings, 7 highway crossings, one railroad crossing, 131 grinder pump units, 4.0 miles of force mains. These facilities convey wastewater to the District's 2.5 million gallons per day (MGD) wastewater treatment plant. Gravity pipelines range in size from 6 to 24 inches in diameter, with nearly 70 percent of the pipes being either 6 inches or 8 inches in diameter. The predominant pipe material is vitrified clay pipe (VCP), accounting for approximately 78 percent of the collections system total length. The average age of the collection system is approximately 40-50 years.

Definitions and Acronyms

The following definitions and acronyms are used in this SSMP and in the Appendix documents:

ArcGIS - Geographic Information System (GIS) software created by Environmental Systems Research Institute (ESRI).

BMP - Best Management Practice.

Cal EMA - California Emergency Management Agency.

Capacity Assurance Plan - A Sewer System Management Plan (SSMP) requirement that the District shall prepare and implement a capital improvement plan (CIP) that will provide a hydraulic capacity of key sanitary sewer system elements for dry weather peak flow conditions, as well as the appropriate design storm or wet weather event.

CIP – Capital Improvement Plan.

Category 1 Overflow – Discharges of untreated or partially treated wastewater **of any volume** resulting from an enrollees' sanitary sewer system failure or flow condition that:

- Reach surface water and/or reach a drainage channel tributary to a surface water; or
- Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or ground water infiltration basin (e.g., infiltration pit, percolation pond).

Category 2 Overflow – Discharges of untreated or partially treated wastewater **equal to or greater than 1,000 gallons that does not reach surface water**, a drainage channel, or an MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.

Category 3 Overflow – All other discharges of untreated or partially treated wastewater resulting from the Districts sanitary system failure or flow condition.

CCTV – Closed-Circuit Television used for producing video footage of the inside of a wastewater pipe.

Cleaning – The process of removing any debris, roots, grease or other potential blockages that build up in the wastewater system.

Clean Out – A capped pipe that provides access to a collection system pipe.

CMMS – Computerized Maintenance Management System used to track and schedule maintenance activities.

CIWQS – California Integrated Water Quality System.

DIP – Ductile Iron Pipe.

Easement – An area of property owned by another party that grants the District the right to install and maintain collection system facilities.

Enrollee – The organization responsible for fulfilling the SSMP requirements.

Fiscal Year – The planning and operating annual calendar for the District starting July 1st.

FOG – Fats, Oils, and Grease that can accumulate in a sewer pipe. A common source of FOG is food service establishments.

Force Main – A pressurized wastewater pipe that transports sewage.

FSE – Food Service Establishment.

GCD – Grease Control Device. Typically a grease trap or grease interceptor which limits the amount of FOG entering the collection system from an FSE.

GIS – Geographic Information System. A computerized mapping and spatial analysis application.

GPS – Global Positioning System. A satellite-based navigation system used to locate or track the position of an object over time.

Gravity Collection System – A hydraulic system that carries wastewater to a treatment plant or other authorized point of discharge that uses gravity as the means of conveyance.

Grease Interceptor/Trap – A grease control device designed to separate and retain most fats, oils, greases, and solids, excluding sanitary wastes, before entering the sewerage system. Smaller versions of grease interceptors are commonly known as grease traps.

GWDR – General Waste Discharge Requirements.

HDPE - High-Density Polyethylene.

Inverted Siphon – A depressed sewer pipe that allows wastewater to pass under an obstruction such as a river.

Lateral – An underground wastewater pipe that connects a residence or business to the District wastewater system. Lower Lateral cleaning and maintenance is the responsibility of the homeowner or business owner if a property line cleanout is not present.

Manhole – The top opening to an underground maintenance vault that allows access to the collection system pipes. Used as an access point for installing, operating, and maintaining flow meters and for cleaning and inspecting sewer pipe.

MRP – Monitoring and Reporting Program.

MS4 – Municipal Separate Storm Sewer System.

NASSCO – National Association of Sewer Service Companies.

NPDES – National Pollutant Discharge Elimination System Permit.

OES – Governor's Office of Emergency Services.

O&M – Operations and Maintenance.

PACP – Pipeline Assessment and Certification Program.

PLSD – Private Lateral Sewage Discharge.

Primary responder – The field crew or the on-call personnel that are the District's initial response to an SSO or other sewer system event.

Pump Station – A facility that pumps wastewater from a low spot to a point of higher elevation in the gravity collection system.

PVC – Polyvinyl Chloride.

Quality Assurance – A process used to verify or determine whether products or services meet or exceed customer expectations.

Quality Control – A process used to ensure a certain level of quality in a product or service.

Property Damage Overflow – Sewer overflow or backup that contaminates a property owner's premises.

Rehabilitation – To perform repairs in order to bring an asset or pipe back to like-new condition.

RDII – Rainfall Dependent Infiltration and Inflow. Stormwater or groundwater that enters the collection system through defects in the pipes and manholes or through direct connections.

RWQCB – Regional Water Control Board: Central Coast Regional Water Quality Control Board.

SCADA – Supervisory Control and Data Acquisition. A system that monitors lift station performance.

Sewer system – Sewer system refers to the sanitary sewer facilities owned and operated by the Carpinteria Sanitary District.

SSMP – Sewer System Management Plan. Document required by the State Water Resources Control Board General Waste Discharge Requirements.

SSO – Sanitary Sewer Overflow. SSO refers to the discharge of untreated or partially treated sewage at any point upstream of the treatment plant.

Stoppage – A blockage that prevents wastewater from flowing but does not produce an overflow.

SWRCB – State Water Resources Control Board.

Wastewater Collection System (WCS) – Sanitary sewer collection and transport facilities owned and operated by the Carpinteria Sanitary District.

Wastewater Treatment Plant (WWTP) – Facility owned and operated by the Carpinteria Sanitary District that treats the wastewater transported through the collection system.

Water Body – Any stream, creek, river, pond, impoundment, lagoon, wetland, bay, or the Pacific Ocean.

Waters of the State – Any water, surface or underground, including saline waters, within the boundaries of California. In case of a sewage spill, storm drains are considered to be waters of the State unless the sewage is completely contained and returned to the sewer system.

Work Order – A document that provides important details about a maintenance or repair activity that must be performed.

1.0 SSMP GOALS

The mission of the Carpinteria Sanitary District is to provide its customers with reliable, cost-effective wastewater treatment. In support of this mission, the District has developed the following goals as adopted by the District's Board of Directors:

- Maintain or improve the condition of the collection system infrastructure in order to provide reliable service now and into the future.
- Cost-effectively minimize infiltration/inflow (I/I) and provide adequate sewer capacity to accommodate design storm flows.
- Minimize the number and impact of sanitary sewer overflows that occur.
- Respond to sanitary sewer overflows in a manner that protects private property, human health, and the environment.
- Implement and enforce current design and construction standards for new collection system infrastructure.
- Educate the public to build an awareness of collection system issues and ways to help prevent sanitary sewer overflows.
- Maintain continuous compliance with the General Waste Discharge Requirements and other applicable regulatory requirements.

2.0 ORGANIZATION

The Carpinteria Sanitary District maintains an organizational structure that provides sufficient resources to operate and maintain the District's public sanitary sewer collection system. Although the District staff is relatively small, we pull from all departments when necessary to meet the SSMP goals outlined herein. The Collection System Department is supported by staff in every department and responsibilities for various aspects of collection system operation, maintenance and emergency response have been clearly defined.

The District's Organization Chart, modified to reflect goals and responsibilities in relation to this SSMP, is presented in **Figure 2-1**.

2.1 WDR Requirements

The General WDRs governing sanitary sewers specify that the Sewer System Management Plan (SSMP) must identify the appropriate responsible representative, identify the organization and lines of authority, and provide a chain of communication for reporting SSOs from receipt of a complaint and include the person responsible for reporting SSOs.

2.2 Authorized Representative

The District's General Manager is identified as the Authorized Representative and is the legally responsible official (**LRO**) for the purpose of compliance with the General WDRs. The Operations Manager is authorized to act in the General Manager's absence. The Collection System Supervisor is authorized to submit SSO reports via the electronic CIWQS reporting system and to make reports to other appropriate agencies.

See **Table 2-1**, located at the end of this section, for current contact information for the District's authorized representatives.

2.3 Responsible Personnel

District staff members responsible for implementation of this SSMP, and for operation and maintenance of the wastewater collection system, are identified in **Table 2-1**. This table, which provides names and contact information for each responsible staff member, is a stand alone page within this document and it shall be updated regularly to reflect any changes that occur.

The key roles and responsibilities of the Carpinteria Sanitary District Management and staff that carry out SSMP activities are:

Board of Directors: The District is an independent public agency governed by a five member Board of Directors who are elected on an "at-large" basis from the Districts electorate and serve a four-year term. The Board meets on the first and third Tuesdays of each month and is responsible for establishing policy, authorizing operational and capital expenditures, adopting ordinances and other legal authorities as required by the SSMP.

General Manager: The General Manager is responsible for addressing a variety of managerial matters to ensure positive fiscal and operational health of the District. With general direction from the Board, the General Manager manages the development and implementation of financial plans, District goals, objectives, and priorities. Further, the General Manager is also responsible for the District's labor and employee/employer relations and is an active participant in various wastewater/water industry organizations in order to advocate District interests and objectives.

Operations Manager: Under the direction of the General Manager, the Operations Managers duties include that of preparing budgetary proposals, design/planning of treatment plant upgrades, ensuring that all federal, state and local regulatory requirements are met and to provide oversight on work in support of District activities related to the operation and maintenance of equipment, facilities and related appurtenances as found in the treatment plant, pump stations and the collections system.

Collection System Supervisor: The Collections System Supervisor plans and organizes workloads, provides oversight to the Collections Field Crew, and personally performs work in support of all District Collection System installations, inspections, and preventive/corrective maintenance activities. In addition to managing the Collections System activities, the Collections Supervisor also ensures that all federal, state and local regulatory requirements are met during normal operations and that of SSO Response events. When needed, the Collections Supervisor provides assistance to District management staff in areas of capital project development, planning and execution; and performs related work as assigned.

Collection System Operations Staff: The Collections System Operations Staff routinely performs work in support of preventative and corrective maintenance of the wastewater mainlines and District owned lower laterals. This work is inclusive of CCTV inspections, hydro cleaning, asset data updates/corrections, USA mark outs; servicing and repair of mobile equipment; and providing on call services for emergency response around the clock.

Engineering Technician: The Engineering Technician performs a wide variety of field and office duties in support of the District's interests including that of performing sanitary sewer construction/modification inspections, performing USA mark outs, maintaining engineering records and updating GIS maps and as-built drawings. Duties also include receiving and responding to inquiries and complaints from the public, performing field observations, and overseeing/implementing the FOG Program.

Treatment Supervisor: Under the direction of the Operations Manager, the Treatment Supervisor provides oversight and assistance to a staff of four Treatment Plant Operators that work in support of general operation and maintenance of the eight (8) remote pump stations and the wastewater treatment facility. In addition, the Treatment Supervisor continuously analyzes and evaluates operation and maintenance functions, initiates or recommends new or improved practices, prepares and monitors operating budgets and ensures compliance with all federal, state, and local health regulations.

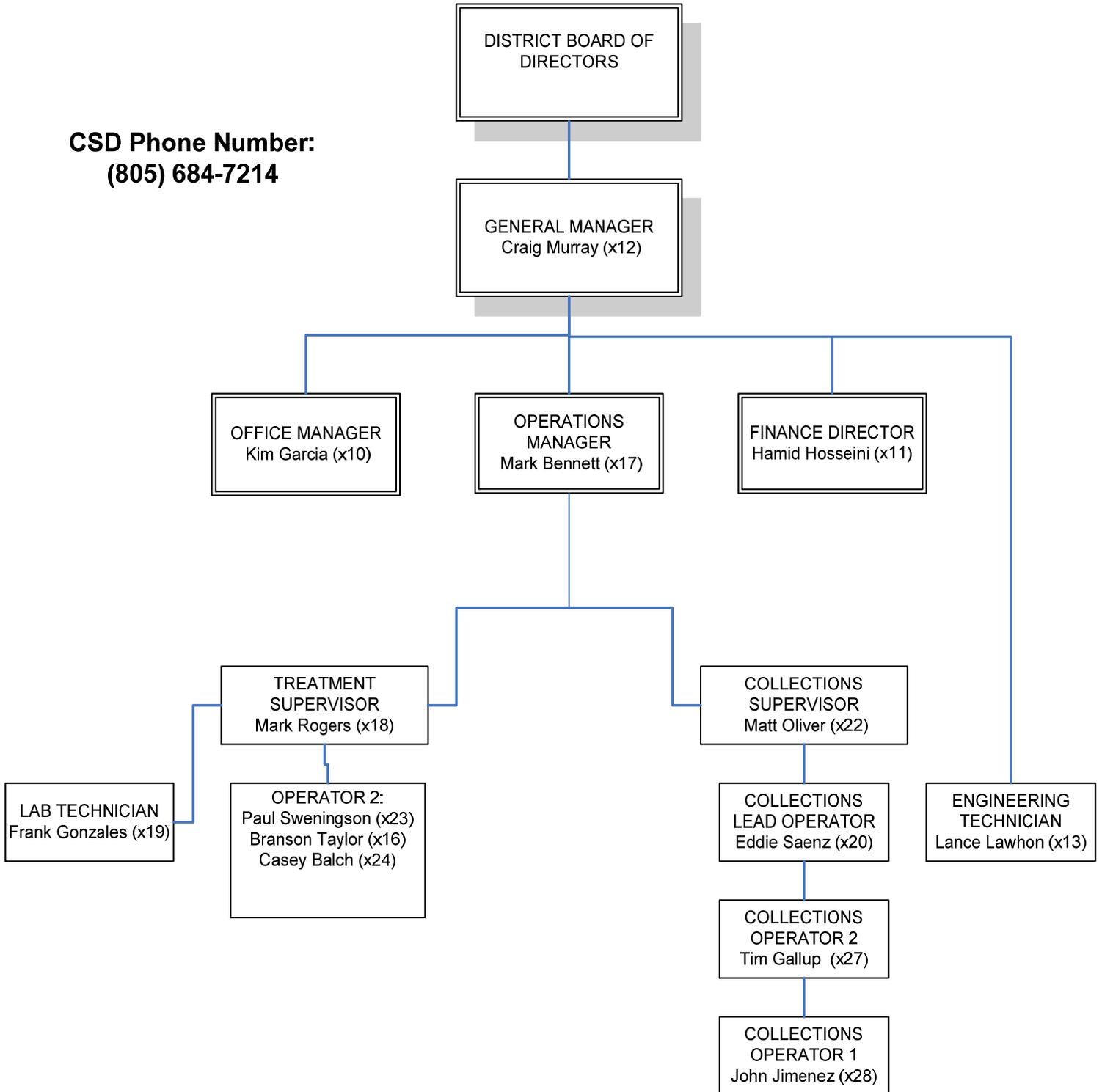
Operations Staff: Under the general direction of the Treatment Supervisor, the Operations Staff operates and maintains the District's wastewater treatment facility and its eight (8) pump stations in compliance with State regulatory agency requirements. The Operations Staff duties may include: inspections of treatment process components and equipment, evaluating plant performance, collecting samples from various treatment processes throughout the facility, cleaning tanks, pipes, clarifiers and pumps, performing facility and equipment preventative maintenance tasks, making emergency repairs to plant equipment and facilities, and performing minor building maintenance/custodial tasks and providing around the clock emergency "on call" readiness.

Laboratory Technician: Under the general supervision of the Treatment Supervisor, the Laboratory Technician performs laboratory analysis of water, wastewater, and sludges pursuant to NPDES monitoring program requirements and certifies the accuracy of the data

collected. The Laboratory Technician is also responsible for the coordination of sample collection, providing direction to operations personnel to ensure that collection protocols are complied with, sample holding times are met and chain-of-custody procedures are followed. Further, the Laboratory Technician submits reports and the results of process control analysis to the Treatment Supervisor.

Figure 2-1 CSD Organizational Chart

**CSD Phone Number:
 (805) 684-7214**



2.4 SSO Reporting Protocol

The District's SSO Response Plan, described fully in Section 6.0, provides detailed procedures for emergency response to all categories and types of SSOs. These procedures include SSO reporting requirements and clear instructions on how and when to notify regulatory agencies, public health officials, the public, and other interested parties.

Figure 2-2 General SSO Chain of Communications

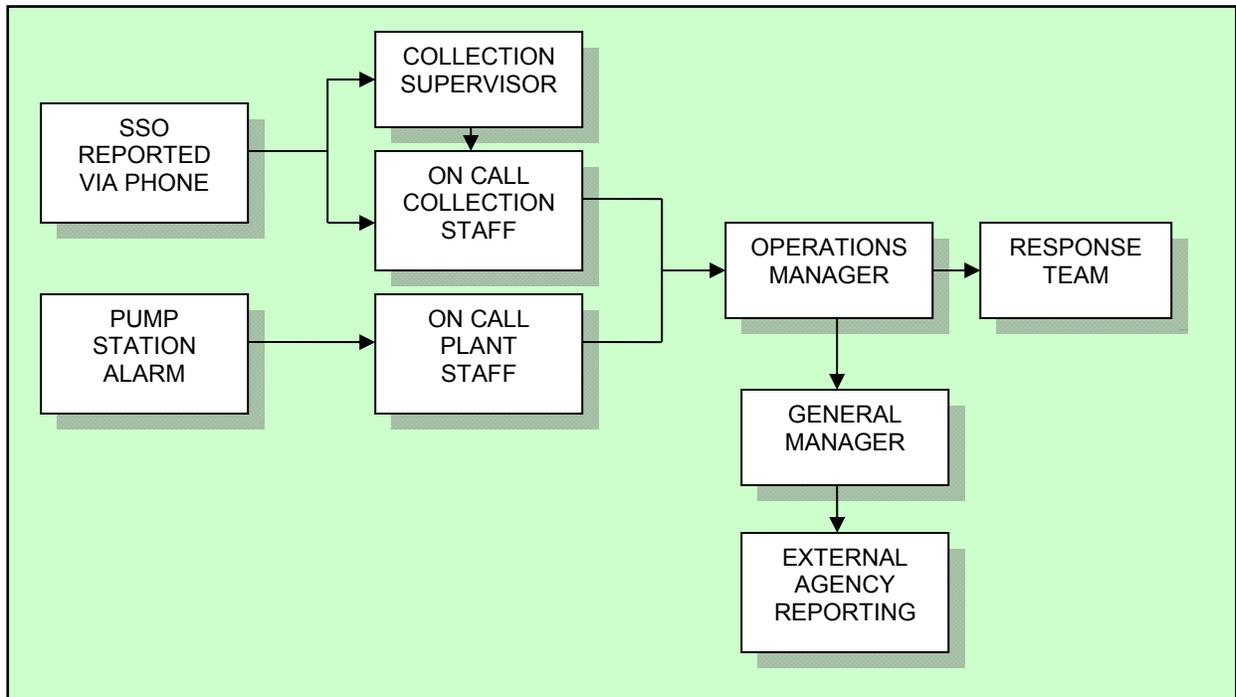


TABLE 2-1 RESPONSIBLE PERSONNEL CONTACT INFORMATION

General Manager	<p>Craig Murray, P.E. Office: (805) 684-7214 x12 Mobile: (805) 451-7804 Email: Craigm@carpsan.com</p>
Operations Manager	<p>Mark Bennett Office: (805) 684-7214 x17 Mobile: (805) 452-3962 Email: Markb@carpsan.com</p>
Collection System Supervisor	<p>Matt Oliver Office: (805) 684-7214 x22 Mobile: (805) 451-7806 Email: Matto@carpsan.com</p>
Engineering Technician	<p>Lance Lawhon Office: (805) 684-7214 x13 Mobile: (805) 705-5248 Email: lancel@carpsan.com</p>
Treatment Supervisor	<p>Mark Rogers Office: (805) 684-7214 x 18 Mobile: (805) 570-9446 Email: markr@carpsan.com</p>
Finance Director	<p>Hamid Hosseini Office: (805) 684-7214 x11 Email: Hamidh@carpsan.com</p>
Office Manager	<p>Kim Garcia Office: (805) 684-7214 x10 Email: King@carpsan.com</p>
Collection System Lead Operator	<p>Eddie Saenz Office: (805) 684-7214 x 22 Mobile: (805) 451-7809 Email: Eddies@carpsan.com</p>
Collection System Operator 2	<p>Tim Gallup Office: (805) 684-7214 x22 Mobile: (805) 666-9194 Email: TimG@carpsan.com</p>
Collection System Operator 1	<p>John Jimenez Office: (805) 684-7214 x28 Mobile: (805) 451-7809 Email: JohnJ@carpsan.com</p>

CSD Main Phone Number: (805) 684-7214

CSD After Hours Emergency Number: (805) 451-7809

CSD Main Fax Number: (805) 684-7213 CSD Plant Fax Number: (805) 566-6599

3.0 LEGAL AUTHORITY

The Carpinteria Sanitary District has the legal authority to implement this SSMP. Existing ordinances and standards set forth requirements for design and construction of sewer infrastructure, connection to the public sewer system, and use of public sewers, among other things.

3.1 WDR Requirements

The General WDRs require the District to confirm that it possesses the legal authority to do the following:

1. Prevent illicit discharges into its sanitary sewer system, including infiltration and inflow from satellite wastewater collection systems and laterals, storm water, unauthorized debris, etc.
2. Require proper design and construction of sewers and connections.
3. Ensure access for maintenance, inspection, and repairs to publicly owned portions of the laterals.
4. Limit the discharge of FOG and other debris that may cause blockages.
5. Enforce violations of its sewer ordinances.

The remainder of this section outlines the District's regulatory and legal authority with respect to these and other collection system matters.

3.2 District Ordinances

The Carpinteria Sanitary District was formed in 1928 and organized pursuant to the Sanitary District Act of 1923. It derives its legal authority from Section 6400 et seq of the California Health & Safety Code. The District is governed by a five member Board of Directors who are elected on an at large basis.

The District has adopted ordinances which satisfy the WDR requirements related to legal authority. Pertinent ordinances are summarized below. Full text of the ordinances is included in **Appendix A**.

Ordinance No. 2 – General Regulations

Ordinance No. 2, an Ordinance Establishing General Rules, Regulations, and Policies of the Carpinteria Sanitary District, was adopted on October 2, 1975.

This comprehensive sewer use ordinance addresses basic requirements regarding sewer use and connection to the District's public sewer system. It establishes regulatory and enforcement authority and generally sets forth limitations and prohibitions for wastewater discharges. Easement and access rights/requirements are established by this ordinance and basic construction standards (e.g. separate sewers, cleanouts, etc.) are documented. Ordinance No. 2 is bolstered by additional District ordinances that provide users with additional details and requirements for sewer use. These are described in the following sections.

Ordinance No. 7 – Sewer Use (Source Control)

Ordinance No. 7 was adopted by the District Board of Directors on June 21, 1994. The ordinance is titled a “General Regulation Providing Rules and Regulations for the Quality of Wastewater Discharged to District Facilities; for the Issuance of Source Control Permits; Authorization for Monitoring Inspection, Compliance, and Enforcement Activities; for Industrial User Reporting; Procedures for Variances and Appeals; and for the Repeal of Inconsistent Ordinances.”

This ordinance is a sewer use ordinance that primarily pertains to discharges from non-residential connections. Originally modeled after a US Environmental Protection Agency Model Pretreatment Ordinance, the District’s Ordinance No. 7 sets forth specific discharge prohibitions and requirements that are, in part, intended to protect sewer collection system infrastructure and minimize the potential for SSOs. Quantitative local discharge limits are also established by this regulatory instrument.

Ordinance No. 7 also contains specific provisions related to the control of discharges containing Fats, Oils, and Grease (FOG). Section 8 establishes requirements for food service establishments and related facilities to construct and maintain FOG control devices (e.g. traps and interceptors).

Permitting and enforcement provisions are also set forth in Ordinance No. 7. These are a key aspect of the District’s overall program to control illicit discharges and other inappropriate uses of the District’s collection system.

An update to Ordinance No. 7, based on the USEPA model sewer use ordinance, is anticipated in 2018.

Ordinance No. 15 – Sewer Service Charges

Ordinance No. 15 is an ordinance that establishes and adopts the fees charged for the provision of public sewer service. The rate structure incorporates a flat fee for residential connections based on the number of dwelling units on each legal parcel. Non-residential sewer service charges have a fixed component and variable component that is based on average water use and wastewater strength factors. Although users fees and charges do not directly relate to sewer system management, they provide crucial revenue and enable the District to perform required maintenance, inspection, and capital facility improvements. The schedule of current SSC’s is presented in Table 3-1 below.

Table 3-1 Schedule of Sewer Service Charges

RESIDENTIAL SEWER SERVICE CHARGES						
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	
Annual Charge Per Dwelling Unit	\$625.31	\$650.33	\$676.35	\$703.41	\$731.55	
NON-RESIDENTIAL SEWER SERVICE CHARGES						
Strength Class	Combined BOD/TSS	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22
		Rate Per 1000 Gallons Water Used				
Low	< 380 mg/L	\$9.52	\$9.90	\$10.30	\$10.72	\$11.15
Medium Low	380 to 500 mg/L	\$10.18	\$10.59	\$11.02	\$11.47	\$11.93
Medium	501 to 710 mg/L	\$10.52	\$10.94	\$11.38	\$11.84	\$12.32
Medium High	711 to 1100 mg/L	\$12.00	\$12.48	\$12.98	\$13.50	\$14.04
High	1101 to 1700 mg/L	\$14.24	\$14.81	\$15.41	\$16.03	\$16.68
Very High	> 1700 mg/L	Individually Calculated				
MINMUM CHARGE PER PARCEL		\$625.31	\$650.33	\$676.35	\$703.41	\$731.55

NOTE: Fiscal year = from July 1 to June 30 of the subsequent year.

Ordinance No. 16 – Fees and Charges

Ordinance No. 16 is an ordinance that establishes and adopts certain fees and charges for sewer system connection, construction, and related actions. Adopted on June 6, 2017, the ordinance set forth a schedule of fees as follows:

The District charges a baseline Development Impact Fee, or connection fee, which is currently \$4,600 per each new equivalent dwelling unit (EDU). This fee escalates annually based on a national construction cost index value.

An EDU is defined as the baseline wastewater flow and strength contribution from a single-family residential dwelling. For the purposes of this ordinance, it is presumed that a single-family residential dwelling discharges 140 gallons per day of wastewater with a biochemical oxygen demand (BOD) concentration equal to 325 milligrams per liter and a total suspended solids (TSS) concentration equal to 325 milligrams per liter. The contributions from other users can be represented in the form of an equivalency to one single family residential dwelling unit.

Development impact fees for new non-residential customers are calculated on an EDU basis according to a formula set forth in the ordinance.

3.3 District Construction Standards

The District has had design and construction standards for sewer infrastructure in place for many decades. These standards, which apply to the main sewer, lateral sewer, and private building sewer construction, have evolved over time to reflect currently accepted materials and methods of construction. Legal authority to implement the standards is granted by statute and is set forth in the adopted ordinances described above.

Section 5.0 provides details on design and construction standards currently in effect and discusses ongoing efforts to refine and update them.

4.0 OPERATION AND MAINTENANCE

The Carpinteria Sanitary District has a well-developed operation and maintenance program to ensure that its wastewater collection system functions reliably and as designed. This section describes some of the key aspects of this program.

4.1 WDR Requirements

The SSMP must include an Operation and Maintenance (O&M) Program that includes:

1. Up-to-date mapping of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, force mains and valves, and applicable storm water conveyance facilities.
2. A description of routine preventive maintenance activities including a schedule for regular maintenance and cleaning and targeted maintenance performed at known problem areas. The preventative maintenance program should have a system to document scheduled and conducted activities such as work orders.
3. A rehabilitation and replacement plan to identify and prioritize system deficiencies including CCTV inspections.
4. Staff training.
5. Equipment and replacement part inventories, including identification of critical replacement parts.

4.2 Sewer System Mapping

The District has a comprehensive ArcGIS Geographical Information System (GIS) that includes spatial and technical information for its wastewater collection system assets including gravity line segments, manholes, lift stations and force mains. The District's GIS based mapping system is built on a commercial software program that is the industry standard for utility mapping. The District first developed GIS mapping in 2003. Upgrades and improvements are made on an ongoing basis by District staff and with assistance from outside consultants.

The District's GIS platform provides a geographically and spatially accurate system map that is integrated with external collection system data. Some of the key features include:

- Pipelines and manholes accurately located and depicted
- Pump stations and other system features accurately mapped
- Dynamic link to CMMS database (refer to Section 5.2)
- Attribute and inspection data continuously updated
- Static link to District's billing database
- Routinely updated parcel information from County shapefiles
- Periodic updates to base aerial imagery
- Link to hydraulic model output data for entire system
- Hotlinks to as-built drawings for each pipe and feature

The GIS based mapping system is a powerful tool that enhances our operation and maintenance functions. The GIS is used for scheduling and tracking hydro cleaning and CCTV activities, and also to spatially depict problem areas within the system by linking condition assessment data (e.g. root intrusion, infiltration, etc.). Queries can be generated to identify and show pipe age, pipe material, SSO locations, food service establishments, hydraulic model data, and many other important operational parameters.

Atlas Map Books

Digital and printed atlas map books are provided to key staff members with printed copies maintained in each collection system vehicle. The atlas maps are a full color, GIS generated a representation of the CSD Collections System overlaid on an aerial image of the corresponding region. Pipe diameter, material, length and direction of flow are depicted. Street names, parcel boundaries, easements, fire hydrants and other critical information are also shown.

The atlas maps are generated from the District's GIS based electronic mapping system. Individual maps can be easily generated to identify the location of existing sewer infrastructure when requested by members of the public, utility providers or other parties who need this information. A typical atlas map page is provided for reference in **Appendix B**.

In the event findings in the field or a construction project necessitates a map edit, a work order is generated by the Collections System Supervisor. This work order is issued to the District Engineering Technician for review and completion. Depending on the type or quantity of edits made, the map page will either be published as soon as the edits are made or published bi-annually.

Record Drawings

Complete as-built plan and profile drawings are maintained for each pipeline within the District's inventory. Permanent record drawings (mylar sheets) are kept in a secure location for archival and reproduction on an as-needed basis. Each drawing has been scanned and indexed for access electronically. Drawing sheets can be accessed directly through the GIS or from an electronic file index. Copies can be printed or plotted on demand.

4.3 Maintenance Management System

The District utilizes a computerized maintenance management system (CMMS) to facilitate operation and maintenance of its wastewater collection system. The District uses a software application called **Lucity**, which is a database application, designed for use in government utility management. This asset management tool is also used within the District's wastewater treatment facility.

The CMMS database contains detailed attribute information for all pipelines, manholes, pump stations and other collection system assets. This data is routinely updated to reflect system improvements and modifications and also to refine the dataset as additional asset information is obtained through system inspection and evaluation.

The CMMS is a powerful asset management tool. The program is used to schedule operation and maintenance tasks and to generate associated work orders with resource assignments. Completed work orders are completed in the field via a mobile device and data is sent back into the CMMS to provide documentation, but also to provide cost and

resource tracking. Notes and comments are also documented by field operations staff and any follow-up activities or requirements subsequently scheduled.

The CMMS database has query generation and reporting functions that are used to track performance, to generate annual budgets, to assess resource and staffing needs and for other critical functions. The CMMS is accessible from multiple workstations at the District's offices. Security measures are built into the program that limits accessibility and grants specific authorization for system changes. As discussed in Section 4.2, the CMMS is also linked to the collection system GIS.

4.4 Maintenance and Inspection Program

As per regulatory mandates, the District is required to perform and document regular preventative maintenance of the collection system, maintain an updated system map, record work activities in a work management system, and provide a program to target problematic areas with more frequent cleaning. This plan incorporates all of these requirements into the District's cleaning program(s).

Maintenance and Inspection Equipment

The District's Collection System Department owns and maintains a complement of equipment dedicated to maintenance and emergency response within the District.

Key equipment includes:

- **2013 Vactor 2100 Plus Combination Sewer Cleaning Truck** equipped with: Traffic control measures, spill response kit, spill response nozzles, general cleaning nozzles, 35' of 8" vacuum tubing, a ½" lateral jetter kit, first aid kit, PPE and miscellaneous tooling to support general maintenance and response events.
- **2009 Envirosight Digital Video Pipeline Inspection Truck** equipped with: Envirosight Rover camera, Wincan PACP software bundle, wireless video module for lateral camera inspections, traffic control measures, first aid kit, PPE and miscellaneous tooling to support inspection activities.
- **1-Ton Utility Truck** equipped with: Mongoose 12gpm lateral jetting machine, lateral inspection camera, traffic control measures, 3000w generator, spill response kit, PPE, first aid kit, and miscellaneous tooling in support of maintenance and response events.

Inventory Control Process

Collections personnel maintains its most used consumables (Ex: PPE, DEF, Root X) by conducting a weekly inventory and notifying the Collections System Supervisor when quantities are low. Inventory of equipment, replacement parts, and supplies are performed per a scheduled biannual work order generated to ensure an up to-date and complete inventory of equipment and replacement parts is in place.

Biannual inventory items:

- Traffic Control Equipment
- Bypass Equipment
- E-One Pump Spare Parts

- Collections Tools
- Manhole Rehab Parts
- PPE/Fall Arrest Equipment

Collection System Cleaning

The District has implemented two pipe cleaning programs to keep the entire collection system clean and prevent maintenance-related spills and stoppages. The System-Wide Cleaning Program was designed to ensure that every pipe in the collection system is cleaned at least once within a 3-year period. The Priority Line Cleaning Program is used for pipes that require more frequent cleaning due to the more frequent accumulation of material within the pipe. The cleaning frequency for each pipe is based on findings from prior maintenance activities with strategic programming to ensure system operability.

Cleaning Methodology

The District's overall process for cleaning the wastewater collection system is to remove roots, deposits, and debris through hydraulic cleaning using a truck mounted sewer flushing/vacuum machine. This system is designed to clear all types of blockages including roots, grit, debris, fats, oils, and grease (FOG).

The general process is as follows:

- Each sewer main section is cleaned from its downstream manhole up to the adjacent upstream manhole. Cleaning through intermediate manholes is avoided whenever possible.
- During cleaning from the downstream manhole, a debris trap is set up at the downstream manhole to collect sand, rocks, grease, roots, and other material flushed from the pipe. If there is a significant amount of debris, the vacuum system is used to remove the collected material.
- Cleaning rates are at 35 feet per minute or less, typically at 2000 PSI @ 40 GPM in most circumstances.
- The material seen or removed from the pipe is quantified as 'clear', 'light', 'medium' or 'heavy' and appropriately recorded.
- The cleaning crew makes as many passes as necessary, based on cleaning spoils, to fully clear the pipe of debris.
- A proof skid is used, whenever possible, to prove that the pipe is clean and that there are no protruding service connections misaligned joints or deformed pipe.
- The amount and type of debris removed is used as a factor to determine the next scheduled cleaning target date.

System- Wide Cleaning Program

Pipes scheduled under the System-Wide Cleaning Program will have a target cleaning date set 36 months from the date the pipe was last cleaned. These pipes typically do not have any previous maintenance problems and have been found to have "clear" or "light" findings during their most recent cleaning. Under the System-Wide Cleaning Program, each pipe in the collection system has been scheduled for cleaning.

Priority Line Cleaning Program

Within the District's collection system, certain pipe segments need to be cleaned more frequently than every 36 months to prevent the build-up of material that can potentially cause blockages or SSO's. These pipes are maintained under the Priority Line Cleaning Program. Under this program, cleaning frequencies are set for each pipe based on the amount and type of material found during the previous cleaning and problematic hydraulic conditions (inverted siphons, sags, incorrect grade, etc.). These frequencies range from 1 month to 24 months. Each pipe has its own cleaning frequency and target cleaning date. Cleaning frequencies are adjusted as necessary to time the next cleaning when blockage material is just beginning to accumulate. Pipe cleaning frequencies are adjusted according to the criteria defined in the *Cleaning Schedule Strategy* section below.

Cleaning Schedule Strategy

The District utilizes a dynamic scheduling strategy based on the results of prior cleaning events to determine frequencies for upcoming scheduled cleaning.

The overall process is as follows:

- Each pipe segment has its own cleaning frequency and defined target cleaning date.
- Pipes are grouped and scheduled for cleaning according to common target cleaning date and geographic area to efficiently use the cleaning crew's time and resources.
- Pipe diameters, accessibility, historical flow rates, traffic control requirements and other factors are also considered.
- The District utilizes its CMMS to plan each week's cleaning/inspection schedule.
- Each active gravity sewer main in the application has a "next" cleaning date identified in the database.
- This date is automatically generated depending upon the cleaning frequency assigned to the pipe and the findings of the last cleaning event.
- Weekly cleaning events are created by "generating" work orders within the upcoming target dates on the appropriate CMMS module.
- As pipes are scheduled, a work packet is prepared and printed each week for review by the Collections Supervisor. The work orders are sorted by priority or event and then are given to the field crew to complete accordingly.
- After cleaning each sewer main, the field crew records the cleaning findings for each pipe segment as 'clear', 'light', 'medium', 'heavy'.
- At the end of each shift, work orders are returned to the Collections System Supervisor and the cleaning results are entered back into Accela and a new target date for each pipe is generated based on the findings.
- Pipes that have been recently repaired or replaced, impacted by SSOs, have seasonal issues or chronic problems are managed by the Collections System Supervisor and scheduled on a case-by-case basis.

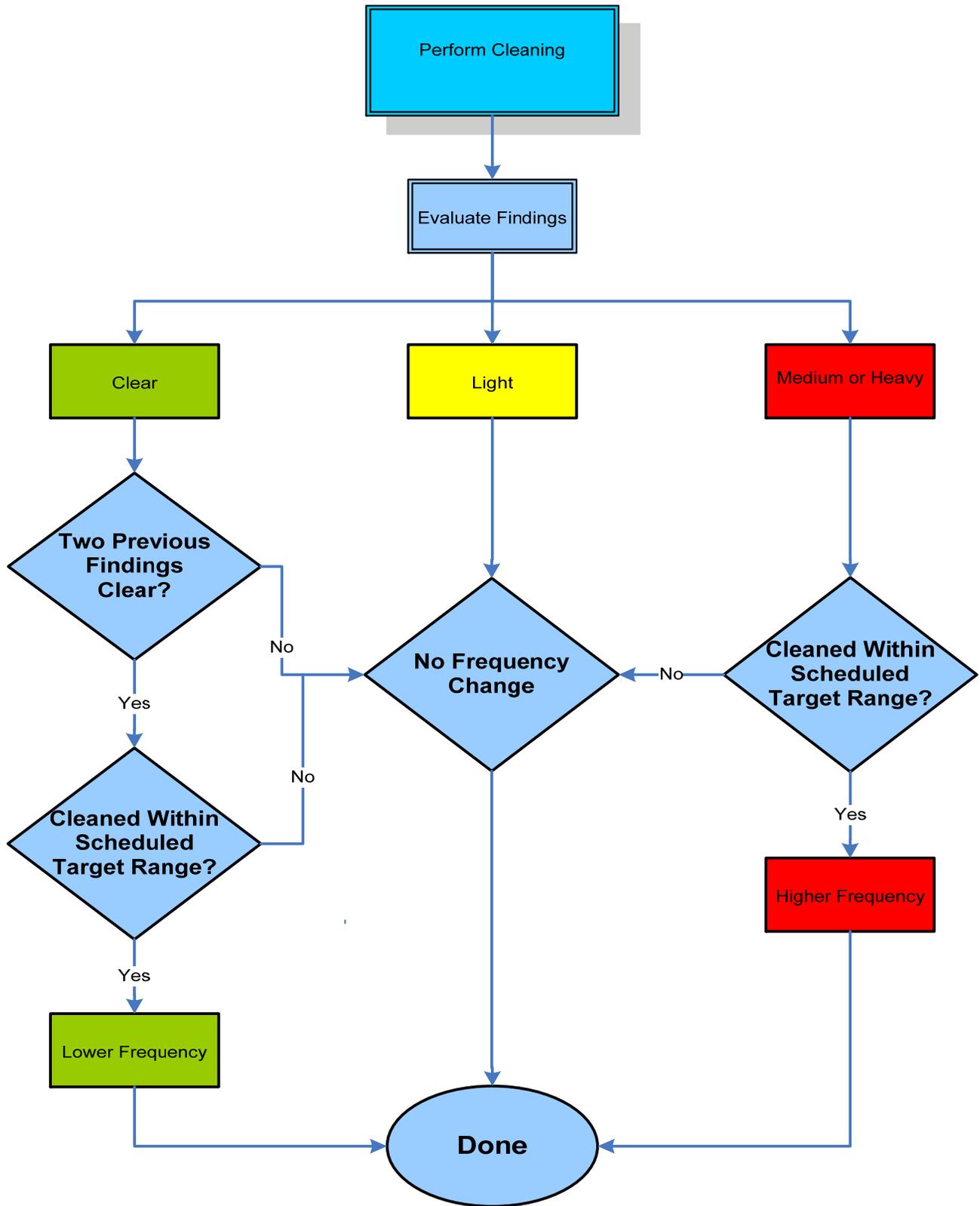
Modifying Cleaning Frequencies

Each time a pipe segment is cleaned, the cleaning frequency is evaluated based on the cleaning results documented by field staff. This allows the time interval between cleanings to be adjusted to reach an optimal cleaning frequency for each pipe.

The objective of this process is to determine the optimum frequency so that each pipe is just beginning to need cleaning at the next cleaning date and returns a 'light' finding. Pipe cleaning that results in the removal of more material (e.g. 'medium' or 'heavy') indicates that the pipes are not being cleaned frequently enough and are candidates for a more frequent cleaning. Pipes that are consistently 'clear' of any material or have trace amounts of material are candidates for less frequent cleaning.

Clear	No observable grease, roots or debris.
Light	1 to 1.5 gallons of debris, small chunks of grease. 20-30 minutes of cleaning time required, 1-2 passes to obtain clear water.
Medium	2-3 gallons of debris, moderate chunks of grease 30 minutes of cleaning time required, 2-3 passes to obtain clear water
Heavy	4 or more gallons of debris, grease or clumps of roots More than 30 minutes to clean line, 4 or more passes to obtain clear water

Figure 4-1 Determination of Cleaning Frequency Flow Chart.



CCTV Mainline Pipeline Inspection

In October 2013, the Collections System Department completed a system wide video inspection project. The video capture and reporting process was performed by NASSCO-PACP certified personnel using a pipeline inspection software called WinCan. The inspections have provided the District with updated, high-resolution digital video of each pipeline segment in our inventory along with carefully generated inspection records in database format based on industry standard defect coding. Structural and operational defects encountered during this inspection project were categorized by type and severity and packaged into a rehabilitation project that commenced in the winter of 2013.

The District launched a main line inspection project in January 2016 to remain aligned with the inspection interval period and to provide data for ongoing rehabilitation projects. As of September 11, 2017, CCTV inspections (103,395.30') of sewer mainlines have identified approximately 14,500' of sewer mainlines to be rehabilitated in the 2018/2019 Sewer Mainline Rehabilitation Project.

CCTV Lateral Pipeline Inspection

In January of 2013, the Collections System Department launched a Sewer Lateral Inspection/Inventory Project. The goal of this project is to ensure that the District is servicing all of its assets by updating the lower lateral inventory database. This project requires the Field Crew to go to each household within the District, determine if a property line cleanout exists and if found, inspect, clean and catalog the asset. Video inspections of the laterals are being accomplished with a portable "push" camera system that wirelessly sends a video signal to the CCTV inspection van for processing by NASSCO-PACP certified District personnel. If problems are found, such as root intrusion or grease buildup, the line is cleaned by either the Gorlitz sewer cleaning machine (snake), the lateral hydro cleaning kit mounted on the Vactor or a truck mounted jetter system. Once the lower lateral is clean, it is then put on a regular maintenance schedule as per **Figure 4-1**.

The Sewer Lateral Inspection/Inventory Project was completed in May of 2016. This project was deemed a success in that the crew identified, inspected, cleaned and prescribed future maintenance for over 200 property line clean outs. The Districts current lower lateral inventory is 738.

** CCTV inspections of main lines and laterals are also performed on an as-needed basis in response to requests from the public, contractors, District staff and as a follow up to an SSO.*

Cleaning Performance Quality Assurance/Quality Control (QA/QC)

CCTV is periodically used to ensure a recently cleaned sewer main was properly cleaned. In addition, to post cleaning CCTV inspections, Collections Department personnel routinely utilize the CCTV unit in concert with the Vactor in support of ensuring removal of roots, encrustation, and debris. This allows the Collections Supervisor and the Collections Operators to monitor the effectiveness of their cleaning procedures and verifies that the cleaning assessments are accurately recorded.

Management and Field Crew Communication Summary

The generation of electronic work orders is the primary means of formal communication between Management, the Collections Supervisor, the Collections Lead, and the Field Crew. Work is electronically "generated" every Friday for the upcoming week. The quantity and

type of work are designed to keep the crew in step with meeting inspection and cleaning goals and accommodating “priority” status mainlines and laterals. Upon completion of a work order, the Field Crew records the cleaning results and any pertinent notes on work order form. The cleaning results and notes on the work order are checked by the Lead and then “Closed in the Field (CIF)” electronically. The “CIF” is then reviewed by the Collections System Supervisor and closed. This data is then accessible for report generating to identify the necessity to change a schedule, schedule further inspection or rehabilitation.

Informal communications take place on an ongoing basis between the Collections System Field Crew and the Supervisor. There are daily informal discussions regarding work plans, verifying resources, review of cleaning results, and other daily issues.

Meetings between management and supervisory staff are held on a regular basis to discuss progress, coordinate resources and resolve issues. A safety meeting is also held, at a minimum, every other week.

Additional Collection System Responsibilities:

- **Response to USA/ Dig Alert Requests**

The District’s Collection System Department also marks the location of mainline sewers in response to USA DigAlert notifications that come into the office via email on a daily basis. This important function is necessary to protect the integrity of our buried infrastructure from damage associated with other excavation and sub surface work.

- **Manhole Inspections**

Collection System personnel routinely perform inspections of manholes concurrent with hydro cleaning and/or CCTV inspection activities. Manhole condition is documented on a MACP form. Certain manhole repairs, such as concrete collar replacement, are done using in-house resources.

- **E-One Grinder Tank/Pump Inspections**

From 2012 to 2014, the District took possession of maintenance and inspection duties for 131 E-One grinder pump units located in the Sandyland Cove, Sandpoint Road, and Rincon Point communities. With the support of multiple governmental and environmental agencies, these beachfront communities elected to abandon their septic systems and have a low-pressure sewer system installed. These systems consist of a holding tank, a grinder pump and a control panel equipped with an automated audio/visual alarm. District personnel has been extensively trained by the vendor's technical staff in regards to troubleshooting these units and have implemented a yearly inspection cycle to ensure that the homeowner is following proper usage protocols and that the pump/control panel is in good working order.

- **Smart Cover Inspection/Monitoring**

The District currently has eight (8), “Smart Covers” strategically located within the collection system to alert District personnel via email and text message if a surcharge condition arises. Although these units are automated, the Collections System personnel routinely inspect the units’ condition and configuration to ensure they are in proper working order and orientation.

- **Spill Response Readiness**

Sanitary sewer overflow (SSO) calls are considered to be a high priority that demands a prompt response to the location of the reported problem. The District's goal is to respond to an SSO report within 15 minutes during normal working hours and within 30 minutes for after hour's calls when possible. The Collections Department maintains spill response readiness during normal and after hours as outlined in the District SSO Response Plan.

4.5 Collection System Rehabilitation and Replacement

The District is focused on rehabilitation and replacement of aging or defective collection system infrastructure, equipment and streamlining workflow. Significant capital improvement projects have recently been completed to improve buried infrastructure and enhance operational efficiency/safety. These projects are outlined below:

Collection System Rehabilitation Project – (2007/2008)

The District completed the first phase of a major collection system rehabilitation project in FY 2007/08. Carollo Engineers completed planning and design of a project that ultimately involved rehabilitation or replacement of over 12,000 linear feet of gravity sewer. A construction contract was issued to Insituform Technologies. The work involved primarily cured in place pipe (CIPP) lining of sewers ranging from 8-inch to 21-inch diameter. A substantial number of pipe segments were replaced using pipe bursting technology as part of this project. These were primarily 6-inch diameter VCP pipelines that were upsized to 8-inch diameter HDPE. The work also included a number of point repairs to address identified defects.

Manhole Rehabilitation (2009)

In 2009 the District engaged a contractor to perform structural rehabilitation and polymer lining of approximately 100 existing manholes. The District previously completed a system-wide manhole inspection and evaluation program using in-house staff. Based on observed condition, a prioritized rehabilitation schedule was developed. Future manhole rehabilitation, when appropriate, will follow in order of priority based on condition ratings.

Carpinteria Bluffs Sewer Main Replacement (2011)

This project involved the relocation of approximately 6,100 linear feet of existing gravity sewer pipeline from its location along the edge of the Carpinteria Bluffs to within Carpinteria Avenue. The original pipeline had historically been prone to surface erosion. Relocation of the sewer to Carpinteria Avenue has provided improved accessibility for maintenance and has avoided failures related to geologic activity on or near the bluff face.

CCTV Mainline Inspection Project- (2010-2013)

The District has recently completed a comprehensive system-wide collection system CCTV inspection program. The project allowed the District to collect inspection data using the NASSCO PACP defect coding system. Upon completion, the District prioritized a rehabilitation schedule for use in preparing a construction bid package for the 2013 Collection System Rehabilitation Project.

Point Repair Projects (May 2013)

Upon finishing the CCTV Mainline Inspection Project, the Collections Department identified and prioritized a number of point repairs to be done in low ground water conditions.

The point repairs were as follows:

- 126 Ash- Cleanout Repair
- Cedar Place- Mainline repair (6G400-7G005)
- Third St.- Mainline repair (7G155-7G230)
- Old Linden- Mainline repair (6H105-6G095)
- Linden-Mainline repair (5H090-5H165)
- Manhole Rehabilitation/ Smart Cover Installation (8G010)
- Manhole Rehabilitation/ Smart Cover Installation (3B045)

Collection System Rehabilitation Project – (2013/2014)

The District completed a major collection system rehabilitation project in 2014. In-house, staff evaluated the main line CCTV data and designed a project that involved rehabilitation or replacement of over 16,000 linear feet of gravity sewer. The construction contract was issued to Sancon Engineering. The work involved primarily cured in place pipe (CIPP) lining of sewers ranging from 6-inch to 10-inch diameter. The work also included a number of point repairs and top hat installations to address identified defects.

Combination Sewer Cleaning Truck Procurement (September 2013)

The replacement of a 1996 model year Vac-Con combination sewer cleaning machine with a 2013 Vactor 2100 Plus was completed in September of 2013. The new vehicle has been a key element in accelerating our System Wide Cleaning Project and has proven to be more powerful, efficient and safe for District personnel.

Addition of Collections Department Personnel (September 2013)

Upon completion of a manpower report based on current and projected workloads, the District elected to create a Collections Operator I position. As of September 2013, this position was filled and the Collections Department has experienced a more consistent manpower resource/workflow, the ability to engage multiple cleaning tasks simultaneously, and a steady increase in productivity.

Update of Computerized Maintenance Management System (2013- Ongoing)

This project involves migration from the District's current computerized maintenance management system (CMMS) software platform to a new application, particularly for collection system management and data integration. District staff has evaluated the myriad of options and has identified **Lucity** as the desired software solution. District staff is currently working on data migration and look forward to bringing this priority project to completion in the near future. This new software bundle will be instrumental in the management of our ongoing efforts to efficiently and effectively manage our infrastructure assets and comply with an increasingly stringent regulatory framework. (Reference: www.lucity.com)

Truck Mounted Sewer Lateral Cleaning Machine-Procurement (August 2014)

With the addition of the Vactor combination truck in 2013, the Collections department has been able to utilize the hydro-excavation pack on the Vactor that doubles as a jetter to clear lower laterals with improved cleaning results, production rates, and employee ergonomics. The truck mounted jetter package will provide a redundant means of jetting lower sewer laterals, increase lateral service production rates, provide a pressure washer to aid in SSO response, alleviate the usage of homeowners water and hoses for SSO clean-up, root chemical application, and minimize noise/spatial impact of the community with the usage of the Vactor.

Trimble Geo 7X-GPS Unit-Procurement (July 2014)

Technological advances in Global Positioning Systems (GPS) have made it possible to use a hand held, non-survey grade GPS device to collect location data with a horizontal accuracy of 1 cm and a vertical accuracy of 1.5 cm. In the past, acquiring positional data of this accuracy would previously have required the District to contract with a professional surveyor and obtaining the data for the entire system would be prohibitively expensive. The Trimble Geo7X device will be utilized by District staff, typically in conjunction with routine maintenance and/or inspections. It will also be used to accurately map property line clean outs, low-pressure sewer system infrastructure, and other facilities. The vertical elevations captured for each manhole will be of great benefit, as it will allow us to update and refine the hydraulic system model.

Pump Station 6 Pump Replacement (2015)

This project involved replacing two existing pumps with new Flygt 3203 submersible pumps to match all the pumps at all District lift stations. This pump replacement is part of the District's ongoing proactive asset management program that is intended to provide 100% reliability.

Carpinteria Creek Suspended Line Crossing Restoration (2015)

In concert with preparing for the Caltrans Hwy 101 Widening Project, the District re-aligned the Carpinteria creek crossing that was previously an aging suspended line. Project scope involved the realigning of gravity sewer mainlines/manholes and installing a two-barrel inverted siphon using horizontal directional drilling to both improve District wastewater conveyance and accommodate the Caltrans US 101 Widening Project.

Linden Avenue Sewer Later Installation (2015/2016)

Five residential properties in the 1300 block of Linden Avenue were connected to the District owned public sewer via a deteriorated shared private sewer line that existed along the rear of their property boundaries. No clear record or documentation was located regarding the history or ownership of this shared sewer. To mitigate potential pipe failure and associated SSOs, the District constructed a new main sewer in the street in front of these parcels. The homeowners subsequently connected to the new pipeline, pursuant to an agreement with the District, and abandoned the private shared lateral.

Mobile Device Integration (2015/2016)

In 2014, the Collections Department implemented the use of tablet devices ahead of the full CMMS/GIS integration in order to get personnel familiar with the devices. The tablets

were loaded with SDS data sheets, tailgate safety topics, vehicle pre-trip forms, construction inspection forms, e/one pump inspection forms, asset mapping ,SSO response manual, SOP's, an SSO response app and a USA Digalert application.

The goal of the second phase of implementing our new CMMS system was to move the Collections Department to a "100% paperless" operation. This was accomplished in early 2015. Developing an efficient means of processing work orders, collecting/communicating asset data and providing pertinent information in the field has been collaborative and fluid in nature and is constantly being developed to further productivity, situational awareness, and data management.

The following features have improved our workflow process:

- a) The ability to generate a work order in the field against an asset not scheduled for inspection/service.
- b) The ability to take a picture or video and attach it to a work order or send it to the Collections Supervisor.
- c) View as-builts in the field.
- d) View prior inspection pictures in the field.
- e) View WinCan line reports in the field.

Santa Claus Lane Sewer Improvement (2016)

A sewer line crossing under US 101 which provides service to the Sandpoint Beach Community and Santa Claus Lane commercial customers was found have serious vertical deflection. Hydraulic limitations required the District had to implement frequent maintenance intervals within and upstream of this crossing to keep the sewer system in this area functional. The existing 24-inch steel casing had apparently failed and water intrusion into the annular space had caused the sewer pipe to float within the casing. Ultimately the District replaced the existing gravity sewer crossing under US 101 using auger boring methods. Due to severe site constraints, unfavorable subsurface conditions and high traffic levels, this project cost in excess of \$1M to complete.

Odor Control Program (2016)

In 2015, the District conducted a pilot study to evaluate odor control benefits associated with the injection of magnesium hydroxide into the collection system upstream of its two largest pump stations. The study documented measurable reductions in hydrogen sulfide gas concentration in the influent structure at the WWTP and noticeable odor reduction within the collection system. The result of the study justified a capital project to purchase a storage tank and delivery pump to continue the use of the product. The installation of the new tank and magnesium hydroxide injection system was completed November 2016.

Lateral Rehabilitation Project (2017)

The District currently maintains 480 lower laterals that are on preventative service schedules ranging from 1 month to 5 year intervals. Approximately 61 of these laterals required maintenance every 3 months or less and account for nearly 40% of lateral work orders. In 2017 the District completed a comprehensive CIPP lateral lining project that resulted in full rehabilitation of 41 laterals using the Trelleborg EPROS MTH system. We have continued an ongoing program to replace other laterals with root intrusion or structural defects using local contractors with either open cut or pipebursting methods.

Plum Street Sewer Replacement Project (2017/2018)

This project involves replacing an existing 10-inch diameter sewer pipeline on Plum Street, between Highway 101 and the Union Pacific Railroad right-of-way to the south, and a sewer pipeline running parallel to the railroad right-of-way between Plum Street and Sandyland Cove Road, which varies in size from 10-inch to 12-inch diameter. The sewer pipeline on Plum Street and the sewer pipeline parallel to the railroad is in the process of being upsized to 14-inch diameter. The existing 15-inch diameter sewer pipeline between Sandyland Cove Lane and the existing sewer the lift station will be upgraded with a cured-in-place liner (CIPP).

4.6 Pump Station Improvements

The District has undertaken major capital facility upgrades at its remote pump stations over the past eight years.

These upgrade projects include those listed below.

- Influent Pump Station Pump Replacement
- Pump Station No. 1 and No. 2 Pump Replacement (2009)
- Pump Station No. 1 and No. 2 Flow Meter Installation
- Pump Station No. 1 and No. 2 VFD Replacement
- Pump Station No. 1 and No. 2 Control and Telemetry Replacement
- Pump Station SCADA System Development/Integration
- Pump Station No. 3 Pump Replacement Project
- Pump Station No. 4 Force Main Replacement
- Pump Station No. 4 and No. 5 Complete Rehabilitation (2009)
- Pump Station No. 5 Control Replacement
- Pump Station No. 5 Flow Meter Installation
- Pump Station No. 6 New Panel, Control and Telemetry Replacement
- Pump Station No. 7 Construction, Start up and Addition to CSD Collections System
- Pump Station No. 8 Construction (To serve Rincon Point Community)
- Pump Station No. 6 Pump Replacement
- Pump Station No. 1 Controller Replacement
- Pump Station No. 2 Controller Replacement

**The District has standardization across all pump stations. We have developed a standard specification for pump station controls and telemetry so that each station utilizes the same pump controller, transducers, auto dialer, and other key equipment. This standardization is beneficial to operators who have to respond to the pump stations for routine or emergency maintenance activities. Similarly, we have made efforts to utilize a common pump style and manufacturer, one that has proved to be extremely reliable, for the same reasons.

Pump Station SCADA System

The District has developed a SCADA system to monitor its remote pump stations from the central wastewater treatment facility. All of the District's pump stations are equipped with radio-based telemetry systems that continuously communicate with the SCADA computer at the District's treatment plant. The SCADA system provides real time monitoring of flow, pump conditions, and other key operating parameters. Historical information and trends can be viewed from the SCADA computer. This information is incredibly valuable. The SCADA system is also tied to the District's automated alarm system so that problems or failures at any station are immediately reported to the system operators any time, day or night. The automated dialers at each pump station now serve as a redundant backup. Additionally, pump stations #1, #2 and #3 all have Smart Cover manhole monitoring at the upstream manhole before the stations. The Smart Covers monitor water levels in the manhole and communicate via satellite to an independent alarm system.

4.7 Operator Training and Certification

Training and professional development of staff members is a key management objective at the District. District management and policy makers understand the importance of technical training and have consistently invested in on-site and off-site training opportunities for staff at all levels.

The District is an active member of the California Water Environment Association (CWEA) at the State level and in the Tri-Counties Section chapter. Collection system and maintenance staff participate regularly in local, regional and state level training sessions and conferences through CWEA.

Other technical training is provided to staff members on a regular basis to support specific roles and duties that are related to collection system maintenance and operation. This includes specialized training provided by vendors and manufacturers, safety training on confined space entry, trench safety, traffic control and other topics, and industry specific training on pertinent topics (e.g. NASSCO PACP, MACP, LACP defect codes, hydro cleaning nozzle selection, etc.).

Each year the District's Collection System Supervisor and Operations Manager develop an annual training plan and associated budget that is authorized by the General Manager and the District's Board of Directors. Training is carefully documented in general and employee specific files.

Carpinteria Sanitary District

Collections Personnel Equipment Training Log

<u>Equipment</u>	<u>Initials</u>	<u>Date</u>
Vactor 2100 Combination Truck	_____	_____
Lateral Jetting Machine	_____	_____
Ridgid Lateral Camera	_____	_____
2009 Ford CCTV Van (Assistant)	_____	_____
2009 Ford CCTV Van (Operator)	_____	_____
IPAD (Lucity Reference and Acrobat Documents)	_____	_____
LUCITY (Work Orders)	_____	_____
On Call Cell Phone Responsibilities	_____	_____
Review of Current SSO Response Plan	_____	_____
E-One Call Out Response Procedures	_____	_____
Lateral Backup Response Procedures	_____	_____
Odor Complaint Response Procedures	_____	_____
Mainline Backup Response Procedures	_____	_____
Smartcover Alarm Response Procedures	_____	_____
Trash Pump Set-Up/Operation	_____	_____
Generator Set-Up/Operation	_____	_____

Operator Signature/Date: _____

Trainer Signature/Date: _____

Carpinteria Sanitary District CWEA TCP Certifications

District staff members are encouraged to pursue certification through the CWEA Technical Certification Program (TCP). Many of these certifications indicate direct competency in various areas of the collection system and lift station maintenance and operation. A summary of the current TCP certificates held by District staff is provided below:

Name/Title	Certificate	Grade Level
Mark H. Bennett Operations Manager	Plant Maintenance Technologist	4
	Collection System Maintenance Technologist	4
	Laboratory Analyst	1
Mark J. Rogers Treatment Supervisor	Mechanical Technologist	1
	Laboratory Analyst	1
	Collection System Maintenance Technologist	1
Matt Oliver Collections Supervisor	Collection System Maintenance Technologist	2
Eddie Saenz Lead Collections Operator	Collection System Maintenance Technologist	4
	Mechanical Technologist	2
Frank G. Gonzales Laboratory Technician 2	Laboratory Analyst	1
Keith P. Sweningson Operator 2	Mechanical Technologist	2
	Collection System Maintenance Technologist	1
Branson Taylor Operator 2	Collection System Maintenance Technologist	1
	Mechanical Technologist	1
Kenneth Balch Operator 2	Plant Maintenance Technologist	1
	Collection System Maintenance Technologist	1
Tim Gallup Collections Operator	Collection System Maintenance Technologist	2
John Jimenez Collections Operator	Collection System Maintenance Technologist	1

4.8 Equipment Maintenance Procedures

As discussed in Section 4.3, the District utilizes its Lucity CMMS database application to schedule and track collection system and pump station maintenance activities. Work orders are generated according to established schedules. Generally, these work orders contain detailed instructions for maintenance and servicing equipment and infrastructure.

The maintenance procedures were developed primarily from Operations and Maintenance (O&M) Manuals for equipment. However, the procedures are evaluated by District staff and updated to include industry best management practices and/or modifications based on specific user experience.

Generally, equipment maintenance is performed in-house by District staff. Certain functions are performed by outside vendors or contractors (e.g. service of Vactor combination sewer cleaning unit). The District is focused on preventative maintenance so that emergency response equipment is fully functional and available at all times.

5.0 DESIGN AND PERFORMANCE

The Carpinteria Sanitary District implements a comprehensive program to ensure that public and private sewer construction, modification and replacement activities conform to established design and performance standards. This section provides an overview of this program.

5.1 WDR Requirements

The General WDRs require the District to have design and construction standards and specifications for the installation of new sewer systems and for the rehabilitation and repair of existing sewer systems. The District is also required to have procedures and standards in place for inspecting and testing the installation of new sewers, pump stations, and other appurtenances, and for rehabilitation and repair projects.

5.2 Design and Construction Standards

District Ordinance No. 2 provides the basic framework for the design and construction of public and private sewer infrastructure within the District's service area boundaries. The District has maintained detailed standards and specifications for the construction of main sewers, lateral sewers, and building sewers for many decades. These standards and specifications have evolved over time to reflect industry standard practices and changes in accepted materials and methods.

The District's standards and specifications for building and lateral sewers were last updated and approved in June 2002. A copy of the June 2002 standards and specifications is provided in **Appendix C**. Minor revisions to these standards have been made since 2002 and are reflected in printed materials that are provided applicants, agents, contractors and other parties interested in sewer construction requirements.

The District is currently undertaking a major redevelopment of its design and construction standards. The updated requirements will be formatted to be consistent with the District Code and will reflect a comprehensive review and retooling of the standards.

Public Sewer Infrastructure Design and Construction Standards

The District generally implements a project-specific approach to the review and approval of proposed public sewer system infrastructure construction.

Main sewer extensions pump stations and related facilities that are constructed by private parties for future dedication to the District are generally undertaken pursuant to a Sewer Construction Agreement between the District and the proposing party. This obligates the developer to comply with design and construction requirements set forth by the District during a collaborative plan development and review process. Ultimately, the District's General Manager and District Engineer approve the project plans and issue permits for construction.

Sewer improvements constructed by the District are designed to reflect current standards and specifications and to implement general internal objectives relative to equipment and system standardization and uniformity. For example, all new pump stations utilize a standardized control panel and telemetry package. The District's General Manager and District Engineer must approve construction plans and specifications prior to bidding and contract award.

5.3 Construction Permit Program

Construction of private and public sewer infrastructure within the District's service area boundary requires a permit. The District has had a sewer construction permit program in place for many decades in accordance with established District ordinances. It is a formal means to ensure that sewer infrastructure is built in conformance with District standards and to allow for inspection of all constructed facilities.

Permits are generally issued over the counter for most types of sewer improvements. Main sewer extensions and other complex projects require a more comprehensive plan check and review process, but sewer construction permits are issued in the same manner for all projects. Property owners (or their contractors) are required to have a copy of the issued permit available at the job site.

