



**NOVATO SANITARY DISTRICT**

**SEWER SYSTEM MANAGEMENT**  
**PLAN (SSMP)**

**AUGUST 2008**  
**(rev. 2010)**

**Prepared to meet SSMP requirements of the San Francisco Bay  
Regional Water Quality Control Board (SFRWQCB) and the State  
Water Resources Control Board (SWRCB) Statewide SSO GWDR**

**Novato Sanitary District  
Annual Sewer System Management Plan (SSMP)  
Revision History**

**This SSMP has been revised. The justifications for the revisions are included. A copy of the revision page has been placed into the SSMP document behind the cover page in of the document.**

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**REVISION HISTORY**

<b><u>REVISION NO.</u></b>	<b><u>DATE</u></b>	<b><u>REASON</u></b>
0	August 11, 2008	Initial Adoption by District Board Resolution No. 2989
1	March 10, 2010	Revised to reflect changes for 2009
2	March 10, 2011	Revised to reflect changes for 2010
3	June 6, 2011	Revised Figure 2-4 to reflect removal of SFRWQCB as a “2-hour reporting agency”.

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# NOVATO SANITARY DISTRICT

## SEWER SYSTEM MANAGEMENT PLAN (SSMP)

### INTRODUCTION

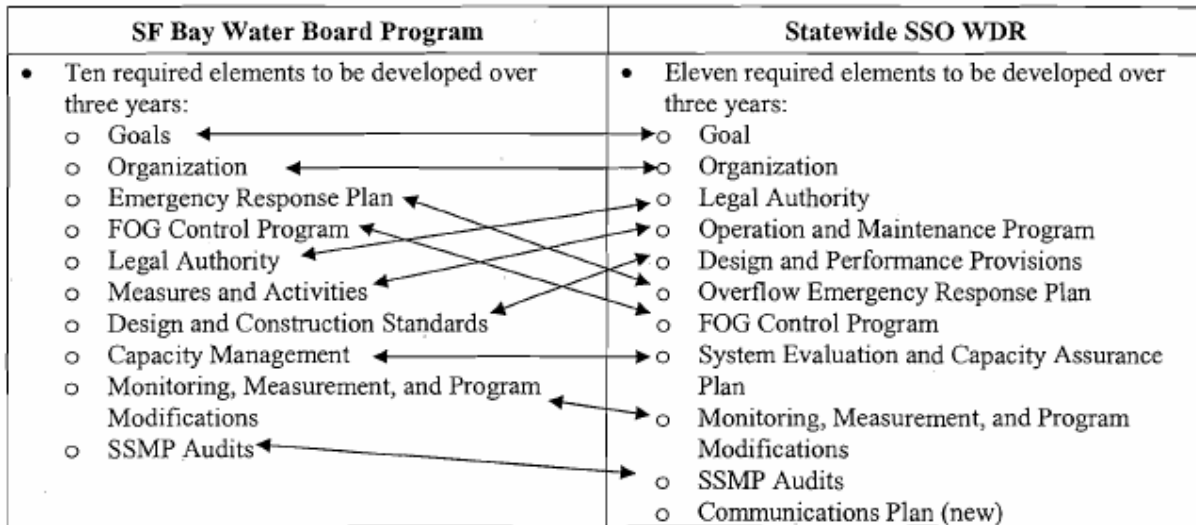
#### SSMP BACKGROUND

By letter dated July 7, 2005, and pursuant to Section 13267 of the California Water Code, the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) notified the Novato Sanitary District (District) to prepare a Sewer System Management Plan (SSMP). This SFRWQCB letter requires the District to prepare its SSMP following the guidelines in the SSMP Development Guide prepared by the SFRWQCB in cooperation with the Bay Area Clean Water Agencies (BACWA). The District must also comply with SFRWQCB sanitary sewer overflow (SSO) electronic reporting requirements issued in November 2004, and further clarified in May 2008.

In addition, at its meeting on May 2, 2006, the State Water Resources Control Board (SWRCB) enacted Order No. 2006-0003 “Statewide General Waste Discharge Requirements for Sanitary Sewer Systems”. This Order (commonly referred to as the “SSO GWDR” or “GWDR”) affects all public wastewater collection system agencies in California with greater than one mile of sewers. The SWRCB action applies to the District, and mandates the development of an SSMP and the reporting of SSOs using an electronic reporting system. The SWRCB SSMP requirements are similar to those of the SFRWQCB but differ in organization and some details. By letter dated September 29, 2006, the SFRWQCB developed relationships between the different elements of the SFRWQCB SSMP program and those mandated by the SWRCB’s GWDR. These relationships are excerpted from the September 29, 2006 SFRWQCB letter and presented in Figure 1.

**Figure I-1: Relationships\* of SSMP elements of the SFRWQCB program & SWRCB GWDR**

#### 5. Sewer System Management Program - Elements



←→ Double-head arrows indicate comparable sections

\*Excerpted from SFRWQCB letter dated September 29, 2006.

While this SSMP meets the requirements of the SFRWQCB, the content is also generally designed to meet the requirements of the SWRCB GWDR. Accordingly, the general organization of this document is consistent with the SFRWQCB guidelines, but the contents address both the SFRWQCB and SWRCB GWDR requirements, and include the following sections:

- Section One: Goals (also complies with SWRCB GWDR element No. 1)
- Section Two: Organization (also complies with SWRCB GWDR element No. 2)
- Section Three: Emergency Response Plan (also complies with SWRCB GWDR element No. 6)
- Section Four: Fats, Oils and Grease (FOG) Control Program (also complies with SWRCB GWDR element no. 7)
- Section Five: Legal Authority (also complies with SWRCB GWDR element No. 3)
- Section Six: Measures and Activities (also complies with SWRCB GWDR element No. 4)
- Section Seven: Design and Construction Standards (also complies with SWRCB GWDR element No. 5)
- Section Eight: Capacity Management (also complies with SWRCB GWDR element No. 8)
- Section Nine: Monitoring, Measurement, and Program Modifications (also complies with SWRCB GWDR element No. 9)
- Section Ten: SSMP Audits (also complies with SWRCB GWDR element No. 10)
- Section Eleven: Communication Program (is exclusive to SWRCB GWDR).

## **DISTRICT OVERVIEW**

The Novato Sanitary District (District) was formed on October 5, 1925 as the Marin County Sanitary District #6 to safeguard public health, and protect and enhance the environment of the community of Novato, California.

The enabling legislation for the formation of the District, as well as the District's legal authority resides in the Sanitary District Act of 1923, Chapter 1, Division 6, comprising Sections 6400 through 6830 of the Health and Safety Code of the State of California.

In February 1978, the District was renamed the Novato Sanitary District to affirm its commitment to the City of Novato (incorporated 1960), and the Novato community as a whole. Today, the purpose of the District is to provide wastewater collection, treatment, and disposal services for the entire Novato community. In addition, the District is also responsible for refuse disposal, recycling, and green-waste collection through its franchise collection entity, currently Novato Disposal Service.

Recently, the District (in conjunction with the North Marin Water District), also initiated a recycled water program whereby a portion of the District's secondary effluent is imparted a high level of additional treatment to meet California Title 22 recycled water standards for golf course and landscape irrigation.

## **WASTEWATER SYSTEM OVERVIEW**

The District owns and operates a wastewater collection system, a municipal wastewater treatment plants, and a combined effluent discharge outfall. The wastewater treatment plant (WWTPs) is the Novato Treatment Plant (NTP), which is currently designed for an average dry weather flow of 7.05 MGD.

The District's wastewater collection system collects and transports wastewater flows to the WWTP through a series of gravity sewers and interceptors, pump stations, and force mains. The combined collections and conveyance systems include a total of about 225 miles of sewers with about 200 miles of gravity sewer lines ranging from 4-inch to 54-inch diameter, 25 miles of force mains, and 40 pump stations. The pump stations vary in capacity from about 50 gpm to about 5 MGD, and individual pumps range from 3 hp to 90 hp.

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## LIST OF ABBREVIATIONS

AMS	Asset Management System
BACWA	Bay Area Clean Water Agencies
BSF/BWF	Base Sanitary Flow/Base Wastewater Flow
CCTV	Closed Circuit Television
CDFG	California Department of Fish and Game
CIP	Capital Improvement Plan or Program
CIWQS	California Integrated Water Quality System
CMMS	Computerized Maintenance Management System
FOG	Fats, Oils and Grease
FSE	Food Service Establishment
gpm	gallons per minute
gpd	gallons per day
GIS	Geographic Information System
GWDR	General Waste Discharge Requirements
GWI	Groundwater Infiltration
hp	Horsepower
ICOM3	The District's computerized collection infrastructure management system
ICFM	Ignacio Conveyance Force Main
ITPS	Ignacio Transfer Pump Station
I/I	Infiltration and Inflow
MGD	Million Gallons per Day
NPDES	National Pollution Discharge Elimination System
NSD	Novato Sanitary District (District)
NTP	Novato Treatment Plant
OERP	Overflow Emergency Response Plan
OES/EMA	State Office of Emergency Services/Emergency Management Agency
OSHA	Occupational Safety and Health Administration
RDI/I	Rainfall-Dependent Infiltration and Inflow
SCBA	Self Contained Breathing Apparatus
SFRWQCB	San Francisco Regional Water Quality Control Board
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SWRCB	State Water Resources Control Board
WDR	Waste Discharge Requirements
WWTP	Waste-Water Treatment Plant

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**NOVATO SANITARY DISTRICT**  
**SEWER SYSTEM MANAGEMENT PLAN (SSMP)**  
**SECTION ONE - GOALS**

**1.1 Regulatory Requirements**

**1.1.1 SFRWQCB**

*SSMP Element 1: Each wastewater collection system agency shall, at a minimum, develop goals for the Sewer System Management Plan as follows:*

- *To properly manage, operate, and maintain all parts of the wastewater collection system*
- *To provide adequate capacity to convey peak flows*
- *To minimize the frequency of SSOs*
- *To mitigate the impact of SSOs*

**1.1.2 SWRCB GWDR**

*GWDR SSMP Element No. 1: 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. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur.*

**1.2 GOALS OF THE DISTRICT'S SSMP**

Consistent with its purpose, the District is committed to a policy of sound, cost effective asset management and to a process of continuous improvement in operational reliability & flexibility, for its sanitary sewer system. Accordingly, the District is dedicated to achieving the following goals for its sanitary sewer system management plan (SSMP):

- To properly manage, operate and maintain all parts of the wastewater collection system it owns and controls in a safe, sound, and cost-effective manner
- To provide adequate capacity to convey base and peak wastewater flows in its system
- To minimize the frequency of occurrence of Sewer System Overflows (SSOs) in its system
- To mitigate the impacts of any SSOs that may occur in its system
- Evaluate and analyze both current and potential maintenance practices and performance in an on-going effort to operate efficiently and to effectively reduce SSOs.

This SSMP document provides a summary of: (a) the District's objectives, plans, practices, and procedures to meet these goals, and (b) its activities and core documents as they relate to each of the elements required to be addressed in the SSMP.

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**NOVATO SANITARY DISTRICT**  
**SEWER SYSTEM MANAGEMENT PLAN (SSMP)**  
**SECTION TWO – ORGANIZATION**

**2.1 Regulatory Requirements**

**2.1.1 SFRWQCB**

*SSMP Element 2: Each Wastewater collection agency shall, as a minimum, provide information regarding organization:*

- *Identify agency staff responsible for implementing, managing, and updating the SSMP*
- *Identify chain of communication for responding to SSOs*
- *Identify chain of communication for reporting SSOs*

**2.1.2. SWRCB GWDR**

*GWDR SSMP Element No. 2 The SSMP must identify:*

*(a) The name of the responsible or authorized representative as described in Section J of this Order.*

*(b) The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. The SSMP must identify lines of authority through an organization chart or similar document with a narrative explanation; and*

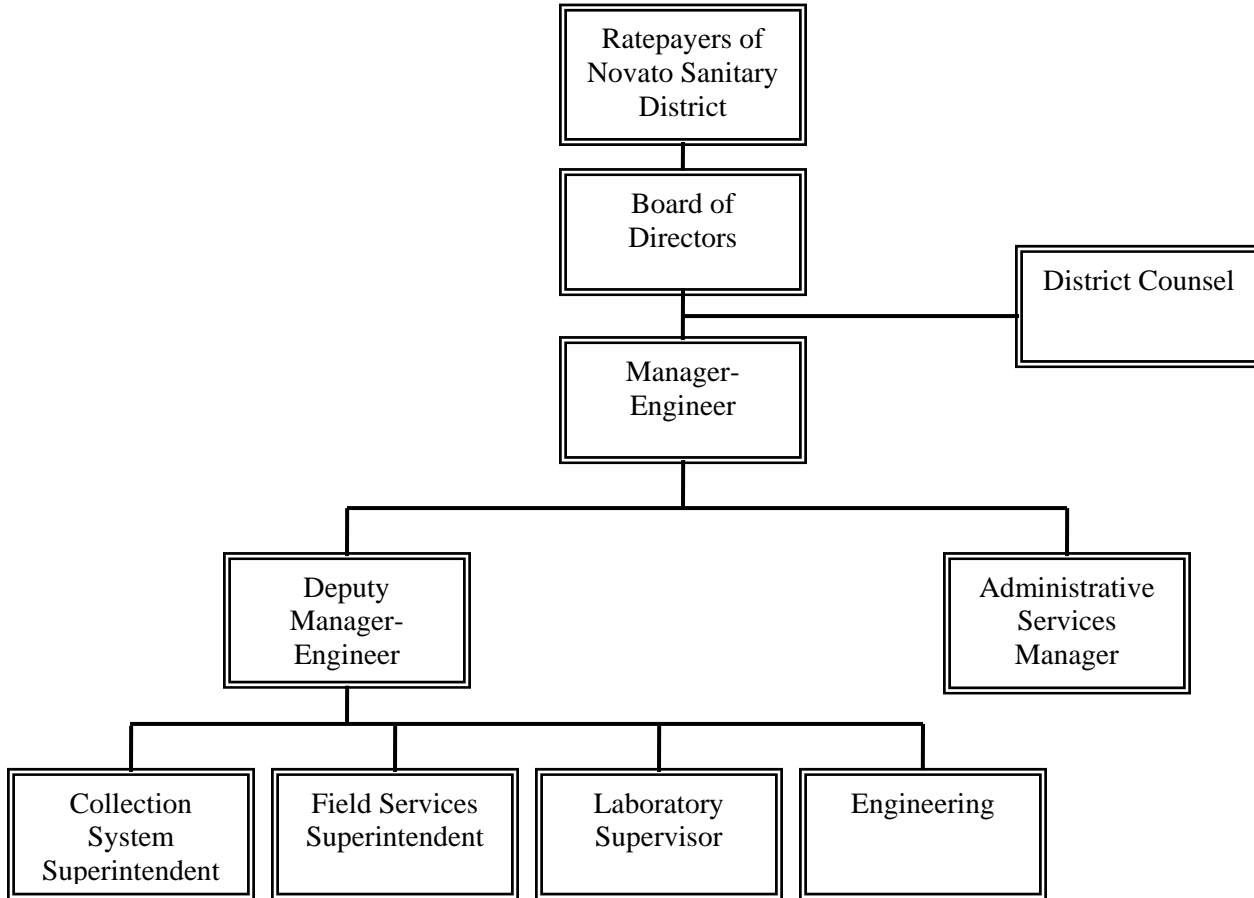
*(c) The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES)).*

**2.2 Organizational Structure**

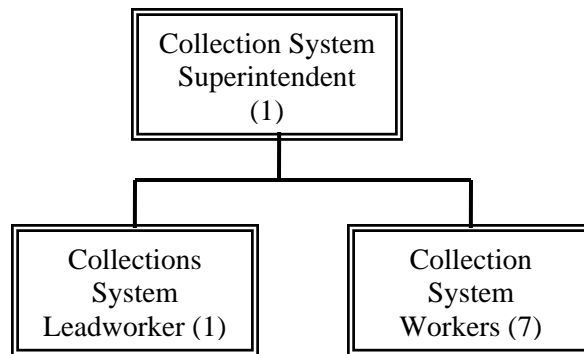
**2.2.1. General:** The District's organizational structure is designed to adapt to the community's needs as well as changing regulatory needs and priorities, while being able to respond effectively to critical situations. Given the relatively small size of its organization (currently, a total of about 22 full-time employees), the District attempts to employ a relatively flexible staffing structure. Organizational chart reflecting the District's current staffing structure are provided as Figures 2-1 and 2-2.

