



Sewer System Management Plan

August 2011 Update

Prepared by
EOA, Inc.
and
District Staff



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Appendices

A. Emergency Response Documents

1. **LGVSD SOP for Sewer Overflows, updated January, 2010.** The SOP provides a quick reference guide to the Districts emergency response documents, which include:
 - LGVSD Incident Report
 - Reference sheet and photos for estimating sewer overflow rates
 - SSO Spill Containment and Cleanup Procedures
 - Sewer Overflow Response Manual
 - Emergency call list
 - Marin County SSO Report
 - SOP – Reporting of SSOs to State
 - SOP – Reporting Unauthorized Discharge !
 - SOP – Water Quality Sampling for SSOs.

B. LGVSD FOG Documents:

1. LGVSD Ordinance Code provisions related to FOG
2. List of FOG “Hot Spots”
3. CMSA FOG Inspection Status Reports

C. SSMP Development Documents (Regional Water Board)

1. RWB Resolution R2-2003-0095. *In Support of Collaboration between the Regional Board and Bay Area Clean Water Agencies to Report and Manage Sanitary Sewer Overflows*
2. RWB letter: *New Requirements for Preparing Sanitary Sewer Management Plans*, July 7, 2005
3. *SSMP Development Guide*, RWB and BACWA, June 2005
4. RWB letter: *New Sanitary Sewer Overflow Notification Procedures for Sanitary Sewer Collection Systems, and New Unauthorized Discharge Notification and Reporting Requirements for Municipal Wastewater Treatment Plants* (May 1, 2008)

D. Documents Related to Statewide General Order 2006-003-DWQ

1. SWRCB Order 2006-003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*, May 2, 2006, with revised self monitoring requirements from SWRCB Order WQ-2008-002 (2/20/08)
2. MOA between the SWRCB and the CWEA Regarding Training Regarding Requirements Set Forth in the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, June 27, 2006
3. CIWQS Discharger Work Book (SSO Reporting)
4. SSO FAQs (from SWRCB)
5. Order 2006-003-DWQ SSMP Schedule

6. Comparison of Region 2 and SWRCB Order 2006-003-DWQ SSMP Development Schedules
7. RWB Letter *Impact of Statewide Sanitary Sewer Overflow Requirements (State Water Board Order No.2006-003) on SF Bay Water Board Sewer System Authorities*, September 29, 2006
8. Marin County Environmental Health Services Memorandum to County Sanitation Districts regarding Response to Sewage Spills in Marin County, May 6, 2008
9. LGVSD Resolution No. 2009-1881 approving the final SSMP and its implementation.

E. Documents Related to Section 6 (Measures and Activities):

1. Collection System Map Key and Example Map
2. Example PM Schedule Printouts
3. Blank Field Inspection Forms
4. Example Maintenance History Printout
5. Example “Areas of Concern” Printout Permit Application – District Mainline or Property Lateral
6. Brochure for Plumbers and Sewer Contractors

F. SSMP Audits

Introduction

This sewer System Management Plan (SSMP) is prepared pursuant to the requirements of the San Francisco Bay Regional Water Quality Control (RWB), as described in a letter to collection system operators dated July 7, 2005, and the SSMP requirements contained in the State Water Resources Control Board Order No. 2006-003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*. In preparing this SSMP, the District utilized the *SSMP Development Guide* developed jointly by the RWB and the Bay Area Clean Water Agencies (BACWA). Except for Sections 11 and 12, the section numbering and headings in this SSMP follow those of the RWB/BACWA document. In each heading, the corresponding provision from Order No. 2006-003-DWQ is indicated in parentheses.

The Las Gallinas Valley Sanitary District (District) serves a population of approximately 32,000 persons in the northern San Rafael area. The service area covers approximately 20 square miles. The District's collection system consists of about 105 miles of gravity sanitary sewers, 6.7 miles of pressure sewers, and 28 pump stations. The District also operates the wastewater treatment plant. The District's wastewater collection and treatment operations are closely integrated, and utilize common administrative facilities and staff.

1.0 Goals (D.13.i)

The District's goals in developing this SSMP are as follows:

- To properly manage, operate, and maintain all parts of the wastewater collection system, so as to preserve and protect the public's investment in that system
- To provide a safe working environment for District employees
- To provide adequate capacity to convey peak flows to the treatment plant
- To minimize the frequency and duration of SSOs
- To mitigate the impact of SSOs on public health and the environment
- To respond quickly and respectfully to public notifications of SSOs or other collection system problems
- To collect complete and accurate information regarding SSOs for reporting to the appropriate regulatory agencies
- To provide District employees with the tools and training needed to perform their work effectively and achieve the District's goals
- To document system O&M activities using tools that support efficient utilization of staff and resources, and which provide a means for long-term assessment of trends and effectiveness.

2.0 Organization (D.13.ii)

The District's organization chart is presented in Figure 1. Roles and responsibilities of key personnel involved in the wastewater collection system are as follows:

Ratepayers: Elects members of the District Board of Directors. Primary source of funding for District capital and operating budgets.

District Board of Directors: Sets overall direction for the District through mission statement, and establishment of goals and objectives. Adopts policies, procedures and ordinances that reflect that direction. . Enters into contracts and agreements, acquires and disposes of property and equipment, hire agents and employees. Provides oversight of District operations, reviews and approves capital and operating budgets, payment of bills, setting of connection fees, and establishment of user rates. Represent the District on other boards, committees and associations. The Board of Directors is assisted by District counsel.

General Manager: Develops alternatives and recommendations for District policies, budgets, Capital Improvement Program and strategies for consideration by the Board of Directors. Coordinates Board meetings and agenda, serves as staff liaison with Board, and as District liaison with other agencies, utility users, and the general public. Overall is responsible for design and implementation of Capital Improvements Program. Reviews and develops, with the engineering consultant, the District's standard specifications for sewer construction. Oversight responsibility for development, implementation, and updating of SSMP

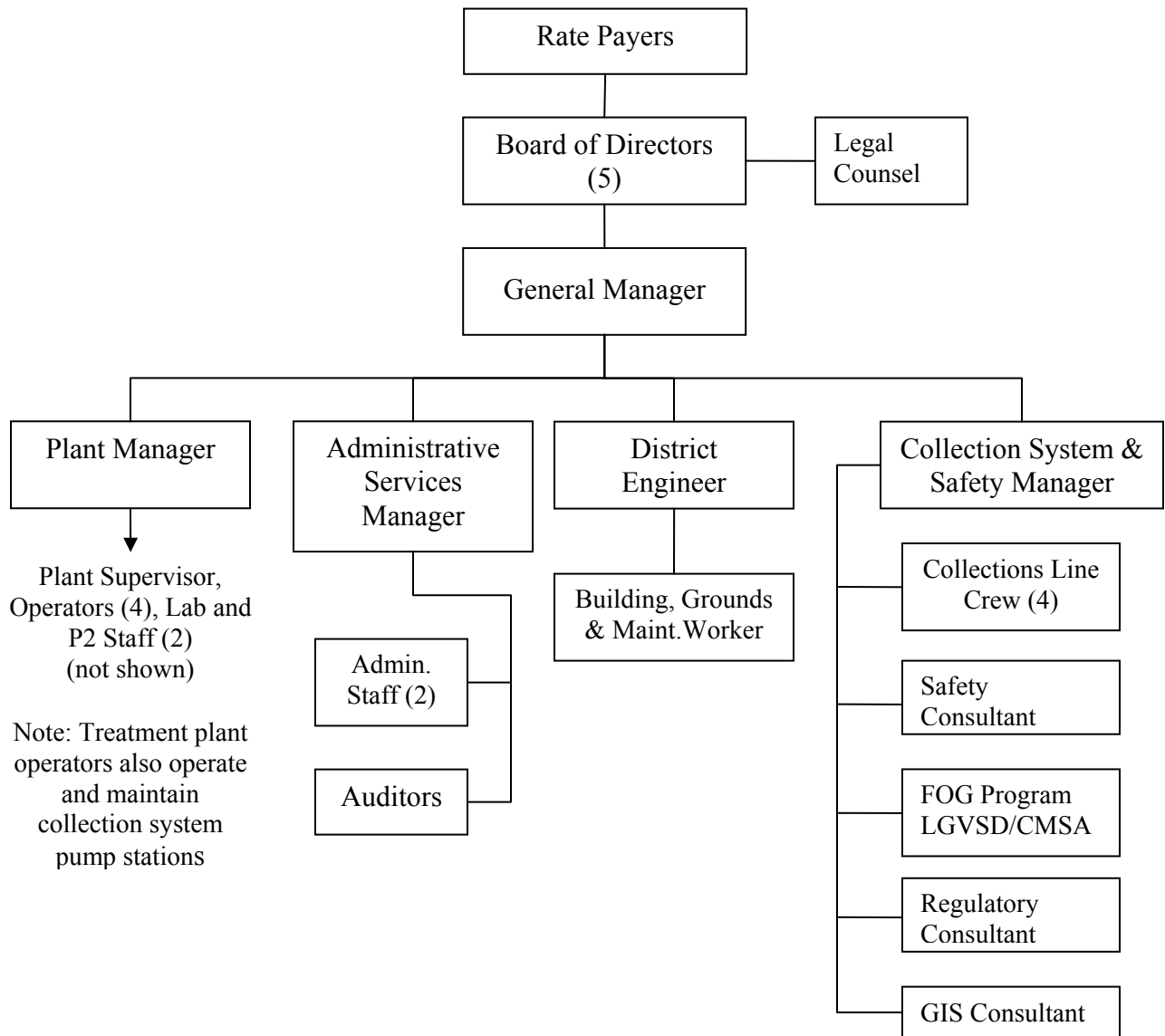
Collection System/Safety Manager: Manages collection system field operations and maintenance activities, collection system data management. Provides summary reports to General Manager, prepares and implements contingency plans, coordinates District response to collection system emergencies or problems, coordinates response, investigations and follow-up of blockages and SSOs. Responsible for reporting SSOs to local and State agencies.