Sewer construction permits provide a lasting record of construction activities within the District. Permits are filed and maintained on a parcel by parcel basis for future reference. The District has made efforts to keep permit fees affordable so that property owners, contractors, plumbers and other individuals performing work on sewer infrastructure are not discouraged from obtaining the required permit.

5.4 Testing and Inspection Procedures

Standard requirements and protocols for testing newly constructed lateral and building sewers are set forth in the June 2002 Design and Construction Standards (see Appendix C).

Newly constructed sewer mains require post construction CCTV inspection, pressure testing and deflection (mandrel) testing. This is in addition to on-site inspection during construction by the District. Lateral sewer installation or replacement must be followed by air or water pressure testing witnessed by District staff. Testing and inspection of other public sewer improvements, such as manhole installation or rehabilitation, pump station upgrades and other work, also follows rigorous testing and inspection protocols.

Inspection and Testing Jurisdiction

The District performs rigorous inspection and testing of all public sewer infrastructure following (or during) installation. Testing requirements are set forth in the project plans and specifications for all public works projects. District staff will typically perform this inspection and testing on small projects. The District does contract with third party inspectors to oversee construction of larger public sewer construction projects.

For lateral sewer construction, modification and repair within the City of Carpinteria, the District has jurisdiction for inspection and testing. District staff documents the work, in conjunction with the sewer construction permit materials. Photographs are taken and required testing procedures are witnessed or performed by District staff.

For lateral sewer construction, modification and repair outside of the City of Carpinteria and in the unincorporated areas of Santa Barbara County, the County building department maintains jurisdiction for inspection and testing. We issue permits and document improvements on private property but defer to the County for inspection and testing.

6.0 OVERFLOW EMERGENCY RESPONSE PLAN

The District has maintained and implemented plans and procedures for response to SSOs for several decades. These procedures have included protocols for reporting to appropriate governmental agencies and the public.

6.1 WDR Requirements

The General WDRs governing sanitary sewers specify the development and implementation of an overflow emergency response plan as an element of each wastewater collection agency's SSMP. This element identifies the agency's practices to protect public health and the environment in the event of a spill.

6.2 Overflow Response Plan

In December 2008, the District completed and adopted a comprehensive, updated **Sanitary Sewer Overflow Response Plan** that is fully compliant with General WDR requirements. A 2014 revision has been finalized and put in use.

The SSO Response Plan is a stand-alone document that is used by District staff members during and following all reported or detected SSOs. Copies of the plan are located in each District vehicle that could be involved in SSO response, as well as in the offices of District staff members likely to participate.

Key elements of the SSO Response Plan include:

- Flow Charts for Responders
- SSO Report Forms
- Detailed SSO Response Procedures
- SSO Notification and Reporting Procedures and Contact Numbers
- Vendor/Contractor Support Information and Contact Numbers
- Recovery and Cleanup Procedures
- Sampling and Investigation Requirements
- Procedures for Addressing SSOs Affecting Private Property
- Detailed Lift Station Failure Response Procedures
- SSO Training and Preparedness

A copy of the body of the District's SSO Response Plan, with pertinent appendices, is provided in **Appendix D**.

7.0 FOG PROGRAM

This section of the Sewer System Management Plan (SSMP) provides a summary of the District's FOG Control Program for the wastewater collection system. Program elements include legal authority, enforcement, source controls, system maintenance, best management practices for food service facilities and public outreach.

7.1 WDR Requirements

The State Water Resources Board (SWRCB) requirements for the FOG Control Program Element of the SSMP are summarized as follows:

The District shall evaluate their service areas to determine whether a FOG control program is needed. If it is determined that FOG programs are not needed, justification must be provided. If FOG is found to be a problem, the District must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. The FOG source control program shall include the following as appropriate:

- a. An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;
- b. A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of FOG generated within a sanitary sewer system service area;
- c. The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;
- d. Requirements to install grease removal devices (such as traps or interceptors), design standards, maintenance requirements, Best Management Practices [BMPs] and record keeping and reporting requirements for grease removal devices;
- e. Authority to inspect grease producing facilities and enforce violations;
- f. A description of whether or not the District has sufficient staff to inspect and enforce the CSD FOG ordinance;
- g. An identification of sewer system sections subject to FOG blockages and an established a cleaning maintenance schedule for each section; and
- h. Development and implementation of source control measures, for all sources of FOG discharged to the sewer system, for each sewer system section identified in (g) above.

7.2 Legal Authority

Ordinance No. 7 – Sewer Use (Source Control)

In order to improve its FOG Program, the District adopted Ordinance No. 7 on June 21, 1994. The ordinance is titled a "General Regulation Providing Rules and Regulations for the Quality of Wastewater Discharged to District Facilities; for the Issuance of Source Control Permits; Authorization for Monitoring Inspection, Compliance, and Enforcement Activities; for Industrial User Reporting; Procedures for Variances and Appeals; and for the Repeal of Inconsistent Ordinances." This ordinance is a sewer use ordinance that primarily pertains to discharges from non-residential connections.

Originally modeled after a US Environmental Protection Agency Model Pretreatment Ordinance, the District's Ordinance No. 7 sets forth specific discharge prohibitions and requirements that are, in part, intended to protect sewer collection system infrastructure and minimize the potential for SSOs.

Quantitative local discharge limits are also established by this regulatory instrument. Ordinance No.7 also contains specific provisions related to the control of discharges containing Fats, Oils and Grease (FOG).

CSD Ordinance 7, Section 8 establishes requirements for food service establishments and related facilities to construct and maintain FOG control devices (e.g. traps and interceptors).

Permitting and enforcement provisions are also set forth in Ordinance No. 7. These are a key aspect of the District's overall program to control illicit discharges and other inappropriate uses of the District's collection system.

(Reference Appendix A- CSD Ordinances)

7.3 Fog Program Summary

The discharge of fats, oils, and grease (FOG) from animal and vegetable sources can create sewer line blockages that may result in sanitary sewer overflows (SSOs). Two main sources of FOG discharges are from restaurants and residential users. The FOG discharges may be a result of poor housekeeping practices at restaurants or from misinformed residential users.

The discharge of hot or warm FOG materials to the sewer causes the quickest blockage problems due to the receiving environment. The sewer main line temperatures typically range from 70-80°F and at this temperature; the hot or warm FOG that is discharged to the sewer main cools off, adheres to the interior surfaces of the sewer line and then hardens in place once completely cooled. The adhesion site(s) then becomes a focal point for additional adhesions much like making a candle. A sign of a chronic FOG discharge source is created within the sewer mainline, at or downstream of the user's lateral connection, in various forms characteristic of the material and frequency of discharge.

The Districts approach to keeping the collection system free of blockages not only requires proactive cleaning and maintenance but also source identification, pretreatment, and public education. To aid in the ongoing process of refining its current maintenance and outreach practices, the District has established a FOG Program that continually aims to accomplish the following goals:

- Identify and monitor new and continual FOG sources;
- Enforce District Ordinance No.7 requiring the installation and maintenance of pretreatment facilities for non-domestic sanitary sewer customers;
- Minimize FOG-related sewer blockages and overflows in a cost-effective manner;
- Educate the public about FOG and its impact on the community and environment.

Site Inspections

The District has one full-time employee responsible for the FOG Program. The subsequent FSE (food service establishments) inspections and the majority of the public outreach are executed by this individual.

To prevent sewer overflows and protect District facilities, the District inspects and evaluates seventy (70) FSEs within the Carpinteria Valley, generally annually with some FSEs being inspected on a more frequent basis. Fifty-four (54) of these facilities have been determined to generate FOG in their wastewater process and require a grease trap or interceptor. Nine (9) of the facilities are equipped with grease interceptors and forty-five (45) of the facilities are equipped with grease traps. (See Appendix H- CSD FOG Program Data)

In the event a condition is found to be in violation of District Ordinance 7, following a warning, the inspection frequency may increase depending upon the history of the site, type of restaurant, complaint history, and sewer line blockage or SSO history. Upon successful inspection results, the FSE will be issued a non-transferable Grease Control Permit that remains valid for (3) years. In addition, the FSE is then added to the Districts asset management program to aid in scheduling inspections, recording inspection results, and tracking enforcement history.

Public Outreach

The District currently uses the Engineering Technician as the principal education and outreach vehicle to contact the restaurant community. During an inspection of a restaurant, the inspector uses the opportunity to inform and educate the owner or manager about the various laws and regulations that affect their business. Subject areas include product usage and substitution, best management practices for food service establishments, grease interceptor evaluation, record keeping, District regulation applicability, and any additional Grease Control Permit requirements.

The District's current pipeline for educating residents is at www.carpsan.com, facebook and through informational handouts located in the District Administration Office. In addition to social media, the District holds annual open houses that showcase our treatment facility and enters local parades that raises awareness of the Districts mission statement and the equipment used to maintain the collection system.

Grease Trap/ Interceptors

Ordinance No. 7, Section 8, requires FSEs that have been identified as a FOG producing establishment by the District are to have an approved, adequately sized, properly operated and maintained grease interceptor or gravity separating device. Interceptors must be of a capacity sufficient to provide the appropriate quality of effluent as per District standards (Ordinance 7, Article III) and shall be in an easily accessible location for inspection and cleaning purposes. Requirements for the installation of a grease interceptor or trap shall be determined on a case by case basis by the District using the Uniform Plumbing Code, current edition, as a guide. As required by the Source Control Permit, the permit holder is required to retain for a minimum of three years, documents inclusive of the following: maintenance records/contracts, FOG waste hauling records, and employee training records.

7.4 Enforcement

The District is empowered by CSD Ordinance No. 7 to take enforcement actions against any user(s) that causes a sewer line blockage and/or SSO. In order for the enforcement actions to be successful, a firm foundation of factual evidence must be obtained. This evidence must be objective and devoid of personal opinions. CSD personnel's use of CCTV to gather evidence is a critical component of an enforcement action taken against a user for causing a sewer line blockage and/or SSO. In addition to the CCTV evidence, inspections

are performed by the District at the suspected business to evaluate and investigate the cause(s) of the sewer line blockages and/or SSO. Once all evidence is collected, the information is reviewed by the General Manager and an enforcement strategy is planned. The enforcement will always be commensurate with the degree of the violation found and will follow the procedures and requirements outlined in CSD Ordinance No. 7. If the sewer line debris accumulation has just begun and no SSO or sewer obstruction has occurred, then a correction notice may be issued to improve housekeeping practices and evaluate the business practices that may lead to the discharge of materials that caused the sewer line debris accumulations. If the sewer line accumulations are significant and/or an SSO has occurred, then more severe enforcement actions may be taken. A notice of violation (NOV) may be issued with a compliance schedule to mitigate the conditions that caused the sewer line blockage and/or SSO to occur.

7.5 Fog Disposal

FOG removed by the District during cleaning of the collection system is taken to the WWTP to be processed. FOG generated by private businesses or residents is not allowed at the WWTP. Generally, businesses that comply with the provisions of CSD Ordinance No. 7 will capture FOG within a grease interceptor located outside the building or collect FOG within a grease trap located inside the building and then dispose of it in a waste bin.

Grease collected in disposal bins and interceptors are handled in two ways. Grease haulers collect grease from disposal bins or pump grease from grease interceptors and haul the grease to disposal facilities. Rendering companies generally collect grease from disposal bins and use the grease to produce biofuels, soap, tallow, and feed fat for animal feed.

Although District staff does not endorse any particular service provider, the following service providers are used by businesses in Santa Barbara County:

Service Provider	Phone Number
Biodiesel Industries, Inc.	(805) 683-8103
Clays Septic & Jetting, Inc.	(805) 929-5065
Coastal Byproducts	(805) 845-8086

7.6 Priority Line Cleaning

Sewer mainlines that exhibit low flow conditions or have frequent blockages caused by excessive grease, roots, solids, hydraulic faults or all four findings are referred to as "Priority Lines." These lines are identified based on qualitative findings such as tracking locations of repeat sewer blockages and surcharges, significant grease collected on hydro-jetting nozzles during cleanings, or through closed-circuit television inspection (CCTV) findings. Once the mainline is identified as a potential area of concern or in need of further investigation, the mainline is put on a monthly, quarterly or bi-annual preventive maintenance cleaning schedule. (Reference Figure 4-1 Determining Cleaning Frequency Flowchart) These locations are forwarded to the District Source Control Inspector for follow-up source determination and inspection. Priority lines remain on a preventative maintenance schedule until subsequent observations determine that the potential for obstruction or blockage has been reduced or eliminated. This program is described in more detail in SSMP Element 4-*Operation and Maintenance*.

BEST MANAGEMENT PRACTICES (BMP's) FOR FOOD SERVICE FACILITIES

As food service facility operators, grease can be managed effectively to minimize the discharge of fats, oil and grease (FOG) into sewer systems and in turn, possibly prevent future costly and time consuming exterior or interior plumbing repairs. Good grease handling habits can decrease the required maintenance on grease traps or interceptors, but it is up to each food facility operator to effectively implement these habits. Good grease controlling habits are called **Best Management Practices** or **BMP's**. The techniques presented below are used throughout the source control industry and are proven effective when done properly.

Maintenance – In order to prevent blockages caused by FOG, a consistent maintenance program must be in place. All grease collection and storage equipment must be regularly maintained per District and industry standards. All kitchen or facility staff must be well informed and trained to perform correct grease maintenance procedures. **Post these maintenance practices or at least make them available to each employee and cleaning staff.**

RECOMMENDED GREASE COLLECTION MAINTENANCE PRACTICES

Recommended Maintenance Practices	Reason	Benefits
Witness all grease trap or interceptor cleanings and other service activities to ensure that a proper job is being done and that all interceptor or trap equipment is in place and working.	Grease trap or interceptor service personal may take shortcuts. Witnessing cleanings will ensure that an establishment is getting the full value of service.	Possible savings on additional cleanings. The establishment may be paying for cleaning more often than necessary if full service is not provided.
Grease traps under sinks should be cleaned weekly. If proper BMP's are maintained, the cleaning cycles may be lengthened under District permitting directions.	Under sink grease traps have less volume than grease interceptors therefore retention times are less and more frequent cleanings are necessary.	Proper cleaning cycles help prevent malfunctions in traps and plumbing, therefore maintenance and costs may be reduced.
Grease interceptors should be cleaned as frequent as necessary per the District's or manufacturer's recommendations, whichever is more stringent. (Typically, the combined thickness of the floating grease and the bottom solids should not be more than 25% of the total interceptor depth.)	Interceptors must be thoroughly pumped and cleaned to ensure that the accumulation of grease and solids do not cause the interceptor to operate improperly. The cleaning frequency is a function of the type of establishment, the size of the interceptor, and the volume of flow discharged by the establishment.	Routine cleanings will prevent plugging of the sewer line between the food service establishment and the public sewer system. If a blockage occurs, it will cause a sewage backup into the establishment which in turn causes costly maintenance and repairs to the system.
Keep a maintenance log at all times, not just copies of trap or interceptor cleaning receipts.	The maintenance log serves as a record of the frequency and volume of cleaning the trap or interceptor. It is required by the District's Source Control Program to ensure that grease trap/interceptor maintenance is performed on a regular basis.	The maintenance log serves as a record of cleaning frequency and can help the owner of the establishment optimize cleaning frequency and possibly reduce costs.

Recommended Maintenance Practices	Reason	Benefits
Train all employees (especially new employees) on the importance of good cleaning habits for traps and interceptors.	People are more willing to support an effort if they understand the basis for it.	Overall good operational results for the establishment and possible cost-saving benefits.
Post “NO GREASE” signs above all sinks and on the front of dishwashers in several languages if necessary.	Signs serve as a constant reminder for all employees and kitchen service vendors.	Constant reminders will help minimize or eliminate grease discharges into traps and interceptors and possibly reduce the costs of cleaning and disposal.
<p>Water Temperature Limits – Use water temperatures less than 140° F in all sinks, especially the pre-rinse sink before the mechanical dishwasher. Use a three-sink dishwashing system which includes sinks for washing, rinsing and sanitizing in a 50-100 ppm bleach solution.</p> <p>Never use hot water when cleaning & rinsing the traps or interceptors. Temperatures for dishwashers should be set per manufacturers, health department’s and/or plumbing code standards. Dishwashers should never be connected to grease traps.</p>	Temperatures in excess of 140° F will dissolve the grease and when introduced into sanitary sewer lines it will cool and congeal or solidify within the lines which will cause blockages.	The establishment may help reduce its energy costs on gas or electric for heating of water.
<u>Recycle waste cooking oil.</u> Waste cooking oil is usually stored in secured bins in a location accessible for grease recyclers or disposal companies.	There are many waste oil recyclers throughout California. Some contact names are available at www.calfog.org .	Possible cost recovery opportunity and environmentally friendly solutions.
“Dry wipe” all pots, pans and dishware prior to hand or dishwashing. “Dry wipe” into the trash; dump excess amounts of grease from dishware into grease recycling bin.	The grease and food from all dishware will likely go to the landfills or composting piles. By “dry wiping” and disposing in garbage or recycling bins, the grease material will be eliminated that much more from the traps, interceptors and sewer lines.	Less frequent cleanings for grease traps and interceptors and possible savings on maintenance costs.
Dry clean-up any grease spills within kitchens and outside kitchens (especially around dumpster and bin locations). Control the spill, then sweep or clean-up with rags or granular absorbents and dispose of in dumpsters. Do not let any grease spill or end up in floor drains or storm drains. Mop and collect wastewater for disposal. Every grease handling establishment should have a “Spill Clean-Up Plan” in place.	Immediately washing spills down the drains without doing a dry clean-up will wash greasy waste materials into the drains and this will eventually cause blockages and sewage spills back into properties.	Will keep drains clear of grease and possibly prevent costly plumbing service calls or repairs.

Recommended Maintenance Practices	Reason	Benefits
<p>Check for the presence of floor drains and the potential entry of any unwanted chemicals to the sanitary sewer. Never pour cooking oil or grease into sinks or floor drains. Dispose or recycle grease through a licensed waste grease hauler.</p>	<p>Floor drains must have screens to capture solids. The screen must be clean, especially before cleaning the floor. Check for screening devices in sinks. Screens should be placed in all sinks to prevent solids from entering drain. Eliminate or avoid using an under-the-sink garbage disposal unit when possible. Excessive solids from produce and meats in grease traps and vaults may prove that garbage is discharged directly to the drain and not in the solids waste container (garbage receptacle).</p>	<p>Will keep floor drains clear and working properly, including all other drains linked to sinks if proper clean-up habits are enforced.</p>
<p>Be cautious of additives such as emulsifiers, solvents or <u>enzymes</u> other than typical dishwashing detergents that claim their products “break down” grease and enhance the performance of grease traps and interceptors.</p>	<p>Such “additives” cannot be substituted for a grease removal device and regular inspection and maintenance practices. These emulsifiers or solvent products just dissolve the grease and wash it down into the building’s plumbing and public sewer systems.</p>	<p>Allows for proper removal of grease and savings when emulsifiers or solvents are not used.</p>
<p>Have kitchen hood filters cleaned properly. Dispose of grease in grease bins. Do not clean equipment in food preparation sinks.</p>	<p>Proper and routine cleanings will prevent a build-up of grease and possible spills.</p>	<p>Good kitchen cleaning practices and possible savings on costly clean-ups or replacement of kitchen equipment. Dryer workplaces is safer for employees in avoiding slips, trips and falls.</p>
<p>Use absorbent paper under fryer baskets.</p>	<p>Reduces amount of grease during clean-ups. Dispose of soaked papers in a trash receptacle.</p>	<p>Reduces amount of grease entering the drain and protects sewers from grease blockages and overflows.</p>
<p>Periodically inspect for leaky grease bins or dumpsters. Never wash down bin or dumpster areas with a hose.</p>	<p>Contact the vendor or owner of the bins or dumpsters to repair or replace them. Have the company perform clean-ups or use other BMP’s to clean the bin or dumpster area.</p>	<p>Will help prevent illegal grease waste from entering into the storm water/storm drain system, streams and oceans and eliminate the potential for civil and criminal prosecutions.</p>
<p>Do not dump food wastes high in fat content down the disposal; the garbage bin is the best way to dispose unwanted scraps. The fat in soup broths should be allowed to separate and be disposed of in a grease container for proper grease disposal. All dips, dressings, marinades, etc. should be disposed of in the garbage and not poured down kitchen drains.</p>	<p>Food wastes high in fat content overload the grease trap and cause blockages and sewage overflows.</p>	<p>Will prevent grease accumulation into traps and interceptors and possibly cut down on maintenance duties and costs.</p>

8.0 SYSTEM EVALUATION / CAPACITY ASSURANCE

The District initiated a comprehensive collection system planning and improvement program in the early 2000's that continues today. The District's efforts were, in part, in response to forthcoming US EPA requirements to prepare a Capacity, Management, Operation and Maintenance (CMOM) program. This federal program, which was pending at the time, has not yet been implemented, but in many respects, the WDRs have similar plan and program requirements.

This section provides a summary of completed and ongoing efforts to evaluate the District's wastewater collection with respect to both structural condition and hydraulic capacity.

8.1 WDR Requirements

The General WDRs governing sanitary sewers specify that the District shall prepare and implement a capital improvement plan (CIP) that will provide hydraulic capacity of key sanitary sewer system elements for dry weather peak flow conditions, as well as the appropriate design storm or wet weather event as part of the Sanitary Sewer Management Plan (SSMP).

8.2 Wastewater Collection System Rehabilitation Plan

The District engaged *Dudek & Associates* to prepare a comprehensive **Wastewater Collection System Rehabilitation Plan**. The plan, completed in April 2002, was intended to identify defects with the District's 46 linear miles of gravity sewers and to prioritize remedial efforts based on defect distribution and severity.

This engineering based planning effort was primarily intended to assess the structural condition of the collection system based on existing data. The District had conducted a significant CCTV pipeline inspection program in the late 1990's and augmented this with contracted pipeline inspection prior to initiating the condition assessment planning effort.

The project approach for this study included the following basic elements:

- Develop refined defect coding system for CCTV inspection and data management
- Complete preliminary review of compiled CCTV inspection data
- Recommend follow-up CCTV inspection
- Analyze and manipulate data based on identified defect types
- Perform focused, engineering based review of CCTV inspections
- Generate numerical rankings for pipelines based on overall condition and defect specific data
- Recommend appropriate rehabilitation method or approach for priority segments
- Generate engineering cost estimates for recommended pipeline rehabilitation
- Develop a prioritized capital improvement program for strategic implementation
- Recommend additional planning and investigation measures.

The study recommendations included development of a wastewater collection system master plan and computerized hydraulic model as well as focused efforts to identify and control infiltration and inflow. A comprehensive list of pipelines requiring new or updated CCTV inspection was also prepared.

The study culminated in a prioritized list of pipeline segments based on a weighted total defect score. Weighting gave priority to structural defects and active infiltration. For each pipe reach a suggested rehabilitation method was provided, as were applicable unit and extended planning level costs.

A copy of the Executive Summary and pertinent excerpts from the Wastewater Collection System Rehabilitation Plan are presented in **Appendix E**

8.3 Infiltration and Inflow Study

The District completed a comprehensive **Infiltration and Inflow Study** to characterize and quantify groundwater and rainfall dependent infiltration as well as storm water inflow into its wastewater collection system.

Field monitoring, analyses, and reporting was conducted by MGD Technologies under sub contract to Dudek & Associates. Eight monitoring locations within the collection system were selected, generally to isolate separate drainage basins within the District's service area. MGD utilized area velocity type open channel flow meters with continuous data logging to monitor flow.

Dry season flow monitoring was conducted over a one-week period in September 2003. The data quality was generally quite good and was felt to be representative of dry weather conditions.

Wet season flow monitoring was first attempted over a four week period from January 13, 2004 to February 9, 2004. Flow meters were placed in the same eight locations and two electronic rain gauges were deployed. During this period, no significant rainfall event occurred and no wet weather response was observed at any of the flow metering stations. At the end of the month long monitoring period, there was no rain predicted in long range forecasts and the study was abandoned.

A second attempt to acquire wet weather flow data was made in early 2005. Meters and rain gauges were put in place between January 5, 2005 and February 2, 2005, again at the same locations as those used for the dry weather monitoring in 2003. A very significant rainfall event occurred during this monitoring period, with nearly ten inches of rain falling between January 8th and January 10th. Although this rain event resulted in surcharge conditions at several monitoring sites, satisfactory monitoring data was collected.

MGD prepared report binders for each of the three monitoring events with detailed data from each station. Data reduction was performed by MGD and also by Dudek & Associates. All but two of the delineated drainage basins exhibited evidence of significant inflow and rainfall dependent infiltration. Groundwater infiltration (base infiltration) was quantified in both wet and dry seasons and compared.

The Infiltration and Inflow Study findings were used in subsequent hydraulic modeling and master planning efforts. The findings also provided direction to the District when prioritizing pipeline rehabilitation and repair. Future efforts to control inflow and infiltration - through smoke testing, lateral inspection, dyed water testing or other means - will utilize the study data to identify focus areas and to measure efficacy.

Excerpts from the Infiltration and Inflow Study are presented in **Appendix F**.

8.4 Wastewater Master Plan

The District completed a comprehensive **Wastewater Master Plan** in April 2005. The master planning project was performed by Dudek & Associates with support and coordination from District staff.

One of the key goals of the master planning effort was to clearly identify and document a baseline condition of the District's existing wastewater conveyance infrastructure. Chapter 4 of the Wastewater Master Plan provides a comprehensive overview of the District, its customer base, and historical flow regimes, together with a detailed description of system pipelines and pump stations.

The master plan was developed in conjunction with a computerized hydraulic model of the District's collection system (see Section 9.4). This dynamic model was used to evaluate existing flow conditions and identify segments with capacity limitations in both dry weather conditions and peak wet weather conditions. Flow monitoring data from both dry weather and wet weather periods were used to calibrate the model.

Long range land use planning and zoning information was gathered from the City of Carpinteria and the County of Santa Barbara to determine the projected build-out condition within the District's service area. This data was modeled to assess future flow conditions and associated pipeline capacity limitations.

The Master Plan included tabular and spatial representations of pipelines with the District's collection system with current and future hydraulic capacity limitations. This information has been and will continue to be used to focus rehabilitation and infiltration/inflow mitigation efforts in portions of the system with limited capacity. The Master Plan also identified a series of prioritized projects intended to address existing and future hydraulic capacity limitations.

Other planned projects, including certain projects identified in the 2002 Collection System Rehabilitation Plan, were incorporated into the Master Plan document.

Excerpts from the Wastewater Master Plan are presented in **Appendix G**.

8.5 Hydraulic Model

In support of the District's master planning efforts, described in the previous section, a single computer model was developed for the entire wastewater collection system. Development of a computerized hydraulic model begins by importing pipeline information from the system GIS database. Manholes are automatically created in the model based on upstream and downstream coordinate pairs. Pump station information was gathered and the operating criteria values were input. Finally, system flow data was integrated from the wet weather flow measurement program.

All existing wastewater collection facilities currently in operation within the District's service area were included in the system GIS and imported into the collection system hydraulic model. The District's record drawings and asset database were researched and relevant information collected including data on manholes, invert elevations, pipeline diameters, pipeline lengths, and other pertinent information. Information included in the modeling database is sufficient to define the sewer reaches upstream, manhole outlet information, the downstream manhole inlet elevation, the diameter of the pipeline, the length of the pipeline and the coordinates of each system manhole.

The hydraulic model utilized to evaluate the District's system is called HYDRA®. HYDRA® is a publicly available computer software program produced by Pizer, Inc. The program performs hydraulic calculations based on standard open channel flow algorithms and Manning's equation. It is a dynamic model that routes flow through the system. The model has a graphical interface, which allows the collection system's physical geometry to be entered graphically using standard CADD software, such as AutoCAD. Similarly, required parcel data is entered graphically from the District's GIS parcel layer.

The model runs completed for the 2005 Wastewater Master Plan were integrated into that planning document. Hydraulic conditions were evaluated at current and future (buildout) conditions for both dry weather and peak wet weather flows. A series of other model runs were performed to evaluate interim period conditions and assumed conditions with effective infiltration and inflow mitigation. The hydraulic model is used periodically to evaluate proposed development projects and associated impacts to downstream hydraulics.

The District is planning to build and implement an updated hydraulic model in the near future. Although this update has not been a critical undertaking, as wastewater flows have dropped substantially due to conservation and a controlled growth environment in the region, we have compiled more accurate elevation data and added pipeline segments since 2005. Prior to undertaking major pipeline upgrades, development of a new computerized hydraulic model will ensure appropriate pipe sizing for future conditions.

8.6 Capital Improvement Program

The District maintains an updated long range Capital Improvement Program (CIP) that identifies proposed infrastructure upgrades, generally over a 7 to 10-year forward looking time horizon. The CIP project list is reviewed at least annually and presented to the District's Board of Directors for consideration.

Each year during the annual budget process, capital projects and capital equipment purchases are identified and developed for the coming fiscal year. These projects and expenditures are authorized by the Board concurrent with their approval of the annual operating budget. The projects include those programmed in the District's long range CIP, but also include smaller projects and equipment procurement that may benefit the District's collection system operations.

From a funding perspective, the District continually evaluates its revenue stream and reserve fund balances in the context of funding CIP projects, both near term and long term. A fiscal model is used to assess the need for rate and fee increases and long term borrowing to fund ongoing capital projects.

Completed and Ongoing CIP Projects

Over the past eight years the District has implemented an aggressive CIP project list, focused primarily on collection system improvements.

Completed projects include:

- Collection System Rehabilitation Project – Phase 1
- Manhole Rehabilitation Project
- Bluffs Sewer Relocation Project
- CCTV Inspection Vehicle Procurement
- CCTV Mainline Inspection Project

- Collection System Rehabilitation Project- Phase 2
- Point Repair Project
- Vactor 2100 Plus Procurement
- Asset Management Software Upgrade
- Lateral Inventory Project
- E-One Inspection/Maintenance Project
- Suspended Line Realignment (Carpinteria Creek Siphon Installation)
- Santa Claus Lane Improvements
- Old Linden Sewer Improvements
- Lateral Lining Project
- Odor Control Program Upgrade
- Plum/Pear Sewer Line Rehabilitation
- Pump Station No. 4 Replacement
- Pump Station No. 5 Rehabilitation
- Pump Station No. 1 and 2 Control System Upgrades
- Pump Station No. 1 Pump Replacement Project
- Pump Station No. 2 Pump Replacement Project

For the most part, these projects were completed by outside contractors with input and assistance from Collection System staff. The District is continuing to utilize in-house resources to upgrade and improve each of the District's remote lift stations.

Future CIP Projects

Collection system related capital projects that are programmed for implementation over the next five to seven years include:

- Holly Avenue Interceptor Replacement
- Lift Station 2 Force Main Condition Assessment
- Collection System Rehabilitation Project - Phase 3
- Sewer Lateral Rehabilitation Project - Phase 2
- CCTV System Replacement

These projects are capacity related projects that were identified in the 2005 Wastewater Master Plan. The District will continue to reevaluate the need for these projects as wet weather flows are reduced through implementation of system-wide pipeline and manhole rehabilitation projects. Both dry and wet weather flows have been affected by a reduction in infiltration and inflow. Hydraulic model runs will be conducted to confirm design criteria and to reassess the need to undertake these expensive infrastructure upgrades.

9.0 MONITORING AND MEASUREMENT

This section of the SSMP outlines the process that the District will follow to evaluate the effectiveness of the SSMP and to identify updates that may be needed for a more effective program.

9.1 WDR Requirements

The District is required to monitor the effectiveness of each SSMP element and update and modify SSMP elements to keep them current, accurate, and available for audit as appropriate. The General WDRs specifically require the District to do the following:

1. Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities;
2. Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;
3. Assess the success of the preventative maintenance program;
4. Update program elements, as appropriate, based on monitoring or performance evaluations; and
5. Identify and illustrate SSO trends, including: frequency, location, and volume.

9.2 Performance Measures

A number of performance indicators are or will be tracked to evaluate the long-term effectiveness of the elements described in this SSMP. Some of these indicators could be expected to relate directly to specific elements or operations and maintenance activities, whereas others relate to multiple activities or program effectiveness, as a whole. For example, it may be possible to correlate the number of blockages attributed to roots with the total annual footage of sewer lines subject to activities as part of the preventative maintenance program (see SSMP Element 4.2.2). In contrast, the volume of SSOs reaching surface waters would more likely reflect multiple maintenance activities, emergency response times, the FOG program, and even uncontrollable factors. In measuring an outcome that is characterized by a relatively small number of events (e.g., number of annual wet weather SSOs), it is important to recognize that statistical variability may dominate short-term trends and that true causal relationships are likely to be evident only over the long term.

The following list shows the quantitative indicators that are currently tracked or those planned to be tracked.

- Number of SSOs over the past 12 months
- Location of all SSOs over the past 12 months
- Estimated volume distribution of SSOs (e.g., number of SSOs less than 100 gallons, 100- to 999 gallons, 1,000- to 9,999 gallons, more than 10,000 gallons)
- Causal factors for reported SSOs (e.g., roots, FOG, debris, pipe failure, pump station failure, capacity, other)
- Mainline SSOs vs. Lower Lateral SSOs

- Number of known stoppages or backups not resulting in SSOs
- Miles of gravity sewer hydrocleaned over the past 12 months
- Miles of gravity sewer inspected (CCTV) over the past 12 months

As the historical record grows, future annual reports to the State and Regional Board will include trend plots for key measures. Performance measures related to maintenance activities will be tabulated and charted in the annual collection system report.

9.3 Baseline Collection System Performance

In order to track the progress of the District's efforts to reduce SSOs and the overall effectiveness of the SSMP, it is helpful to establish a baseline from which to draw comparisons. The following tables provide a baseline performance summary for the past three year period.

Table 9-1 Historical Annual SSOs by Type

Calendar Year	Gravity Sewer SSOs	Lower Lateral SSOs	Pump Station SSOs
2007	0	0	0
2008	2	0	0
2009	0	1	0
2010	0	1	0
2011	1	1	0
2012	1	4	0
2013	1	3	0
2014	0	1	0
2015	0	2	0
2016	0	0	0

Table 9-2 Historical Annual SSOs by Cause

Calendar Year	Roots	Debris	Grease	Capacity	Pipe Failure	Pump Station	Other
2007	0	0	0	0	0	0	0
2008	1	1	0	0	0	0	0
2009	1	0	0	0	0	0	0
2010	1	0	0	0	0	0	0
2011	1	0	0	0	0	1	0
2012	4	0	1	0	0	0	0
2013	3	0	1	0	0	0	0
2014	1	0	0	0	0	0	0
2015	2	0	0	0	0	0	0
2016	0	0	0	0	0	0	0

While the District strives for “zero” SSO’s, the above data reflects very good collection system performance. It shows an average of .9 mainline SSOs per 100 miles of gravity sewer per year. In comparison, the state municipal average from 2007 to 2015 is 4.05 and the regional municipal average is 3.67. (Reference www.waterboards.ca.gov/ciwqs)

9.4 Monitoring and Reporting

In order to track the progress of the District's efforts to reduce SSOs and the overall effectiveness of the SSMP, annual monitoring and reporting will be conducted. At a minimum, the performance measures outlined in Section 9.2 will be compiled and documented in a simple annual performance report.

District staff will review the annual report and the overall findings each year and compare them to baseline and historical performance data. A careful review of the data, including any apparent trends or patterns that may develop, will be the basis for program modifications. These may include changes in maintenance and inspection frequency, targeted source control to reduce grease or other appropriate response measures.

In addition to annual reporting, the Collections Department conducts weekly reports tracking hydro cleaning progress, staff training, SSO's, mainline/lateral inspections, equipment maintenance, and repair, and special projects progress. The weekly reporting enables the District to immediately augment cleaning schedules/ priorities according to current data analysis trends.

9.5 Ongoing Program Improvements

It is the District's intent that the SSMP remain a living document and that it be regularly updated to reflect program or organizational changes, new regulatory requirements, facility improvements, and other changing conditions. Methods to ensure this objective is met include:

- The General Manager will assume the overall responsibility for maintaining and updating the SSMP. District Collection System and Operations staff will provide input and make recommendations for SSMP updates and improvements.
- A number of the activities described in the SSMP reflect ongoing programs for which the review and update process is well established. Examples include preventative maintenance measures, staff training, outreach, inspection, and testing.
- The General WDRs require periodic auditing of the SSMP and comprehensive updates on five-year intervals. Resultant modifications and improvements to the plan will have corresponding benefits for the overall program.

10.0 SSMP PROGRAM AUDITS

10.1 WDR Requirements

The General WDRs require enrollees to conduct periodic internal audits, appropriate to the size of the system and the number of SSOs reported. These audits must occur, at a minimum, every two years and a report must be prepared and kept on file. The audits shall focus on evaluating the effectiveness of the SSMP and the District's compliance with the SSMP requirements, including the identification of any deficiencies in the SSMP and the steps to correct them.

10.2 Program Audit Procedures

The District shall perform internal SSMP audits on a bi-annual basis. The audits will be scheduled using the District's CMMS and shall typically occur in January on odd years. The audit will determine whether the SSMP meets the current requirements of the General WDRs, whether the SSMP reflects the District's current practices, and whether the District is following the SSMP.

The audit will be conducted by a team consisting of District staff members. If appropriate, the District may elect to engage a consultant to conduct the biannual audit to provide an independent evaluation of the SSMP and its ongoing implementation.

The scope of the audit will cover each of the sections of this SSMP. An SSMP Audit Checklist, based on the requirements in the General WDRs, is included in this Section. The results of the audit will be compiled into an SSMP Audit Report. The SSMP Audit Report will focus on the effectiveness of the SSMP program, compliance with the General WDRs, and identification of any deficiencies in the SSMP. The SSMP Audit Report will identify revisions that may be needed for a more effective program.

The District will certify that it has completed the semi-annual audit using CIWQS. Copies of the semi-annual Audit Reports will be retained by the District for five years.



CARPINTERIA SANITARY DISTRICT SSMP AUDIT CHECKLIST

Audit Period: _____

Date: _____

Completed By: _____

Reviewed By: _____

Element 1 – Goals		Yes	No
A	Are the goals stated in the SSMP still appropriate and accurate?		
Element 2 – Organization		Yes	No
A	Is the Contact Information in Appendix 2-A current?		
B	Is Organization Chart in Figure 2-1 of the SSMP current?		
C	Is the chain of communication for reporting and responding to SSOs accurate and up-to-date?		
Element 3 – Legal Authority		Yes	No
Does the SSMP contain excerpts from the current Carpinteria Sanitary District's Code documenting the District's legal authority to:			
A	Prevent illicit discharges?		
B	Require proper design and construction of sewers and connections?		
C	Ensure access for maintenance, inspection, or repairs for portion of the lateral owned or maintained by the City?		
D	Limit discharges of fats, oil and grease?		
E	Enforce any violation of its sewer ordinances?		
Element 4 – Operations and Maintenance		Yes	No
A	Does the SSMP reference the current process and procedures for maintaining the District's sanitary sewer system maps?		
B	Are the district's sanitary sewer system maps complete, current and sufficiently detailed?		
Resources and Budget			
C	Does the District allocate sufficient funds for the effective operation, maintenance, and repair of the sewer system and is the current budget structure documented in the SSMP?		

Prioritized Preventive Maintenance			
D	Does the SSMP describe current preventive maintenance activities and the system for prioritizing the cleaning of sewer lines?		
E	Based upon the SSO information in CIWQS, are the District's preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?		
Scheduled Inspections and Condition Assessments			
F	Is there an ongoing condition assessment program sufficient to develop a capital improvement program addressing the proper management and protection of infrastructure assets? Are the current components of this program documented in the SSMP?		
Contingency Equipment and Replacement Inventory			
G	Does the SSMP list the major equipment currently used in the operation and maintenance of the sewer system and document the procedures for inventory management?		
H	Are contingency equipment and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?		
Training			
I	Are the training records current?		
J	Does the SSMP document current training expectations and programs within the District's Collections System Department?		
Element 5 – Design and Performance Standards		Yes	No
A	Does the SSMP contain current design and construction standards for the installation of new sanitary sewer systems, lift stations, and other appurtenances and for the rehabilitation and repair of existing sanitary sewer systems?		
B	Does the SSMP document current procedures and standards for inspecting and testing the installation of new sewers, pumps and other appurtenances and the rehabilitation and repair of existing sewer liens?		
Element 6 – Overflow and Emergency Response Plan		Yes	No
A	Does the District's Overflow Emergency Response Plan establish procedures for the emergency response, notification, and reporting of sanitary sewer overflows (SSOs)?		

B	Are District staff and contractor personnel appropriately trained on the procedures of the Overflow Emergency Response Plan?		
C	Is the SSO Response Procedure Flow Chart (Figure 6-1) accurate?		
D	Are the SSO External Reporting Requirements and Contact Information (Figures 6-2 and 6-3) current?		
E	Is the After Hours and Emergency Contact Information in Appendix 6-A current and complete?		
F	Is the Overflow Emergency Response Plan effective in handling SSOs in order to protect public health and the environment?		
Element 7 – Fats, Oils and Grease (FOG) Control Program		Yes	No
A	Does the Fats, Oils and Grease (FOG) Control Program include efforts to educate the public on the proper handling and disposal of FOG?		
B	Does the District's FOG Control Program identify sections of the sewer system subject to FOG blockages, establish a cleaning schedule and address source control measures to minimize these blockages?		
C	Are requirements for grease removal devices, best management practices (BMP), record keeping and reporting established in the District's FOG Control Program?		
D	Is the current FOG Control Program effective in minimizing blockages of sewer lines resulting from discharges of FOG to the system?		
Element 8 – System Evaluation and Capacity Assurance Plan		Yes	No
A	Does the Carpinteria Sanitary District's Sewer Master Plan evaluate hydraulic deficiencies in the system, establish sufficient design criteria and recommend both short-term and long-term capacity enhancement and improvement projects?		
B	Does the District's Capital Improvement Program (CIP) establish a schedule of approximate completion dates for both short-term and long-term improvements and is the schedule reviewed and updated to reflect current budgetary capabilities and activity accomplishment?		
Element 9 – Monitoring, Measurement and Program Modifications		Yes	No
A	Does the SSMP accurately portray the methods of tracking and reporting selected performance indicators?		
B	Is the District able to sufficiently evaluate the effectiveness of SSMP elements based on relevant information?		

Element 10 – SSMP Audits		Yes	No
A	Were the results of prior SSMP Audits recorded in a written report?		
B	Were the actions recommended in the SSMP Audit report(s) implemented?		
Element 11 – Communication Program		Yes	No
A	Does the District effectively communicate with the public and other agencies about the development and implementation of the SSMP and continue to address any feedback?		

11.0 COMMUNICATION PROGRAM

11.1 WDR Requirements

The General WDRs governing sanitary sewers specify that the District shall communicate on a regular basis with the public on the development, implementation, and performance of its Sewer System Management Plan (SSMP). The communication system shall provide the public the opportunity to provide input to the District as the program is developed and implemented. The District shall also create a plan of communication with systems that are tributary or satellite to the District's sanitary sewer system.

11.2 District Outreach Program

The District maintains an approach to open and direct communication with its customers and community. Additionally, the District regularly interacts with the local municipality, the County of Santa Barbara and other utility providers within the Carpinteria Valley. The District's communication efforts are further described below.

Public Outreach Efforts

The District uses various communication tools to interact with its customers and surrounding community. These include the District's website, a newsletter that is periodically mailed to all customers, quarterly articles in the Coastal View News, Facebook posting, issue specific customer doorhangers, and other outreach tools.

The District's website, found at www.carpsan.com, provides information on the District ranging from the organizational structure and board meeting minutes to capital improvement projects and planning documents. During the SSMP development process, the District invited interested parties to provide feedback on the plan via a banner on the website home page. The website also provides the public with detailed information on collection system management, operation, and maintenance practices. There is information available on the site, including frequently asked questions, intended to educate customers on how they can help prevent SSOs and other collection system impacts.

The District publishes a newsletter on a periodic basis (generally annually) that the District distributes within its service area. The newsletter typically contains important information for customers and the public regarding use of the sanitary sewer system and ways that property owners can help prevent SSOs. Direction on controlling the discharge of FOG has been a recurrent informational topic, as has information regarding the prohibition of stormwater discharge and illicit drain connections. Additionally, the newsletters have outlined requirements for lateral construction and repair, transmitted information regarding smoke testing efforts and have introduced collection system personnel to the readers.

Communication with Surrounding Cities and Agencies

The District service area encompasses the City of Carpinteria and most all developed parcels within the City limits receive public sewer service. Additionally, the District provides sewer service to developed parcels located outside of the City limits within unincorporated areas of Santa Barbara and Ventura Counties. The District maintains regular contact with these neighboring agencies.

The District works closely with the local planning and development departments on review of residential, commercial and industrial developments. Comments and input are provided through this review process to ensure that District construction standards and requirements are conformed to and that District permits are obtained when necessary.

Opportunity for Public Comment

The District's web page and newsletter provide the community with avenues to contact the District with any questions they may have regarding this SSMP. A banner was posted on the District's home page during the original development of this SSMP to notify the public that the plan was being prepared and providing an opportunity for public review and input.

The SSMP is posted on the District website with proof of Board adoption. Periodic review and adoption of SSMP updates by the Board of Directors are performed in properly noticed public meetings.

The District reports SSOs electronically to the California Integrated Water Quality System (CIWQS). The electronic SSO data, which has a public information section as well as information regarding regulatory actions, is available at:

www.waterboards.ca.gov/water_issues/programs/ciwqs/publicreports.shtml/.

Additionally, at the bi-monthly board meetings, which are open to the public, updates are given regularly on collection system activities, SSMP compliance, SSO events and response and other key compliance activities. Performance updates will also be given to the Board and included in the public meeting minutes.

APPENDIX A

Carpinteria Sanitary District Ordinances

Carpinteria Sanitary District

SANTA BARBARA COUNTY
CALIFORNIA

Ordinance No. 2

AN ORDINANCE ESTABLISHING GENERAL
RULES REGULATIONS AND POLICIES
OF THE CARPINTERIA SANITARY DISTRICT

ADOPTED OCTOBER 2, 1975
BY THE GOVERNING BOARD

PUBLIC NOTICE
ORDINANCE NO. 2

CARPINTERIA SANITARY DISTRICT

AN ORDINANCE REGULATING THE USE OF PUBLIC AND PRIVATE SEWERS AND DRAINS: THE INSTALLATION AND CONNECTION OF BUILDING SEWERS: THE INSTALLATION OF SEWER LATERALS AND PUBLIC SEWER MAIN EXTENSIONS: PROVIDING PERMITS AND FIXING FEES FOR THE INSTALLATION AND CONNECTION OF SANITARY SEWERS: REGULATING THE DISCHARGE OF WATERS AND WASTES INTO THE PUBLIC SEWER SYSTEM, PROVIDING FOR VIOLATIONS THEREOF AND REPEALING ORDINANCE NO. 1.

Carpinteria Sanitary District does ordain as follows:

ARTICLE I

DEFINITIONS:

Section 1.1 APPLICANT shall mean the person making application for a permit for a sewer or plumbing installation and shall be the owner of premises to be served by the sewer for which a permit is requested or his authorized agent.

Section 1.2 BOARD shall mean the Governing Board of Carpinteria Sanitary District.

Section 1.3 BUILDING shall mean any structure having a roof supported by columns or walls intended or used for the shelter, housing or enclosure of any person, animal, chattel or property of any kind for which sanitary facilities are needed.

Section 1.4 BUILDING SEWER shall mean that portion of any sewer beginning at the plumbing or drainage outlet of any building or industrial facility and running to the property line or to a private sewage disposal system.

Section 1.5 CONTRACTOR shall mean an individual, firm, corporation, partnership or association duly licensed by the State of California to perform the type of work to be done under the permit.

Section 1.7 ENGINEER shall mean the District Engineer appointed by and acting for the District.

Section 1.8 INSPECTOR shall mean the Inspector acting for the Board and may be the District Engineer or Inspector appointed by the Board.

Section 1.9 LATERAL SEWER shall mean the portion of a sewer lying within a public way or easement connecting a building sewer to the main sewer.

Section 1.10 MAIN SEWER shall mean a public sewer designed to accommodate more than one lateral sewer.

Section 1.11 MANAGER shall mean the person appointed by the Board to administer and enforce the rules and regulations of the District.

Section 1.12 PERMIT shall mean any written authorization required pursuant to this or any other regulation of District for the installation of any sewage works.

Section 1.13 PERSON shall mean any human being, individual, firm, company, partnership, association and private or public and municipal corporations, the United State of America, the State of California, districts and all political subdivisions, governmental agencies and mandatories thereof.

Section 1.14 PLUMBING SYSTEM shall mean all plumbing fixtures and traps, or soil, waste, special waste and vent pipes, and all sanitary sewer pipes within a building and extending to the building sewer connection two (2) feet outside the building wall.

Section 1.15 PRIVATE SEWER shall mean a sewer serving an independent sewage disposal system not connected with a public sewer and which accommodates one or more buildings or industries.

Section 1.16 PUBLIC SEWER shall mean a sewer lying within a public way or easement and which is controlled by or under the jurisdiction of the District.

Section 1.17 SANITARY SEWER shall mean a sewer which carries sewage and to which storm, surface and ground waters are not intentionally admitted.

Section 1.18 SEWAGE shall mean a combination of water carried wastes from residences, buildings, structures, institutions, or industrial establishments or any sanitary facility.

Section 1.19 SEWAGE TREATMENT PLANT shall mean any arrangement of devices and structures used for treating sewage.

Section 1.20 SEWAGE WORKS shall mean all facilities for collection, pumping, treating and disposing of sewage.

Section 1.21 SEWER shall mean a pipe or conduit for carrying sewage.

Section 1.22 UNIFORM PLUMBING CODE shall mean the current edition of the Uniform Plumbing Code as prepared and adopted by the International Association of Plumbing and Mechanical Officials.

ARTICLE II
GENERAL PROVISIONS

Section 2.1 PURPOSE This Ordinance is intended to provide rules and regulations for the use and construction of all sanitary sewer facilities hereafter installed, altered, or repaired within the District. This Ordinance shall not apply retroactively. In the event of any alteration or repair of an existing facility, it shall apply only to the new materials and methods used in connection therewith.

Section 2.2 SHORT TITLE. This Ordinance shall be known as the Sanitary Code of Carpinteria Sanitary District.

Section 2.3 ADOPTION. The fact of the adoption of this Ordinance shall be entered in the minutes of the meeting of the Board at which the Ordinance is adopted.

Section 2.4 PUBLICATION. The adoption of this Ordinance shall be entered in the minutes of the Board and shall be published in the "Carpinteria Herald," a weekly newspaper of general circulation, printed and published in the District, following its passage and

adoption, and shall take effect and be in force and effect immediately upon the expiration of the week of publication.

Section 2.5 VIOLATION UNLAWFUL. Following the effective date of this Ordinance, except as herein provided, it shall be unlawful for any person to connect to, construct, install or provide, maintain and/or use any other means of sewage disposal from any building in said District except by connection to a public sewer in the manner as in this Ordinance provided.

Section 2.6 APPLICATION FOR RELIEF Any person who, by reason of special circumstances, believes any provision of this Ordinance to be unjust or inequitable in its application to him may make an application in writing to the Board setting forth the applicable special circumstances, citing the provision of this Ordinance from which relief is sought and making request for relief from the provisions of the section or sections cited.

Upon receipt of an application for relief the Board may, in its discretion, by resolution or motion suspend or modify the cited provision in its application to the applicant for such period of time as the Board may specify.

Section 2.7 RELIEF ON OWN MOTION. The District may, on its own motion, find that by reason of special circumstances any provision of this regulation and ordinance should be suspended or modified as applied to a particular premise and may, by resolution or motion, order such suspension or modification for such premise during the period of such special circumstances, or any part thereof.

Section 2.8 DISTRICT INSPECTOR. The District may employ a qualified person or persons to perform the duties of inspecting the installation, connection, maintenance and use of all building sewers, public sewers, private sewers and facilities in connection therewith in said District.

Section 2.9 PERMITS AND FEES. No private sewer, public sewer, building sewer, or other sewage facility shall be installed or altered within the district until a permit for the work has been obtained from the District and all fees paid in accordance with the requirements of Article VIII of this Ordinance.

ARTICLE III REQUIRED USE OF PUBLIC SEWERS

Section 3.1 DISPOSAL OF WASTES. It shall be unlawful for any manner upon public or private property within the District, or in any area under the jurisdiction of said District, any human excrement, or other objectionable waste, including but not limited to wastes that cause offensive odors or unsightly conditions such as sludge banks or deposits or oil or grease or other solids of such nature as would constitute a nuisance.

Section 3.2 TREATMENT OF WASTES REQUIRED. It shall be

unlawful to discharge to any stream or water course, any sewage, industrial wastes, or other polluted waters, except where suitable treatment has been provided in accordance with provisions of this Ordinance.

Section 3.3 UNLAWFUL DISPOSAL. Except as herein provided, it shall be unlawful to construct or maintain any privy, privy vault, septic tank, cesspool, seepage pit or other facility intended or used for the disposal of sewage.

Section 3.4 OCCUPANCY PROHIBITED. No building or structure shall be used or occupied until the owner of the premises has complied with all rules and regulations of District.

Section 3.5 REQUIRED CONNECTION TO PUBLIC SEWER. All buildings within three hundred (300) feet of a public sewer must be connected with said sewer within thirty days (30) after written notice by the District to the owner thereof to do. All connections must be made as in this Ordinance or other regulations of the District provided, and at the sole cost and expense of the person making the required connection. This section shall be applicable in all cases whether the public sewer to which a connection must be made be installed either before or after the construction of the building in question.

ARTICLE IV PRIVATE SEWAGE DISPOSAL FACILITIES

Section 4.1 SEWER NOT AVAILABLE. Where a public sewer is not available under the provisions of Section 3.5, Article III, the building sewer shall be connected to a private sewage disposal system complying with the provisions of this Ordinance.

Section 4.2 PERMIT REQUIRED. Before commencement of construction of a private disposal system, the owner or his authorized agent shall first obtain a written permit from the District. The application for such permit shall be made on a form furnished by the District, which the applicant shall supplement by any plans, specifications and other information as are deemed necessary by the District. A permit and inspection fee shall be paid to the District at the time application is filed in accordance with the provisions of Article VIII of this Ordinance.

Section 4.3 INSPECTION REQUIRED. A private sewage disposal system shall not be operated or used until the installation has been completed to the satisfaction of the District in accordance with this Ordinance. The District shall be allowed to inspect the work at any stage of construction. When the work is ready for final inspection, and before any underground portions are covered the permittee shall notify the District and said inspection shall be made within forty-eight (48) hours after receipt of the notice, Sundays and legal holidays excepted.

Section 4.4 DESIGN REQUIREMENTS. The type, capacities, location and layout of a private sewage disposal system shall comply with the requirements of the Uniform Plumbing Code.

The District may require any or all of the following information before a permit is issued for a private sewage disposal system:

lot plan drawn to scale completely dimensioned, showing direction and approximate slope of surface, location of all present or proposed retaining walls, drainage channels, water supply lines or wells, paved areas and structures on the plot number of bedrooms or plumbing fixtures in each structure and location of the building sewer and private sewage disposal system with relation to lot lines and structures.

(b) Details of construction necessary to assure compliance with the requirements of this chapter together with a full description of the complete installation including quality, kind and grade of all materials, equipment, construction, workmanship and methods of assembly and installation.

(c) A log of soil formations and ground water level as determined by test holes dug in close proximity to any proposed seepage pit or disposal field, together with a statement of water absorption characteristics of the soil at proposed site as determined by approved percolation tests.

No permit shall be issued for any private sewage disposal system employing subsurface soil absorption facilities where the area of the lot is less than fifteen thousand (15,000) square feet. No septic tank or cesspool shall be permitted to discharge to any public sewer or any stream or watercourse.

Section 4.5 ABANDONED SEWERS AND SEWAGE DISPOSAL FACILITIES. At such time as a public sewer becomes available to a property served by a private sewage disposal system, as provided in Section 3.5, Article III, a direct connection shall be made to the public sewer pursuant to the appropriate rules and regulations of the District and any septic tanks, cesspools, and similar private sewage disposal facilities shall be abandoned as set forth hereinafter.

(a) Every abandoned building (house) sewer or part thereof, shall be plugged or capped in an approved manner within five (5) feet of the property line.

(b) Every cesspool, septic tank and seepage pit which has been abandoned or has been discontinued otherwise from further use or to which no waste or soil pipe from a plumbing fixture is connected, shall have the sewage removed therefrom and be completely filled with earth, sand, gravel, concrete or other approved material.

(c) The top cover or arch over the cesspool, septic tank, or seepage pit shall be removed before filling and the filling shall not extend above the top of the vertical portions of the sidewalls or above the level of any outlet pipe until inspection has been called and the cesspool, septic tank or seepage pit has been inspected by the District. After such inspection, the cesspool, septic tank or seepage pit shall be filled to the level of the top of the ground.

(d) Where disposal facilities are abandoned because of the connection of the premises to the public sewer, the permittee making the connection shall fill all abandoned facilities as required by the District within thirty (30) days from the time of connecting to the public sewer.

Section 4.6 COST OF MAINTENANCE BY OWNER. The Owner

shall operate and maintain in the private sewage disposal facilities in a sanitary manner at all times, at no expense to the District.

ARTICLE V

BUILDING SEWERS, LATERAL SEWERS AND CONNECTIONS

Section 5.1 PERMIT REQUIRED. In accordance with Article VIII of this Ordinance, no person shall construct a building sewer, lateral sewer or make a connection with any public sewer without first obtaining a written permit from the District and paying all fees and connection charges as required therein.

Section 5.2 STANDARDS AND SPECIFICATIONS. Construction of building and lateral sewers be in accordance with the District's standards and specifications for sanitary sewer systems heretofore and hereafter adopted by the District, copies of which are on file in the District office.

Section 5.3 SEPARATE SEWERS. No two adjacent lots fronting on the same street shall be permitted to join in the use of the same building sewer or sewer lateral. Every building must be separately connected with a public sewer if such public sewer exists in the street upon which the property abuts or in an easement which will serve said property. However, one or more buildings located on property belonging to the same owner may be served with the same building sewer and sewer lateral during the period of said ownership. Upon the subsequent subdivision and sale of a portion of said lot, the portion not directly connected with such public sewer shall be separately connected with a public sewer, and it shall be unlawful for the owner thereof to continue to use or maintain such indirect connection.

Section 5.4 OLD BUILDING SEWERS. Old building sewers may be used in connection with new buildings only when they are found, upon examination and test by the Inspector, to meet all requirements of District.

Section 5.5 CLEANOUTS. Cleanouts in building sewers shall be provided in accordance with the requirements of the Uniform Plumbing Code. Cleanouts shall be the same diameter as the building sewer and shall be watertight. In addition to the cleanouts required by the Uniform Plumbing Code, a cleanout shall be provided at the connection of the building sewer to the sewer lateral. This cleanout shall be constructed with a 45 degree riser and one-eighth inch set in a concrete frame and cover at ground surface and sealed with a water tight screw-type plug or cap.

Section 5.6 BUILDING SEWER TOO LOW. In all buildings in which any building sewer is too low to permit gravity flow to the public sewer, sanitary sewage carried by such building sewer shall be lifted by artificial means approved by the District and discharged to the public sewer at the expense of the owner. Where there is a possibility of reverse sewage flow due to construction of plumbing in structures in areas such as low lots and hilly areas and where hydraulic relief is not afforded in the upstream manhole and sewage may flow backward and overflow the plumbing fixtures in

th...iding, the owner shall, at his sole expense, provide, maintain and operate all necessary backflow protection measures and devices.

Section 5.7 CONNECTION TO PUBLIC SEWER The connection of the building sewer into the public sewer shall be made at the lateral or tee or wye branch, if such lateral or tee or wye branch is available, a neat hole may be cut into the public sewer and a tee saddle or a sewer stub nipple adaptor installed to receive the lateral sewer. In no case shall the pipe protrude beyond the inside diameter of the main sewer. The invert of the lateral sewer at the point of connection shall be at a higher elevation than the invert of the public sewer. The connection to the public sewer shall be made in the presence of the Inspector and under his supervision and direction. The material removed by the neat hole cutting shall be removed from the sewer. Any damage to the public sewer shall be repaired at the cost of the applicant and to the satisfaction of the District.

Section 5.8 PROTECTION OF EXCAVATION. All excavations for sewer installations shall be adequately guarded with barricades and lights so as to protect the public from hazard. Streets, sidewalks, parkways, and other property disturbed in the course of the work shall be restored in a manner satisfactory to the District. All excavations including shoring and trench protection shall be performed in accordance with State and local regulations.

Section 5.9 MAINTENANCE OF BUILDING SEWER. Building sewers shall be maintained by the owner of the property served thereby.

Section 5.10 STREET EXCAVATION PERMIT. The provisions of Section 8.17 of Article XIII shall be applicable to this Article.

Section 5.11 APPLICABILITY OF ARTICLE VI. Where appropriate all of the provisions of Article VI shall apply to this Article V.

ARTICLE VI

PUBLIC SEWER CONSTRUCTION

Section 6.1 PERMIT REQUIRED. No person shall construct, extend or connect to any public sewer without first obtaining a permit from the District as required in Article VIII of this Ordinance. The provisions of this section requiring permits shall not be applicable to contractors constructing sewers and appurtenances under contracts awarded and entered into by the District.

Section 6.2 PLANS REQUIRED. The application for a permit for public sewer construction shall be accompanied by complete plans, complying with all applicable ordinances, rules and regulations of District, prepared by a Registered Civil Engineer of the State of California, showing all details of the proposed work based on an accurate survey of the ground. The application, together with the plans, shall be examined by the Engineer who shall approve them as filed or require them to be modified as it deems necessary for proper installation. After examination and approval by the Engineer, the application and plans shall be submitted to the Board

at a regular or special meeting for its consideration. When the Board is satisfied that the proposed work is proper and the plans are sufficient and correct it shall order the issuance of a permit predicated upon the payment of all connection charges, fees and the furnishing of the bonds as required in Section 59. The permit shall prescribe such terms and conditions as the District finds necessary in the public interest.

Section 6.3 SUBDIVISIONS. The requirements of Sections 6.1 and 6.2, Article VI of this Ordinance shall be fully complied with before any final subdivision map shall be approved by the Board. The final subdivision map shall provide for the dedication for public use of all streets, easements or rights of way in which public sewer lines are to be constructed. If a final subdivision map of a tract is recorded and the work of constructing sewers to serve the tract is not completed within the time limit allowed in the permit, the Board may extend the time limit or may complete the work and take appropriate steps to enforce the provisions of the bond furnished by the subdivider.

Section 6.4 EASEMENTS OR RIGHTS OF WAY. In the event that an easement is required for the extension of the public sewer or the making of connections, the applicant shall procure and have accepted by the District, a proper easement or grant of right of way sufficient in law to allow the laying and maintenance of such extension or connection.

Section 6.5 PERSONS AUTHORIZED TO PERFORM WORK. Only properly licensed contractors shall be authorized to perform the work of sewer construction within the District. All terms and conditions of the permit issued by the District to the applicant shall be binding on the contractor. The requirements of this section shall apply to all sewers that are installed within the District.

Section 6.6 GRADE STAKES. Grade and line stakes shall be set by or under the direction of a Registered Civil Engineer, or by a Licensed Surveyor of the State of California, prior to the start of work on any public sewer construction. The contractor shall be responsible for accurately transferring grades to grade bars and sewer invert.

Section 6.7 COMPLIANCE WITH LOCAL REGULATIONS. Any persons constructing a sewer within a public way or easement shall comply with all State, County City or District laws, ordinances, rules and regulations pertaining to the cutting of pavement, opening, barricading, lighting and protecting of trenches, backfilling and repaving thereof and pay all fees required by the Agency having jurisdiction prior to the issuance of a permit by the District.

Section 6.8 PROTECTION OF EXCAVATION. The applicant shall maintain such barriers, lights and signs as are necessary to give warning to the public at all times that a sewer is under construction and of each dangerous condition to be encountered as a result thereof. He shall also likewise protect the public in the use of the sidewalk against any such conditions in connection with the construction of the sewer, streets, sidewalks, parkways and other

property disturbed in the course of the work shall be reinstalled in a manner satisfactory to District.

Section 6.9 DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS. Design and construction of public sewers within the District shall be in accordance with the District's Standards and Specifications for Sanitary Sewer Systems heretofore or hereafter adopted by the District.

"As-built" drawings showing the actual location of all mains, structures, wyes, laterals and cleanouts shall be filed with the District before final acceptance of the work.

Section 6.10 COMPLETION OF SEWER REQUIRED. Prior to acceptance of any sewer line by the District and prior to the admission of any sewage into the District's collection and treatment system, the sewer line shall be tested and shall be complete in full compliance with all requirements of the Standards and Specifications for Sanitary Sewer Systems and to the satisfaction of the District.

ARTICLE VII USE OF PUBLIC SEWERS

Section 7.1 DRAINAGE INTO SANITARY SEWERS PROHIBITED. No leaders from roofs and no surface drains for rain water shall be connected to any sanitary sewer. No surface or subsurface drainage, rain water, storm water, seepage, cooling water of industrial origin or unpolluted industrial process waters shall be permitted to enter any sanitary sewer by any device or method whatsoever.

Section 7.2 TYPE OF WASTES PROHIBITED. Except as hereinafter provided, no person shall discharge or cause to be discharged any of the following described waters or wastes to any public sewer:

- (a) Any liquid and-or pulp being residue resulting from or the processing of citrus fruits or vegetable products.
- (b) Any liquid or vapor having a temperature higher than 150 degrees F.
- (c) Any water or waste which may contain more than 100 milligrams per liter of fat, oil, or grease, or having a five (5) day Biochemical Oxygen Demand (BOD) greater than 300 parts per million.
- (d) Any gasoline, benzene, naphtha, fuel oil or other flammable or explosive liquid, solid, or gas.
- (e) Any garbage that has not been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than one-half inch (1/2") in any dimension.
- (f) Any ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, woods, paunch manure, or any other solid or viscous substance capable of causing obstruction to the

flow in sewers or other interference with the proper operation of the sewage works.