**2.2.2 Board of Directors:** Five member governing body of the District. Members are elected at-large from the community, over staggered two year periods; each member serves a four term.

**2.2.3 District Manager-Engineer (M-E):** Appointed by, and reports directly, to the Board of Directors. The M-E conducts the day-to-day business of the District.



**Figure 2-1: NSD - General Organizational Chart**



**Figure 2-2: NSD - Collection System Department Organization Chart**

2.2.4 District Deputy Manager-Engineer (DM-E): Assists the M-E in the day-to-day operations of several departments. Is hired by and reports directly to the M-E.

2.2.5 Departments: The District is broadly organized into the Administrative Services department (which reports directly to the M-E); and the Field Services, Collections System, and Technical Services departments which report to the DM-E.

### 2.3 Description of General Responsibilities

2.3.1 General: As mentioned above, the District adopts a flexible staffing structure to respond effectively to SSOs and critical situations. A description of the District's current staffing structure as it relates to the roles of various staff, and reporting and response requirements from an SSO/SSMP perspective is outlined below.

2.3.2 Board of Directors: Establish policies and provide needed resources to meet all public health and environmental laws and regulations in a safe, effective and efficient manner. Attend emergency meetings if required.

2.3.2 District Manager-Engineer (M-E): Responsible for all District day-to-day operations and activities, including reporting to regulatory agencies and other external organizations, including the updating and auditing of this SSMP. Interpret policy provided by District Board, plan District strategy, lead staff, prepare and submit the District budget (including the Capital Improvements Program or CIP budget) to the District Board, allocate resources, authorize outside contractors to perform services, and act as the District's public information officer.

In the event of an SSO or other critical situation:

- a. Receive information from various staff in the field and office
- b. Make resources available to respond to situation
- c. Provide timely reports and information updates to the District Board
- d. Arrange emergency meetings if required
- e. Verify that all regulatory reporting requirements are met

The M-E is a designated legally responsible officer (LRO) for purposes of SSO reporting.

2.3.3. Deputy Manager-Engineer (DM-E): May function as the Manager-Engineer in his/her absence. Prepare CIP program, expenditure projections, and budget and submit to M-E. Manage preparation of wastewater collection system studies and planning documents by outside consultants or District staff; manage implementation of CIP projects; document new and rehabilitated assets, and coordinate development, implementation, and updating of the SSMP.

In the event of an SSO or other critical situation:

- a. Receive information from various staff in the field and office, and make immediate reports to M-E
- b. Provide field assistance in coordinating District response
- c. Attend emergency meetings as directed by the M-E
- d. Assist the M-E in verifying that all reporting requirements are met

2.3.4 Collections Systems Superintendent (CSS): Provide direct supervision to Collections System Department. Manage field operations and maintenance activities for the collection system including line cleaning, televising, inventory and evaluation of the collection system and

recordkeeping of all maintenance activities into the District's collection system computerized maintenance management system. Provide periodic as well as timely updates to the DM-E, and the M-E. Assist in preparing and implementing contingency plans. Prepare and implement contingency plans. Train and supervise collections system crew consisting of Leadworker and Collection System workers.

In the event of an SSO or other critical situation:

- a. Investigate SSOs with immediate reporting to D M-E.-Provide immediate reporting to regulatory agencies, M-E and DM-E
- b. Lead emergency response to stop the SSO or mitigate its impacts
- c. Handle all follow-on reporting requirements with regulatory agencies
- d. Attend emergency meetings as directed by the M-E
- e. Verify that all reporting requirements are met

2.3.5 Collection System Staff: include a Collection Systems Leadworker and seven Collections Systems Workers. Staff field operations and maintenance activities for the collection system including line cleaning, televising, and recordkeeping of maintenance activities for the District's collection system computerized maintenance management system. Perform preventive maintenance activities in the collection system. Receive notification and respond to sewer blockages and stoppages.

In the event of an SSO or critical situation:

- a. Receive notification of SSOs or critical situations in collection system
- b. Mobilize and respond to such notification
- c. Deploy sewer cleaning equipment, by-pass pumps, portable generators, confined space equipment (if required), etc. as required by training, or as directed
- d. Under the direction of the WFM, CSS, or Collections Leadworker, perform all required activities to stop, mitigate, or eliminate the situation

The CSS is a designated legally responsible officer (LRO) for purposes of SSO reporting.

2.3.6 Field Services Superintendent: In terms of collections and pump stations operation, function as a back-up to the Collection System Superintendent. Supervise the Construction Inspector. Provide oversight for all collection system spot repair projects. Assist DM-E in providing consultant design engineers and construction managers on large CIP sewer repair/replacement projects. Prepare and submit reports as required and assigned. The FSS is a designated legally responsible officer (LRO) for purposes of SSO reporting.

2.3.7 Staff Engineer: Assist in preparation of wastewater collection system studies and planning documents by outside consultants. Review adequacy of planning, design, and construction of developer initiated sewer lines prior to transfer to District ownership. Generate permits for construction of private sewer lines within the District boundaries. Review video from televising of District lines for QA/QC purposes. Prepare/review as-built documentation for new and rehabilitated assets. Work as required on applicable regulatory permits and support all aspects of SSMP program. Maintain and prepare updates to the District's construction standards, and District Infrastructure Mapping and Asset Inventory.

**2.3.8 Construction Inspector:** Inspect spot repair type work in the collection system to ensure that rehabilitated work meets District standards. Work with field crews to provide construction related direction during emergencies when outside construction contractors are involved. Works with staff engineer to review adequacy of planning and design of developer initiated projects and inspects construction of such projects for adequacy against District construction standards before transfer to District ownership. Provide construction inspection of private sewer lines within the District boundaries to verify that all work is performed according to District standards.

**2.3.9 Information Systems Specialist:** Maintain the District's collections system computerized maintenance management system to ensure that system functions adequately. Assist Collection System Superintendent in modifying and/or generating new data entry forms and formats for the system. Review and upgrade system software and hardware as required.

## **2.4 Authorized Representative**

The District Manager-Engineer is the District's authorized representative registered with the San Francisco Bay Regional Water Quality Control Board SSO eReporting Program and the California Integrated Water Quality System (CIWQS) to certify SSO reports. The District Manager-Engineer has authorized the Collection System Superintendent and the Field Services Superintendent to prepare and submit electronic reports.

## **2.5 Responsibility for SSMP Implementation**

The District Manager-Engineer is responsible for overseeing the overall implementation of the SSMP. Various individuals within the District's organization are responsible for implementing one or more of the SSMP sections. Table 2-1 summarizes the responsibilities for SSMP implementation by section.

## **2.6 Chain of Communication for Responding to SSOs**

The chain of communication for responding to an SSO is shown in Figure 2-3. Detailed information on the District's overflow response procedure can be found in Section 3: Overflow Emergency Response Plan and in the District's full Overflow Emergency Response Plan herein.

## **2.7 Chain of Communication for Reporting SSOs**

The chain for reporting SSOs to the various regulatory agencies is shown in Figure 2-4 herein. Detailed information on SSO reporting can be found in Section 3: Overflow Emergency Response Plan and in the District's full Overflow Emergency Response Plan herein.

## **2.8 District Phone Lists**

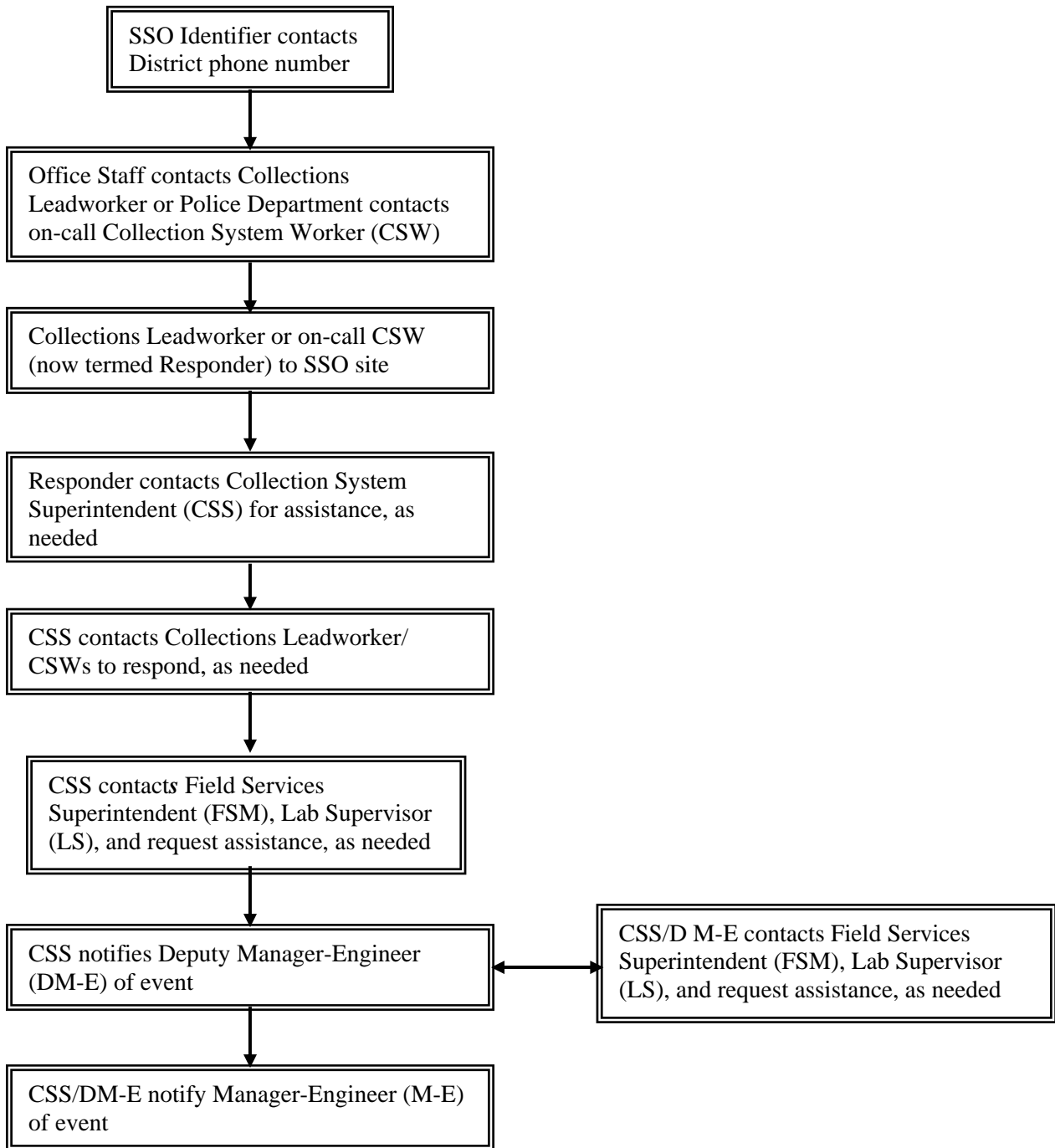
The District has a land-line as well as cellular based communications systems. The cellular phone system is the Sprint/Nextel system which incorporates both a cellular phone feature and a walkie-talkie ("Direct Connect") feature. In addition, as discussed in later sections, the

Collections System staff also has a Federal Communications Commission (FCC) licensed two-way radio communications system. The District’s landline and cellular systems phone lists are presented as Tables 2-2 through 2-6 herein.