Field Crew: Conducts collection system corrective and preventive maintenance activities, including emergency response for blockages and SSOs. When directed, coordinates with vendors and outside contractors for equipment and services. Note: Treatment plant staff are also available to respond to SSOs.

District Engineering: With assistance from outside engineering consultant(s), conducts collection system capacity analysis and develops recommendations and budgets for Capital Improvements Program. Provides or manages others in the development of engineering designs, construction management and inspection services for capital projects. Reviews and updates the District's standard specifications for sewer construction. Maintains sewer system maps.

Regulatory Consultant: Provides technical support for permitting, monitoring, reporting, compliance, SSMP development, collection system status reports, and data management.

Figure 1. Organization Chart (Collection System)



3.0 Emergency Response Plan (D.13.vi)

The District's Emergency Response Plan is documented in the District's *SOP for Sewer Overflows*, which was updated in 2008 to incorporate changes in notification, certification, and reporting requirements. A copy of the SOP and its attachments are included as Appendix A of this plan. The key elements of the SOP are the *LGVSD Incident Report*, the District's *Sewer Overflow Response Manual*, and the *SSO Spill Containment and Cleanup Procedures* checklist. The *LGVSD Incident Report* is a two sided form used to track and document all reported problems in the collection system. The *Sewer Overflow Response Manual* provides concise guidance to line crew for responding to, evaluating, and documenting overflows. A laminated copy of the *Sewer Overflow Response Manual* is kept in every District vehicle for quick reference. The checklist is a one-page form that provides a concise summary of key response actions and SSO-specific documentation to supplement the *Incident Report*. The following describes key elements of the Response Plan:

3.1 District Notification of SSO

Incidents may be reported by telephone to the District's main number (415-472-1734), in person at District offices, to the police department/sheriff department (see below) or by cellular phone (e.g., by LGVSD field crew). The telephone notification number is listed in the Marin County phone book, on utility bills sent to customers, in newsletters and educational materials distributed by the District, and on the District's web site (www.LGVSD.org). The web site also provides the Collections System pager number and phone numbers for individual District staff. For backups, spills and related collection system emergencies, callers are encouraged to continue calling the numbers provided until a person is reached.

During District business hours (6:30 am – 3:00 pm) calls are routed directly to the Collection System/Safety Manager (hereafter referred to as the Collection System Manager), who then contacts field crew by cellular phone. During non-business hours, calls to District offices are automatically routed to an answering service. The answering service takes essential information and then notifies District staff using the Call List (see Appendix A). The Call List starts with the collection pager number, which has the page number of the on-call line crew worker. If there is no answer to the page, calls are made in sequence to the listed District staff via cell or home numbers until contact is made. The on-call staff person makes a decision regarding the resources needed (including the possible need for an outside contractor), coordinates the response, and calls the Collection System Manager. If none of the six staff listed on the Call List can be reached, the outside emergency contractor (Roto Rooter) is contacted. (In such cases, the contractor responds to the incident and then files a report to the District as soon as possible). If an emergency notification is made to the Police Department or other agency, that agency will forward information to the District (business hours), or initiate the Call List sequence described above (non-business hours). If it is determined that the SSO has occurred in another jurisdiction, the responding party notifies the appropriate agency.

The *LGVSD Incident Report* is used to document the contact and response for each incident that occurs. For notifications that occur during business hours, information on the top half of the form is entered immediately by the Collection System Manager (or other call responder). Line crew staff fill in the remainder of the form upon completion of the response. For response by the outside emergency contractor, the Collection System Manager completes the form based on information provided by the contractor.

3.2 Response

District line crew are normally the first responders during both business and non-business hours. The crew responds to the incident in accordance with the procedures outlined in the *Sewer Overflow Response Manual*. In addition to the normal response activities (i.e. clearing blockages and clean-up) the crew will videotape the affected sections of sewer line. The *Manual's* procedures include instructions for overflows occurring on private property.

In cases where the outside emergency contractor is the first responder, the contractor takes the necessary actions to clear the cause of the overflow and document the incident. Even if the overflow is on private property (e.g. a blocked lateral) the contractor will proceed, and the District will cover the contractor's cost for the first hour. Any additional time that may be required is the responsibility of the property owner. On District lines, the Contractor will initiate clean-up. Clean-up is completed by the Contractor and/or the line crew as conditions warrant. In all cases following a response by the outside emergency contractor which involve District lines, the line crew are later sent out to verify the contractor's initial response and videotape the line.

Should an overflow occur inside a home or on private property, District staff contact TMB, LLC, which provides environmental project management for coordinating the clean-up.

3.3 Impact Mitigation and Monitoring

Impact Mitigation (Clean-up)

Following the initial response outlined in Section 3-1 of the *Sewer Overflow Response Manual*, the responding crew initiates cleanup and assessment, as outlined in Sections 3-2 and 3-3. The District has a variety of equipment available for clearing blockages and impact mitigation/clean-up activities, including:

- Vactor truck
- Flusher truck
- Hybrid Line Camera/Flusher truck
- Rodder Truck
- Trailer mounted rodder
- One push camera and portable rodders
- Emergency Response Trailer - contains Shop Vac, absorbent materials and containment berms, cones/signage, lighted barricades, generator, flashlights, fire extinguishers, air blower, disinfectant (for use on spills to soil or porous material, not surface waters)

Signs, cones, or other means should be used if necessary to prevent public contact with the spill. The cleanup procedure is to contain and remove all spilled material (plus any washdown water). Current District policy is to mobilize most of the above emergency equipment in response to a reported spill. In addition to collection system line crew, treatment plant operators are available to assist in the spill response if needed.

Should an overflow occur inside a home or on private property, District staff contact TMB, LLC, which provides environmental project management for coordinating the clean-up.

Monitoring

Procedures for estimating the volume of SSOs are described in Sections 3-4 through 3-6 of the *Sewer Overflow Response Manual*. Visual and water quality monitoring of surface water that may be impacted by an SSO are mentioned briefly in the *Manual*, and thus will be described in greater detail here.