(f) Any waters or wastes having a PH lower than 5.5 or higher than 9.0 or having any other corrosive property capable of causing damage or hazard to structures, equipment, the sewage treatment plant works and process, or personnel of the sewage District.

(h) Any waters or wastes containing a toxic, radioactive, or poisonous substance in sufficient quantity to injure or interfere with any sewage treatment process, constitute a hazard to humans or animals, or create any hazard in the receiving waters of the sewage treatment plant.

(l) Any waters or wastes containing suspended solids of such character and quantity that unusual attention or expense is required to handle such materials at the sewage treatment plant.

(j) Any noxious or malodorous gas or substance capable or creating a public nuisance.

(k) Any septic tank sludge. (See Sec. 8.10 for permit)

(l) Any overflow from cesspools, manure pits, or other receptacles storing organic wastes.

Section 7.3 INTERCEPTORS REQUIRED. Grease, oil and sand interceptors shall be provided when, in the opinion of the District they are necessary for the proper handling of liquid wastes, containing grease in excessive amounts, or any flammable wastes, sand and other harmful ingredients, except that such interceptors shall not be required for buildings used solely for residential purposes. All interceptors shall conform to the requirements of the Uniform Plumbing Code.

Section 7.4 MAINTENANCE OF INTERCEPTORS. All grease, oil and sand interceptors shall be maintained by the owner, at his expense, in continuously efficient operation at all times.

Section 7.5 PRELIMINARY TREATMENT OF WASTES. The admission into the public sewers of any waters or wastes having (a) a five (5) day BOD greater than 300 milligrams per liter, or (b) containing more than 350 milligrams per liter of suspended solids, or (c) containing any quantity of substance having the characteristics described in Sections 7.2, Article VII, or (d) having an average daily flow greater than two percent (2 percent) of the average daily sewage flow of the District, shall be subject to the review and approval of the District. Where necessary in the opinion of the District, the owner shall provide, at his expense, such preliminary treatment as may be necessary to (a) reduce the BOD to 300 milligrams per liter and the suspended solids to 350 milligrams per liter or (b) reduce objectionable characteristics of constituents to within the maximum limits provided for in Section 7.2, Article VII, or (c) control the quantities and rate of discharge of such waters or wastes.

Plans, specifications and any other pertinent information relating to proposed preliminary treatment facilities shall be submitted for approval of the District and no construction of such facilities shall be commenced until said approval is obtained in writing.

Section 7.6 MAINTENANCE OF PRETREATMENT FACILITIES. Where preliminary treatment facilities are provided for any waters or wastes, they shall be maintained continuously in satisfactory and effective operation by the owner at his expense.

Section 7.7 CONTROL MANHOLES. When required by the District, the owner of any property served by a building sewer carrying industrial wastes shall install a suitable control manhole in the building sewer to facilitate observation, sampling and measurement of wastes. Such manhole, when required, shall be necessarily and safely located, and shall be constructed in accordance with plans approved by the District. The manhole shall be installed by the owner at his expense, and shall be maintained by him so as to be safe and accessible at all times.

Section 7.8 MEASUREMENTS AND TESTS. All measurements, tests, and analyses of the characteristics of waters and wastes to which reference is made in Sections 7.2 and 7.5, Article VII, shall be determined in accordance with standard methods and shall be determined at the control manhole. In the event that no special manhole has been required, the control manhole shall be considered to be the nearest downstream manhole in the public sewer to the point at which the building sewer is connected.

Section 7.9 PRETREATMENT OF INDUSTRIAL WASTE. Pursuant to Section 54739 of the Government Code, the District may require:

- (a) Pretreatment of any industrial works which would otherwise be detrimental to the sewage works or its proper and efficient operation and maintenance; or,
- (b) The prevention of entry of such waste into the District's system; or,
- (c) The payment of any excess costs to the District for providing supplementary treatment plants, facilities, or operations needed as a result of allowing the entry into the system and treatment works of such industrial waste.

Pursuant to Section 54740 of the Government Code, any person who intentionally or negligently violates any requirement of the District, adopted pursuant to Government Code Section 54739, and this section may be civilly liable in a sum not to exceed six thousand dollars (\$6,000.00) for each day in which such violation occurs.

Section 7.10 SWIMMING POOLS. It shall be unlawful for any person to discharge the contents of a swimming pool into a sanitary sewer except in the manner specified herein. The size of a pipe carrying discharge water shall not be larger than two inches (2") and shall not be under a head to exceed twenty feet (20'). If the water is discharged by pumping, the rate of flow shall not exceed one hundred (100) gallons per minute. Each swimming pool discharging to a sanitary sewer shall be equipped with an approved backflow device to preclude any possibility of a backflow of sewage into the swimming pool or piping system.

PERMITS AND FEES

Section 8.1 PERMIT REQUIRED. No unauthorized person shall uncover, make any connections with or opening into, use, alter or

disturb any public sewer or appurtenance or perform any work on any plumbing or drainage system without first obtaining a written permit from the District.

Section 8.2 APPLICATION FOR PERMIT. Any person, legally entitled to apply for and receive a permit shall make such application on forms provided by the District for that purpose. He shall give a description of the character of the work proposed to be done at the location, ownership, occupancy and use of the premises in connection therewith. The District may require plans, specifications or drawings and such other information as he may deem necessary.

If the District determines that the plans, specifications, drawings, descriptions, or information furnished by the applicant are in compliance with the ordinances, rules and regulations of the District, it shall issue the permit applied for upon payment of the required fees as hereinafter fixed.

Section 8.3 COMPLIANCE WITH PERMIT. After approval of the application, evidence by the issuance of a permit, no change shall be made in the location of the sewer, the grade, materials, or other details from those described in the permit or as shown on the plans and specification for which the permit was issued except with written permission from the District, or its authorized representative.

Section 8.4 AGREEMENT. The applicant's signature on an application for any permit shall constitute an agreement to comply with all of the provisions, terms and requirements of this and other ordinances, rules and regulations of this District and with the plans and specifications he has filed with his application, if any, together with such corrections or modifications as may be made or permitted by the District, if any. Such agreements shall be binding upon the applicant and may be altered only by the District upon the written request for the alteration from the applicant.

Section 8.5 SINGLE FAMILY RESIDENTIAL, BUILDING SEWER CONNECTION PERMIT. Each person applying for a single residential unit building sewer connection permit to connect to a public or lateral sewer shall pay a fee of ten dollars (\$10.00).

Section 8.6 MULTIPLE FAMILY RESIDENTIAL SEWER CONNECTION PERMIT. Each person applying for a multiple residential building sewer connection permit to connect to a public sewer or lateral sewer shall pay a fee of fifteen dollars (\$15.00).

Section 8.7 OTHER BUILDING SEWER CONNECTION PERMITS. Each person applying for a sewer connection permit to connect a building used for purposes other than single family or multiple family residential purposes to a public sewer or lateral sewer shall pay a fee of twenty-five dollars (\$25.00).

Section 8.8 PRIVATE SEWAGE DISPOSAL SYSTEM. Each person applying for a private sewage disposal system permit shall pay a fee of twenty dollars (\$20.00).

Section 8.9 SEWER DISCONNECTION PERMIT. Each person applying for a permit to abandon or disconnect a sewer shall pay a fee of twenty-five dollars (\$25.00).

Section 8.10 SEPTIC TANK SLUDGE. Each person applying for a permit to dispose of septic tank sludge from a septic tank located within the District shall pay a fee of twenty-five dollars (\$25.00).

Section 8.11 FEES AND BOND — PUBLIC SEWER CONSTRUCTION. (a) A fee will be set by the District and shall be paid to the District for reviewing plans and specifications, issuing a permit and inspecting the installation of public sewer mains and laterals.

(b) Prior to the issuance of a permit for public sewer construction, the applicant shall furnish to the District a faithful performance bond or cash in the amount of the total estimated cost of the work, said bond to be secured by a surety or sureties satisfactory to the District. The cash deposit or faithful performance bond shall be conditioned upon the performance of the terms and conditions of the permit. In addition, the applicant shall furnish a bond which shall guarantee the correction of faulty workmanship and the replacement of defective materials for a period of one (1) year after the date of acceptance of the work.

Section 8.12 DISPOSITION OF FEES. All fees collected on behalf of the District shall be deposited with the proper authority provided by the District to receive such funds.

Section 8.13 ALL WORK TO BE INSPECTED. All sewer construction work and building sewers shall be inspected by an Inspector acting for the District to ensure compliance with all requirements of the District. No sewer shall be covered at any point until it has been inspected and passed for acceptance. No sewer shall be connected to the District's public sewer until the work covered by the permit has been completed, inspected and approved by the Inspector. If the test proves satisfactory, the District shall issue a certificate of satisfactory completion.

Section 8.14 NOTIFICATION. It shall be the duty of the person doing the work authorized by permit to notify the District in writing that said work is ready for inspection. Such notification shall be given not less than twenty-four (24) hours before the work is to be inspected. It shall be the duty of the person doing the work to make sure that the work will stand the tests required by the District before giving the above notification.

Section 8.15 UNSATISFACTORY WORK. If inspection of the work done by the District reveals that it has not been done or is not being done in compliance with this ordinance, a written notice to that effect shall be given instructing the owner of the premises, or the agent of such owner, to repair the sewer or other work authorized by the permit in accordance with the ordinance, rules and regulations of the District.

Section 8.16 ALL COSTS PAID BY OWNER. All costs and expenses incident to the installation and connection of any sewer or other work for which a permit has been issued shall be borne by the owner. The owner shall indemnify the District from any loss or damage that may directly or indirectly be occasioned by the work.

Section 8.17 OUTSIDE SEWERS. Permission shall not be granted to connect any lot or parcel of land outside the District to any public sewer in or under the jurisdiction of the District unless a permit

therefor is obtained. The applicant shall first enter into a contract in writing whereby he shall find himself, his heirs, successors and assigns to abide by all ordinances, rules and regulations in regard to the manner in which such sewer shall be used, the manner of connecting therewith, and the plumbing and drainage in connection therewith and also shall agree to pay all fees required for securing the permit and a monthly fee in an amount set by the District for the privilege of using such sewer. The granting of such permission for an outside sewer in any event shall be optional with the Board.

Section 8.18 STREET EXCAVATION PERMIT. Persons intending to excavate in public ways for the purpose of installing sewers or making connection to public sewers must first obtain any necessary encroachment or excavation permit from the appropriate governmental entity in addition to any permit required to be obtained from the District.

Section 8.19 LIABILITY. The District and its officers, agents and employees shall not be answerable for any liability or injury or death to any person or damage to any property arising during or growing out of the performance of any work by any such applicant. The applicant shall be answerable for, and shall save the District and its officers, agents and employees harmless from, any liability imposed by law upon the District or its officers, agents, or employees including all costs, expenses, fees and interest incurred in defending same or in seeking to enforce this provision. Applicant shall be solely liable for any defects in the performance of his work or any failure which may develop therein. Applicant shall obtain property and liability insurance in amounts satisfactory to the District and shall furnish the District with a certificate of said insurance.

Section 8.20 TIME LIMIT ON PERMITS. If work under a permit be not commenced within six (6) months from the date of issuance or if after partial completion, the work be discontinued for a period of one (1) year, the permit shall thereupon become void and no further work shall be done until a new permit shall have been secured. A new fee shall be paid upon the issuance of said new permit.

ARTICLE IX ENFORCEMENT

Section 9.1 NON-COMPLIANCE. Persons not in compliance with the provisions and requirements shall be served with a written notice of the fact of non-compliance. Said notice shall set forth herein the nature of non-compliance and shall set a time limit within which the necessary corrections must be made in order to be in compliance with this ordinance. The time limit within which to make necessary corrections shall be not less than two (2) nor more than seven (7) working days (Monday through Friday are considered working days) from and after the date of the letter. If the necessary corrections have not been made to the satisfaction of the District, that person not in compliance shall be in violation of this Ordinance.

Notwithstanding anything to the contrary herein contained, the District may, if the circumstances warrant it, consider non-compliance an immediate violation and District may take such steps as are allowed by law to correct the situation or abate it giving only such notice as may be required by law for the action proposed to be taken. Such actions by District shall include, but are not limited to, those actions authorized by Section 6523.2 and Section 6523.3 of the Health and Safety Code.

Section 9.2 COSTS OF ENFORCEMENT. All costs incurred by the District in enforcing this ordinance shall be payable by the person violating this ordinance or the owner or tenant of the property upon which the violation occurs and the District shall have the remedies as provided by law for the collection of said costs.

Section 9.3 CONTINUED USE OR OCCUPATION OF PREMISES OR BUILDING. The District may require that all use and occupation of property, other than that necessary to correct the non-compliance or violation, be terminated during the period of any non-compliance with or violation of this ordinance.

Section 9.4 MISDEMEANOR. Section 6523 of the Health and Safety Code of the State of California provides that the violation of an ordinance, rule or regulation of the District by any person is a misdemeanor punishable by fine not to exceed One Hundred Dollars (\$100.00), imprisonment not to exceed one (1) month, or both. Each and every connection or occupancy in violation of the ordinances, rules and regulations of the District shall be deemed a separate violation and each and every day or part of a day of violation of the ordinance, rule or regulation that continues shall be deemed a separate offense hereunder and shall be punishable as such.

ARTICLE X

MISCELLANEOUS PROVISIONS

Section 10.1 PROTECTION FROM DAMAGE. No unauthorized person shall maliciously, wilfully, or negligently break, damage, destroy, uncover, deface or tamper with any structure, appurtenance or equipment which is a part of the District sewage works. Any person violating this provision shall be subject to the penalties provided by law. Whenever sewer connection permittee causes obstruction, damage, or destruction of a public sewer, or any appurtenances thereto, or pumping plants or treatment plant in connection therewith, the owner thereof shall reimburse the District for the cost of flushing, cleaning, repairing, and/or reconstruction of such sewer or facility within thirty (30) days after the District has rendered an invoice for the same.

Section 12.2 POWERS AND AUTHORITIES OF INSPECTORS. The officers, inspectors, Manager and any duly authorized employees of the District shall wear or carry an official badge of office or other evidence establishing his position as such and upon exhibiting the proper credentials and identification shall be permitted to enter in industrial facilities and properties for the purpose of inspection, reinspection, observation, measurement, sampling, testing, or otherwise performing such duties as may be

necessary in the enforcement of the provisions of the ordinance, rules and regulations of the District.

Section 10.3 SEPARABILITY. If any section, subsection, sentence, clause or phrase of this ordinance or the application thereof to any person or circumstances is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this ordinance or the application of such provision to other persons or circumstances. The Board hereby declares that it would have passed this ordinance or any section, subsection, sentence, clause or phrase hereof irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared to be unconstitutional.

Section 10.4 REPEAL OF ORDINANCE NO. 1 Ordinance No. 1 of this District, dated July 3, 1961, is hereby repealed as of the effective date of this ordinance and this ordinance shall become effective upon the expiration of the week of publication as provided in Section 2.4 hereof. Said effective date shall be confirmed by a resolution of the District to be attached to and made a part of this ordinance for the sole purpose of making said effective date a part of the records of this District.

PASSED AND ADOPTED by the Governing Board of the Carpinteria Sanitary District this 15th day of September, 1975 by the following vote, to wit:

AYES: W.L. Gann, D.F. Kent, M.M. Deaderick, Joseph Morales and Lewis A. Tift

NAYES: None

Absent: None

W. L. Gann
President

ATTEST:

D.F. Kent

Secretary

October 2, 1975

ORDINANCE NO. 7

ORDINANCE AND ORDER
OF THE GOVERNING BOARD
OF CARPINTERIA SANITARY DISTRICT
ADOPTING A GENERAL REGULATION
PROVIDING

RULES AND REGULATIONS FOR THE QUALITY OF WASTEWATER DISCHARGED TO DISTRICT FACILITIES; FOR THE ISSUANCE OF SOURCE CONTROL PERMITS; AUTHORIZATION FOR MONITORING, INSPECTION, COMPLIANCE, AND ENFORCEMENT ACTIVITIES; FOR INDUSTRIAL USER REPORTING; PROCEDURES FOR VARIANCES AND APPEALS; AND FOR THE REPEAL OF INCONSISTENT ORDINANCES

Be it Ordained By the Governing Board
of Carpinteria Sanitary District
As Follows:

ARTICLE I
General Provisions

Section 1. Enabling Authority. This Ordinance, Order, and General Regulation (hereinafter called "Ordinance") is established and adopted under authorization of the Sanitary District Act of 1923, being Part 1 of Division 6 of the Health and Safety Code commencing at Section 6400, and Chapter 6.5, Part 1 of Division 2 of the Health and Safety Code commencing at Section 54725.

Section 2. Delegation of Authority. Whenever this Ordinance grants an authority or imposes a duty upon a public officer, the authority may be exercised or the duty may be performed by a person authorized by the officer.

Section 3. Application. This Ordinance shall apply to any person or persons connected or directed by the District to connect to the Carpinteria Sanitary District sewage system.

Section 4. Severability. If any portion of this Ordinance or the application thereof is held to be unconstitutional or for any reason invalid, the validity of all remaining portions and application shall be unaffected, and they shall remain in force.

Section 5. Effect of Repeal or Amendment. The repeal or amendment of this Ordinance does not release or extinguish any penalty, forfeiture or liability incurred or right accruing or accrued under the provision repealed or amended unless the repealing or amending act expressly so provides. The provision shall be treated as remaining in force for the purpose of an action or prosecution for the enforcement of the right, penalty, forfeiture or liability.

Section 6. Purpose and Policy. This Ordinance sets uniform requirements for discharges into the District's wastewater treatment system and enables the District to comply with the provisions of the Federal Clean Water Act, and regulations promulgated thereto; any applicable

Clean Water Act grant regulations; the water quality requirements set by the California Regional Water Quality Control Board; and the applicable effluent limitations, national standards of performance, toxic and pretreatment effluent standards, and any other discharge criteria which are required or authorized by State or Federal law; and to derive the maximum public benefit by regulating the quality and quantity of wastewater discharged into the District's system.

This Ordinance also provides for the establishment of a surveillance and enforcement procedure to control the discharge of certain wastes. It provides for the issuance of permits to certain users for the purposes of industrial wastewater discharge. This Ordinance authorizes monitoring, compliance, and enforcement activities; establishes administrative review procedures; and requires industrial user reporting.

Section 7. Wastewater Discharge Policy. Domestic and non-domestic wastewater originating within the District or any other areas and entities which are served by contract will be accepted into the District's sewerage system if there is capacity in the system and the wastewater characteristics are not prohibited or damaging to the District's system.

Septage shall only be discharged in a manner approved by the District.

Section 8. Emergency Action. This Ordinance is not intended to prevent a person from protecting property and public health in the event of disaster or danger. However, a person who performs work in this event shall report to District and obtain proper inspection and clearance at the earliest opportunity.

Section 9. Special Agreements. This Ordinance does not prevent a special agreement, contract or arrangement by the District's Governing Board of Directors when the Board finds that it is necessary and of benefit to the District. Nothing in this Ordinance shall be construed as preventing any special agreement or arrangement between the District and any user of the wastewater treatment system whereby wastewater of unusual strength or character is accepted into the system and specially treated subject to any payments or user charges as may be applicable. However, no special agreement between the District and any user shall be allowed to contravene State or Federal standards.

Section 10. Effect of Headings. Article and section headings do not affect the scope, meaning or intent of this Ordinance.

Section 11. Tense. The present tense includes the past and future tenses. The future tense includes the present tense.

Section 12. Number. The singular number includes the plural, and the plural number includes the singular.

Section 13. Shall and May. Shall is mandatory and may is permissive.

Section 14. Construction of Words and Phrases. Words and phrases shall be construed according to their rules of grammar and according to their common and approved uses. Technical words and phrases and those words and phrases which have acquired peculiar and appropriate

meaning shall be construed according to the peculiar and appropriate meaning.

ARTICLE II **Definitions**

Section 1. Act. Act refers to the "Federal Water Pollution Control Act Amendments" of 1972 (PL 92-500) and any amendments thereto including the "Clean Water Act of 1977," as well as any regulations, guidelines, limitations and standards promulgated by the U.S. Environmental Protection Agency pursuant to the Act.

Section 2. Biochemical Oxygen Demand (BOD). BOD means the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in five (5) days at 20° Celsius, expressed in terms of weight and concentration (milligrams per liter).

Section 3. Beneficial Uses. Beneficial uses are uses of the waters of the State that may be protected against quality degradation including, but not limited to, domestic, municipal, agricultural and industrial supply, power generation, recreation, athletic enjoyment, navigation and the preservation and enhancement of fish, wildlife and other aquatic resources or reserves and other uses, both tangible or intangible, as specified by Federal or State law.

Section 4. Categorical. A Categorical industry is an industrial user which is subject to National Categorical Pretreatment Standards and is listed in 40 CFR Part 403, Appendix C (as amended).

Section 5. Code of Federal Regulations (CFR). The CFR is a document of the United States Government presenting Federal agency rules, regulations and guidelines.

Section 6. Commercial Establishments. Commercial establishments are any buildings used for conducting private or public wholesale or retail transactions involving the exchange of services, commodities or financial business. Such facilities normally produce domestic wastes, but may also contain some industrial wastes.

Section 7. Compatible Pollutant. Compatible Pollutant means BOD, suspended solids, pH and fecal coliform bacteria, and such additional pollutants as are now or may be in the future specified and controlled in the POTW's NPDES permit for its wastewater treatment works where said works have been designed and used to reduce or remove such pollutants.

Section 8. Contamination. Contamination is an impairment of the quality of the waters of the State by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. Contamination shall include any equivalent effect resulting from the disposal of wastewater, whether or not waters of the State are affected.

Section 9. Cooling Water. Cooling water is the water discharged from any use such as air conditioning, cooling or refrigeration, during which the only pollutant added to the water is heat.

Section 10. County. County of Santa Barbara.

Section 11. Definitions. Terms not otherwise defined herein shall be construed in accordance with the latest edition of Standard Methods for the Examination of Water and Wastewater, published by the American Public Health Association, the American Water Works Association, and the Water Pollution Control Federation. Waste constituents and characteristics shall be measured by standard methods unless expressly stated, or as established by Federal or State regulatory agencies.

Section 12. Discharge. Discharge means to pump, to place, to deposit, to permit or to cause to flow.

Section 13. District. District is the Carpinteria Sanitary District of the County of Santa Barbara, State of California.

Section 14. District Counsel. District counsel is an attorney appointed by the Governing Board to represent the District.

Section 15. District Inspector. District Inspector is the inspector acting for the Board and may be the Manager, Engineer or Inspector appointed by the Manager.

Section 16. Domestic Wastes. Domestic wastes are liquid wastes (a) from the noncommercial preparation, cooking and handling of food; or (b) containing human excrement and similar matter from the sanitary conveniences of dwellings, commercial buildings, industrial facilities and institutions.

Section 17. Engineer. The Engineer is appointed by and acting for the Board and shall be a Registered Civil Engineer.

Section 18. EPA. EPA is the United States Environmental Protection Agency.

Section 19. Garbage. Garbage is solid wastes from the domestic and commercial preparation, cooking and dispensing of food and from the handling, storage and sale of food.

Section 20. General Manager. General Manager is the Manager employed by and acting under the direction and at the pleasure of the District Board.

Section 21. Governing Board or Board. Governing Board or Board means the five person District Board of Directors elected at large from within the District boundaries and empowered as a group acting in public meetings to legislate in all matters related to the District's jurisdiction established by the laws of the State of California.

Section 22. Industrial User. Industrial user is any non-domestic source of indirect discharge including but not limited to industrial establishments or buildings that discharge, in addition to domestic wastes wastewater containing any of the constituents referenced in **Article III and IV** of this Ordinance.

Section 23. Industrial Wastewater. Industrial wastewater is the liquid waste resulting from the process employed in industrial, manufacturing, trade or business establishments, as distinct from domestic wastes. This includes wastewater from a source other than an industrial plant or facility which introduces toxic pollutants, as defined in 40 CFR 233.1(w), into publicly owned treatment works, including, without limitation: medical offices; dental offices; hospitals; schools; restaurants; research, education and commercial laboratories; warehouses; shopping centers; car washes; print stores; residential, commercial and public users of pesticides and fertilizers; gas stations; and septage collection and disposal.

Section 24. Infectious Waste. Infectious waste is waste which contains pathogenic organisms that can invade the tissues of the body and cause disease.

Section 25. Institutional Facilities. Institutional facilities are any publicly or privately owned school, and any publicly owned or leased building from which Federal, State, County, City or Special District activities are conducted or offered for public consumption. Such facilities shall include schools, hospitals, jails, libraries, offices, equipment yards and maintenance buildings, laboratories, parks, rubbish stations, detention homes and fire stations.

Section 26. Interference. Interference means any discharge which, alone or in conjunction with a discharge or discharges from other sources, both: 1) Inhibits, disrupts, or damages the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and 2) Is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act; the Solid Waste Disposal Act (SWDA) [including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SWDA)]; the Clean Air Act; the Toxic Substances Control Act; and the Marine Protection, Research and Sanctuaries Act.

Section 27. Mass Emission Rate. Mass emission rate is the weight of material discharged to the sewer system during a given time interval. Unless otherwise specified, the mass emission rate shall mean pounds per day of a particular constituent or combination of constituents.

Section 28. National Categorical Pretreatment Standard. National Categorical Pretreatment Standard is any regulation containing pollutant discharge limits applying to a specific category of Industrial Users which is promulgated by the Environmental Protection Agency in accordance with 40 CFR, Chapter 1, Subchapter N, Parts 401-471 and, specifically, in accordance with Sections 307 (b) and (c) of the Act (33 U.S.C. 1349).

Section 29. National Pollutant Discharge Elimination System (NPDES). NPDES is the program for issuing, conditioning and denying permits for the discharge of pollutants from point sources into the navigable waters, the contiguous zone and the oceans pursuant to Section 402 of the Act.

Section 30. New Source. New source is any building, structure, facility or installation from

which there is a discharge of pollutants, the construction of which is commenced after the publication of pretreatment standards adopted by the Governing Board or after publication of proposed Pretreatment Standards under Section 307(c) of the Act and as further defined in 40 CFR 403.3(k)(1).

Section 31. Non-Compatible Pollutant. Non-compatible pollutant is any pollutant which is not a compatible pollutant as defined in this Article.

Section 32. NPDES Permit. An NPDES Permit is the regulatory agency document designed to control all discharges of pollutants from point sources into U.S. waterways. NPDES permits regulate discharges into navigable waters from all point sources of pollution including industries, municipal treatment plants, large agricultural feed lots and return irrigation flows. A NPDES permit may be issued to a POTW pursuant to Section 402 of the Act.

Section 33. Nuisance. Nuisance is anything which is injurious to health or is indecent or offensive to the senses or an obstruction to the free use of property so as to interfere with the comfort or enjoyment of life or property or which affects at the same time an entire community or neighborhood or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

Section 34. Pass Through. Pass through is any discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

Section 35. Pathogenic Organisms. Pathogenic organisms are bacteria and viruses which cause disease and which may be contained in specimens.

Section 36. Permit. Permit is any written authorization required pursuant to this or any other rule, regulation or Ordinance of the District for the installation of any sewage facilities.

Section 37. Person. Person is any individual, firm, company, partnership, association, and private, public or municipal corporations, the United States of America, the State of California, and all political subdivisions, district and governmental agencies thereof.

Section 38. pH. pH is the logarithm of the reciprocal of the concentration of hydrogen ions per liter of solution.

Section 39. Point Source. Point source is any discernible, confined or discrete conveyance from which pollutants are or may be discharged, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft.

Section 40. Pollution. Pollution is an alteration of the quality of the waters of the State by waste to a degree which unreasonably affects such waters for beneficial use or facilities which serve such beneficial uses. Pollution may include contamination.

Section 41. Polychlorinated Biphenyls (PCB). PCB is a group of synthetic organic compounds.

Section 42. Premises. Premises is a parcel of real estate including any improvements thereon which is determined by the District to be a single user for purposes of receiving, using and paying for service.

Section 43. Pretreatment. Pretreatment is the reduction of the amount of pollutants, the elimination of pollutants or the alteration of the nature of pollutant properties in wastewater to a less harmful state prior to or in lieu of discharging or otherwise introducing such pollutants into the District's sewerage system. The reduction or alteration can be obtained by physical, chemical or biological processes, or by process changes, except as prohibited by 40 CFR 403.6(d).

Section 44. Pretreatment Requirements. Pretreatment requirements are any substantive or procedural requirement related to pretreatment, other than a National Pretreatment Standard, imposed on an industrial discharger.

Section 45. Pretreatment Standard. Pretreatment standard is any regulation containing pollutant discharge limits promulgated by the EPA in accordance with Section 307(b) and (c) et. seq. of the Act which applies to Industrial Users. These include categorical standards which establish specific concentration limits for certain pollutants and total prohibition of other pollutants as specified in 40 CFR 403 et. seq., as well as local limits adopted by the Carpinteria Sanitary District including, but not limited to, those discharge limitations contained in **Table A** of this Ordinance.

Section 46. Public Sewer. Public sewer is a sewer in a public right-of-way or easement held by the District or any sewer construction by or owned by the District.

Section 47. Publicly Owned Treatment Works (POTW). A POTW as defined by Section 212 of the Act, which is owned by a State or Municipality (as defined in Section 502(4) of the Act). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in Section 502(4) of the Act, which has jurisdiction over the indirect discharges to and the discharges from such a treatment works.

Section 48. POTW Treatment Plant. POTW treatment plant means that portion of the POTW which is designed to provide treatment (including recycling and reclamation) of municipal sewage and industrial waste. This term shall also be construed to mean District's treatment plant.

Section 49. Sanitary Wastewater. Sanitary wastewater is: 1) Domestic wastewater with storm and surface water excluded; 2) Wastewater discharging from the sanitary conveniences of dwellings (including apartment houses and hotels), commercial buildings, industrial facilities or institutions; and 3) The water supply of a community after it has been used and discharged into a sewer.

Section 50. Septage. Septage is sludge produced in individual on-site wastewater disposal systems such as septic tanks and cesspools.

Section 51. Sewage. Sewage is a combination of water-carried wastes from buildings and industrial establishments connected to the sewage system of District or from any private sewer.

Section 52. Sewage System or Sewerage System. Sewage system or sewerage system are all District facilities for the collection, pumping, treating and disposing of sewage.

Section 53. Sewer. Sewer is a pipe or conduit which transports wastewater, into which storm, surface, and ground waters are not intentionally admitted.

Section 54. Significant Industrial User. Significant industrial user is any industrial user of the District's sewerage system: (a) who discharges an average of 25,000 gallons or more per day of process wastewater; or (b) who contributes a process wastestream which makes up five percent or more of the average daily dry weather capacity of the POTW; or (c) which is determined to be classified as a categorical industry as regulated under Federal Categorical Pretreatment Standards; or (d) whose flow, as found by the District, the Regional Water Quality Control Board or the State Water Resources Control Board has reasonable potential for adversely affecting, either singly or in combination with other contributing industries, the operation of the District's treatment plant or the quality of the effluent from the POTW, which may cause the District to violate its NPDES permit or any pretreatment standard or requirement.

Section 55. Standard Industrial Classification (SIC). SIC is the compilation of industrial groups and their economic activities which is printed by the U.S. Office of Management and Budget in its Standard Industrial Classification Manual.

Section 56. Storm Water. Storm water is any flow occurring during or immediately following any form of natural precipitation and resulting therefrom.

Section 57. Street. Street is any public highway, road, street, avenue, alley way, easement or right-of-way.

Section 58. Suspended Solids. Suspended solids is the total suspended matter that floats on the surface of, or is suspended in water, wastewater or other liquids and which is removable by laboratory filtering.

Section 59. Total Identifiable Chlorinated Hydrocarbons (TICH). TICH are those organic compounds listed under 40 CFR 401.15 which include certain organochlorine pesticides and Polychlorinated Biphenyls (PCB's).

Section 60. Toxic Substances. Toxic substances are any toxic substances in amounts exceeding standards promulgated by the Administrator of the United States Environmental Protection Agency pursuant to Section 307(a) of the Act, and the "Toxic Substances Control Act" (P.L. 94-469) and chemical elements or compounds, phenols or other taste or odor producing

substances, or any other substances which are not susceptible to treatment of which may interfere with the biological processes of, the efficiency of, or that will pass through the POTW.

Section 61. Unpolluted Water. Unpolluted water is water not containing any pollutants limited or prohibited by the effluent standards in effect, or water whose discharge will not cause any violation of receiving water quality standards.

Section 62. User. User is any person who discharges, causes or permits the discharge of wastewater into the District's sewage system. The term "discharger" as used herein shall be construed to mean a user.

Section 63. User Classification. User classification is a classification of user based on the 1987 (or subsequent) edition of the Standard Industrial Classification Manual (SIC) prepared by the Office of Management and Budget.

Section 64. Waste. Waste includes sewage and any and all other water substances, liquid, solid, gaseous or radioactive substances associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation of whatever nature, including such waste placed within containers of whatever nature prior to, and for purpose of, disposal.

Section 65. Wastewater. Wastewater is waste and water, whether treated or untreated, discharged into or permitted to enter the District's sewer system.

Section 66. Wastewater Constituents and Characteristics. Wastewater constituents and characteristics are the individual chemical, physical, bacteriological and radiological parameters including volume and flow rate and such other parameters that serve to define, classify or measure the contents, quality, quantity and strength of wastewater.

Section 67. Wastewater Treatment System. Wastewater treatment system consists of any devices, facilities, structures, equipment or works owned or used by the District for the purpose of the transmission, collection, storage, treatment, recycling and reclamation of industrial and domestic wastes, or necessary to recycle or reuse water at the most economical cost over the estimated life of the system, including intercepting sewers, outfall sewers, sewage collection systems, pumping, power, and other equipment, and their appurtenances; extensions, improvements, remodeling, additions and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities; and any works, including site acquisition of the land that will be an integral part of the treatment process or is used for ultimate disposal of residues resulting from such treatment.

Section 68. Watercourse. Watercourse is a channel in which a flow of water occurs either continuously or intermittently.

Section 69. Waters of the State. Waters of the State is any water, surface or underground, including saline waters within the boundaries of the State.

ARTICLE III
Prohibitions on Wastewater Discharges to Public Sewers

Section 1. Introduction. These prohibitions apply to all users of the District's sewage system whether or not the user is subject to other standards or requirements by other public agencies. A user shall not directly or indirectly contribute or cause or allow to be discharged or deposited into the District's sewage system, any item specified in 40 CFR 403.5(b), and including but not limited to items specified in this **Article III**.

Section 2. Fire Hazards and Explosive Mixtures. Liquids, solids or gases which by reason of their nature or quantity are, or may be, sufficient either alone or by interaction with other substances to cause fire or explosion or be injurious in any other way to the sewage system, the operation of the system, or its personnel, pursuant to 40 CFR 403.5(b)(1). Prohibited materials include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ether, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides, sulfides or any other substances which the District, the State or EPA has identified as a fire hazard or a hazard to the sewage system.

Section 3. Toxic Pollutants. Any wastewater containing toxic substances in sufficient quantity, either singularly or by interaction with other substances, to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, create a toxic effect in the receiving waters of the POTW or exceed the limitations set forth in categorical pretreatment standards or **Article IV, Section 5** of this Ordinance. A toxic pollutant shall include but not be limited to any pollutant identified in Section 307(a) of the Federal Clean Water Act.

Section 4. Solid or Viscous Wastes. Solid or viscous wastes which will or may cause obstruction to the flow in a sewer, or otherwise interfere with the proper operation of the District's wastewater treatment system. Prohibited materials include, but are not limited to, grease, garbage with particles greater than one-half inch in any dimension, animal guts or tissues, paunch manure, bones, hair, hides or fleshings, entrails, whole blood and/or components, feathers, ashes, cinders, sand, spent lime, stone or marble, dust, metal, glass, straw, shavings, grass clippings, rags, spent grains, spent hops, waste paper, wood, plastics, tar, asphalt residues, residues from refining or processing of fuel or lubricating oil, mud and glass grinding or polishing wastes.

Section 5. Uncontaminated Water. Rain, storm or ground water, street drainage, sub-surface drainage, seepage, roof or yard drainage, water from yard fountains, ponds or lawn sprays or other uncontaminated water or water added for the purpose of diluting wastes which exceed maximum concentration limitations.

The contents of a swimming pool (including filter backwash from swimming pools and/or spas) may not be discharged into the sewer system without first applying for and receiving written permission from the General Manager.

Section 6. Cooling Water. Water from cooling systems, deionized water, steam underwaste or distilled water in excess of laboratory usage, single pass cooling water, blow-down or bleed water from cooling towers or other evaporative coolers exceeding 1/3 of the make-up

water. Quantities in excess of 1/3 of the make-up water may be discharged into the sewerage system during off-peak hours with written authorization from the District.

Section 7. Noxious Material. Noxious or malodorous solids, liquids or gases, which either singularly or by interaction with other wastes, are capable of creating a public nuisance or hazard to life or are sufficient to prevent entry into a sewer for its maintenance and repair.

Section 8. Color. Wastewater with objectionable color not removable by the treatment process, including but not limited to; inks, dyes and tannin solutions.

Section 9. Temperature. Any wastewater having a temperature which will inhibit biological activity in the POTW resulting in interference, but in no case wastewater with heat in such quantities that the temperature exceeds 150° Fahrenheit (66° Celsius) at the point of discharge or 104° Fahrenheit (40° Celsius) at the POTW headworks.

Section 10. Corrosive Wastes. Any waste which will cause corrosion or deterioration of the sewerage system or POTW. All wastes discharged to the public sewer system must have a pH value in the range of six (6) to nine (9) standard units. Prohibited materials include, but are not limited to, acids, caustics, sulfides, concentrated chloride and fluoride compounds, and substances which will react with water to form acidic products.

Section 11. Impairment to Reclamation or Reuse. Any wastewater which is capable of causing either alone or by interaction with other substances, the POTW effluent or any other product of the treatment process, residues, biosolids or scum to be unsuitable for reclamation or reuse or to interfere with the reclamation process.

Section 12. Trucked or Hauled Pollutants. Any trucked or hauled pollutants except at discharge points designated by the District.

Section 13. Infectious Wastes. Infectious wastes from hospitals, clinics, out-patient clinics, medical and dental offices, mortuaries, etc.; pathologic specimens; disposable hypodermic needles, syringes and associated articles (whether ground or not); recognizable portions of the human anatomy; solid wastes generated in the rooms of patients who are isolated because of a suspected or diagnosed communicable disease; wastes excluded by other provisions of this Ordinance except as specifically permitted for; or any other waste defined by the Health Office of Santa Barbara County as being infectious.

Section 14. Radioactive Waste. Wastewater containing any radioactive wastes or isotopes is prohibited.

Section 15. Tetrachloroethylene. Any quantity of Tetrachloroethylene (aka PCE or "perc"). Any water which has come in contact with PCE, directly or indirectly, including boiler blow-down, cooling water, condensate or water from a PCE-water separator.

Section 16. Dilution of Discharge. Except where expressly authorized, no user shall ever increase the use of process water, or in any other way attempt to dilute a discharge as a

partial or complete substitute for adequate treatment to achieve compliance with specific discharge limitations or requirements. The District may impose mass limitations on users which are using dilution to meet applicable discharge limitations or regulations or in other cases where the imposition of mass limitations is appropriate.

ARTICLE IV **Limitations on Wastewater Discharges**

Section 1. Maximum Concentrations. Maximum concentrations of pollutants allowable in wastewater discharges to the wastewater treatment system are established by the Manager and adopted by the Board of Directors by Resolution or Ordinance.

Section 2. Limitations and Prohibitions. Limitations and prohibitions on wastewater strength are contained in this Ordinance and may be supplemented with more stringent limitations and prohibitions as deemed necessary by the District.

- a. If the District determines that the limitations and prohibitions in this Ordinance or other District Ordinances or Resolutions may not be sufficient to protect the operation of the POTW, or
- b. If the District determines that the limitations and prohibitions in this Ordinance or other District Ordinances or Resolutions, may not be sufficient to enable the POTW to comply with water quality standards or effluent limitations specified in the POTW's NPDES permit; then
- c. Concentration limitations shall be imposed by the General Manager upon adoption by the Board of Directors as may be found necessary to insure compliance with the POTW's NPDES requirements or more restrictive pretreatment standards prescribed by the California Regional Water Quality Control Board or the EPA.

Section 3. Oils and Grease. Oils and greases may be from living or non-living sources or contain substances that may solidify or become viscous at temperatures between 32° and 150° Fahrenheit at the point of discharge into the system or in amounts that will cause interference or pass through. Oils and grease in excess of 150 mg/L, whether emulsified or not, may not be discharged into the public sewer system.

Section 4. Improperly Shredded Garbage. Discharges containing improperly shredded garbage that has not been ground or comminuted to such a degree that all particles will be carried freely in suspension under normal flow conditions in the public sewers or with any particle greater than one-half inch in any dimension are not allowed.

Acceptable discharges from garbage grinders are as follows:

- a. Wastes generated in preparation of food in a residence.
- b. Where a non-residential user has an existing garbage grinder or a proposed new grinder and has approval for that specific use from the District. Such grinders must

be kept in proper working order.

Prohibited discharges from garbage grinders are as follows:

- a. Garbage grinders shall not be used for grinding plastic, paper products, inert materials, garden refuse or waste products resulting from the handling, storage and sale of fruits and vegetables in wholesale and retail produce establishments and wastes from entities engaged in the preparation, processing or preserving of food not intended primarily for immediate consumption.

The District reserves the right to prohibit the use of garbage grinders in commercial applications if this waste creates excessive problems in the sewerage system.

Section 5. Specific Discharge Limitations. The maximum concentrations of pollutants allowable in wastewater discharges to the Carpinteria Sanitary District sewerage system by any user are found in **Table A** of this Ordinance, incorporated by reference herein. Dilution of any wastewater discharge for the purpose of satisfying these requirements shall be considered a violation of this Ordinance. Any exceedence of these limitations is a violation of this Ordinance subject to enforcement action as set forth in this Ordinance. These limits will be reviewed periodically and revised as needed.

Any user who does not comply with Federal Pretreatment Standards as required under Sections 307(b) and (c) of the Act, and any regulations promulgated thereunder, including those regulations contained in 40 CFR 403.12, violates this Ordinance.

Section 6. Acceptability. In determining the acceptability of specific wastewater under this Ordinance, the General Manager shall consider, in addition to those items already mentioned, the adequacy and nature of the collection, treatment and disposal system available to accept the wastewater and the District policy embodied in this Ordinance. Upon such consideration, the General Manager may establish terms and conditions appropriate to specific dischargers as provided in this Ordinance.

Section 7. Standards. In the event of overlap or conflict between federal, state and local standards, the most stringent standard shall apply.

Section 8. Pretreatment Standards. Upon the promulgation of a District pretreatment standard or a categorical pretreatment standard for a particular industrial category, the more stringent limitation shall immediately supersede the less stringent limitation.

Section 9. Notification. All affected users shall be notified of any new standards and any applicable reporting requirements under 40 CFR 403.12 and these rules and regulations.

ARTICLE V **Control of Wastewater Discharges**

Section 1. Regulatory Actions. If wastewater containing any substance referred to in

Article III and IV of this Ordinance is discharged or proposed to be discharged into the sewer system, the General Manager, District Counsel, and the Board of Directors may take any action necessary to:

- a. Prohibit the discharge of the wastewater.
- b. Require the discharger to demonstrate that in-plant modifications would reduce or eliminate the discharge in conformance with prohibitions, limitations and requirements of this Ordinance.
- c. Require pretreatment to reduce or eliminate the objectionable or harmful nature of the pollutants prior to their discharge to the sewer system.
- d. Require the discharger to pay any additional costs incurred by the District for handling and treating the excess loads imposed on the treatment system as a result of allowing such wastewater to enter the system.
- e. Take any other remedial action as may be deemed necessary to achieve the purpose and requirements of this Ordinance.

Section 2. Pretreatment Facilities. Users shall ensure that all wastewater discharged to the sewer system is in compliance with the limitations of this Ordinance. District in its discretion may require users, at their own cost, to install a wastewater pretreatment device or system to pretreat wastewater flows to a level acceptable to District and the limits set forth in **Article III and IV** of this Ordinance, before discharge of such wastewater to the District's sewer system.

Pretreatment facilities shall be constructed and maintained in good working order, and operated as efficiently as possible, at the expense of the discharger and are subject to the requirements of this Ordinance and all other applicable codes and laws.

Section 3. Review and Approval of Facility Plans. Where pretreatment or monitoring facilities are required prior to discharging wastewater to the sewerage system, detailed plans showing the pretreatment facility and operating procedures shall be submitted to the District for review and shall be approved by the District before construction of the facility. All such plans and construction shall be done at the discharger's expense. The review and approval of such plans and operating procedures will in no way relieve the user from the responsibility of modifying the facility as necessary to produce an effluent acceptable to the District under the provisions of this Ordinance, and the user shall remain responsible for compliance with all applicable ordinance, codes, regulations and orders of any governmental authority. Any subsequent proposed changes in the pretreatment facilities or methods of operation shall be reported to and be approved by the District prior to user's implementation of the changes. Permits for facility construction are required as set forth in District **Ordinance No. 2**.

Section 4. Sampling Station. When required by the District, a sampling station of a design and location approved by the District shall be furnished and installed by the user, at the user's expense, to facilitate inspection, sampling and flow measurements. User shall provide the District with unrestricted access to the sampling station at all times.

Section 5. Correction of Defects. When a defect results from improper installation, or

installation of sewer facilities with materials not meeting District standards, the person responsible for the defect shall correct it at their sole expense.

Section 6. Pretreatment Standards. All applicable Federal pretreatment standards which specify quantities or concentrations of pollutants that may be discharged by a specific industrial category will be enforced by the District as required by Section 309(e) and (f) et. seq. of the Federal Clean Water Act.

Section 7. Isolation of Wastestreams. In the construction of new facilities, all domestic wastewater shall be kept separate from industrial wastewater until the industrial wastewater has passed through any required pretreatment and/or monitoring system. In the case of an existing facility or in the event these wastestreams cannot reasonably be isolated, a variance may be issued in District's discretion.

Section 8. Grease Interceptors and Gravity Separating Devices. Grease, oil, and sand interceptors and gravity separating devices shall be provided at user's expense when, in the opinion of the General Manager, they are necessary for the proper handling of the liquid wastes containing grease or any flammable wastes, sand or other harmful ingredients. All interceptors shall be sized using the Uniform Plumbing Code, current edition, as a guide. Interceptors must be of a capacity sufficient to provide the appropriate quality of effluent as per District standards and shall be in an easily accessible location for the purposes of cleaning and inspection. A sample box or tee is required on all interceptors and separators. All interceptors and separators are required to be properly maintained to ensure compliance with District requirements.

- a. Restaurants or similar establishments shall install an approved grease interceptor or grease trap or implement other grease reducing practices. The method to be employed shall be approved by the District. Guidelines for determining the required method shall be established by the General Manager. Requirements for the installation of a grease interceptor or trap shall be determined on a case-by-case basis by the District using the UPC as a guide.
- b. All car washes, vehicle service stations and garages shall be required to install a gravity separating device designed to prevent the discharge of sand, silt, oil and grease to the sewerage system. Requirements for the installation of a gravity separating device shall be determined on a case-by-case basis by the District using the UPC as a guide.
- c. If the District finds that a grease interceptor or gravity separating device installed prior to the effective date of this Ordinance is incapable of adequately retaining the grease, sand or oil in the wastewater flow, the District shall notify the user, in writing, that an adequate interceptor or gravity separating device be installed within a specific, reasonable time period.
- d. Installation of a grease interceptor or gravity separating device shall not relieve the user of responsibility for keeping prohibited substances or substances above the limitations of this Ordinance out of the sewerage system. If the interceptor, gravity separating device or other pretreatment facility is not adequate under the conditions

of use, one shall be constructed, at user's expense, which is effective in accomplishing the intended purpose.

Section 9. Commercial Garbage Grinders. No owner of a commercial garbage grinder may operate any such grinder that discharges any waters, wastes or other substances into the District's sewer system without first providing, at owner's expense, the appropriate treatment as may be necessary to reduce the suspended solids, daily flow or objectionable characteristics or constituents to within the limits contained in **Article IV** of this Ordinance.

Section 10. Water Softening Units. In order to minimize salts discharging into the system, water softening units must be well maintained and efficient.

Section 11. Protection from Accidental Discharge. Each industrial user shall provide protection from accidental discharge of prohibited materials or other wastes regulated by this Ordinance. Facilities to prevent accidental discharge of prohibited materials shall be provided and maintained at the user's expense. Detailed plans showing facilities and operating procedures to provide this protection shall be submitted to the District for review and shall be approved by the General Manager before construction of the facility. Review and approval of such plans and operating procedures shall not relieve the industrial user from the responsibility to modify his facility as necessary to meet the requirements of this Ordinance or of any other applicable rule, regulation, order or ordinance of a governmental authority.

Section 12. Reporting of Accidental Discharge. All industrial users shall notify the District immediately of all discharges that could cause problems to the POTW, including any slug loadings or accidental discharges. A notice shall be permanently posted on the user's bulletin board or other prominent place advising employees whom to call in the event of an accidental discharge. Users shall ensure that all employees who may cause such an accidental discharge are advised of the emergency notification procedure.

Any person that causes an accidental discharge or discovers an uncontrolled discharge that does not comply with any prohibition or limitation in this Ordinance, shall immediately notify the District so that corrective action may be taken to protect the treatment system.

The user responsible for the discharge shall file a written report with the District detailing the date, time and cause of the accidental discharge, the quantity and characteristics of the discharge and corrective action taken to prevent future discharges. The report shall be filed with the District by the responsible industrial user within five calendar days of the occurrence of the discharge (40 CFR 403.12(f)).

Such notification will not relieve users of liability for any expense, loss or damage to the sewer system, treatment plant or treatment process, or for any fines imposed on the District on account thereof under Section 13350 of the California Water Code or for violations of Section 5650 of the California Fish and Game Code, or any other applicable state or federal statute or regulation.

Section 13. Preventative Measures. Any direct or indirect connection to the user's plumbing or drainage system that allows the discharge of wastes in violation of this Ordinance to the public sewer system shall be eliminated. Where such action is impractical or unreasonable, as

determined by the District, the user shall appropriately label such entry points to warn against discharge of such wastes.

Section 14. Excessive Sewer Maintenance/Damage to Facilities. Any person(s) who discharges or causes to be discharged into the District's sewerage facilities either directly or indirectly, any waste or wastewater which is prohibited, creates a blockage, breakage, permanent reduction to sewer capacity, causes excessive maintenance expenses, creates detrimental effects to the POTW, causes the violation of a discharge requirement or regulation imposed by a regulatory agency or any other damage to District facilities shall be liable for all damages and costs occasioned thereby, including any penalty assessed by a regulatory agency. The damages, costs or penalty assessed shall be deemed a debt to the District and shall be charged to the user.

ARTICLE VI **Permits, Recordkeeping, and Monitoring**

Section 1. Source Control Permits. All Significant Industrial Users proposing to connect to or discharge into any part of the sewerage system must first obtain a Source Control Permit. Other industrial users may be required to obtain a Source Control Permit if, in the opinion of the General Manager, they have a discharge that may adversely impact District facilities. Application for Source Control Permits shall be made on a form provided by the District. After evaluation and acceptance of the information provided by the user, the General Manager may issue a permit subject to the terms and conditions provided herein.

Section 2. Source Control User Classifications.

- a. **Significant Industrial User (Class 1).** This includes Significant Industrial Users as defined by 40 CFR 403.3(t)(i)(ii).
- b. **Continuous or Intermittent Discharge (Class 2).** This includes facilities that continuously or intermittently discharge wastewater that contains hazardous constituents that could adversely impact the sewerage system, including the POTW.
- c. **No Discharge (Class 3).** This includes facilities that handle or store hazardous wastes on their premises but do not discharge these wastes to the sewer system. These facilities have all hazardous waste hauled off site, but have floor drains or other plumbing fixtures through which hazardous wastes can be conveyed to the sewer during normal washdown operations or spillage.
- d. **Non-Toxic Pollutants (Class 4).** This includes facilities who do not handle, store or dispose of hazardous waste on the premises and who do not discharge hazardous wastes to the sewer. These facilities have a discharge that contains non-toxic pollutants which may cause interference with the operation of the treatment plant or collection system.

Section 3. Terms and Conditions of Permit. The Source Control Permit shall set forth the performance specifications to which each user must conform in order to discharge regulated

processes to the District's sewerage system. Source Control Permits shall be subject to all provisions of this Ordinance, Federal pretreatment standards and regulations pursuant to Section 307 et. seq. of the Clean Water Act and all other regulations, user charges and fees established by the District. The conditions of the permit shall be uniformly enforced in accordance with this Ordinance and applicable State and Federal regulations.

The terms and conditions of the permit may be subject to modification and change by the District during the life of the permit, as limitations or requirements as set forth in **Articles III and IV** are modified or as a result of pretreatment standards and/or requirements promulgated pursuant to Section 307 et. seq. of the Clean Water Act.

The user shall be informed of any proposed changes in its permit at least thirty calendar days prior to the effective date of the change.

Permit holders shall file periodic discharge reports at such intervals and containing such information as designated in the Source Control Permit.

The user is required to notify the District of any changes in the user's operation that may affect its discharge rate, peak flow rate, wastewater constituents or characteristics (40 CFR 403.12(j)).

The District shall include a reasonable compliance schedule for any changes or new conditions in the permit. The user may submit an alternative compliance schedule for approval by the General Manager to allow the user additional time to modify the industrial process sufficiently to comply with the new permit changes.

Section 4. Duration of Permits. Permits shall be issued for a specific time period, not to exceed three years. A permit may be issued for a period of less than three years or may expire on a specific date.

If the user is not notified by the District thirty calendar days prior to the expiration date of the permit, the permit shall automatically be extended for one month increments pending District review and action on the permit.

Section 5. Transfer of Permit. Source Control Permits are issued to a specific user for a specific operation. A permit shall not be reassigned or transferred or sold to a new owner, new user, different premises or a new or changed operation.

Section 6. Violation of Permit. When it is determined that a specific condition and/or discharge is in violation of this Ordinance or any permit condition, or limit imposed, enforcement actions shall be initiated as provided in **Article VII**.

Any user who violates the conditions of its permit or this Ordinance is subject to having its permit revoked.

Section 7. Discharge Violations. Discharge violations include but are not limited to:

- a. Unlawful discharge of wastewater and compounds prohibited in **Article III**.
- b. Discharges violating permit conditions or limitations.
- c. Discharges in violation of this Ordinance.
- d. Discharges endangering the environment or the public's health, safety and/or welfare.
- e. Discharges endangering the District's sewerage system, and/or District personnel.

Section 8. Non-Discharge Violations. Non-discharge violations constitute noncompliance with the District's rules and regulations and may also create a nuisance or have severe impact on the District's ability to serve the public. This includes non-compliance with District design standards and plan specifications.

Section 9. Maintenance and Availability of Records. All users discharging wastewater to the District's sewerage system shall maintain records, as required by the Source Control Permit, of its raw materials and usage, processes, effluent flows, pollutant concentrations and related factors. Any user subject to the reporting requirements of this Ordinance shall be required to retain for a minimum of three years any records (including books, documents, reports, memoranda, correspondence, and chemical analyses) of monitoring activities and results. This period of retention shall be extended during the course of any unresolved litigation regarding the user and District or when requested by the General Manager or other applicable regulatory agencies.

All records relating to compliance with the standards set forth in this Ordinance shall be made available for inspection and copying at the user's facility by regulatory officials in accordance with 40 CFR 403.12(o)(2)(3).

Section 10. Confidential Information. All information and data on a user obtained from reports, questionnaires, permit application, permits and monitoring programs and from inspections shall be available to the public or other governmental agencies; provided, however, that such portions of a report shall be available for use by the State or any state agency in judicial review or enforcement proceedings involving the person furnishing the report. Wastewater constituents and characteristics will not be recognized as confidential information. Any information provided to the District (not determined as confidential) regarding industrial user effluent data shall be available to the public without restriction.

Information accepted by the District as confidential in accordance with the provisions of 40 CFR Part 2 entitled, "Confidentiality of Business Information," shall not be transmitted to the general public by the District until and unless prior and adequate notification is given to the user. Governmental agencies such as the EPA and State shall have immediate access to all information collected by the District under its source control program.

Section 11. Right to Inspect and Monitor. The General Manager, through a program of inspection and sampling shall ensure compliance with the provisions of this Ordinance, the user's

Source Control Permit and all applicable Federal and State laws and regulations. The District may inspect the facilities of any person to ascertain whether the purpose of this Ordinance is being met and all prohibitions, limitations and requirements are being complied with. Upon presentation of proper identification, persons or occupants of premises where waste or wastewater is created or discharged shall allow the District ready access, at all reasonable times, to all parts of the premises for the purposes of inspection, sampling, records examination, evidence gathering or in the performance of any of its other duties. In addition, the District may enter a user's property at any hour under emergency circumstances involving the District's sewerage system. The District shall have the right to set up on the user's property such devices as are necessary to conduct sampling, inspection, compliance monitoring and/or metering operations.

Section 12. Security and Safety. During the inspection and compliance monitoring activities, the District shall observe all reasonable security, safety and sanitation measures. In addition, the District shall observe reasonable precautionary measures specified by the user. Where a user has security measures in force which would require proper identification and clearance before entry onto the user's premises, the user shall make necessary arrangements with their security guards so that upon presentation of suitable identification, personnel from the District will be permitted to enter, without delay, for the purposes of performing their specific responsibilities.

Section 13. Inspection Reports. A copy of all inspection reports shall be provided to the user. Any deficiencies and/or violations found during the inspection shall be dealt with as set forth in the District's Enforcement Response Plan.

Section 14. Monitoring Equipment. The user of any facility discharging industrial wastewater into the District's sewerage system shall install at their own expense, suitable monitoring equipment as may be required by this Ordinance to facilitate the accurate observation, sampling, and measurement of regulated constituents. Prior to installation of the monitoring equipment, the user shall obtain a permit as provided in **Ordinance No. 2**. Such equipment shall be maintained in proper working order and be accessible to the District at all times.

If the District requires or the user chooses to install monitoring equipment, the equipment shall be calibrated, as recommended by the manufacturer and approved by the District. This must be done by qualified personnel. A photocopy of the calibration results and/or certificate shall be sent to the District.

Section 15. Sampling and Analysis. All users required to sample and analyze their wastewater shall follow the requirements set forth in their Source Control Permit.

Grab or composite samples, as needed to obtain samples representative of the wastewater being tested, shall be taken to determine compliance with the requirements of a user's permit. If routine sampling reveals non-compliance by the discharger with the discharge limits or conditions specified in the user's permit, then the user shall be assessed all other costs incurred during the subsequent evaluation period for sampling and analysis, including labor, equipment, materials and overhead.

All analyses shall be performed in accordance with procedures established pursuant to Section

304(h) et. seq., of the Federal Clean Water Act and contained in 40 CFR 136 as amended (40 CFR 403.12 (g)(4)).

Section 16. Monitoring Reports. All categorical and significant industrial users shall, at a minimum, submit semi-annual self-monitoring reports as required in their Source Control Permit. The frequency of self-monitoring and reporting for those industrial users not regulated by Federal pretreatment regulations will be set forth in the user's permit and be based on the following factors:

- The quantity, nature, and type of the wastewater discharged.
- The effect of the wastewater on the District's sewerage system.
- The extent to which the discharge could contribute to violation of the District's NPDES permit.

Section 17. Signatory Requirements. All reports submitted by the user shall contain the following certification statement: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." and shall be signed by a responsible official as stipulated in 40 CFR 403.12 (l).

Section 18. False Statements. Self-monitoring reports for Federally regulated significant industrial users, shall be subject to the provision of 18 U.S.C. Section 1001 relating to false statements and fraud and the provisions of Section 309(c) (2) of the Federal Clean Water Act governing false statements. Any person who knowingly makes false statements, representations or certifies in any application, record, report, plans or other document filed or required to be maintained, pursuant to this Ordinance or who falsifies, tampers with or knowingly renders inaccurate any monitoring device or method required under this Ordinance, is considered in violation thereof and shall upon conviction, be punished in accordance with provisions contained within this Ordinance.

ARTICLE VII **Enforcement Procedures**

Section 1. Administration and Enforcement. The General Manager shall administer, implement and enforce the provisions of this Ordinance. Any ministerial authorities granted to or duties imposed upon the General Manager may be delegated by him to person(s) acting in the employ of or under contract to the District.

Section 2. Authority. The District Board will promulgate and the General Manager shall administer, implement and enforce policies and standards reasonably necessary to protect the District's facilities, to comply with all applicable Federal and State laws required by the Clean Water Act of 1977, the Federal Pretreatment Regulations (40 CFR 403) and the California Porter-

Cologne Water Quality Control Act, as amended to control and regulate the proper use of the sewer system, to prevent overflow, and to provide for the issuance, suspension or revocation of Source Control Permits and/or sewer service. Administrative practices and standards shall be consistent with the provisions of this Ordinance and formulated to result in the uniform control of the total sewerage system within the District. The District Board will promulgate and the General Manager shall administer, implement and enforce reasonable policies and standards relating to the rate of flow and the quality and quantity of wastewater discharges to the sewerage system of the District which shall be consistent with and implement the purposes of this Ordinance. District may undertake all actions authorized pursuant to California Government Code actions 54739, 54740, 54740.5, and 54740.6, whether or not explicitly set forth herein.

Section 3. Notice of Violation. Whenever it is found that any person is in violation of this Ordinance, the General Manager may serve upon such person a Notice of Violation. The notice shall state the nature of the violation, provide a reasonable time for the satisfactory correction thereof and require an explanation of the circumstances giving rise to the violation. The Notice of Violation may set forth a compliance schedule with specific actions the User shall take in order to prevent or correct the violation. In addition, the Notice of Violation may require inspections or sampling and may impose other requirements deemed necessary. The Notice of Violation may also contain a statement that additional enforcement action may be pursued if corrective actions are not accomplished as scheduled.

Section 4. Administrative Compliance Order. In lieu of issuing a Notice of Violation, or if a person does not take appropriate corrective action in response to a Notice of Violation, the General Manager may issue an Administrative Order requiring immediate compliance with the terms of this Ordinance, or setting forth a compliance schedule with specific actions the User shall take in order to prevent or correct the violation. In addition, the Administrative Order may require inspections or sampling and may impose other requirements deemed necessary. Prior to issuing such an Administrative Order, the General Manager may, but shall not be required to, issue an Order to Show Cause. Said Order to Show Cause shall present the User with the facts demonstrating non-compliance and shall ask that the User show cause why the District should not initiate formal enforcement action or discontinue sewer service.

Section 5. Cease and Desist Order. When the General Manager finds that a discharge of wastewater is taking place in violation of prohibitions or limits of this Ordinance the General Manager may issue an order to Cease and Desist such discharge and direct that those persons not complying with such prohibitions, limits, requirements, or provisions 1) immediately comply, 2) comply in accordance with a time schedule set by the General Manager, or 3) in the event of a threatened violation, take appropriate remedial or preventative action.

Section 6. Administrative Complaint. The District Board may issue an administrative complaint to any user in accordance with the provisions of California Government Code Section 54740.5 and undertake all proceedings consistent therewith.

Section 7. Termination of Service. The District Board may revoke any connection permit or any Source Control Permit, or cause wastewater disposal service to be terminated to any premises if a violation of any provision of the user's source control permit or this Ordinance is found to exist, or if a discharge of wastewater causes or threatens to cause a condition of

contamination, pollution or nuisance as defined in this Ordinance, or for any condition which presents an imminent danger to the environment or the health or welfare of persons, or which threatens to interfere with the operation of the POTW, or which violates applicable federal or state regulations. This provision is in addition to other statutes, rules or regulations authorizing termination of service for delinquency in payment.

Section 8. Recovery of Costs. When a discharge of wastes causes an obstruction, damage or any other impairment to the facilities owned or used by the District, the District may assess a charge against the responsible person for the work required to clean or repair the facility. Such a charge may be collected in any manner authorized herein or by law.

Section 9. Civil Penalties. Civil penalties may be imposed by the Board of Directors pursuant to the Administrative Complaint procedures of **Section 6** herein, as follows:

- a. **Technical and Monitoring Reports.** In an amount which shall not exceed two thousand dollars (\$2,000.00) for each day for failing or refusing to furnish technical or monitoring reports.
- b. **Compliance Schedule.** In an amount which shall not exceed three thousand dollars (\$3,000.00) for each day for failing or refusing to comply, in a timely manner, with any compliance schedules established by the District.
- c. **Daily Charge.** In an amount which shall not exceed five thousand dollars (\$5,000.00) per violation for each day of discharge in violation of any wastewater discharge limit, permit condition, or requirement issued, reissued, or adopted by the District.
- d. **Gallonage Charges.** In any amount which does not exceed ten dollars (\$10.00) per gallon for discharges in violation of any Cease and Desist Order, or other Orders, or prohibition issued, reissued, or adopted by the District.

Section 10. Correction of Violation. In order to enforce the provisions of this Ordinance, the District may correct any violation hereof. The cost of such correction (including, but not limited to, any fines or other costs imposed on the District by any federal or state agency or court) shall be payable by the person violating this Ordinance or by the owner or tenant of the property upon which the violation occurred, and such cost may be added to any sewer service charge payable in connection with the property. The District shall have such remedies for the collection of such costs as it has for the collection of sewer charges, in addition to any other remedies provided for herein or by law.

Section 11. Enforcement Remedies Cumulative. Each of the enforcement remedies available to the District as specified herein shall be non-exclusive and may be asserted cumulatively and in addition to, or in lieu of, any other remedy available to the District under law.

Section 12. Criminal Penalties. Any person who willfully or negligently discharges wastewater in violation of this Ordinance; applicable state and federal wastewater discharge requirements or standards; any Order issued by the General Manager or the Board; or conditions

of the user's source control permit is guilty of a misdemeanor punishable by imprisonment in the County Jail not to exceed 30 days or by a fine not to exceed One Thousand Dollars (\$1,000), or by both.