**Table 2-1: Responsibility for SSMP Implementation by Section**

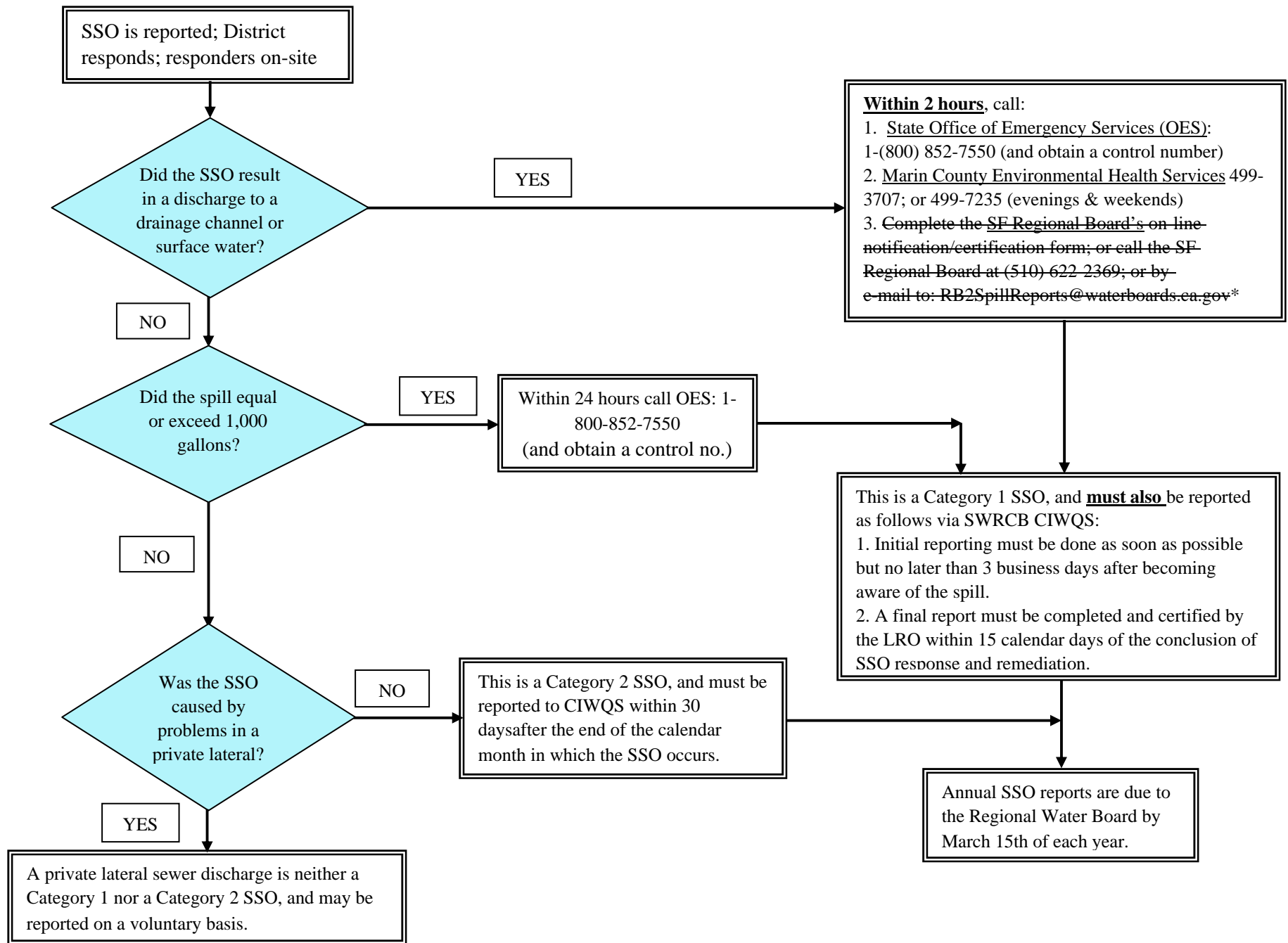
<b>SSMP SECTION NO.</b>	<b>SSMP SECTION NAME</b>	<b>RESPONSIBLE PERSONS(S)</b>
Section One	Goals	Manager-Engineer
Section Two	Organization	Manager-Engineer
Section Three	Overflow Emergency Response Plan	Collection System Superintendent
Section Four	Fats, Oils and Grease (FOG) Control Program	Collection System Superintendent, Laboratory Supervisor
Section Five	Legal Authority	Manager-Engineer
Section Six	Measures and Activities	Deputy Manager-Engineer, Collection System Superintendent, Field Services Superintendent
Section Seven	Design and Construction Standards	Deputy Manager-Engineer, Field Services Superintendent, Staff Engineer, Construction Inspector
Section Eight	Capacity Management	Manager-Engineer, Deputy Manager-Engineer, Staff Engineer
Section Nine	Monitoring, Measurement, and Program Modifications	Manager-Engineer, Deputy Manager-Engineer, Staff Engineer, Information Systems Specialist
Section Ten	SSMP Audits	Manager-Engineer, Deputy Manager-Engineer, Collections System Superintendent

(over)



**Figure 2-3: NSD Chain of Communication for Responding to SSOs**

(over)



**Figure 2-4: NSD SSO Reporting Responsibilities**

\*not required as of June 3, 2011

**Table 2.2: Novato Sanitary District Phone List - Main Number: (415)892-1694**

Ext	Name	Ext	Name
111	Beverly James, Manager-Engineer	123	Laura Creamer, Finance Officer
108	Bill Northcroft, Staff Engineer	130	Library (small conference room)
113	Board Room	119	Linda Candelaria, Lab Supervisor
114	Craig Deasy, Senior Engineer	112	Mel Liebmann, E/I Tech
120	Environmental Services Analyst (ESA)	109	Robin Merrill, Info Systems Spec II
101	Julie Borda, Admin Assistant	106	Sandeep Karkal, Deputy Mgr-Engr
103	June Brown, Admin Services Mgr	107	Steve Krautheim, Field Services Supr.
105	Ken Besnia, ESA I	126	Tim O'Connor, Collection System Supr.
121	Kevin Craig, Construction Inspector		<b>Last updated: Mar. 25, 11</b>

**Table 2.3: Novato Sanitary District Nextel Phone List (Admin and Engineering)**

Name/Title	Cell Number	Direct Connect No.
Beverly James, Manager-Engineer	510.593.3182	----
Bill Northcroft, Staff Engineer	415.798.4056	117*24583*5
Craig Deasy, Senior Engineer	415.798.0423	117*24583*21
Julie Borda, Admin Assistant	415.798.1999	117*24583*1
Mel Liebman, Elec/Instrumentation Tech	415.798.4065	117*24583*14
Robin Merrill, Information Systems Specialist	415.798.0395	117*24583*29
Sandeep Karkal, Deputy Manager-Engineer	415.798.6034	----

**Table 2.4: Novato Sanitary District Nextel Phone List (Collection System)**

Name/Title	Cell Number	Direct Connect No.
Tim O'Connor, Collection System Supervisor	415.798.4061	117*24583*10
Dasse DeLongh, Collections Leadworker	415-798-4054	117*24583*3
Ben Northcroft, Collection System Worker I	415.748.8525	117*24583*26
Curtis McAbee, Collection System Worker II	415.798.4069	117*24583*18
Erik Ingemanson, Collection System Worker II	415.798.1979	117*24583*23
Javier Vega, Collection System Worker I	415.798.4059	117*24583*8
Larry Foged, Collection System Worker II	415.748.8563	117*24583*27
Paco Sandoval, Collection System Worker II	415.798.4068	117*24583*17
Johnathan Au, Collection System Worker I	(415) 798-0460	117*24583*30
Collections pager	415.838.0125	

**Table 2.5: Novato Sanitary District Nextel Phone List (Field Services)**

Name/Title	Cell Number	Direct Connect No.
Steve Krautheim, Field Services Superintendent	415.798.4053	117*24583*2
Kevin Craig, Construction Inspector	415.990.7360	117*24583*4
Mike Chirco, Temp Elect Tech	415.798.0464	117*24583*15

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**NOVATO SANITARY DISTRICT**  
**SECTION THREE**  
**OVERFLOW EMERGENCY RESPONSE PLAN**

**3.1 Regulatory Requirements**

**3.1.1 SFRWQCB**

*SSMP Element 1: Each wastewater collection system agency shall develop an overflow emergency response plan with the following elements:*

- *Notification: - Provide SSO notification procedures.*
- *Response – Develop and implement a plan to respond to SSOs*
- *Reporting – Develop procedures to report and notify SSOs per SSO Monitoring and Reporting Program*
- *Impact Mitigation – Develop steps to contain wastewater, to prevent overflows from reaching surface waters and to minimize or correct any adverse impact from SSOs.*

**3.1.2. SWRCB GWDR**

*GWDR SSMP Element No. 6: Overflow Emergency Response Plan - Each Enrollee shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:*

- (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; and*
- (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.*

**3.2 General**

The District is a member of the California Sanitation Risk Management Agency (CSRMA), a joint powers authority comprised of approximately 60 sanitary sewerage agencies, sanitation and sanitary districts across California. The District participates in the Pooled Liability Program (PLP) established by CSRMA. The PLP serves to provide the insurance that covers the District's liabilities arising from any backups, spills, or SSOs attributed to its collection system.

Based on the nature of its business, a major goal of CSRMA's PLP is to minimize its members exposure to liabilities arising from backups, stoppages, SSOs, etc. in their collection systems. Accordingly, CSRMA has acquired extensive expertise and experience in developing overflow response plans that meet the dual needs of meeting all applicable regulatory requirements, while satisfying stringent insurance underwriting standards.

The District has utilized this experience and expertise, and worked with CSRMA to develop a comprehensive backup and overflow emergency response plan tailored specifically to the District's needs. A copy of this plan entitled Sanitary Sewer Backup and Overflow Response Plan is provided as Attachment 3A.

Another primary tool that the District utilizes in tracking progress in the notification and response chain for incidents in its collection system is the Sewer Service Call Form (see Attachment 3B). This form consists of several parts, with each part setting up a step-by-step level of notification and response from initial notification to final closeout for an individual incident.

The procedures outlined in the Overflow Response Plan and the documentation capabilities of the Sewer Service Call Form provide a basis for the overall Overflow Emergency Response Plan.

### **3.3 Overflow Notification/Service Calls**

The District's offices are open Monday through Friday, 8:00 a.m. to 4:30 p.m. All service calls during business hours are received by the Administrative Services staff, and logged into Sewer Service Call Forms. Each call is assigned a Service Call Form which then stays with that particular incident for the duration of the incident.

The Sewer Service Call Form records the District's initial documentation of notification of any incident in its collection system in Part A of the form. This basic notification information is immediately relayed directly to the Collection System Supervisor who initiates the appropriate mobilization/response procedures in accordance with the Overflow Emergency Response Plan.

After hours, the District utilizes the Novato Police Department (NPD) to take emergency calls. After hour callers to the District's main phone line are notified to call the NPD directly to ensure a timely response. The NPD then relays the message to the on-call collection system worker

(CSW) by cellular telephone and pager, along with a contact number for acquiring additional information. This capability for the caller to be able to talk to a live person 24 hours per day adds the positive benefits of human interaction, significantly reducing the possibility of a missed call or misunderstanding about the nature of a problem.

The District utilizes a rotating on-call system to have at least one collections system worker available and on-call to respond to after-hours calls from the NPD. Upon notification by the NPD, the on-call CSW makes a determination about the emergency, and, as necessary, notifies the Collections Systems Supervisor (CSS), who can direct other CSW(s) to respond to the incident in addition to the on-call worker. The CSS is furnished with a District truck and cell phone which incorporates a walkie-talkie feature, and all CSWs are furnished an individual cell phone with a walkie-talkie feature. The cell phones/walkie-talkies are backed up by pagers for the CSS, and the on-call CSW. The District also utilizes a Federal Communication Commission (FCC) licensed two-way radio network that serves as a further back-up communications system. In addition, the on-call worker is furnished with the on-call phone and pager (to ensure a single point of call number for the NPD), as well as an on-call response vehicle.

### **3.4 Overflow Response**

The District's overflow emergency response plan identifies and provides details of several standard policies and procedures that the District is required to follow in the event of a backup, spill, or sanitary sewer overflow (SSO) attributed to its collection system. As discussed earlier, the District is required to follow these procedures not only from the perspective of compliance with all state mandated requirements, but also to be in compliance of standards established by its risk manager. Included in this plan are policies and procedures for handling service calls, spill notifications and SSOs in the District's collection system, and the timely, appropriate and adequate response to these incidents.

These policies and procedures are reviewed periodically and updated as required to reflect best management practices. Issues addressed include systems for overflow mitigation, emergency response, clean-up, spill recovery, internal and external resources, and rehabilitation of any damage to property including dwellings and buildings. They also include provisions for notification of and reporting to regulatory agencies and the public, and testing for contamination when necessary. A brief discussion of these policies and procedures is provided below.

The Sewer Service Call Form (see attachment 3B) provides the District's initial documentation of notification of any incident in its collection system in Part A of the form. The procedures listed in TAB 4 (location 4A through 4K) and TAB 5 (Location 5A through 5J) of the Sanitary Sewer Overflow and Backup response Plan (Attachment 3A) provides further detailed information on overflow notification, overflow response, and overflow reporting (including reporting to regulatory agencies and internal reporting) actions. Additional procedures provide details on the handling of overflows into homes/businesses and associated claims.

### 3.5 Overflow Reporting Policy

The District defines an overflow as any event that can be attributed to its collection system and which results in the escape of untreated sewage from its collection system onto public or private property. All reports of events including backups, blockages, spills, overflows, etc., are investigated as to cause and needed corrective action to prevent future incidents.

#### 3.5.1 Regulatory Notification, Reporting, and Certification

For regulatory notification, reporting, and certification purposes, the District is mandated to follow the most current State Water Resources Control Board (SWRCB) requirements and/or SFRWQCB requirements. Currently, these requirements mandate that SSOs fall into one of two categories: Category 1 (greater threat to public health of water quality) and Category 2 (lesser threat to public health of water quality).

A Category 1 SSO is defined as a failure in a sanitary sewer system that results in a: (1) discharge of sewage which equals or exceeds 1,000 gal, or (2) discharge of sewage to a surface water and/or drainage channel, or (3) discharge of sewage to a storm drainpipe which was not fully captured and returned to the sanitary sewer system. A Category 2 SSO is defined as any discharge of sewage resulting from a failure in the sanitary sewer system which does not meet the criteria for a Category 1 SSO.

The SWRCB's current notification and reporting requirements (SWRCB Order no. WQ2008-0002-EXEC), February 20, 2008, and the SFRWQCB letter of May 1, 2008, mandate notification, certification, and reporting procedures in the event of a collection system event. A brief description is provided below. A graphical representation is also provided as Figure 2.4 in Section 2 earlier.

#### **Category 1 Event:**

- A. For a Category 1 event with discharge to a drainage channel or surface water:
1. Within 2 hours, call:
    - Office of Emergency Services (OES):(800) 852-7550 (and obtain a control number)
    - Marin County Environmental Health Services
    - ~~Complete the SF Regional Board's on-line notification/certification form; or call the SF Regional Board at (510) 622-2369. (Not required as of June 3, 2011).~~
  2. Report as follows via SWRCB CIWQS:
    - Initial reporting must be done as soon as possible but no later than 3 business days after becoming aware of the spill.
    - A final report must be completed and certified by the LRO within 15 calendar days of the conclusion of SSO response and remediation.

B. For a Category 1 event without discharge to a drainage channel or surface water, and if the spill equals or exceeds 1,000 gallons:

1. Within 24 hours call OES: 1-800-852-7550 (and obtain a control no.)
2. Reported as follows via SWRCB CIWQS:
  - Initial reporting must be done as soon as possible but no later than 3 business days after becoming aware of the spill.
  - A final report must be completed and certified by the LRO within 15 calendar days of the conclusion of SSO response and remediation.

C. Annual SSO reports are due to the Regional Water Board by March 15th of each year.

**Category 2 Event:** An event that is neither a Category 1 event, nor an event caused by problems in a private lateral:

- A. Must be reported to the SWRCB CIWQS within 30 days after the end of the calendar month in which the SSO occurs.
- B. Annual SSO reports are due to the Regional Water Board by March 15th of each year.

### ***3.5.2 Internal Reporting***

In addition to the required communication and reporting carried out during the course of an incident (see Section Two), the Collection System Supervisor prepares a report on every SSO. The Overflow Report (OR) is based on the information related to the SSO which is succinctly documented on the internal sewer service call forms. The OR includes recommended actions and documents dates of actions taken to correct the condition that caused the backup, spill, or SSO.