Visual monitoring is part of the initial response to determine what immediate actions should be taken, as described in Section 3-1. After the initial response and documentation of spill volume, an assessment of possible impacts on surface should be conducted as part of the spill evaluation process. The City/County storm drain maps can aid in determining if surface water has been impacted. Where it is safe and practical, surface water in the vicinity of the SSO should be inspected visually, with observations recorded on the *LGVSD Incident Report*. Signs of receiving water impacts include tell-tell signs of sewage (solids, grease, paper), abnormal color, fish kills, etc. Photographs should be taken for documentation if possible, using the collection crew's digital camera. Each vehicle also has a disposal camera for backup.

For those SSOs that may imminently and substantially endanger human health and SSOs that cause fish kills, and if feasible and safe, water quality monitoring of surface waters should be collected. Under ideal conditions, samples would be collected at the point of discharge and at upstream and downstream locations. Samples should be analyzed for ammonia, dissolved oxygen, and a bacterial indicator. (The LGVSD lab is set up to perform enterococcus analysis during the discharge season, and total coliform during the reclamation season. The enterococcus analysis is preferred to characterize SSO impacts.). If tidal conditions are such that it is unclear as to what is "upstream" and "downstream" from the discharge location, analysis for conductivity may be useful.

Field crew should exercise their best judgment in deciding whether to conduct sampling, and consult with the Collection System Manager, Plant Manager, or General Manager if uncertain. Water quality monitoring should not be given precedence over stopping the SSO or protection of public health. However, if sufficient personnel are available, monitoring can be conducted in parallel with these activities or with the clean-up effort. District SOP *Water Quality Samples for SSO's* describes how samples are to be collected. A copy of the SOP is included in Appendix A.

3.4 SSO Regulatory Notification and Reporting

The Collection System Manager (with General Manager and Plant Manager providing backup) is responsible for reporting SSOs to the SWQCB via the CIWQS SSO electronic reporting database. Reporting requirements are summarized in Sections 4-1 through 4-3 of the *Sewer Overflow Response Manual*, with greater detail provided in the *CIWQS SSO Discharger Work Book*, included in Appendix D.

On February 20, 2008, the SWRCB adopted Order 2008-0002-EXEC, which amended the monitoring and reporting requirements of Statewide General Order 2006-003-DWQ to require notification of the California Emergency Management Agency (Cal EMA)¹, the Local Health Department, and the RWB within 2 hours for any sewage discharge that reaches a drainage channel or surface water. In May 1, 2008, the RWB issued a letter specifying the process for the new notification/certification requirements. Copies of these two documents are included in Appendix D and C, respectively. (Note: The requirement to notify the RWB was subsequently rescinded by an RWB email issued in June 2011. A copy of that email is included in Attachment C).

Table 3-1, excerpted from the RWB's May 1, 2008 letter, summarizes the new notification and certification requirements. It also summarizes reporting requirements, which were unchanged by Order 2008-0002-EXEC. (Reporting requirements vary depending on whether the SSO is a Category 1 (greater threat) or Category 2 (lesser threat). See the *SSO Discharger Work Book* in Appendix D for specific definitions of Category 1 and Category 2 SSOs).

The District's *SOP—Reporting of SSO's to State and RWQCB*, included in Appendix A, was developed in 2008 as an aid to managers in meeting the new 2-hr notification requirements. It contains the same basic information listed in Table 3-1, plus some additional District-specific procedures.

For months during which there are no SSOs, a "no spill certification" must be submitted. In addition, the CIWQS collection system questionnaire must be updated annually.

¹ Formerly State Office of Emergency Services (OES)

Table 3-1. Summary of Communication Requirements for SSOs

Communication Type (all are required)	Agency Being Contacted	Timeframe Requirements	Method for Contact
1. Notification	Office of Emergency Services	As soon as possible, but not later than 2 hours after becoming aware of the SSO.	Telephone – (800) 852-7550 (obtain a control number from OES)
	Local Health Department	As soon as possible, but not later than 2 hours after becoming aware of the SSO.	Marin Co. Health Department (415) 499-6907 After hours: (415) 499-7243
	Regional Water Board	As soon as possible, but not later than 2 hours after becoming aware of the SSO.	Electronic¹ www.r2esmr.net/ sso_login2.asp
2. Certification	Regional Water Board	As soon as possible, but not later than 24 hours after becoming aware of the SSO.	Electronic² www.r2esmr.net/ sso_login2.asp
3. Reporting	State Water Board (CIWQS)	Category 1 SSO: initial report within 3 business days , final report within 15 calendar days after response activities have been completed.	Electronic (only) to CIWQS https://ciwqs.waterboards.ca.gov/
		Category 2 SSO: within 30 calendar days after the end of the calendar month in which the SSO occurs.	Electronic (only) to CIWQS https://ciwqs.waterboards.ca.gov/

4.0 FOG Program (D.13.vii)

The District's FOG Program was developed in collaboration with the Central Marin Sanitation Agency (CMSA), which provides pollution prevention and related services to the District on a contract basis. CMSA staff conduct inspections and provide other services related to the FOG Program.

Legal authority for the FOG Program is provided by the District's FOG Ordinance No.135, and the related Ordinance 136 that prohibits food grinders in commercial food service establishments, both of which were adopted by the District's Board on August 17, 2006. The FOG Ordinance cites general authority provided by Ordinance No. 112, adopted in 1995. Complete copies of Ordinances 135 and 136, and of the relevant section of Ordinance 112 are included in Appendix B.

The FOG Ordinance calls for installation of grease removal devices (GSDs) in all new construction and for major remodels. Requirements for existing food service establishments (FSEs) vary depending on the location of the FSEs relative to identified FOG "hot spots". This targeted approach to regulating FOG sources is consistent with both State and RWB guidance. In addition to the GSD requirements, the FOG Ordinance provides a detailed framework for permitting, inspections, enforcement, and Program funding. Approximately 70 inspections of FSEs were conducted when the program was initiated in 2007. Waivers were granted for certain FSEs as provided for in the Ordinance. The remaining FSEs were issued permits and are subject to ongoing inspections. Results of inspections and records of interceptor pumping submitted by FSEs are tracked in a FOG database. Example reports from the database are included in Attachment B.

Implementation of the FOG Ordinance required that the District identify hot spots within the collection system. The list of District hot spots is included in Appendix B. The list is maintained and updated annually by the Collections Manager based on information from District line crew, and from analysis of maintenance records and incidence reports. A schedule and maintenance history for routine preventative maintenance of each hot spot has been developed, and is tracked in the District's maintenance database (OASIS).

In 2008, the District completed the first cycle of videotaping the entire collection system, a process that takes approximately four years per cycle, and which will be an ongoing element of the District's maintenance program. The videotaping process includes an assessment of each line segment, with results recorded in OASIS. The database provides standardized codes to indicate condition of the line segment (e.g. grease, roots, debris, excessive I&I, deterioration, etc). Results from other preventative and corrective maintenance activities are also tracked in OASIS.

The FOG Program includes additional non-regulatory elements, which may be expanded over time. The District's quarterly newsletter periodically features information regarding proper grease disposal practices for homeowners, and such FOG-related messages are being integrated into the District's Public Outreach / Pollution Prevention Program). Letters are sent to homeowners along main lines that show an excess amount of grease accumulation.

5.0 Legal Authority (D.13.iii)

5.1 Requirements

The RWB's Development Guide describes the requirement for Legal Authority as follows:

Requirement: Each wastewater collection system agency shall, at a minimum, describe its legal authority, through sewer use ordinances, services agreements, or other legally binding procedures to:

- Control infiltration/inflow (I/I) from satellite wastewater collection systems and laterals
- Require proper design and construction of new and rehabilitated sewers and connections
- Require proper installation, testing, and inspection of new and rehabilitated sewers

Additional details are provided in the RWB's Development Guide "points to remember". (See Appendix C)

Requirements related to legal authority in the SWRCB's Statewide General Order 2006-003-DWQ are as follows:

Each Enrollee must demonstrate, through sanitary sewer system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:

- (a) Prevent illicit discharges into its sanitary sewer system (examples may include I/I, stormwater, chemical dumping, unauthorized debris and cut roots, etc.);
- (b) Require that sewers and connections be properly designed and constructed;
- (c) Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency;
- (d) Limit the discharge of fats, oils, and grease and other debris that may cause blockages, and
- (e) Enforce any violation of its sewer ordinances.