Section 13. Civil Penalties. Any person who intentionally or negligently violates any order issued by the District or this Ordinance, may be liable civilly for a sum not to exceed twenty-five thousand dollars (\$25,000) per day for each violation. The District Counsel, upon request of the Board, shall petition the Superior Court to impose, assess and recover such sums; pursuant to Government Code Section 54740.

Section 14. Injunction. Whenever a discharge of wastewater is in violation of this Ordinance, causes or threatens to cause a condition of contamination, pollution or nuisance or, in the case of non-discharge violations or other such non-compliance with the rules and regulations set forth herein, District Counsel, upon request of the Board, may petition the Superior Court for the issuance of a restraining order or a preliminary or permanent injunction, or any or all of these, as may be appropriate.

Section 15. Nuisance. Any discharge in violation of this Ordinance, or in violation of an order of the Governing Board of the District, shall be considered a public nuisance. Any person creating a public nuisance is guilty of a misdemeanor. In the event of a public nuisance, the Governing Board may direct the District Counsel to commence an action for appropriate legal and/or equitable relief in the Superior Court, or may refer the matter to the District Attorney for prosecution.

Section 16. Published Notices of Non-Compliance. Public notification will be made at least annually in the largest daily local newspaper, listing all persons who, during the previous twelve (12) months were significantly violating applicable Federal Pretreatment Standards or other pretreatment requirements. For the purposes of this provision, a significant violation is a violation which remained uncorrected forty-five (45) calendar days after notification of the violation, which was part of a pattern of non-compliance over a twelve (12) month period, which involved a failure to accurately report non-compliance or which resulted in the District exercising its emergency authority.

Section 17. Variance Procedure. Any user may file with the General Manager a written request for variance from District rules and regulations. This request shall set forth in detail the facts supporting the request. The user shall be notified of the General Manager's ruling within fifteen (15) calendar days after its receipt of the request for variance. Within fifteen (15) calendar days after receiving the ruling by the General Manager, the user may file a written appeal with the District's Governing Board. The appeal shall be considered by the Governing Board as set forth in **Article VII, Section 19.**

Section 18. Variance Consideration. Granting of a variance shall be determined on a case by case basis. The General Manager shall consider the following factors when making this determination:

- a. The applicant's ability to meet the existing limitation, standard and/or requirement.

- b. The applicant's wastewater discharge volume.
- c. The applicant's current wastewater constituent concentrations.
- d. The impact the variance would have on the District's sewerage systems, the wastewater treatment plant's processes, effluent and/or sludge quality.
- e. The impact the variance would have on the wastewater treatment plant's NPDES permit requirements.
- f. Any other factor the General Manager deems applicable.

Section 19. Appeals. Any user, permit applicant, permit holder or other person affected by a decision, action or determination, taken or issued by the General Manager interpreting or implementing the provisions of this Ordinance or any permit issued hereunder, may file with the General Manager a written request for reconsideration within fifteen (15) calendar days of such decision, action, determination or issuance, setting forth in detail the facts supporting the request for reconsideration. The General Manager shall issue a ruling on such request within fifteen (15) calendar days of receipt of the request. If the ruling made by the General Manager on the request is unsatisfactory to the person requesting such reconsideration, the person may, within fifteen (15) calendar days after notification of the General Manager's ruling, file a written appeal with the District's Governing Board. The appeal shall be considered by the Governing Board at a regular or special meeting within thirty (30) calendar days after the appeal is filed and at least ten (10) calendar days notice of such meeting shall be given to the person filing the appeal. The governing Board shall make a final ruling upon the appeal within fifteen (15) calendar days of the close of the meeting at which the appeal is considered and shall thereafter promptly notify the person filing the appeal of such ruling. The General Manager's decision, action or determination, and any Notice of Violation or Order issued by the General Manager, shall remain in effect pending the final ruling by the Governing Board.

Section 20. Hearing. Prior to seeking a civil penalty pursuant to **Section 13**, terminating service pursuant to **Section 7**, seeking a temporary restraining order or injunction pursuant to **Section 14**, or referring a violation for criminal prosecution pursuant to **Section 12**, the Governing Board shall conduct a hearing to consider the proposed action. The person or persons affected by the proposed action shall be given at least ten (10) calendar days notice of the hearing and shall be given the opportunity to provide evidence and testimony relating to the matter. The Governing Board shall issue its decision within fifteen (15) calendar days after the hearing is concluded. Such affected person or persons shall also be notified of the decision made by the Governing Board and such decision shall be final.

Section 21. Method of Notice. Whenever in this Ordinance notice is required to be given and the manner of giving notice is not otherwise specified, the notice shall be in writing and served either personally or by first class mail in a sealed envelope with postage prepaid, addressed to the user at its last known mailing address and deposited in a facility maintained by the United States Post Office. Service shall be deemed complete at the time such notice is deposited in the mail, or upon personal delivery to the user.

ARTICLE VIII
Repeal of Inconsistent Ordinances

The provisions of any existing District Ordinances, including Ordinance No. 2, which are inconsistent with the provisions of this Ordinance are hereby repealed. All provisions of Ordinance No. 2 consistent with this Ordinance shall remain in full force and effect.

ARTICLE IX
Publication and Adoption

The Secretary of the District is hereby directed to cause this Ordinance to be published once in the Carpinteria Herald, a newspaper of general circulation published in the District. This Ordinance shall take effect upon expiration of the week of publication pursuant to Health and Safety Code Section 6490.

PASSED AND ADOPTED this 21st day of June, 1994, by the following vote:

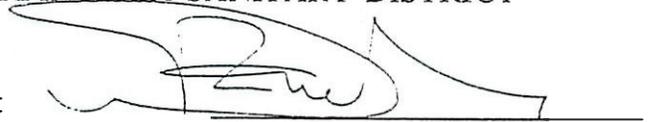
AYES: President Treloar, Directors Hodder, Damron, Doyle, & Dobbins.

NAYS: None.

ABSENT: None.

CARPINTERIA SANITARY DISTRICT

By:



Douglas R. Treloar, President
Board of Directors

(SEAL)

By:



Michael Damron, Secretary
Board of Directors

Table A

SPECIFIC DISCHARGE LIMITATIONS

The following are the maximum concentrations of pollutants allowable in wastewater discharges to the Carpinteria Sanitary District sewerage system. Dilution of any wastewater discharge for the purpose of satisfying these requirements shall be considered a violation of this Ordinance.

<u>Constituent</u>	<u>Concentration (mg/L)</u>	<u>Recommended EPA Method*</u>
Ammonia	50	350.2
BOD-5 day	1000	405.1
Suspended Solids	1000	160.2
Arsenic	0.05	206
Beryllium	0.2	210
Cadmium	0.1	213
Chromium (Total)	1.3	218
Copper	1.0	220
Lead	0.9	239
Mercury	0.01	245
Molybdenum	Reserved	246
Nickel	1.5	249
Selenium	0.05	270.2
Silver	0.5	272
Sulfide (Dissolved)	0.1	376
Zinc	6.7	289
Cyanide (Total)	0.2	335
Phenolic Compounds	0.5	420, 604
Total Toxic Organics (TTO)	1.8	608, 624,

625

Any exceedence of these limitations is subject to enforcement action as set forth in this Ordinance. These limits will be reviewed periodically and revised as needed.

* Any request for variation from the recommended EPA Method must have approval before analysis is performed.

ORDINANCE NO. 15

**ORDINANCE AND ORDER OF THE GOVERNING BOARD
OF THE CARPINTERIA SANITARY DISTRICT
ADOPTING A GENERAL REGULATION PROVIDING FOR
SEWER SERVICE RATES AND CHARGES;
FIXING SEWER SERVICE RATES AND CHARGES;
AUTHORIZING THE COLLECTION OF SAID RATES AND CHARGES
ON THE TAX ROLL OF THE COUNTIES
OF SANTA BARBARA AND VENTURA;
AND REPEAL OF INCONSISTENT ORDINANCES**

**Be It Ordained By The Governing Board
Of The Carpinteria Sanitary District
As Follows:**

RECITALS

WHEREAS, the Board of Directors (“Board”), in accordance with applicable law (including but not limited to Sections 5471 and 6520.5, respectively, of the California Health and Safety Code), desires to amend and update its ordinance(s) pertaining to the adoption and collection of sewer service rates and charges;

WHEREAS, the Board desires to repeal prior sewer service charge ordinances and specific sections of the District Code which are inconsistent with the provisions herein;

NOW, THEREFORE, BE IT ADOPTED as follows:

ARTICLE I General Provisions

Section 1. Enabling Authority. This Ordinance, Order, and General Regulation (herein sometimes called “Ordinance”) is established and adopted under authorization of the Sanitary District Act of 1923, being Article 4, Chapter 6, Part 3 of Division 6 of the Health and Safety Code commencing at Section 5470 and Part 1 of Division 6 of the Health and Safety Code commencing at Section 6400.

Section 2. Application. This Ordinance shall apply to any person or persons, including corporations, partnerships, governmental entities, non-profit organizations and others connected to the Carpinteria Sanitary District sewage disposal facilities.

Section 3. Severability. If any portion of this Ordinance or the application thereof is held to be unconstitutional or for any reason invalid, the validity of all remaining portions and application shall be unaffected, and they shall remain in full force.

Section 4. Purpose. The purpose of this Ordinance is the fixing of rates and charges for the usage of the District’s sanitary sewer facilities (as distinguished from the fees charged for connecting to said facilities, permit processing, annexation, etc.).

Section 5. Basis For Rates and Charges. This Ordinance fixes rates and charges that have been determined to be equitable and consistent with the actual cost of providing service through preparation of a Wastewater Rate and Fees Study Report and associated financial model, dated March 2017. Said report was prepared by a qualified, independent financial consultant in coordination with District staff and the District Board of Directors.

ARTICLE II

Repeal of Prior Inconsistent Sewer Service Charge Ordinances

Section 1. Repeal of Ordinance No. 12. Ordinance No. 12, dated June 7, 2011 is hereby repealed in its entirety.

Section 2. Ordinance No. 2: No Intended Repeal. All provisions of Ordinance No. 2 dated October 2, 1975, which are not inconsistent with or contrary to the terms of this Ordinance shall remain unchanged and in full force and effect.

ARTICLE III

Definitions

Section 1. Calendar Year. For the purposes of this ordinance, a calendar year is the period from January 1st through December 31st, inclusive, of any given year.

Section 2. User Class Designation. There are two (2) basic user classes. The two (2) classes are designated herein as either “Residential” or “Non-Residential.”

Section 3. Residential User Class. Residential users shall include all of those buildings (structures) suitable and intended for use as a dwelling unit. Such buildings shall include, but are not limited to, single family dwellings, residential condominiums, multi-family (apartments and duplexes) dwellings, mobile homes, granny flats, accessory dwelling units and similar residential dwelling units.

Section 4. Non-Residential Use Class. Non-Residential use is defined to be any use which is either not defined in Section 3 of this Article or does not fit within the definition of the residential uses as set forth in this Ordinance.

Section 5. Building. A structure having a roof supported by columns or walls and intended for the shelter, housing, or enclosure of any person (or property).

Section 6. Dwelling Unit. The following criteria shall be used in establishing a building as a dwelling unit. However, it is not necessary that all of the criteria be satisfied in order that a

building be classified as a dwelling unit, nor does the existence of a criteria mean that a building will be classified as such:

- a. A building, or portion thereof, having a single kitchen and one or more bathroom facilities.
- b. A building designed for and occupied as a home or residence, either permanently or for a temporary period exceeding 30 days, by a single family, their guests, or servants.
- c. A portion of a building that has at least one direct access to the exterior and is isolated from other parts of a structure.
- d. A building, or portion thereof, that has a separate mailing address and/or water, electrical, telephone, gas, etc. utility services.

Section 7. Kitchen. A room, all or part of which is designed, built, equipped, used, or intended to be used for the cooking of food.

Section 8. Residential Exclusions. Residential uses shall not include boarding houses, lodging houses, hotels, motels, retirement homes, hospitals, nursing facilities, or any publicly owned (State, City, County, or District) parks.

Section 9. Parcel. A piece of land is considered a Parcel when it is delineated on the County Assessor's Parcel Maps, is assigned an Assessor's Parcel Number, and is connected directly or indirectly to the District's facilities.

Section 10. Water Use Datum. The Water Use Datum shall be determined by calculating the average annual water use from the latest three full calendar years of water use history as measured by the water agency providing water service to the parcel. The following are exceptions:

- a. In the event that a parcel has less than three full calendar years of water use history, the Water Use Datum shall be determined as follows:
 1. If less than one full calendar year of water use history is available, the Water Use Datum shall be estimated by the District using water consumption data from similar parcels or users, reduced to a volume per square foot of building area basis.
 2. If only one full calendar year of water use history is available, the Water Use Datum shall be equal to the actual annual water used in that prior calendar year.
 3. If two full calendar years of water use history are available, the Water Use Datum shall be determined by calculating the average annual water use from the two full calendar years of water use history available.
- b. In the event that the use on a parcel changes and the new user is expected to use significantly less water, the Water Use Datum will be adjusted once a minimum of one full calendar year of water history is available for the new user, or at the

discretion of the District General Manager based on actual water use data. It is the responsibility of the user to request an adjustment to the Water Use Datum.

- c. In the event that the use on the parcel changes and the new user is expected to use significantly more water, the Water Use Datum may be adjusted once a minimum of one full calendar year of water history is available for the new user, or at the discretion of the District General Manager based on actual water use data.

Section 11. Return Rate. The return rate represents the percentage of total water used by a parcel that is discharged into the District's sewerage facilities. The return rate for non-residential users is uniformly assumed to be 90 percent. Non-residential sewer service charges are based on total water used by a parcel and they incorporate the assumed 90 percent return rate. Exceptions to the 90 percent return rate are only authorized as follows:

- a. In the event a landscape meter is installed at the parcel isolating all irrigation use and it can be presumed that all metered water use is discharged to the District's facilities, the District shall apply an adjustment factor to reflect a 100 percent return rate.
- b. The District may approve an alternate return rate of less than 90 percent for individual non-residential parcels if the user can provide sufficient evidence to show that a lower return rate is appropriate. Any such approval is discretionary and the District General Manager will consider all information available. The District may require flow monitoring, sub-metering or other appropriate methods of determining the applicable return rate, and such activities shall be conducted at the user's sole expense. If approved, the District shall apply an adjustment factor to reflect a return rate lower than 90 percent.

No other methods of establishing the return rate will be used or considered.

Section 12. Strength Class. Non-residential users, as defined in Section 4, are classified based upon the strength of wastewater discharged to the District facilities. Each user is assigned a "Strength Class" based on a combined concentration of biochemical oxygen demand ("BOD") and total suspended solids ("TSS") in milligrams per liter (mg/L) as follows:

- a. Low Strength. Users whose discharge has a combined BOD and TSS concentration less than 380 mg/L
- b. Medium Low Strength. Users whose discharge has a combined BOD and TSS concentration between 380 mg/L and 500 mg/L.
- c. Medium Strength. Users whose discharge has a combined BOD and TSS concentration between 501 mg/L and 710 mg/L.
- d. Medium High Strength. Users whose discharge has a combined BOD and TSS concentration between 711 mg/L and 1,100 mg/L.
- e. High Strength. Users whose discharge has a combined BOD and TSS concentration between 1,101 mg/L and 1,700 mg/L.
- f. Very High Strength. Users whose discharge has a combined BOD and TSS concentration greater than 1,700 mg/L.

Typical BOD and TSS concentration values for various types of non-residential users, based on guidelines from the California State Water Resources Control Board, are set forth in *Table B* and are the basis for assigning Strength Classes.

ARTICLE IV Sewer Service Rates And Charges

Section 1. Imposition of Rates. A Sewer Service Charge is hereby imposed upon all parcels, and the owners thereof, connected to the sanitary sewer facilities of the District or which otherwise discharge sewage which ultimately passes through any part of the District's facilities.

Section 2. Sewer Service Charge Calculation Description. Sewer Service Charges are set through application of criteria and formulas derived by the District. Sewer Service Charges are annually recomputed for each parcel. The rate system utilizes actual water use data and loading parameters to compute an equitable fee for service based upon the actual cost to provide that service. Tables used to compute the Sewer Service Charge include:

- a. **"Sewer Service Rate Table."** This table provides comprehensive rate information including: 1) residential rates per dwelling unit, and 2) non-residential rates based on water use and strength class. (See *Table A*, attached)
- b. **"Sewer Service User Class Table."** This table provides relevant loading parameters used in determining the "Strength Class" assigned to each non-residential user. (See *Table B*, attached)

District staff shall annually establish the "Strength Class" designation for all users during the rate computation process. A user may request that the designation be modified; however, no modifications to the designation assigned by staff will be considered by the District after June 1 for designations to be in effect for the following fiscal year. All requests shall follow the same process as established in Article VI, Section 2.

The attached *Table A* and *Table B* are used in the calculation of the Sewer Service Charge and are made a part of this Ordinance.

Section 3. Residential and Non-Residential Sewer Service Charge Computation. Residential and Non-Residential Sewer Service Charges shall be computed in accordance with this section.

- a. The **Residential Sewer Service Charge** shall be the product of the Residential Rate shown on *Table A* and the total number of residential dwelling units served. The number of dwelling units shall be in whole numbers only and determined in accordance with Section 6 of Article III herein.
- b. The **Non-Residential Sewer Service Charge** shall be the product of the parcel-specific Water Use Datum and the applicable non-residential unit rate per 1,000 gallons of water used, as shown on *Table A*. Unit rates are a function of the

“Strength Class” assigned to the parcel occupant based on loading parameter criteria shown on *Table B*.

For individual parcels with multiple non-residential occupants of varying strength classes, an overall Strength Class shall be determined by calculating the parcel’s flow-weighted average combined strength. A pro-rata apportionment of actual or estimated water use for each occupant, together with combined strength values for each occupant set forth in *Table B*, shall be used in the calculation.

If the calculated Sewer Service Charge for an individual parcel is less than the minimum annual charge shown on *Table A*, the minimum annual charge shall apply.

- c. The **Mixed-Use Sewer Service Charge** for parcels that have both residential and non-residential uses (mixed-use parcels) shall be the sum of the sewer service charges calculated for all residential and non-residential users. If separate water meters are not available, estimates of residential and non-residential water use may be used to calculate the applicable non-residential charges.

In the event that the District determines that the Sewer Service Charge for an individual non-residential or mixed-use parcel (calculated using the methodologies set forth in this Section 3) is not consistent with the actual wastewater volume or strength characteristics discharged, an alternate method may be used to calculate the appropriate Sewer Service Charge for that parcel.

ARTICLE V **Collection of Fees**

Section 1. Where applicable, and permitted by law, and if the Board elects to do so by resolution, the sewer service charge for each parcel may be placed on the County Tax Roll and collected with the County tax statements. If such an election is made and if an application for a connection to the District facilities is made after June 30th in any given year so as to be too late to be placed on next fiscal year tax roll, then the applicable sewer service charge for the prorated balance of the fiscal year must be paid in full in advance at the time of making application.

All other sewer charges, the collection of which is not specifically prescribed in this Article, shall be due for payment for each fiscal year on the respective first day of July, but in no case shall payment be later than the date of December 10th of that fiscal year.

Section 2. The powers authorized by this Article shall be in addition to all other powers of the District authorized by the applicable provisions of the Health and Safety Code for the collection of Sewer Service Charges, none of which other powers are waived hereby.

Section 3. As an alternative to any other procedure provided for herein, the District may collect any delinquent sewer service charges and penalties thereon either by way of the County Tax Roll or by suit, in which event judgment for the District shall include the cost of suit and reasonable attorney's fees arising from such action.

ARTICLE VI
Relief

Any person, who by reason of special circumstances, believes that the application of this Ordinance and regulations, as to that person, is unjust or inequitable, may make written application to the General Manager for relief. Said application shall set forth all of the special facts and circumstances and shall request the specific relief or modification desired. The General Manager, upon receipt of such application and after any investigation or analysis deemed necessary, may take action to grant relief. Said relief may be as requested by the applicant or in a form determined by the General Manager to be fair and equitable. The District may require an applicant to perform monitoring, sampling, analysis or other activities, at applicant's sole expense, to support or justify any requested relief.

If the applicant is not satisfied with the General Manager's determination, a hearing before the District Governing Board may be requested. The Board on its own motion and without an application, may, when special circumstances make the application of these rules and regulations a hardship or unjust or inequitable, modify or suspend the rules and regulations for the period during which the special circumstances exist.

ARTICLE VII
Lien

Section 1. The amount of unpaid sewer service charges plus penalties thereon shall constitute a lien upon the real property upon which such charges have been imposed as of noon on the first Monday in March of each year, and such lien shall continue until the charges and all penalties thereon are fully paid or the property sold therefore.

ARTICLE VIII
Findings and Determinations

Section 1. Based on the information presented to the Governing Board during the hearing at which this Ordinance is adopted, the Governing Board finds and determines as follows:

- a. The revenues derived from the sewer service rates and charges provided in this Ordinance do not exceed the amount required to provide the service for which the rates and charges are imposed.
- b. The revenues derived from the sewer service rates and charges shall be used in accordance with laws governing the District and shall not be used for any purpose other than that for which the rates and charges are imposed.
- c. The amount of the sewer service rates and charges imposed upon any parcel do not exceed the proportional cost of the service attributable to the parcel.
- d. Sewer service is actually used by or immediately available to the owners of parcels upon which the sewer service rates and charges are imposed.

- e. The sewer service rates and charges are imposed for the use of the District’s sanitary sewer facilities and not for general governmental services.
- f. The District has complied with the procedural requirements of Section 6 (“Property Related Fees and Charges”) of Article XIII D. of the California Constitution on enacting this Ordinance.

ARTICLE IX
Exemption From CEQA

Section 1. Pursuant to Section 21080(b)(8) of the Public Resources Code and 14 Cal. Code Regs. Section 15273(a), the Board finds and determines that: (a) the establishment of the charges, rates and fees imposed by this Ordinance are exempt from the requirements of the California Environment Quality Act (CEQA) for the reasons set forth in Section 21080 of the Public Resources Code; and (b) the charges, rates and fees adopted hereby are for the purposes set forth in the above-cited provisions.

ARTICLE X
Severability

Section 1. If any portion of this Ordinance or the application thereof is held to be invalid or unenforceable by a court of competent jurisdiction, the validity of all remaining portions and application shall remain unaffected and in full force and effect.

ARTICLE XI
Publication and Effective Date

Section 1. This Ordinance shall be published or posted in accordance with California Health and Safety Code Section 6490 and shall be effective as of the expiration of the week of publication or posting as established either by a proof of publication from the newspaper in which this Ordinance or a summary or advertisement thereof was published, or by a subsequent order of the Board of Directors that publication or posting has been properly made.

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PASSED AND ADOPTED by the Governing Board of CARPINTERIA SANITARY DISTRICT this 6th day of June 2017 by the following vote:

AYES: Moorhouse, Damron, Modugno, Velasco

NAYS: ___ None

ABSENT: Graf



Mike Modugno, President Pro Tem
Board of Directors
CARPINTERIA SANITARY DISTRICT

ATTEST:



Michael Damron, Secretary
Board of Directors
CARPINTERIA SANITARY DISTRICT

I, Michael Damron, Secretary of the CARPINTERIA SANITARY DISTRICT, hereby certify that the foregoing is a true copy of Ordinance No. 15 duly and legally adopted by the Governing Board of the District at a legal meeting of said body duly and specially held on June 6, 2017.

DATE CERTIFIED: June 6, 2017

**CARPINTERIA SANITARY DISTRICT
SEWER SERVICE RATE TABLE
TABLE A
ORDINANCE No. 15**

RESIDENTIAL SEWER SERVICE CHARGES					
	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22
Annual Charge Per Dwelling Unit	\$625.31	\$650.33	\$676.35	\$703.41	\$731.55

NON-RESIDENTIAL SEWER SERVICE CHARGES						
Strength Class	Combined BOD/TSS	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22
		Rate Per 1000 Gallons Water Used				
Low	< 380 mg/L	\$9.52	\$9.90	\$10.30	\$10.72	\$11.15
Medium Low	380 to 500 mg/L	\$10.18	\$10.59	\$11.02	\$11.47	\$11.93
Medium	501 to 710 mg/L	\$10.52	\$10.94	\$11.38	\$11.84	\$12.32
Medium High	711 to 1100 mg/L	\$12.00	\$12.48	\$12.98	\$13.50	\$14.04
High	1101 to 1700 mg/L	\$14.24	\$14.81	\$15.41	\$16.03	\$16.68
Very High	> 1700 mg/L	Individually Calculated				
MINMUM CHARGE PER PARCEL		\$625.31	\$650.33	\$676.35	\$703.41	\$731.55

NOTE: FY = fiscal year, from July 1 to June 30 of the subsequent year.

**CARPINTERIA SANITARY DISTRICT
SEWER SERVICE USER CLASS TABLE
TABLE B
ORDINANCE No. 15**

User Class	Description	BOD (mg/L)	TSS (mg/L)	Combined Strength (mg/L)
LOW STRENGTH USERS (<380 mg/L Combined Strength)				
G6	COMMERCIAL – Carwashes – Flat Rate	100	150	250
G3	COMMERCIAL – Laundromats	150	110	260
O9	INSTITUTIONAL – Public Assembly Facilities	130	200	330
P2	INSTITUTIONAL – Schools; Elementary/Jr. High	130	200	330
P4	INSTITUTIONAL – Schools; Colleges	130	200	330
P5	INSTITUTIONAL – Schools; Art/Trade	130	200	330
Q9	Miscellaneous Uses – Parking Lots	130	200	330
O2	INSTITUTIONAL – Nursing Homes	200	135	335
MEDIUM LOW STRENGTH USERS (380 to 500 mg/L Combined Strength)				
K1	COMMERCIAL - General Retail Stores	130	250	380
K2	COMMERCIAL - Retail Stores; Shopping Center	130	250	380
N1	INDUSTRIAL - Warehousing	130	250	380
O4	INSTITUTIONAL - Church/Lodges w/o Kitchens	130	250	380
O6	INSTITUTIONAL - Library/Museums	130	250	380
O7	INSTITUTIONAL - Public Building (Firehouse, Post Office)	130	250	380
O8	INSTITUTIONAL - Utility/Transportation Facilities	130	250	380
Q5	Miscellaneous Uses - Park & Open Spaces	200	200	400
G2	COMMERCIAL - Shoe/Appliance/Other	130	280	410
K7	COMMERCIAL - Auto/Boat Sales/Service	130	280	410
M2	ADMINISTRATIVE - Professional; Business Offices	130	280	410
M3	ADMINISTRATIVE - Professional; Financial	130	280	410
M4	ADMINISTRATIVE - Professional; Utility Offices	130	280	410
K3	COMMERCIAL - Heating/Plumbing/Welding Shops	130	300	430
K4	COMMERCIAL - Lumber/Hardware/Home Improvement	130	300	430
K5	COMMERCIAL - Major Appliance/Furniture	130	300	430
K6	COMMERCIAL - Retail Nursery/Gardener Shops	130	300	430
N3	INDUSTRIAL - Business Park	130	300	430
N5	INDUSTRIAL - Auto Assembly/Bodyshops	150	280	430
N6	INDUSTRIAL - Machine Shop	150	280	430
N8	INDUSTRIAL - Oil Related Industry	180	250	430
H1	COMMERCIAL - Bars w/o Food Service	200	240	440
L3	COMMERCIAL - Entertainment; Theaters	200	250	450
L4	COMMERCIAL - Entertainment; Health Club	200	250	450
P1	INSTITUTIONAL - Schools; Nurseries	200	250	450
G4	COMMERCIAL - Photo/Photo Finish	250	210	460
G5	COMMERCIAL - Service Station w/o Carwash	180	280	460

**CARPINTERIA SANITARY DISTRICT
SEWER SERVICE USER CLASS TABLE
TABLE B
ORDINANCE No. 15**

User Class	Description	BOD (mg/L)	TSS (mg/L)	Combined Strength (mg/L)
MEDIUM LOW STRENGTH USERS CONT. (380 to 500 mg/L Combined Strength)				
G7	COMMERCIAL - Photocopy/ Print Shops	250	210	460
G1	COMMERCIAL - Barber Shops/Beauty Salons	200	280	480
M1	ADMINISTRATIVE - Professional; Medical	200	280	480
K8	COMMERCIAL - Mixed Uses	200	300	500
K9	COMMERCIAL - Misc.	200	300	500
MEDIUM STRENGTH USERS (501 - 710 mg/L Combined Strength)				
N2	INDUSTRIAL - Research & Development	250	300	550
G8	COMMERCIAL - Dry Cleaners	450	110	560
I1	COMMERCIAL - Motels/Hotels 0-24 Rooms	250	400	650
I2	COMMERCIAL - Motels/Hotels 25-75 Rooms	250	400	650
I3	COMMERCIAL - Motels/Hotels 76-125 Rooms	250	400	650
I4	COMMERCIAL - Motels/Hotels Greater than 125 Rooms	250	400	650
Q6	Miscellaneous Uses - Recreational Vehicle Parks	310	400	710
MEDIUM HIGH STRENGTH USERS (711 to 1100 mg/L Combined Strength)				
N4	INDUSTRIAL - Manufacturing/Assembly	150	600	750
J1	COMMERCIAL - Retail Convenience Food Stores	250	640	890
O3	INSTITUTIONAL - Church/Lodges w/Kitchens	250	640	890
H2	COMMERCIAL - Bars w/ Food Service	450	640	1090
HIGH STRENGTH USERS (1101 to 1700 mg/L Combined Strength)				
J2	COMMERCIAL - Retail Food Stores w/ meat grinder< 5000 s.f.	600	900	1500
J3	COMMERCIAL - Retail Food Stores w/ meat grinder> 5000 s.f.	600	900	1500
J4	COMMERCIAL - Retail Food Stores w/o meat grinder	600	900	1500
H3	COMMERCIAL - Sit-down Restaurant < 1000 s.f.	825	775	1600
H4	COMMERCIAL - Sit-down Restaurant 1000-2000 s.f.	825	775	1600
H5	COMMERCIAL - Sit-down Restaurant > 2000 s.f.	825	775	1600
H6	COMMERCIAL - Fast Food Restaurant	825	775	1600
J5	COMMERCIAL - Retail Bakery	700	1000	1700

LEGEND

BOD = biochemical oxygen demand

TSS = total suspended solids

mg/L = milligrams per liter (parts per million)

ORDINANCE No.16

ORDINANCE AND ORDER OF THE GOVERNING BOARD OF THE CARPINTERIA SANITARY DISTRICT ADOPTING A GENERAL REGULATION PERTAINING TO DEVELOPMENT IMPACT FEES AND REPEAL OF INCONSISTENT ORDINANCES

Be It Ordained By The Governing Board Of The
Carpinteria Sanitary District
As Follows:

RECITALS

WHEREAS, the basic statutory standards governing sewer connection fees, or Development Impact Fees, are embodied in California Government Code Sections 66013 et seq. (The Mitigation Fee Act) which requires that connection fees must be based on an estimate of the reasonable cost of providing capacity;

WHEREAS, the primary objectives of establishing full cost recovery Development Impact Fees are to achieve equity in distributing costs and to provide a mechanism by which new users can pay for the cost of the facilities required to serve them without burdening existing users;

WHEREAS, the purposes of this ordinance are to set forth a baseline Development Impact Fee structure for the Carpinteria Sanitary District and to repeal prior ordinances, and portions thereof, that are inconsistent, contrary or no longer applicable.

NOW, THEREFORE, BE IT ADOPTED as follows:

ARTICLE I General Provisions

Section 1. Purpose. The purpose of this Ordinance is to prescribe fees for connecting to or expanding the use of sewerage facilities owned and operated by the Carpinteria Sanitary District (as distinguished from the sewer service charges assessed annually for ongoing use of said facilities).

Section 2. Application. This Ordinance shall apply to any person or persons, including corporations, partnerships, governmental entities, non-profit organizations and others who propose to connect to the Carpinteria Sanitary District sewerage facilities or expand the use thereof.

Section 3. Severability. If any portion of this Ordinance or the application thereof is held to be unconstitutional or for any reason invalid, the validity of all remaining portions and application shall be unaffected, and they shall remain in full force.

ARTICLE II
Development Impact Fee

Section 1. Development Impact Fee Determination. The District commissioned a Wastewater Rates and Fees Study Report, dated March 2017, that establishes a baseline Development Impact Fee, or connection fee, of \$ 4,600 per new equivalent dwelling unit (EDU).

An EDU shall be defined as the baseline wastewater flow and strength contribution from a single-family residential dwelling. For the purposes of this ordinance, it is presumed that a single-family residential dwelling discharges 142 gallons per day of wastewater with a biochemical oxygen demand (BOD) concentration equal to 325 milligrams per liter and a total suspended solids (TSS) concentration equal to 325 milligrams per liter. The contributions from other users can be represented in the form of an equivalency to one single-family residential dwelling unit.

A system buy-in approach is the basis for determining the Development Impact Fee, where new users are required to pay a fixed cost per dwelling unit that puts them in equal fiscal standing with existing users of the system. This approach considers the replacement cost of existing assets, less depreciation (RCLD), as well as current reserve balances and debt obligations. A cost per EDU is determined as follows:

Total Assets	\$	39,762,472
Plus: Total Reserves	\$	6,672,995
Less: Outstanding Debt	\$	<u>(10,990,000)</u>
Total Buy-In Cost	\$	35,445,467
Total Flow (gpd)		1,096,583
Cost per gallon per day	\$	32.32
Residential Flow per EDU (gpd)		142
Development Impact Fee per EDU	\$	4,600

Section 2. Calculation of Development Impact Fee For New Users. The Development Impact Fee for each new residential connection is calculated by multiplying the number of new equivalent dwelling units (or EDUs) times the Development Impact Fee per EDU. Development Impact Fees for new non-residential customers will be calculated on an EDU basis according to the following formula:

$$\text{Development Impact Fee} = \text{EDU Factor} \times \$ 4,600$$

Where the EDU Factor is determined using the following formula:

$$\text{EDU Factor} = \left[\frac{\text{Flow}}{142 \text{ gpd}} \times 70\% \right] + \left[\frac{\text{BOD}}{325 \text{ mg/L}} \times 15\% \right] + \left[\frac{\text{TSS}}{325 \text{ mg/L}} \times 15\% \right]$$

WHERE: Flow = flow rate in gallons per day (GPD)
BOD = biochemical oxygen demand concentration in mg/L
TSS = total suspended solids concentration in mg/L

The District shall estimate Flow, BOD and TSS values for proposed non-residential connections using industry-standard methods, based on square footage of developed area, flow rates for similar uses, and published wastewater strength values. The calculated Development Impact Fee shall be the fee which is charged and which must be paid by the applicant prior to the issuance of a permit to connect to the District's sewerage facilities as required by Ordinance No. 2.

Section 3. Calculation of Incremental Development Impact Fees for Expanded Use.

In the event that an existing residential customer adds one or more EDUs to a previously developed parcel that is connected to the District sewerage facilities, an applicable Development Impact Fee shall be paid for each new EDU.

In the event that an existing non-residential customer expands the size of an existing commercial building or structure that is connected to the District sewerage facilities, an applicable Development Impact Fee shall be paid. The District shall calculate an EDU Factor for the expansion area and determine the applicable Development Impact Fee in accordance with Section 2 of this Article.

Section 4. Provisions for Development Impact Fee Adjustment. At a minimum, the Development Impact Fee specified in Section 1 of Article II will be adjusted and become effective on the first day of July for each succeeding calendar year based upon the change in the Engineering News Record Construction Cost Index (ENR-CCI, 20 City Index) for the prior calendar year. Current Development Impact Fee values shall be made available at the District offices and published on the District website.

ARTICLE III
Charge Does Not Exceed Costs

Section 1. Government Code Compliance. Pursuant to Government Code Section 66013, this Governing Board finds and determines that the Development Impact Fee (capacity charge) as set forth in this Ordinance does not exceed the estimated reasonable cost of providing the service for which the Development Impact Fee is imposed. The Governing Board further finds that the Development Impact Fee is a "capacity charge" within the meaning of Government Code Section 66013, that the Fee is not levied for general revenue purposes, and that District's deposit and expenditure of Fees collected pursuant to this ordinance shall be in accordance with Government Code Section 66013.

Pursuant to Government Code Section 66016, at least 10 days prior to the meeting at which this Ordinance was adopted, there was made available to the public for inspection, at the District office, data indicating the amount of cost, or estimated cost, required to provide the service for which the charges, rates and fees are levied and the revenue sources anticipated to provide the service, including general fund revenues. Supporting data that comprise the basis for the Development Impact Fee is found in a report entitled *Wastewater Rates and Fees Study Report, March 2017*. A copy of said report has been made available to the public and was published on the District website on or before May 20, 2017.

Section 2. Compliance With Government Code. In its adoption of this Ordinance, the District observed the provisions of Government Code Sections 66016, 66018 and 6062a.

ARTICLE IV **Relief**

Section 1. Application For Relief. Any person who, by reason of special circumstances, believes that the provisions of this Ordinance are inequitable in their application to a specific new connection or expanded use may apply, in writing, to the Board of Directors, setting forth the special circumstances and inequitable application alleged, and requesting relief from the cited provisions.

Upon receipt of such application, the Board shall hold a hearing in which the burden shall be on the applicant to produce competent evidence of the special circumstances and alleged inequitable allocation of the fee, justifying the relief sought. The Board may consider other evidence, including all information supplied by District staff. Upon completion of the hearing, the Board shall weigh all of the evidence presented and make a determination, including a finding that substantial evidence exists for the granting or denial of the application for relief. The Board shall have sole discretion in weighing the evidence and in making such determination, and the decision of the Board shall be final.

Any judicial challenge to a decision made by the Board pursuant to this Section shall be filed within thirty (30) days of the Board's decision. Such action shall be subject to Code of Civil Procedure Section 1094.5.

ARTICLE V **Repeal of Prior Ordinances**

Section 1. Repeal of Ordinance No. 13. Ordinance No. 13 is hereby repealed in its entirety.

Section 2. Ordinance No. 2: No Intended Repeal. All provisions of Ordinance No. 2 dated October 2, 1975, which are not inconsistent with or contrary to the terms of this Ordinance shall remain unchanged and in full force and effect.

ARTICLE VI
Publication and Effective Date

Section 1. Publication This Ordinance shall be published one time as required by Section 6490 of the Health and Safety Code and shall be effective as of the expiration of the week of publication as established either by a Proof of Publication from the newspaper in which this Ordinance was published, or by a subsequent Order of the Governing Board that publication has been properly made.

Section 2. Judicial Challenge. Any judicial action or proceeding to attack, review, set aside, void or annul this Ordinance shall be commenced within the time and manner set forth in Government Code Section 66022.

PASSED AND ADOPTED by the Governing Board of CARPINTERIA SANITARY DISTRICT this 6th day of June 2017 by the following vote:

AYES: Moorhouse, Damron, Modugno, Velasco

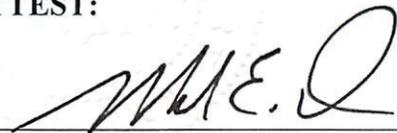
NAYS: _____ None

ABSENT: Graf



Mike Modugno, President Pro Tem
Board of Directors
CARPINTERIA SANITARY DISTRICT

ATTEST:



Michael Damron, Secretary
Board of Directors
CARPINTERIA SANITARY DISTRICT

I, Michael Damron, Secretary of the CARPINTERIA SANITARY DISTRICT, hereby certify that the foregoing is a true copy of Ordinance No. 16 duly and legally adopted by the Governing Board of the District at a legal meeting of said body duly and specially held on June 6, 2017.

DATE CERTIFIED: June 6, 2017

APPENDIX B

Example Sewer Atlas Map

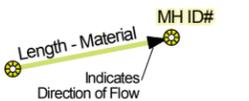
Carpinteria Sanitary District Wastewater Facility Maps



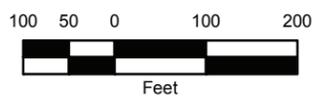
Legend

Wastewater System

- | Pipe Diameter | Nodes |
|---------------|-----------------|
| 4 | Cleanout |
| 6 | Lift Station |
| 8 | Manhole |
| 10 | Treatment Plant |
| 12 | |
| 14 | |
| 15 | |
| 18 | |
| 21 | |
| Private Lines | |



Scale: 1" = 200'



1:2000 5G



APPENDIX C

2002 Design and Construction Standards



CARPINTERIA SANITARY DISTRICT

5300 Sixth Street
Carpinteria, CA 93013
Phone: (805) 684-7214
Fax: (805) 684-7213

**CONSTRUCTION STANDARDS AND
SPECIFICATIONS**

FOR

**BUILDING SEWER AND LATERAL SEWER
IMPROVEMENTS**

June 2002

1.00 GENERAL REQUIREMENTS

The following are requirements of lateral and building sewer construction within the jurisdiction of the Carpinteria Sanitary District (District). The District has jurisdiction of sewage conveyance facilities from the point of connection of a structure (building clean out at 18" from the structure) to the point of connection to the sewer main. The City of Carpinteria Building Department does not have jurisdiction over the District relative to sewer clean out, building and lateral sewer construction requirements, inspection and approvals. The District's requirements supersede all other requirements, unless approval is obtained in writing from the District's General Manager. Lateral and building sewer construction shall be performed as per the requirements of the Carpinteria Sanitary District Ordinance No. 2 (as amended), the latest edition of the Uniform Plumbing Code (UPC), the latest edition of the Standard Specifications for Public Works Construction (SSPWC or "Green Book"), and all applicable safety requirements. Copies of District Ordinances and other referenced materials are available at the District administrative office upon request.

Property owners shall be required to finance, install and maintain, at their expense, the required building sewer, cleanouts, backwater structures necessary to connect to the District's sewer collection facilities (lateral and sewer main) in order to serve their property.

2.00 PLANS AND PERMITS

Prior to issuance of a District connection sewer permit, applicant shall submit for the District's review and files, a complete set of site and floor plans with the City of Carpinteria or the County of Santa Barbara, approval stamp clearly shown. Plumbing plans shall be included when applicable. In addition, prior to uncovering, connecting to, opening into, using, altering or disturbing any public sewer or appurtenance, a District Sewer Connection Permit shall be obtained for all sewer system work performed within the District boundaries and jurisdiction of the Carpinteria Sanitary District.

2.01 Site Plan.

The site plans must show the proposed 4" and/or 6" connection, building floor elevations, and rim elevation of the nearest upstream manhole from the proposed connection.

2.02 Sampling Vault.

A sampling manhole, when required, shall be shown on the plans and be constructed and installed at the property line per District Standard Drawing Plate Nos. 109 and 112. Copies are available upon request at the District office.

2.03 Sampling Well.

A sampling well in lieu of a standard building sewer cleanout, when required, shall be shown on the plans and constructed and installed per District Standard Drawing Plate 114. Copies are available upon request at the District office.

2.04 Grease Trap/Interceptor.

A grease trap or interceptor, when required, shall be sized in accordance with the Uniform Plumbing Code with a minimum capacity of 1.) grease trap-40 pounds 2.)

interceptor- seven hundred fifty (750) gallons and shall be shown on the plans and constructed per District Standard Drawings Plate No. 117. Copies are available upon request at the District office.

2.05 Review and Acceptance.

The applicant shall submit a copy of City or County approved site and floor plans. Upon review and acceptance by the District, the applicant shall obtain a sewer connection permit from the District and pay all applicable fees, post all required bonds and provide, if necessary, all pertinent easements.

2.06 Posting.

District permits must be posted on site and made available to the District Inspector during all phases of construction and for final District Inspection sign-off.

2.07 Excavation in Roadways.

A City of Carpinteria or a Santa Barbara County permit must be obtained to excavate in City or County roads. Underground Service Alert (USA) shall be contacted prior to excavation in a roadway. USA will notify all pertinent utility companies to locate all existing buried utilities in the intended excavation area. A contact telephone number is available upon request.

2.08 Other Permits.

Property owners must obtain all other permits required by law.

2.09 Permit Extensions.

District permits are valid for a period of 360 days. An additional fee will be required for extension of permits.

3.00 INSPECTION REQUIREMENTS

3.01 Notification.

Prior to any construction on a sewer system project, it is required that the contractor notify the District's Inspector. A minimum of 48-hours advance notice is required.

3.02 Layout Drawing.

Prior to any construction, installation, or inspection of a sewer system project, the owner, contractor or plumber shall submit to the District Inspector, an accurate and legible 8 1/2"x 11" layout drawing (Plate No. 116) showing the proposed lateral and/or building sewer installation and connection for the District's review and records. Drawing shall include location and degrees of bends, devises, elevations, depths, sampling manholes, clean out locations, dimensions etc. The installation of the sewer shall be constructed in accordance with the layout drawing submitted. All changes shall be pre-approved by the District's Inspector, in writing, and shall be reflected on the final layout drawing submitted by the contractor or plumber prior to approval of the sewerline.

3.03 Inspection.

All work relative to sewer installation shall be subject to rigid inspection, testing and CCTV inspection, when required, by the District's representative prior to backfill.

3.04 Final Inspection.

A final inspection shall be made of the newly constructed and installed sewer facilities to assure compliance with the District's Standards and the approved plans submitted.

During the final inspection the District's Inspector will verify that all exposed sewer facilities such as clean outs have been properly installed and protected with the proper concrete boxes.

3.05 Abandoned Connections.

Sewers to be abandoned must be capped off at the property line and verified by the District Inspector.

4.00 SEPARATE SEWERS

Separate lots shall not be permitted to join in the use of the same lateral or building sewer, and every commercial building or industrial facility shall be separately connected to a public sewer if such sewer is available. However, one or more buildings located on property belonging to the same owner may be served with the same lateral or building sewer during the period of said ownership. The District shall render a single bill to the property owner, or applicant of record which shall include the sewer service charge for the entire property. Upon subsequent subdivision and/or sale of the portion of a lot, that portion not directly connected to a public sewer shall be separately connected with the public sewer. It shall be unlawful for the owner to continue the use of or to maintain such indirect connection.

5.00 PIPE SIZE AND GRADE

5.01 Single Residential Sewer Size and Grade.

A four-inch (4") minimum lateral and building sewer shall be installed for each single family residential (SFR) unit, with a minimum grade of 1/4" per foot (approximately 2%) from the main sewerline to the building connection clean out.

5.02 Non-Residential (Commercial/Industrial) Sewer Size and Grade.

A six-inch (6") minimum lateral and building sewer shall be installed on a minimum grade of 1/8" per foot (approximately 1%) for multiple family dwellings, churches, commercial, industrial, school buildings, etc., from the main sewerline to the building sewer cleanout.

5.03 Multiple Residential Sewer Size and Grade.

When more than one residential building sewer is to be connected to a single sewer, a 6" sewer will be required, constructed and extended beyond the point of connection from the furthest (upstream) building and shall terminate with a 6" cleanout. Each building, to be connected, shall then intersect the 6" sewer line with a separate 4" building sewer and a cleanout located from the foundation wall drain as per the latest edition of the UPC. Waivers to this requirement shall be determined by the District on a case by case basis. All requests for waivers shall be in writing submitted to the District General Manager.

6.00 OLD BUILDING SEWERS

Old building sewers may be used in connection with new buildings only when they are found, upon examination and test by the District General Manager or District representative, to meet all requirements of the District. The examination and testing fee shall be determined by the District General Manager or a District representative and shall be paid by the applicant.

7.00 DEPTH

Depth of service laterals shall be at sufficient depth to provide adequate coverage and service to the lowest point and the farthest point to be served on each lot. At no place shall the depth of a service lateral be less than 5 feet at the property line, nor less than 2 feet below grade surface at any point on private property unless otherwise approved by the District General Manager.

8.00 BENDS

Building sewers shall be designed and constructed to provide the most direct routing so as to eliminate bends. An additional cleanout shall be provided in a building sewer line for each aggregate horizontal change of direction exceeding one hundred and thirty-five (135) degrees. All bends greater than 90° shall have a cleanout and shall not exceed more than one per 40 linear feet.

9.00 CLEANOUTS

9.01 Locations.

Cleanouts shall be installed at:

- the junction of the sewer lateral and the building sewer (generally located at the property line or sewer easement line)
- at straight run intervals of not more than 100 feet
- at the junction of the building sewer and building waste drain
- for each aggregate horizontal change of direction exceeding 135°
- at all 90° bends or greater

Cleanouts at the junction of the building sewer and building waste drain shall be placed from the foundation wall drain at a distance required by the latest edition of the UPC.

9.02 Fitting Requirements.

Cleanout shall consist of a wye and 1/8 bend and a riser pipe extended just below grade and sealed with a threaded plug or cap which can be easily removed through the cleanout access cover.

9.03 Hubless (Plain End) Pipe Couplings.

The coupling to connect two pieces of hubless or plain end pipe consists of an elastomeric sleeve with two 300 Series stainless steel clamps, one at each end. Clamps must be tightened to 60-inch lbs. Torque. Testing is required before backfilling or concealing the joint. Pipe bedding and backfill shall conform to District requirements.

9.04 Protective Concrete Box.

Cleanouts shall be protected with a concrete cleanout box. The cleanout box lid shall be cast iron with ASewer indicated on the lid. Drawing Plate No. 110.

9.05 Property Line Cleanout.

The cleanout designated as the property line cleanout (junction of the sewer lateral and the building sewer) shall be constructed of the same material as the sewer lateral. This structure is an integral part of the public sewer system.

In conjunction with installing a new property line clean out structure the sewer lateral will be CCTV inspected by the District to ensure lateral condition to the point of connection to the sewer main. Applicable fees shall apply.

10.00 PIPE MATERIALS

10.01 General.

All pipe materials shall be approved by the District. Approved manufacturers for materials can be obtained from the District.

10.01 Approved Pipe Materials and Joint Types.

Acceptable sewer pipe material for lateral and building sewers shall be:

RIGID PIPE

Pipes fabricated of vitrified clay shall and cast iron shall be considered rigid pipe and shall conform to the requirement for rigid pipe as set for the District Standard Specifications. Pipe and fittings shall be marked with the following information: manufacturer's name, nominal pipe diameter, material, ASTM or AWWA designation.

- **Vitrified Clay Pipe (VCP).** All VCP pipe and fittings shall conform to the requirements of ASTM Designation C 700 and C 301 as it applies to extra strength unglazed vitrified clay pipe.

Joint shall be plain end or bell and spigot joints. Resilient gasket material conforming to the requirements of ASTM Designation C 425 shall be used for bell and spigot joints. Elastomeric coupling fittings used to join plain end shall be Type AD joints (synthetic rubber couplings with corrosion-resistant shear ring for plain end clay pipe).

- **Cast Iron Pipe (CIP).** All CIP pipe and fittings shall conform to the latest requirements of CISPI Standard 301, ASTM A 888 or ASTM A 74 . Pipe and fitting shall be marked with the collective trademark of the Cast Iron Pipe

Institute or receive approval from the District. Joints for hubless pipe and fittings shall be the shielded type conforming to the manufacturer's installation instructions, the latest requirements of CISPI Standard 310 and local code requirements. Hubless couplings gaskets shall conform to the latest requirements of ASTM Standard C 564. Joints for bell and spigot pipe shall be installed with compression gaskets conforming to the latest requirements of ASTM C 564.

FLEXIBLE PIPE

Pipes fabricated of ABS, PVC, or HDPE shall be considered to be flexible pipe and shall conform to the requirements for flexible pipe. Pipe and fitting shall be marked with the following information: manufacturer's name, nominal pipe diameter, material, ASTM or AWWA designation.

- **Polyvinyl Chloride (PVC).** All PVC pipe and fittings shall be unplasticized Polyvinyl Chloride manufactured for sewer applications and shall meet the pipe wall thickness requirements for an SDR 35 pipe in accordance with ASTM D 3034. Schedule 40 extra strength pipe may be substituted. The pipe shall be furnished in 10, 20 or 40 foot lengths with integral wall belled ends and elastomeric gasket joints. Documentary evidence will be considered sufficient when the pipe manufacturer furnishes a certificate indicating accordance with the provisions of all ASTM specifications.

Each pipe joint shall be installed with an elastomeric gasket providing a watertight seal and allowing for contraction and expansion. The bell shall consist of a integral wall section stiffened with two PVC retainer rings which securely lock the solid cross section rubber ring into position. All PVC pipe and fittings for underground gravity sewers shall be installed in accordance with the requirements of ASTM Standard D-2321-72, Recommended Practice for Installation of Flexible Thermoplastic Sewer Pipe.

Deflections in the pipeline after installation shall not exceed five percent (5%) of the internal pipe diameter. If any section of the pipeline exceeds the maximum allowable deflection, the contractor shall reconstruct the pipeline. The deflection of the pipe shall be measured by the contractor in the presence of the Engineer, and the method of measuring the deflection shall be approved by the District Engineer.

No solvent cemented joints will be permitted. Elastomeric couplings shall be used to join plain ends. The elastomeric sleeve shall consist of two 300 Series stainless steel clamps, one at each end. Clamps must be tightened to 60-inch lbs. torque. Testing shall be performed before backfilling or concealing the joint. Bed and backfill as per District specifications.

- **High Density Polyethylene (HDPE)** - HDPE solid wall pipe and liner for use in gravity flow sanitary sewers and shall comply with ASTM D 3350 or ASTM F 714. High density polyethylene pipe (HDPE) and fittings shall be made from virgin resins exhibiting a cell classification of PE 345444C as

defined in ASTM D3350 with an established hydrostatic design basis of 1600 psi for water at 73.4 F. The material shall conform to ASTM D3350 Type III, Grade PE 34. The resin shall be listed by the PPI (Plastic Pipe Institute) in its pipe grade registry Technical Report (TR) 4, Listing of Plastic Pipe Compounds.

HDPE pipe and fittings shall be available in ductile iron sizes (DIPS) and steel pipe sizes (IPS). The interior of the pipe may be a co-extruded integral layer whose color is an off-white that is engineered for maximum visibility by black and white or color video equipment. Pipe and fittings material shall be fatigue (surge) tolerant to at least 3,000,000 cycles of stresses at 50% over-pressurization above WPR.

The wall thickness shall follow the Dimension Ratio (DR) system prescribed in ASTM F714. Laying lengths are 40 foot standard. The HDPE pipe shall be joined by heat fusion or butt fusion method by a manufacturer's trained and certified technician. Other methods of joining such as flanges or other mechanical joint systems proven for HDPE pipes shall be approved by the Engineer.

The net pressure capability shall be the working pressure rating (WPR) at 73.4 F as follows:

DR	WPR (psi)	WPR + Surge (psi)	Hydro test (psi)	Nominal Burst (psi)
32.5	50.8	76.2	76.2	203.2
26	64.0	96.0	96.0	256.0
21	80.0	120.0	120.0	320.0
17	100.0	150.0	150.0	400.0
15.5	110.3	165.5	165.5	441.4
13.5	128.0	192.0	192.0	512.0
11.8	160.0	240.0	240.0	640.0
9.0	200.0	300.0	300.0	800.0
7.0	266.7	400.0	400.0	1066.7

HDPE pipe and fittings shall be marked as prescribed by ASTM F714. Pipe markings will include nominal size, OD base (ie: 12" ductile iron pipe sizing, DIPS), dimension ratio, pressure class, WPR, ASTM F714, manufacturer's name, manufacturer's production code including day, month, year extruded, and manufacturer's plant and extrusion line.

- **Acrylonitrile-Butadiene-Styrene (ABS)**- All ABS pipe and fittings shall conform to all requirements of ASTM D 2680. ABS pipe shall be used for

Building Sewers only. ABS pipe will not be allowed when pipe larger than four-inches is required. ABS pipe shall have a wall thickness conforming to an SDR 35 rating or Schedule 40 extra strength in accordance with ASTM D 2751.

- **Asbestos cement and orangeberg pipe are not acceptable.**

10.02 Material Conditions.

All materials shall be new and undamaged, unless otherwise approved by the Inspector.

10.03 Material Similarity.

The same manufacturer and type of material of each item shall be used throughout the work.

10.04 Material Standards.

Where reference is made to an American National Standards Institute (ANSI), American Society of Testing Materials (ASTM), or American Water Works Association (AWWA) designation, it shall be the latest revision at the time of construction, except as noted on the plans or special provisions.

10.05 Sewer Repair or Replacement Material.

Same pipe materials shall be used when replacing or repairing sections on existing sewers except in the case of existing orangeberg pipe.

A repair or partial replacement of existing orangeberg pipe is not acceptable. The accepted method is the complete removal and replacement with a District approved pipe material.

11.00 BEDDING AND BACKFILL

Standard specifications and details regarding pipe bedding and backfill shall apply. In addition, the following requirements apply to the installation of any flexible sewer pipe, such as PVC or ABS:

11.01 Backfill in Building Sewer Pipe Zone.

For building sewers, the pipe zone is defined as extending from 4 inches below the pipe to 12 inches above the pipe.

11.02 Approved Backfill Material.

Approved import material such as wash plaster sand, gravel, crushed aggregate or native free-draining granular material having a sand equivalent of not less than 20 will be required. (Yellow sand is not a District approved material.)

11.03 Placement of Backfill Material.

Backfill material shall be placed and compacted in the trench simultaneously on each side of the pipe for the full width of the trench before the balance of the backfill is placed over the pipe. All material within the pipe zone shall be thoroughly compacted to a relative compaction of 90 percent by tamping or by other means

approved by the District. Backfill material shall be “shoveled sliced” or “walked in” beneath the pipe barrel where voids exist before the bedding material is raised to the level of the springline of the pipe. The backfill shall be placed in horizontal layers of such depths as are considered proper for the type of compaction equipment being used in relation to the backfill material being placed.

11.04 Special Precautions for Sewer Pipe Near Buildings.

Special precautions must be taken for any sewer construction near existing or proposed building sites, whether in a fill area or not. The load distribution line (angle of repose) will commence at, and extend downward at, a 45° angle from the bottom outside edge of the foundation.

11.05 Lateral Sewer Encasement.

If the lateral sewer pipe is below the 45° line, it shall require a special design or cradle and be noted on the plans. Also, all backfill below the 45° line shall be in accordance with the recommendation of a soils engineer.

11.06 Protection to Existing Building During Construction.

Special methods must be used by a contractor to insure protection to existing building while construction is underway. The locations of such buildings must be precisely shown on the plans. However, the construction methods used will be the contractor’s prerogative, unless indicated otherwise on the plans.

12.00 UTILITY, CONDUIT, OR PIPELINE SEPARATION

Utility, conduit, or pipelines crossing or running parallel to lateral and building sewers must be separated vertically and/or horizontally by a minimum of 12" from the outside of the edge of the pipe.

13.00 INSPECTION AND TESTING

The following procedures shall be followed for inspection and testing of laterals and building sewers:

13.01 Responsibility.

The equipment, material and labor necessary for inspection or test shall be furnished by party which has requested the inspection and testing.

13.02 Pipe and Fitting Inspection.

All installed pipe and fittings shall be inspected by the District Inspector prior to any backfill. Failure to request or obtain this inspection will require complete re-excavation and reconstruction of the work.

13.03 Testing.

The entire installation of all pipes and fittings shall be tested with water or air.

13.04 Water Test.

The water test shall be applied to the sewer system in its entirety. All openings in the sewer piping system shall be tightly closed except the highest opening, which

will include piping for a ten (10) foot head of water. The system shall be filled with water to the point of overflow. The water shall be kept in the system for at least fifteen (15) minutes before inspection starts.

13.05 Water Test Safety.

Safe access to the water test piping system shall consist of a platform or ladder, and shall be provided by the party which has requested the inspection and test.

13.06 Low Pressure Air Test.

After a trench has been backfilled and compacted, and before connection of the building sewer to a lateral or main sewer is made, it may be tested with air in accordance with the District's requirements. This test will be witnessed by the District Inspector. Said requirements are as follows:

Test Procedure

- If required by District Inspector, the pipe to be tested shall be cleaned by hydrojet or other means approved by the Inspector.
- Plug all pipe outlets with suitable test plugs. Brace each plug securely.
- If the pipe to be tested is submerged in groundwater, the contractor is to determine the hydrostatic pressure at pipe level due to groundwater submergence. All gauge pressures in the test should be increased by this amount.
- Add air slowly to the portion of the pipe installation under test until the internal air pressure is raised to 4.0 psig.
- After an internal pressure of 4.0 psig is obtained, allow at least two minutes for air temperature to stabilize, adding only the amount of air required to maintain pressure.
- When pressure decreases to 3.5 psig, start stopwatch. Determine the time in seconds that is required for the internal air pressure to reach 2.5 psig.

Minimum Permissible Air Pressure Holding Times

Minimum holding times, in seconds, for pressure to drop from 3.5 to 2.5 psig:

Pipe Footage	4-inch pipe	6-inch pipe
25	30	30
50	30	30
75	30	30
100	30	40

125	30	50
150	30	59
200	35	79
250	44	99

13.07 Air Test Safety.

The air test may be dangerous and it is extremely important that the various plugs be installed and braced in such a way as to prevent blowouts. It should be realized that sudden expulsion of a poorly installed plug, or of a plug that is partially deflated before the pipe pressure is released, can be dangerous. As a safety precaution, pressurizing equipment should include a regulator set at, perhaps, 10 psig to avoid over pressuring and damaging an otherwise acceptable line. No one shall be allowed in the manholes during testing.

14.00 GREASE INTERCEPTORS AND GREASE TRAPS

Grease, oil and sand interceptors and grease traps shall be provided as specified in the Uniform Plumbing Code, latest edition, and additionally, when in the opinion of the District, they are necessary. The minimum capacity of the interceptors shall be seven hundred fifty (750) gallons constructed per District standards. The type and capacity of the interceptors and grease traps shall be approved by the District prior to installation. Further information is available upon request from the District Inspector or at the District Administration office.

15.00 FINAL INSPECTION

A final inspection shall be made to verify proper installation of required cleanouts, cleanout boxes, plugs, backwater overflow devices (if required) and any other construction necessary for approval.

16.00 DEFINITIONS

16.01 Building Sewer.

That portion of any sewer beginning at the plumbing or drainage outlet of any building or industrial facility and terminating at the property line cleanout structure.

16.02 City.

City of Carpinteria

16.03 County.

County of Santa Barbara

16.04 Plumbing System.

All plumbing fixtures and traps, or soil, waste, special waste and vent pipes, and all sanitary sewer pipes within a building and extending to the building sewer connection approximately two (2) feet outside the building wall.

- 16.05 Private Sewer.
A sewer serving an independent sewage disposal system not connected with a public sewer and which accommodates one or more buildings or industries.
- 16.06 Public Sewer.
A sewer lying within a public way or easement and which is controlled by or under the jurisdiction of the District.
- 16.07 Sanitary Sewer.
A sewer which carries sewage and to which storm, surface and ground waters are not intentionally admitted.
- 16.08 Sewer Lateral.
That portion of any sewer beginning at the property line cleanout structure and terminating at the connection to the public sewer main or public sewer easement.
- 16.09 Property Line Cleanout.
Standard cleanout structure placed between the terminus of the building sewer and the beginning of the sewer lateral.

17.00 ABBREVIATIONS

BAN	Abandon
ABS	Acrylonitrile-butadiene-styrene
APN	Assessors Parcel Number
CCTV	Closed Circuit Television
CIP	Cast Iron Pipe
C/O	Cleanout
CONN	Connection
CV	Check valve
ESMT	Easement
EXC	Excavation
FDN	Foundation
HDPE	High Density Polyethylene
HC	House Connection
ID	Inside Diameter
INSP	Inspection
MH	Manhole
P/L	Property Line
PVC	Polyvinyl Chloride
R/W	Right of Way
SDR	Standard thermoplastic pipe Dimension Ratio
SS	Sanitary Sewer
STA	Station
SW	Sidewalk
TYP	Typical
USA	Underground Service Alert
VCP	Vitrified Clay Pipe

APPENDIX 1: STANDARD DRAWINGS

Plate 104	Standard Pipe Bedding Details
Plate 106	Sewer Service Lateral
Plate 108	Wye Connections to Existing Sewer Mains
Plate 110	Standard Lateral Cleanout Detail
Plate 116	Building & Lateral Sewer Required "As Constructed" Layout Drawing Example

APPENDIX 2: APPLICABLE DISTRICT FEES AND CHARGES

Most recent Board approved version.

APPENDIX D
SSO Response Plan



CARPINTERIA
Sanitary District

**SANITARY SEWER OVERFLOW
RESPONSE PLAN**

September 2017

APPROVED:

A handwritten signature in black ink, appearing to read 'Craig Murray', is written over a horizontal line.

Craig Murray, P.E.
General Manager

September 14, 2017

REVISION HISTORY

DATE	SECTION	UPDATE	AUTHOR
October 2008		Rev. 2008 CSD SSO Response Plan	C. Murray
November 2013		Rev. 2013 CSD SSO Response Plan	M. Oliver
	1.1	Purpose	
	1.2	Regulatory Framework	
	2.0	SSO Categories	
	3.1	SSO Detection	
	3.2	Dispatching of Crews	
	3.3a	SSO Response (Guidelines)	
	3.3b	SSO Response (Safety)	
	4.2	Public Notification	
	5.2	SSO Reporting Requirements	
	6.3	Forms and Customer Information	
	6.4	Post Event Investigation and Debriefing	
	Appendix B	CSD SSO Response Flow Chart	
	Appendix C	CSD SSO Emergency Response Contact List & Notification Contact List	
	Appendix D	Vendor and Support Information	
	Appendix E	Emergency Response Equipment	
	Appendix G	CSRMA Policy and Procedures	
	Appendix H	Lift Station Related Response Procedures	Bennett
	Appendix I	Warning Sign	
September 2017	1.2	“Regulatory Framework” <ul style="list-style-type: none"> • Updated section to include 2013 State Water Board WD Amendment. 	M. Oliver
	5.0	“SSO Notification and Documentation” <ul style="list-style-type: none"> • Updated section 5.2, “Reporting Requirements” 	M. Oliver

September 2017	7.0	<p>“SSO Training and Preparedness”</p> <ul style="list-style-type: none"> • Updated “Emergency Contact List” • Updated “SSO Notification List” • Confirmed and updated contact information for all entities listed on the “Vendor and Support Contact List”. 	M. Oliver
	Appendix A	Updated CSD SSO Flow Chart to reflect the addition of the lateral jetter.	M. Oliver
	Appendix G	Updated Carl Warren & Company Contact information.	M. Oliver
	All Appendices	<p>Reorganized the order of Appendices to follow the natural progression of a potential SSO and the information/forms that response personnel may need.</p> <p>Updated Appendix references in SSO Manual to reflect the new Appendix order.</p>	M. Oliver
	Appendix J	Added Appendix J to track Collections Equipment/ SSO Training records.	M. Oliver

- October 2013- Hotel accommodations confirmed for SSO affected occupants in the event of an SSO. (Holiday Inn Express and Best Western)
- CSRMA contractor screening performed October 2016 with ServiceMaster, ServPro, and Qwik Response.