Each month, the Collection System Supervisor summarizes all ORs into a summary monthly report. This summary report is provided to the Laboratory Supervisor, and the DM-E.

Upon review, the Laboratory Supervisor compiles the ORs summary into the District's monthly self-monitoring report (SMR). The SMRs are reviewed by the District M-E prior to transmittal to the San Francisco Bay Regional Water Quality Control Board (SFRWQCB). A summary of all collection system events is also provided in the District's annual monitoring report.

In addition to the SMR, the M-E ensures that basic SSO information is reported to appropriate regulators in accordance within time frames established by the regulatory agencies. SSO information is also reported to the District Board of Directors on a regular basis, with abnormal incidents being reported concurrent with the course of the incident.

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**ATTACHMENT 3A:  
SANITARY SEWER BACKUP AND OVERFLOW RESPONSE PLAN**

**ATTACHMENT 3B:  
SEWER SERVICE CALL FORM**

**NOVATO SANITARY DISTRICT**  
**SEWER SYSTEM MANAGEMENT PLAN (SSMP)**  
**SECTION FOUR – FATS, OIL AND GREASE (FOG) CONTROL PROGRAM**

**4.1 Regulatory Requirements**

**4.1.1 SFRWQCB**

*SSMP Element 4: Each wastewater collection system agency shall evaluate its service area to determine whether a FOG control program is needed. If so, a FOG control program shall be developed as part of the SSMP. If an agency determines that a FOG program is not needed, the agency must provide justification for why it is not needed.*

**4.1.2. SWRCB GWDR**

*GWDR SSMP Element No. 7: FOG Control Program: Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If an Enrollee determines that a FOG program is not needed, the Enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the Enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. This plan 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 for the removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;*
- (e) Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the FOG ordinance;*
- (f) An identification of sanitary sewer system sections subject to FOG blockages and establishment of a cleaning maintenance schedule for each section; and*
- (g) Development and implementation of source control measures for all sources of FOG discharged to the sanitary sewer system for each section identified in (f) above.*

**4.2 Fats, Oils, and Grease Control (Fog) Overview**

The District's current FOG control procedures and efforts are staffed by the District's Collections Systems and Environmental Services staffs, the Staff Engineer and Construction Inspector, under the direction of the District management. Similar to formalized FOG control programs, current practices include provisions for permitting under existing ordinance provisions, inspection and monitoring, enforcement of existing ordinance provisions, and multiple language outreach efforts to commercial

establishments (primarily Food Service Establishments or FSEs), multiple dwellings complexes, and to the residential community at large.

The District does not currently issue formal FOG Wastewater Discharge permits to FSEs. However, the District's building permit review process under District code ordinance provisions requires the installation of grease removal devices, maintenance of all installed grease removal devices at facilities, and record-keeping of maintenance activities.

The District works closely with the Marin County Health Services FSE permitting program and the City of Novato Building Inspection Department to coordinate and verify need, sizing, design, and installation of grease traps and interceptors. Subsequently, the District also coordinates with the City and County in verifying proper grease trap/interceptor operation, maintenance and recordkeeping.

On the collection system side, a key element of current practices as they relates to FOG control includes hotspot identification and response (grease hotspot GIS database and priority maintenance schedule), as well as targeted responses to grease-related blockages and any consequential SSOs. Maps of known hotspots in the District's service area are provided as Figures 4-1 through 4-4 herein. Response activities include periodic facility inspections at FSEs upstream of the problem area, camera investigations to determine point of source location, and corrective actions and enforcement procedures as needed. In addition, the District's capital improvements program incorporates sewer repair projects that along with other factors allow better flow characteristics which will aid in the control of grease buildup and minimize grease-related SSOs in its system.

### **4.3 Fog Program Elements**

The following program elements have been outlined for the District's FOG program:

- Source Identification
- Legal Authority
- Program Structure/requirements
- Grease Removal Device Technology for FSEs
- Inspections and Monitoring for FSEs
- Enforcement for FSEs
- FOG Disposal
- Public Education and Outreach

#### ***4.3.1 Source Identification, Grease Problem Areas, and Sewer Cleaning***

Source identification is the locating of sources of grease introduced into the District sewer system. Typical grease sources in the District's service area include:

- Food Service Establishments (FSEs), including but not limited to restaurants, cafes, bakeries, hospitals, nursing homes, grocery stores, caterers, commissaries, and food manufacturing facilities
- Residential (including but not limited to multi-family dwellings, and apartment or condominium complexes)
- Other commercial

Continuing sources are categorized as “Hotspots” – FSEs causing or contributing to grease-related sanitary sewer overflows (SSOs) and blockages, and “Non Hotspots”.

Grease Problem Areas: The District is in the process of inventorying and categorizing grease point of locations (hotspots) and has a grease hotspot GIS database (established 2006) and a six-month or lower priority maintenance schedule for flushing and/or rodding problem sewer lines. Additional sewer lines can be added to the priority maintenance schedule after an SSO event or if closed circuit television inspection (CCTV) indicates grease buildup.

In 2010, six (6) of the District’s 29 reported SSOs, or 21 percent, were attributed to grease blockages. None of the six 2010 SSOs caused by grease blockages occurred during wet weather and none that were grease related occurred at the same location.

Sewer Cleaning: Approximately 10.1 miles of the gravity sewer system are on the six-month (or less) priority maintenance schedule for flushing, rodding, or both flushing and rodding, with some of these lines identified as grease problems. While the District has known areas with commercial grease sources (e.g. restaurants), the District also has grease issues in residential areas from lines with poor grade.

The District conducts CCTV inspection as part of it’s rehabilitation plan, and is several years into a multi-year plan to CCTV inventory its entire collection system. The CCTV work is designed to identify and categorize the causes of grease problems. Lines with known poor flow characteristics are prioritized for CCTV inspection. With information on the causes of grease problems, maintenance activities and schedules can be modified or sewer pipeline repairs made to better control grease buildup and minimize grease-related SSOs.

#### ***4.3.2 Legal Authority for FOG Program Requirements***

The District’s Code Ordinance (see Section Five) is the basis of the legal authority of the FOG control program. Specifically, Article VIII of the Code includes the following provisions:

- Prohibited substances – those that cause or threaten to cause obstruction of flows in community sewers or interceptors
- Authority to require pretreatment prior to discharge to the community sewer
- Authority to inspect and monitor dischargers and sample their discharge
- Enforcement procedures and penalties for failure to adhere to the Ordinance

Provisions for grease control and removal devices are included in Section 810 of the District’s code. The 2007 California Plumbing Code (CPC) also contains provisions related to grease, and the District has adopted these Codes by reference through its Code.

#### ***4.3.3 Program Structure/Requirements***

While the District does not currently issue permits to Food Service Establishments (FSEs), it enforces the following requirements:

- Installation of Grease Traps/Interceptors for all new FSEs and remodels, as part of the County’s review process for FSE construction/remodel. The District also works to educate, encourage, or

mandate FSEs known to have caused or contributed to a sanitary sewer overflow or blockage to install grease removal devices.

- Grease removal device maintenance is also verified, to ensure FSEs discharges do not cause or contribute to SSOs or blockages due to lack of adequate maintenance. Also, a complete pump out (with verifiable records) of grease interceptors is required each time an interceptor is pumped.
- Maintenance records are required to be kept on site and made available at the time of inspection by the District's Environmental Compliance staff.

#### ***4.3.4 Grease Removal Device Technology for FSEs***

Grease interceptor installation, design and sizing is per the California Plumbing Code. Grease interceptor waivers and variances are considered depending upon the business type, the grease generating capability (& probability) of a FSE, and difficulties with interceptor installations due to conflicts with site conditions. The installation of these is coordinated with Marin County Health Services agency and the City of Novato Building department.

Grease trap installation, design and sizing may be used as an alternative to interceptors in instances where a grease interceptor cannot be installed (ex: space and slope restrictions). The installation of these is coordinated with Marin County Health Services agency and the City of Novato Building Department on a case-by-case basis.

#### ***4.3.5 Inspections/Monitoring – for FSEs***

**Non-Hotspots:** The District's environmental services staff monitors "Non-hotspot areas" as follows:

- All FSEs are inspected periodically (typically at least once every 2-3 years)
- Grease interceptors are inspected – a measurement of grease/water/solids is done
- Compliance with District requirements is determined
- Verification of proper disposal methods
- Educational materials are distributed to managers and employees
- Follow-up tasks (as needed) are performed, such as increasing grease interceptor pumping frequency and requiring grease interceptor repairs

**Hotspots:** The District's environmental services staff monitors areas (identified by collections system staff) that have a history of grease-related SSOs and blockages, based upon field experience, maintenance records, and CCTV inventory inspection. Environmental Services staff also investigates conditions in these areas in an effort to determine which establishments/residences are causing the grease problems. Actions in these investigations may include:

- Targeted inspections of FSEs upstream of a reported hotspot
- Grease interceptor inspections – measurement of grease/water/solids
- Determination of compliance with District requirements
- Video inspections of laterals
- Video inspections of main lines
- Distribution of educational materials
- Increase of cleaning frequency by the District's Collections staff

Follow-up tasks may be done as a result of these inspections, including requirements to install a grease interceptor, increase the frequency of grease interceptor pumping, any identified repairs or modifications to existing installations, and District verification of such repairs or modifications.

#### ***4.3.6 Enforcement – for FSEs***

The District utilizes an escalating or progressive enforcement structure informally modeled after the District’s current Non-Domestic Wastewater Discharge Enforcement Response Plan.

#### ***4.3.7 FOG Disposal (grease trap and grease interceptor waste)***

The District maintains a list of known commercial grease haulers that is provided to interested parties for informational purposes (see table at end of this section).

The District has participated in a regional study with the other Marin County wastewater treatment entities to evaluate potential on-site grease receiving facilities, and it is anticipated that the District may be a future receiving facility (FOG Management Feasibility Study, May 2007, Brown and Caldwell Consultants). However, at this time, the District’s wastewater treatment facilities do not receive waste grease from either inside or outside of its service area, and all known haulers in the District’s service area are informed about this.

The District is aware that a neighboring agency, the Central Marin Sanitation Authority (CMSA) is in the process of independently evaluating options to be a receiving facility in the near future. Also, the East Bay Municipal Utility District (EBMUD) wastewater treatment plant in Oakland is a receiving facility and haulers, and the general public is informed of this upon enquiry.

#### ***4.3.8 Public Education and Outreach***

Program brochures that describe best management practices (BMP) and a BMP chart are distributed to FSEs in English and Spanish. Brochures and other literature for FSEs include a “How to Maintain a Grease Interceptor” flyer, a “Fat Free sewer” flyer, a “Do Not Pour” poster, and BMP posters and charts.

Materials for use in residential situations include informational brochures, scrapers that can be used to clean cooking ware, and informational flyers. Staff and Board members also present FOG materials and information at public events and fairs.

The District’s web site also contains links related to FOG that contain useful FOG information, including the location of used cooking oil collection centers.

**GREASE HAULERS:      Service Provider / Vendor List**

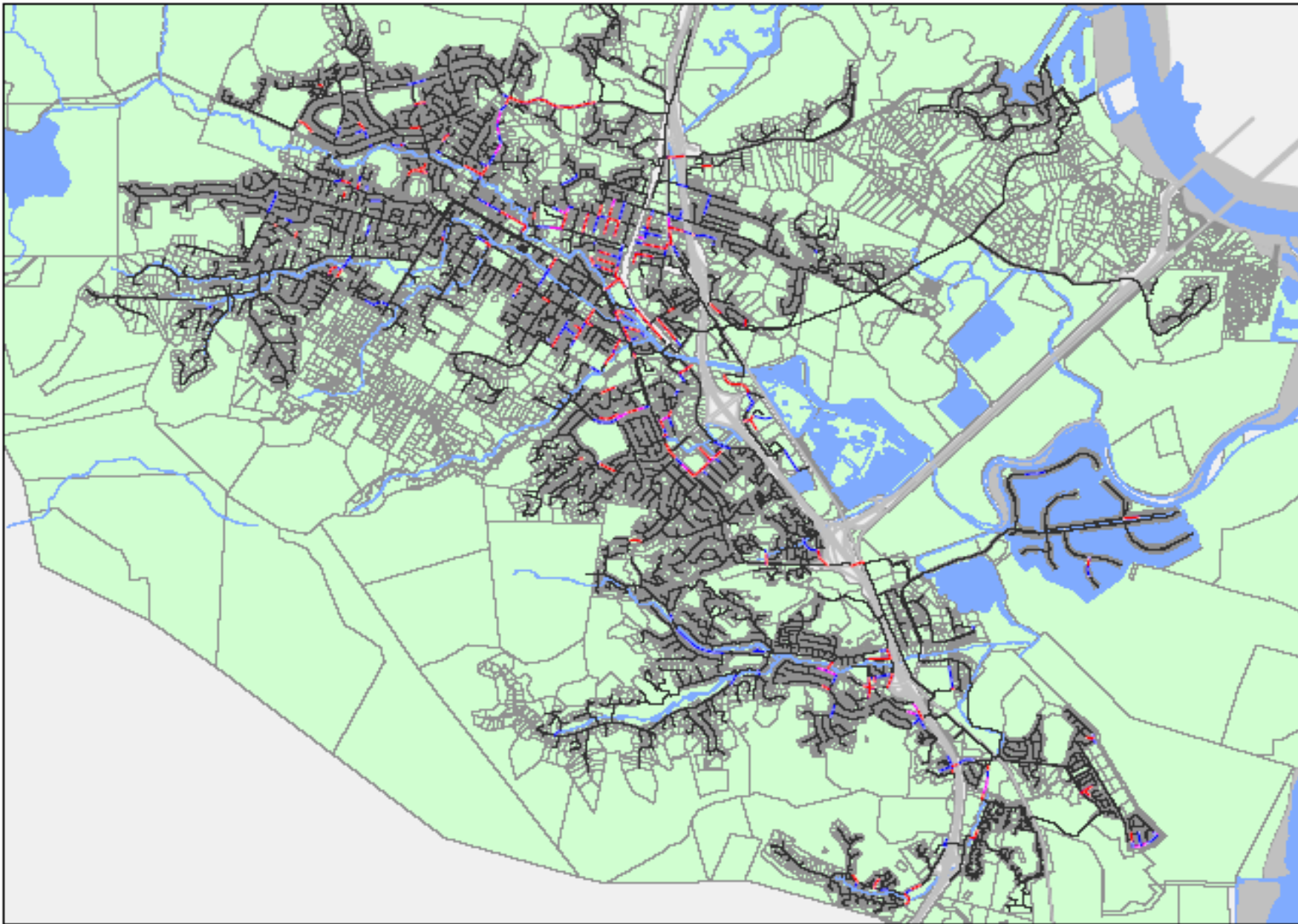
<b><u>Affordable Septic</u></b>	<b><u>North State Rendering Co. Inc.</u></b>
(707) 823-7867	(800) 351-4446; (530)343-6076
• Interceptor & Trap Cleaning	• Interceptor & Trap Cleaning
	• Used Cooking Oil Collection
<b><u>All Valley Environmental Inc.</u></b>	<b><u>Pioneer Liquid Transport</u></b>
(559) 498-8378	(800) 366-3265
• Interceptor & Trap Cleaning	• Interceptor & Trap Cleaning
• Used Cooking Oil Collection	• Used Cooking Oil Collection
<b><u>BDK Septic Service</u></b>	<b><u>Roto Rooter</u></b>
(707) 527-8788	(415) 898-2700
• Interceptor & Trap Cleaning	• Interceptor & Trap Cleaning
<b><u>Coast Sanitary Service</u></b>	<b><u>Sacramento Rendering Co. (SRC)</u></b>
(415)868-2720	(800) 339-6493; (916)363-4821
• Interceptor & Trap Cleaning	• Interceptor & Trap Cleaning
	• Used Cooking Oil Collection
<b><u>Darling International Inc.</u></b>	
(800) 473-4890	<b><u>United Site Services</u></b>
(415) 647-4890	(707) 543-2731 (Santa Rosa)
• Interceptor & Trap Cleaning	• Interceptor & Trap Cleaning
• Used Cooking Oil Collection	• Used Cooking Oil Collection
	(707)747-2810 (Benicia)
<b><u>Joe Farmers Septic &amp; Grease Service</u></b>	<b><u>Yokayo Biofuels</u></b>
(707) 484-5972 (Cell)	(707) 472-0900
• Interceptor & Trap Cleaning	• Used Cooking Oil Collection
• Used Cooking Oil Collection	

**INCLUSION ON THIS LIST DOES NOT REPRESENT AN ENDORSEMENT OF ANY COMPANY BY NOVATO SANITARY DISTRICT.** This list has been compiled from information supplied by companies listed. It is provided solely for general information purposes and should not be used as a substitute for your own evaluation of a prospective Grease Hauler. Novato Sanitary District accepts no responsibility of any kind which may be claimed to result from the use of this document.