5.2 District Ordinances Relevant to the SSMP

The District's primary legal authority is provided through Ordinances adopted by the District's elected Board of Directors. Additional authority is provided by service agreements with several private collection systems that discharge to the District's system. Over its history, the Board has adopted 149 Ordinances. These are organized sequentially by date of adoption, and have recently been codified into an Ordinance Code (see below). A majority of the Ordinances relate to adjustments to service rates and connection fees, and as such, supersede previous Ordinances. Ordinances identified as relevant to this SSMP include:

- Ord 9: Regulates use of sewers, establishes construction standards (by reference to District's *Specifications for Sewer Construction*). Largely superseded by subsequent ordinances.
- Ord 10: Prohibits use of impact and vibratory machines, heavy equipment, etc during construction.
- Ord 40: Requirements for installation of backwater prevention devices
- Ord 56: Requirements for construction of sewers underlain by Bay mud
- Ord 63: Regulations regarding discharge of Industrial Wastes and regulating use of public sewers (Note: Listed for historic purposes only. Superseded by Ord 112)
- Ord 64: Various additional definitions; amended "Sewer Required" provision of Ord 9; added a "Use of Public Sewers" provision to Industrial Waste Ordinance (at that time Ord 63).
- Ord 66: Use of sewers. *Note: Portions of this may be superseded by Ord 112. Portions supercede previous ordinances.*
- Ord 92: Amends Ord 63 (industrial waste) to refer to Ord 66
- Ord 112: Primary sewer use ordinance (a.k.a. Industrial Waste Ordinance). General discharge prohibitions, industrial pretreatment requirements, local limits, enforcement authority. Does not address construction standards. Repeals Ord 63 and other ordinances "inconsistent herewith".
- Ord 113: Includes requirements regarding backflow prevention and backwater prevention devices
- Ord 135: FOG Ordinance
- Ord 136: Food Grinder Ordinance
- Ord. 121, 124, 130, 131, 133: Ordinances related to current sewer service rates and fees.
- Ord 146: Regulates dental amalgam to minimize discharge of mercury to the sanitary sewer.

In addition to the legal authority based on Ordinance, the District has service agreements with Contempo Marin, Sade Apartment Development, and Marin Valley, Inc.

In 2010, the District completed the compilation and consolidation of its ordinances into a new Ordinance Code. The Ordinance Code is more accessible, and its organization by titles and chapters greatly facilitates the search for legal authority on a given topic. The Ordinance Code is available on the District's web site.

5.3 Documentation of Legal Authority

Table 5-1 correlates the LGVSD Ordinance sections with the RWB and Order 2006-003-DWQ SSMP requirements listed above (supplemented by the "points to remember" from the RWB Development Guide). Columns 2 and 3 provide references to the original ordinance sections and to those in the new Ordinance Code, respectively. The fourth column in Table 5-1 provides additional notes and comments.

Table 5-1. Documentation of Legal Authority

Requirement / Measures	Ordinance Reference	Ordinance Code Reference	Notes & Comments
I. SSMP Requirements (RWB and Order 2006-003-DWQ):			
<i>Control infiltration/inflow (I/I) from satellite wastewater collection systems and laterals</i>			
Stormwater run-off prohibited	Ord 112, Section 3B	Title 2, Chapter 2, Art.IV, §402	Prohibits discharge of “any storm water, surface water, groundwater, roof runoff or subsurface drainage, except in cases of discharge of contaminated groundwater in accordance with Article IX.”
Discharge from swimming pools	Ord 9, Section 711		Allows discharges up to 100 gpm
Maintenance of laterals	Ord 9, Section 510	Title 2, Chapter 1, Art.IV, §510	“Side sewers shall be maintained by the owner of the property served thereby.”
General Prohibition on causing pass-through or interference	Ord 112, Section 3A	Title 2, Chapter 2, Art.IV, §401	Although intended to prohibit the discharge of toxics, may apply to excessive I/I (alone or in conjunction with discharges from other sources) could contribute to “pass through” of pollutants resulting in a violation of NPDES permit limits.
Specific prohibition on discharge of stormwater, subsurface drainage, groundwater	Ord 112, Section 3B8	Title 2, Chapter 2, Art.IV, §402	Could be applied to I/I into laterals.
<i>Require proper design and construction of new and rehabilitated sewers and connections, and require proper installation, testing, and inspection of new and rehabilitated sewers</i>			

Requirement / Measures	Ordinance Reference	Ordinance Code Reference	Notes & Comments
Building sewers laterals and connections – permits and construction requirements	Ord 9, Section 501-508	Title 2, Chapter 1 , Art. V (all)	Construction shall be in accordance with County and District’s requirements
Building sewers laterals – Testing required	Ord 9, Section 511	Title 2, Chapter 1 , Art. V, §511	
Public Sewer Construction – Permits and designs required	Ord 9, Section 601-602	Title 2, Chapter 1 , Art. VI (all)	
Public Sewer Construction - Design and construction standards	Ord 9, Section 609	Title 2, Chapter 1 , Art. VI (all)	Refers to District’s <i>Specifications for Sewer Construction (a.k.a. Standard Specifications and Drawings)</i>
Inspections required for sewer construction, building sewers, plumbing and drainage systems	Ord 9, Section 811, Plumbing and Building Codes	Title 2, Chapter 1 , Art. VI (all)	
Prohibition on use of heavy equipment	Ord 66	Title 2, Chapter 1 , Art. VI §619	
Special requirements for construction on Bay mud	Ord 56	Title 2, Chapter 3 , (all)	
Interceptor required	Ord 135, Section 5 Ord 9, Section 704	Title 2, Chapter 4 , Art. V	
Maintenance of interceptor required	Ord 135, Section 7 Ord 9, Section 705	Title 2, Chapter 4 , Art. VII	
<i>Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency</i>	Ord 9, Section 506, 609, 1002 Ord 112, Section 4	Title 2, Chapter 1 , Art. V (cleanout on lateral required in new construction or alteration)	Section 506 requires a cleanout. Section 609 references District Standards, which show a cleanout is required on user’s property (for access to lower lateral). Ord 112, Section 4.A.2.g, provide for access for inspection, sampling, etc, but do not explicitly mention repairs.

Requirement / Measures	Ordinance Reference	Ordinance Code Reference	Notes & Comments
<i>Prevent illicit discharges</i>	Ord 112, Section 3	Title 2, Chapter 2 , Art. IV	
<i>Limit FOG and other debris</i>	Ord 135, Section 5, 7 Ord 112, Section 3.B1	Title 2, Chapter 4(all); Title 2, Chapter 2, Art IV	FOG is very well covered. It would be desirable if roots were more explicitly covered in the Ord 112, Section 3.B.1 wording.
<i>Enforce any violation of its sewer ordinances</i>	Ord 112, Section 10	Title 2, Chapter 2, Art. XI	This is the primary enforcement sections. There are additional enforcement provisions that accompany other sections..
II. Items from RWB Development Guide “Points to Remember”:			
<i>Ordinance, permits, agreements should have authority to require compliance with District Standards</i>	Ord 9, Section 609 Ord 112, Section 5C4	Title 2, Chapter 1, Art V	
<i>Agency should have ability to ultimately disconnect a user that fails to comply</i>	Ord 9, Section 903 Ord 112 Section 4A2c	Title 2, Chapter 2, Art. XI, §1101 Title 2, Chapter 1, Art IX, §903	Authority to disconnect applies to all users.
<i>Illegal Discharges should be subject to corrective action regardless of user class (domestic, commercial, industrial)</i>	Ord 112, Section 3	Title 2, Chapter 2, Art.IV	The general and specific prohibitions in Ordinance 112 apply to all users, (see Section 1B and definition of “person”).
<i>Prohibition of downspout, roof drain, and area drain connections to sanitary sewer</i>	Ord 112, Section 3B	Title 2, Chapter 2, Art.IV, §402	See comment for stormwater runoff.
<i>Legal Authority for proper construction of privately owned lines is normally provided by Building codes</i>		Title 2, Chapter 1, Art V	Building Code requirements are supplemented by District-specific requirements

Requirement / Measures	Ordinance Reference	Ordinance Code Reference	Notes & Comments
<i>Some agencies have lateral inspection/repair program applicable when property is sold</i>	None		District has no mandatory lateral inspection program at this time, except in the case of newly constructed. Ordinance Code has general wording regarding maintenance of side sewers. See Title 2, Chapter 1, Art.IV, §510

6.0 Measures and Activities (D.13.iv)

6.1 Collection System Maps

Detailed collections system maps are maintained in electronic form (AutoCad) by the District's engineering consultant (Nute Engineering). Hard copy map books are available at District offices, and a set is carried in each collection system vehicle. The map books contain a key sheet plus 69 individual map sheets printed at 1"=200' scale. Each map covers an area of approximately 2000' x 2900' (0.38 mi x 0.55 mi). The maps show the location and size of all sewer lines and force mains (color coded), manholes (with ID #), pump stations, street names and boundaries, parcel addresses and boundaries, and ground surface elevation contours. The map key and an example map sheet are included in Appendix E.