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4.0	SSO RECOVERY AND CLEANUP	11
5.0	SSO NOTIFICATION AND DOCUMENTATION	13
6.0	SPILLS AFFECTING PRIVATE PROPERTY	20
7.0	SSO TRAINING AND PREPAREDNESS	23

LIST OF APPENDICES

Appendix	Title
A	SSO RESPONSE FLOW CHART
B	SSO VOLUME ESTIMATION PROCEDURES
C	SSO REPORT FORM REGULATORY REPORTING GUIDE PHONE REPORTING SCRIPT SSO REGULATORY AGENCIES CONTACT INFORMATION
D	DISTRICT EMERGENCY RESPONSE CONTACT LIST
E	VENDOR AND CONTRACTOR SUPPORT CONTACT INFORMATION
F	EMERGENCY RESPONSE EQUIPMENT INVENTORY
G	CSRMA PRIVATE PROPERTY SSO RESPONSE PROCEDURES CSD CLAIMS SUBMITTAL CHECKLIST CUSTOMER INFORMATION REGARDING SSO CLAIMS SEWER SPILL REFERENCE GUIDE FOR HOMEOWNER CSRMA SEWER BACKUP/CLAIM REPORT HOTEL AUTHORIZATION FORM GOVERNMENT CLAIM FORM RELEASE OF ALL CLAIMS FORM CSRMA CONTACT INFORMATION
H	PUMP STATION SPECIFIC RESPONSE PROCEDURES
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1.0 INTRODUCTION

The Carpinteria Sanitary District (District) wastewater collection system is a network of gravity sewer lines, pressurized force mains and pumping stations which, in combination, convey wastewater to the District's wastewater treatment plant. A failure of this system that results in a sanitary sewer overflow (SSO) has the potential to threaten public health, cause property damage, or contaminate the environment. Routine, proactive maintenance of the District's collection system is the "ounce of prevention that is worth the pound of cure." However, the possibility still exists that unforeseen accidents, unusual equipment failure or other events not controllable by the District could result in an SSO. This SSO Response Plan provides detailed procedures and protocols that, when enacted in response to an SSO, will reduce or eliminate public health hazards, prevent unnecessary property damage, mitigate environmental contamination and minimize the inconvenience of sewer service interruptions.



1.1 PURPOSE

The Mission of the Carpinteria Sanitary District is to provide its ratepayers with reliable, cost-effective wastewater treatment.

To support this mission, the District has developed the following goals:

- A. To properly manage, operate, and maintain all portions of the wastewater collection system;
- B. To provide adequate capacity to convey peak wastewater flows;
- C. To minimize the frequency of sewer system overflows (SSOs);
- D. To mitigate the impacts that are associated with any SSO that may occur; and
- E. To meet all applicable regulatory notification and reporting requirements.

1.2 REGULATORY FRAMEWORK

Carpinteria Sanitary District's wastewater collection system management practices must comply with the following regulatory mandates:

- National Pollutant Discharge Elimination System (NPDES) Permit CA0047364 issued by the Central Coast Regional Water Quality Control Board on March 25, 2011;
- California Water Resources Control Board adopted Statewide General Waste Discharge Requirements for Wastewater Collection System Agencies (GWDR) on May 2, 2006.
- 2013 California Water Resources Control Board Order No. WQ 2013-0058-EXEC, Amending Monitoring and Reporting Program Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.

NPDES Permit Requirement:

Section III E. of the NPDES Permit states “The overflow or bypass of wastewater from the Discharger’s collection, treatment, or disposal facilities and the subsequent discharge of untreated or partially treated wastewater, except as provided for in Attachment D, Standard Provision I.G.2 (Bypass), is prohibited.

GWDR Requirement:

The District has enrolled under the SWRCB’s *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, Order No. 2006-2003-DWQ* (WDRs). This regulatory program sets forth detailed requirements for collection system management and specifies that each enrollee shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment.

The Monitoring and Reporting Program (MRP) within the WDRs require that the District’s SSO Response Plan minimally contain the following elements:

- (a) Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner.
- (b) A program to ensure an appropriate response to all overflows.

- (c) Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, Regional Water Boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the MRP. All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDRs or NPDES permit requirements. The SSMP should identify the officials who will receive immediate notification
- (d) Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained.
- (e) Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities.
- (f) A program to ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

2.0 SSO CATEGORIES

While there is a broad spectrum of sewer overflows that could occur within the District's collection system, they are divided into four basic categories for reporting and response purposes.

2.1 CATEGORY 1

Discharges of untreated or partially treated wastewater of **any volume** resulting from an enrollee's sanitary sewer system failure or flow condition that:

- Reach surface water and/or reach a drainage channel tributary to a surface water; or
- Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated stormwater or groundwater infiltration basin (e.g., infiltration pit, percolation pond).

2.2 CATEGORY 2

Discharges of untreated or partially treated wastewater **equal to or greater than 1,000 gallons that does not reach surface water**, a drainage channel, or an MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.

2.3 CATEGORY 3 (Formerly Category 2)

All other discharges of untreated or partially treated wastewater resulting from the District's sanitary system failure or flow condition.

2.4 PRIVATE LATERAL SEWER DISCHARGE (PLSD)

Discharges of untreated or partially treated wastewater resulting from blockages or other problems **within a privately owned sewer lateral** connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the District becomes aware of may be voluntarily reported to the California Integrated Water Quality System (CIWQS) Online SSO Database.

3.0 SSO RESPONSE PROCEDURES

This Section describes the process and procedures that the District follows to respond to an SSO event, including public and regulatory notification, dispatching, initial response, remedial action, recovery and cleanup, water quality sampling and testing, documentation, investigation, reporting, and training.

3.1 SSO DETECTION

The District is notified of a possible SSO as a result of an observation by the public, receipt of a pump station alarm through the Supervisory Control and Data Acquisition (SCADA) system, or by the observations of District Staff while performing their normal work.

a. Public Observation

Public observation is the most common way that the District is notified of blockages, spills, and private sewage system failures. Directions for reporting sewer spills and backups are included in the “FAQs” link on the District’s website at www.carpsan.com

Normal Work Hours

The District’s Wastewater Collection System Staff’s regular working hours are Monday through Friday from 7:00 a.m. to 3:30 p.m., except holidays. The public can call the Wastewater Collections Lead Operator cell phone at (805) 451-7809 during regular work hours.

If a report of a sewer spill or backup is received through the main telephone number at the District Office, the District Administrative Staff records SSO Data (time call received, location, spill type, caller name and contact phone number) and communicates it directly to the Collection System Supervisor or the Operations Manager immediately by telephone, cell phone or in person.

After Hours

The District’s after-hours message directs callers to call the emergency on-call telephone number, **(805) 451-7809**. The District’s on-call staff is available 24 hours a day to receive emergency calls and respond to SSOs.

b. Receipt of Alarm

All of the District’s lift stations are connected to a SCADA system via a secured radio network. In the event of a controller failure, a redundant controller will take over the pumps and use floats to turn the pumps on and off. Alarms are sent primarily to the SCADA system and backed up by an alarm auto dialer independent of the controller and SCADA system. Both systems are designed to notify the District’s on-call staff in the event of an emergency, power outage, or equipment failure. Pump station failures, if not addressed in a timely manner, can quickly result in Category 1 SSOs with serious impacts to the environment and/or private property.

c. District Staff Observation

District staff conducts periodic inspections of its sewer system facilities as part of their routine preventive maintenance program. Any problems noted with the sewer system facilities are reported and appropriate crews are dispatched to any emergency situations and work orders are issued to correct non-emergency conditions.

3.2 DISPATCHING OF CREWS

Sanitary sewer overflow (SSO) calls are considered to be a high priority that demands a prompt response to the location of the reported problem. The District's goal is to respond to an SSO report within 15 minutes during normal working hours and within 30 minutes for after hours calls when possible.

Normal Work Hours:

After the District has received a report of an SSO via the Collections Lead cell phone, the Operator notes relevant SSO data (time call received, location, spill type, caller name and contact phone number). Upon completion of the phone call, the Lead Operator calls the Collections System Supervisor, safely terminates any work in the field and mobilizes crew to respond to SSO.

After the District has received a report of an SSO through the main telephone line at the District office, the District Administrative Staff records SSO data (time call received, location, spill type, caller name and contact phone number) and communicates it directly to the Collection System Supervisor or the Operations Manager immediately by telephone, cell phone or in person.

After Hours:

Once the on-call Collections Operator receives a report of a potential SSO, the Operations Manager is to be contacted. After completion of the phone call, response personnel are to meet at the plant and ensure proper SSO response gear is readied and loaded on vehicles prior to mobilizing to SSO site.

When an SSO is reported; responding staff should verify that the location is within the District's service area. This can be done through a review of atlas maps or other means; however, responders should err on the side of caution and respond to any incident that could potentially be within our jurisdiction or harmful to the environment.

- *CSD **is** responsible for lower lateral blockages if the building has a property line cleanout.*
- *CSD **is not** responsible for mobile home park blockages or SSO's but may render aid to prevent discharges into environmentally sensitive areas.*

If it is determined to be a significant overflow event, either through the information obtained from the caller or based on the observations of the onsite personnel, additional personnel (Operations Staff and Collections Staff) will respond to the location to initiate containment procedures, assist in resolving the overflow and assist with the subsequent clean-up activities.

3.3 SSO RESPONSE

The general procedure is also set forth in the SSO Response Flow Charts included in **Appendix A**.

a. General Response Guidelines

The first responder(s) must respond to the reported SSO location and visually check for potential sewer stoppages or overflows.

The first responder's priorities during the initial response are to:

- Note arrival time on the CSD SSO Report Form, document conditions with photographs, and contact caller if time permits; **(Appendix C)**
- Verify the existence of an SSO or backup and determine the District's responsibility to render aid, (Contact the Operations Manager or the Collections System Supervisor if in doubt of District response responsibility);
- If the building has a property line clean out, determine if the blockage is in the upper lateral or lower lateral.
- Identify and assess the affected area and extent of the spill. (if spill is entering a storm sewer, note if the storm sewer is flowing);
- Notify the Operations Manager or Collections System Supervisor, as appropriate, if the spill appears to be large, in a sensitive area, or there is doubt regarding the extent, impact, or how to proceed;
- Determine the potential cause of the blockage or spill;
- Determine whether to proceed with clearing the blockage to restore flow or to initiate containment measures. General guidance for this decision is as follows:
 - 1) **Small Spills:** Proceed with clearing the blockage.
 - 2) **Moderate to Large:** Spills where containment is anticipated to be simple and expeditious: Proceed with containment measures.
 - 3) **Moderate to Large:** Spills where containment is anticipated to be difficult: Proceed with clearing the blockage.

If after fifteen minutes (15) of attempted clearing is unsuccessful, call for assistance and implement containment procedures.

- Deploy signage to minimize public access to and contact with the spilled sewage;
- If multiple crews are on site, the containment of the spill, deployment of signage and the clearing of the blockage should be performed concurrently.
- All relevant information should be documented on the "CSD SSO Report Form". **(Appendix C)**

b. Safety

The first responder is responsible for following safety procedures on all jobs. Special safety precautions must be observed when responding to a report of an overflow. Traffic control and limiting access by the public are high priority considerations while attempting to contain the spill and resolve the cause of the overflow.

There may be times when it is necessary to call in non-Wastewater Collection personnel to assist with a sewer system overflow event. They may not be familiar with potential safety hazards unique to wastewater work. In such cases, it is appropriate to take the time to discuss safety issues with them, explain the order of work, and check safety equipment before starting the job.

c. Pipeline Related SSO Response Procedures

Upon arrival at the scene a determination must be made as to the source of the overflow/spill, and whether it should be considered a Category 1,2,3, Private Lateral Sewage Discharge Spill (PLSD) or a Private Sewer spill and who will be designated as the Lead.

Private Sewer SSO

If it is determined that the SSO is originating from a building's private sewer service line, the owner, resident or property manager must be notified immediately and informed that they are responsible for corrective action and any resulting damage. Document your actions on the CSD SSO Report Form included in (**Appendix C**). Chronic overflows/spills at the same property location shall be referred to the County Environmental Health Services Department and/or the City of Carpinteria.

Public Sewer SSO

If the SSO has originated from a gravity sewer main or a lateral sewer owned by the District, secure the spill area by placing cones, barricades or caution tape around the spill site and proceed as follows:

- Determine the location of the blockage and the cause of the overflow/spill by checking the upstream and downstream manholes. If near a lift station, check the operating condition of the pumps, controls, etc.
- Determine whether or not additional equipment or personnel will be required and call for any necessary assistance. If spill appears to be a Category 1, 2 or 3 Spill or if private property damage is involved, contact the Operations Manager and the Collections System Supervisor as required.
- Position the Vactor at the nearest dry manhole downstream and work a penetrating jet nozzle towards the blockage. Make every effort to catch debris or other cause of blockage so further spills are not created. Keep in mind that a secondary blockage may be created by the cleaning process.
- Once the blockage has been relieved or the problem corrected, and the overflow has ceased, every attempt should be made to contain the sewage that has spilled. If adequate personnel are available, containment procedures can be completed while work is underway to clear the blockage. If more personnel are needed for containment and cleanup, call the Operations Manager or the Collections Supervisor

for assistance. Specialty contractors, vendors and other district resources are available when necessary. Refer to **Appendix E** for contact information.

- Containment of spilled sewage can be accomplished by sand-bagging storm drain inlets, building temporary berms and/or digging a sump pit to collect the sewage.
- Take photographs of the affected area for District records.
- To minimize health hazards and damage, provide proper cleanup by: vacuuming up contained sewage and wash water, and removing any contaminated debris to appropriate disposal site.
- If the overflow/spill occurs inside of a building structure, immediate attention must be given to clearing the blockage. Contact the Operations Manager and/or the Collections System Supervisor. Once overflow is stopped, ***it is crucial that the response procedures for Spills Affecting Private Property in Section 6.0 are followed.***
- Generally, public comments should not be made by responding staff but instead directed to management or supervisory staff. Do not volunteer or disown District liability or comment on cause of SSO. Neutral comments should be used by District personnel indicating that the liability issue can not be addressed until all of the relevant information has been evaluated.
- Complete SSO Report Form found in **Appendix C** and follow notification procedures outlined in Section 4.0 and in **Appendix C**.

Force Main Break SSO

In the event that a spill has occurred due to a leak from a force main, the following actions will be taken:

- The leaking force main will be isolated and bypassed while emergency repairs are conducted to the pipeline.
- The bypassing may take one of the following forms:
 - Use of temporary surface line around the affected area.
 - Use of pumps and tank trucks to convey flow.
 - Use of vacuum trucks to load and transport flow.
 - Use of standby force main when applicable.
- Depending on the nature of the damage to the pipeline, location of the leak, volume of flow being conveyed and depth of the pipeline, emergency repairs may be conducted by District personnel or by a Contractor. Local contractors available for emergency repairs are listed in **Appendix E**.
- Due to the lack of service connections to the force main, it is highly unlikely that any flooding of personal property would occur as the result of a force main leak. The threat to the environment and the public health would still exist, and therefore cleanup and containment efforts similar to those for a mainline blockage spill would be required.
- Once fully addressed, complete SSO Report Form (see **Appendix C**) and follow notification procedures outlined in Section 5.3.

d. Pump Station Related SSO Response Procedures

SSOs may result from failures of the District's remote pump stations. Upon arrival at the affected pump station, a determination must be made as to the cause of the SSO. The following procedures apply generally to all of the District's pump stations, but responding District personnel must be familiar with the technical and mechanical details of each station.

All District pump stations are equipped with telemetry systems (radio based SCADA and/or an independent auto dialer) which provides a redundant alarm system that alerts District personnel in the event of a system failure or malfunction such as loss of commercial electrical power, high water, and pump failure.

District staff shall respond immediately when an alarm message is received and proceed to troubleshoot the problem as follows:

- Acknowledge alarm and assess nature of the problem. Take immediate steps to restore pumping capability at the station if feasible.
- Control raw sewage from running off away from the fenced area by whatever method necessary, such as sandbags, building a berm, etc.
- Cleanup the area by vacuuming up water and debris and disinfect the area as per established practice.
- Notify the Operations Manager that a crew has responded to a pump station SSO. Ensure all required verbal notifications in accordance with **Appendix C** are made within required timeframes.
- In the event of a power outage, follow site specific procedures in **(Appendix H)** regarding setup and use of emergency power generation.
- In the event power cannot be restored, set up pumped bypass using trailer mounted or portable pumping equipment in accordance with procedures set forth in **Appendix H**.

4.0 SSO RECOVERY AND CLEANUP

4.1 RECOVERY AND CLEANUP PROCEDURES

The recovery and cleanup phase begins when the flow has been restored and the overflow of sewage has been stopped. However, if the additional crews are on site and to minimize the potential of the spill reaching waters of the state, recovery procedures may be initiated prior to the overflow being stopped. The goal is to recover as much of the spill and wash down water as possible for proper disposal. The SSO recovery and cleanup procedures are:

a. Estimation of the Volume of Spilled Sewage

Use the methods outlined in **Appendix B, SSO Volume Estimation Procedures**, to estimate the volume and/or rate of the spilled sewage. Wherever possible, document the spilled sewage with photos of the site before the recovery operation is initiated.

b. Recovery of Spilled Sewage

Wash, pump, or vacuum the spilled sewage and discharge it back into the sanitary sewer system, if possible.

If the spilled sewage cannot be washed back into the sanitary sewer system (e.g. it is trapped in a low area or storm drain), then vacuum spilled sewage into the Vactor and decant to a sanitary sewer manhole or discharge at the wastewater treatment plant.

The volume of sewage recovered also needs to be estimated so it can be entered onto the CSD SSO Report Form (**Appendix B**) and subtracted from the initial spill volume to estimate the volume that may have reached the surface waters. Care should be taken in estimating how much wash down water was used and subsequently recovered which may be included in the volume recovered.

c. Cleanup and Disinfection

Cleanup and disinfection procedures should be implemented to reduce the potential for human health issues and adverse environmental impacts that are associated with an SSO event. The procedures described are for dry weather conditions and should be modified as required for wet weather conditions.

In the event that an overflow occurs at night, the location should also be inspected the following day. The field crew should look for any signs of sewage solids and sewage-related material that may warrant additional cleanup activities.

Hard Surface Areas

Collect all signs of sewage solids and sewage-related material either by hand (while wearing proper PPE), with the use of rakes and brooms or vacuumed up with combination truck.

Wash down the affected area with clean water until the water runs clear. Take reasonable steps to contain and vacuum up the wash water.

Allow area to dry. Repeat the process if additional cleaning is required.

Note: No treatment of chlorine, bleach (sodium hypochlorite) disinfectant, lime (calcium oxide) or other oxidants shall be applied without the receipt of specific

instructions from the proper regulatory agency as it has been determined that it could be detrimental to the environment.

Landscaped and Unimproved Natural Vegetation

Collect all signs of sewage solids and sewage-related material either by hand (while wearing proper PPE) or with the use of rakes and brooms.

Wash down the affected area with clean water until the water is clear. The flushing volume should be approximately **three times** the estimated volume of the spill.

Either contain or vacuum up the wash water so that none is released. Take reasonable steps to contain and vacuum up any ponding water.

Allow the area to dry. Repeat the process if additional cleaning is required.

Dispose of the recovered spill and wash down water appropriately.

Creeks, Gullies, and Natural Waterways

The CA Department of Fish and Game will be notified (**Appendix C**) in the event a SSO impacts any creeks, gullies, or natural waterways. DFG will provide the professional guidance needed to effectively clean up spills that occur in these sensitive environments.

Containment should be implemented to reduce the area that might be affected.

Cleanup should proceed quickly in order to minimize negative impact. Sewage causes depletion of dissolved oxygen which will kill aquatic life. SSOs that result in a discharge to streams supporting aquatic habitat will be evaluated to determine whether additional aeration is needed.

Any water that is used in the cleanup should be de-chlorinated prior to use (chlorine compounds are toxic to aquatic life).

All relevant information should be documented on the CSD SSO Report Form (**Appendix C**).

4.2 PUBLIC NOTIFICATION

The public that may be at risk of coming into contact with the spill should be warned that contact with sewage or sewage-contaminated water from an SSO may cause illness.

In any event, where public contact is possible, signage warning of a sewer overflow occurrence must be posted for a minimum of 72 hours. The warning signs will be checked every day to ensure that they are still in place. A sample warning sign is included in the **Appendix I**.

If necessary, safety cones, caution tape, or temporary fencing will be used to block access to the contaminated area. Do not remove these until directed by the Operations Manager or Collections System Supervisor.

Creeks, streams, and beaches that have been contaminated as a result of an SSO may require warning notices to be posted at visible access locations until the risk of contamination has been reduced. The County Environmental Services Department, in collaboration with the District, has the final responsibility for determining when to post notices of sewage contamination in creeks, streams or around beaches.

Major spills may warrant a broader public notice. Local media may be notified through the District's General Manager when significant areas have the potential of being contaminated by sewage.

4.3 MONITORING OF AFFECTED WATER BODIES

a. Visual Observations

District staff responding to an SSO should make visual observations prior to the start of the cleanup activities and following the completion of the cleanup activities. The observations will include use or potential use of impacted receiving waters (e.g. water contact sports, fishing), the presence of sewage solids and sewage-borne materials, color, clarity, and effects on aquatic organisms. The observations should be recorded and supported by photographs and/or diagrams, if appropriate.

b. Water Quality Sampling and Testing

When an SSO results in a discharge to a flowing creek, drainage channel or another conduit, District staff will collect samples upstream and downstream of the point of discharge. These samples will be analyzed for total and fecal coliform, enterococcus, Total Kjeldahl Nitrogen and BOD5 in the District's certified laboratory. District emergency response vehicles are equipped with sampling kits (containers, sampling apparatus, etc.) for this purpose.

District procedures prohibit the use of chlorine based disinfectants (e.g. household bleach) for disinfection of any SSO that involves discharge or potential discharge to waters of the State. For fully contained spills, the District may elect to use chlorine for disinfection of affected area(s), after vacuum removal of spilled sewage, when it is necessary to protect public health. In the event that chlorinated water is inadvertently discharged to the environment, additional sampling and analysis will be conducted. Grab samples will be collected and analyzed for free chlorine in the District's certified laboratory or using approved field test kits.

During periods of heavy rainfall or flooding, it may become impractical and/or unsafe to follow the sampling protocols outlined above. Areas that are impacted under these conditions will be monitored and inspected following cessation of the rain and/or flooding. The District will make every reasonable effort to comply with this procedure under such conditions.

c. Observation and Data Analysis

The District will analyze the results of the observations and the analytical data obtained during the response to each SSO that occurs within its jurisdiction. The results will be used to modify the SSO clean-up protocol as necessary to protect public health and the environment. Specifically, if free chlorine is found in measurable concentrations in receiving waters following cleanup of an SSO, greater restrictions on the use of chlorine based disinfectants will be imposed.

5.0 SSO NOTIFICATION AND DOCUMENTATION

SSOs can seriously threaten public health and can be harmful to the environment. Notification and documentation of SSOs is crucial to minimize impacts. State law also sets forth specific reporting requirements for all SSOs from publicly owned sanitary sewer collection systems. The internal communication and external reporting requirements that are triggered by an SSO within the District's service area are outlined in this section.

5.1 INTERNAL COMMUNICATIONS

When the District is notified of a possible sewage overflow/spill, it is imperative that all information known at the time about the spill is given to the Operations Manager or Collection System Supervisor as soon as possible. The SSO Report Form (**Appendix C**) should be used to record all information as it is received by the District. Document as much information as possible on the SSO Report Form as it will generally be used as the basis to complete external and online SSO reports.

5.2 SSO REPORTING REQUIREMENTS

SSO reporting in accordance with the timeframes set forth in this section is critical. The District's Operations Manager is responsible to ensure that notification and reporting requirements are adequately met.

REFER TO **APPENDIX C** FOR CONTACT INFORMATION AND PHONE/FAX NUMBERS FOR REPORTING PURPOSES. USE REPORTING SCRIPT PROVIDED.

Category 1 SSO

1. For any Category 1 SSO greater than or equal to 1,000 gallons that results in a discharge to a surface water or spilled in a location where it probably will be discharged to surface water, either directly or by way of a drainage channel or MS4, the enrollee shall, as soon as possible, but not later than two (2) hours after (A) the enrollee has knowledge of the discharge, (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures, notify the Cal OES at (800) 852-7550 and obtain a notification control number.
2. To satisfy notification requirements for each applicable SSO, the District shall provide information requested by Cal OES before receiving a control number. Spill information requested by Cal OES may include:
 - a. Name of person notifying Cal OES and direct return phone number.
 - b. Estimated SSO volume discharged (gallons).
 - c. If ongoing, estimated SSO discharge rate (gallons per minute).
 - d. SSO Incident Description:
 - i. Brief narrative.
 - ii. On-scene point of contact (name and cell phone number)
 - iii. Date and time District became aware of the SSO.
 - iv. Name of sanitary sewer system owner causing the SSO.
 - v. SSO cause (if known)

- e. Indication of whether the SSO has been contained.
 - f. Indication of whether surface water was impacted.
 - g. Name of surface water impacted by SSO, if applicable.
 - h. Indication of whether a drinking water supply is or may be impacted by the SSO.
 - i. Any other known SSO impacts.
 - j. SSO incident location (address, city, state and zip code).
3. Following the initial notification to Cal OES and until such time that the District certifies the SSO report in the CIWQS Online SSO Database, the District shall provide updates to Cal OES regarding substantial changes to the estimated volume of untreated or partially treated sewage discharged and any substantial change(s) to known impact(s).
 4. **PLSDs:** The enrollee is strongly encouraged to notify Cal OES of discharges greater than or equal to 1,000 gallons of untreated or partially treated wastewater that result or may result in a discharge to surface water resulting from failures or flow conditions within a privately owned sewer lateral or from other private sewer asset(s) if the enrollee becomes aware of the PLSD.

REPORTING REQUIREMENTS:

1. Category 1 and Category 2 SSOs

All SSOs that meet the above criteria for Category 1 or Category 2 SSOs shall be reported to the CIWQS Online SSO Database:

- a. Draft reports for Category 1 and Category 2 SSOs shall be submitted to the CIWQS Online SSO Database within **three (3) business days of the enrollee becoming aware of the SSO**. Minimum information that shall be reported in a draft Category 1 SSO report shall include all information identified in section 5.3 below. Minimum information that shall be reported in a Category 2 SSO draft report shall include all information identified in section 5.3 below.
- b. A final Category 1 or Category 2 SSO report shall be certified through the CIWQS Online SSO Database within 15 calendar days of the end date of the SSO. Minimum information that shall be certified in the final Category 1 SSO report shall include all information identified in section 5.3 below. Minimum information that shall be certified in a final Category 2 SSO report shall include all information identified in section 5.3 below.

2. Category 3 SSOs

All SSOs that meet the above criteria for Category 3 SSOs shall be reported to the CIWQS Online SSO Database and certified **within 30 calendar days after the end of the calendar month in which the SSO occurs** (e.g., all Category 3 SSOs occurring in the month of February shall be entered into the database and certified by March 30). Minimum information that shall be certified in a final Category 3 SSO report shall include all information identified in section (5.3e) below.

3. “No Spill” Certification

If there are no SSOs during the calendar month, the District shall either 1) certify, **within 30 calendar days** after the end of each calendar month, a “No Spill” certification statement in the CIWQS Online SSO Database certifying that there were no SSOs for the designated month, or 2) certify, quarterly within 30 calendar days after the end of each quarter, “No Spill” certification statements in the CIWQS Online SSO Database certifying that there were no SSOs for each month in the quarter being reported on. For quarterly reporting, the quarters are Q1 - January/ February/ March, Q2 -April/May/June, Q3 - July/August/September, and Q4 - October/November/December. If there are no SSOs during a calendar month but the enrollee reported a PLSD, the District shall still certify a “No Spill” certification statement for that month.

4. Amended SSO Reports

The District may elect to update or add additional information to a certified SSO report within 120 calendar days after the SSO end date by amending the report or by adding an attachment to the SSO report in the CIWQS Online SSO Database. SSO reports certified in the CIWQS Online SSO Database prior to the adoption date of this MRP may only be **amended up to 120 days after the effective date of this MRP**. After 120 days, the District may contact the SSO Program Manager to request to amend an SSO report if the District also submits justification for why the additional information was not available prior to the end of the 120 days.

Technical Report

The District shall submit an SSO Technical Report in the CIWQS Online SSO Database within 45 calendar days of the SSO end date for any SSO in which 50,000 gallons or greater are spilled to surface waters. This report, which does not preclude the Water Boards from requiring more detailed analyses if requested, shall include at a minimum, the following:

- **Causes and Circumstances of the SSO**
 - a. Complete and detailed explanation of how and when the SSO was discovered.
 - b. Diagram showing the SSO failure point, appearance point(s), and final destination(s).
 - c. Detailed description of the methodology employed and available data used to calculate the volume of the SSO and, if applicable, the SSO volume recovered.
 - d. Detailed description of the cause(s) of the SSO.
 - e. Copies of original field crew records used to document the SSO.
 - f. Historical maintenance records for the failure location.
- **The District’s Response to SSO:**
 - a. Chronological narrative description of all actions taken by the District to terminate the spill.
 - b. Explanation of how the SSMP Overflow Emergency Response plan was implemented to respond to and mitigate the SSO.
 - c. Final corrective action(s) completed and/or planned to be completed including a schedule for actions not yet completed.

- **Water Quality Monitoring:**
 - a. Description of all water quality sampling activities conducted including analytical results and evaluation of the results.
 - b. Detailed location map illustrating all water quality sampling points.

a. Private Lateral Sewer Discharge (PLSD)

Discharges of untreated or partially treated wastewater resulting from blockages or other problems within a privately owned sewer lateral connected to the Districts sanitary sewer system or from other private sanitary sewer system assets may be voluntarily reported to the CIWQS Online SSO Database.

The District is also encouraged to provide notification to Cal OES as stated in section 5.2 when a PLSD greater than or equal to 1,000 gallons has or may result in a discharge to surface water. For any PLSD greater than or equal to 1,000 gallons regardless of the spill destination, the District is also encouraged to file a spill report as required by Health and Safety Code section 5410 et. seq. and Water Code section 13271, or notify the responsible party that notification and reporting should be completed as specified and required by State law.

If a PLSD is recorded in the CIWQS Online SSO Database, the District must identify the sewage discharge as occurring and caused by a private sanitary sewer system asset and should identify a responsible party, if known. Certification of PLSD reports by the District is not required.

Reporting of SSOs from private laterals or private sewer collection systems should be determined on a case by case basis. Private SSOs should be documented and reported to the Operations Manager or the Collection Systems Supervisor. Depending on the circumstances, the SSO may be reported to the CIWQS SSO Database, to local jurisdictions, to the County Environmental Health Department, to the State Office of Housing and Urban Development, or other applicable entity.

5.3 CIWQS SSO DATABASE ON-LINE REPORTING

The District has enrolled in the California Integrated Water Quality System (CIWQS) and utilizes the online SSO Database, as required for spill reporting. On-line reports will generally be completed and certified by the Collections System Supervisor, the Operations Manager or the General Manager.

At a minimum, the following mandatory information must be included prior to finalizing and certifying a SSO report for each category of SSO:

Mandatory SSO Information:

a. Draft Category 1 SSOs:

The following mandatory information shall be reported for a draft Category 1 SSO report:

1. SSO Contact Information: Name and telephone number of District contact person who can answer specific questions about the SSO being reported.
2. SSO Location Name.
3. Location of the overflow event (SSO) by entering GPS coordinates. If a single overflow event results in multiple appearance points, provide GPS coordinates for

- the appearance point closest to the failure point and describe each additional appearance point in the SSO appearance point explanation field.
4. Whether or not the SSO reached surface water, a drainage channel, or entered and was discharged from a drainage structure.
 5. Whether or not the SSO reached a municipal separate storm drain system.
 6. Whether or not the total SSO volume that reached a municipal separate storm drain system was fully recovered.
 7. Estimate of the SSO volume, inclusive of all discharge point(s).
 8. Estimate of the SSO volume that reached surface water, a drainage channel, or was not recovered from a storm drain.
 9. Estimate of the SSO volume recovered (if applicable).
 10. Quantity of SSO appearance point(s).
 11. Description and location of SSO appearance point(s). If a single sanitary sewer system failure results in multiple SSO appearance points, each appearance point must be described.
 12. SSO start date and time.
 13. Date and time the District was notified of, or self-discovered, the SSO.
 14. Estimated operator arrival time.
 15. For spills greater than or equal to 1,000 gallons, the date and time Cal OES was called.
 16. For spills greater than or equal to 1,000 gallons, the Cal OES control number.

b. Certified Category 1 SSOs:

The following mandatory information shall be reported for a certified Category 1 SSO report, in addition to all fields in section 5.3a:

1. Description of SSO destination(s).
2. SSO end date and time.
3. SSO causes (mainline blockage, roots, etc.).
4. SSO failure point (main, lateral, etc.).
5. Whether or not the spill was associated with a storm event.
6. Description of spill corrective action, including steps planned or taken to reduce, eliminate, and prevent reoccurrence of the overflow; and a schedule of major milestones for those steps.
7. Description of spill response activities.
8. Spill response completion date.
9. Whether or not there is an ongoing investigation, the reasons for the investigation and the expected date of completion.
10. Whether or not a beach closure occurred or may have occurred as a result of the SSO.

11. Whether or not health warnings were posted as a result of the SSO.
12. Name of surface water(s) impacted.
13. If water quality samples were collected, identify parameters the water quality samples were analyzed for. If no samples were taken, NA shall be selected.
14. If water quality samples were taken, identify which regulatory agencies received sample results (if applicable). If no samples were taken, NA shall be selected.
15. Description of methodologies and type of data relied upon for estimations of the SSO volume discharged and recovered.
16. SSO Certification: Upon SSO Certification, the CIWQS Online SSO Database will issue a final SSO identification (ID) number.

c. Draft Category 2 SSOs:

The following mandatory information shall be reported for a draft Category 2 SSO report:

- Items 1-14 in section 5.3a above for Draft Category 1 SSO

d. Certified Category 2 SSOs:

The following mandatory information shall be reported for a certified Category 2 SSO report:

- Items 1-14 in section 5.3a above for Draft Category 1 SSO
- Items 1-9, and 17 in section 5.3b above for Certified Category 1 SSO

e. Certified Category 3 SSOs:

The following mandatory information shall be reported for a certified Category 3 SSO report:

- Items 1-14 in section 5.3a above for Draft Category 1 SSO
- Items 1-5, and 17 in section 5.3b above for Certified Category 1 SSO

6.0 SPILLS AFFECTING PRIVATE PROPERTY

SSOs, regardless of size, have the potential to cause backups or flooding inside of homes or businesses. This type of sewer backup is one of District's greatest general liability exposures. Effective risk management following a sewer backup event requires preplanning and coordinated efforts between

- District field emergency response staff
- District supervisory staff
- District management
- Response and restoration contractor(s)
- CSRMA insurance claims administrator
- Affected property owners and/or tenants

Each party has a specific role to play, and the failure of any party to carry out their responsibilities can negatively affect the resolution of an incident or claim.

6.1 RESPONSE PROCEDURES FOR SEWER BACKUPS

Detailed response procedures for sewer backups that affect private property are provided in a simple flow chart format at the end of this section. It is important that these procedures be strictly followed. The first step – determining responsibility for the sewer backup – is crucial to the process. District staff responding to a private property spill should call in support staff or supervisory staff if this determination cannot clearly be made.

6.2 CUSTOMER RELATIONS

It is important for employees to communicate effectively with District customers, especially in sewage backup situations. How we communicate – on the phone, in writing, or in person – is how we are perceived. Good communication with the property owner results in greater confidence in our ability to address the problem satisfactorily.

In sewer backup situations, District employees will occasionally have to deal with irate or frustrated homeowners, business owners or tenants. Even normally calm persons can become unreasonable when their property is damaged and the responding party fails to effectively communicate and provide assurance that we will handle the situation professionally.

A few communication tips are provided below for responders.

- Give the homeowner ample time to explain the situation or to vent. Show interest in what the homeowner has to say, no matter how many times you have heard it before, or how well you understand the problem.
- As soon as possible, let the customer know that you will find the source of the problem and will have it corrected as quickly as you can.
- Acknowledge the customer's concerns. For example, if the homeowner seems angry or worried about property damage, say something like "I understand your concern about damage to your property, but a professional cleaning can restore the area and make it safe, and if it is determined that the District is at fault, our insurance company will take

care of any repairs or losses you have suffered as a result of this incident”.

- Express regret for any inconveniences caused by the incident.
- As much as possible, keep the customer informed on what is being done and what will be done to correct the problem.
- Keep focused on getting the job done in a very professional manner.
- Don't find fault or lay blame on anyone.
- Before you leave, make sure the customer has the name and telephone number of someone at the District and our insurance company (Carl Warren) in case they have any questions or need information.
- Make sure someone follows up with a telephone call to ensure everything is being handled as it should be.

6.3 FORMS AND CUSTOMER INFORMATION

Appendix G contains forms and information sheets that are to be used by District staff or to be provided to customers impacted by a sewer backup.

- **Sewer Backup Incident / Claim Report** – This report form should be completed (in addition to SSO Report Form) for sewer backups into private property.
- **Customer Information Regarding Sewer Backup Claims** – This form letter should be completed by District staff and provided to the affected customer. It provides contact information and specific instructions to customers regarding cleaning and restoration. Complete in duplicate and obtain an acknowledgement of receipt by the customer.
- **CSRMA Government Claim Form**- In the event the homeowner or business owner elects to submit a claim for damages, reimbursement etc... The claimant is to submit a government claim form (provided by CSD) to the District with supporting documentation for the District to review and process.
- **Hotel Authorization Form** – This form is a voucher that should be given to affected homeowners who need or desire alternative accommodations following a sewer backup. The customer can use the voucher for one night's stay at a local hotel. Subsequent night(s) must be approved by the District's insurance adjustor.
- **Release of All Claims for Sewer Backup Losses** – This form of agreement is to be used by the Claims Administrator or the General Manager upon completion of a sewer backup claim. This form should not be distributed to customers in the field.
- **CSRMA Sewer Backup Claims Submittal Checklist** – This checklist is for use by District staff to document the submittal of appropriate information to Carl Warren and to affected customer(s).

6.4 POST EVENT INVESTIGATION & DEBRIEFING

After each SSO caused by a blockage in the mainline or lower lateral, Collections personnel will perform a CCTV inspection. One line segment upstream of the SSO location, the line segment where the blockage occurred, and one additional line segment downstream will undergo CCTV inspection immediately following the SSO event to document the condition of the line segment and determine the actual cause of the SSO.

Even if the SSO is conclusively determined to be caused by an issue not related to the gravity sewer main (e.g. blockage in a manhole, force main failure, etc.), the line segments in the area of the SSO should still undergo CCTV inspection to document pipe conditions and retained as evidence for future inquiries. If for any reason subsequent CCTV inspection is not performed, the justification must be documented on the CSD SSO Report Form.

The objective of the subsequent inspections is to determine the cause of the SSO, to identify additional investigation activities needed, and to identify corrective or preventive action(s) that will reduce or eliminate the potential for an SSO to recur at that location. A secondary goal of this effort is to ensure all relevant data has been collected and reported to the appropriate entities.

The Collections System Supervisor will perform a failure analysis which includes review of all relevant data to determine the appropriate corrective action(s) for the line segment. The analysis should include:

- Review of the information in the SSO Report Form;
- Review of past maintenance records (including past overflow history, if appropriate);
- Review of available photographs;
- Review of CCTV inspection results; and
- Interviews with all staff who responded to the spill.

Based on the outcome of this analysis, it may be determined that a repair is needed, a structural improvement is necessary, or that the frequency of cleaning be accelerated to address any recurring maintenance issues.

Post Event Debriefing

Every SSO event is an opportunity to thoroughly evaluate the response and reporting procedures. Each overflow event is unique with its own elements and challenges including volume, cause, location, terrain, and other parameters.

As soon as possible after major SSO events, the Collections System Supervisor will assemble all of the participants to review the procedures used and to discuss what worked well and where improvements could be made in responding to and mitigating future SSO events. The results of the debriefing will be recorded and distributed to all staff that may be likely to respond to an overflow in the future. The goal of this effort is to ensure that the response procedures to future SSOs are augmented and improved based on past experience.

7.0 SSO TRAINING AND PREPAREDNESS

The components and goals of this Sewer Overflow Response Plan should be understood by personnel at all levels of responsibility. Properly trained personnel are more capable of responding safely and effectively when a spill event occurs. It is important to test the plan by scheduling regular exercises to promote preparedness.

Training facilitators must determine what is to be tested: plans, SOPs, equipment, facilities, etc. They also must determine who is to be trained: existing personnel, new personnel, outside agencies or standby contractors.

The purpose of training is for participants to become familiar with the conditions of an emergency, to visualize response roles, and to address procedural conflicts or difficulties. Benefits of the exercise include:

- Reveal planning weaknesses
- Identify resource gaps
- Clarify real roles and capabilities
- Improve coordination, performance and confidence
- Build teamwork

Ways to test the plan include these three simulation techniques:

Orientation Exercise: Briefing through lecture or visuals. This is an introductory session to instruct employees on plan and required documentation.

Tabletop Exercise: A sewage spill event is simulated without the use of equipment or deployment of resources. The steps taken are explained verbally to a facilitator. Exercise effectiveness is determined by the feedback from the participants and impact on revisions to plans, procedures, and systems.

Functional Full-Scale Exercise: A sewage spill event is simulated with the use of equipment or deployment of resources. Controllers monitor and record actions. This type of exercise not only allows for the re-evaluation of plan objectives, but it also tests equipment, response time, training needs, resources and staff capabilities.

All exercises need to have follow-up meetings to critique strengths and weaknesses, and to recommend improvements.

Records of equipment and SSO Training can be found in **Appendix J**.

APPENDIX A

SSO Response Flow Chart

CSD SANITARY SEWER OVERFLOW RESPONSE PROCEDURE

REPORT OF SSO RECEIVED BY FIELD STAFF

For all SSOs – perform an initial evaluation and contact Supervisor if more support is required.

Is SSO in CSD Service Area?

Notify Appropriate Jurisdiction, Affected Property Owner(s) and Responsible Party

GO TO SHEET 2 (Mainline SSOs)

Is SSO from Lateral or Mainline?

GO TO SHEET 2 (Mainline SSOs)

Is Mainline Flowing Normally?

Is There a Property Line Cleanout?

- 1. Notify property owner that problem is not District responsibility.
- 2. Provide plumbing contractor references or other response guidelines as appropriate.
- 3. Complete Incident Report Form.

- 1. Use the lateral jetter to restore flow in the lower lateral.
- 2. Cleanup SSO and disinfect area following standard response procedures.
- 3. Take photographs before/after cleanup.
- 4. Perform CCTV inspection of lateral and schedule necessary repairs or maintenance.
- 5. Complete SSO Report Form and required reporting

Is Lateral Sewer Flowing Normally?

- 1. Notify property owner that problem is within building sewer and not District responsibility.
- 2. Provide plumbing contractor references or other response guidelines as appropriate.
- 3. Complete Incident Report Form.

Did Sewage Backup Into Private Property?

FOLLOW PROCEDURE IN SECTION 6 AND COMPLETE APPENDIX G FORMS

Task Complete

CSD SANITARY SEWER OVERFLOW RESPONSE PROCEDURES

FROM SHEET 1

MAINLINE SSO REPORTED OR VERIFIED

For all SSOs – perform an initial evaluation and contact Supervisor if more support is required.

Dispatch Response Crew With Proper Equipment, PPE and Response Materials.

1. Set up Vactor at the Nearest Non-Surcharged Manhole Downstream of the Overflowing Manhole(s).
2. Use Penetrating Nozzle to Clear Blockage.

1. Divert Spill Away From Sensitive Areas.
 - storm drains, waterways, schools, playgrounds, etc.
 - use dirt, sandbags or other materials to divert the flow
2. Contain Spill and Return to Collection System, if Possible.
 - use Vactor to Vacuum Liquid or Portable Pumps
3. Take Photographs Before/After Cleanup.
4. Wash and Disinfect Affected Area in Accordance With Standard Response and Cleanup Procedures.

Determine Spill Category

CATEGORY 1
Discharges of untreated or partially treated wastewater of **any volume** that reaches surface waters, tributary or MS4.
(see section 2.0 for more information)

CATEGORY 2
Discharges of untreated or partially treated wastewater **equal to or greater than 1,000 gallons** that **do not** reach surface waters, drainage channel or MS4.
(See section 2.0 for more information.)

Category 3
All other discharges of untreated or partially treated wastewater.

1. Complete SSO Report Form.
2. Within 2 Hours Contact State Office of Emergency Services to Report SSO and obtain Control Number.
3. Report to RWQCB and Environmental Health Department ASAP.

1. Complete SSO Report Form.

Did SSO Enter Stormdrain or Waterway?

NO → Task Complete

YES

1. Contain and capture wastewater if possible.
2. Collect Water Samples for Analysis at District Laboratory.
 - use sampling kit/instructions on response vehicle
3. Notify Additional Response Agencies as Necessary.
 - CA Department of Fish Game, City of Carpinteria, etc.

FOR ALL MAINLINE SSOs

1. Complete On-Line CIWQS Reporting and File Written Reports Within Established Time-Frames.
2. Investigate Cause of SSO – Use CCTV Inspection or Other Tools to Identify Contributory Factors.
3. Schedule Necessary Repairs and/or Routine Maintenance Activities to Prevent Future Recurrences.

APPENDIX B

SSO Volume Estimation Procedures

SSO VOLUME ESTIMATION PROCEDURES

A variety of approaches exist for estimating the volume of a sanitary sewer spill. This appendix outlines the three methods that are most often employed. The person preparing the estimate should use the method most appropriate to the sewer overflow in question and use the best information available.

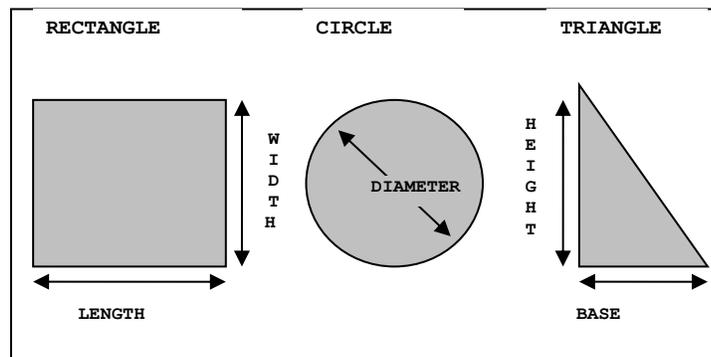
Method 1 Eyeball Estimate

The volume of small spills can be estimated using an “eyeball estimate”. To use this method imagine the amount of water that would spill from a bucket or a barrel. A bucket contains 5 gallons and a barrel contains 50 gallons. If the spill is larger than 50 gallons, try to break the standing water into barrels and then multiply by 50 gallons. This method is useful for contained spills up to approximately 200 gallons.

Method 2 Measured Volume

The volume of most small spills that have been contained can be estimated using this method. The shape, dimensions, and the depth of the contained wastewater are needed. The shape and dimensions are used to calculate the area of the spills and the depth is used to calculate the volume.

Figure F1 - Basic Geometric Shapes For SSO Volume Estimation



Step 1: Sketch the shape of the contained sewage (see Figure F1).

Step 2: Measure or pace off the dimensions.

Step 3: Measure the depth at several locations and select an average.

Step 4: Convert the dimensions, including depth, to feet.

Step 5: Calculate the area in square feet using the following formulas:

Rectangle: Area = length (feet) x width (feet)

Circle: Area = diameter (feet) x diameter (feet) x 3.14

Triangle: Area = base (feet) x height (feet) x 0.5

Step 6: Multiply the area (square feet) times the depth (in feet) to obtain the volume in cubic feet.

Step 7: Multiply the volume in cubic feet by 7.5 to convert it to gallons

Method 3 Duration and Flowrate

Calculating the volume of larger spills, where it is difficult or impossible to measure the area and depth, requires a different approach. In this method, separate estimates are made for the duration of the spill and the flow rate. The methods of estimating duration and flow rate are:

Duration: The duration is the elapsed time from the time the spill started to the time that the flow was restored.

Start time: The start time is sometimes difficult to establish. Here are some approaches:

- Local residents can be used to establish start time. Inquire as to their observations. Spills that occur in rights-of-way are usually observed and reported promptly. Spills that occur out of the public view can go on longer. Sometimes observations like odors or sounds (e.g. water running in a normally dry creek bed) can be used to estimate the start time.
- Changes in flow on a downstream flow meter can be used to establish the start time. Typically the daily flow peaks are “cut off” or flattened by the loss of flow. This can be identified by comparing hourly flow data during the spill event with flow data from prior days.
- Conditions at the spill site change over time. Initially, there will be limited deposits of toilet paper and other sewage solids. After a few days to a week, the sewage solids form a light-colored residue. After a few weeks to a month, the sewage solids turn dark. The quantity of toilet paper and other materials of sewage origin increase over time. These observations can be used to estimate the start time in the absence of other information. Taking photographs to document the observations can be helpful if questions arise later in the process.
- It is important to remember that spills may not be continuous. Blockages are not usually complete (some flow continues). In this case the spill would occur during the peak flow periods (typically 10:00 to 12:00 and 13:00 to 16:00 each day). Spills that occur due to peak flows in excess of capacity will occur only during, and for a short period after, heavy rainfall.

End time: The end time is usually much easier to establish. Field crews on-site observe the “blow down” that occurs when the blockage has been removed. The “blow down” can also be observed in downstream flow meters.

Flow Rate: The flow rate is the average flow that left the sewer system during the time of the spill.

There are three common ways to estimate the flow rate:

- 1) The San Diego Manhole Flowrate Chart: This chart, included at the end of this Appendix, shows sewage flowing from manhole covers at a variety of flow rates. The observations of the field crew can be used to select the appropriate flow rate from the chart. If possible, photographs are useful in documenting the basis for the flow rate estimate.
- 2) Flowmeter: Changes in flows in downstream flow meters can be used to estimate the flow rate during the spill.

- 3) Counting Connections: Once the location of the spill is known, the number of upstream residential connections can be determined from atlas maps. Multiply the number of connections by 200 gallons per day per connection or 8.3 gallons per hour per connection.

For example:

$$\begin{aligned} & 22 \text{ upstream connections} \times 8.3 \text{ gallons per hour per connection} \\ & = 183 \text{ gallons per hour} / 60 \text{ minutes per hour} \\ & = 3.1 \text{ gallons per minute} \end{aligned}$$

- 4) Hydraulic Model Flow Rates: For larger spills, the District's computer based hydraulic model may be queried to determine model flow rates at any point within the collection system.

Spill Volume: Once duration and flow rate have been estimated, the volume of the spill is the product of the duration in hours or days and the flowrate in gallons per hour or gallons per day.

For example:

$$\begin{aligned} & \text{Spill start time} = 11:00 \\ & \text{Spill end time} = 14:00 \\ & \text{Spill duration} = 3 \text{ hours} \\ & 3.1 \text{ gallons per minute} \times 60 \text{ minutes per hour} \times 3 \text{ hours} \\ & = 558 \text{ gallons} \end{aligned}$$



City of San Diego
Metropolitan Wastewater Department

**Reference Sheet for Estimating Sewer Spills
from Overflowing Sewer Manholes**
All estimates are calculated in gallons per minute (gpm)

Wastewater Collection Division
(619) 654-4160



5 gpm



25 gpm



50 gpm



100 gpm



150 gpm



200 gpm



225 gpm



250 gpm



275 gpm

All photos were taken during a demonstration using metered water from a hydrant in cooperation with the City of San Diego's Water Department.

APPENDIX C

SSO Report Form

Regulatory Reporting Guide

Phone Reporting Script

SSO Regulatory Agencies Contact Information

CARPINTERIA SANITARY DISTRICT

Sanitary Sewer Overflow Report (Side A)

Spill Category (*check one*):

- Category 1: Discharge of untreated or partially treated wastewater of any volume resulting from a sanitary sewer system failure or flow condition that either (1) Reaches surface water and/or drainage channel tributary to a surface water; OR (2) Reached a Municipal Separate Storm Sewer System (MS4) and was not fully captured and returned to the sanitary sewer system or otherwise captured and disposed of properly.
- Category 2: Discharge of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from a sanitary sewer system failure or flow condition that either (1) Does not reach surface water, a drainage channel, or an MS4, OR (2) The entire SSO discharged to the storm drain system was fully recovered and disposed of properly.
- Category 3: All other discharges of untreated or partially treated wastewater resulting from a sanitary sewer system failure or flow condition
- Spill from Private Lateral

Describe in detail the basis for choosing the spill category:

IMMEDIATE NOTIFICATION: If this is a Category 1 spill, contact CalOES within 2 hours at (800) 852-7550.

A. SPILL LOCATION

Spill Location Name:		
Latitude Coordinates:	Longitude Coordinates:	
Street Name and Number:		
Nearest Cross Street:	City: Carpinteria	Zip Code: 93013
County: Santa Barbara	Spill Location Description:	

B. SPILL DESCRIPTION

Spill Appearance Point (check one or more): <input type="checkbox"/> Building/Structure <input type="checkbox"/> Force Main <input type="checkbox"/> Gravity Sewer <input type="checkbox"/> Pump Station <input type="checkbox"/> Other Sewer System Structure (<i>i.e. cleanout</i>) <input type="checkbox"/> Manhole- Structure ID#: _____ <input type="checkbox"/> Other (<i>specify</i>): _____	
Did the spill reach a drainage channel and/or surface water? <input type="checkbox"/> Yes (<i>Category 1</i>) <input type="checkbox"/> No	
If the spill reached a storm sewer, was it fully captured and returned to the Sanitary Sewer? <input type="checkbox"/> Yes <input type="checkbox"/> No (<i>Category 1</i>)	
Was this spill from a private lateral? <input type="checkbox"/> Yes <input type="checkbox"/> No If YES, name of responsible party: _____	
Discharged into: <input type="checkbox"/> Ocean/ocean beach <input type="checkbox"/> Waters of the state other than ocean <input type="checkbox"/> Drainage channel <input type="checkbox"/> Combined storm drain <input type="checkbox"/> Separate storm drain <input type="checkbox"/> Paved surface <input type="checkbox"/> Unpaved surface <input type="checkbox"/> Building/structure <input type="checkbox"/> Street/curb/gutter <input type="checkbox"/> Other: Provide name(s) of affected drainage channels, beach, etc.: _____	
Total Estimated spill volume (<i>in gallons – 1,000gal or more = Category 1</i>): _____ gallons	
Est. volume that reached a separate storm drain that flows to a surface water body: _____ gal	Recovered: _____ gal
Est. volume that reached a drainage channel that flows to a surface water body: _____ gal	Recovered: _____ gal
Est. volume discharged directly to a surface water body: _____ gal	Recovered: _____ gal
Est. volume discharged to land: _____ gal	Recovered: _____ gal
Calculation Methods: <input type="checkbox"/> Eyeball <input type="checkbox"/> Photo Comparison <input type="checkbox"/> Upstream Connections <input type="checkbox"/> Area/Volume <input type="checkbox"/> Lower Lateral <input type="checkbox"/> Other (describe): _____	

NOTE: Attach all Spill Volume Estimation documentation including calculations and summary.

C. SPILL OCCURRING TIME

Estimated spill start date:	Estimated spill start time:
Date spill reported to sewer crew:	Time spill reported to sewer crew:
Date sewer crew arrived:	Time sewer crew arrived:
Who was interviewed to help determine start time?	
Estimated spill end date:	Estimated spill end time:

NOTE: Attach detailed start time determination documentation.

* If multiple appearance points, use the GPS coordinates for the location of the SSO appearance point closest to the failure point/blockage.

CARPINTERIA SANITARY DISTRICT

Regulatory Reporting Guide (Side A)

ALWAYS document regulatory reporting regardless of whether the reporting is done during business hours or after hours.

Reporting Instructions				
Deadline	See Side B for definitions of the categories of spills of untreated or partially treated wastewater from publically owned sanitary sewer system.			Private Lateral Sewage Discharge (PLSD)
	Category 1	Category 2	Category 3	
2 hours after awareness of SSO	If the spill is greater than or equal to 1,000 gallons, notify CalOES at (800) 852-7550	Notify the County Health Department if public warning signs were posted. (optional)	Notify the County Health Department if public warning signs were posted. (optional)	Notify CalOES at (800) 852-7550 Required for agencies in the San Diego region. Optional for all other regions.)
48 Hours after awareness of SSO	If 50,000 gal or more were not recovered, begin water quality sampling and initiate impact assessment	-	-	-
3 Days after awareness of SSO	Submit Draft Spill Report in the CIWQS* database	Submit Draft Spill Report in the CIWQS* database	-	-
15 Days after response conclusion	Certify Spill Report in CIWQS*. Update as needed until 120 days after SSO end time	Certify Spill Report in the CIWQS* database. Update as needed until 120 days after SSO end time	-	-
30 Days after end of calendar month in which SSO occurred	-	-	Certify Spill Report in the CIWQS* database. Update as needed until 120 days after SSO end time	-
45 days after SSO end time	If 50,000 gal or more were not recovered, submit SSO Technical Report using CIWQS*	-	-	Submit Spill Report in the CIWQS* database (optional)

* In the event that the CIWQS database is not available, notify the State Water Resources Control Board (SWRCB) by phone.

Note: For reporting purposes in the CIWQS database, if one SSO event results in multiple appearance points, submit one report based on the location of the SSO failure point, blockage or location of the flow condition that caused the SSO, and provide descriptions of the locations of all other discharge points associated with the SSO event.

Additional Agency/City-Specific Reporting:

Report to:	Contact Information	Trigger for Reporting

CARPINTERIA SANITARY DISTRICT

Regulatory Reporting Guide (Side B)

Definitions of Spill Categories

Be sure to document how the category was determined.

Category	Definition
Category 1:	Discharge of untreated or partially treated wastewater of any volume resulting from a sanitary sewer system failure or flow condition that either: <ul style="list-style-type: none"> Reaches surface water and/or drainage channel tributary to a surface water; or Reached a Municipal Separate Storm Sewer System (MS4) and was not fully captured and returned to the sanitary sewer system or otherwise captured and disposed of properly.
Category 2:	Discharge of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from a sanitary sewer system failure or flow condition that either: <ul style="list-style-type: none"> Does not reach surface water, a drainage channel, or an MS4, or The entire SSO discharged to the storm drain system was fully recovered and disposed of properly.
Category 3:	All other discharges of untreated or partially treated wastewater resulting from a sanitary sewer system failure or flow condition

District Personnel Authorized to Perform Regulatory Reporting:

Name	Job Title	Business Hours	After Hours	Check if LRO*
Craig Murray	General Manager	(805) 684-7214 x 12	(805) 451-7804	X
Mark Bennett	Operations Manager	(805) 684-7214 x 17	(805) 452-3962	
Matt Oliver	Collections Supervisor	(805) 684-7214 x 22	(805) 451-7806	

* A Legally Responsible Official (LRO) is authorized to electronically sign and certify SSO reports in CIWQS.

CARRPINTERIA SANITARY DISTRICT

Regulatory Reporting Checklist: Category 1

Use this Checklist for Category 1 SSOs only
Refer to Regulatory Reporting Guide for contact information

STEP 1: Receive call from Collections Response Crew

- If the spill is greater than or equal to 1,000 gallons, confirm whether or not they have notified CalOES. If so, complete the information in Step 2. If not, go to Step 2 and make the notification.

STEP 2: 2-hour Notifications

Complete the following notifications within 2 hours of the time the agency was notified of the spill:

- Notify CalOES** at (800) 852-7550

Date Called: _____ Time called: _____ CalOES Control number: _____

STEP 3: Additional Notifications

Document any optional notifications:

- Notified:** _____
Time notified: _____ Spoke to _____ OR Left voicemail Faxed Emailed
- Notified:** _____
Time notified: _____ Spoke to _____ OR Left voicemail Faxed Emailed
- Notified:** _____
Time notified: _____ Spoke to _____ OR Left voicemail Faxed Emailed

STEP 4: Within 48-Hours after awareness of SSO

- Only if 50,000 gallons or more was not recovered, begin water quality sampling and initiate impact assessment.

STEP 5: Within 3 Days after awareness of SSO

- Submit a Draft Spill Report using the CIWQS online reporting database.

STEP 6: Within 15 Days after response conclusion

- Certify the Spill Report using the CIWQS online reporting database. Updates to the Spill Report may be made for up to 120 days following the conclusion of the SSO Response.

STEP 7: Within 45 Days after SSO end time

- Within 45 days after the conclusion of the SSO Response, submit an SSO Technical Report using the CIWQS online reporting database only if 50,000 gallons or more was spilled to surface waters.

CARPINTERIA SANITARY DISTRICT

Regulatory Reporting Checklist: Categories 2 & 3

Use this Checklist for Category 2 and 3 SSOs only

Refer to Regulatory Reporting Guide for contact information

STEP 1: Receive call from Collections Response Crew.

- Gather necessary information from caller for initial reporting.

STEP 2: Notifications

Document any optional reporting below:

- Document any optional notifications below:

- Notified:** _____
Time notified: _____ Spoke to _____ or Left voicemail Faxed Emailed
- Notified:** _____
Time notified: _____ Spoke to _____ or Left voicemail Faxed Emailed
- Notified:** _____
Time notified: _____ Spoke to _____ or Left voicemail Faxed Emailed
- Notified:** _____
Time notified: _____ Spoke to _____ or Left voicemail Faxed Emailed

STEP 3: Submit Draft Spill Report (Category 2 only)

- Submit a Draft Spill Report using the CIWQS online reporting database within 3 days after awareness of Category 2 SSO.

STEP 4: Certify Spill Report

- Certify the Spill Report using the CIWQS online reporting database:
 - Category 2 SSO: Within 15 days after the conclusion of the response
 - Category 3 SSO: Within 30 days after the end of the calendar month in which the SSO occurred
- Updates to the Spill Report may be made for up to 120 days following the conclusion of the SSO Response.

PHONE REPORTING SCRIPT

The following reporting format should be used when contacting another agency:

This is (name) of the Carpinteria Sanitary District. I have a sewage spill report to make. The District has experienced a sewer line blockage, resulting in the discharge of raw sewage. The blockage occurred at (time, date, and exact location). The quantity spilled was approximately (no. of gallons). A District maintenance crew was dispatched to the site at (time) to contain and cleanup the spill. The cause of the spill is (give cause if known). Cleanup operations were/will be completed by (time and date).

SSO NOTIFICATION CONTACT LIST

	Telephone	Criteria
CA Regional Water Quality Control Board Central Coast Region 3 895 Aerovista Place, Suite 101 San Luis Obispo, CA 93401	Ryan Lodge (805) 549-3506 Fax (805) 788-3590	All Category 1 SSOs
SB County Environmental Health Services 225 Camino del Remedio Santa Barbara, CA 93110	Richard Merrifield Willie Brummett (805) 681-4900 (805) 897-5446	All Category 1 SSOs
SB County Flood Control 130 E. Victoria Street, Suite 200, Santa Barbara, CA 93101	(805) 568-3440	
CA Office of Emergency Services (OES) 2800 Meadowview Road Sacramento, CA 95832	Spill Report Hotline (800) 852-7550	Spill into waterways >1000 gallons. <u>Get name of person and OES control number</u>
CA Department of Health Services 1180 Eugenia Place, Suite 200 Carpinteria, CA 93013-2000	Ellen Mendoza Gregg Langlosi (805) 566-1326	Backup contact to EHS
CA Department of Health Services 2151 Berkeley Way #118 Berkeley, CA 94704	Don Goms (510) 540-3600	SSO >1000 gallons that enters the Pacific Ocean
USEPA, Region IX 75 Hawthorne Street San Francisco, CA 94105	Ken Greenberg Spill Report Hotline (415) 972-3577	Any spill in waters of State >1000 gallons. Duty Officer will be contacted
CA Department of Fish and Game 3883 Ruffin Road San Diego, CA 92123 Attn: South Coast Region 5	Regional Manager Ed Pert (858) 467-4201	SSO that enters a creek or other natural waterway
CA Department of Transportation District 5 50 Higuera Street San Luis Obispo, CA 93401-5415	(805) 568-0858 (805) 654-4578	Any spill that affects State highway
City of Carpinteria 5775 Carpinteria Avenue Carpinteria, CA 93013	(805) 684-5405	Only if SSO is from a City owned facility.
Santa Barbara County Office of Emergency Services 4408 Cathedral Oaks Road Santa Barbara, CA 93110	(805) 681-5526	

APPENDIX D

District Emergency Response Contact List

EMERGENCY RESPONSE CONTACT LIST

Notification By the Public: The District has an automatic telephone answering program in its telephone system for after-hours calls. If the call is an emergency, the caller will be instructed to call the standby Collections Operator at (805) 451-7809.

Treatment Plant and Lift Station Emergencies: If an alarm occurs, the auto dialer system will start a call out sequence as follows:

Treatment Plant:	Operations Standby	(805) 451-7803
	Collection System Standby Operator	(805) 451-7809
	Operations Manager	(805) 452-3962
Collection System:	Collection System Standby Operator	(805) 451-7809
	Operations Standby	(805) 451-7803
	Operations Manager	(805) 452-3962

During normal working hours, if an emergency call from the public is received by Admin, SSO information (location, spill type, contact information, etc.) will be forwarded to the Collection System Supervisor (805) 451-7806 or the Operations Manager (805) 452-3962.