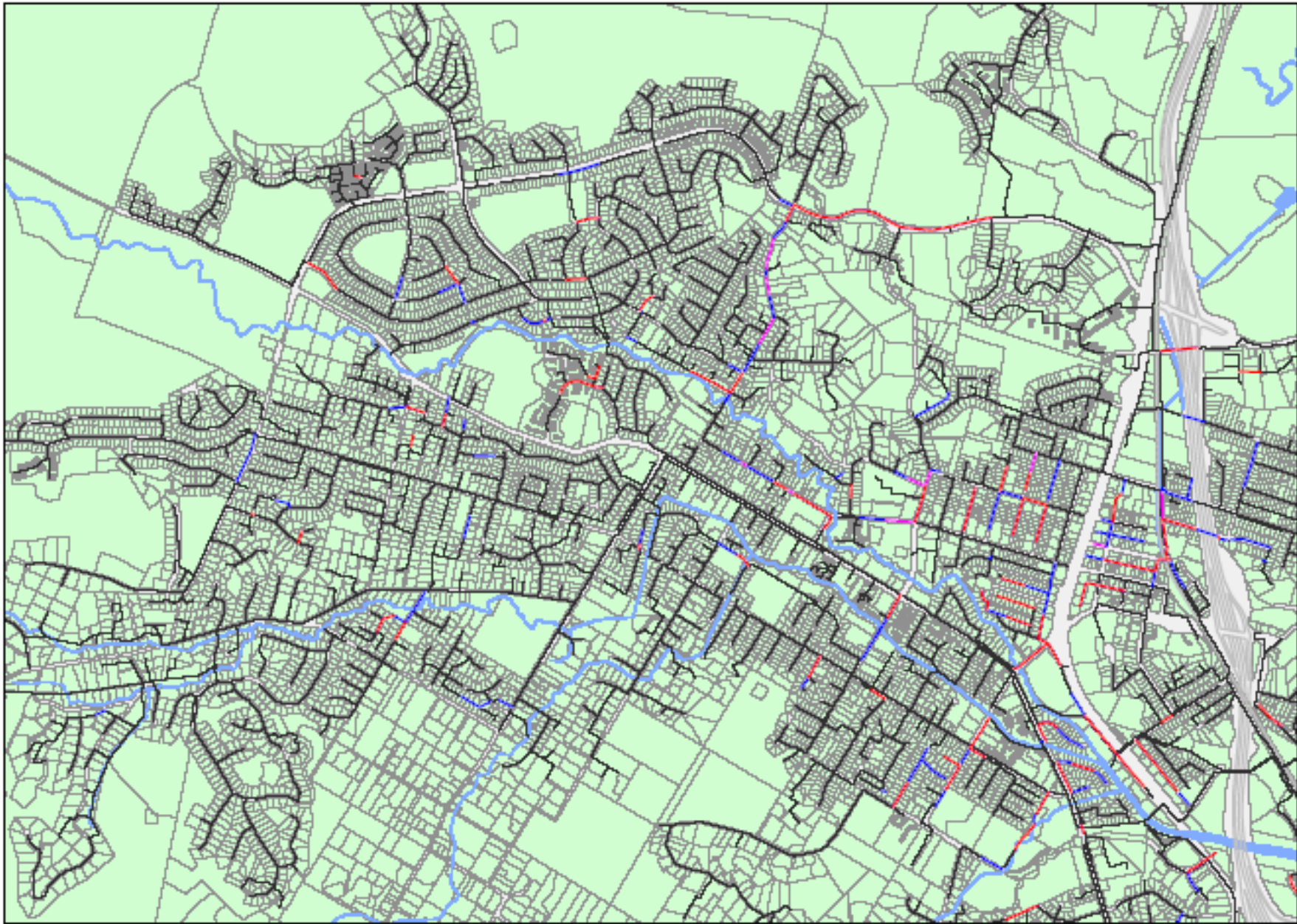
**NOTE:** Any business using a grease hauler should verify the hauler removes the entire contents of their trap or interceptor. The District suggests that the business owner or restaurant manager check how well the interceptor was cleaned before the grease hauler is released from the job.

*Updated March 2011.*

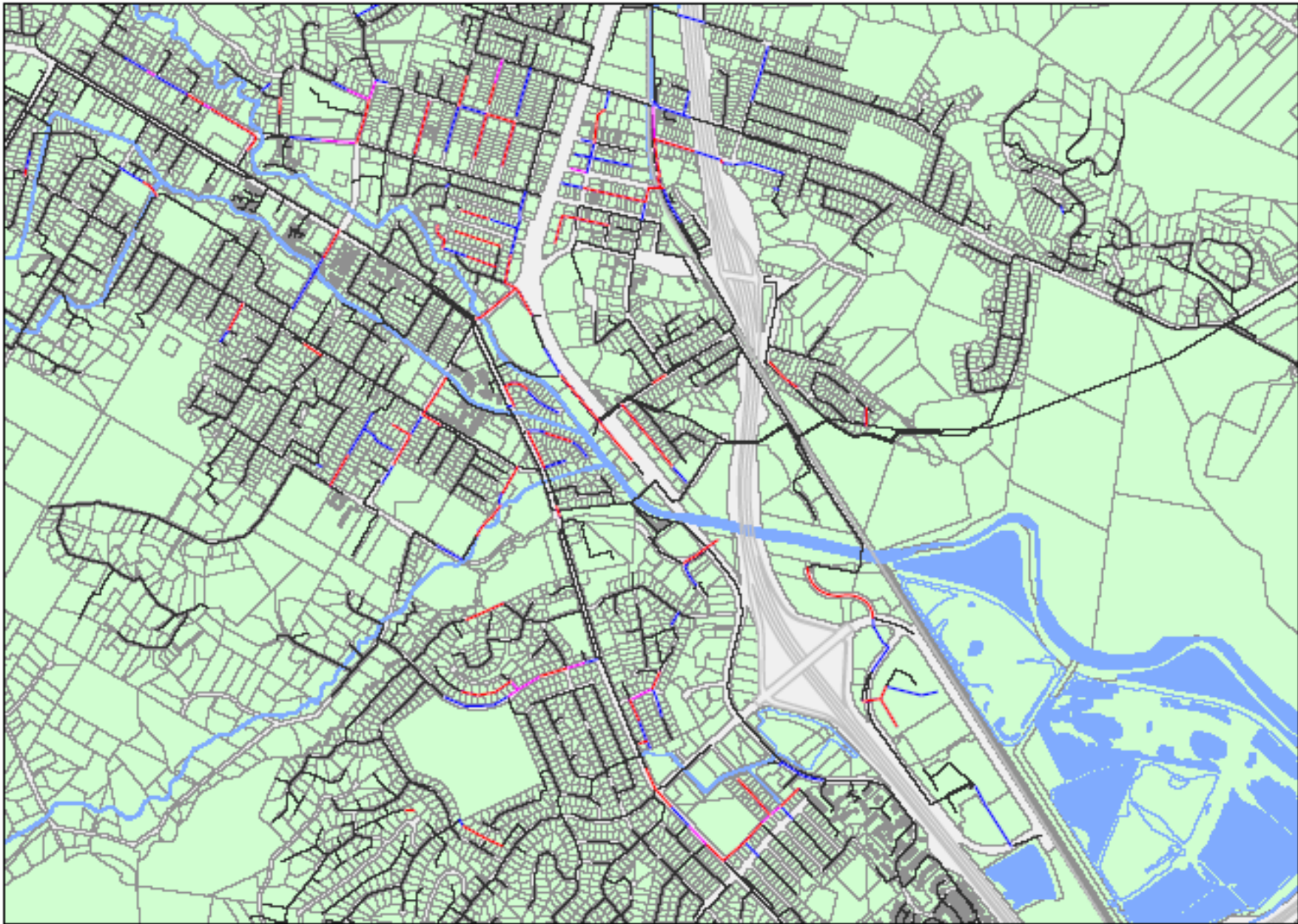
\*\*\*\*\*



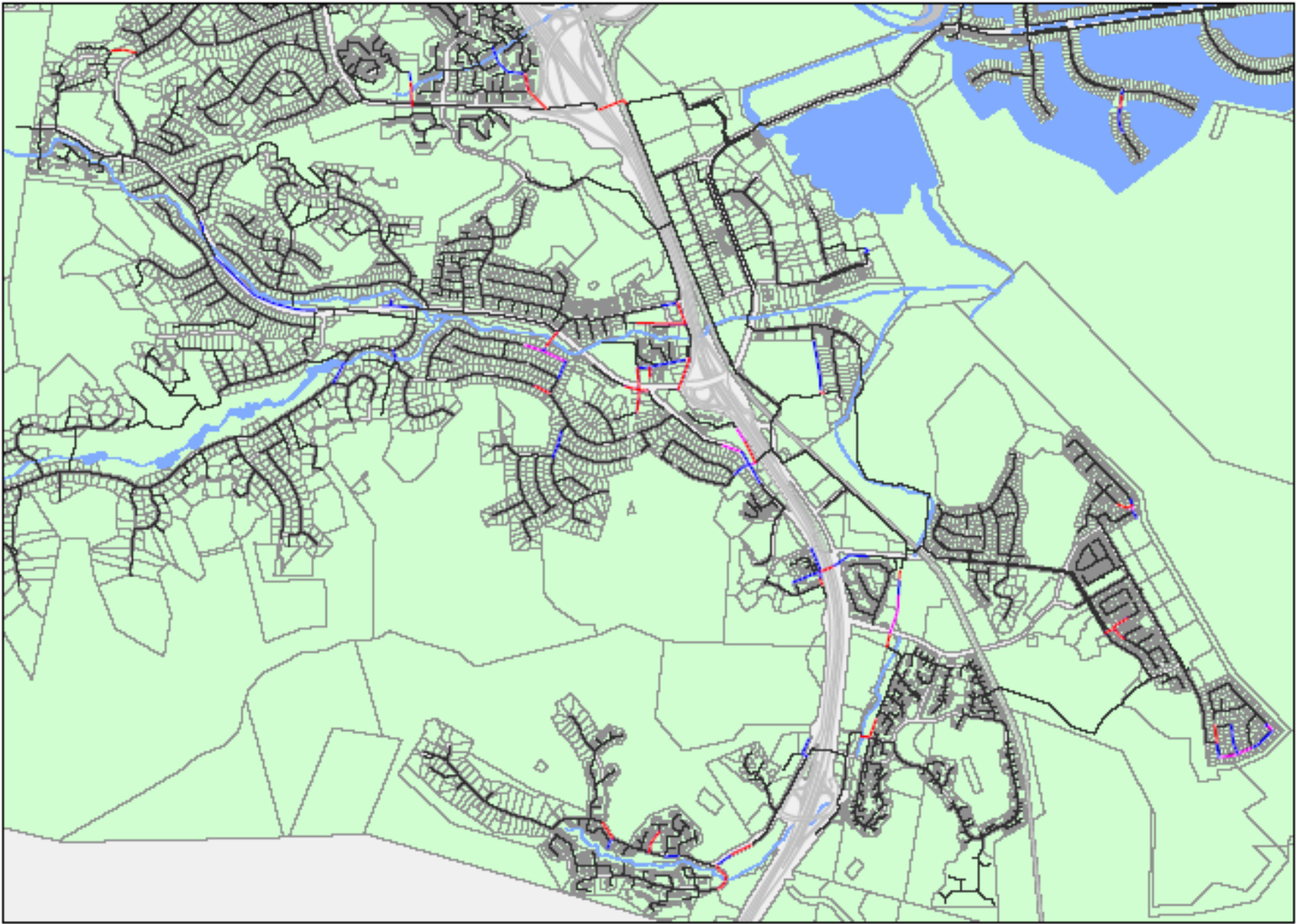
**Figure 4-1: Known Grease Hotspots – Entire District Service Area (red dots/lines/areas on map indicate hotspot locations)**



**Figure 4-2 – Grease Hotspots - West portion of Service Area (red dots/lines/areas on map indicate hot spot locations)**



**Figure 4-3: Known Grease Hotspots - Central portion of Service Area (red dots/lines/areas on map indicate hotspot locations)**



**Figure 4-4: Known Grease Hotspots - South portion of Service Area (red dots/lines/areas on map indicate hotspot locations)**

## **ATTACHMENT 4A: RESTAURANT OUTREACH**

**ATTACHEMENT 4B: NOTIFICATION TO FSEs ON FOG  
PROGRAM AND ON-SITE INSPECTIONS**

**ATTACHMENT 4C: FOG BEST MANAGEMENT PRACTICES  
(BMP) FACTSHEET**

**ATTACHMENT 4D: EDUCATIONAL/OUTREACH BROCHURES**

**NOVATO SANITARY DISTRICT**  
**SEWER SYSTEM MANAGEMENT PLAN (SSMP)**  
**SECTION FIVE – LEGAL AUTHORITY**

**5.1 Regulatory Requirements**

**5.1.1 SFRWQCB**

*SSMP Element 5: 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*

**3.1.2. SWRCB GWDR**

*GWDR SSMP Element No. 3: 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 Legal Authority**

The Novato Sanitary District (District) is an independent special district. As discussed in the overview at the beginning of this document, the enabling legislation for the formation of the District, as well as the District’s legal authority, resides in the Sanitary District Act of 1923, Chapter 1, Division 6, comprising Sections 6400 through 6830 of the Health and Safety Code of the State of California. The District was formed with the primary purpose of providing wastewater collection, treatment, and disposal services for the Novato community.