The District has completed a systematic review and update of each map sheet. However, the process for updating and correcting map errors is an ongoing one. During video inspections, any errors or omissions are recorded by the collection system camera crew. The information is passed on to the engineering consultant, who revises the map and prints new copies. In addition to maps of the sewer system, a City of San Rafael mapbook showing storm drain locations is also kept in each collection vehicle and the collections office.

In 2011, the District completed the first phase of implementing a geographic information system (GIS), which also includes detailed maps of the entire collection system in digital form. The GIS is linked to the OASIS maintenance database, and is currently used primarily for maintenance management purposes. However, the District plans to eventually transition to GIS-based collection system maps only.

6.2 Resources and Budget

Funding Sources

District revenues are derived primarily from sewer rates paid by users of the collection system and treatment plant, plus a property tax assessment. In 2004, the District Board raised sewer rates (from \$146/yr to \$303/yr over a 4 year period) to finance increased costs for operations, maintenance, capital improvements and to maintain the District's reserve fund. The property taxes component provides an additional \$35/yr per dwelling unit. Additional sources of revenue include annex and connection fees, interest on capital reserves, and other sources. In 2009, the District completed a Proposition 218-compliant process to increase sewer rates from the 2008/09 level of \$303/yr to \$608/yr in 2013/14 in order to finance treatment plant improvements, collection system rehabilitation projects, pump station and force main improvements, and other programs.

Formal Operating Budget and Funding Plan

The District operates under a formal operating budget prepared by District management (the Administrative Manager is a certified CPA), and approved by the District Board. Operating expenses for the treatment plant and collection system are broken down into 79 primary

categories and 24 sub-categories. In general, the operating budget does not provide separate accounting for the collection system and treatment plant, although in some cases (e.g., operating supplies, equipment maintenance) the distinction is made. The District's capital and operating budgets are posted on the District web site.

Collection system staffing consists of four full-time line crew workers in the field, a full time Collection System Manager, plus additional support from the General Manager, administrative and laboratory staff, and outside consultants. Over the past several years, the District has made significant additions and upgrades to collection system equipment including additional new flusher and rodder trucks, video cameras, and portable flowmeters. The District has also implemented maintenance management and GIS software for inventory, inspection, work orders, scheduling, reporting, and mapping. Additional information regarding resources allocated to the collection system are described in the *Collection System Improvements and Wastewater Treatment Facility Improvements Annual Update* and the *Facility Review and Evaluation Annual Status Report*, submitted to the RWB in February and June, respectively, in accordance with the District's NPDES permit.

Capital Improvement Plan

Capital projects are budgeted separately from operating expenses. Approximately \$1 million is budgeted each year to fund a major main replacement (pipebursting) project, plus a number of smaller replacement/rehabilitation projects for the collection system/pump stations. (Main replacement budgets from several years may be combined for larger projects). Starting if FY2011/12, an additional \$1.5 million per year will be allocated for capacity related mainline projects, based on the analysis described in Section 8 of this SSMP.

The District recently completed of a multi-year project to install variable speed drives and SCADA systems at the five primary collection pump stations, upgrade their control systems, and tie those systems into the treatment plant's SCADA system.

6.3 Prioritized Preventative Maintenance

The District operates a prioritized preventative maintenance (PM) program designed to maintain the integrity of the system, reduce the frequency of SSOs, and reduce I/I. The program uses the OASIS (Operator Assisted Sewer Information System) database the primary data management tool, in conjunction with inspection forms and other management tools and the GIS application. PM activities are prioritized based on results from historic PM and corrective maintenance (CM) activities. Prioritization is an ongoing process, with PM schedules continually being updated based on recommendations contained in the inspection or maintenance reports.

PM activities include the following:

Activity	Performed by
ITV - inspection by TV	Camera crew
CJET – Flushing with camera truck	Camera crew

CLEAN - Flushing with flusher truck	Maintenance crew
ROOTCT - Rodding	Maintenance crew
CVAC – Vactor Truck	Maintenance crew
IRO – TVing with push camera	Maintenance crew
SMOKE – smoke testing	Camera or Maint. crew

OASIS issues a monthly schedule that specifies PM activities for that month. Separate schedules are issued for the Camera Crew and for the Maintenance Crew. Example schedules are included in Appendix D. The location of the PM is specified in terms of structure ID or sewer line segment identified by upstream and downstream manholes. The schedule specifies the PM activity, and includes the date and condition scores from the previous PM on that segment. The crew documents the PM activity by filling out the appropriate inspection form, copies of which are included in Appendix E. The forms include detailed information regarding the inspection, time spent, a revised condition assessment, and recommended frequency for the next inspection. For Camera Crew inspections, the default return frequencies are four years for segments with no identified problems, or three years if cleaning was needed. For Maintenance Crew inspections/activities, the return frequencies vary widely depending upon the inspection findings. Information documented on inspection forms is entered into OASIS and becomes part of the historic record for that structure or line segment. A PM history can be generated from OASIS for any structure/segment, as illustrated by the example in Appendix E.

Collection system O&M activities are summarized annually in tabular and graphical form using data derived from OASIS. Appendix E includes examples of these summaries.

Maintenance of the collection system pump stations is performed by treatment plant operators working under the supervision of the Plant Manager. The District is in the process of implementing maintenance management software for pump stations. The same software will be used for the treatment plant.

6.4 Scheduled Inspections and Condition Assessment

The District’s system for inspections and condition assessment is closely integrated into the preventative maintenance program described in the previous section. The system is designed to proactively identify problem areas and structural deficiencies, and to take appropriate actions before these problems result in blockages, SSOs, or structural failures. Problem areas are identified using a variety of tools, including visual inspection, video inspections, smoke testing, and flow monitoring. Referring to the inspection forms in Appendix E, inspection results are characterized in both qualitative terms (recommendations, observations and notes) and in qualitative scores that include an overall structural rating and ratings for specific categories (debris, grease, roots, I&I, etc).

The District has established goals for inspecting the entire collection system over a four year period. Progress toward meeting those goals is included in the annual collection system O&M summary reports.

As described in Section 6.3, preventative activities by line crew include flushing, rodding, and video inspections at frequencies designed to prevent or minimize blockages and/or SSOs. Other preventative activities performed by the District include implementation of the FOG program (Section 4.), outreach to plumbing contractors (Section 6.7), and implementation of design and construction standards (Section 7.0)

Finally, the correction of structural deficiencies (e.g., line segments with excessive I&I, offsets or sags, or excessive root intrusion) is also an essential preventative activity. Information regarding structural problems identified during inspections is entered into OASIS, and is also logged into a separate “Areas of Concern” spreadsheet that includes a description of the problem and the proposed remedy. The spreadsheet, a copy of which is included in Appendix E, is used in planning and budgeting capital projects in the next budget cycle. A separate spreadsheet is developed for locations identified that year.