Lift Station Phone Numbers:

LS #1 (State Park)	(805) 280-2509	LS #5 (Polo Fields)	(805) 280-2562
LS #2 (Aliso School)	(805) 280-2006	LS #6 (Casa Blanca)	(805) 280-2031
LS #3 (Treatment Plant)	no number	LS #7 (Mission Terrace)	(805) 280-2047
LS #4 (Sandpiper)	(805) 280-2013	LS #8 (Rincon Point)	(805) 666-9187

District Employee's Phone Numbers:

<u>Name</u>	<u>Home Phone</u>	<u>Cell Phone</u>
Bennett, Mark	(805) 452-3962	(805) 452-3962
Balch, Kenneth	(805) 722-5801	
Gallup, Tim	(805) 448-6027	(805) 666-9193
Gonzales, Frank	(805) 684-5359	
Jimenez, John	(805) 729-3725	(805) 729-3725
Murray, Craig	(805) 969-0639	(805) 451-7804
Oliver, Matt	(805) 451-0711	(805) 451-7806
Rogers, Mark	(805) 570-9446	(805) 451-7802
Saenz, Eddie	(805) 680-6234	(805) 451-7809 or 666-9193
Sweningson, Paul	(805) 455-6081	(805) 451-7801 (field phone)
Taylor, Branson	(805) 453-5322	(805) 451-7801 (field phone)

Mutual Aid - Montecito Sanitary District

Montecito Sanitary District (MSD) has agreed to provide backup response in the event of a major SSO, equipment failure or another system emergency.

Primary Contact: Collection System Manager, Alex Alonzo Cell: (805) 216-0672
MSD Office: (805) 969-4200

APPENDIX E

Vendor and Contractor Support Contact Information

VENDOR AND SUPPORT CONTACT LIST

Vendor/Agency	Address	Phone Number	Service
Tierra Construction	5484 Overpass Rd. Santa Barbara, CA 93111	(805) 964-8747	General Engineering Contractor
Lash Construction	721 Carpinteria St. Santa Barbara, CA 93103	(805) 963-3553	General Engineering Contractor
Mac Brown Excavating	P.O. Box 8 Carpinteria, Ca 93013	(805) 331-2962	General Engineering Contractor
Z-Pipeline	2176 N Ventura Avenue Ventura, CA 93001	(805) 643-9396	General Engineering Contractor
Husted Plumbing	Carpinteria, CA	(805) 684-4331	Plumbing Contractor
Shaw Contracting	5360 Santa Rosa Ln Carpinteria, CA 93013	(805) 649-2107	General Engineering Contractor
Blum & Sons Electric	606 Linden Avenue Carpinteria, CA 93013	(805) 684-1010	Electrical Contractor
County Sanitation	PO Box 576 Summerland, CA 93067	(805) 682-3568	Vacuum Tanker and General Construction
Stewart's De-Rooting	735 S Kellogg Ave Goleta, CA 93117	(805) 965-8813	Vactor Combination Truck
Express Rooter	1126 Vallecito Rd. Carpinteria, CA 93013	(805) 684-2277	Small Jetter Truck
Valley Construction Sewer and Drain	1475 Sterling Ave Carpinteria, CA 93013	(805) 566-9503	Small Jetter Truck
Marborg Industries	728 E. Yanonali St. Santa Barbara, CA 93103	(805) 963-1852	Vacuum Tanker trucks
Godwin Pumps	5041 Ridgelea Avenue Buena Park, CA 90621	(714) 521-2256	Bypass Pumps/ Parts/Repair
Rain For Rent	333 S. 12th St. Santa Paula, CA 93061	(805) 399-9124	Bypass Pump Equipment
Quinn Company	801 Del Norte Boulevard Oxnard, CA 93030	(805) 485-2171	Emergency Generators

Ventura Pipe and Supply	1334 Callens Road. Ventura, CA 93003	(805) 658-0839	Pipe and Materials Supplier
Ferguson Pipe and Supply	602 E. Montecito St. Santa Barbara, CA 93103	(805) 644-8871	Pipe and Materials Supplier
Hertz Equipment Rental	3650 Market Street Ventura, CA 93003	(805) 658-9100	Equipment Rental
City of Santa Barbara	630 Garden Street, Santa Barbara, CA 93101	(805) 568-1020 Manuel Romero	Vactor Combination Truck
Goleta Sanitary District	One William Moffett Place Goleta, California 93117	(805) 967-4519	Vactor Combination Truck
Goleta West Sanitary District	UCSB Campus Park. Lot 32 Santa Barbara, CA 93106	(805) 968-2617	Vactor Combination Truck
Mc Cormix Corporation	55 Depot Rd. Goleta, CA, 92117	(805) 963-9366 (805) 452-8900	Gasoline/Diesel
Carpinteria Valley Water District	1301 Santa Ynez Ave. Carpinteria, CA 93013	(805) 684-2816	Utility Assistance Mutual Aid
Southern California Edison		(800) 655-4555	Utility Assistance
The Gas Company		(805) 681-8667	Utility Assistance
Carpinteria Summerland Fire Protection District	1140 Eugenia Place Carpinteria, CA 93013	(805) 684-4591	Evacuation Assistance
Carpinteria Sheriff Department	5775 Carpinteria Ave Carpinteria, CA 93013	(805) 684-4561	Evacuation Assistance
ServiceMaster Anytime	6485 Calle Real Goleta, CA 93117	(805) 963-1365	Cleanup & Restoration
ServPro	6485-H Calle Real Goleta, CA 93117	(805) 963-0606	Cleanup & Restoration
Qwik Response	130 Los Aguates Ave. Santa Barbara, CA 93101	(805) 962-6626	Cleanup & Restoration
Pacific Petroleum	P.O. Box 2646 Orcutt, CA 93457	Office (805) 925-1947 Cell (805) 260-5000	General Engineering Contractor

APPENDIX F

Emergency Response Equipment Inventory

EMERGENCY RESPONSE EQUIPMENT LIST

Equipment	Quantity	Location
Vactor Combination Unit (80GPM, 1" Mainline Jetter Hose) (20GPM, ½" Lateral Jetter Hose)	1	WWTP- Mechanics Shop
Skip Loader	1	WWTP- Site Grounds
125 kW portable generator	2	WWTP- Storage Building
25 kW portable generator	1	WWTP- Storage Building
Air Compressor	1	WWTP- Storage Building
6" Trash Pump	2	WWTP- Storage Building
3" Trash Pump	1	WWTP- Storage Building
3" Diaphragm Pump	1	WWTP- Storage Building
375' fire hose for bypass	375'	WWTP- Storage Building
Flow-through plugs	various sizes	WWTP- Storage Building
Air Plugs	various sizes	WWTP- Storage Building
Liquid Chlorine (hypo); 1 gallon +		WWTP- Storage Building
Suction hoses for trash pumps	various lengths	WWTP-Grit Room
CCTV Unit Van (2009-Envirosight)	1	WWTP- Storage Building
Spill Containment Boom & Sand Bags		WWTP/ Response Vehicles/City of Carp Yard
Gas Chop Saw	1	WWTP- Mechanics Shop
Barricades, Cones, Signs	assorted	WWTP- Storage Building
Gas and Diesel Cans	assorted	WWTP- Storage Building
Hudson Sprayer	2	WWTP- Storage Building
Mongoose 12 GPM Lateral Jetter	1	Collections 1-Ton Storage Building

APPENDIX G

CSRMA Private Property SSO Response Procedures

CSD Claims Submittal Checklist

Customer Information Regarding SSO Claims

Sewer Spill Reference Guide for Homeowner

CSRMA Sewer Backup/Claim Report

Hotel Authorization Form

Government Claim Form

Release of All Claims Form

CSRMA Contact Information

CSRMA Sewer Backup Response & Claims Handling Policy & Procedure

CSD is Notified of a Sewer Backup Event

District Field Crew Respond & Make Initial Determination of Responsibility

Does The Backup Appear To Be As A Result Of A Failure In The District's Sewer Lines?

NO

YES

District Field Crew Perform the Following:

1. Inform Owner/Tenant the cause of the backup is not in the District owned sewer lines and that the Member is not responsible for private service lines.
2. Document all evidence (*photos, diagrams, narrative, etc*) that the backup is not due to a failure in the Agency's sewer lines

District Field Crew Perform the Following:

1. Relieve the cause of the backup
2. Advise the customer to keep all family members/pets out of any contaminated areas
3. Notify District Field Point of Contact of the incident (*if not already on the scene*) & request permission to call out one the District's pre-approved restoration firms
4. If permission was granted, contact one the District's pre-approved restoration firms & request a crew be dispatched
5. Notify customer that an District representative (*if not already on the scene*) & that a restoration crew will arrive shortly
6. Take photos of affected & non-affected areas on the property
7. Follow the District's SSO Emergency Response Plan, as necessary, until either the restoration crew or the District Field Point of Contact arrives. (Supervisor or Ops. Manager)
8. If the restoration firm arrives before the District Field Point of Contact, authorize only emergency cleaning services (*i.e. no demolition*)

District Field Point of Contact Performs the Following:

1. Initiate contact with the Customer & provide the following:
 - "Agency Claim Form" or instructions on how to obtain a claim form
 - "Sewer Backup Customer Information Letter"
 - "Hotel Authorization", as necessary
2. Explain to the Customer that your District has authorized payment for emergency services only & that all future expenses &/or questions regarding claims issues must be discussed with Carl Warren & Co.
3. Complete the "Sewer Backup Summary Report"
4. Review the scope of emergency services proposed by the restoration firm.
5. Immediately contact Carl Warren & Co. & provide the following information:

- Customer contact information
- Extent of the backup
- Scope of services proposed by the restoration firm

Carl Warren & Company
After Hours: (855) 763-5898
Yumi Augustus (Litigation Mgr.)
(818) 265-6765

NOTE 1: If Carl Warren & Co. can't be immediately reached, use best professional judgment to determine if the scope of services proposed by the restoration firm is appropriate. If in doubt, limit the scope of services to that which seems reasonable until Carl Warren & Co. can be reached.

Note 2: If the severity of the backup is beyond your ability to manage, request Carl Warren & Co. provide a Field Examiner ASAP.

6. Collect the camera used by the Field Crew & take additional photos, as necessary
7. Gather all evidence/documentation of the following:
 - Cause of the backup
 - Extent of the damages caused by the backup
8. Forward all photos, completed Sewer Backup Summary Report & other documentation/evidence to the Claims Management Coordinator.

Go to Side 2

CSRMA Sewer Backup Response & Claims Handling Policy & Procedure

Start Here From Side 1

District "Claims Management Coordinator"

1. Review the Sewer Backup Summary Report, photos taken & all other documentation/evidence provided by the District Field Point of Contact
2. Set up a claims file and insert copies of all relevant information
3. *Immediately* contact Carl Warren & Co. & discuss the following:
 - Documentation gathered
 - Plan of action
 - Alternate living arrangements, if necessary (*ensure Carl Warren & Co. assumes responsibility for managing alternate living arrangements/incidentals from this point forward*)
4. Document the date, time & content of the discussion with Carl Warren & Co. and place in the claim file (*NOTE: document all phone conversations/other communication with the Customer & Carl Warren & Co. from this point forward & keep in the claim file*)
5. Immediately forward the Sewer Backup Summary Report, photos and all other relevant evidence/documentation gathered to Carl Warren & Co.
6. Direct all Customer concerns and questions regarding the adjustment of their claim to the Carl Warren & Co. Claims Adjustor or Account Manager or to the CSRMA Program Administrators
7. Communicate with the Claims Adjustor and/or Account Manager bi-weekly or as necessary to keep informed of the status of the claim and provide information, as necessary
8. Ensure the Claims File is kept current with all communications between Carl Warren & Co., the Customer, the restoration firm and other involved parties
9. Provide internal status reports, as necessary, to appropriate members of management staff

Carl Warren & Co. Perform The Following:

1. Initiate contact with Owner/Tenant as soon as possible, but no later than the first business day after notification of the loss
2. Make all necessary arrangements for lodging, food and incidentals beyond those made by the District immediately following the loss
3. Negotiate & oversee the restoration firms' work to ensure proper scope of cleaning, disinfection, & demolition
4. Investigate, adjust and administer claim to closure
5. Whenever prudent to do so, have claimant agree, as a condition of claims settlement, to install and maintain, at their expense, a Backwater Prevention Device meeting local requirements on their service lateral
6. For claims where the estimated settlement timeframe is greater than 30-days, provide the Agency's Claims Management Coordinator with status reports bi-weekly, as necessary or as requested by the Claims Management Coordinator.
7. For claims with issues complicating movement towards settlement, immediately notify the CSRMA Program Administrator's for guidance
8. When circumstances warrant or when requested, dispatch a Field Adjustor to the location of the sewer backup

CSRMA Sewer Backup Claims Submittal Checklist

I. Documents Delivered to Carl Warren

Item	Date
<input type="checkbox"/> Sewer Backup Customer Information Letter (signed original)	_____
<input type="checkbox"/> Sewer Backup Summary Report	_____
<input type="checkbox"/> Hotel Selection/Authorization Form (if applicable)	_____
<input type="checkbox"/> Lateral TV Report (if applicable)	_____
<input type="checkbox"/> Customer Service Response Form (Agency Work Order Form)	_____
<input type="checkbox"/> All Photos Taken (electronic or hardcopy)	_____
<input type="checkbox"/> Any Other Information Pertaining to the Incident/Claim	_____

II. Documents Delivered to the Homeowner

Item	Date
<input type="checkbox"/> Claim form, or information about how to obtain a claim form	_____
<input type="checkbox"/> Hotel Selection/Authorization Form (if applicable)	_____
<input type="checkbox"/> Customer Information Regarding Sewer Back-up Claims, or	_____
<input type="checkbox"/> Sewer Spill Reference Guide: Your responsibility as a private property owner	

Sewer Spill Reference Guide:

Your Responsibility as a Private Property Owner

What is a Sewage Spill?

Sewage spills occur when the wastewater being transported via underground pipes overflows through a manhole, cleanout, or broken pipe. Sewage spills can cause health hazards, damage to homes and businesses, & threaten the environment, local waterways, & beaches.

Common Causes of Sewage Spills:

- Grease builds up inside, and can eventually block sewer pipes. Grease gets into the sewer from food establishments, household drains, as well as from poorly maintained commercial grease traps & interceptors.
- Tree roots enter through broken/cracked lines and eventually block sewer pipes. Planting of trees and shrubbery over sewer lines should be avoided as this increases the likelihood of root intrusion leading to blockage problems.
- Structure problems caused by deteriorating sewer pipes, broken/cracked pipes, missing or broken cleanout caps, or undersized sewers can cause blockages.
- Infiltration & inflow (I/I) impacts pipe capacity and is caused when groundwater or rainwater enters the sewer system through pipe defects & illegal connections.
- CAUTION! When trying to locate a sewer problem, never open manholes or other sewer structures. Due to potential life-threatening hazards, only public entity personnel are allowed open & inspect these structures.

Who's Responsible for Sewer Repairs and Maintenance?

Each home or commercial building has a separate connection to the public sanitary sewer main called a sewer lateral. It is the property owner's responsibility to maintain & repair their own sewer lateral from the house to the point of connection with the public sanitary sewer line.

You Are Responsible for a Sewage Spill Caused by a Blockage or Break in Your Sewer Lines!

Time is of the essence in dealing with sewage spills. You are required to immediately:

- Control & minimize the spill. Keep spills contained on private property & out of gutters, storm drains, & public waterways by shutting off or not using the water.
- Use sandbags, dirt and/or plastic sheeting to prevent sewage from entering the storm drain system.
- It is recommended that a plumbing professional be called for clearing blockages & making necessary repairs. Plumbing contractors are listed in the yellow pages under "Plumbing Drain & Sewer Cleaning" or Sewer Contractors". If you hire a contractor, it's recommended that you get estimates from more than one company.
- Always notify your public sewer district of sewage spills. If the spill enters the storm drain also notify the Health Care Agency. In addition, if it exceeds 1,000 gallons notify the Governor's Office of Emergency Services. Refer to the numbers listed on back of this page.

You Could Be Liable for Not Protecting the Environment!

Allowing sewage from your home, business or property to discharge to a gutter or storm drain may subject you to penalties &/or out-of-pocket costs to reimburse cities or public agencies for clean-up and enforcement efforts.

- Local & state agencies have legal jurisdiction & enforcement authority to ensure that sewage spills are remedied.
- They may respond & assist with containment, relieving pipe blockages, and/or clean-up of the sewage spill, especially if the spill is flowing into storm drains or onto public property.
- A property owner may be charged for costs incurred by agencies responding to spills from private properties.

What to Look For:

Sewage spills can be a very noticeable gushing of water from a manhole or a slow water leak that may take time to be noticed. Don't dismiss unaccounted-for wet areas. Look for:

- Drain backups inside the building.
- Wet ground & water leaking around manhole lids onto your street.
- Leaking water from cleanouts or outside drains
- Unusual odorous wet areas: sidewalks, external walls, ground/landscape around a building.

Caution!

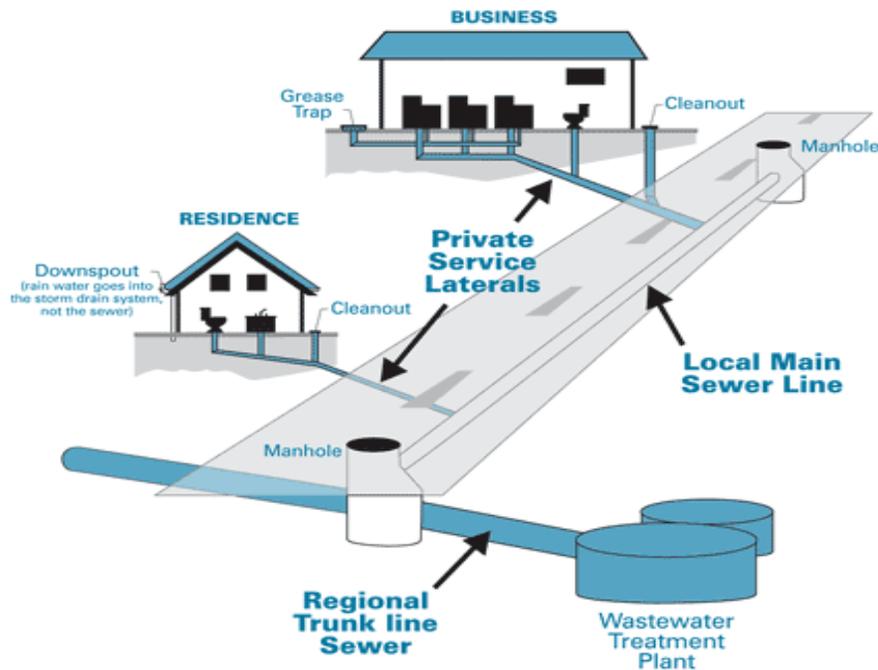
Keep people and pets away from the affected area. Untreated sewage has high levels of bacteria and may contain disease carrying viruses. Always be sure to wear gloves whenever working around raw sewage & to wash your hands when done.

Sewer Spill Reference Guide:

Your Responsibility as a Private Property Owner

How a Sewer System Works

A property owner's sewer pipes are called service laterals & are connected to larger local mainlines. Service laterals run from the connection at the home/building to the connection at the mainline. (including the area under the street). The District is responsible for all the mainlines. If there is a property line cleanout at the subject parcel, the property owner is responsible for the service lateral from the building connection to the property line cleanout "upper lateral". The District maintains the "lower lateral" that runs from the property line cleanout to the mainline. If there is no property line cleanout present, the property owner is responsible for the entire service lateral.



IF YOU HAVE A SEWAGE SPILL FROM YOUR PRIVATE SEWER LINE, CONTACT:

Carpinteria Sanitary District

Administration Office (805) 684-7214 Ext 10 (M-F 8-5) & After Hours Emergency (805) 451-7809

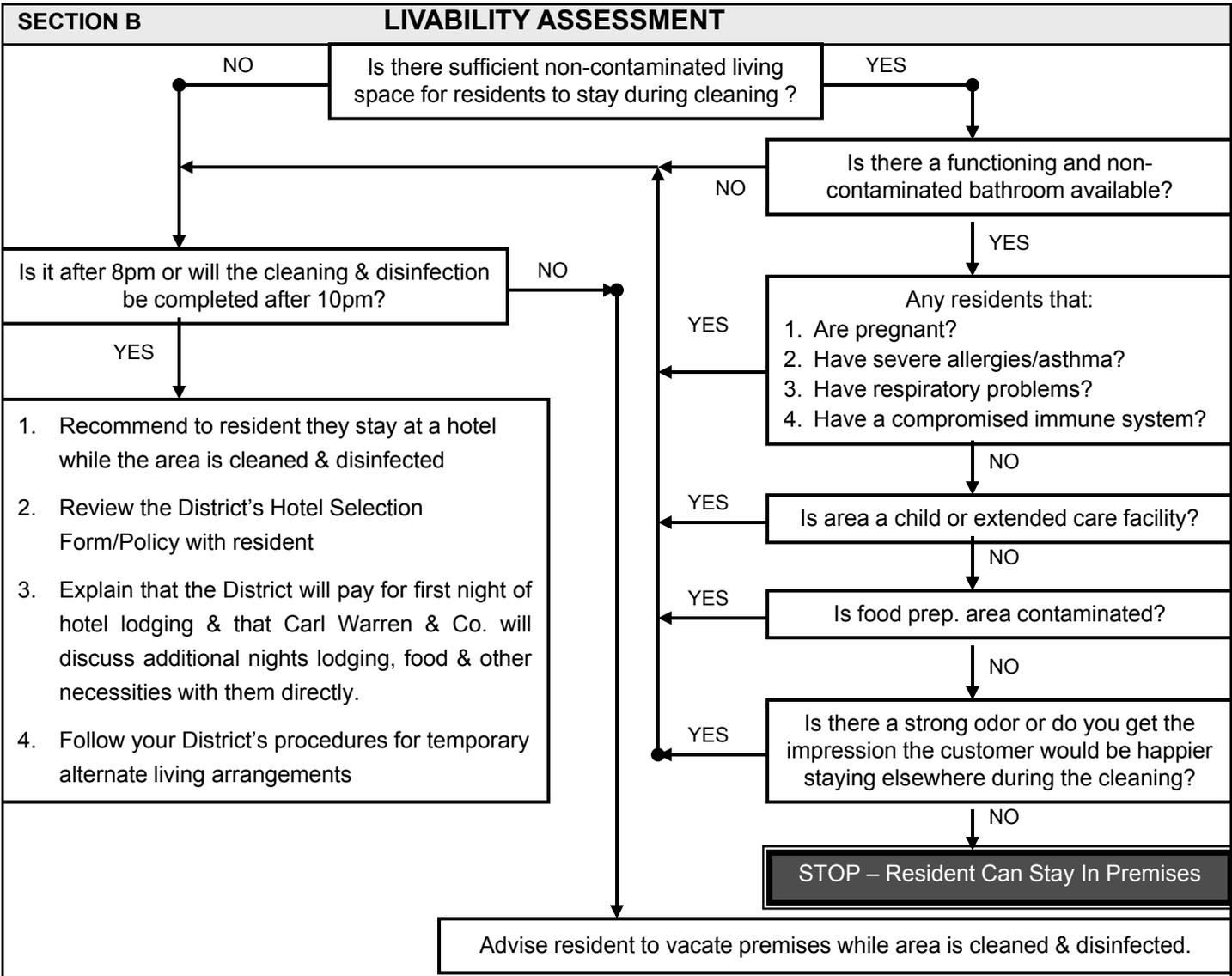
- California Health and Safety Code, Sections 5410-5416 requires:
 - No person shall discharge raw or treated sewage or other waste in a manner that results in contamination, pollution, or a nuisance.
 - Any person who causes or permits a sewage discharge to any state waters:
 - Must immediately notify the local health agency of the discharge.
 - Shall reimburse the local health agency for services that protect the public's health & safety.
 - Who fails to provide the required notice to the local health agency is guilty of a misdemeanor & shall be punished by a fine (between \$500-\$1,000) and/or imprisonment for less than one year.

Regional Water Quality Control Board: (805) 549-3147

- Requires the prevention, mitigation, response to and reporting of sewage spills.

California Office of Emergency Services: (800) 852-7550

- California Water Code, Article 4, Chapter 4, Sections 13268-13271 & California Code of Regulations, Title 23, Division 3, Chapter 9.2, Article 2, Sections 2250-2260 require:
 - Any person who causes or permits sewage in excess of 1,000 gallons to be discharged to state waters shall immediately notify the Office of Emergency Services.
 - Any person who fails to provide the notice required by this section is guilty of a misdemeanor and shall be punished by a fine (less than \$20,000) and/or imprisonment for not more than one year.



SECTION C SANITARY SEWER LINE BLOCKAGE LOCATION

PLEASE CHECK THE BOX THAT DESCRIBES YOUR OBSERVATIONS

Customer Cleanout Was:	District Structure Was		
	Non-Existent	Full	Empty
Non-Existent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Full	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Empty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Recommended Follow-Up Action(s):

Place an X where the blockage occurred
Circle the areas where sewage overflowed/ backed-up

Did sewage get under the building? Yes No Unknown

SECTION D CLEANING CONTRACTOR

Company Name: _____ Phone: _____ Arrival Time: _____

Comments: _____

Carpinteria Sanitary District

Customer Information Regarding Sewer Backup Claims

Address: _____

Dear Mr./Mrs. _____

DATE: _____

We recognize that sewer backflow incidents can be stressful and require an immediate response when all facts concerning how an incident occurred are unknown. Rest assured that we do all we can to prevent this type of event from occurring. Nevertheless, occasionally tree roots or other debris in the sewer lines can cause a backup into homes immediately upstream of the blockage. At this time the Carpinteria Sanitary District is investigating the cause of this incident.

If the Carpinteria Sanitary District is found to be responsible for the incident, we are committed to cleaning and restoring your property, and to protect the health of those affected during the remediation process.

The cleaning contractor provided by the Carpinteria Sanitary District has been selected because of their adherence to established protocols that are designed to assure all parties thorough, cost-effective and expeditious cleaning services. Carpinteria Sanitary District will pay this cleanup contractor's fee. You also have the right to select your own cleaning contractor, but Carpinteria Sanitary District does not guarantee payment of these expenses and reserves the right to refuse or dispute any fees that are not usual and customary.

The company assigned to **manage** the necessary cleaning and restoration process is _____, and you can reach them directly at _____. It is possible however that **other** contractors may be involved in any needed restoration service. Carl Warren and Company, noted below, has the final responsibility for processing any claims for damages that are submitted.

If you wish to discuss this matter, or submit a claim for damages, please contact either of the following:

- Craig Murray, General Manager – (805) 684-7214 ext. 12 or (805) 451-7804 cell
- Carl Warren and Company (Claims Administrator) : 818-265-6765**

What you need to do now:

Carpinteria Sanitary District has prepared this brief set of instructions to help you minimize the impact of the loss by responding promptly to the situation.

- Do not attempt to clean the area yourself, let the cleaning and restoration company assigned handle this.**
- Keep people and pets away from the affected area(s).**
- Do not remove items from the area – the cleaning and restoration company will handle this.**
- If you had recent plumbing work, contact your plumber or contractor and inform them of this incident.**
- If you intend to file a claim, do so as soon as practical –The California Government Code, Sections 900 - 960, requires the filing of a written claim and outlines specific timelines and notice procedures that must be used in order to have a claim considered.**

I/We acknowledge receipt of this letter.

Employee Signature: _____

Date: _____

Customer Signature: _____

Date: _____

**RELEASE OF ALL CLAIMS FOR SEWER BACKUP LOSSES
Carpinteria Sanitary District**

The undersigned, Carpinteria Sanitary District, being of lawful age, for the sole consideration for the **sum of:** _____ to be paid to them by Carpinteria Sanitary District do jointly and severally, for themselves and for their heirs, executors, administrators, successors and assigns releases, acquit and forever discharge Carpinteria Sanitary District and its officers, directors, employees, agents, servants and successors of and from any and all claims, actions, causes of action, demands, rights, damages, costs, loss of service, expenses and compensation whatsoever, which the undersigned now has or which may hereafter accrue on account of or in any way growing out of any and all known and unknown, foreseen and unforeseen bodily and personal injuries and property damages and the consequences thereof, resulting or to result from the accident, casualty or event which occurred on or about the date: _____ at or near address: _____.

It is further understood and agreed that all rights under Section 1542 of the Civil Code of California and any similar law of any state or territory of the United States are hereby expressly waived by the undersigned. Said section reads as follows:

"1542. Certain claims not affected by the general release. A general release does not extend to claims which the creditor does not know or suspect to exist in his favor at the time of executing the release, which if known by him must have materially affected his settlement with the debtor."

The undersigned hereby declare and represent that the damages and injuries sustained are or may be permanent and progressive and that recovery therefrom is uncertain and indefinite, and in making this Release, it is understood and agreed, that the undersigned relies wholly upon the undersigned's judgment, belief and knowledge of the nature, extent, effect, and duration of said damages and injuries and liability therefore and is made without reliance upon any statement or representation of the parties released or their representatives.

The undersigned further declare that they agree to install and maintain, at their expense, a sewer backflow prevention device on their private service lateral meeting all local, State and Federal requirements, including those of Carpinteria Sanitary District at subject address _____.

The undersigned agree that failure to install a backflow prevention device shall relieve Carpinteria Sanitary District of responsibility or liability for any and all subsequent damage caused by sanitary sewer flooding or backup that would have been prevented had such a back-flow prevention device had been installed.

The undersigned understand that they are solely responsible for the proper installation, operation and maintenance of building side sewers, fittings and devices and for obtaining the necessary construction and encroachment permits. The undersigned also understand that they are solely responsible keeping the 3' radius of the cleanout area clear of vegetation or any obstruction for visibility and easy access.

The undersigned further declare and represent that no promise, inducement or agreement not herein expressed in the release, has been made to the undersigned, and that this Release contains the entire agreement between the parties, and that the terms of this Release are contractual and not a mere recital.

THE UNDERSIGNED HAS READ THE ABOVE AND FULLY UNDERSTAND IT TO BE A FULL AND FINAL RELEASE OF ALL CLAIMS.

Signed, sealed and delivered this _____ day of _____, 20____.

Witness to Signature

Address of witness

Signature

Witness to signature

Signature

Address of witness

HOTEL AUTHORIZATION FORM

INSTRUCTIONS TO EMPLOYEE:

1. Review this form with the customer and instruct them to read and select, in order of preference, which of the hotels below they wish to stay at.
2. Call the hotels, in the order selected, to determine vacancy. Follow your Agency's hotel payment procedures for the selected hotel with vacancy.
3. Explain to customer that additional nights and other incidentals will be addressed by the District's General Manager or by Carl Warren and Co.
3. Instruct the customer that this emergency authorization is for LODGING ONLY – NO FOOD, MINIBAR, MOVIE, PHONE or Other Charges).
4. Have the customer sign the Acknowledgement section of this form.
5. Complete the voucher information and sign. Please note that an unsigned voucher will not be honored at the hotels.
6. Give the bottom copy of this form to the customer.

INSTRUCTIONS TO RESIDENT: The **Carpinteria Sanitary District** recommends that you temporarily relocate to one of the hotels listed below for your safety and convenience while your residence is being cleaned. Please note that this emergency authorization is granted under the following conditions:

1. The voucher authorizes payment of one (1) night's stay at one of the hotels listed below.
2. The voucher is good for **room and tax ONLY**. Phone, food, and other incidental charges will be your responsibility.
3. Additional nights/other allowances/incidentals may be discussed by contacting the District's General Manager at (805) 684-7214 or by Carl Warren and Co., the District's claims adjuster, at (888) 542-8001.
4. Please bring a photo ID with you so that hotel staff can verify the voucher's authenticity.

CUSTOMER ACKNOWLEDGEMENT:

I/we have read and understood the terms and conditions governing this offer of temporary relocation and agree to abide by them as described above.

Customer Name *(Please print)* _____

Customer Address: _____

Phone # Where Customer May Be Reached: _____

Customer Signature: _____ Date: _____

EMERGENCY HOTEL AUTHORIZATION VOUCHER

Good for one (1) night's Stay on *(date)* _____ Other Guest Name(s): _____

Field Supervisor Name: _____ Phone #: _____

Best Western Carpinteria Inn
4558 Carpinteria Avenue, Carpinteria
(805) 684-0473



Holiday Inn Express
5606 Carpinteria Avenue, Carpinteria
(805) 566-9499



Hotel Staff: Please direct any questions regarding this voucher to the District General Manager at (805) 451-7804



California Sanitation Risk Management Authority

Carl Warren Contacts and Claims Reporting Instructions

Please report all claims to: CSRMAclaims@carlwarren.com

Adjusting Team:

Alan Dialon	Sr. Examiner	O: 909-763-4320	adialon@carlwarren.com
Yumi Augustus	Litigation Manager	O: 818-265-6765	yaugustus@carlwarren.com

Administration:

Brandon Schlenker	Account Manager	O: 925-849-8305	bschlenker@carlwarren.com
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MyCarlWarren Report Center:

Standard Requests			Reports@carlwarren.com
Dixie Peralta	Reports Administrator	O: 925-849-8301	dperalta@carlwarren.com

Trust Accounting:

Kristin Miller	Trust Account Specialist	O: 657-622-4324	kmiller@carlwarren.com
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MyCarlWarren RMIS Assistance:

Email: MyCarlWarrenSetup@carlwarren.com

After-Hours/Emergency Situation:

Alan Dialon	Or On Call Adjuster	855-763-5898	
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APPENDIX H

Pump Station Specific Response Procedures

LIFT STATION RELATED RESPONSE PROCEDURES

Pump Station #1 (State Park)

This is the largest pump station in the District. A spill at Pump Station #1 must be immediately contained to prevent raw sewage from overflowing at an upstream manhole at Third and Ash. Note; there are several hours of detention time in the system depending on flow.

The Lift Station controller monitors the station level and tells the pumps to come on at predetermined levels using a level transducer. The status of the station is relayed to the SCADA system via secured radio network. In the event of controller failure a redundant controller will take over the pumps and use floats to turn the pumps on and off. Alarms are sent primarily on the SCADA system and backed up by an alarm auto dialer independent of the controller and SCADA system. Additionally the Lift Station has a Smart Cover manhole monitoring level in the manhole outside the station linked to a satellite and notification network.

Power Outage:

During a power outage the station SCADA alarm and auto dialer notifies the standby duty person. Pump Station #1 is fitted with a double throw safety switch located next to the main breaker panel. The safety switch has a 200 amp plug receptacle that accepts the plug from the 125 kW generators. The safety switch isolates the station manually from the incoming commercial power supply.

- 1) Contact the Operations Manager for additional personnel to assist in backing and placement of the generator trailer at the lift station site.
- 2) Hook up the 125 kW generator trailer to the tow vehicle.
- 3) **Before starting the 125 kW generator** check the main breaker on the generator to make sure it is in the “off” position. With assistance, place the generator inside of the gated area.
- 4) Connect the 200 amp plug to the double throw safety switch.
- 5) Bring the generator speed up to the full position. Move the double throw safety switch to “generator” position first, and then switch the generator main breaker to the “on” position.
- 6) Check the pump control panel and the VFDs for proper operating status.
- 7) The pump and generator operation must be monitored until normal commercial power is re-gained.
- 8) When power has been restored, reverse the process and monitor the station for normal operation before leaving. Notify the Operations Manager when done.

Wet Well and Pump Bypass:

If needed, the wet well and the pumps can be bypassed at the same time.

The 6" trash pump is set near the manhole in the grass. The pumps suction line is placed in the manhole and the discharge line is placed on the ground to the valved bypass line (force main). Close the 21" valve located in the comminutor pit and plug the relief line with an air plug. The trash pump can be turned on and off using the portable pump control floats. Someone must always be on site to monitor the pump unless temporary fencing is in place.

Pumps Only Bypass:

In case of a station pump failure the pumps can be bypassed using a 6" trash pump by connecting the bypass pump suction line to the PVC pipe in the comminutor pit and the discharge line to the above ground bypass valving. The trash pump can be turned on and off using the portable pump control floats.

If a spill has occurred upon arriving at the station:

- a. Determine cause of the failure, and take immediate corrective action to minimize/eliminate spill.
- b. Control raw sewage from running off away from the fenced area by whatever method necessary, such as sandbags, building a berm, etc.
- c. Cleanup area by vacuuming up water and debris and disinfect the area as per established practice.

Notify the Operations Manager that a crew has responded to a spill. In cases where the Operations Manager or Collection System Supervisor is not available, make all required verbal notifications in accordance with **Appendix C** in the timeframes specified.

LIFT STATION RELATED RESPONSE PROCEDURES

Pump Station #2 (Aliso School)

A spill at Lift Station #2 must be immediately contained to prevent raw sewage from flowing along the UPRR track easement area. Note; there are several hours of detention time in the system depending on flow.

The Lift Station controller monitors the station level and tells the pumps to come on at predetermined levels using a level transducer. The status of the station is relayed to the SCADA system via secured radio network. In the event of controller failure a redundant controller will take over the pumps and use floats to turn the pumps on and off. Alarms are sent primarily on the SCADA system and backed up by an alarm auto dialer independent of the controller and SCADA system. Additionally the Lift Station has a Smart Cover manhole monitoring level in the manhole outside the station linked to a satellite and notification network.

Power Outage:

During a power outage the station SCADA alarm and auto dialer notifies the standby duty person. Pump Station #2 is fitted with a double throw safety switch located next to the main breaker panel. The safety switch has a 200 amp plug receptacle that accepts the plug from the 125 kW generators. The safety switch isolates the station manually from the incoming commercial power supply.

- 1) Contact the Operations Manager for additional personnel to assist in backing and placement of the generator trailer at the lift station site.
- 2) Hook up the 125 kW generator trailer to the tow vehicle.
- 3) **Before starting the 125 kW generator** check the main breaker on the generator to make sure it is in the "off" position. With assistance, place the generator inside of the gated area.
- 4) Connect the 200 amp plug to the double throw safety switch.
- 5) Bring the generator speed up to the full position. Move the double throw safety switch to "generator" position first, and then switch the generator main breaker to the "on" position.
- 6) Check the pump control panel and the VFDs for proper operating status.
- 7) The pump and generator operation must be monitored until normal commercial power is re-gained.
- 8) When power has been restored, reverse the process and monitor the station for normal operation before leaving. Notify the Operations Manager when done

Wet Well and Pump Bypass:

If needed, the wet well and the pumps can be bypassed at the same time.

The 6" trash pump is set near the manhole outside the station. The pump's suction line is placed in the manhole and the discharge line is placed on the ground to the valved bypass line (force main). Plug the line with an air plug going from the manhole to the wetwell. The trash pump can be turned on and off using the portable pump control floats.

Pumps Only Bypass:

In case of a station pump failure the pumps can be bypassed using a 6" trash pump by connecting the bypass pump suction line to the PVC pipe in the wetwell through the window opening and the discharge line to the above ground bypass valving. The trash pump can be turned on and off using the portable pump control floats.

If a spill has occurred, and upon arriving at the station:

- a. Determine cause of the failure, and take immediate corrective action to minimize/eliminate spill
- b. Control raw sewage from running off away from the fenced area by whatever method necessary, such as sandbags, building a berm, etc.
- c. Cleanup area by vacuuming up water and debris and disinfect the area as per established practice.

Notify the Operations Manager that a crew has responded to a spill. In cases where the Operations Manager or Collection System Supervisor is not available, make all required verbal notifications in accordance with **Appendix C** in the timeframes specified.

LIFT STATION RELATED RESPONSE PROCEDURES

Pump Station #3 (Treatment Plant)

A spill at Lift Station #3 will be contained within the treatment plant paved area and drained back into the plant headworks area. Spill location for this station is located at the State Park camp ground adjacent to the rest rooms on the East side of the creek. Note: there are several hours of detention time in the system depending on flow.

The Lift Station controller monitors the station level and tells the pumps to come on at predetermined levels using a level transducer. The status of the station is relayed to the SCADA system via secured radio network. In the event of controller failure a redundant controller will take over the pumps and use floats to turn the pumps on and off. Alarms are sent primarily on the SCADA system and backed up by an alarm auto dialer independent of the controller and SCADA system. Additionally the Lift Station has a Smart Cover manhole monitoring level in the upstream manhole across the creek linked to a satellite and notification network.

Power Outage:

During a power outage the station SCADA alarm and auto dialer notifies the standby duty person. Pump Station #3 is at the treatment facility and gets power from the main generator during an event.

Wet Well and Pump Bypass:

If needed, the wet well and the pumps can be bypassed at the same time.

The 6" trash pump is set near the manhole above the station. The pump's suction line connected to a flow through air plug the coming to the wetwell. The trash pump has to be turned on and off manually.

Pumps Only Bypass:

In case of a station pump failure the pumps can be bypassed using a 6" trash pump by placing the bypass pump suction line into the wetwell. The discharge hose can be connected to the camlock fitting at the storm water station to the force main to the inlet structure. The trash pump can be turned on and off using the portable pump control floats.

If a spill has occurred, and upon arriving at the station:

- a. Determine cause of the failure, and take immediate corrective action to minimize/eliminate spill
- b. Control raw sewage from running off away from the fenced area by whatever method necessary, such as sandbags, building a berm, etc.
- c. Cleanup area by vacuuming up water and debris and disinfect the area as per established practice.

Notify the Operations Manager that a crew has responded to a spill. In cases where the Operations Manager or Collection System Supervisor is not available, make all required verbal notifications in accordance with **Appendix C** in the timeframes specified.

LIFT STATION RELATED RESPONSE PROCEDURES

Pump Station #4 (Sandpiper)

A spill at Pump Station #4 is critical! A spill at Pump Station #4 must be immediately contained to prevent raw sewage from entering into an adjacent storm drainage channel which leads directly into the Carpinteria Salt Marsh. The upstream wastewater collection lines lie near to drainage ditches adjacent to Via Real. Note: There are several hours of detention time in the system depending on flow conditions.

The Lift Station controller monitors the station level and tells the pumps to come on at predetermined levels using a level transducer. The status of the station is relayed to the SCADA system via secured radio network. In the event of controller failure a redundant controller will take over the pumps and use floats to turn the pumps on and off. Alarms are sent primarily on the SCADA system and backed up by an alarm auto dialer independent of the controller and SCADA system.

Power Outage:

During a power outage the station SCADA alarm and auto dialer notifies the standby duty person. Pump Station #4 is fitted with a ATS (automatic transfer switch) located in the main panel. The ATS automatically starts the connected generator and safely isolates the station from the incoming commercial power supply. When power has been restored the ATS transfers the power back to commercial power. The oncall operator is still required to inspect the station and notify the Operations Manager when done.

Wet Well and Pump Bypass:

If needed, the wet well and the pumps can be bypassed at the same time.

The 6" trash pump is set near the manhole outside the station. The pump's suction line is placed in the manhole and the discharge line is placed on the ground to the valved bypass line (force main). Plug the line with an air plug going from the manhole to the wetwell. The trash pump can be turned on and off using the portable pump control floats.

Pumps Only Bypass:

In case of a station pump failure the pumps can be bypassed using a 6" trash pump by placing the bypass pump suction line into the wetwell. The discharge line is placed on the ground to the valved bypass line (force main). The trash pump can be turned on and off using the portable pump control floats.

If a spill has occurred, and upon arriving at the station:

- a. Determine cause of the failure, and take immediate corrective action to minimize/eliminate spill.
- b. Inspect all upstream manholes for overflows and, if required, take corrective action immediately.
- c. Control raw sewage from running off away from the fenced area by whatever method necessary, such as sandbags, building a berm, etc.

- d. Cleanup area by vacuuming up water and debris and disinfect the area as per established practice.

Notify the Operations Manager that a crew has responded to a spill. In cases where the Operations Manager or Collection System Supervisor is not available, make all required verbal notifications in accordance with **Appendix C** in the timeframes specified.

LIFT STATION RELATED RESPONSE PROCEDURES

Pump Station #5 (Polo Fields)

A spill at Lift Station #5 must be immediately contained to prevent raw sewage from entering the adjacent drainage ditch which ultimately leads to the Arroyo Paredon Creek. The station spill point is located on Padero Ln across the freeway from the station. Note: There are several hours of detention time in the system depending on flow conditions.

The Lift Station controller monitors the station level and tells the pumps to come on at predetermined levels using a level transducer. The status of the station is relayed to the SCADA system via secured radio network. In the event of controller failure a redundant controller will take over the pumps and use floats to turn the pumps on and off. Alarms are sent primarily on the SCADA system and backed up by an alarm auto dialer independent of the controller and SCADA system.

Power Outage:

During a power outage the station SCADA alarm and auto dialer notifies the standby duty person. Pump Station #5 is fitted with an interlock safety switch located in the main panel. The panel has a 100 amp plug receptacle that accepts the plug from the 25 kW generators. The interlock switch isolates the station manually from the incoming commercial power supply.

- 1) Contact the Operations Manager for additional personnel to assist in backing and placement of the generator trailer at the lift station site.
- 2) Hook up the 25 kW generator trailer to the tow vehicle.
- 3) **Before starting the 25 kW generator**, check the main breaker on the generator to make sure it is in the "off" position. With assistance, place the generator next to the station off the roadway.
- 4) Connect the 100 amp plug to the double throw safety switch.
- 5) Bring the generator speed up to the full position. Move the double throw safety switch to "generator" position first, and then switch the generator main breaker to the "on" position.
- 6) Check the pump control panel for proper operating status.
- 7) The pump and generator operation must be monitored until normal commercial power is re-gained.
- 8) When power has been restored, reverse the process and monitor the station for normal operation before leaving. Notify the Operations Manager when done

Wet Well and Pump Bypass:

If needed, the wet well and the pumps can be bypassed at the same time.

The 6" trash pump is set near the manhole outside the station. The pump's suction line is placed in the manhole and the discharge line is placed on the ground to the valved bypass line (force main). A flow through plug must be used between the wetwell inlets. The trash pump can be turned on and off using the portable pump control floats.

Pumps Only Bypass:

In case of a station pump failure the pumps can be bypassed using a 6" trash pump by placing the bypass pump suction line into the wetwell. The discharge line is placed on the ground to the valved bypass line (force main). The trash pump can be turned on and off using the portable pump control floats.

If a spill has occurred, and upon arriving at the station:

- a. Determine cause of the failure, and take immediate corrective action to minimize/eliminate spill.
- b. Inspect all upstream manholes for overflows and, if required, take corrective action immediately.
- c. Control raw sewage from running off away from the fenced area by whatever method necessary, such as sandbags, building a berm, etc.
- d. Cleanup area by vacuuming up water and debris and disinfect the area as per established practice.

Notify the Operations Manager that a crew has responded to a spill. In cases where the Operations Manager or Collection System Supervisor is not available, make all required verbal notifications in accordance with **Appendix C** in the timeframes specified.

LIFT STATION RELATED RESPONSE PROCEDURES

Pump Station #6 (Casa Blanca)

A spill at Pump Station #6 is critical! and must be immediately contained to prevent raw sewage from entering into a drainage channel which leads directly into the Carpinteria Salt Marsh.

Note; there are several hours of detention time in the system depending on flow.

The Lift Station controller monitors the station level and tells the pumps to come on at predetermined levels using a level transducer. The status of the station is relayed to the SCADA system via secured radio network. In the event of controller failure a redundant controller will take over the pumps and use floats to turn the pumps on and off. Alarms are sent primarily on the SCADA system and backed up by an alarm auto dialer independent of the controller and SCADA system.

Power Outage:

During a power outage the station SCADA alarm and auto dialer notifies the standby duty person. Pump Station #6 is fitted with an interlock safety switch located in the main panel. The panel has a 100 amp plug receptacle that accepts the plug from the 25 kW generators. The interlock switch isolates the station manually from the incoming commercial power supply. Note; the individual homes with E-one pumps will be without power also and have plenty of storage during an outage.

- 1) Contact the Operations Manager for additional personnel to assist in backing and placement of the generator trailer at the lift station site.
- 2) Hook up the 25 kW generator trailer to the tow vehicle.
- 3) **Before starting the 25 kW generator**, check the main breaker on the generator to make sure it is in the "off" position. With assistance, place the generator next to the station off the roadway.
- 4) Connect the 100 amp plug to the double throw safety switch.
- 5) Bring the generator speed up to the full position. Move the double throw safety switch to "generator" position first, and then switch the generator main breaker to the "on" position.
- 6) Check the pump control panel for proper operating status.
- 7) The pump and generator operation must be monitored until normal commercial power is re-gained.
- 8) When power has been restored, reverse the process and monitor the station for normal operation before leaving. Notify the Operations Manager when done

Wet Well and Pump Bypass:

If needed, the wet well and the pumps can be bypassed at the same time.

The 3" trash pump is set near the manhole outside the station. The pump's suction line is placed in the manhole and the discharge line is placed on the ground to the valved bypass line (force main). A flow through plug must be used between the wetwell inlets. The trash pump must be monitored.

Pumps Only Bypass:

In case of a station pump failure the pumps can be bypassed using a 3" trash pump by placing the bypass pump suction line into the wetwell. The discharge line is placed on the ground to the valved bypass line (force main). The trash pump must be monitored.

If a spill has occurred, and upon arriving at the station:

- a. Determine cause of the failure, and take immediate corrective action to minimize/eliminate spill.
- b. Inspect all upstream manholes for overflows and, if required, take corrective action immediately.
- c. Control raw sewage from running off away from the fenced area by whatever method necessary, such as sandbags, building a berm, etc.
- d. Cleanup area by vacuuming up water and debris and disinfect the area as per established practice.

Notify the Operations Manager that a crew has responded to a spill. In cases where the Operations Manager or Collection System Supervisor is not available, make all required verbal notifications in accordance with **Appendix C** in the timeframes specified.

LIFT STATION RELATED RESPONSE PROCEDURES

Pump Station #7 (Mission Terrace)

A spill at Lift Station #7 must be immediately contained to prevent entry and transport down the drainage ditch into Franklin Creek. This station has relatively low flow rates and the surrounding area is flat but sloped to the drainage ditch.

Note; there are several hours of detention time in the system depending on flow.

The Lift Station controller monitors the station level and tells the pumps to come on at predetermined levels using a level transducer. The status of the station is relayed to the SCADA system via secured radio network. In the event of controller failure a redundant controller will take over the pumps and use floats to turn the pumps on and off. Alarms are sent primarily on the SCADA system and backed up by an alarm auto dialer independent of the controller and SCADA system.

Power Outage:

During a power outage the station SCADA alarm and auto dialer notifies the standby duty person. Pump Station #7 is fitted with an interlock safety switch located in the main panel. The panel has a 100 amp plug receptacle that accepts the plug from the 25 kW generators. The interlock switch isolates the station manually from the incoming commercial power supply.

- 1) Contact the Operations Manager for additional personnel if needed since the generator is stored at the lift station site.
- 2) **Before starting the 25 kW generator**, check the main breaker on the generator to make sure it is in the "off" position. With assistance, place the generator next to the station off the roadway.
- 3) Bring the generator speed up to the full position. Move the double throw safety switch to "generator" position first, and then switch the generator main breaker to the "on" position.
- 4) Check the pump control panel for proper operating status.
- 5) The pump and generator operation must be monitored until normal commercial power is re-gained.
- 6) When power has been restored, reverse the process and monitor the station for normal operation before leaving. Notify the Operations Manager when done

Pumps Only Bypass:

In case of a station pump failure the pumps can be bypassed using a 3" trash pump by placing the bypass pump suction line into the wetwell. The discharge line is placed on the ground to the valved bypass line (force main) in the valve vault. The trash pump must be monitored.

If a spill has occurred, and upon arriving at the station:

- a. Determine cause of the failure, and take immediate corrective action to minimize/eliminate spill.
- b. Inspect all upstream manholes for overflows and, if required, take corrective action immediately.

- c. Control raw sewage from running off away from the fenced area by whatever method necessary, such as sandbags, building a berm, etc.
- d. Cleanup area by vacuuming up water and debris and disinfect the area as per established practice.

Notify the Operations Manager that a crew has responded to a spill. In cases where the Operations Manager or Collection System Supervisor is not available, make all required verbal notifications in accordance with **Appendix C** in the timeframes specified.

LIFT STATION RELATED RESPONSE PROCEDURES

Pump Station #8 (Rincon Point)

A spill at Pump Station #8 is critical! A spill at Pump Station #8 must be immediately contained to prevent raw sewage from entering into a channel that could flow to the beach and enter the ocean. The upstream wastewater collection line is a force main from the individual homes from the Rincon Point community. Note: There are several hours of detention time in the system depending on flow conditions.

The Lift Station controller monitors the station level and tells the pumps to come on at predetermined levels using a level transducer. The status of the station is relayed to the SCADA system via secured radio network. In the event of controller failure a redundant controller will take over the pumps and use floats to turn the pumps on and off. Alarms are sent primarily on the SCADA system and backed up by an alarm auto dialer independent of the controller and SCADA system.

Power Outage:

During a power outage the station SCADA alarm and auto dialer notifies the standby duty person. Pump Station #8 is fitted with a ATS (automatic transfer switch) located in the building. The ATS automatically starts the connected generator and safely isolates the station from the incoming commercial power supply. When power has been restored the ATS transfers the power back to commercial power. The oncall operator is still required to inspect the station and notify the Operations Manager when done.

Wet Well and Pump Bypass:

If needed, the wet well and the pumps can be bypassed at the same time.

The 6" trash pump is set inside the gated grounds. The pump's suction line is placed in the wetwell and the discharge line is placed on the ground to the valved bypass line (force main) in the valve vault. The trash pump can be turned on and off using the portable pump control floats.

Pumps Only Bypass:

In case of a station pump failure the pumps can be bypassed using a 6" trash pump by placing the bypass pump suction line into the wetwell. The discharge line is placed on the ground to the valved bypass line (force main) in the valve vault. The trash pump can be turned on and off using the portable pump control floats.

If a spill has occurred, and upon arriving at the station:

- a. Determine cause of the failure, and take immediate corrective action to minimize/eliminate spill.
- b. Inspect all upstream manholes for overflows and, if required, take corrective action immediately.
- c. Control raw sewage from running off away from the fenced area by whatever method necessary, such as sandbags, building a berm, etc.
- d. Cleanup area by vacuuming up water and debris and disinfect the area as per established practice.

Notify the Operations Manager that a crew has responded to a spill. In cases where the Operations Manager or Collection System Supervisor is not available, make all required verbal notifications in accordance with **Appendix C** in the timeframes specified.

APPENDIX I

Public Caution Sign

WARNING

**WATER CONTACT MAY CAUSE
ILLNESS**



¡ AVISO!

**EL CONTACTO CON AGUA PUEDE
CAUSAR ENFERMEDADES**

FOR FURTHER INFORMATION CONTACT:

CARPINTERIA SANITARY DISTRICT (805)684-7214



APPENDIX J

SSO Equipment / Training Records

Carpinteria Sanitary District

Collections Personnel Equipment Training

I have received training on the operation of the following equipment and potential call out procedures. I further understand that if there are any questions regarding the operation of the below listed equipment or procedures that I will contact my supervisor or the Operations Manager. If assistance is needed I will call the Operations Manager for additional personnel.

<u>Equipment</u>	<u>Date Trained</u>	<u>Initials</u>
Vactor 2100 Combination Truck	_____	_____
Lateral Jetting Machine	_____	_____
Ridgid Lateral Camera	_____	_____
2009 Ford CCTV Van (Assistant)	_____	_____
2009 Ford CCTV Van (Operator)	_____	_____
IPAD (Lucity Reference and Acrobat Documents)	_____	_____
LUCITY (Work Orders)	_____	_____
On Call Cell Phone Responsibilities	_____	_____
Review of Current SSO Response Plan	_____	_____
E-One Call Out Response Procedures	_____	_____
Lateral Backup Response Procedures	_____	_____
Odor Complaint Response Procedures	_____	_____
Mainline Backup Response Procedures	_____	_____
Smartcover Alarm Response Procedures	_____	_____
Trash Pump Set-Up/Operation	_____	_____
Generator Set-Up/Operation	_____	_____

Employee Signature _____ Date _____

Trainer's Signature _____ Date _____

APPENDIX E

Collection System Rehabilitation Plan Excerpts

Wastewater Collection System Rehabilitation Plan

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EXECUTIVE SUMMARY

The Carpinteria Sanitary District's wastewater collection system consists of approximately 37 linear miles of gravity sewer pipelines with appurtenant standard manholes, pumping stations and force main pipelines. The District engaged Dudek & Associates to provide an engineering based assessment of its collection system infrastructure and to prepare a comprehensive Wastewater Collection System Rehabilitation Plan. The primary project objective of the planning effort is to allow the District to direct resources to specific remedial projects that will result in the greatest level of system improvement.

Preparation of a comprehensive rehabilitation plan will also position the District for early compliance with pending regulatory requirements, including the Capacity Management Operations and Maintenance (CMOM) program proposed at the federal level. The District's current NPDES permit requires annual reporting of ongoing pipeline and lift station replacement and renovation activities. Additional, more significant state and local requirements are anticipated.

Project Approach

The District uses a computerized asset management database program to manage collection system inventory information. It is also used to generate work orders and document maintenance activities including CCTV inspection of sewerlines. Individual pipeline defects recorded in the database are assigned a numerical value based on severity and each pipeline reach is assigned a resultant weighted value. The defect codes and weighting factors were evaluated and refined to facilitate project prioritization based on District specific objectives.

Over 800 individual CCTV inspections were reviewed by District and Dudek staff. Logged information was input into the Sussex database. The data was then exported to a spreadsheet program for further manipulation and analysis. Defect ranking reports were generated showing the total defect score for each pipe. Additional prioritized reports were produced for specific types of defects (e.g. a "Crack Rating" report lists pipes with structural cracks in order of overall severity – See Appendix B). For geographic reference, the defects were plotted on the District's atlas maps using a color coded system.

Dudek staff then performed an independent engineering review of the District's CCTV inspection tapes, focusing on those line segments reported to have significant defects. Specific recommendations for repair, rehabilitation or replacement were made during the review process. Atlas maps and other available information were referenced during to process to incorporate probable constraints to project implementation (e.g. traffic, sensitive habitat, dewatering requirements, etc).

A review of available construction methods and techniques for gravity sewer rehabilitation, repair and replacement was performed. Trenchless rehabilitation in various forms has become extremely cost competitive in recent years as more qualified contractors enter the marketplace and new, innovative techniques are developed. For planning purposes, cured in place pipe (CIPP) lining and pipebursting were recommended as alternatives to open cut pipe replacement where appropriate.

Planning level cost estimates for recommended pipeline repair and rehabilitation projects were developed using current, locally applicable unit costs. Prioritized repair and rehabilitation lists were incorporated into a comprehensive collection system capital improvement program.

Findings

The general condition of the gravity sewer pipelines throughout the District's collection system appears to be satisfactory and there are few severe structural defects that could be considered imminent failure threats. However, significant defects were observed or otherwise identified in numerous pipe segments, with the most prevalent defects associated with groundwater infiltration. Some form of structural rehabilitation is recommended for approximately 12 percent of the District's pipelines (106 of 864 total pipes). While defects were observed throughout the system, the downtown area was found to have the greatest concentration of major problems that warrant repair or rehabilitation. A general correlation between age of installed sewers and overall defects was observed, although many of the District's oldest pipes remain in excellent condition.

Structural defects identified include: misaligned or offset joints, longitudinal and radial cracks, partially collapsed or missing pipe, pipe deterioration, protruding taps (service connections), sags and vertical grade deviations. Defect severity ranges from hairline cracks that are operationally insignificant to instances of crushed and missing pipe with exposed soil that warrant near term remedial efforts.

Groundwater infiltration was found to be a significant and wide-spread phenomenon within the District's collection system. Infiltration was observed in many forms. Infiltration problems ranged from minor mineral stains at joints or lateral connections to visible heavy inflow pouring in from cracks or separated joints. I/I from service laterals was observed in many locations. In the geographic areas with known high groundwater conditions, there was no clearly observed pattern of I/I problems. Some pipe segments were relatively watertight with only minor evidence of I/I or none at all, while other pipes were visibly leaking from nearly every joint.

Mineral deposits were observed in many locations throughout the system. The deposits, which result from the slow dripping of highly mineralized water into the system, protrude into main sewers and laterals and can affect maintenance operations. Scale was also seen in many areas of the system. This more uniform mineral deposit is formed when mineralized groundwater seeps through the porous clay pipe walls. Scale is not considered a structural defect but it can flake off the pipe walls and accumulate in the pipe invert. Increased cleaning frequencies may be warranted in areas with significant mineral scale.

Root intrusion was observed throughout the collection system. Where root intrusion was severe enough to cause or threaten pipe or infrastructure damage remedial repairs were recommended. Generally, however, root intrusion in collection systems constructed predominantly of vitrified clay pipe (VCP) root intrusion is controlled through a managed root control program.

Recommendations

It is recommended that the District implement a strategic approach to collection system management and systematic rehabilitation. Major strides have already been made through development and maintenance of the Sussex IMS database, the SSES CCTV inspection program and limited smoke testing operations.

This rehabilitation plan, based on existing condition data, identifies defects within the system and presents a prioritized list of pipelines and infrastructure requiring repair, rehabilitation or replacement. A rolling approach to rehabilitation program implementation is recommended. The list of repair and rehabilitation projects should be augmented and updated as additional significant defects are identified through follow-up CCTV inspection.

Collection System Capital Improvement Program

A five-year Capital Improvement Program (CIP) for collection system improvements was developed. It is anticipated collection system rehabilitation and renewal will continue beyond this horizon. The proposed CIP is a planning tool and should be used as such. Project implementation may be modified as appropriate to reflect funding availability, environmental review requirements, staff availability and other important considerations. Table E1, located in Appendix E, provides an overview of the proposed CIP.

Approximately 13,000 linear feet of pipe was recommended for replacement or complete structural rehabilitation with an associated implementation cost of approximately \$1,080,00. It is presumed that additional pipeline replacement and rehabilitation will be required or recommended as a result of follow-up CCTV inspection and further collection system assessment. For planning purposes a total CIP replacement/rehabilitation cost of \$1,500,000 was assumed over the five-year CIP implementation period with a recommended annual capital expenditure of \$300,000.

A total of 63 point repairs were recommended, with an estimated construction cost of approximately \$240,000. It is presumed that additional point will be required or recommended as a result of follow-up CCTV inspection and further collection system assessment. For planning purposes a total CIP replacement/rehabilitation cost of \$300,000 was assumed over the five-year CIP implementation period with a recommended annual capital expenditure of \$60,000.

It was assumed that structural repairs and rehabilitation requirements will be identified as the inspection and assessment program is implemented. For purposes of the collection system CIP, a lump sum expenditure of \$150,000 was assumed in FY 2006/07.

Pump station and force main improvements recommended in recently completed engineering analysis prepared by other consultants were also incorporated into the proposed collection system

CIP. Substantial upgrades were proposed for Pump Station Nos. 1, 2 and 4 to remedy hydraulic deficiencies and to improve pump station operation. The recommended improvements represent a total capital expenditure of approximately \$1.3 million, the bulk of that going towards replacement of the 4,200 foot long force main for Pump Station No. 4.

The District has also completed a preliminary design study to assess relocation of the Bluffs sewerline which serves the eastern portion of the District south of US 101. The existing pipe is threatened due to continued bluff erosion, but relocation will also facilitate service extension to the Rincon Point beach community. Funding alternatives are currently being explored. A preliminary project cost of \$2 million was incorporated into the CIP for planning purposes.

Follow-Up Recommendations

Development of a comprehensive infiltration and inflow control program is recommended. A flow monitoring program should be included in this effort to identify the drainage basins within the system that contribute most significantly to the I/I problem. This will provide direction to District staff for follow up I/I investigation and control measures, including smoke testing and wet weather CCTV inspections.

While the District is effectively at build-out conditions, as part of the CMOM Program the District will be required to determine and document the actual capacity of its existing system. It is recommended that the District develop a computerized hydraulic model of its collection system. This model development should be coordinated with creation of a simple collection system geographic information system (GIS), which would incorporate digital system mapping and existing attribute data from the District's asset management database. Prior to undertaking major structural repairs on lines that may be at or near capacity, the hydraulic model should be run to identify the need to upsize existing lines.

1.0 INTRODUCTION

Dudek & Associates (Dudek) was contracted by the Carpinteria Sanitary District (District) to prepare a Wastewater Collection System Rehabilitation Plan and to provide engineering and technical consulting on collection system issues. The primary goal in pursuing this project is to obtain a strategic plan for collection system rehabilitation that will allow the District to direct resources to specific projects resulting in the greatest level of system improvement. Preparation of a comprehensive rehabilitation plan will also position the District for early compliance with pending Capacity, Maintenance, Operation and Management (CMOM) Program requirements that are expected to be adopted at the federal level in the near future.

Over the past several years, the District has expended considerable resources studying its sewage collection system and documenting the condition of individual facilities during routine maintenance and inspection activities. These efforts have included a system-wide CCTV inspection program and recent upgrades to the District's information management system (IMS) asset management software.

This planning effort is intended to analyze the existing data, using a focused and strategic engineering approach, and to develop a prioritized list of rehabilitation and/or repair projects that the District can implement over an extended period of time. The rehabilitation plan gives District policy makers a technically justifiable platform to fund the recommended capital improvements and will help provide a nexus for sewer service rates and connection fees charged to constituents.

2.0 COLLECTION SYSTEM OVERVIEW

The Carpinteria Sanitary District (District) is a public agency that provides sewer service to constituents in the City of Carpinteria and in surrounding unincorporated areas of the Carpinteria Valley. The District's service extends from Toro Canyon Creek on the west to Rincon Road on the east and generally between Foothill Road (SR 192) and the Pacific Ocean. The District boundary is shown on Figure 1 located in Appendix A.

The District owns and operates approximately 37 linear miles of sewage collection pipelines, ranging in size from 3 to 24 inches. The majority of the pipelines gravity sewers between 6 and 15 inches in diameter. Pipe materials in the system are primarily vitrified clay pipe (VCP) and terracotta clay pipe in older areas of the City. A significant amount of PVC sewer pipe exists in newly constructed areas - generally since 1980. Within the system there are isolated segments of alternative pipe materials, including cast iron pipe (CIP) and ductile iron pipe (DIP).