The District exerts its legal authority primarily through the “Sanitary Code of the Novato Sanitary District” (Code) and amendments, service agreements, and design and construction standards.

### **5.3 District Code Ordinance**

The District's Code regulates the use of District wastewater facilities, their construction, permits required for work on these facilities, easements, charges, materials that can be placed into sewers, and the enforcement of these requirements in the Code.

The Code incorporates the District's Sewer Use ordinance, Ordinance No. 70 and amendments, and addresses, among others: the need for and use, of public sewers; private sewage disposal; building sewers, lateral sewers and connections; public sewer construction; permits and fees for sewer connection; classes and use types of public sewers; and the enforcement provisions of the Code.

The District also operates a pretreatment program within its boundaries. The work of this program is performed by the District's Environmental Services section, which works with District management and the Collection system crews to ensure that their independent efforts are coordinated. A portion of the District's Code Ordinance No. 70, Article VIII, Sections 801 et seq, specifically regulates the discharge of wastewater into its system in order to protect its collection and treatment facilities.

### **5.4 Lateral Replacement Program**

In conjunction with the other Marin County sanitary districts and agencies, and the North Bay Watershed Association (NBWA), the District has undertaken a program to develop a standard set of lateral replacement requirements that will be used county wide.

The District has taken a lead role in this effort which is preliminarily modeled on several similar programs throughout the State. A key factor of these similar programs is the requirement for testing of a lateral upon the sale of its associated property, and the replacement of this lateral if it found to be defective during testing.

The District found out very early in the process that a critical component of the success of this effort would be outreach and coordination with the local realtor community for their eventual buy-in and support of this program. Accordingly, the District and the NBWA have focused their efforts to date on working with the Marin Association of Realtors (MAR) through an open and public process, to develop a county-wide model ordinance that would address both the sanitary agencies needs as well as the realtor community's concerns.

Consultants to develop the language of the model ordinance, and public relations experts to coordinate the outreach process with MAR and the general public were retained in spring 2008. At this time, it is anticipated that a draft model ordinance may be available by the end of 2008 and a final ordinance might be in place by summer 2009. As of 2009, the process has been slowed by a lack of clarity on publicly available funding mechanisms, and general economic conditions that have forced local entities to pursue a more deliberative approach to this issue. At this time, it is hoped that a draft model ordinance may be available by mid-2010 and a final ordinance might be in place by late 2010.

In 2010, the District piloted a lateral replacement grant program, as part of its Olive-Chase Sewer Replacement Project. The District allocated a total of about \$50,000 for potential upper lateral replacement with a cap of \$1,500 per residence. Given the economy and factors outside the District's control, about 5 homeowners availed themselves of this program.

### **5.5 Control of Inflow/Infiltration (I/I)**

The District's ordinance prohibits the discharge of uncontaminated water, storm water, I/I, to District sewers, either directly or indirectly. Section 808 of the ordinance specifically excludes without limitation the following categories: rainwater, storm water, groundwater, street drainage, sub-surface drainage, water from yard fountains, ponds, lawn sprays, and yard drainage. Section 814 specifically prohibits the connection of discharge leaders from roofs and surface drains, and prohibits surface or subsurface drainage, rainwater, storm water, and seepage, cooling water or unpolluted industrial waters to enter the sanitary sewer system by any device or method whatsoever.

### **5.6 Proper Design & Construction, Installation & Testing Of Facilities**

The District has developed and adopted a set of standard documents for the design, construction, installation, and testing of facilities, titled "Standard Specifications and Drawings" that are periodically updated. The District's Code Ordinance requires that these District standard documents be followed in the design, construction, installation, and testing of all wastewater facilities. This includes laterals as well as District main lines and facilities.

In this regard, Article V of the ordinance provides an overview of the design, construction, installation and testing considerations for building sewers, lateral sewers and connections, while Article VI provides the corresponding considerations for public sewers, mainlines, and facilities. Details and specific requirements supporting the requirements of these articles are included in the standard specifications and drawings.

### **5.7 Backflow Prevention Devices (BPD)**

The District's standards require backflow prevention devices (BPDs) and cleanouts to be installed in accordance with the California Plumbing Code, (CPC), 2007 Title 24, Part 5. BPDs are typically required to be installed on all new construction, and retrofitted to older homes and buildings upon activities (such as connection, lateral repair or replacement permit process) referred to the District as part of the City of Novato's or County of Marin's building permit process, and as required by the CPC.

### **5.8 Enforcement**

Article IX of the District's Code Ordinance covers the enforcement alternatives available to the District in the event of non-compliance with its code and requirements. The District has many avenues of enforcement available through its Ordinance, including but not limited to: notices of violation, notification of corrective work required, cease and desist orders, disconnection and termination of service, abatement proceedings in the event of a public nuisance, and assessment of civil and criminal penalties.

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## **ATTACHMENT 5A: DISTRICT CODE**

**NOVATO SANITARY DISTRICT**  
**SEWER SYSTEM MANAGEMENT PLAN (SSMP)**  
**SECTION SIX - MEASURES AND ACTIVITIES**

**6.1 Regulatory Requirements**

**6.1.1 SFRWQCB**

*SSMP Element 6.a: Each wastewater collection system agency shall maintain up-to-date maps of its wastewater collection system facilities.*

**6.1.2 SWRCB GWDR**

*GWDR SSMP Element No. 4(a): Maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable stormwater conveyance facilities*

**6.2 Collection System Map**

The Novato Sanitary District (District) utilizes both hard copy and editable electronic collection system mapping, using a grid configuration.

The basic hard copy mapping information includes manhole identification numbers unique to each map page, pipe size, pipe type and material, year constructed, direction of flow, and percentage of slope. The system utilizes streets and property lines to provide points of reference for the location of District assets. The maps are drawn to scale based on as-built construction drawings. In addition to details of the collection system gravity sewer lines, the maps also provide location details of the District's sewer lift stations, main conveyance pump stations, force mains, and wastewater treatment plant. The hard copy maps are updated as needed by the District's engineering staff using Auto-CADD drawings.

The electronic mapping system is drawn to scale and overlays recent aerial photographs of the service area as well as property boundary. The District participates in a joint powers authority to share electronic mapping information with the City of Novato and the County of Mann. The electronic map is linked to the District's collection system computerized maintenance management system (CMMS) and is populated with all of the information required to make it a fully functional Geographic Information System (GIS) on an on-going basis.

**6.3 Regulatory Requirements**

**6.3.1 SFRWQCB**

*SSMP Element 6.b: Each wastewater collection system agency shall allocate adequate resources for the operation, maintenance, and repair of its collection system.*

### **6.3.2. SWRCB GWDR**

*None*

## **6.4 Resources and Budget**

The District is an independent sanitary district that derives the majority of its funding through a user-supported rate-paying structure. The District's primary focus is the collection, treatment, and disposal of rate-payer generated wastewater.

The District prepares and adopts an annual budget on a standard July-June fiscal year basis that provides a detailed overview of the District's revenue sources as well as its planned expenditures for the fiscal year. On the expenditures side, the District's budget addresses both its operating and capital needs. A copy of the current fiscal year budget is attached for reference.

On an operating expenditures basis, each of the operational sections within the District's organizational structure is organized as an individual cost center. Each cost center is assigned an account code and a formal operating budget and expenditure plan is established for it. Annual operating expenses for the collection system are detailed in the budget under Account Numbers 60010 through 60300. Details on annual operating expenses for the District's pump stations are provided under Account Numbers 65010 through 65300. As can be seen from the budget, the annual operating expenses for the collection system and pump stations cost centers account for a significant portion of the District's operating budget, typically between about 25-33% of the operating budget that is assigned for collection, treatment, and disposal.

The District also has a Capital Improvement Program (CIP) that addresses repairs and upgrades to the collection system and supporting facilities on an annual basis. Consistent with industry practices the District has established two broad classes of collection system capital projects: short term or immediate "spot" repairs, and longer term replacement and/or capacity-related upgrades.

The spot repairs category is funded as an ongoing Annual Collection System Repairs Project. The longer horizon, multi-year facilities replacement or capacity upgrade projects are budgeted under the Collection System Improvements Project, in keeping with the District's: (a) long-range plan that provides for sewer replacement on a fifty-year life cycle, and (b) Capacity related improvements identified by the Collections System Master Plan.

The District also produces a multi-year CIP projection document that serves as a planning tool for anticipated capital projects. This 5-year CIP projection document is based on information from the District's various master planning documents. As the name implies, the document looks out upto five years into the future for anticipated capital projects, their funding requirements, and makes preliminary determinations of cash-flow allocations. For the collection system, the 5-year CIP projection looks at the five year funding projections for: (a) the ongoing Annual Collection System Repairs Project, and (b) the ongoing long term Collection System Improvements Project, as discussed above.

## **6.5 Regulatory Requirements**

### **6.5.1 SFRWQCB**

*SSMP Element 6.c: Each wastewater collection system agency shall prioritize its maintenance activities.*

### **6.5.2 SWRCB GWDR**

*GWDR SSMP Element No. 4(b): Describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventative Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders.*

## **6.6 Prioritized Preventive Maintenance**

The District uses a computerized maintenance management system (CMMS) to manage its collection system preventive maintenance program. The District is currently on a 5-year schedule to inspect and clean each public main within the District's sphere of influence.

Areas that have known problems such as excessive grease buildup, root intrusion, or odor problems are cleaned on a much more frequent basis based on the experience and history.

Excessive grease buildup in District mains is also addressed through the District's FOG program, both through inspection and enforcement for commercial/industrial dischargers and through public outreach in residential areas.

Areas exhibiting root intrusion are identified through routine cleaning and through video inspection of the system. These areas are maintained with conventional methods and a chemical root abatement program. The District contracts annually with a chemical root abatement contractor to foam treat problem lines until they can be addressed through the District's capital improvement program. Identified problem areas are forwarded to the District's engineering staff where they are prioritized and scheduled into the capital improvement program.

## **6.7 Regulatory Requirements**

### **6.7.1 SFRWQCB**

*SSMP Element 6.d: Each wastewater collection system agency shall prioritize structural deficiencies and implement a program of prioritized short-term and long-term actions to address them.*

### **6.7.2 SWRCB GWDR**

*GWDR SSMP Element No. 4(c): Develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency. The program should include regular visual and TV inspections of*

*manholes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan that addresses proper management and protection of the infrastructure assets. The plan shall include a time schedule for implementing the short- and long-term plans plus a schedule for developing the funds needed for the capital improvement plan*

## **6.8 Scheduled Inspections and Condition Assessment**

The District has taken a proactive approach in inspecting and evaluating the condition of its collection system and supporting facilities. Routine annual inspections are conducted on all sewer lift stations for safety hazards and condition assessment. The District has annual smoke testing and flow monitoring programs in place as part of its Inflow and Infiltration (I&I) reduction program and for capacity assurance and analysis.

The District utilizes and maintains a continuous CCTV inspection program to identify issues in the various tributary areas of the collection system and to provide cause analysis after a collection system incident. The District maintains an electronic database of scheduled cleaning work orders and past history for all of the sewer mains within the District. Records from these systems are available on request or as required.

The District has developed an electronic data base that establishes criticality of a given line segment or area and that can be used to prioritize and schedule that problem area for replacement or repair based on criteria set by the District's Engineering and Collection system staffs.

## **6.9 Regulatory Requirements**

### **6.9.1 SFRWQCB**

*SSMP Element 6.e: Each wastewater collection system agency shall provide contingency equipment to handle emergencies, and spare/replacement parts to minimize equipment/facility downtime.*

### **6.9.2. SWRCB GWDR**

*GWDR SSMP Element No. 4(e): Provide equipment and replacement part inventories, including identification of critical replacement parts.*

## **6.10 Contingency Equipment and Replacement Inventories**

### **6.10.1 General**

The District seeks to maintain an adequate supply of emergency and contingency equipment on hand to facilitate continuous operation and seamless transitions during emergencies. The following equipment is available for emergency operations and collection system maintenance:

5 - portable generators (20-40 KW)

- 4 - by-pass pumps
- 1 - truck mounted continuous rodder
- 2 - combination cleaning trucks
- 1 - closed circuit television truck
- 2 - emergency response trucks

The District has additional emergency equipment (listed at the end of this section) that can be utilized in the event of collection system events.

The District participates in mutual-aid entities such as CALWARN and can access additional equipment and services from neighboring sanitary and water districts and other public agencies during emergencies.

The District maintains a supply of consumable parts and emergency spare parts at its maintenance shop facility that is periodically verified to be adequate to meet its needs. In addition, the District maintains supply contracts with local plumbing suppliers such as Water Components, Inc. as well as the local distributorships of industrial spare parts supply houses such as W.W. Grainger, Consolidated Electric Distributors, etc., that ensures a timely supply of non-emergency spare parts is always available. The District also has a mutual aid relationship with the North Marin Water District (NMWD) for access to NMWD's contingency equipment and replacement inventories.

### ***6.10.2 Pump Stations***

All of the District's major pump stations incorporate multiple redundant pumping units to assure reliability of operation. The typical layout is separate dry weather and wet weather pumping systems, with each system incorporating duty + standby units. These pump stations are integrated into the District's Supervisory Control and Data Acquisition (SCADA) system, with remote control, monitoring, and alarming capabilities. Each of these major pump stations also incorporate stationary standby/emergency generators sized to handle the peak start and running load of the wet weather systems.

The majority of the District's lift stations incorporate a two pump (duty + standby unit) design to provide for seamless operation in the event of a single pump failure. All of the lift stations are part of a SCADA network with remote monitoring and alarming capability. For the Bel Marin Keys (BMK) lift stations, there's an additional layer of redundancy in that the hydraulic design of the collection system in that area also allows each station to surcharge to a given level and then flow by gravity to the downstream manhole.

In terms of standby/emergency power, the lift pump stations either have stationary generators, or more commonly are powered by the District's portable generators that are rotated from pump station to pump station on previously established routes, based on an analysis prepared as part of the District's emergency response plan.