Planning for corrective actions, particularly long-term actions and larger projects, will typically require engineering analysis, such as the Capacity Management and CIP element of this SSMP, and preparation of construction contracts documents (plans and specifications). In prioritizing the correction of structural deficiencies, a number of factors in addition to the specific structural condition must also be considered, including:

- Budgeting and timing considerations vis-à-vis other District projects
- Grouping of corrective actions into coherent projects that are large enough to attract highly qualified contractors and maximize the benefit attained for the funds expended.
- Ability to maintain service during construction, including consideration of reasonable “worst-case” flow scenarios. (This may limit construction to dry season).
- Environmental and customer impact issues.
- Coordination with projects by other agencies

6.5 Contingency Equipment and Replacement Inventories

The District uses the Contingency Plan, prepared in accordance with the District’s NPDES permit and RWB Order 74-10 to document the contingency equipment used to respond to emergencies and spare/replacement parts intended to minimize equipment/facility downtime. The Contingency Plan is reviewed and updated annually.

Emergency equipment includes a variety of trailer mounted portable generators (up to 400 kw), portable pumps (up to 12 inch), spare electric submersible pumps that are direct replacements for the pumps used in many of the District’s smaller collection system pump stations, piping and hoses, samplers, warning signs, and other equipment. The emergency response trailer is equipped with most of the small items normally needed in an emergency response situation (see Section 3.3).

For the collection system, repair parts consist primarily of repair clamps in those sizes needed to match District lines.

6.6 Training

The District's training activities fall into two categories, safety and job skills. The two are closely related insofar as safety is of prime consideration in performance of any job activity. Annual safety training is conducted by District staff or outside consultants in the areas listed below. One or more topics is covered during monthly training sessions.

- Chemical Hygiene
- CPR / First Aid
- Driver Training
- Electrical lockout/tagout
- Emergency Response
- Fire Prevention/Fire Extinguishers
- Hearing Protection
- Forklift
- Hazard Communication
- Heat Stress
- Respiratory Protection
- Wastewater Pathogens
- Confined Space

Job skills training include in-plant and external components. The Collection System Manager conducts in-plant training for Sewer Overflow Response two to three times per year. In addition to SSO response, the training includes methods to collect the information required for notification and reporting of SSOs under Order 2006-003-DWQ, and sampling of SSOs. Informal training is achieved through mentoring of new operators by experienced operators. External training opportunities include participation in the CWEA Technical Certification Program and CWEA conferences, and in some cases, specialized off-site training for specific job skills. Each employee has a file which documents training received. Collection system staff currently includes one CWEA Grade III-certified collection system maintenance person, three Grade II, and one Grade I. Two of the line crew are also certified as Grade I plant maintenance technologists. Three collections employees are certified under the National Association of Sewer Service Companies Pipe Inspection and Certification Program.

6.7 Outreach to Plumbers and Building Contractors

The District's public outreach efforts include both educational and regulatory elements.

Because the actions of plumbers and sewer contractors working on private systems can result in SSOs from either the private or public systems, it is essential that those contractors be aware of management practices to prevent such occurrences. To that end, in November of 2006 and 2007, the District sent letters to all plumbing contractors in its service area advising them of proper procedures when cleaning laterals, to contact the District if their actions push debris into a District line, and also of their responsibility to obtain a permit when connecting to a District line or performing work on a private lateral. The same letter instructed contractors to notify the District of any SSOs that occur on District lines or as a result of conditions in those lines, and provided a copy of a form that can be faxed to the District. The District repeats this mailing annually. Mailings also include the outreach brochure developed by the District, a copy of which is included in Appendix E. Copies of the brochure are carried in District trucks for distribution to contractors and the public. The list of plumbers/sewer contractors in the District's service area is updated yearly.

The District requires contractors that work on District mainlines or private laterals (construction, repair or replacement) to obtain a no-cost Permit and have work inspected by District staff. A copy of the one-page permit application is included in Appendix E. In conjunction with the Permit, the District provides a “short-form” version of the District’s standard plans and specifications that cover technical requirements for construction of laterals, backwater prevention devices, and residential sewage pumping systems. The specifications include allowable materials, methods of construction, and testing requirements.

The District also conducts outreach and education directed toward residential customers and the general public. Efforts include door hangers and letters informing residents when work or smoke testing is to be performed on the sewer line, door hangers and other “giveaways” with messages regarding proper disposal of FOG and other products, participation at public events (County fair, etc) and a grammar school education program. These efforts are described in greater detail in the District’s Annual Pollution Prevention Report, submitted to the RWB each February.

7.0 Design and Construction Standards (D.13.v)

7.1 Installation, Rehabilitation and Repair

The District’s standards for the design and construction for the installation of sewer system components and for rehabilitation and repair of existing are specified in the District’s *Standard Specifications and Drawings*. This document was developed jointly by Marin County Sanitation Districts in 1995 and reviewed and updated by the District in 2000. Further updates are ongoing. An abbreviated version of the *Standard Specifications and Drawings* document is provided to contractors working on lateral lines, as part of the permit issuance process (see Section 6.7)

Legal authority for the design and construction standards is provided by District Ordinance Code. See Section 5, Table 1 for code citations.

7.2. Inspection and Testing

District standards require inspection and testing of new sewers, pump stations, and other appurtenances, and for repair and rehabilitation of these facilities. For small projects, inspections are provided by District staff. For larger projects, inspection services may be provided by the District’s engineering consultant or by other persons(s) appointed by the District. Testing is normally conducted by the contractor, with the inspector observing to verify that all requirements are met.

Legal authority for inspections, testing standards, and for requirements related to maintenance of side sewers and interceptors is provided by the District Ordinance Code. See Section 5, Table 1 for code citations.

8.0 Capacity Management (D.13.viii)

An engineering consultant (Nute Engineering) was tasked with assessing collection system capacity issues and developing a capital improvements plan to ensure hydraulic capacity of key sewer system elements under peak flow conditions.

8.1 Capacity Assessment

The District's capacity assessment is documented in the *Las Gallinas Valley Sanitary District Sewer System Management Plan Capacity Assessment*, Nute Engineering, September 2008. The assessment focused on the District's three key trunk sewer lines that serve the treatment plant. The decision to limit the detailed capacity assessment to those lines was based on the consultant's knowledge of the system (having designed most of the system over the past 50 years), the absence of capacity-related SSOs, and the fact that the service area is largely "built-out".²

Dry weather flows in the trunk sewers were projected on the basis of present and future equivalent dwelling units (EDUs) and an average flow of 200 gallons per day per EDU. A peaking factor was applied to the average flow to calculate a peak dry weather flow. I/I contributions within each of the service areas were estimated by multiplying the area of development by an I/I rate in terms of gallons per acre per day. The I/I rates were estimated on the basis of the age of the sewers and assumptions of per acre I/I contributions. The resulting wet weather flow estimates were not used directly in the capacity analysis, but rather to apportion the design storm flows at downstream pump stations to the line segment under study.

Using the Regional Water Board's Basin Plan Table 4-6 for guidance, a 20-yr "Level A" event (highest level of protection) selected for the capacity analysis.³ 20-yr flows at three major pump stations and the plant influent were estimated to be 90% of the actual flows measured at those locations during the December 30-31, 2005 storm (estimated to have a 35-year return frequency based on DWR records for Marin County Civic Center, located in the District's Service Area).⁴ The resulting pump station flows were apportioned to the trunk

² Additional sewage flows that may be generated from areas that are not currently built-out (or from redevelopment) will be assessed as part of the planning and approval process for those projects. At present (September 2011), there are no near-term projects in the District's service area that would have a significant impact on the current analysis. Future large-scale projects that could impact the analysis include development of the St. Vincent's or Silveira properties, which would impact the lower portions of the Marinwood line. Projects MW-1 and MW-2 in that area include upsizing of the lines to eliminate bottlenecks and provide in-line storage, and would likely accommodate additional flows associated with such development. Alternately, since this area is close to the treatment plant, a parallel line would also be feasible.

³ The capacity analysis report cautions that there is not a direct relationship between storm intensity and levels of rainfall induced inflow & infiltration (I/I). A very large storm may have only a moderate impact on I/I rates if preceded by a dry period. Conversely, a moderate storm preceded by a prolonged period of wet weather may generate high levels of I/I. Thus there are inherent limitations to the design storm approach.