There are six sewage pump stations within the District's collection system. These pump stations vary in size depending on their respective service areas. The District has recently completed and engineering evaluation of the three major pump stations and improvements to both the pumping systems and the appurtenant force main piping are planned.

Wastewater is conveyed to the District's Wastewater Treatment Facility located on Sixth Street. The treatment facility, originally constructed in 1951 and upgraded in 1961, underwent major improvements in 1995. The treatment process now includes the following elements:

- flow equalization
- preliminary screening and grit removal
- primary clarification
- activated sludge aeration
- secondary clarification
- chemical disinfection
- ocean outfall effluent disposal
- aerobic solids digestion
- off-site biosolids reuse

Currently, the average dry weather flow (ADWF) is approximately 1.6 million gallons per day (MGD). Wet weather flows can be significantly higher and during intense rainfall events influent flows can approach or exceed the peak hydraulic capacity of the treatment facility. Control of these high influent flow events, which result from infiltration and inflow into the District's collection system, is one of the key objectives of this rehabilitation plan.

Planned Service Area Expansion

The Carpinteria area, both within the City limits and in the unincorporated areas of Santa Barbara County, has experienced controlled growth over the past two decades for various reasons. Despite a regional housing shortage, the trend is towards continued limitations on growth in the District's service area. No major increase in the number of service connections is expected to result from new development in the foreseeable future.

However, there are several already developed areas in and around Carpinteria that have on-site wastewater systems (septic tanks) and are not currently connected to the District's system. These areas include the beach communities of Rincon Point, Sandyland Cove, Sand Point Road and Beach Club Road. Effluent or releases from these septic systems is believed to be impacting water quality in surrounding creeks and ocean environments and plans to sewer these communities and connect to the District's wastewater collection system are underway. Wastewater contributions from these areas are not expected to significantly affect the overall system flows but there may be capacity impacts to existing sewerlines, pump stations and force mains. These potential impacts should be carefully evaluated. Implementation of the sewerage projects will also result in new facilities to be owned and operated by the District.

Sewer System Evaluation Study

In the mid 1990's the District undertook a Sewer System Evaluation Study (SSES) that involved closed circuit television (CCTV) inspection of the entire sewer system. This process was phased over a period of several years and now the majority of the system has been inspected. The work was completed primarily by District staff using in-house equipment, but a portion of the system was inspected by an outside contractor. A library of approximately 60 VHS tapes has been generated. This rehabilitation plan is largely based on the SSES Program inspection tapes.

The SSES program also incorporated a smoke testing program intended to identify major sources of inflow into the District's collection system. Smoke testing is an excellent tool for locating roof and area drains that are illegally connected to the sewer system, as well as other conduits that convey stormwater into the collection system unintentionally.

CMOM Compliance

Another impetus for this rehabilitation planning program is the pending Capacity, Management, Operations and Maintenance (CMOM) regulations which set forth specific requirements and mandates for sewer system condition assessment and rehabilitation. These federal regulations will be tied to the District's NPDES Permit once implemented. Although finalization and adoption of the draft rule has been delayed, the CMOM program, in its current form, establishes basic standards or requirements for collection system operations as follows:

- (i) properly manage, operate and maintain, at all times, all parts of collection system that you own or over which you have operational control;
- (ii) provide adequate capacity to convey base flows and peak flows for all parts of the collection system you own or have operational control;
- (iii) take all feasible steps to stop, and mitigate the impact of, sanitary sewer overflows in portions of the collection system you own or have operational control; and
- (iv) provide notification to parties with a reasonable potential for exposure to pollutants associated with the overflow event.
- (v) develop a written summary of your CMOM program and make it available to any member of the public upon request.

The written CMOM Plan will be required to address a variety of functions including agency organization, legal authority and funding requirements. It will require agencies to develop and maintain comprehensive mapping and inventory information with detailed preventative maintenance and condition assessment requirements. The plans shall insure the agency has adequate design requirements and specifications in place for new construction and rehabilitation projects. Measures to prevent or eliminate sewer overflows are a key component of the CMOM plan, as are reporting and response procedures. The plans must address system capacity and must ensure adequate hydraulic capacity exists for current and future users. They must also contain comprehensive protocols and procedures for staff training and education.

The District has already implemented a number of key CMOM program elements. Completion of this rehabilitation plan will position the District for early compliance with the overall program once it is formally adopted.

Locally, EPA Region IX has embarked on a program to evaluate collection system operations and maintenance in advance of the forthcoming CMOM regulations. A comprehensive survey was circulated to coastal area collection system operators requesting exhaustive system information similar to what is anticipated to be required for CMOM compliance. District staff prepared the survey response and feedback or response from EPA has not yet been received.

3.0 PROJECT APPROACH

The intent of this rehabilitation planning project is to review the large body of existing sewerline condition data and other information relating to the physical condition of the District's collection system and to develop a prioritized list of pipeline rehabilitation projects that, when implemented, will achieve the greatest overall system improvement. The approach to project execution is summarized in this section, presented in a stepwise implementation manner.

Sussex IMS Database Refinement

The District currently uses the Sussex Information Management System (IMS) to track collection system maintenance and inspection data and to generate work orders. Sussex is fundamentally a "front end" software program that is used to input data into a Microsoft Access database which resides on the District's network server. The asset management software is also used by District operations staff to keep inventory information and maintenance records for treatment plant equipment and to generate internal work orders.

Sussex has features that allow the user to enter CCTV inspection data using internal defect codes and a ranking system accessed from pull-down menus. The Sussex defect code system can be modified to meet the needs of specific users. The IMS software is not rigid in this respect. The internal code system is also not based on an "industry standard" defect ranking system such as the WRC codes which may be considered overkill for small collection systems.

Within the Sussex software, a numerical value or weighting factor is assigned to each rank or value within the individual defect categories (roots, I&I, cracks, etc.). The assigned values can be summed for an individual pipe to compute an overall defect score. To better address the District's specific needs and known system deficiencies, the project team developed a new set of defect codes and related weighting factors and incorporated them into the Sussex IMS program. The defect categories and codes correspond to those on the District's standard CCTV log sheet which was also updated as part of this project. The objective of the software modifications was to give greater weight to structural defects and groundwater infiltration than to operation defects such as root intrusion and grease accumulation. Table 3-1 presents the modified defect coding system implemented by the District.

TABLE 3-1 Sussex Database Defect Code Summary

Category	Rank	Weighting Factor	Description	Details
Roots	U	18	unpassable roots	very thick root mass; camera will not pass; respond ASAP to prevent overflow
	H	9	heavy roots >50% blockage	heavy, thick root mass from joint or lateral connection; structural or overflow threat
	M	6	medium roots 10-50% blockage	moderate root mass from joint or lateral connection - strands thicker than a pencil
	L	3	light roots	light roots intruding from joint or lateral connection - no structural threat
I/I	H	18	heavy I/I >1gpm	heavy, continuous stream (under pressure); flow >1gpm
	M	12	light stream, heavy drips	moderate infiltration - constant stream or heavy drips or bubbling
	L	8	light drips	light infiltration - drips from joints or cracks, positive I/I from laterals
	S	4	signs of I/I	mineral deposits, wet pipe, algae or scum; clear continuous flow from laterals
MJ	H	12	offset > pipewall thickness	heavily misaligned joint greater than pipewall thickness - open with dirt/soil exposed; unpassable?
	M	8	moderate offset, open	moderate misaligned joint - causing flow obstruction or open crack at joint
	L	4	minor offset, not open	slightly misaligned joint, gasket protruding, not open or exposed soil
Crack	C	20	collapsed pipe	fully collapsed or collapse imminent - immediate failure threat
	H	15	open crack - failure threat	heavy, open and offset cracks - radial or longitudinal - structural failure threat
	M	10	moderate crack, open	moderate cracks - radial or longitudinal - open or offset but no immediate failure threat
	L	5	light crack not open, offset	light cracks - primarily at joints - not open or offset but more significant than hairline cracks
	HL	2	hairline crack	visible cracks - not open or offset - no failure threat
Debris	H	9	heavy debris, unpassable	major debris accumulation, large rocks, grit, sand, etc - camera will not pass (note precleaning)
	M	6	medium debris/grit	moderate debris accumulation grit, sand, etc - > 1" in pipe invert (note precleaning)
	L	3	light debris/grit	light debris accumulation (note precleaning)
Grease	H	9	>50% blockage	major grease accumulation blocking more than 50% of pipe area (note precleaning)
	M	6	10-50% blockage	moderate grease accumulation blocking 10% to 50% of pipe area (note precleaning)
	L	3	<10% blockage	minor grease accumulation - no threat of overflow (note precleaning)
Sag	Start	0	begin sag	start of alignment change or sag
	H	9	heavy sag camera uw	end of heavy sag greater than 1/2 of pipe diameter - camera lens underwater
	M	6	med sag 1/4 to 1/2 pipe dia	end of moderate sag greater than 1/4 pipe diameter
	L	3	light sag < 1/4 pipe dia	end of light sag - noticeable alignment/grade deviation less than 1/4 pipe diameter
Deterioration	H	15	structural failure threat	significant material loss or pipe degradation - structural failure threat
	M	10	moderate deterioration	moderate pitting, material loss or other visible pipe degradation; tuberculation of iron pipe - no failure threat
	L	5	visible material degradation	light deterioration of pipe material or tuberculation of iron pipe - no significant material loss or structural defect
Deformation	H	12	>20% ovality	egg shaped or otherwise deformed pipe - greater than 20% deformation in any direction -potential failure threat
	M	6	moderate deformation	medium deformation/ovality - less than 20% deformation - no failure threat
	L	3	visible deformation	pipe visibly out of round but deformation not significant - no joint affects
Scale	H	9	heavy scale aggregation	heavy encrustation or aggregation of mineral scale - greater than 1/4" , flaking or chunking off
	M	6	moderate scale	moderate encrustation or coating of pipe walls - less than 1/4" thick, uniform
	L	3	light scale	light encrustation or evidence of scale deposition - intermittent or variegated pattern

Preliminary CCTV Review

At the outset of this project, it was believed that the bulk of the CCTV inspection data collected as part of the District's SSES Program had already been entered into the IMS database and that the information was readily accessible in electronic format. During the initial data review stage, it was discovered that a significant number of CCTV records had not been entered, and also that many CCTV tapes had not been reviewed or logged by District staff. Good inventory data showing the contents of each tape did exist, however. It was also determined that the information that had been entered into the District's database was not necessarily consistent with the revised defect coding. Also, typical of CCTV inspection data, the interpretation of defect severity was found to vary significantly from operator to operator.

Because data quality is critical in a system-wide condition assessment program such as this, the District elected to review the entire set of CCTV tapes and to generate new defect logs for data entry into the Sussex IMS. This review was completed primarily by District staff using the revised defect codes and updated inspection log sheets. To expedite the review process Dudek staff completed preliminary review of several of the CCTV tapes concurrently. Data from the new CCTV log sheets was subsequently entered into the Sussex database, resulting in approximately 800 individual inspection reports.

Data Manipulation and Analysis

The Sussex software contains a variety of data query and reporting features that can be used to provide summary condition information on collection system facilities. An overall pipeline condition rating value can be generated for a specific pipe section using the weighting factors previously discussed. However, Sussex does not currently allow the user to generate or assign condition ratings to all of the pipes simultaneously or to rank the pipes based on their total defect score or individual defect score. District staff have been working with Sussex developers on software improvements to allow this feature. Future releases of the program are expected to have this capability.

For the purposes of this plan it was necessary to manipulate the data using alternative means. Pipeline data was exported from the Sussex software into a stand alone Microsoft Access relational database. The database contained all of the information from each CCTV inspection report in tabular form as well as all of the asset inventory information. The data was sorted and queried using the Access software and key data was exported to a spreadsheet program for further manipulation. Script or code was developed in the spreadsheet to assign numerical values or weighting factors (identical to those used in the Sussex program - see Table 3-1) to each pipeline defect contained in the database. Individual pipes were then ranked based on a calculated total defect score. Relative defect rankings were also calculated for individual defect types.

Defect Ranking Reports

Appendix B contains a series of spreadsheets that present the pipeline defect ranking values that resulted from the data analysis. The total score, which is the sum of all defects for an individual pipeline, is shown for each of the inspection records ranked from highest to lowest. Ratings were also established for individual classes of defects (e.g. crack rating, root rating, etc.). The individual defect ratings are also included in Appendix B.

It should be noted that there are several pipelines that have multiple CCTV inspection records and are listed more than once in the summary tables. Generally, the most current inspection record was used in the rehabilitation planning process, however, it was important to evaluate all the data as defect condition (especially I&I) can exhibit seasonal variation. The District has also completed point repairs within the system since inception of the SSES program.

Defect Maps

The District's sewer atlas is depicted on six 300-scale maps that show the relative location and length of individual pipes, manholes and other collection system facilities. The District's manhole numbering system is based on atlas sheet location with the first numeral corresponding to sheet location. For example, MH 2001 is found on Sheet 2. Figure 1, in Appendix A, provides a key map showing the layout of the atlas mapping system.

The atlas maps were scanned for use as base maps in the rehabilitation plan. Defect categories were assigned a color code and the location of the major pipeline defects identified in the data analysis was plotted on the base maps. The defect overview maps are also located in Appendix A (Figures A1 through A6).

The mapping effort was limited to pipes with a total score greater than 50 and to individual defect scores above specific thresholds. The main objective of the mapping process was to identify patterns in the geographic distribution of system defects that could be used in the evaluation process or in the rehabilitation planning and CIP development process. Defect mapping often helps to identify areas of high groundwater or areas of widespread pipe deterioration.

Review of Other Documents and Information

Other sources of information were reviewed as part of the condition assessment portion of this study.

Staff Input

District collection system staff were a key source of information for this analysis. This plan was developed in close coordination with District staff. Although a large portion of the collection system has been video inspected, there are some pipelines and areas within the system that have never been televised. Other collection system components, including manholes, pump stations, force mains and inverted siphons do not have video inspection records or other visual tools for condition assessment. The condition of these facilities were discussed with District staff. The location of "hot spots" was incorporated into the overall analysis.

Master Plan Records

In the late 1980's the District performed a preliminary hydraulic analysis and sewer master planning project. This study was not completed or formally adopted, however, some of the maps and figures from the draft report were provided for review as part of the rehabilitation planning effort. Potential capacity deficiencies were noted at several locations in the system based on ultimate peak wet weather flows. Verification of the accuracy and applicability of this hydraulic data is outside of the scope of this study but the maps and figures provide relative capacity information for the main trunk lines in the District's system. This information was used in a limited manner to provide correlation between observed flow levels in existing pipes and actual capacity.

Focused CCTV Review

A key element of the collection system rehabilitation planning process is the strategic selection of appropriate remedial methods for repair, rehabilitation or replacement of observed defects. Typically, this involves an engineering based review of CCTV records and physical pipeline properties (size, location, depth, etc.) and a basic analysis of remedial project constraints.

The Sussex database rating system is based on simple, but involved calculations. In theory, the rating system is sound and should provide good relative condition rankings. However, it is acutely dependent on consistent inspection and field rating procedures and consistent data entry procedures. (e.g. what one operator reports as "heavy" roots may be reported by another as "light" roots). It also dependent on the quality of the CCTV inspection tapes that are the basis for the ranking system.

The original project approach involved using the ranked list of defective pipelines to minimize the level of effort required and reduce the number of CCTV inspections requiring critical review by the project engineer. Video inspections of those pipelines with no documented defects, or those below a specific defect ranking threshold, would not be reviewed. This approach was tested early on during implementation of the focused CCTV review task as part of the overall quality assurance process.

After viewing the first several tapes, it was clear that the sorted list of defective pipelines generated from the database records did provide a complete representation of defective pipelines. Pipe segments with no reported defects in the database, that theoretically would not be reviewed as part of this project, were found to have significant defects. Conversely, some of the pipes reported to have major defects were found to be in satisfactory condition and did not warrant repairs.

Of greater concern, however, were the number of CCTV inspections that were not completed (due to obstructions in the pipe) or were of poor quality and thus did not result in a defect ranking that was commensurate with the types of problems observed. To ensure that these pipe segments receive thorough evaluation and appropriate rehabilitation or repair, they have been incorporated in to a list of pipelines to be reinspected (see Section 7.0).

As a result, it was necessary to review substantially more video tape than originally intended. Most of the SSES inspection tapes were technically reviewed as part of this task. The purpose of the focused CCTV review was to generate recommendations for repair, rehabilitation, replacement and/or follow-up investigation for each pipeline. Comments and notations were made during review to this effect and entered into a spreadsheet linked to the overall pipeline inventory (this will allow for future cross referencing or importation into the Sussex database). A summary of the project engineers comments is presented in Appendix C.

CCTV Frame Grabs

At locations where significant defects were observed, a still image was captured from the video tape in jpeg format. The library of images collected is not comprehensive – an image was not captured for every major or significant defect. Some defects, particularly, sags and vertical grade deviations, cause the camera lens to be underwater or otherwise obscured and the resulting image does not provide worthwhile information.

The images, which are provided in index format in Appendix D, provide a graphic representation of the nature and magnitude of the defects found within the District's collection system. They are labeled to indicate the line segment in which the defects were found (manhole from/to). These images will be provided to the District electronically for archival or for direct importation into the Sussex IMS.

Project Prioritization and Rehabilitation Planning

Remedial repair or replacement recommendations were prioritized using a combination of engineering judgment and the total score rankings generated in the data analysis task.

Generally, individual pipelines requiring remedial repairs were separated into two categories:

1. Replacement / Major Structural Rehabilitation
2. Point Repair / Minor Rehabilitation

The resultant list of projects in each category was then ordered based on the pipe segments total score generated from the Sussex IMS database information.

Manhole defects were also noted to the extent practicable during the review process. Unless root intrusion was causing or threatening to cause structural defects, it was not considered a major structural problem and will be address through traditional root control measures discussed in Section 7.0.

Based on the condition ratings and condition assessment information for each pipe segment, an appropriate rehabilitation method was selected. Selecting a rehabilitation method, like assigning condition ratings, is a not an entirely objective process. Engineering or technically informed judgment is required for many pipeline or facility specific decisions. However, there are specific criteria that dictate when a specific method is appropriate and when it is not.

A comprehensive overview of available rehabilitation methods is provided in Section 4.0 of this plan. This overview provides additional general guidelines for method selection and a summary of the advantages, disadvantages and constraints associated with each method. A more in depth description of the method selection process is also provided.

Project Specific Constraints Analysis

In conjunction with the rehabilitation method selection process, the pipelines requiring repair or replacement were then examined individually to identify potential constraints or barriers to construction.

Pipelines and facilities with poor access and those located in easements or high traffic areas were documented through review of sewer atlas maps, aerial photographs, CCTV inspection tapes (manhole depth), and limited field observations. Other constraints considered include conflicting utilities, sensitive environmental habitat, and high groundwater. A constraints analysis was not performed for pipelines and facilities that were not recommended for rehabilitation or repair.

The level of constraints analysis performed at the planning level was merely to suggest one remedial approach over another. Clearly, a more in-depth analysis should be performed as individual rehabilitation projects proceed into design and construction.

Rehabilitation Cost Analysis

Estimated unit costs for collection system rehabilitation, repair and replacement were developed from experience on recent similar projects, contacts with vendors, suppliers and contractors, and general cost estimating references. At the planning level, it is difficult to estimate true costs of individual rehabilitation projects. Sewer system rehabilitation construction costs, particularly for trenchless methods, are highly variable. Accordingly, project specific costs presented in this plan may be substantially different than actual construction costs. However, the system-wide totals and annual estimates are considered to be reasonable planning figures.

Unit costs, based on pipeline diameter (average manhole depth), were input into an Excel spreadsheet. Capital cost estimates for specific rehabilitation projects are based on the unit cost values in the spreadsheet. This allows for future refinement of unit costs and modification of rehabilitation methods for individual projects without significant extra work.

Pipelines that are recommended for inclusion in root control or routine cleaning programs, were not considered in the capital cost estimates, as these are considered to be maintenance issues.

Capital Improvement Program

The prioritized projects and estimated costs were then phased over a specific implementation period and organized into a structured capital improvement program (CIP). The order of completion and project grouping established in the CIP was based on project priority ranking, rehabilitation method and geographic location. The CIP development process is described in detail in Section 6.0 of this plan.

4.0 REHABILITATION METHOD OVERVIEW

There are numerous techniques and construction methods available for the rehabilitation of sewage collection system facilities. This section provides a description of the pipeline and manhole rehabilitation methods considered for implementation as part of this plan.

Pipeline Rehabilitation Methods

Replacement

Pipeline replacement involves installation of a new sewer main using traditional open trench excavation. Given normal site conditions, SDR 35 PVC pipe is most commonly used for new gravity sewer installations and replacement projects. Engineering considerations may require a change in material or thickness class. The existing pipeline may be removed or abandoned in place, depending on site conditions. Replacement pipelines may be installed on the same line and grade as the existing pipeline or they may be realigned to facilitate construction. Engineering costs associated with pipeline replacement also vary based on site conditions and alignment alternatives. For CIP planning purposes an average unit cost of \$10 per inch-diameter-foot (IDF) was assumed.

Despite the high cost of pipe replacement, it offers several advantages over other rehabilitation methods. It allows for reinstallation on true vertical design grade or a redesigned vertical profile. This is often necessary to remove sags or major grade deviations in an existing pipe. Open cut excavation also facilitates lateral reconstruction. The District is responsible for maintenance of lateral sewers in the public right of way and although lateral reconstruction adds substantially to the overall cost, it is the only proven method to control I/I and other defects above the mainline connection.

Pipeline replacement, when done properly, provides a new, watertight sewer conduit with a design life in excess of 50 years. It is typically selected as a rehabilitation alternative when multiple structural defects are present in the existing pipe segment or if the pipe has deteriorated significantly and failure is imminent. There are constraints that may make pipeline replacement cost prohibitive or impossible. These include:

- heavy traffic within the pipe corridor
- excessive pipeline depth
- high groundwater or other undesirable subsurface conditions
- overlying structures or conflicting utilities
- poor access or easement intrusion issues
- sensitive environmental habitat

These constraints, alone or in combination, may increase the cost of pipeline replacement to the point where a trenchless rehabilitation approach is a more cost effective or technically feasible alternative.

Cured in Place Pipe Lining

The most commonly employed trenchless technology for full length pipeline rehabilitation involves installation of a cured-in-place pipe (CIPP) liner, sometimes referred to as inversion lining. A continuous felt liner, or sock, impregnated with a thermosetting resin is inverted into an existing pipe with water pressure or air pressure. The liner has a corrosion resistant elastomeric type coating on one side that will ultimately become the new pipeline interior. Once in place and tight to the existing pipe walls, the resin is activated with hot water or steam and allowed to cure in place. The resulting product is a hardened pipe liner that conforms to the existing pipe surface. Once cooled, the ends of the new liner are trimmed and the service laterals are cut open with a robotic cutting device. Finally the liner is video inspected for quality assurance. Bypass pumping of sewage flows is required during the installation process.

There are numerous advantages to CIPP lining. The most obvious is that it is done above grade and excavation is not required. This eliminates many of the constraints described in the previous section that can make open trench replacement difficult or impossible. Inversion lining is also very fast, from an installation standpoint. The liners are fabricated and impregnated prior to construction, allowing most pipeline segments to be fully rehabilitated in a single day. CIPP lining can be used in pipes with minor deformations or joint offsets, as the liner conforms to the surface of the pipe. Major deformations, offsets or protruding taps must be repaired prior to lining. Where necessary, robotic equipment can be used to grind off protruding taps. CIPP liners can restore the full structural integrity of a deteriorated pipe if properly designed.

CIPP lining is generally less expensive than pipeline replacement. Unit costs can vary widely with differing site conditions and material requirements, but the typical range of installed costs is \$5 to \$8 per inch diameter foot (e.g. \$40 to \$64 per lineal foot of 8-inch diameter pipe). When constraints push the cost of full replacement within or above this range, CIPP should be considered as an appropriate rehabilitation method.

One disadvantage of CIPP lining is that it does not address defects in wyes and laterals that may major sources of I/I or root intrusion. There are CIPP techniques that have been developed to line short sections of lateral sewers above the mainline connection. These techniques have not yet become cost effective for wide implementation but may be considered for limited use where appropriate. Because the existing sewer line and grade are maintained with this approach, CIPP lining is not desirable for pipelines with significant sags or grade deviations.

Fold & Reform Pipe Lining

A process similar to CIPP lining, is trenchless “fold & reform” lining. This process involves installation of a specially formulated PVC or HDPE pipe that has been deformed into a “U” shape to allow it to fit through the existing conduit. The deformed pipe, manufactured in long, seamless

rolls, is heated slightly to give it flexibility before being pulled through a deteriorated pipe segment. A mandrel, in combination with heat is then used to reform the pipe to its original circular shape inside the existing pipe. The outside diameter of the fold & reform pipe is designed to fit the inside diameter of the existing pipe and the material expands slightly to assure a tight fit. The pipe is then allowed to cool and harden, resulting in a pipe material very similar to standard PVC pipe. Like with CIPP, the ends are trimmed and the lateral connections are opened with a robotic cutting device. Bypass pumping of sewage flows is also required during the installation process.

Fold & reform lining costs slightly less than CIPP lining, with installed costs 10 to 15 percent lower on average. The process is limited, however, by the condition of the existing pipe. It is not recommended for use in pipes with offset or misaligned joints or other structural deformations. It also cannot be used for structural restoration of deteriorated pipes. For pipes that have reasonably sound alignments, but have minor deterioration or other structural defects, fold & reform lining should be a considered remedial technology.

Sliplining

Sliplining is another trenchless technology that has been widely used to rehabilitate sanitary sewer pipelines. The process involves pulling a new carrier pipe, typically a flexible pipe like high density polyethylene (HDPE), through the existing pipe. The HDPE pipe joints are fusion welded above ground prior to installation. The annular space between the existing pipe and the new pipe is then filled with grout. The new carrier pipe must be of smaller diameter than the original pipe, thus reducing the available carrying capacity in that pipe reach. Because the carrier pipe is only slightly smaller than the existing pipe, the existing pipe must not be severely misaligned.

Unlike the CIPP and fold and form processes, sliplining generally requires excavation of an insertion trench or pit at the entry point. Excavation is also necessary to reestablish lateral connections, although robotic cutters are sometimes used. While excavation of lateral connections involves added costs, replacing the connections with new HDPE saddles, fusion welded onto the new carrier pipe, can reduce or eliminate I/I from the connection and first few feet of service lateral. The primary advantages of sliplining are that the new system has greatly improved structural characteristics and that it generally has a lower installed cost than other trenchless rehabilitation methods. The County Sanitation Districts of Los Angeles County have rehabilitated over 40 linear miles of sewer using this technique.

Pipebursting

Pipebursting is a rehabilitation/reconstruction process that has historically been specified when it is necessary to increase or maintain the carrying capacity of an existing pipe or conduit. A static or hydraulically expanding bursting head, with an outside diameter larger than the inside diameter of the existing pipe, is either pulled or pushed through the pipe, breaking it apart as it travels. Behind the bursting head, a flexible pipe is pulled into place. This new host pipe can be larger than the existing pipe if properly designed and installed. Typically, HDPE pipe with fusion welded joints, is used as a replacement pipe material. A disadvantage of pipebursting is that lateral reinstatement must be made externally and requires excavation. In areas where significant

defects have been found in lateral sewers or wye connections, this may actually be desirable, as replacing the connections with new HDPE saddles, fusion welded onto the new carrier pipe, can reduce or eliminate I/I from the service lateral.

Another drawback to pipebursting, as compared to other trenchless rehabilitation methods, is that it requires excavation of entry/exit pits which can be disruptive in high traffic areas. Impacts can be minimized through strategic planning and design, however (manholes may be used as exit pits). Pipebursting is generally limited to short runs of 500 linear feet or less.

Pipebursting is an expensive process, but can be cost-effective for specific applications. There has recently been an influx of pipebursting contractors in the region and pricing for size-on-size sewer replacement has been lower than open cut replacement in developed areas in many instances. It is certainly less disruptive than open trench replacement. Many local wastewater agencies have had recent success using pipebursting technologies to replace deteriorated pipelines.

Without developing a sophisticated hydraulic model of the District's collection system, it is difficult to identify pipelines that are currently under capacity, or will be in the future. Operational history and CCTV review suggests that some of the District's trunk lines may be undersized to convey future peak wet weather flows. If these pipes are scheduled for rehabilitation or replacement, pipebursting to upsize these reaches may be considered.

Other Trenchless Rehabilitation Methods

There are a number of other proven and emerging pipeline rehabilitation techniques and processes that were generally not considered to be appropriate for application within the District's collection system. Spiral wound pipelining and internal structural coating are two widely used rehabilitation methods that are effective in large diameter pipelines but have little utility in small diameter gravity sewers.

Trenchless Construction Methods

While a discussion of available trenchless construction methods is beyond the scope of this document, at least one inverted siphon has been recommended for reconstruction and trenchless installation may be specified during the design phase. Horizontal directional drilling (HDD) and microtunneling are the two primary trenchless candidates. A hybrid of these methods, called pilot tube microtunneling has been successfully used on several local project to construct new gravity sewerlines within standard design tolerances.

Pipeline Point Repairs

When there are a limited number of significant defects within a pipeline reach and full replacement or rehabilitation is not warranted, spot repairs or point repairs are the standard remedial approach. The repair process involves excavation at the defect location and execution of an appropriate repair method. Typically, the defective section of pipe is removed and replaced with new pipe,

using calder-type couplings. Other standard repair methods (clamps, couplings, root barriers, etc.) are available for this application.

Trenchless technologies are also available to complete spot repairs where site specific constraints prevent the conventional excavation approach. Trenchless spot repairs that are specifically designed to correct structural pipeline defects do not have a long history of field application, but are gaining popularity. The District completed a trenchless spot repair recently using a modified CIPP lining technique. A resin-impregnated sleeve was remotely placed inside the pipe over the structural defects and held in place with an inflatable bladder during the curing process. This approach appears to have provided a successful structural repair.

Another commonly used product is a stainless steel grouting sleeve, comprised of an expandable stainless steel band with an absorbent polyurethane gasket impregnated with chemical grout. The sleeve is installed remotely over the structural defect and then locked into place. The grouted gasket solidifies while the pipeline is on-line, eliminating the need for bypass pumping. This type of product is being routinely used by the Los Angeles County Sanitation Districts.

Chemical Pressure Grouting

Developed and first applied in 1955, chemical grouting was the first trenchless pipeline rehabilitation technique. It has been used world-wide to eliminate or control leaks in pipelines, dams, tanks, tunnels and other structures. The first grouts used were acrylamide based, a formulation that is still used today by many applicators.

Most grouts being used in sewer system rehabilitation today are hydrophilic urethane gels. These products are activated with water and cure in moist or saturated environments. Typically, remote control application systems, called “packers”, are used to inject the chemical grout into leaky pipe joints or cracks. The grout fills the voids and annular spaces in the soil surrounding the pipe, creating an exterior seal. The packer then performs an air test on the grouted joints to ensure a good seal has been achieved. While the urethane gel grouts can shrink as much as 25 percent (depending on mix ratios) in a dry environment, they generally reswell to their original volume when moist or wet conditions return.

The costs of chemical grouting are difficult to estimate, as the volume of grout necessary to seal joints and cracks is highly variable. Unit costs per linear foot of pipe have an extremely wide range. Pipes with short joint intervals, like the VCP throughout the District’s service area, are generally at the high end of the cost spectrum. Furthermore, there are relatively few specialty contractors in the Southern California region with the equipment and experience necessary to execute successful pipeline grouting projects. Most successful grouting programs are implemented by large wastewater agencies using in-house staff and equipment.

Manhole Rehabilitation Methods

This section presents an overview of several accepted methods or techniques for rehabilitation of deteriorated manholes. Method selection is a function of structural condition, depth, access and other key considerations.

Replacement

Manhole replacement involves excavation and removal of an existing manhole and replacement with a new manhole. Replacement is generally called for when a manhole has severely deteriorated and its structural integrity is lost or compromised. A common example of a replacement candidate is a manhole of brick construction in which the mortar between bricks has corroded or fallen out. Base and channel replacement or reconstruction is typically performed in conjunction with replacement of the manhole riser section. Replacement manholes are either pre-cast concrete or poured in place concrete. New manholes can be specified to have corrosion resistant coatings or interior liners to extend their service life. Construction materials other than concrete, including fiberglass and HDPE, can also be specified for highly corrosive environments.

As with pipeline replacement, there may be environmental or physical constraints that make manhole replacement cost prohibitive or impossible. There are several rehabilitation methods available that provide satisfactory results and do not require excavation or bypass pumping for construction.

Chemical Pressure Grouting

Chemical pressure grouting of manholes very similar to the chemical grouting process used for pipeline rehabilitation. Its primary application is to control or eliminate groundwater infiltration into the manhole itself. The chemical grout formulations used for manholes are identical to those used for pipelines, and include acrylimide, acrylic, acrylate and urethane gel type products. The hydrophilic urethane gels, which are activated or catalyzed by water, are also emerging as the most effective products for manhole applications, due to their relatively low shrinkage factors.

The manhole grouting process typically involves coring small holes through the interior wall near the observed leak or leaks. The chemical grout is then injected with high pressure pumps into the soil surrounding the manhole where it expands and fills the voids that previously conveyed groundwater. The volume of grout necessary to adequately seal a manhole is very difficult to predict and is a function of soil type, hydrostatic head and other factors. Groundwater movement around a manhole can also create voids requiring excessive quantities of grout to achieve a watertight seal. Accordingly, chemical grouting of manholes is most often performed by contractors on a time and material basis.

Non-Structural Interior Rehabilitation

Manholes with significant interior corrosion but without appreciable loss of structural integrity can be fully rehabilitated using several different methods or proprietary processes. Most involve high pressure blasting of the manhole interior to remove corroded material and then application of an

air placed concrete (APC), or other cementitious grout liner material. In corrosive environments, an epoxy or polyurethane based coating is then applied over the APC or cementitious grout liner. Where necessary, the manhole base and channel are reconstructed using standard materials. This rehabilitation method, which can be used for brick or concrete manholes, is intended to provide minimal structural enhancement and a quality cosmetic rehabilitation of the manhole interior with a corrosion resistant coating. Costs for this type of rehabilitation vary widely, with an average price of \$250 per vertical foot of manhole depth being an accepted planning level cost estimate.

Structural Interior Rehabilitation

Manholes with severe deterioration and loss of structural integrity can be successfully rehabilitated. The typical process involves placing interlocking forms, inside the existing manhole then filling the annular space (approximately 4 inches thick) with a high strength concrete. In some processes, the interior forms are removed and the new concrete interior is coated with a corrosion resistant coating. In other processes, the forms are made of a PVC material that remains in place to provide corrosion resistance. The manhole base and channel are typically reconstructed using standard materials. This type of manhole rehabilitation is quite expensive, routinely costing over \$500 per vertical foot of manhole depth. In most cases it will be more cost effective to replace severely deteriorated manholes. However, the advantage of this process is that it can be completed with the system on-line and no bypass pumping or excavation is required. In high flow or heavy traffic areas, this rehabilitation method is often appropriate.

Rehabilitation Method Selection Process

Selecting a rehabilitation method for a particular collection system component, or a set of components, can be a challenging task. Selection is based not only on the known physical defects within the pipe or manhole, but also on potential construction constraints, hydraulic characteristics, local bidding environments and other associated factors. Accordingly, selection is a fairly subjective process and sound technically based judgment is necessary to arrive at an appropriate, cost-effective solution.

As previously discussed the CCTV review process resulted in a list of pipelines recommended for full replacement or structural rehabilitation and a list of pipelines recommended to receive point repairs. Generally, if a pipeline contained more than one major structural defect per 100 feet of pipe length, the entire line was recommended for replacement.

To simplify the planning process, only a single method was recommended for each pipeline segment requiring rehabilitation or repair. It is important to note that more than one rehabilitation method may be available and appropriate for a particular line segment. In fact, this circumstance is desirable from the District's perspective, as it will allow for a competitive bidding environment and will reduce overall construction costs. Recent experience has shown that carefully crafted specifications and bid documents allowing competitive alternatives can result in excellent rehabilitation projects at substantially reduced costs.

5.0 FINDINGS AND RECOMMENDATIONS

The results and recommendations presented in this section are based on review of existing data, communications with District staff, and review of CCTV video inspection records collected between 1996 and 2002 as part of the District's SSES Program.

Pipeline Condition Assessment

The general condition of the gravity sewer pipelines throughout the District's collection system appears to be satisfactory and there are few severe structural defects that could be considered imminent failure threats. However, significant defects were observed or otherwise identified in numerous pipe segments, with the most prevalent defects associated with groundwater infiltration. Some form of structural rehabilitation is recommended for approximately 12 percent of the District's pipelines (106 of 864 total pipes).

The captured CCTV images shown in Appendix D provide a graphic depiction of the nature and types of defects observed in the system. A brief overview of the classes of defects is presented in this section.

Structural Defects

Numerous structural defects within the District's collection system were identified during the video inspection tape review and through communication with District staff. The documented defects range from minor offset joints to crushed pipe or fully deteriorated pipelines and include:

- Misaligned or offset joints
- Broken or cracked joints
- Radial or longitudinal cracks in the pipe (not at joint)
- Broken, crushed or shattered pipe
- Collapsed pipe
- Deterioration of pipe material
- Protruding or otherwise bad service taps
- Sags or flat grade
- Manhole required on bend or in long pipe reach

As previously described, the number and magnitude of structural defects found in a pipe reach contribute to its overall ranking in the condition assessment process. From a rehabilitation perspective, major structural defects were given the highest priority. It is recommended that those pipelines with the potential for structural failure be repaired or rehabilitated as soon as possible.

The clay sewer pipelines in the downtown area show definite signs of age but do not appear to be suffering from uniform deterioration or corrosion. It is in this area that the majority of the structural defects (cracks, broken joints, I/I, etc.) were observed, however, and it may be that these older pipes are nearing the end of their service life. While our rehabilitation recommendations are not based on pipe age, as the District further develops its capital program, this type of routine rehabilitation approach may be considered.

Iron Pipe Deterioration / Tuberculation

There are sections of metallic pipe, either cast or ductile iron, located throughout the collection system. In some instances the iron pipe spans the entire segment length from manhole to manhole, but in most cases just a portion of the pipe segment is DIP or CIP. It appears that the metallic pipe is often used at creek crossings or in drainage areas to provide protection against scour and possibly at locations where the pipe is shallow and subject to live loads from vehicles. In some cases, pipes appear to transition from VCP or PVC to metallic pipe at perpendicular crossings with other utilities.

Most, if not all of the metallic pipe, appears to have originally had cement lining. This is not ideal in sanitary sewer applications due to the corrosive environment, and in many locations the cement lining has been heavily corroded. Several sections of CIP/DIP along Via Real in the vicinity of Pump Stations 4 and 5, have what appears to be very severe tuberculation occurring along the flow line of the pipe. During CCTV inspections, District staff were unable to remove this aggregated material using a chain-flail head on the hydrocleaning equipment. The tuberculation or growth on the pipe walls is restricting flow and will pose hydraulic and operational problems in the future.

Removal of iron pipe tuberculation is possible using powerful mechanical scouring, however, in this application it must be followed by some type of interior lining system to prevent future occurrence. Because these lines also exhibit sags and grade problems, and also due to their shallow location, the iron pipe in this area was recommended for replacement. It is further recommended that the location of all DIP or CIP segments be documented (from CCTV records) and that appropriate preventative measures be taken to prevent or minimize interior corrosion elsewhere in the system.

Infiltration and Inflow

Groundwater infiltration and evidence of I/I was observed literally throughout the District's collection system. Infiltration problems ranged from minor mineral stains at joints or lateral connections to visible heavy inflow pouring in from cracks or separated joints. I/I from service laterals was observed in many locations. Poorly constructed break-in connections (taps) were locations where I/I was consistently observed.

In the geographic areas with known high groundwater conditions, there was no clearly observed pattern of I/I problems. Some pipe segments were relatively watertight with only minor evidence

of I/I or none at all, while other pipes were visibly leaking from nearly every joint. This variability may be attributed to variations in installation procedures, ground movement, or subsurface conditions surrounding the individual pipes. Rehabilitation methods recommended for I/I problems are based on the video tape inspections and range from spot repairs to fix individual leaky joints to complete line replacement.

Mineral Deposits and Scale

Heavy mineral deposits were observed in many locations throughout the system. The deposits, which result from the slow dripping of highly mineralized water, form in much the same way as stalagmites do in caves. The deposits are typically hard and calcified. They are not easily removed, even with chain flails, based on communications with District staff. The progressive aggregation of these calcium deposits has broken or cracked joints in many locations.

The mineral deposits were observed in mainline joints as well as in wyes, taps and inside service laterals. The deposits range from a light coating or film to very large deposits that protrude into the main line and restrict flow or do not allow passage of cleaning and inspection equipment. In many pipe segments, mineral deposits were observed in nearly every joint to varying degrees. Generally, these deposits do not appear to represent a significant source of groundwater infiltration (most just appear wet or have low rate drips). Cumulatively, however, they may be considered a source of significant I/I.

Accumulation of scale on the interior of pipelines was also observed in the video inspection tapes across wide geographic areas within the District. In some pipe segments the scale buildup was very heavy (e.g. 1/4" thick in the crown of the pipe) and was seen flaking off in large pieces and partially obstructing flow. The white or light colored scale also appears to be an accumulation of mineral deposits. Given the permeability of VCP and the uniform nature of the scale accumulation, it is probable that the scale is being formed by highly mineralized groundwater permeating the pipe. This assumption is substantiated by the fact that shallow groundwater in the affected areas is known to be extremely hard.

Accumulation of mineral scale, except in those pipe segments where it is abnormally severe, does not appear affect system operation and is not considered a problem that requires remedial action or pipeline rehabilitation in and of itself. It does contribute to debris accumulation in the collection system as it flakes off of the interior pipe wall. In areas of heavy accumulation, routine hydrocleaning is recommended to remove scale that has flaked off. The chain flail cleaning head should also be used in these segments as necessary to remove the scale from the pipe walls.

Many pipes within the collection system contain factory wyes that are visibly capped and/or service laterals that do not appear to be in use (i.e. stubbed to property line). Historically, it was the policy of many sewerage agencies to install wyes and stub out laterals for each parcel or at standard increments within a pipe reach. These connections are now sources of root intrusion and I/I within the system. When pipeline replacement or complete rehabilitation is performed, these connections should not be reestablished (e.g. unused laterals will not be cut open in CIPP

or fold & form liners). This approach will require some research, additional video inspection, and/or field testing to verify which connections are active and which are not.

Sags and Grade Defects

Sags and grade related defects were also observed throughout the system. From a rehabilitation perspective this class of defect was not ranked as highly as other types of defects by design. In many cases, sags present operational problems that can be addressed through routine cleaning and inspection. In some cases, however, severe sags can cause heavy debris/grease accumulation that can lead to stoppages and sewer overflows. There were several sags observed within the system that were considered severe and were recommended for rehabilitation or repair.

Sags are perhaps the most difficult problem to assess when evaluating defects using CCTV inspection methods. For the most part, the areas with the worst sags result in the camera lens being underwater making condition assessment impossible. Debris in the line can contribute to backwater conditions and make grade problems appear worse than they truly are. As previously discussed, a number of line segments were recommended for reinspection. Prior to retelevising these pipelines they should be thoroughly cleaned to aid in assessment of sags in the subsequent CCTV review.

Minor to moderate sags, which do not cause severe debris accumulation, are not generally considered structural problems worthy of pipeline replacement and/or realignment. They are, however, considered operational problems in that they can require increased cleaning frequencies to ensure safe operation and prevent stoppages. A list of pipelines with documented sags is included in Appendix B (see Sag Rating report). This list should be used to develop updated cleaning frequency schedules as appropriate.

Debris and Grease Accumulation

Accumulation of grease in the collection system does not appear to be a major problem within the collection system. Heavy grease accumulation is generally limited to pipes with flat grades or severe sags and in locations where there is some hydraulic restriction. A few line segments have grease accumulation in the pipe crown, suggesting a historical blockage or flow impediment. The District does require grease traps for food service establishments and has implemented an inspection and enforcement program to ensure proper cleaning and maintenance of these facilities.

Debris accumulation was observed in many locations throughout the collection system, primarily in pipe segments with major sags and lines constructed with flat grades. Several of the District's trunk lines appeared to contain heavy grit and debris. This may be the result of years of accumulation or it may be attributable to inadequate flow velocities in the trunk lines. Thorough cleaning is recommended to remove debris from these lines.

Root Intrusion

Root intrusion is prevalent throughout the collection system. The problems range from very light roots at a single joint with no threat to the system's structural integrity to very heavy roots at multiple joints that are causing joint separation, structural pipe damage and main sewer blockages. Root intrusion into lateral connections is also a problem within the system, with many laterals partially or fully obstructed by root masses. Roots also protrude from laterals and block the main sewer, in some cases obstructing flow.

It was noted that VCP has a higher propensity for root intrusion at joints and connections than do other pipe materials. The nature of the VCP joints and the permeability of the pipe material make it more susceptible to root intrusion. The relatively short segment lengths also compounds the problem in VCP, providing many more avenues for root intrusion in each pipe reach than available in other pipe materials with longer segment lengths.

Most of the observed root problems in the District's system are not causing significant structural damage to the pipe. Very few broken or separated joints appear to be caused by root intrusion. In these instances, structural rehabilitation is not considered necessary and has not been recommended. Instead, those pipe segments with significant roots intruding through joints, cracks or laterals but not jeopardizing the pipe's structural integrity have been recommended for inclusion in a root control program. This type of program, already being implemented by the District, involves a combination of hydrocleaning, root sawing and application of chemical root control products.

It is important to note that while these pipelines with significant root intrusion have not been recommended for capital improvement or structural rehabilitation, if left unchecked and not included in a comprehensive root control program, the roots will continue to grow and could potentially cause flow stoppages. A list of pipelines recommended for inclusion in the District's root control program is also included in Appendix B (see Root Rating report).

Manhole Condition Assessment

Video inspection tape review, which was the basis for most of the pipeline rehabilitation recommendations described in the previous section, provided little information on the condition of the District's manholes. A comprehensive manhole evaluation program is not part of this planning effort. However, during CCTV review a number of manholes were observed to have visible infiltration, root intrusion or other structural defects. These defects were noted to the extent practicable in the engineer's review comments. A list of manholes requiring further inspection and evaluation is included in Appendix G.

It is recommended that the District also implement a routine manhole inspection program that includes visual surface inspection each time a manhole cover is opened for cleaning, CCTV inspection or other maintenance activities. Collected data should be maintained in the District's Sussex database.

Pump Station / Force Main Condition Assessment

The District owns and operates six pump stations within its service area. For purposes of this study, assessment of the condition of the District's pump stations and appurtenant force mains was limited to a review of existing data and communications with District staff.

In March 2001, the District commissioned engineering evaluations of Pump Station Nos. 1, 2 and 4. The engineering studies were performed by David Sullivan, P.E., a consulting engineer familiar with District's pump station operational history. The studies generally included analysis of system operability, structural condition and hydraulic capacity. Capital improvement recommendations were made for each pump station. The planning level cost estimates for these improvements were adjusted for inflation and incorporated into the collection system capital improvement program (See Section 6.0).

Pump Station No. 1

Pump Station No. 1, located within the Carpinteria State Park downstream of MH 5277, is the District's largest lift station conveying an average dry weather flow of 1.6 mgd. It is a conventional wet pit /dry pit pump station with two Fairbanks Morse non-clog pumps equipped with variable frequency drives. The wetwell/drywell structure was originally constructed in the 1930's and has been reconfigure over the years as necessary. The original Chicago Pump comminutors have been removed and no debris/rag removal facilities exist currently, resulting in high maintenance requirements. The pumping system is also undersized and cannot effectively convey peak wet weather flow rates. A submersible pump was installed to provide additional pumping capacity during peak flow conditions. The electrical controls for Pump Station No. 1 are reported to be in poor condition due to moist and corrosive conditions at the pump station, and will eventually require rehabilitation.

Recommended near term capital improvements include installation of new comminutors and a bar screen at an approximate installed cost of \$60,000. Major pump station rehabilitation and upsizing was not recommended at this time. Instead, redirection of flow from Pump Station No. 2 directly to the WWTP was identified as a preferred alternative that would significantly reduce the peak flow rates into the Pump Station No. 1 wetwell.

Pump Station No. 1 discharges to a 12-inch diameter force main which terminates at the District's WWTP. The structural condition of this force main was not evaluated but no recent operational problems have been reported by District staff. No force main related capital improvements were recommended.

Pump Station No. 2

Pump Station No. 2 is located adjacent to the SPRR right of way, behind the Aliso Elementary School. It is equipped with two Vaughn shaft driven chopper pumps with an approximate pumping capacity of 800 gpm. The wetwell, also believed to be circa 1930, is basically a large cylindrical manhole. The structural condition of the wetwell was not evaluated. The pump station does not

have flow metering capabilities but it is believed that the pumping capacity is marginally sufficient to convey peak wet weather flows.

Recommended near term pump station improvements include replacement of pump impellers, coupling mounts, motors and variable frequency drives. Upsizing these items will increase pumping capacity and reduce maintenance requirements.

Pump Station No. 2 discharges to a cast iron force main that consists of approximately 1,200 linear feet of 12-inch diameter pipe followed by approximately 700 linear feet of 8-inch diameter pipe. The 8-inch diameter section increases the system head and is believed to restrict flow during peak flow events. Replacement of this undersized pipe is recommended.

Flow from Pump Station No. 2 is currently directed to Pump Station No. 1 for conveyance to the WWTP. Realignment and extension of the Pump Station No. 2 force main would allow for direct conveyance to the WWTP, thereby reducing the pumping requirements at Pump Station No. 1. Approximately 1,800 linear feet of new 12-inch diameter force main piping is required to achieve this objective at an estimated cost of about \$300,000. This recommended extension includes replacement of the existing 8-inch diameter pipe (700 l.f.).

Pump Station No. 3

Pump Station No. 3 is located at the WWTP. Major improvements to this lift station were completed during recent plant upgrades and no near term capital projects are expected to be necessary. The Pump Station No. 3 force main is entirely within the WWTP site and is considered plant piping for purposes of maintenance and operations.

Pump Station No. 4

Pump Station No. 4 is located on Via Real adjacent to the Sandpiper Mobile Home Park. Originally constructed in the 1970s the station has been modified over time to convey increased flows. The pump station is equipped with two Wemco torque flow pumps, one driven by a 30hp motor and the other by a 40hp motor. Individual pumping capacity is estimated to be 430 gpm and 470 gpm respectively. System head and pump configuration limit the combined pumping capacity of the station to approximately 480 gpm. This is not considered adequate based on estimated flow rates, which range from an average daily flow of 220,000 gpd to a peak wet weather flow of 600,000 gpd.

A major retrofit/rehabilitation of Pump Station No. 4 was recommended to provide adequate pumping capacity. Planned improvements include replacement of the existing pumps with new submersibles, new valves and piping, and complete replacement of system instrumentation and controls. The estimated capital cost for these improvements is approximately \$155,000.

Pump Station No. 4 discharges to a 4,200 foot long, 4-inch diameter PVC force main. This pipe is undersized and results in head losses that significantly impact pumping capacity at the lift station. Furthermore, the existing pipe is not believed to be rated for pressure service. This, coupled with substandard pipe bedding and backfill have contributed to multiple pipeline failures in recent

years. Replacement and upsizing of the existing force main was recommended. The construction cost for 4,200 linear feet of new 12-inch DIP force main was estimated to be approximately \$750,000.

Pump Station No. 5

Pump Station No. 5, located on Via Real near Arroyo Paredon, serves the westernmost portion of the District's service area including the Serena Park subdivision and a portion of Padaro Lane. Pump Station No. 5 is a package-type duplexed pump station with two Wemco torque flow pumps that discharge to a 4-inch force main. The force main terminates at MH 3012 and wastewater is conveyed by gravity to Pump Station No. 4. A comprehensive assessment of the structural condition of Pump Station No. 5 is outside of the scope of this study, however, District staff indicate the lift station and force main are in satisfactory condition and major capital improvements are not anticipated. Pumping capacity is believed to be adequate for existing and future flows.

Pump Station No. 6

Pump Station No. 6 is a small, privately developed package pump station that serves a limited number of residential and commercial connections on the west end of Sand Point Lane (behind Santa Claus Lane). A short force main pipe discharges to MH 3033 in Santa Claus Lane. No capital upgrades to this pumping system are reported to be necessary at this time.

Gravity Siphon Condition Assessment

Condition assessment of inverted siphon structures is difficult using normal CCTV inspection procedures as they are generally fully submerged. There are two gravity siphons within the District's collection system.

A small inverted siphon crossing of Arroyo Paredon is located in Padaro Lane between MH 3007 and 3008. This siphon appears to be a single barrel siphon constructed of ductile or cast iron pipe. At the siphon inlet there are signs of significant iron pipe tuberculation or corrosion. The siphon may also not be functioning well from a hydraulic standpoint, possibly due to accumulation of scale or debris in the invert. Replacement of this siphon crossing is recommended based on available information, although additional investigation (hydrocleaning, pigging, follow-up CCTV inspection, etc.) should be undertaken prior to any major capital expenditure. Arroyo Paredon is considered an environmentally sensitive habitat, based largely on the presence of the Tidewater Goby. Trenchless replacement of the existing siphon, using horizontal directional drilling (HDD), is recommended to avoid construction related environmental impacts. There are relatively few service connections upstream of the siphon. However, the main sewerlines upstream were observed to have significant sags and/or grade deviations.

A second inverted siphon crosses under Carpinteria Creek in the Carpinteria Avenue between MH 5376 and 5377. This pipeline is reported to be a single barrel 8-inch diameter siphon. Pipe material and condition are unknown. District staff have indicated that the siphon performs adequately. Generally, however, single barrel inverted siphons are not desirable because they do

not maintain adequate flow velocities across a wide range of flow conditions. An evaluation of the structural condition of the siphon is recommended. This assessment should include pigging of the siphon followed by CCTV inspection. Bypass pumping may be required to adequately inspect the siphon (MH 5378 to MH 5319). Hydraulic analysis of siphon operation should be coordinated with a system-wide modeling and master planning effort.

A standard gravity sewer crossing of the US 101 right of way conveys flow from Santa Claus Lane to Via Real (MH 3029 to MH 3020). This line appears to have a very flat or possibly negative slope, either since its original construction or due to settlement of the highway corridor. Flow velocities are not high enough in this line for it to function as a self-cleaning siphon, however, and debris accumulation in the line can cause backwater conditions in the upstream lines in Santa Claus Lane.

Bluffs Sewer Relocation Project

The District is currently considering relocation of a collector sewer known as the Bluffs Sewer which serves the eastern portion of the District's service area west of US 101. The pipeline parallels the Southern Pacific Railroad right of way on the north side and is located in close proximity to a continually eroding slope. On several occasions this pipeline has been exposed or damaged due to slope failure and gully erosion and the District has realigned several pipe reaches in response to threatened structural failure. In its present location, this pipeline is difficult to access for maintenance purposes.

The District is also concurrently considering annexation and connection of the Rincon Point beach community. A force main from a new Rincon Point pump station is expected to terminate at the easternmost end of Carpinteria Avenue near its intersection with SR 150.

A preliminary design study, prepared by Penfield & Smith Engineers in September, 2001, evaluated alternatives for relocation of the Bluffs sewerline. The study considered capacity requirements for existing connections, infill development of parcels south of US 101, and flow contributions from the Rincon Point community. The considered alternatives involve construction of a new gravity sewerline in Carpinteria Avenue, generally between SR 150 and Dump Road. Design elements include a trenchless boring through the Bailard Avenue overpass embankment and reconnection of existing industrial and commercial facilities using gravity sewer laterals and new pumped services, as necessary. Planning level cost estimates for relocation of the Bluffs sewerline range from \$1.3 to \$2.1 million dollars. Additional costs to reconnect existing users would also be assumed by the District.

Generally, the existing Bluffs sewerline is in good structural condition. Point repairs were recommended for two line segments to correct observed structural defect. Grade deviations and minor root intrusion were identified in other line segments, although replacement and/or repair was not recommended. The existing pipeline may not have adequate capacity to convey future flows, as the Penfield & Smith study recommended upsizing the relocated sewer.

Rehabilitation Recommendation Overview

Table 5-1 provides a summary of the recommended rehabilitation projects and the estimated program costs developed as part of the Capital Improvement Program described in the next section. Individual rehabilitation projects are summarized in spreadsheet format in Appendix E and are shown graphically on Figures A1 through A6 in Appendix E.

TABLE 5-1 – Pipeline Rehabilitation Summary

No. of Pipelines	Proposed Rehabilitation Method	Total Estimated Cost
19	Pipeline Replacement	\$ 541,086
7	CIPP Liner	\$ 151,699
16	Pipe Bursting	\$ 368,794
63	Spot Repair	\$ 238,140
1	Horizontal Directional Drilling	\$18,200

Fold & Reform lining generally offers a cost savings over CIPP lining, and in some cases results in a much better end product. For planning purposes, it was not deemed necessary to differentiate between CIPP and Fold & Reform Lining and all rehabilitation of this type was computed as CIPP. Method selection will be performed during design or, if appropriate, the techniques will be bid competitively.

Sliplining was not recommended as an appropriate rehabilitation method for any of the surveyed pipelines. Although it is generally considered to be less expensive than other trenchless rehabilitation methods, actual unit costs are difficult to estimate. Furthermore, sliplining reduces the carrying capacity of the pipe, sometimes significantly. Without a flow-based master plan (with D/d values for individual pipe segments) it is not possible to know which pipelines are at or approaching their carrying capacities. Sliplining should, however, be considered an acceptable alternative for all pipelines with verified excess capacity for future conditions. Including it as an alternative in a carefully crafted set of construction specifications could reduce the total construction costs significantly.

Chemical grouting was also not recommended as an appropriate pipeline rehabilitation in this plan, largely because there are few specialty contractors in the local area with equipment necessary to perform this work. Recent improvements in materials and application techniques do make chemical grouting an attractive procedure for I/I control in high groundwater areas. The District may consider implementing an evaluation level project to assess the feasibility and cost-effectiveness of this process within its collection system. National Plant Service (Long Beach), a

specialty contractor the District has used on other projects, is equipped for chemical grouting, however, they generally use an acrylamide grout which has a history of shrinkage in areas with fluctuating groundwater levels.

6.0 CAPITAL IMPROVEMENT PROGRAM

This section describes the proposed capital improvement program (CIP) for collection system rehabilitation, developed primarily from the prioritized list of pipeline rehabilitation projects identified in the condition assessment portion of this analysis. Additional capital improvement projects that are currently in the planning stages were included in the CIP where appropriate. The CIP is phased over a five-year period beginning in fiscal year 2002/03.

The five-year CIP is basically a strategic plan for execution of the recommended collection system rehabilitation projects and other major collection system improvements. Appendix E contains the tables and cost estimates that make up the CIP. Table E1 shows proposed timing for the capital improvements, which total approximately \$5.4 million. Summary spreadsheets for individual pipeline replacement projects and point repairs are also included in Appendix E. Figures A1 through A6, in Appendix A, provide a graphical depiction of the recommended capital improvements overlaid on the District's sewer system atlas maps.

The proposed collection system CIP is a planning tool that is dynamic in nature. As additional defects and associated rehabilitation projects are identified - through routine and directed CCTV inspection efforts - project prioritization and timing for implementation is expected to change. The District's Sussex asset management database and spreadsheets developed as part of this planning process may be used to maintain a continuous defect ranking process and to update the CIP as necessary.

This Plan recommends substantial collection system maintenance and operation program improvements. Implementation will likely require additional labor, materials and equipment. Capital expenditures for equipment have not been included in the CIP presented herein, but should be considered in the District's overall long term capital plan.

Unit Costs

Unit costs for construction developed and used in this plan are based on the following: area specific quotes (and recent successful bids) from vendors, manufacturers and contractors; engineering experience on other sewer rehabilitation design and construction projects; and construction industry cost estimating reference guides. The unit costs presented herein are planning level costs and should not be applied to specific projects beyond the planning stage. At the program level, they are considered adequate and should provide an acceptable budgetary framework to package construction projects for bid solicitation.

Table 6-1 provides a summary of the unit costs used for planning level project cost estimates. Total unit costs include typical construction cost values, generally in terms of dollars per inch

diameter foot (IDF), and mark ups for engineering and administration, construction management and a general contingency. While the costs for sewerline point repairs are expected to vary dramatically, a unit cost of \$3,780 per repair was assumed for planning purposes.

TABLE 6-1 Unit Cost Summary

Item Description	Gravity Sewer Replacement (\$/inch diameter foot)	Force Main Replacement (\$/inch diameter foot)	Cured in Place Liner (\$/inch diameter foot)	Pipebursting (\$/inch diameter foot)	Horizontal Directional Drilling (\$/inch diameter foot)	Excavated Point Repairs (each)	Trenchless Point Repairs (each)
Construction Cost	\$ 10.00	\$ 8.00	\$ 6.00	\$ 7.50	\$ 25.00	\$ 3,000	\$ 3,500
Engineering/Administration	10%	10%	6%	8%	10%	6%	8%
Construction Management	10%	10%	10%	10%	10%	10%	10%
Contingency	10%	10%	10%	10%	10%	10%	10%
TOTAL UNIT COST*	\$ 13.00	\$ 10.40	\$ 7.56	\$ 9.60	\$ 32.50	\$ 3,780	\$ 4,480

* Based on 2002 Dollars (April 2002 ENR CCI = 6480)

Project and Program Costs

Unit costs were extended to generate a budget level cost estimate for each individual rehabilitation project. The summary tables presented in Appendix E list individual projects with associated unit and extended costs for pipeline and manhole rehabilitation, respectively.

Approximately 13,000 linear feet of pipe was recommended for replacement or structural rehabilitation with an associated total implementation cost of approximately \$1,080,00. It is presumed that additional pipeline replacement and rehabilitation will be required or recommended as a result of follow-up CCTV inspection and further collection system assessment. For planning purposes a total CIP replacement/rehabilitation cost of \$1,500,000 was assumed over the five-year CIP implementation period with a recommended annual capital expenditure of \$300,000. This type of rolling approach to collection system rehabilitation will allow the District to maintain effective project control and administration. It will also provide the District with scheduling flexibility.

A rolling implementation approach is also recommended for point repairs. A total of 63 point repairs were recommended, with an estimated construction cost of approximately \$240,000. It is presumed that additional point will be required or recommended as a result of follow-up CCTV inspection and further collection system assessment. For planning purposes a total CIP replacement/rehabilitation cost of \$300,000 was assumed over the five-year CIP implementation period with a recommended annual capital expenditure of \$60,000.

As previously mentioned, comprehensive condition assessment of the District's manholes is outside the scope of this study. Based on our review of CCTV data some structural defects were observed and recommendations for a manhole inspection program were presented. It is presumed that structural repairs and rehabilitation requirements will be identified as the inspection and assessment program is implemented. For purposes of this collection system CIP, a lump sum expenditure of \$150,000 was assumed in FY 2006/07. This amount, in 2002 dollars, represents complete replacement or full structural rehabilitation of approximately 30 standard manholes. It is more likely that the resultant manhole program will involve a combination of manhole replacement, rehabilitation, surface restoration and waterproofing with chemical grout.

Capital costs for recommended pump station and force main projects were taken directly from preliminary engineering and planning studies provided by the District. Capital cost estimates for pump station and force main improvements were taken from the March 2001 engineering studies previously discussed. Costs were adjusted to 2002 dollars using an April 2002 ENR Construction Cost Index value of 6480. Capital costs for the Bluffs Sewerline Relocation Project were assumed within the range presented in the September 2001 conceptual design study.

The total five-year CIP program costs are estimated to be on the order of \$5.4 million dollars. It should be noted that a significant portion of the costs for relocation of the Bluffs sewerline may be attributed to the Rincon Point sewer improvements and not considered as part of a system-wide rehabilitation plan.

Inflation Factors

A simple three percent annual inflationary factor was applied to the CIP totals in Table E1 for budgetary planning purposes. This increases the total CIP program costs by approximately \$300,000 over the five-year planning period. Individual projects were not adjusted for inflation to facilitate adjustments to present value and project implementation schedules as part of the District's overall planning process.

Project Phasing

The capital improvement projects listed in the summary tables in Appendix E are prioritized based on total defect score. Ideally, the CIP projects would proceed in descending order so that the "worst" pipelines would be rehabilitated first.

However, a more strategic approach to project phasing is expected to maximize program efficiency. Rehabilitation projects using the same techniques may effectively be grouped together where appropriate and bid as a single unit to reduce costs. While this approach makes sense, other agencies have successfully achieved significant cost savings by bidding various rehabilitation methods against each other. This approach requires carefully crafted project specifications to ensure the allowed construction methods are appropriate for each specific pipeline reach.

Projects may also be combined based on geographic location to minimize construction costs and/or reduce impacts to local residents. For example, the majority of the rehabilitation projects are located in the downtown area of Carpinteria. The first year of the rolling rehabilitation program could be limited to the downtown area west of Linden Avenue and south of Carpinteria Avenue. The second year could address downtown problems east of Linden Avenue.

Actual project grouping should be performed as part of the annual rehabilitation design process and should be based on approved, available budgets. Project grouping is also dependent on the results of follow-up CCTV inspections recommended herein. These should be completed as soon as possible to avoid a “leapfrog” effect during pipe renewal.

For replacement and structural rehabilitation projects, the District should consider performing updated CCTV inspections during the annual planning process for the defective line and for adjacent lines that have not been previously confirmed to be in satisfactory condition.

7.0 RECOMMENDED FOLLOW-UP ACTIONS

This section includes recommendations and suggestions based on information obtained and observations made during execution of this project. Their implementation will provide improvement to the currently proposed rehabilitation program, future system operation and ongoing condition assessment efforts.

RETV Pipelines and Update Rehabilitation Plan

As mentioned in the Section 5.0 of this report, there are numerous pipeline segments that should be re-televised to provide improved condition information. Many of the pipelines are in areas of the collection system with known defects or I/I, but existing video inspection records are of such poor quality that a reliable condition assessment cannot be made (e.g. high water in pipe, or debris on the camera lens).