## **6.11 Regulatory Requirements**

### **6.11.1 SFRWQCB**

*SSMP Element 6.f: Each wastewater collection system agency shall provide training for its staff in collection system operation, maintenance, and monitoring.*

### **6.11.2. SWRCB GWDR**

*GWDR SSMP Element No. 4(d): Provide training on a regular basis for staff in sanitary sewer system operations and maintenance, and require contractors to be appropriately trained.*

## **6.12 Training**

The District takes the need for initial and continuing education and training very seriously and has established a practice of funding its training needs on an on-going basis through the training line item of its annual operating budget (Account Number 66170). An average number that is used for planning purposes to allocate training dollars is about \$2,000 per employee per year for “outside training” through attendance at industry conferences, workshops, etc. In addition, the District also provides extensive in-house training conducted by both in-house staff and outside consultants.

All employees are provided with initial training and familiarization with the District’s systems upon initial hire. Subsequently, training plans geared to the employees’ level of experience are prepared as needed by the Collection Systems Supervisor (with input from the Collections Lead Worker) and forwarded to the Manager-Engineer.

The District also provides in-house training on specific topics and uses outside training resources such as the training programs (“Ken Kerri courses”) from the Office of Water Programs of the California State University (Sacramento), professional organizations like the California Water Environment Association (CWEA), and the Bay Area Clean Water Association (BACWA), to further the education levels and technical skills of District staff.

The District is a believer and proponent of certification and continuing education, and is an active contributor and participant in CWEA’s educational activities and voluntary certification program. District staff in general is encouraged to further their professional qualifications with voluntary certification through CWEA, and the collections staff in particular is encouraged to participate in the Collection System Maintenance Operator certification program. Since the CWEA certification program also registers the continuing education activities of its certificate holders as part of the certification program, the District is assured that its employees are up-to-date with current skill levels and generally accepted practices in the industry.

In addition, the District also contracts with the California Sanitation Risk Management Authority (CSRMA) to provide training and resources for the development of District employees. CSRMA has an extensive collection of training modules both of the online and classroom variety that the District can avail of.

## **6.13 Regulatory Requirements**

### **6.13.1 SFRWQCB**

*SSMP Element 6.f: Implement an outreach program to educate commercial entities involved in sewer construction or maintenance about the proper practices for preventing blockages in private laterals. This requirement can be met by participating in a region-wide outreach program.*

### **6.13.2. SWRCB GWDR**

*None*

## **6.14 Outreach to Plumbers and Building Contractors**

The District participates in a Bay Area wide initiative with the Bay Area Clean Water Agencies (BACWA) as part of a region-wide outreach program to meet this SSMP requirement. A product of this collaboration includes the development of a plumber's outreach flyer that is distributed via mail and individual contact to the building contractors and plumbers that typically work within the District's sphere of influence (see attached). The District also participates in the Association of Bay Area Governments (ABAG) Sewer-Smart program, and promotes the Sewer-Smart web-site as an important community education tool.

The District also disseminates documents such as its sewer use regulations and ordinances, information for domestic and non-domestic users to connect to its system, and design and construction standards and periodic updates, through its web-site and at its administrative offices.

As part of its outreach efforts, the District's Field Services and/or pretreatment staffs engage frequently with entities in the District's service area that carry out construction activities, or maintenance of private laterals, or cleaning of grease traps and septic systems, to raise their awareness of the results of any actions that maybe deleterious to the District's facilities. Examples of issues that are frequently raised with such entities include dumping of construction debris into manholes, or pushing debris from lateral cleaning into a mainline, or illegal dumping of grease or septic tank haulings, that can result in incidents in the District's collection system.

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**ATTACHMENT 6A: DISTRICT BUDGET**

**ATTACHMENT 6B: CAPITAL IMPROVEMENTS  
PROGRAM EXPENDITURE PROJECTION 2010-2015**

**ATTACHMENT 6C: LIST OF EMERGENCY EQUIPMENT**

### LIST OF EMERGENCY EQUIPMENT

Equipment type and no.	Manufacturer	Storage location
Gas Detectors (4-gas meters)	Industrial Scientific	NTP
SCBA (2)	Draeger	NTP
Portable Pumps: <ul style="list-style-type: none"> <li>• 4-inch Pump Trailer mounted</li> <li>• 4-inch Pump (sound-attenuated) trailer mounted</li> <li>• 6-inch Pump Trailer mounted</li> </ul>	<ul style="list-style-type: none"> <li>• Gorman Rupp</li> <li>• ScrewSucker</li> <li>• Gorman Rupp</li> </ul>	<ul style="list-style-type: none"> <li>• Reclamation</li> <li>• OPS</li> <li>• ITPS</li> </ul>
<ul style="list-style-type: none"> <li>• Air Compressor (Trailer-mounted)</li> <li>• Air Compressor (Trailer-mounted)</li> </ul>	<ul style="list-style-type: none"> <li>• Chicago Pneumatic</li> <li>• Ingersoll-Rand</li> </ul>	<ul style="list-style-type: none"> <li>• Olive St PS</li> <li>• NTP</li> </ul>
Generators: <ul style="list-style-type: none"> <li>• Trailer-Mounted 30 KW</li> <li>• Trailer-Mounted 40 KW</li> <li>• Trailer-Mounted 20 KW</li> <li>• Trailer-Mounted, 70KW</li> <li>• Trailer Mounted 10 KW</li> <li>• Portable generators (3)</li> <li>• Trailer mounted single phase 10KW</li> <li>• Trailer mounted 10 KW</li> </ul>	<ul style="list-style-type: none"> <li>• Kohler</li> <li>• Kohler</li> <li>• Kohler</li> <li>• Volvo Penta</li> <li>• Miller</li> <li>• Honda</li> <li>• Isuzu</li> <li>• Generac</li> </ul>	Various (NTP, ITPS, OPS, Reclamation)
Hoist (Electric, 1)	Yale	ITP
Press, OTC	Vanguard	ITP
Portable Radios, (4)	Motorola	OPS
Tamper (1)	Wacker	Reclamation
Welder-generator (1)	TIG	ITP
Welder (Electric)	Lincoln	ITP
Welder (Gas)	Eutertic	ITP
Winch/Davit Arm (3)	DBI Sala	ITP
Valve Operators (2)	Stihl	NTP
Video camera inspection vehicle	Dodge Sprinter	OPS
2004 (camel)	Peterbuilt	OPS
2006 (camel)	Sterling	OPS
Rodder	Sreco	OPS
Gator	John Deere	Reclamation
Loader	Bobcat	Reclamation
Crane Truck	Ford	ITP
Forklifts: <ul style="list-style-type: none"> <li>• 5,000 pounds</li> <li>• 5,000 pounds</li> </ul>	<ul style="list-style-type: none"> <li>• Komatsu</li> <li>• Hyster</li> </ul>	<ul style="list-style-type: none"> <li>• ITPS</li> <li>• NTP</li> </ul>
Trailer, 15,000 GVW	ST Bay	NTP
Pick-up Trucks (10)	Various	Various
Sedans (2)	Toyota Prius	NTP

**ATTACHMENT 6D: PLUMBER OUTREACH BROCHURE**

**NOVATO SANITARY DISTRICT**  
**SEWER SYSTEM MANAGEMENT PLAN (SSMP)**  
**SECTION SEVEN – DESIGN AND CONSTRUCTION STANDARDS**

**7.1 Regulatory Requirements**

**7.1.1 SFRWQCB**

*SSMP Element 7.a: Each wastewater collection system agency shall identify minimum design and construction standards and specifications for the installation of new sewer systems and for the rehabilitation and repair of existing sewer systems.*

**7.1.2. SWRCB GWDR**

*GWDR SSMP Element No. 5(a): Design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems;*

**7.2 Standards for Installation, Rehabilitation and Repair**

The District, through its Technical Services Department, maintains a document that contains a set of wastewater and sewer system design standards (Novato Sanitary District Standard Specifications and Drawings or “Standard Specifications” – see attached). These standard specifications are a comprehensive set of standards that cover all sewage or wastewater facilities in the District.

The District’s Code Ordinance requires that the standard specifications (see Section Five), be followed in the construction of new installations, and rehabilitation and/or replacement of existing facilities. They are available to contractors and the general public at no charge and are updated periodically, as necessary. A copy is also available from the District’s web-site.

Where the District initiates and implements large scale capital improvement projects, a consultant firm(s) is retained to provide specialized knowledge and expertise to the project. Project planning and design services are typically provided by such firms in these cases, and project specific drawings and specifications that conform to the District standards are prepared for public bidding by licensed contractors. The construction phase of the project is then typically monitored for adherence to the project requirements by specialty construction administration and/or management firms that the District retains for the duration of the construction phase.

**7.3 Regulatory Requirements**

**7.3.1 SFRWQCB**

*SSMP Element 7.a: Each wastewater collection system agency shall identify procedures and standards for inspecting and testing the installation of new sewers, pump stations, and other appurtenances; and for rehabilitation and repair projects.*

### **7.3.2. SWRCB GWDR**

*GWDR SSMP Element 5(b): Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.*

### **7.4 Standards for Inspection and Testing of New and Rehabilitated Facilities**

As discussed in Section Two of this SSMP, the District has a full-time Construction Inspector who inspects both new construction and repairs. The inspector insures that all construction meets the District's standard specifications and other applicable codes. The Field Services Superintendent or Staff Engineer can fulfill this role in the absence of the Construction Inspector. Permits are required for all work on wastewater facilities in the District, and no facility is accepted unless it is permitted, inspected, and tested in accordance with the standard specifications.

As mentioned earlier, where the District initiates and implements large scale capital improvement projects, the District also retains specialty construction management firms to provide inspection services to ensure that the projects are constructed to the project specifications.

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**ATTACHMENT 7A:        STANDARD SPECIFICATIONS AND  
DRAWINGS**

# **Novato Sanitary District**

## **Sanitary Sewer Management Plan (SSMP)**

### **Section 8**

# **Capacity Management**

August 2008  
(Revised March 2010 by NSD staff)

Initial version (August 2008)  
by  
RMA / Engineering and Management Inc.  
Bishop Ranch No. 3, 2603 Camino Ramon, Ste. 170  
San Ramon, CA 94583

**NOVATO SANITARY DISTRICT**  
**SEWER SYSTEM MANAGEMENT PLAN (SSMP)**  
**SECTION EIGHT – CAPACITY MANAGEMENT**

**8.1 Regulatory Requirements**

**8.1.1 SFRWQCB**

*SSMP Element 8.a:* Each wastewater collection system agency shall establish a process to assess the current and future capacity requirements for the collection system facilities.

*SSMP Element 8.b:* Each wastewater collection system agency shall prepare and implement a capital improvement plan to provide hydraulic capacity of key sewer system elements under peak flow conditions.

**8.1.2. SWRCB GWDR**

*GWDR SSMP Element No. 8: System Evaluation and Capacity Assurance Plan:* The Enrollee 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. At a minimum, the plan must include:

- (a) **Evaluation:** Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events;*
- (b) **Design Criteria:** Where design criteria do not exist or are deficient, undertake the evaluation identified in (a) above to establish appropriate design criteria; and*
- (c) **Capacity Enhancement Measures:** The steps needed to establish a short- and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.*
- (d) **Schedule:** The Enrollee shall develop a schedule of completion dates for all portions of the capital improvement program developed in (a)-(c) above. This schedule shall be reviewed and updated consistent with the SSMP review and update requirements as described in Section D. 14.*

**8.2 Introduction**

The District has a System Evaluation and Capacity Assurance Program that has been established to meet the SSMP provisions. This section of the SSMP describes briefly the process the District

follows to assess capacity requirements and capital improvements anticipated over the next 20 years, and will be updated as implementation occurs and priorities change. The NSD Master Planning studies for the treatment facilities and collection systems are primary source documents for the SSMP. The components comprising the District's evaluation and capacity assurance plan efforts are discussed below. The roles and responsibilities of District staff for the capacity management program are included in Section 2.

### **8.3 Capacity Management Program**

#### **8.3.1 Capacity Assessment**

Includes assessments needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation provides estimated peak flows associated with wet weather conditions causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events.

#### **8.3.2 System Assessment**

Includes assessments needed to evaluate those portions of the sanitary sewer system that may potentially contribute to an SSO discharge caused by deteriorated condition. The system assessment provides estimated damage severity for the major causes associated with overflow events.

#### **8.3.3 CIP Planning**

The District has put into place the steps needed to establish a short-and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules.

The CIP includes increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The District has prepared and is implementing a Capital Improvement Program (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. The CIP includes an implementation schedule and identifies sources of funding.

### **8.4 Capacity Assurance**

#### **8.4.1 Overview**

The Novato Sanitary District serves an area of approximately 34 square miles in area, and serves approximately 55,800 residents. Future conditions are defined by the General Plans of the City of Novato and the County of Marin; the District does not function as a General Plan entity. Current planning forecasts growth and development into 2025, which is concurrent with the District's Strategic Plan. The District's service area is comprised primarily of single-family residential units on lots under one acre in size. Commercial land-use is concentrated along Highway 101, along Redwood Boulevard, downtown along Grant Avenue, in the Industrial Park near the

Ignacio Treatment Transfer Pump Station (ITPS) site, and in small clusters and convenience centers. No major industrial wastewater producers exist within the District's service area.

In general, the District's service area is significantly built out with densification anticipated in the downtown area and commercial corridors. Future growth areas include inclusion of areas are zoned very low density residential and include Atherton, Greenpoint, Blackpoint, Indian Valley, Bel Marin Keys, and Verissimo Valley. Each of these areas except for Bel Marin Keys and Verissimo Valley are currently on septic tank systems and are expected to convert to sewers by 2025. Indian Valley and Greenpoint are large planned residential areas that may be fully developed over the next 15 years, subject to political and environmental factors, and permitting by the City of Novato and the County of Marin.

#### **8.4.2 System Evaluation and Capacity Assurance**

The District's capacity assurance program is based on capacity assessments that relate short term and long term capacity requirements to the District's capital improvement program. The assurance plan evaluates the hydraulic capacity of key sewer system elements under peak flow conditions. The following are District's program components:

- **Hydraulic Analysis:** The District evaluates the portions of the collection system that are at risk of SSOs due to hydraulic deficiency using hydraulic modeling and analysis. Portions identified for analysis include all collection system interceptors and lines greater than 10" in diameter and lines identified that may be over capacity from existing or future flow projections.
- **Capacity Enhancement Measures:** The District develops a short- and long-term capital improvement program that addresses identified hydraulic deficiencies from the evaluation process
- **Plan updates:** The District updates plans on a periodic basis, as required. Capacity assurance and modeling will be done periodically. Capital improvement requirements are reviewed annually consistent with current planning objectives.

### **8.5 Flow Projections**

Flow projections for use with the hydraulic analysis are based on historical flow rate data combined with calculated flow rates for growth areas, septic tank conversions and infill development. To estimate the sanitary flow impact of these areas, the results of flow metering and flow monitoring are used to define base sanitary flow, groundwater infiltration and RDI/I values in defined tributary sub basins. Flow impacts are added into the model generally in five year phases or if major development is identified over a given 5-year period, to see the effect of the development over time.