⁴ The report indicates that the December 2005 event flows may overestimate future sewer flows because of several corrective actions that have been taken since that time.

sewers feeding those stations based on the relative contribution of the line segment to that station's flow. For example, the Terra Linda trunk sewer was assigned 79% of the peak weather flow estimated for the 20-yr storm event at the Duckett Pump Station.

The analysis revealed potential hydraulic restrictions in twelve line segments within the three trunk sewers. These findings do not necessarily indicate that SSOs will occur at those segments, particularly in cases where the lines are deep and surcharging results in increased flow rates and/or upstream storage. The capacity analysis included the following recommendations:

- Install surcharge monitors in manholes along the sewers which have been identified with capacity restrictions.
- Include in the District's CIP projects to increase the size of those sewers identified with capacity restrictions
- Target I/I corrections and sewer rehabilitation projects to sewers tributary to those sewer with identified capacity restrictions.

8.2 Capacity Assurance Plan

Based on the results of the capacity assessment, a strategy for sewer system upgrades that reflecting the following guidance was recommended:

- Target I/I corrections to those sewer systems tributary to sewers found to have potential wet weather capacity restrictions.
- Undertake projects that will maximize system storage so as not to overload the treatment plant and cause blending.
- Make sure the pump station at the downstream end of each major trunk sewer has a high degree of reliability and does not present a restriction to the system.
- In projects designed to eliminate capacity restrictions consider installing larger diameter sewers which can also provide storage of peak flows

The strategy recognizes that in some cases (i.e. where no SSOs are likely to occur), it is preferable to utilize hydraulic bottlenecks to provide upstream storage, and thus reduce peak flows to the treatment plant. Thus, although certain projects might not be required pending the outcome of monitoring and/or more detailed analysis engineering analysis, the Capacity Assurance Plan identified twelve capital projects to address the potential capacity limitations. Included in the project descriptions are preliminary estimates of costs and a priority ranking. Table 8.1 summarizes the proposed projects and phasing. Projects deemed to have lower priority are scheduled furthest into the future.

Implementation costs for the projects listed in Table 8-1 exceeded the available allocations for collection system capital projects. To some extent, collection system capital projects compete for funding with treatment plant capital projects that are needed to replace equipment nearing the end of their useful economic life, plant modernization, and the need for process upgrades and improvements to reduce the frequency of "blending". To help

address the projected shortfall and provide continued funding for both collection system and treatment plant CIP needs, the District Board in 2009 completed a Proposition 218-compliant sewer rate increase. The increase will provide a total of \$4.7 million sewer main capacity improvement projects for FY2011/12 through FY 2013/14. Budgets for subsequent years have not been determined, but will be guided by the results of the capacity analysis. Projects involving major emergency repairs will take precedence over the scheduled improvement projects.

9.0 Monitoring, Measurement, and Program Modifications (D.13.ix)

This section describes the methods by which the District will monitor the effectiveness of the SSMP elements, and provide for their ongoing modification and updating to keep them current, accurate, and available for audit.

9.1 Performance Indicators

A number of performance indicators are tracked by the District for purposes of evaluating the long-term effectiveness of the SSMP elements described in this plan, and for reporting to the RWB in the Annual SSO Report. Some of these indicators could be expected to relate directly to specific elements or O&M 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 (or multi-year cumulative footage) of sewer lines subject to rodding as part of the District's preventative maintenance program (see Section 6.3). 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 evaluating performance indicators for which there are a very low number of events (e.g. the number of annual wet weather SSOs), it is important to recognize that the process may yield meaningful results only over the long term, and may show significant variability on a year-to-year basis.

Table 9-1 lists the quantitative indicators that are currently tracked by the District. This District reports a number of these in the Annual SSO report submitted to the RWB. As the historic record grows, future annual reports will include trend plots for key measures. Performance measures related to maintenance activities are tabulated and charted in the Collections System Report prepared annually by the Collection System Manager for the District Board.

Table 8-1. Summary of Proposed Capacity-Related Capital Improvement Projects*

Project ID	Project Location	Est. Cost in 2008 dollars	Priority	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Trunk Sewer Upgrade Projects													
MW-1	Silveira Field - NWPRR to Treatment	\$800,000	Low									\$50,000	\$1,189,000
MW-2	St. Vincent's Sewer	\$1,710,000	High	\$709,000	\$1,051,000								
MW-3	Highway 101 Crossing	\$980,000	Medium			\$100,000	\$1,029,000						
MW-4	Las Gallinas Ave	\$680,000	Medium		\$276,000	\$460,000							
MW-5	Quietwood Dr	\$1,260,000	Medium							\$100,000	\$1,024,000	\$676,000	
MW-6	Appleberry Dr	\$710,000	Low								\$50,000	\$450,000	\$574,000
MW-7	Lucas Valley Rd @ Juvenile Hall	\$820,000	Low								\$50,000	\$833,000	\$346,000
TL-1	Near Duckett Pump Station	\$420,000	High	\$420,000									
TL-2	Terra Linda Trunk Sewer	\$2,000,000	Medium		\$100,000	\$938,000	\$444,000	\$815,000					
TL-3	Nova Albion - Elena Circle	\$90,000	High	\$90,000									
SV-1	Replace engine generator	\$140,000	High	\$140,000									
SV-2	Mulligan Trunk Sewer	\$3,980,000	Medium				\$100,000	\$837,000	\$1,735,000	\$1,722,000	\$789,000		
	SUBTOTAL	\$13,590,000		\$1,359,000	\$1,427,000	\$1,498,000	\$1,573,000	\$1,652,000	\$1,735,000	\$1,822,000	\$1,913,000	\$2,009,000	\$2,109,000

*Pending approval by District Board

Table 9-1. SSMP Performance Indicators

Indicator
Number of SSOs (total)
Wet season SSOs*
Dry season SSOs*
Number of SSOs (by volume range)
< 10 gal
10 – 99 gal
100 – 999 gal
1000 – 9999 gal
≥10,000 gal
Volume reaching waters of the State
Volume not contained but not reaching waters of the State
Volume recovered
Net volume (total minus recovered)
Number of SSOs per 100 mile of sewer per year
Volume of SSOs per 100 mile of sewer per year
Total Volume conveyed to the plant (million gal)
Total volume SSO / Total volume conveyed, gallons / million gallons
Number of SSO (by cause)
Blockages:
Roots
Grease
Debris
Debris from Laterals
Animal Carcass
Construction Debris
Multiple causes
Infrastructure failure,
Inflow & Infiltration
Electrical Power Failure
Flow Capacity Deficiency
Natural Disaster
Bypass
Cause Unknown
Number of locations with multiple SSOs
Average Emergency Response Times, minutes
Business Hours
Notification to arrival on site
Notification to complete clearance
Non-business hours
Notification to arrival on site
Notification to complete clearance
Number of locations with multiple SSOs
Maintenance activities (lineal ft/yr)
ITV (Camera truck)
CJET (Flushing with camera truck)

Table 9-1. SSMP Performance Indicators, continued

CJET2 (Flushing with flusher truck)
ROOTCT (Rodding)
IRO (TVing with push camera)
SMOKE (Smoke testing)

9.2 SSMP Updates and Modifications

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

- The Collection System Manager is tasked with overall responsibility for maintaining and updating the SSMP.
- The regulatory consultant's annual contract includes a task for providing ongoing technical support for collection system activities, including SSMP maintenance. The consultant coordinates with the Collection System Manager for any changes in the SSMP.
- A number of the activities described in the SSMP reflect ongoing District programs for which the review and update process is well established. Examples include preventative maintenance (PM) measures, staff training, outreach, inspection and testing. The District is accustomed to requirements that require annual review and updating of key documents (e.g. NPDES permit requirements for annual review/update of the treatment plant O&M Manual and Contingency Plan).
- Both the RWB and the General Order 2006-003-DWQ require periodic auditing of the SSMP. This elevates maintenance of the SSMP to a mandatory status on par with other regulatory requirements. The District maintains a calendar of regulatory reports and milestones as an aid to meeting its regulatory requirements. The calendar is updated annually.
- In addition to periodic audits, Order 2006-003-DWQ requires that the SSMP be updated every five years. However, it is the District's intention that updates be conducted more frequently

10.0 SSMP Audits (D.13.x)

Both the RWB and Order 2006-003-DWQ require periodic internal audits to identify deficiencies in the SSMP and the proposed steps to correct any such deficiencies, and to evaluate the effectiveness of the SSMP. The RWB specifies that audits be conducted annually with the results submitted to the RWB by March 15 of the following year as part of the SSO Annual Report. Order 2006-003-DWQ specifies that audits be conducted every two years at minimum, with the results kept on file.