The list of pipelines requiring reinspection should also be expanded to include pipelines with suspected defects that have not been inspected in the recent past (SSES Program). A comprehensive list of pipelines recommended for re-inspection is included in Appendix F.

As mentioned previously, video inspection of the entire collection system has not been completed and there are many pipe segments for which condition has not been verified. As the routine inspection process continues, pipelines with significant defects will undoubtedly be identified. Using the ranking criteria established for this study, these pipes or facilities may be of higher priority for rehabilitation or repair than many of those identified herein. These can and should be incorporated into the overall rehabilitation plan with the appropriate remedial approach and timing assigned in a manner consistent with that used here.

Updated Video Inspection Procedures

Preparation of this plan involved review of several hundred hours of video pipeline inspection tapes. The inspection tapes were generated by District personnel and outside contractors (Stewart's De-Rooting) between 1996 and 2001. The District currently uses a self-propelled camera unit (tractor type) with an auto-focus 180-degree rotating lens.

The equipment and standard procedures used for the SSES inspections were reasonably consistent. However, inspection procedures varied slightly from operator to operator, making it difficult for the reviewer to compare one pipe segment to another.

It is recommended that the District develop and implement a standard operating procedure (SOP) for video pipeline inspection that will provide a consistent product for subsequent condition assessment activities. The following list includes specific observations and recommendations that should be considered when developing a new SOP:

- Inspect entrance and exit manholes with camera to the extent possible and document physical condition on inspection log.
- Use consistent screen notes (pipe identification, date, tape number, etc.) and keep them visible during the entire run. Turn notes off temporarily when they obscure the picture.
- Stop and inspect every joint with visible defects.
- Stop and inspect every service lateral connection.
- Stop and inspect every visible crack or structural defect.
- Provide consistent voice over descriptions.
- Use standard guidelines or a condition assessment matrix to consistently classify defects.
- Hydroclean each line segment prior to video inspection.
- Use properly sized skids or tracks to match pipe diameter.
- Do not continue inspection if camera lens is obstructed by water or debris (except through short sags). Flush, clean or plug upstream flow temporarily and re-inspect.
- If an obstruction is encountered within a pipe segment that the camera cannot pass, setup and inspect from the downstream manhole to the opposite side of the obstruction.
- Record “hour-minute-second” tape position at the beginning of each pipe segment.
- Prepare permanent labels with an ordered list of inspected pipe segments (and minute-hour-second position) and affix it to the tape.

Keep track of tape position at all times to avoid recording inspection of a single pipe on two different tapes.

Master Plan / Hydraulic Model Development

While the District is effectively at build-out conditions, as part of the CMOM Program the District will be required to determine and document the actual capacity of its existing system. It is recommended that the District develop a computerized hydraulic model of its collection system. A simple model of the District’s trunk lines and main arterial system is expected to be adequate for this purpose.

As previously noted, several of the District’s trunk lines appear to flow at least half full under normal conditions. While CCTV inspections are a less than definitive means of determining capacity problems, they are effective at suggesting general areas where there may be capacity issues.

Prior to undertaking major structural repairs on lines that may be at or near capacity, the hydraulic model should be run to identify the need to upsize existing lines.

Infiltration/Inflow Control Program

This study and the resultant recommendations for collection system improvements and rehabilitation will achieve significant I/I reductions when implemented. Groundwater infiltration into manholes, main sewerlines and into some service laterals near their connection to the main, will be measurably reduced. However, infiltration from these sources should be considered a relatively small component of the total system I/I.

Rainfall dependent I/I is believed to be a significant problem within certain portions of the District's collection system. The District may wish to consider a flow monitoring or I/I study to look at contributions from individual drainage basins during wet and dry weather conditions. Information gathered from this type of study can be used to focus ongoing rehabilitation efforts to maximize I/I reductions.

The District recently undertook a smoke testing program. Smoke testing is a cost-effective way of determining sources of inflow and infiltration, particularly from service laterals and building sewers. Additional smoke testing is a recommended component of the District's I/I Reduction Program. A strategic plan should be developed to get the highest value from such an effort.

Additional components of an effective I/I reduction program include on-going remedial efforts and increased physical inspection of facilities during rainfall events. There are commercially available products to minimize inflow into submerged manhole covers (insert pans, corks, etc.) and through unsealed grade rings (Cretex boots, etc). Manholes in landscaped areas that are prone to submergence should be raised. The bottom line is that I/I reduction is a complex problem. To be successful requires diligent implementation of a multi-faceted, well developed plan.

REFERENCES

1. Carpinteria Sanitary District, Sanitary Sewer Conceptual Design Study – Carpinteria Bluffs, Penfield & Smith, September 2001
2. Carpinteria Sanitary District, Analysis of Pump Station No. 1 and Preliminary Engineering for Upgrade, David Sullivan, P.E., March 2001
3. Carpinteria Sanitary District, Analysis of Pump Station No. 2 and Preliminary Engineering for Upgrade, David Sullivan, P.E., March 2001
4. Carpinteria Sanitary District, Analysis of Pump Station No. 4 and Preliminary Engineering for Upgrade, David Sullivan, P.E., March 2001

APPENDICES

APPENDIX A – Figures and Graphics

APPENDIX B – Defect Ranking Reports

APPENDIX C – Summary of Engineer’s Review Comments

APPENDIX D – Captured CCTV Images

APPENDIX E – Capital Improvement Program

APPENDIX F – List of Pipes Requiring Further Review

APPENDIX G – Manhole Inspection / Repair List

APPENDIX F

Infiltration and Inflow Study Excerpts

Submitted to:
Dudek & Associates, Inc.
621 Chapala Street
Santa Barbara, CA 93101



Carpinteria Sanitary District Infiltration & Inflow Study

Monitoring Site Information
(MGD Job #030808.01)

Prepared by:



MGD TECHNOLOGIES INC.
9815 Carroll Canyon Road, Suite 200
San Diego, CA 92131
(858) 695-9225



1.0 Project Summary

1.1 Background

Dudek & Associates contracted MGD Technologies Inc. (MGD) to provide flow monitoring at eight (8) locations within the Carpinteria Sanitary District, in the City of Carpinteria, California for a period of twenty-eight (28) consecutive days. The data was to be used for the Carpinteria Sanitary District Infiltration and Inflow Study.

The flow metering equipment was installed on January 05, 2005 at ten (10) locations, (eight meters, two rain gauges), identified by Dudek & Associates. Site confirmations and data collects were conducted on January 06th, 18th, and 27th, and again upon meter removal, February 3, 2005. The twenty-eight (28) days of data contained in this report is for the period of January 06, 2005 through February 02, 2005.

The following Table 1.1 lists the site addresses, pipe sizes, average and maximum values for depth and flow rates based on the 15-minute averages data provided with this report in electronic format.



**Table 1.1 - Carpinteria Sanitary District Infiltration & Inflow Study
 Wet Weather Flow Monitoring Summary**

Site	Size (in)	Carpinteria Sanitary District Manhole Number	Min Depth (in)	Avg. Depth (in)	Max Depth (in)	Max d/D (Depth/Diam.)	Min Flow (mgd)	Avg. Flow (mgd)	Max Flow (mgd)	Peaking Factor (max flow/ avg. flow)
04120401	15	6F-110	4.48	6.88	62.03 surcharge	46%	0.33	0.63	1.22	1.92
04120402	12	8G-015	2.41	3.42	5.78	48%	0.08	0.23	0.75	3.30
04120403	18	7H-100	2.66	3.62	4.85	27%	0.06	0.19	0.40	2.06
04120404	10	6G-185	5.68	9.91	71.99 surcharge	99%	0.25	0.53	1.15	2.19
04120405	15	7G-180	2.43	4.34	88.09 surcharge	29%	0.10	0.19	0.60	3.10
04120406	15	7G-180	4.95	7.47	88.59 surcharge	50%	0.41	0.92	2.17	2.36
04120407	10	6F-100	3.20	5.03	53.98 surcharge	50%	0.13	0.33	0.87	2.59
04120408	21	7G-250	4.49	11.37	110.68 surcharge	54%	0.41	1.61	4.39	2.72



2.0 Station Summary

The Carpinteria Sanitary District Infiltration & Inflow Study - Wet Weather temporary flow monitoring project undertaken in Carpinteria, CA required the monitoring of flows at eight (8) locations. Flow monitoring was to be performed for a period of twenty-eight (28) consecutive days. This report presents the results of the flow monitoring data collected at the metering locations during a twenty-eight (28) day period of January 05, 2005 through February 02, 2005. In addition to the eight monitoring sites, the project included the deployment of two (2) rain gauges for the duration of the project.

2.1 Site Locations

MGD installed eight (8) flow meters at eight (8) locations and two (2) rain gauges at two (2) locations for a period of twenty-eight (28) consecutive days. The following is a description of each monitoring location.

Site (#1) 04120401 was located at 4251 East Carpinteria Avenue. This manhole consisted of two influent lines and one effluent line. The 15" lateral pipe flowing from the northeast was the metered line. An 8" lateral pipe entered from the northwest. A 15" effluent flowed southwest. The metered 15" lateral pipe was a vitrified clay pipe (VCP). MGD installed a Sigma 910 in the 15" influent line. No silt found at this location.

Site (#2) 04120402 was located on a dirt road just off Concha Loma Drive. This manhole consisted of one influent line and one effluent line. The 12" influent pipe flowing from the west was the metered line. An 8" through pipe exited from the southwest flowing northeast. The metered 12"



influent pipe was a vitrified clay pipe (VCP). MGD installed a Sigma 910 in the 12" influent line. No silt found at this location.

Site (#3) 04120403 was located at Casitas Pass Road in the Casitas Plaza. This manhole consisted of one influent line and one effluent line. The 18" influent pipe flowing from the southwest was the metered line. An 18" through pipe exited to the northeast. The metered 18" influent pipe was a vitrified clay pipe (VCP). MGD installed a Sigma 910 in the 18" influent line. No silt found at this location.

Site (#4) 04120404 was located at the intersection of Holly Avenue and Carpinteria Avenue. This manhole consisted of three influent lines and one effluent line. The 10" influent pipe flowing from the northwest and exiting to the southeast was the metered line. An 8" through pipe entered from the northeast flowing northwest. The metered 10" influent pipe was a vitrified clay pipe (VCP). MGD installed a Sigma 910 in the 10" influent line. No silt found at this location.

Site (#5) 04120405 (**South Line**) was located at the intersection of Linden Avenue and Dorrance Way. This manhole had two influent lines and one effluent line. The 15" influent pipe flowing from the southeast was the metered line. A 15" influent pipe entered from the northwest. A 21" effluent pipe exited to the southwest. The metered 15" influent pipe was a vitrified clay pipe (VCP). MGD installed a Sigma 910 in the 15" influent line. No silt found at this location.

Site (#6) 04120406 (**North Line**) was located at the intersection Linden Avenue and Dorrance Way. This manhole had two influent lines and one effluent line. The 15" influent pipe flowing from the northwest was the



metered line. A 15" influent pipe entered from the southeast. A 21" effluent pipe exited to the southwest. The metered 15" influent pipe was a vitrified clay pipe (VCP). MGD installed a Sigma 910 in the 15" influent line. No silt found at this location.

Site (#7) 04120407 was located at the Aliso Elementary School just off 7th Street. This manhole consisted of three influent lines and one effluent line. The 10" influent pipe flowing from the west and exiting to the east was the metered line. An 8" lateral pipe entered from the northwest. A 6" lateral pipe entered from the northeast. The metered 10" influent pipe was a vitrified clay pipe (VCP). MGD installed a Sigma 910 in the 10" influent line. No silt found at this location.

Site (#8) 04120408 was located at the Carpinteria Beach State Park. This manhole consisted of one influent line and one effluent line. The 21" influent pipe flowing from the northeast was the metered line. A 21" through pipe exited to the northwest. The metered 21" influent pipe was a vitrified clay pipe (VCP). MGD installed a Sigma 910 in the 21" influent line. No silt found at this location.

Two rain gauges were installed for this project. The rain gauges were located as follows:

Rain Gauge Site #10 (04120410) was located at 1453 Casitas Pass Road on the roof of the pump station. Rain Gauge Site #12 (04120412) was located at a sewer lift station just north of Aliso Elementary School.



2.2 Equipment Selection

MGD maintains an inventory of a minimum of six (6) different types (manufacturers) of flow monitors and chooses the appropriate meter for the applications. In an open channel, temporary flow monitoring project three (3) different types of meters are usually considered. The actual type used at each location and installation method is based on an evaluation of site conditions including but not limited to pipe size, expected minimum depth, expected maximum depth, expected minimum velocity, expected maximum velocity, silt levels, presence of debris, and surcharge evidence. This installation utilized only (1) type of flow meter at the eight (8) locations. An American Sigma Model 910 was installed in all sites for the duration of the project. An American Sigma Model 950 was used for rain gauge monitoring. The following is a description of the American Sigma Model 910 and Model 950 used on this project.

2.2.1 American Sigma Area-Velocity Flow Meters

MGD uses the area-velocity flow monitoring equipment manufactured by American Sigma. MGD maintains an inventory of American Sigma models 910, 920, and 950. Models 910 and 950 were used on this project.

The Sigma 910 series meter is equipped with pressure sensor technology for level measurement and continuous wave Doppler technology for velocity.



The Sigma 920 series is typically equipped with pressure sensor technology for level measurement and continuous wave Doppler technology for velocity. The 920 series is also capable of using a downward looking ultrasonic level sensor in conjunction with the pressure sensor for redundant depth measurements.

The Sigma 950 series may be equipped with either pressure transducer technology or bubbler pressure technology for level measurement. In both cases the 950 utilizes continuous wave Doppler technology for velocity. The 950 may also use a downward looking ultrasonic level sensor



3.0 Data Presentation

3.1 Data Presentation

This section of the report provides a detailed compilation of flow monitoring station information.

3.2 Field Investigation Report

The Field Investigation Report provides an illustration of the physical location of each flow monitoring station. Pertinent information relative to site access, safety, instrumentation, and hydraulic conditions are also listed. Confined space entry permits for each site visit are included.

3.3 Summary Sheet

The Summary Sheet for each site provides a summary of average, minimum, and maximum depths, velocities, and flow rates for the monitoring period.

3.4 Scatter Graphs

The Scatter graphs provide a graphical representation of hydraulic conditions at the sites. The plot of observed velocities versus observed depths shows site reactions to events such as backup conditions and surcharging.

3.5 Graphical Data Presentation

A graphical presentation of Level (inches), Velocity (feet/second) and Flow Rate (mgd) versus Time is provided. Graphs are provided in 15-minute averages of data. The stacked axes allow easy visual identification of system performance.



3.6 Numerical Data Presentation

A tabular presentation of Flow Rate (million gallons per minute) versus Time is provided. Hourly information is provided for each day of monitoring as well as the minimum, average, and maximum amounts reported.

Per contract requirements, the flow monitors recorded data at all monitoring locations at 5-minute intervals. The tabular information in this report provides hourly averages of these 5-minute recordings. For example, all flow rate, or discharge, measurements recorded from 00:00 through 00:59 for a given day are reported as an hourly average on the row "0-1" of the tabular report.

At the bottom of each day's column of hourly average data are summary statistics for that day, as follows:

- The "*Mean*" is the average of all instantaneous readings recorded during that day.
- The "*Maximum Hourly Mean*" is the maximum hourly average shown in the hours 0 through 24 above.
- The "*Minimum Hourly Mean*" is the minimum hourly average shown in the hours 0 through 24 above.

3.7 Electronic Data Presentation

Electronic data is provided on the accompanying disc. Flow rate, depth and average velocity data in 15-minute increments are provided in a CSV format. The data are identified by the file name, which consists of the

**CARPINTERIA SANITARY DISTRICT INFILTRATION & INFLOW STUDY
JANUARY – FEBRUARY 2005 WET WEATHER STUDY**



MGD contract number (041204), site numbers (01 thru 08), and the CSV extension (ex. 04120401.CSV).



4.0 Results and Findings

4.1 Flow Data Reduction

An evaluation of flow data, as recorded by the flow monitors, was performed by an MGD data analyst. A detailed reporting of flows for this location is included behind the following tabs.

During the twenty-eight (28) days of the project, rainfall occurred in measurable levels specifically on January 6th through the 11th and again on January 27th and 28th, 2005. Please see Rainfall – Tabular Data Output sheets for specific rainfall days and amounts.

4.2 Data Observations

Site #1, a 15" influent pipe with root intrusion, displayed an atypical diurnal pattern and scattergraph due to heavy rain responses on January 8th through the 10th, 2005 resulting in a surcharge condition. Depths ranged from a minimum of 4.48" to a maximum of 62.03". The average depth was 6.88". The peak d/D ratio (peak depth / pipe diameter) was 46%. Flow rates ranged from a minimum of 0.33 mgd to a peak of 1.22 mgd. The average flow rate for the twenty-eight (28) days was 0.63 mgd.

Site #2, a 12" influent pipe with no silt, displayed an atypical diurnal pattern and scattergraph due to heavy rain responses on January 8th through the 10th, 2005. Depths ranged from a minimum of 2.41" to a maximum of 5.78". The average depth was 3.42". The peak d/D ratio (peak depth / pipe diameter) was 48%. Flow rates ranged from a minimum of 0.08 mgd to a peak of 0.75 mgd. The average flow rate for the twenty-eight (28) days was 0.23 mgd.

Site #3, an 18" influent pipe with no silt, displayed a typical diurnal pattern and a consistent scattergraph with slight to moderate rain responses on



January 9th and 10th, 2005. Depths ranged from a minimum of 2.66” to a maximum of 4.85”. The average depth was 3.62”. The peak d/D ratio (peak depth / pipe diameter) was 27%. Flow rates ranged from a minimum of 0.06 mgd to a peak of 0.40 mgd. The average flow rate for the twenty-eight (28) days was 0.19 mgd.

Site #4, a 10” influent pipe with no silt, displayed an atypical diurnal pattern and scattergraph due to heavy rain responses on January 8th through the 10th, 2005 resulting in a surcharge condition. Depths ranged from a minimum of 5.68” to a maximum of 71.99”. The average depth was 9.91”. The peak d/D ratio (peak depth / pipe diameter) was 99%. Flow rates ranged from a minimum of 0.25 mgd to a peak of 1.15 mgd. The average flow rate for the twenty-eight (28) days was 0.53 mgd.

Site #5, a 15” influent pipe with no silt, displayed an atypical diurnal pattern and scattergraph due to heavy rain responses on January 8th through the 10th, 2005 resulting in a surcharge condition. Depths ranged from a minimum of 2.43” to a maximum of 88.09”. The average depth was 4.34”. The peak d/D ratio (peak depth / pipe diameter) was 29%. Flow rates ranged from a minimum of 0.10 mgd to a peak of 0.60 mgd. The average flow rate for the twenty-eight (28) days was 0.19 mgd.

Site #6, a 15” influent pipe with no silt, displayed an atypical diurnal pattern and scattergraph due to heavy rain responses on January 8th through the 10th, 2005 resulting in a surcharge condition. Depths ranged from a minimum of 4.95” to a maximum of 88.59”. The average depth was 7.47”. The peak d/D ratio (peak depth / pipe diameter) was 50%. Flow rates ranged from a minimum of 0.41 mgd to a peak of 2.17 mgd. The average flow rate for the twenty-eight (28) days was 0.92 mgd.



Site #7, a 10" influent pipe with no silt, displayed an atypical diurnal pattern and scattergraph due to heavy rain responses on January 8th through the 10th, 2005 resulting in a surcharge condition. Depths ranged from a minimum of 3.20" to a maximum of 53.98". The average depth was 5.03". The peak d/D ratio (peak depth / pipe diameter) was 50%. Flow rates ranged from a minimum of 0.13 mgd to a peak of 0.87 mgd. The average flow rate for the twenty-eight (28) days was 0.33 mgd.

Site #8, a 21" influent pipe with no silt, displayed an atypical diurnal pattern and scattergraph due to heavy rain responses on January 8th through the 10th, 2005 resulting in a surcharge condition. Depths ranged from a minimum of 4.49" to a maximum of 110.68". The average depth was 11.37". The peak d/D ratio (peak depth / pipe diameter) was 54%. Flow rates ranged from a minimum of 0.41 mgd to a peak of 4.39 mgd. The average flow rate for the twenty-eight (28) days was 1.61 mgd.

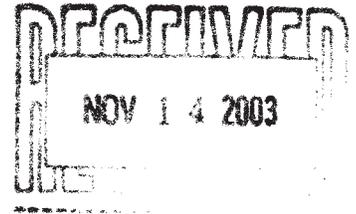
Rain Gauges:

Site #10 was a rain gauge located at 1453 Casitas Pass Road at Shemara Street on the roof of the sewer lift station. This meter recorded events amounting to 10.19" of rain throughout the duration of the project.

Site #12 was a rain gauge deployed at a sewer lift station located just north of the Aliso Elementary School. This meter recorded events amounting to 6.98" of rain throughout the duration of the project.

October 24, 2003

Craig Murray, Associate Engineer
Dudek & Associates, Inc.
621 Chapala Street
Santa Barbara, CA 93101
Phone: (805) 963-2074



Re: Carpinteria Sanitary District Infiltration and Inflow Study- Dry Weather Flow Monitoring
MGD Job No. 030808.01

Dear Mr. Murray,

MGD Technologies Inc. (MGD) is pleased to submit to you this report presenting the results of the Carpinteria Sanitary District Infiltration and Inflow Study- Dry Weather Flow Monitoring efforts conducted in the City of Carpinteria. Eight (8) locations were to be monitored for seven (7) days. This phase of the flow monitoring was conducted during dry weather with wet weather monitoring to occur in 2004.

The following table is a summary of the flow monitoring results for the eight (8) sites.

Site	Size (in)	Carpinteria Sanitary District Manhole Number	Min Depth (in)	Avg. Depth (in)	Max Depth (in)	Max d/D (depth/ Diam.)	Min Flow (mgd)	Avg. Flow (mgd)	Max Flow (mgd)	Peaking Factor (max flow/ avg. flow)
03080801	15	6F-110	3.34	5.04	7.05	47%	.16	.37	.65	1.77
03080802	12	8G-015	.47	.96	1.76	15%	.01	.02	.07	3.24
03080803	18	7H-100	.88	2.03	2.88	16%	.01	.13	.30	2.23
03080804	10	6G-185	3.00	4.49	7.37	74%	.06	.20	.55	2.76
03080805	15	7G-180	.99	1.55	2.27	15%	.02	.06	.13	2.16
03080806	15	7G-180	2.28	3.88	5.56	37%	.11	.41	.86	2.10
03080807	10	6F-100	1.56	2.72	3.81	38%	.05	.16	.30	1.93
03080808	21	7G-250	2.88	6.16	10.80	51%	.17	.75	1.48	1.96

Flow monitoring equipment was installed in eight (8) manholes on September 11, 2003 at locations identified by Craig Murray of Dudek & Associates prior to and during the installation of the project. All meters were calibrated and performance confirmed during installation, at data collects and at removal for each location. Seven (7) meters were removed on September 19, 2003. Data is presented for the seven (7) day period of September 12, 2003 through September 18, 2003 with the exception of site 03080803.

Site 03080803, located behind a pet shop in the Casitas Plaza on Casitas Pass Road, experienced a buildup of rag debris from September 13, 2003 to September 19, 2003. The data recorded during this period was suspect and not submitted as part of this report. This condition was discovered and the meter reinstalled during a site visit on September 19, 2003. This action was verbally authorized via phone conversation between Craig Murray and Richard Delgadillo on September 19, 2003 at 09:19. All necessary corrections were made and the remaining data was uninterrupted and reliable. For this reason data for site 03080803 is presented for the period of September 22, 2003 through September 28, 2003 with the aforementioned suspect data period excluded.

Site sheets, flow summary sheets, hydrographs of depth, velocity, and flow rate, tabular outputs of flow rate, depth, and velocity, and scattergraphs of depth versus velocity and depth versus flow rate for the site is included with this report. Also included for each site are the confined space entry logs and meter confirmation forms generated by MGD during each site visit.

Depth, velocity, and flow rate data in CSV (Comma Separated Value) format are provided on the accompanying disk in 15-minute intervals. The CSV files are in standard ASCII format and should easily import into most spreadsheet or modeling programs.

Data in the hydrographs and CSV files are identified using an eight-character Site ID plus a variable name. The Site ID consists of the MGD project number, 030808, plus a two digit site number (01 - 08).

MGD Technologies Inc. is pleased to have been of service to you during the Dry Weather Flow Monitoring Phase of the Carpinteria Sanitary District Infiltration and Inflow Study and look forward to completing the Wet Weather Phase to occur in early 2004, as well as any additional projects in the future. Please do not hesitate to contact us if we can be of further assistance, or if you have any questions regarding this report.

Sincerely,
MGD TECHNOLOGIES INC.



Philip Brenner, E.I.T.
Associate Project Manager

APPENDIX G

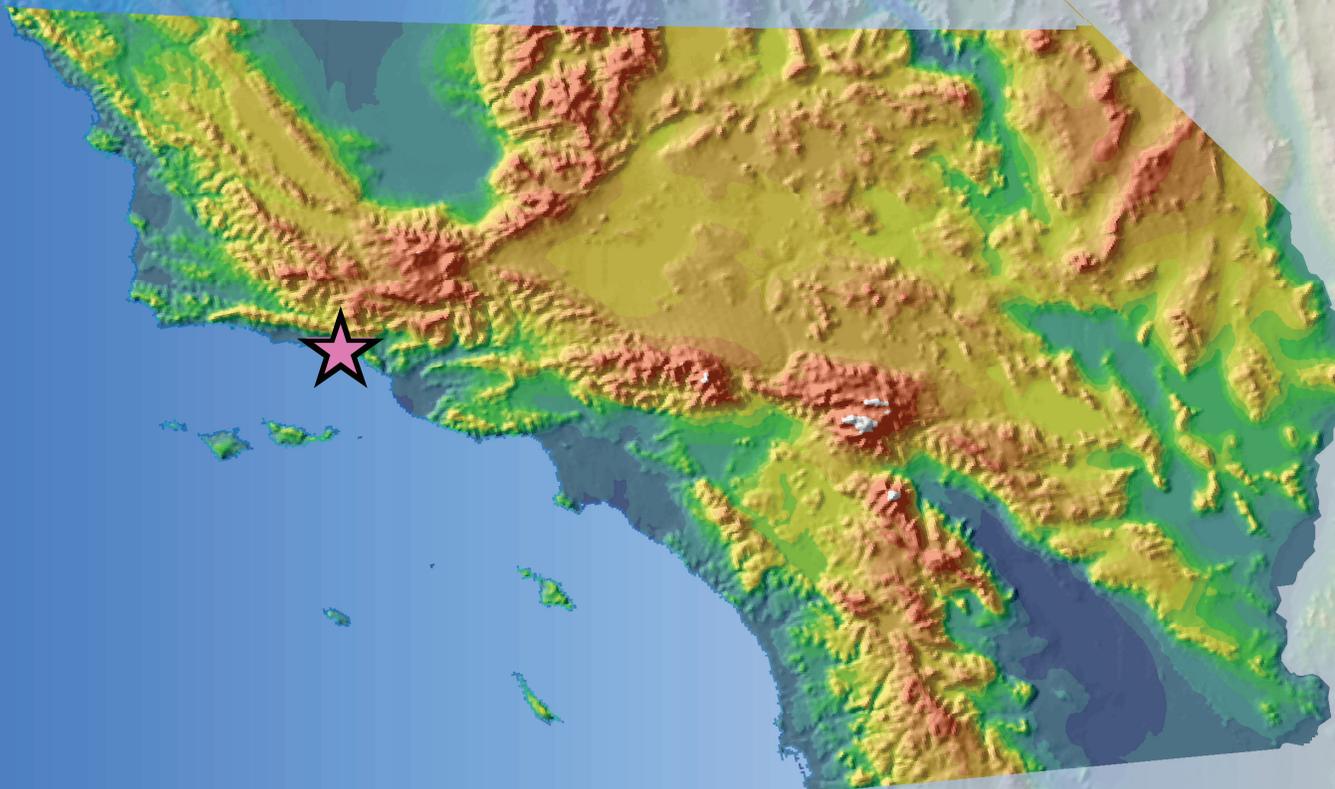
Wastewater Master Plan Excerpts

WASTEWATER MASTER PLAN

CARPINTERIA
SANITARY DISTRICT

WASTEWATER MASTER PLAN

APRIL 2005



Prepared by:

DUDEK
& ASSOCIATES, INC.
Professional Teams for Complex Projects

WASTEWATER COLLECTION SYSTEM MASTER PLAN

Prepared For:

CARPINTERIA SANITARY DISTRICT

5300 Sixth Street
Carpinteria, CA 93013
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Prepared By:

DUDEK & ASSOCIATES, INC.

621 Chapala Street
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April 2005

ACKNOWLEDGMENTS

Dudek & Associates would like to express its sincere appreciation for the assistance and cooperation provided by the staff of the Carpinteria Sanitary District and the District Board of Directors during the preparation of this Master Plan. This Sewer Master Plan would not be possible without the contributions of the following people:

District Board of Directors

Doug Treolar	President
Pat Horowitz.....	Director
Jeff Moorhouse	Director
Lin Graf	Director
Mike Damron.....	Director

District Staff

Craig Murray, P.E.	General Manager
Louis Becker.....	Operations Manager
Eddie Saenz	Collection System Supervisor
Hamid Hosseini.....	Finance Director
Katherine Huelskamp.....	Engineering Technician
Kellie Burrey	Office Manager

Special Acknowledgment

Sadly, during preparation of this plan, the Carpinteria Sanitary District's prior General Manager, **Mr. John Miko, Jr.**, passed away after a short illness. Mr. Miko was the guiding force behind this planning document and many other significant improvements to District operations and capital facilities. He was an excellent and respected leader who will be missed by all who knew him.

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Chapter 1 INTRODUCTION

1.1 OVERVIEW

The Carpinteria Sanitary District (District), established in 1928, owns and operates over 210,000 linear feet of wastewater conveyance pipeline, six wastewater lift stations, and a 2.5 million gallon per day (MGD) wastewater treatment plant (WWTP). Currently, the influent flow rate at the WWTP is averaging approximately 1.36 MGD. The District's 3.1 square mile service area is located in the Carpinteria Valley in the southwestern portion of Santa Barbara County, approximately 10 miles east of the City of Santa Barbara. Figures 1-1, 1-2, and 1-3 illustrate the District's location, existing service area boundary, and key facility locations. At this time, the District boundary and the District Sphere of Influence are contiguous.

This Wastewater Collection System Master Plan has been developed based on data available at the onset of the project, generally representing the 2002 fiscal year. Currently the District serves approximately 6,400 customer connections, of which approximately 5,900 are residential and 500 are non-residential. There are approximately 4,400 individual parcels within the District service area. The District is primarily comprised of residential development with limited commercial, light industrial, and agricultural land uses intermixed throughout its service area. The current population served by the District is approximately 16,500 people. The District's service area is generally characterized by controlled development and relatively slow growth. Significant increases in development and associated wastewater flows are not expected to occur within the planning time horizon.

With year 2002 flows as a baseline, wastewater volumes are projected to increase modestly to approximately 1.4 million gallons per day (MGD) by the year 2010, and ultimately to approximately 1.6 MGD. The ultimate buildout projections include annexation of several beach communities not currently served by the District. It should be noted, however, that the potential to vary from interim and ultimate flow projections is significant in a small community like Carpinteria. A single high volume commercial or industrial discharger (e.g. food processing facility, commercial laundry, etc.) entering the area could skew the numbers dramatically. It should also be noted that system flows have historically varied with annual rainfall totals.

The District's service area is typical of coastal communities in the central California coast, having significant topographic diversity over its area. Topography of the District generally slopes from north to south, with greater topographic variation in the extreme northern portion of the service area that abuts the foothills. In general, gravity

conveyance facilities follow the service area topography, draining to the District's WWTP located in the south central portion of the District. The WWTP is located on Oak Street between Sixth Street and the Southern Pacific Railroad within the City of Carpinteria. The District WWTP is currently permitted to treat an average daily flow of 2.5 MGD. The treatment plant provides secondary treatment and chemical disinfection of collected wastewater prior to discharge into the Pacific Ocean via a dedicated outfall pipe.

1.2 SCOPE AND PURPOSE

This Master Plan presents an analysis of the District's wastewater collection system for the planning period between 2004 and ultimate build out of the District's identified service area. Estimates of future growth and development result in a projected build out condition for the entire system based on long range planning information from the City of Carpinteria and the County of Santa Barbara. Due to the measured growth expected over time, the long term planning horizon allows for a focused approach to implementation of required system improvements, while maintaining a comprehensive understanding of the ultimate needs of the District and its wastewater collection system.

Generally, a utility's Sphere of Influence is used for planning ultimate growth. In this case, the District's Sphere of Influence is contiguous with its service area boundary. It is reasonable to maintain this boundary congruity for master planning as there are no major developments planned or proposed outside the current District boundary, and also due the fact that the County of Santa Barbara has strict policies prohibiting extension of sewers outside of the urban/rural boundary. However, ocean and surface water quality issues are expected to result in extension of public sewers to several beachfront communities or developments that are currently served by on-site wastewater (septic) systems. These areas are outside the existing District boundary and would either be annexed or served through an out of area service agreement. They were included in the study area boundary depicted on Figure 1-2.

In 2002, the District completed a comprehensive, system-wide assessment of the structural condition of its sewer pipelines. This study identified and categorized system defects and resulted in a prioritized list of remedial projects that included complete replacement and full length rehabilitation of several facilities. Prior to initiating a significant capital repair program, an analysis of the hydraulic capacity of the District's collection system, for existing and future conditions, was deemed appropriate. This type of master planning effort was intended, in part, to ensure that the District did not replace or rehabilitate pipelines that are too small to convey anticipated flows. The Master Plan would also allow the District to integrate capital projects necessary to remedy hydraulic deficiencies with the remedial repair projects in a prioritized manner.

During the preparation of this Master Plan, available District resources were incorporated to develop a system-wide geographic information system (GIS). The GIS links facility attribute data from the District's maintenance management system and parcel information from the District's billing database to new, spatially accurate computerized system maps.

Carpinteria Sanitary District



FIGURE 1-3
 CARPINTERIA
 SANITARY DISTRICT
 EXISTING
 WASTEWATER
 SYSTEM FACILITIES

LEGEND

- STRUCTURES**
- CLEANOUT
 - MANHOLE
 - LIFT STATION
 - TREATMENT PLANT
 - PIPES
- DISTRICT BOUNDARY
- HWY 101
- ROADS
- COUNTY BOUNDARY



The system data was then integrated into publicly available hydraulic modeling software, Hydra® by Pizer , Inc. of Seattle, WA, to simulate the existing and future wastewater collection system. Using this developed model, the impact of projected future wastewater flows on the existing collection system was determined. Recommendations were subsequently developed for wastewater improvements required for efficient collection and transmission of existing and projected ultimate flows.

1.3 REPORT ORGANIZATION

This Master Plan is organized as follows:

Chapter 1 – Introduction. This section introduces the Master Plan Report, overview, scope and purpose and organization.

Chapter 2 – Summary of Findings and Recommendations. This section summarizes the contents of the Master Plan, including significant findings and recommendations developed during the evaluation.

Chapter 3 – Mapping and Model Development. This section describes development of the collection system GIS and the hydraulic model.

Chapter 4 – Existing System Description. This section documents the existing wastewater collection system, including pipelines, lift stations, and the treatment facility.

Chapter 5 – Performance Criteria. This section provides a description of the design criteria used to identify and size proposed collection facility improvements and in the modeling portion of this study.

Chapter 6 - Existing Collection System Analysis. This section describes the existing wastewater collection system model and presents results of the analysis. The discussions summarize existing system capacities and deficiencies based on average dry weather and peak wet weather flows.

Chapter 7 – Future Collection System Analysis. This section develops projected wastewater volumes by parcels for ultimate build out of the District's service area and describes the modeling of future system. The discussions summarize future system capacities and deficiencies based on average dry weather and peak wet weather flows.

Chapter 8 – Recommended Improvements. This section identifies the wastewater collection and treatment facilities recommended to accommodate existing and ultimate wastewater volumes generated within the District's service area. Recommended improvements are integrated with other planned remedial projects and system upgrades. Program level phasing recommendations are presented.

Chapter 9 – Capital Improvement Program. This section describes a recommended Capital Improvement Program for the District's wastewater collection system.

Chapter 2 SUMMARY OF FINDINGS AND RECOMMENDATIONS

2.1 GENERAL

The following discussions identify the findings and recommendations derived during completion of the District's Wastewater Collection System Master Plan. This chapter is organized into two sections, which are the Master Plan Findings and the Master Plan Recommendations.

2.2 MASTER PLAN FINDINGS

The following findings were identified during completion of this Master Plan:

- The Carpinteria Sanitary District (District) is comprised of the City of Carpinteria and neighboring portions of unincorporated Santa Barbara County within the Carpinteria Valley. The District's service area boundary and Sphere of Influence are contiguous, comprising approximately 3.1 square miles. The District provides wastewater collection, treatment and disposal service within its identified service area.
- Within the District's service area, the primary land use is residential, with limited commercial, industrial, public and agricultural secondary land uses. Approximately 93% of all sewer accounts are residential.
- The existing population served by the District is approximately 16,500 people. There is also a significant visitor population year-round, peaking in the summer months.
- The existing average wastewater flow at the District's WWTP is 1.4 MGD, based on flow monitoring at the treatment plant. Flow rates have dropped measurably after a peak in 1998. System flow appears to be a function of annual rainfall and the system is likely subject to significant infiltration and inflow.
- The District owns, operates and maintains approximately 211,000 linear feet of wastewater conveyance pipelines ranging in size from 4 to 21 inches in diameter. Gravity pipe materials include primarily polyvinyl chloride (PVC) and vitrified clay (VCP) pipe. The District owns and maintains approximately 762 manholes and 94 cleanouts throughout its existing service area.
- The District owns, operates and maintains six (6) wastewater pump stations. They range in size from small package type lift stations serving a handful of homes to a large 2,500 gpm pump station that conveys a large percentage of the wastewater collected District-wide. Recent mechanical upgrades have been made to several pump stations and major improvements to one pump station and force main system are in the design stage.
- A computerized hydraulic model of the District's collection system was developed as part of this study. The model was recalibrated using flow metering information that was collected during Jan-Feb 2004 and water billing records. The calibrated

2.3 MASTER PLAN RECOMMENDATIONS

The following discussions summarize recommendations that resulted from this master planning effort with respect to collection system management and capital improvement implementation during the planning period.

Existing Collection System Improvements – One (1) hydraulic capacity project was identified to address inadequate capacity in the existing and future collection systems under wet and dry conditions. To address existing deficiencies it is recommended that this project (Plum/Pear Replacement) be implemented in the near term. The estimated cost of this project is \$476,000 dollars.

It is recommended that the District implement a collection system rehabilitation program that includes replacement and/or structural rehabilitation of pipelines with serious defects and point repairs for pipes with localized defects. The priority list in the April 2002 Wastewater Collection System Rehabilitation Plan should be maintained and new projects should be added as more pipelines are inspected and evaluated. Additionally the proposed replacement program should be tightly linked to those areas with known structural deficiencies.

The District should implement recommendations that come out of the Infiltration and Inflow (I&I) Study being completed concurrently with this master plan. The District should focus follow-up investigations (smoke testing, CCTV, etc.) and subsequent rehabilitation efforts for those drainage basins exhibiting significant I&I. As previously indicated, inadequate rainfall occurred during the 2004 season. The Inflow and Infiltration Report will focus on the quantification of ground water infiltration into the system but cannot address inflow problems that are active only during a rainfall event. The District should seriously consider additional flow measurement during the 2005 Wet Season.

It is further recommended that the District complete previously recommended pump station upgrades and force main replacement projects. These should be completed in accordance with predetermined CIP schedules and their impacts on the collection system evaluated.

Ultimate Collection System Improvements – Certain portions of the District's wastewater collection system have inadequate capacity to convey ultimate average dry and wet weather flows, based on flow projections for future growth in the service area. It is recommended that the District implement a replacement program for the identified

modeling results indicate that certain portions of the network of collection system piping are inadequately sized to convey existing and future average dry weather flows. Using industry accepted standards, approximately 23 pipe segments in the system were found to exceed the desired performance criteria. Of these 13 were widely scattered and only a limitation during the Ultimate Development Wet Weather Event.

- Peak wet weather conditions were also modeled with the application of a peaking factor of 2.5. This peaking factor was selected after a review of plant influent flow data in response to significant rainfall events during recent El Niño years. Modeling results indicate that portions of the collection system are not adequately sized to convey peak wet weather flows, as there are several lines that approach or exceed design capacity under these conditions.
- Modeling results indicate that the District's pump stations are properly sized to convey average dry weather and peak wet weather flows based on available design and operational information. The modeling also indicates that the selection of pumps has a dramatic effect on the downstream receiving gravity pipelines. The model will provide a useful tool for future analysis of pump station operations.
- The modeling indicates adequate system capacity in certain areas where the District collection system staff has reported potential hydraulic deficiencies in the collection system. It is likely that additional unmodeled hydraulic restrictions, structural defects or pipes not constructed per design are responsible for the apparent problems and additional field investigation is warranted.
- A previous condition assessment of the District's collection system identified structural deficiencies in the system and presented a prioritized list of rehabilitation and remedial projects. The District plans to implement a comprehensive rehabilitation program.
- The District is preparing an Infiltration and Inflow (I&I) Study to evaluate the nature and magnitude of I&I entering the collection system and to pinpoint specific basins for targeted control efforts. Note that the I&I Study will require additional flow measurements to quantify the magnitude of the defect flows during wet weather events. During the 2004 Wet Season monitoring significant rainfall events did not occur.
- The District has several other collection system capital improvement projects in the planning stage.

projects but size them to take in the ultimate wet weather flows. The incremental costs for upsizing the pipe lines are minimal and expedient. It is recommended that the District include upgrades to these facilities in its long term capital plan.

It is recommended that the District carefully monitor development trends. Future flow projections should be updated in periodic Master Plan updates. New development projects with anticipated flows that are significantly higher than those projected in this master plan should be evaluated using the hydraulic model and requisite capacity improvements should be implemented.

Treatment Capacity – The existing WWTP has a permitted capacity of 2.5 MGD. Daily influent flows averaged 1.4 MGD in 2002, which represents 54% of permitted capacity. Average daily flows peaked in 1998 at 1.73 MGD which is 69% of permitted capacity. State regulations typically require wastewater agencies to initiate expansion of treatment capacity when they reach 80% of their permitted capacity. Based on available information, the ultimate system flow, including flows from future development, is not expected to exceed the permitted capacity of the plant. Ultimate flows are also not expected to exceed the 80% threshold of 2.0 MGD.

Significant variations in annual average daily flows have been observed. It is recommended that the District carefully monitor flows and flow trends at the WWTP. Controlling I&I within the collection system may be critical to avoid a capacity expansion of the WWTP as flows trend upward.

Capital Improvement Program- A recommended Capital Improvement Program for the District's wastewater collection system was developed as part of this master plan. In the near term horizon, one (1) pipeline replacement project was found necessary for the purpose of ensuring hydraulic capacity of the system. Previously identified pipeline rehabilitation projects, pipeline relocation projects, and pump station/force main improvement projects were included in the near term CIP for implementation through Year 2020.

Planning level cost opinions for the above-recommended system improvements were taken from previous engineering studies or were developed based on evaluating similar-type construction projects occurring in the recent past. For ultimate system improvements and other CIP estimates of pipeline construction costs, planning level unit costs were established as \$10-per inch diameter, per linear foot of pipeline. This unit cost includes all construction and soft costs associated with the project. No cost allowances have been included for land or right-of-way acquisition or potential environmental issues related to the projects.

A summary of the cost opinions for the proposed improvements through Year 2020, by planning year, is provided in Table 2-1. This table details the proposed improvements for the pipeline replacement project.

Table 2-1 Replacement Pipe Project (Plum/Pear)

Project Name	Existing		Project Diameter (inches)	Replacement Cost Estimate*		
	Length (Feet)	Diameter (inches)		Budget Level		
				Const Cost \$10.00	Soft Cost \$4.50	Budget Cost
Plum Pear Street	290	10	15	\$43,500	\$19,575	\$63,075
Plum Pear Street	305	10	15	\$45,750	\$20,588	\$66,338
Plum Pear Street	130	10	15	\$19,500	\$8,775	\$28,275
Plum Pear Street	160	10	15	\$24,000	\$10,800	\$34,800
Plum Pear Street	80	12	15	\$12,000	\$5,400	\$17,400
Plum Pear Street	425	10	18	\$76,500	\$34,425	\$110,925
Plum Pear Street	220	10	18	\$39,600	\$17,820	\$57,420
Plum Pear Street	340	10	18	\$61,200	\$27,540	\$88,740
Plum Pear Street	35	15	18	\$6,300	\$2,835	\$9,135
Totals				\$328,350	\$147,758	\$476,108

* These are planning level cost estimates that will require detailed Preliminary Design Reports (PDRs) for further refinement.

Chapter 4 EXISTING SYSTEM DESCRIPTION

4.1 GENERAL

The Carpinteria Sanitary District (District) encompasses the City of Carpinteria and a large portion of the Carpinteria Valley, in southern Santa Barbara County. The District provides sewer service to approximately 95% of the City of Carpinteria. The District boundary extends roughly from Toro Canyon Road to Mark Avenue, between Foothill Road and the Pacific Ocean. There are parcels within the interior of the District that have not been annexed or connected to the sewer system.

The District provides wastewater collection, treatment and disposal service to customers within its identified 3.1 square mile boundary. The District's Sphere of Influence is contiguous with its service area boundary. The surrounding lands outside the District sphere of influence are served by individual on-site wastewater (septic) systems. To the west, the community of Summerland is served by the Summerland Sanitary District, although the agencies do not share a common jurisdictional boundary.

The coastline in the Carpinteria area is aligned in an east-west direction. In general, the area's topography slopes from the foothills of the Coastal range in the north towards the Pacific Ocean in the south. Elevations range from approximately sea level to 75 feet above mean sea level in the northern portions of the District service area. Mountainous areas outside the District to the north are significantly higher in elevation, up to approximately 3,800 feet.

The climate in the study area is Mediterranean, characterized by dry summers and moderately wet winters. The annual average precipitation in the region is approximately 14.0 inches. It is not uncommon to see significant annual variation from this average with especially wet years attributed to El Niño conditions. Most of the precipitation occurs between the months of November and March. Average monthly temperatures range from a low of approximately 63 degrees Fahrenheit (°F) in January to a high of approximately 75°F in August and September.

Several creeks transect the study area, including Carpinteria Creek, Santa Monica Creek, Franklin Creek, Arroyo Paredon and other smaller drainages and tributaries. Santa Monica Creek within the District boundary is a concrete lined drainage that terminates at the Carpinteria Salt Marsh, one of the area's prominent hydrologic features. Carpinteria Creek is unlined and has been identified as a target for restoration to improve habitat for steelhead trout. The District's WWTP is located adjacent to the lower reach of Carpinteria Creek.

Potable water service in the District's service area is provided primarily by the Carpinteria Valley Water District. Parcels in the westernmost portion of the District are served by the Montecito Water District. There are also a number of properties in the District that obtain water from private water systems and individual wells.

4.2 SERVICE ACCOUNTS AND BILLING DATA

Development within the District's service area consists of residential, commercial, research and development, light industrial and agricultural land uses. This section provides an overview of the nature and distribution of users within the District
Billing Accounts

4.2.1 BILLING ACCOUNTS

The District maintains a billing database to accurately track sewer user accounts. The database contains parcel information imported directly from the Santa Barbara County Assessor's office. Owner information is also included in the parcel data obtained from the County. Additional account or property specific information input by District staff is also maintained in the database

Generally, District sewer service charges are based on an equivalent dwelling unit (EDU) basis. An EDU is a standardized unit that represents the amount of wastewater generated from a typical single family residence. The current annual sewer service charge for a single family dwelling is \$512 per year.

One residential sewer service account may represent multiple EDUs. For example, an apartment building with ten units on a single parcel is assigned a user count of ten. The annual sewer service charge for that parcel is the equivalent of 10 EDUs, or \$5,120.00. Similarly, a duplex would be assigned two EDUs and would be billed \$1,024.00 annually.

Many wastewater agencies also use the EDU approach to establish billing rates for non-residential accounts. This is often based on site specific fixture counts, business category, flow monitoring or other criteria. Carpinteria Sanitary District employs a different approach. Non-residential accounts are charged a base fee of \$246.11 plus the following surcharges:

1. Sewer flow fee that is determined from the volume of potable water delivered by the local purveyor in the previous year, reduced by a return flow factor specific to the user type.

2. Wastewater strength fees that are based on BOD and TSS concentrations for specific user categories
3. Industrial discharge permit fees for industrial users and restaurants

Carpinteria Sanitary District Ordinance No. 10 establishes the rate structure and defines the various user categories and criteria.

To calculate non-residential fees, once a year, the District obtains parcel-based records of water consumption from the Carpinteria Valley Water District and the Montecito Water District. The District tracks water use over a period of years to identify abnormalities or significant changes in consumption data.

In addition to the billing accounts submitted to the Santa Barbara County Assessor, the District provides service to 49 parcels that are billed directly according to a negotiated or contract rate. This category of users includes public services, schools and a limited number of private entities.

In total, 4,095 accounts were served at the time this Master Plan was prepared. Table 4-1 shows a summary of the fiscal year 2002/2003 billing data used for analysis.

Table 4-1 Billing Data Summary

TABLE 4-1 Existing Billing Data Summary				
Account Type	Number of Accounts	Percent of Total	Annual Revenue	Percent of Total
Residential Accounts	3,805	92.9%	\$2,228,318	71.4%
Multi-Family Accounts	32	0.8%	\$89,416	2.9%
Business Accounts	206	5.0%	\$711,682	22.8%
Contract Accounts	52	1.3%	\$89,739	2.9%

The billing information used for the existing system is submitted by the District to the County of Santa Barbara for inclusion on annual parcel property tax bills. Nearly 99% of the billed accounts were successfully linked to the GIS and spatially located. Figure 4-1 provides a graphic illustration of the District and the parcels currently served within its existing boundary, color coded to differentiate residential and business parcels.

4.2.2 POPULATION AND HOUSEHOLD DENSITY

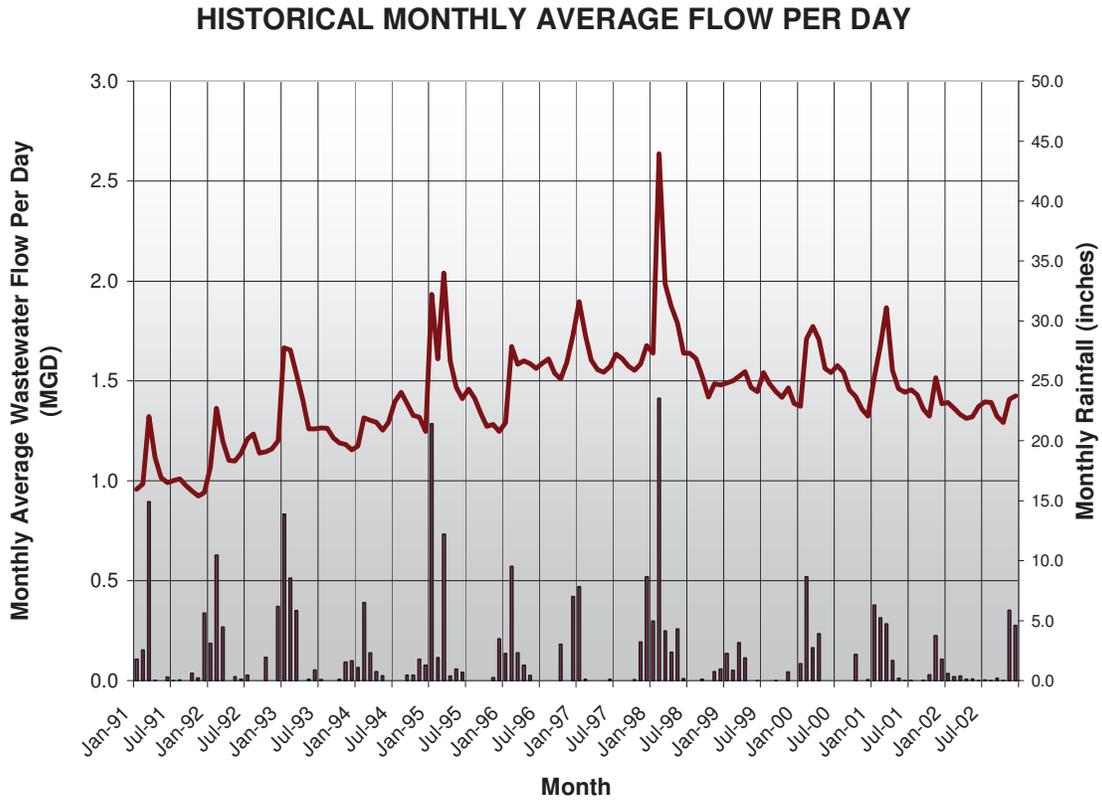
According to Census 2000 data from the U.S. Census Bureau, the City of Carpinteria population in April 2000 was 14,194 people. The 1990 population estimate for the City of Carpinteria was 13,747 people. Over the ten-year period the population has grown by 447 people. This represents a very modest annual growth rate of 0.3%. This slow growth pattern appears to be continuing. Between April 2000 and July 2002, population in the City grew by 40 people to 14,234.

As previously described, the District also serves areas outside of the City of Carpinteria boundary. The Census 2000 population estimate for the Carpinteria Valley was 19,108 people, although not all of parcels in this geographic area are within the District's service area. It is presumed that the total population served by the District falls somewhere in the middle of the two estimates.

Household density is calculated by dividing the total population by the number of households. According to US Census data, in 1990 the total number of households was 4,952, representing a household density of 2.8 people per household. In 2000, the total number of households was 4,989, also representing a household density of 2.8 people per household. Household density is often used in utility master planning to estimate water demands or to project wastewater flow rates.

Carpinteria is also a popular tourist area with a significant non-resident population occupying hotels, motels and the Carpinteria State Park campground facilities. It is estimated that over 750,000 people visit the State Park each year. Although this transient population peaks in the summer months, large numbers of visitors are present in the City year round.

Figure 4-3 Historical Monthly Average Flow per Day



Daily effluent WWTP flows in 2002 are shown on Figure 4-4. This figure indicates a very slight seasonal variation in system flows. Flows trend upwards in the summer months when tourism is at its annual peak, and then taper off into the fall months. Flows rise again in the winter months, apparently in response to infiltration and inflow (I/I) associated with rainfall events. Two peaks are evident in November and December. These peaks are associated with significant rainfall events and are indicative of a potentially significant inflow and/or rainfall dependent infiltration problem. A more comprehensive discussion of I/I issues is presented later in this report. System flows then drop off in the spring.

4.3 WASTEWATER FLOWS

Accurate estimates of wastewater quantities produced within the District are essential for the proper planning and design of wastewater collection, treatment and disposal systems. Existing facilities are required to have sufficient capacity to accommodate wastewater produced throughout any given day in the planning period.

4.3.1 WASTEWATER GENERATION FACTORS

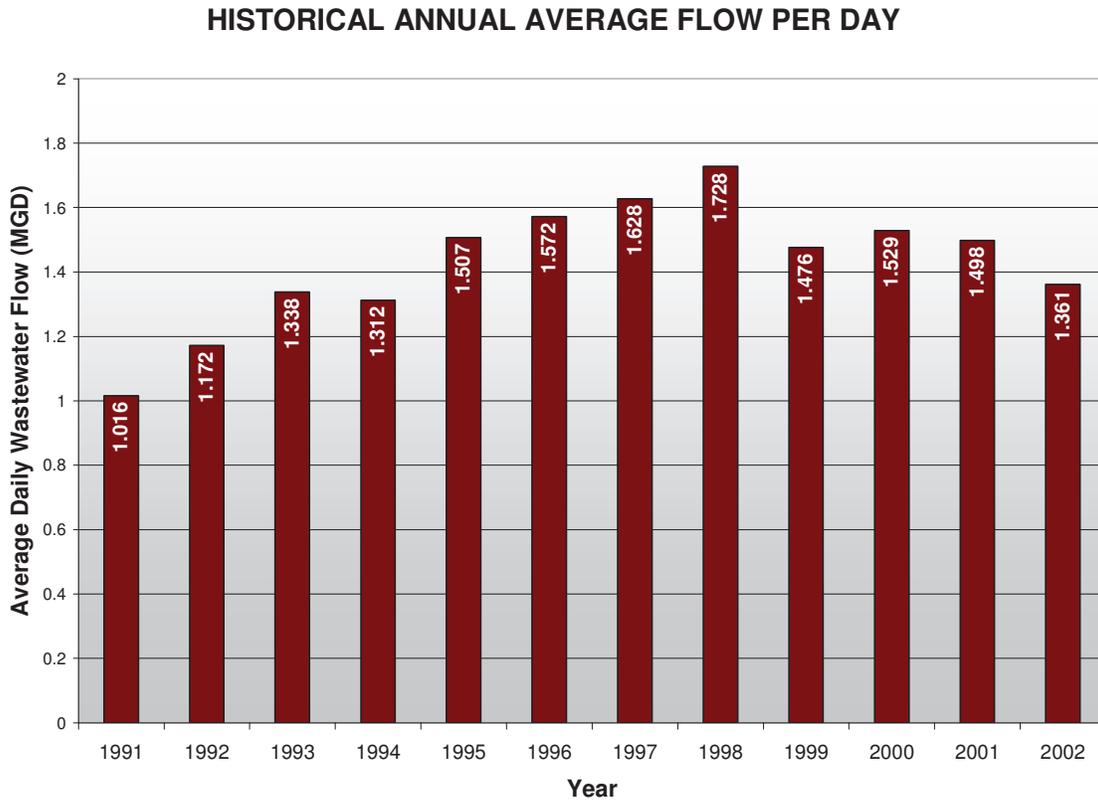
Estimates of wastewater quantities for this master plan have been developed on a parcel-by-parcel basis, based on a combination of data sources including water billing records and data obtained from wet weather flow measurements.

4.3.2 HISTORICAL FLOW TRENDS

The Carpinteria Sanitary District operates and maintains flow meters and flow recorders at its treatment plant. The effluent flow meter provides the most accurate means of assessing the total flow received at the WWTP. The location of the influent flow meter is such that it accounts for return flows in an additive manner. Water from cleaning operations, dewatering, tank draining and other activities is returned to the influent wet well and cycled back through the plant.

Average daily wastewater flows on an annual basis, as determined from effluent flow metering data, are summarized for the past 10 years in Figure 4-2.

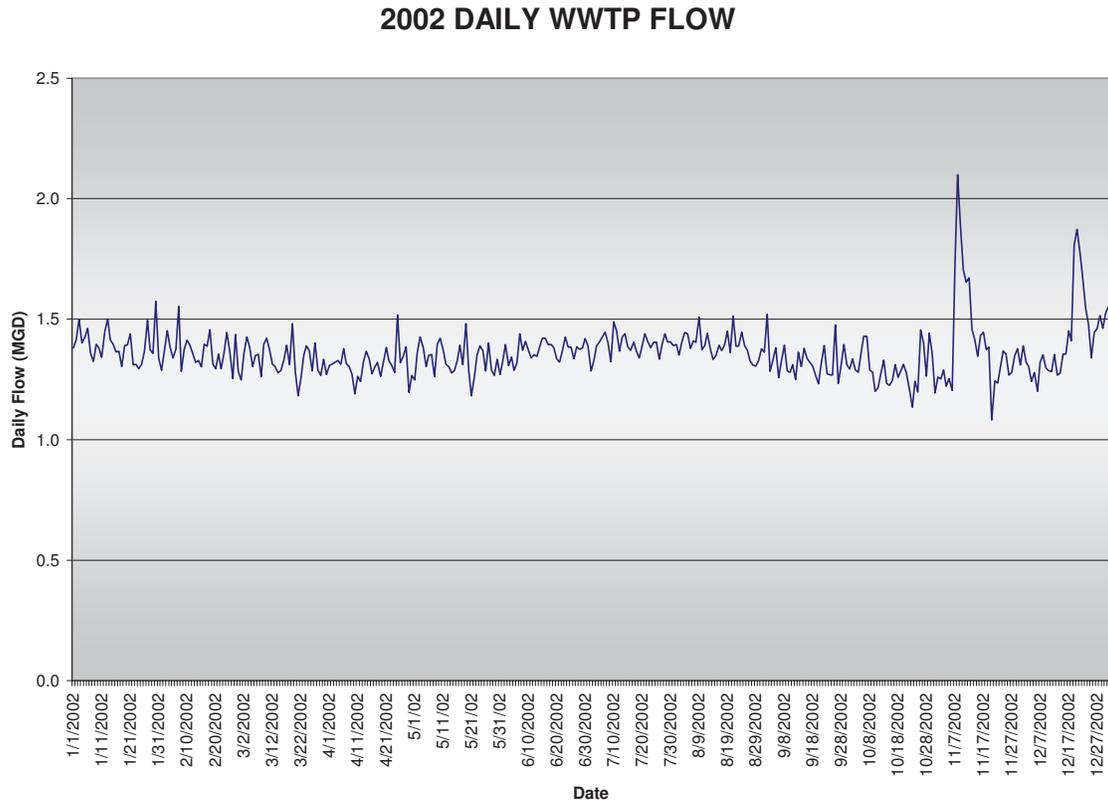
Figure 4-2 Historical Annual Average Flow per Day



As shown in the figure, wastewater flows peaked in 1998 and have since dropped off to a level comparable to that seen in the early 1990's. The higher flows in 1997 and 1998 are attributed abnormally high rainfall during that period which impacts flows in the form of increased infiltration and inflow and in a general trend of increased household water use in years of abundant surface water supply. Despite slight declines in average daily flow the past two years, this graph does suggest a trend of increasing flow over the period. Based on the slow rate of development expected in the region, the trend is expected to continue slowly upward. It is likely that climactic conditions will continue to influence average daily wastewater flows, however.

Figure 4-3 is a line graph showing average daily flows on a monthly basis for the same period represented in Figure 4-2. Monthly rainfall totals are also plotted over the period to better show the correlation between rainfall and WWTP flows.

Figure 4-4 2002 Daily WWTP Flow



4.3.3 COLLECTION SYSTEM FLOW MONITORING

The District has not historically performed collection system flow monitoring and its pump stations are not equipped with effluent flow meters. Concurrent with preparation of this master plan, the District has implemented a comprehensive flow monitoring program as part of an Infiltration and Inflow Study. Open channel flow meters were installed at 8 separate locations within the collection system, each representing a distinct drainage basin or tributary area. Dry weather monitoring was completed in September 2003, followed by wet weather monitoring in January and February of 2004. Data from the 28-day wet weather monitoring period was evaluated as part of this study to validate selected flow factors for residential and non-residential areas. Ultimately, the monitoring data was used to calibrate the hydraulic model of the collection system.

4.4 COLLECTION SYSTEM DESCRIPTION

Information about the existing wastewater system was collected from a variety of sources, including existing asset databases, as-built drawings, atlas maps, field

reconnaissance and input from District staff. The data collected was input into a geographical information system (GIS) which presents the system information in a graphical format, and provides the basis for the hydraulic analysis. Chapter 3 presented a detailed discussion of the process used to develop the GIS of the existing collection system.

4.4.1 PIPELINES AND MANHOLES

The District currently owns, operates and maintains approximately 211,000 linear feet of wastewater conveyance pipelines, 762 manholes and 94 cleanouts. Information regarding existing collection system infrastructure was captured from atlas maps, as-built plans, Accela™ MMS database records, field reconnaissance and consultation with District staff.

Figure 1-3 provides an illustration of the configuration of the existing wastewater system. Gravity pipelines range in size from 6 to 21 inches in diameter, and consist of primarily vitrified clay pipe (VCP) and polyvinyl chloride (PVC) pipe. Table 4-2 presents a summary of District's conveyance facilities by pipeline diameter.

Table 4-2 Pipeline Summary

Summary of District Conveyance Pipelines			
Diameter (in)	Number of Pipes	Length (lf)	% of Total (ft)
4	2	762	0.40%
6	107	27,503	13.00%
8	534	123,482	58.60%
10	118	31,325	14.90%
12	45	14,845	7.10%
14	1	650	0.30%
15	35	7,390	3.50%
18	20	3,884	1.80%
21	4	785	0.40%
Totals:	866	210,626	

Table 4-3 presents a summary of District's conveyance facilities broken down by pipe material.

Table 4-3 Pipeline Material Summary

Summary of Pipeline Material Distribution			
Pipe Material	Number	Length	% of Total (ft)
Vitrified Clay Pipe (VCP)	680	166,176	78.90%
Polyvinyl Chloride (PVC)	166	37,772	17.90%
Ductile Iron (DIP)	4	2,201	1.10%
Cast Iron (CIP)	3	2,077	1.00%
Other	4	2,401	1.10%

This general breakdown is typical of small to medium sized California communities of similar age. It should be noted, however, that some of the sewer pipelines in the downtown area that are reported to be VCP may actually be terracotta clay or similar clay materials that pre-date VCP production. These pipes may use slightly different joint configurations and joint sealants and can be less resistant to chemical or physical degradation. In addition, these pipes may be subject to infiltration.

Table 4-4 presents a summary of District's conveyance facilities broken down by pipe age.

Table 4-4 Pipeline Age Summary

Summary of Pipeline Age Distribution			
Decade Constructed	Number of Pipes	Length (lf)	% of Total (ft)
1930's	115	29,478	14
1940's	4	1,235	0.6
1950's	93	25,093	11.9
1960's	190	43,051	20.4
1970's	240	65,172	30.9
1980's	173	38,205	18.1
1990's	36	5,674	2.7
2000's	304	2	0.1
Unknown	13	2,415	1.1

Based on a typical design life for gravity sewer pipelines of 50 years, over a quarter of the District's collection system has exceeded its expected service life. Design-life values are strictly planning estimates. Many gravity sewers remain function and structurally sound well beyond their design life. The District's sewers are aging, however, and a recent condition assessment study identified a large number of pipelines that were structurally compromised due to age.