The District's annual audit format was adapted from a document developed by the BACWA Collection System subcommittee. In addition to identifying and correcting deficiencies (or specifying the schedule for such correction), the audit will evaluate the effectiveness of implementing the SSMP elements using the performance measures listed in Table 9-1. The audit will also include a qualitative evaluation of the overall effectiveness of implementing SSMP elements. Finally, it will describe improvements to the collection system completed during the past year, and those proposed for the upcoming year.

A copy of the most recent SSMP audit is included in Appendix F.

11.0 Communication Program (D.13.xi)

Order 2006-003-DWQ requires that the District communicate on a regular basis with the public on the development, implementation, and performance of the SSMP. There is no corresponding RWB requirement.

The District's SSMP Communication Program includes the following components and activities:

- **Board Meetings:** District staff and consultant periodically update the District Board on progress in developing and implementing the SSMP. These updates are included in the agenda that are publicly posted on the District's web site. Monthly and annual collection system reports are prepared by the Collection Systems Manager and presented during Board meetings, which are open to the public.
- **Newsletter:** The District's Quarterly Newsletter (The Heron) to customers contains articles and public education messages on topics related to the SSMP. The District's performance in controlling SSOs is highlighted in newsletter reports.
- **WEB Site:** The entire SSMP has been posted on the District's web site at www.lgvsd.org with a provision for public feedback (by phone or email) to District staff. The District uses the web site as one method to communicate timely information on District activities. Emergency information can be posted to the site in near real-time.
- **FOG Program:** The District operates a FOG Program that regulates the discharge of FOG from commercial food service establishments by requiring the installation and maintenance of grease removal devices (see Section 4.0). Control of FOG from residential sources is achieved primarily through education and outreach efforts that communicate a consistent and ongoing message regarding the impacts of FOG on the collections system, and provide information for proper disposal. The District distributes FOG scrapers and conducts outreach activities at the County Fair, Farmers Market, etc. The Quarterly Newsletter regularly contains messages regarding proper FOG disposal. Where excessive amounts of FOG are observed in the sewer lines by District staff, the District distributes door hangers and sends letters to homeowners in the area advising on proper disposal methods.

- **Plumbers & Contractor Outreach:** The District tracks plumbers operating in the service area, and issues annual letters, advising plumbers of the District's permitting & inspection requirements. Letters include outreach materials developed by the District.
- **Outreach via Regional Organizations** As a member of BACWA, the District supports outreach efforts conducted by the Bay Area Pollution Prevention Group (a BACWA committee). Recent efforts by that group have included FOG inspector training, a Mercury Training and Outreach Program at dental hygienist and dental assistance schools, and placement of ads in the South Bay and East Bay EcoMetro Guides.
- **Sewer Line Construction:** Door hangers and letters are distributed to local residences and businesses in areas that will be impacted by the District's construction projects. Homeowners are normally provided with the opportunity to coordinate replacement of their private service lateral when the District is replacing the corresponding public section of the lateral.
- **Sewer Line Maintenance:** The District's new logo makes District vehicles more noticeable. Collections staff frequently respond to the public questions their O&M activities. Door hangers are distributed in advance of smoke testing.
- **Emergency Response to SSOs, Backups, etc:** The Collection System Manager personally takes all calls regarding SSOs or collection system issues, directs the District's response effort, conducts follow-up, etc. District staff are the primary SSO responders during both business and non-business hours.
- **SSO Reporting:** The Collections Manager is responsible for reporting SSOs to State and Local agencies (State Office of Emergency Services, State Water Board, Regional Water Board, Marin Co. Health Department). Information on individual SSOs is available to the general public through a GIS-based application on the State Board's web site.
- **Communication with Private System Owners:** Several small private collection systems discharge to the District's collection system. The District communicates with private system operators through the Quarterly Newsletter, and where necessary, through direct correspondence.

12.0 SSMP Approval and Certification (D.14)

SSMP elements were completed and certified according to the schedule included in Appendix D. The District submitted the final RWB certification (for elements 8, 9, and 10) prior to the August 31, 2008 deadline. As required by Order 2006-003-DWQ, the District also certified completion of the entire SSMP via the SWRCB's online SSO database (CIWQS) prior to the August 2, 2009 deadline. A resolution approving the SSMP was adopted by the District Board at its June 25, 2009 meeting. A copy of the resolution is included in Appendix D.

Appendix A

Emergency Response Documents

LGVSD SOP for Sewer Overflows (updated January 2010). This SOP provides a quick reference guide to the District's Emergency Response documents, which are incorporated in their entirety in this Appendix and include:

- LGVSD Incident Report
- Reference sheet and photos for estimating sewer overflow rates
- SSO Spill Containment and Cleanup Procedures
- Sewer Overflow Response Manual
- Emergency call list
- Marin County SSO Report
- SOP – Reporting of SSOs to State
- SOP – Reporting Unauthorized Discharge
- SOP – Water Quality Sampling for SSOs

Appendix B

FOG Documents

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1. LGVSD Ordinance Code provisions related to FOG
2. List of FOG “Hot Spots”
3. CMSA FOG Inspection Status Reports

Appendix C

SSMP Development Documents (RWB):

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1. RWB Resolution R2-2003-0095: In Support of Collaboration Between the Regional Board and Bay Area Clean Water Agencies to Report and Manage Sanitary Sewer Overflows
2. RWB letter: *New Requirements for Preparing Sanitary Sewer Management Plans*, July 7, 2005
3. *SSMP Development Guide*, RWB and BACWA, June 2005
4. RWB Letter: *New Sanitary Sewer Overflow Notification Procedures for Sanitary Sewer Collection Systems, and New Unauthorized Discharge Notification and Reporting Requirements for Municipal Wastewater Treatment Plants* (May 1, 2008)

Note: The May 1, 2008 requirement to provide 2-hr notification and 24-hr certification to the RWB via the RWB's web site was removed by the RWB in June 2011. The RWB receives automatic notifications from the California Emergency Management Agency.

Appendix D

Documents Related to Statewide General Order

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1. SWRCB Order 2006-003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*, May 2, 2008, with revised self monitoring requirements from SWRCB Order WQ-2008-002 (2/20/08)
2. MOA between the SWRCB and the CWEA Regarding Training Regarding Requirements Set Forth in the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, June 27, 2006
3. CIWQS Discharger Work Book (SSO Reporting)
4. SSO FAQs (from SWRCB)
5. Order 2006-003-DWQ SSMP schedule
6. Comparison of Region 2 and SWRCB (Order 2006-003-DWQ) SSMP Development Schedules
7. RWB Letter *Impact of Statewide Sanitary Sewer Overflow Requirements (State Water Board Order No.2006-003) on SF Bay Water Board Sewer System Authorities*, September 29, 2006
8. Marin County Environmental Health Services *Memorandum to County Sanitation Districts regarding Response to Sewage Spills in Marin County*, May 6, 2008
9. LGVSD Resolution No. 2009-1881 approving the final SSMP and its implementation.

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Appendix E

Documents Related to Section 6 (Measures and Activities)

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1. Collection System Map Key and Example Map
2. Example PM Schedule Printouts
3. Blank Field Inspection Forms
4. Example Maintenance History Printout
5. Example “Areas of Concern” Printout
6. Permit Application – District Mainline or Property Lateral
7. Brochure for Plumbers and Sewer Contractors

Appendix F

SSMP Audit