An allotment for I&I is also incorporated for new areas taking into account both laterals and mains. Residential infill I&I assumes that existing sewers will be used to convey wastewater flows to the treatment plants, without added I/I volumes for new work. The District currently specifies allowances of 1000 gpd/acre for pipes installed since 1975, 2500 gpd/acre for installations between 1962 and 1975, and 6000 gpd/acre for pipes installed prior to 1962. Non-residential I&I are calculated based on the District standard of 1000 gpd/acre.

## **8.6 Hydraulic Analysis**

### **8.6.1 Hydraulic Modeling**

The District uses hydraulic modeling to assess the capacity capability of the system based on projected flow rates. The hydraulic model evaluates the primary "back bone" of the system i.e. lines greater than or equal to 10" in diameter. The system is divided into two distinct systems North (Novato) and South (Ignacio).

The District's collection system infrastructure is contained in GIS files which are used to spatially define the system topology including geometry and network connectivity. Attribute data for each individual collection system feature is incorporated into the model. Data includes pipe types (gravity or pressure pipe), manhole types (split, diversion, outfall or standard manhole), pipe diameters, rim and invert elevations, pipe lengths and slopes.

Diversion manholes are also incorporated into the model. Diversion manholes split the incoming flow into two components, one that continues through the main line, and another that is diverted to an overflow line. Flow is divided according to predicted carrying capacities of the pipes, and will be further evaluated as more flow data becomes available in the future.

The model is used to evaluate different conveyance alternatives for addressing capacity deficiencies for various scenarios. Once evaluated, the most optimum scenario is used to program capital improvements and enhancement measures.

### **8.6.2 Flow Allotments**

Based on the District's design standards, initial projected flows are "incorporated" into the hydraulic model. These are allocated based on the individual parcels to represent geographic regions that contribute to the flows to particular pipes along the system. Each parcel is associated with its respective Land Use designated as one of three distinct types of Sanitary Service Areas: Residential, Commercial, or Open Space/Parkland.

Residential areas generate flows based on population. The design standard for the District average family unit is considered to be 3.5 persons, which generates 90 Gallons per person per day for a total of 315 gallons per parcel per day. However, recent data indicates that with factors as diverse as water conservation and "empty nest" syndrome at play, current trends might be running closer to an average EDU of about 2.25-2.5 persons, generating flows of about 60-70 gallons per capita per day.

The Commercial areas generate flows based on metered flow volumes. The total commercial water consumption is summed from the latest base winter usage report and proportioned to each parcel by acreage in gallons per day. The Open Space/Parkland areas are assumed to generate no sanitary flow.

These land use area are assigned to specific pipelines within the collection system. The sanitary flows are then added to the flow model throughout a 24-hour day based on flow study diurnal

curves for each type of use. Diurnal curves were derived from two flow monitoring areas of the flow study, one a predominately Residential area and another predominately Commercial area. Since no flow is generated for Open Space / Parkland areas, a third diurnal curve is not needed.

Once completed, the initial flow data is adjusted to the results of the flow metering and monitoring study and the allocation of GWI, BSF & RDI/I to the sub basins. BSF & GWI values are calibrated to the metered values found during dry weather periods.

Results of this analysis provide the loading parameter setting for present and future capacity modeling of tributary basins and sub-basins.

### **8.6.3 Conveyance Alternative Analysis**

For combined operation scenarios, conveyance options are developed. Conveyance alternatives described in detail in the current (2008) Collection System Master Plan Report for projected future requirements in 2025 are summarized as follows:

1. Vineyard Road Project	6. First Street Project
2. Wilson Avenue Projects (partially completed)	7. Arthur Street project
3. Center Road Alignment (completed)	8. ITP Alignment (completed)
4. Virginia Ave Project	9. Flow reallocations via diversions
5. Nave Ct. / Novato Blvd. Alignment (completed)	10. Off-line storage

The conveyance alternatives are evaluated based on risk mitigation, cost, easement / right-of-way acquisition, permits, and constructability. The evaluation of these options results in alternative project recommendations. Updated project alternatives are maintained in the Collection System Master Plan Report. Figures 8.1 and 8.2 show current project alternatives from the 2008 Collection System Master Plan,

## **8.7 System Evaluations**

### **8.7.1 Overview**

System evaluations are used to provide guidance to the District for identifying and prioritizing repair, refurbishments and maintenance activities that will lead to the elimination of structural and conditional causes of SSO's. The system evaluation process also makes use of cost benefit and risk management techniques for optimizing the SSO mitigation recommendations.

The District's system evaluation program incorporates ranking and rating collection system assets based on condition assessment data and in-situ and environmental factors that influence probability and consequences of SSO's. Areas where assets haven't been inspected in the last five years are prioritized for future inspections based on criticality and similar assets that have more recent inspections.

### **8.7.2 Assessing the System (Condition Assessment)**

The District's preventive maintenance (PM) program for the collection system includes a proactive inspection program combined with a preventive cleaning program. The inspection program includes CCTV video inspection/condition assessment (VI/CA) of the collection system combined with a visual manhole inspection as a routine maintenance task or activity of the maintenance department. The purpose being to rate and rank investigated line segments by damage severity, then with engineer and management input, act to correct significant system problems before their becoming the source of a sanitary sewer overflow (SSO).

Conditions that lead to blockages and stoppages such as roots, grease, sedimentation and debris are ranked and prioritized for maintenance related activities such as hydro flushing and root treatments. Conditions showing asset deterioration such as cracking, sagging, pipe displacements, etc. are ranked and prioritized for repair, refurbishment or replacement. Significant repairs and refurbishments as well as replacements are programmed into the District's CIP program

Line segments or other assets selected for damage correction are incorporated as capital projects of the upcoming FY, and follow planning, design and construction to completion and acceptance. The project, once identified and funded, moves to completion with responsibility being with Engineering and Financial Management until the project is accepted and the upgraded asset is brought back into the maintenance phase of its life cycle.

### **8.7.3 Damage Rating and Ranking of System Assets**

**Manhole Inspections:** Inspections conducted for manholes involve a visual assessment of the overall manhole condition and observed deficiencies that could result in I&I. Ratings applied to manhole investigations use a condition codes for each of the manhole structure components including the rim and lid, chimney/cone, bench and channel. Each component is rated as to poor, fair, and good condition as a gross determination of construction adequacy of the structure and its component parts.

Detailed investigations of manhole condition follows at a time when a connecting line segment is defined as a rehab project, and corrections needed to the manhole structure are then included as part of the project work.

**CCTV Inspections:** The District maintains a comprehensive television inspection program. Sewer segments undergo detailed video inspection for both structural and condition damage. Approximately forty percent of the sewer pipes have been inspected, with the remainder of the system scheduled for completion by approximately FY14-15. Critical defects are identified for spot repairs and deteriorated reaches for potential rehabilitation or replacement. A future cleaning frequency can be determined for each pipe reach based on the results of the initial inspections. In the future, some pipe reaches may need inspecting every 10 years.

A rating schedule for line damage covering the range from light to medium to severe damage is applied to each condition found. The sum of these individual damage ratings divided by the length of the line televised provides a damage rating per foot value defined as the Damage Severity Index (DSI) for the line segment.

$$\text{DSI} = \frac{\text{Sum of individual damage ratings}}{\text{Length of line segment televised}} = \text{Damage Rating} / \text{Ft.}$$

**Use Of The Damage Severity Index** The DSI value of the line segment defines its relative damage ranking among any of the line segments having undergone a condition assessment. The DSI value is calculated and included as an item in the line segment record when the VI/CA data is added to the database.

A DSI query of the CMMS database provides a listing of the VI/CA investigated line segments ordered from worst to least. This listing provides knowledge of the most significantly damaged lines of system and those most likely in need of immediate repair. Engineering investigation of the Condition Assessment data for these lines and funding concerns will define the plan of rehabilitation improvements for the upcoming year. The DSI value is the key to selecting only needed and necessary improvements to the system to avoid overflows and return the collection system to safe and functional service to the District rate payers. DSI values are also used to reschedule the next CCTV/condition assessment work for the less than significantly damaged line segments.

#### **8.7.4 SSO Abatement (Preventive Maintenance)**

**Cleaning:** The District has a comprehensive cleaning program for its sewers. The program initially projects sewers cleaning on a 5-year cycle. Information about the maintenance requirements of the pipes are managed and evaluated using the capabilities of the District's ICOM3 CMMS. Some sewers are included in a focused cleaning program (hot spots) while some sewers may be cleaned less frequently than every 3 years.

The focused cleaning program is projected to include approximately 20% or less of the sewer mains in the entire District service area. The focused cleaning program is also anticipated to change by cleaning sewers less frequently such as every 180 days instead of the current 30-, 60-, or 90-days. Reducing cleaning frequencies should be accomplished by addressing the primary causes of frequent maintenance through spot repairs, sewer rehabilitation, chemical root control, and/or grease control. This will reduce the likelihood of SSOs and would make the District's cleaning crews more available for cyclic cleaning and other work.

The District evaluates the effectiveness of sewer cleaning in removing roots and grease by performing post-cleaning CCTV inspection or by monitoring the amount of debris removed from the system on a continuing and comparable basis.

**Root Control:** The District is implementing a chemical root treatment program to control root growth in the collection system. No additional equipment is needed since the work is outsourced, and the District manages and inspects the work.

**Grease Control:** The District is expanding its grease control program to include inspections of grease interceptors every 12-months in areas with high grease accumulations in sewers. The District also requires food processing establishments to adopt best management practices to

minimize grease discharges to the collection system. A public education program helps reduce grease from residences (see Section Four).

**Other Needs:** In addition to capital costs associated with the correction of capacity and structural deficiencies, other needs for the District's collection system have been identified. These needs include modifying the District's construction standards to enhance pipeline performance and maintenance and cyclic replacement of 6-inch diameter sewers and keeping the District's sewer master plan up to date. These needs are further described in the Master Plan.

**Engineering Support:** The District currently uses a mix of in-house staff and outside engineering consultants to help support the maintenance and CIP process for the collection system, and capital projects and other work recommendations. The District will continue to assign engineering staff to provide development oversight and support maintenance support maintenance planning activities and performance results of the collection system.

## 8.8 Capital Improvement Program (CIP)

**8.8.1 General:** The District's CIP process includes a system for preparing, evaluating, and reporting CIP budgets. The District's collection system requires a continuing number of improvements including collection system capacity upgrades, correcting structural problems, and modifications to pump stations and the treatment plants. A construction schedule for the capital projects is developed based on the project priorities and to support payment of all capital improvement program and equipment replacement expenditures. The schedule for the projects (in current dollars) is presented in the District's Capital Improvements Plan.

**8.8.2 Cyclic Replacement:** The District has adopted a construction standard of 8-inch minimum for sewers. Six-inch diameter sewers can be sources of operations and maintenance problems and have a limited hydraulic capacity. The District is considering a cyclic program to replace smaller 6-inch diameter sewers with larger 8-inch diameter sewers. If sewers are to be replaced, they are built to current standards. The exception is only when there is a condition of limited flow.

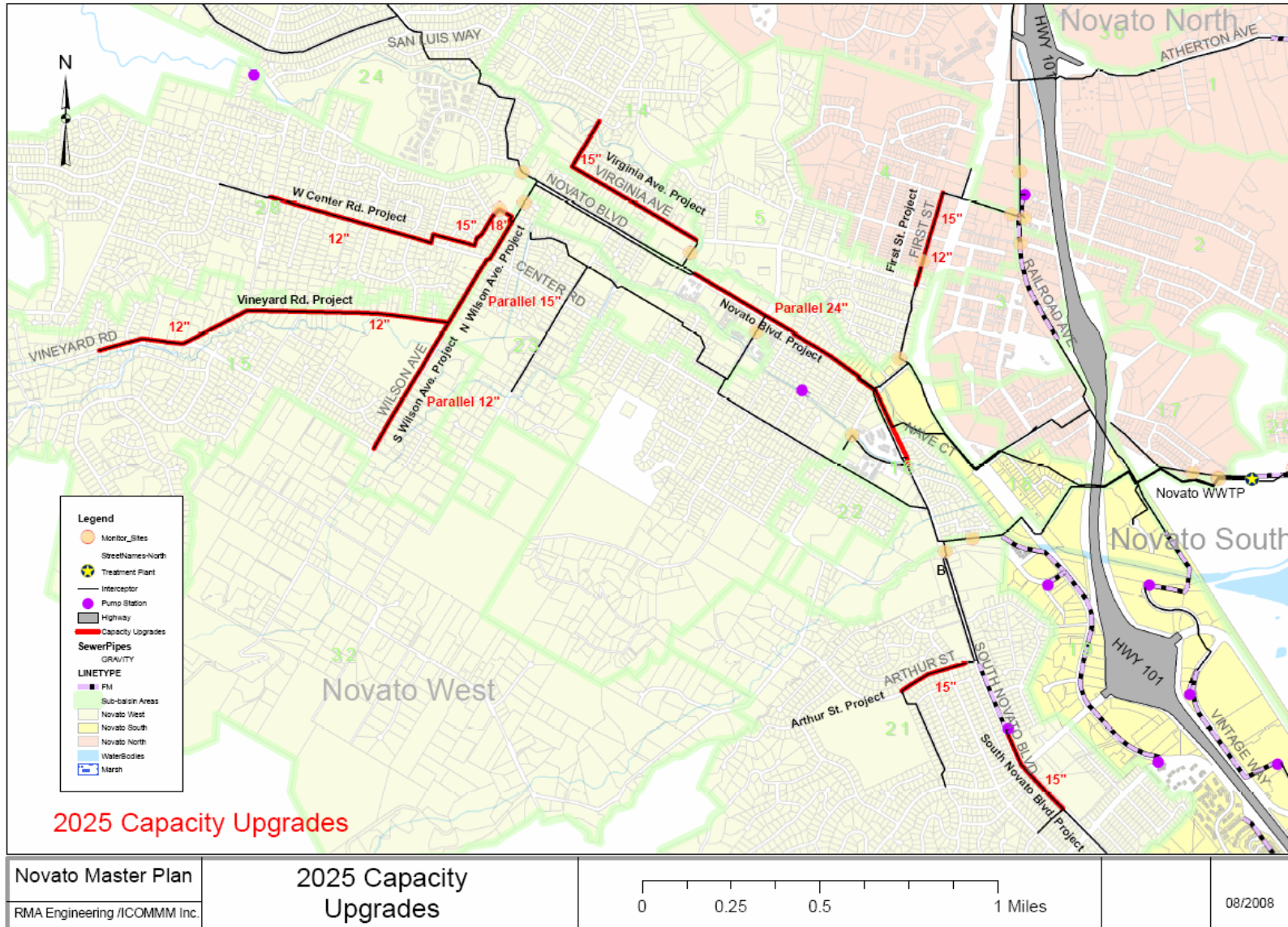
## 8.9 Reference Documents

The documents used for system evaluation and capacity assurance include:

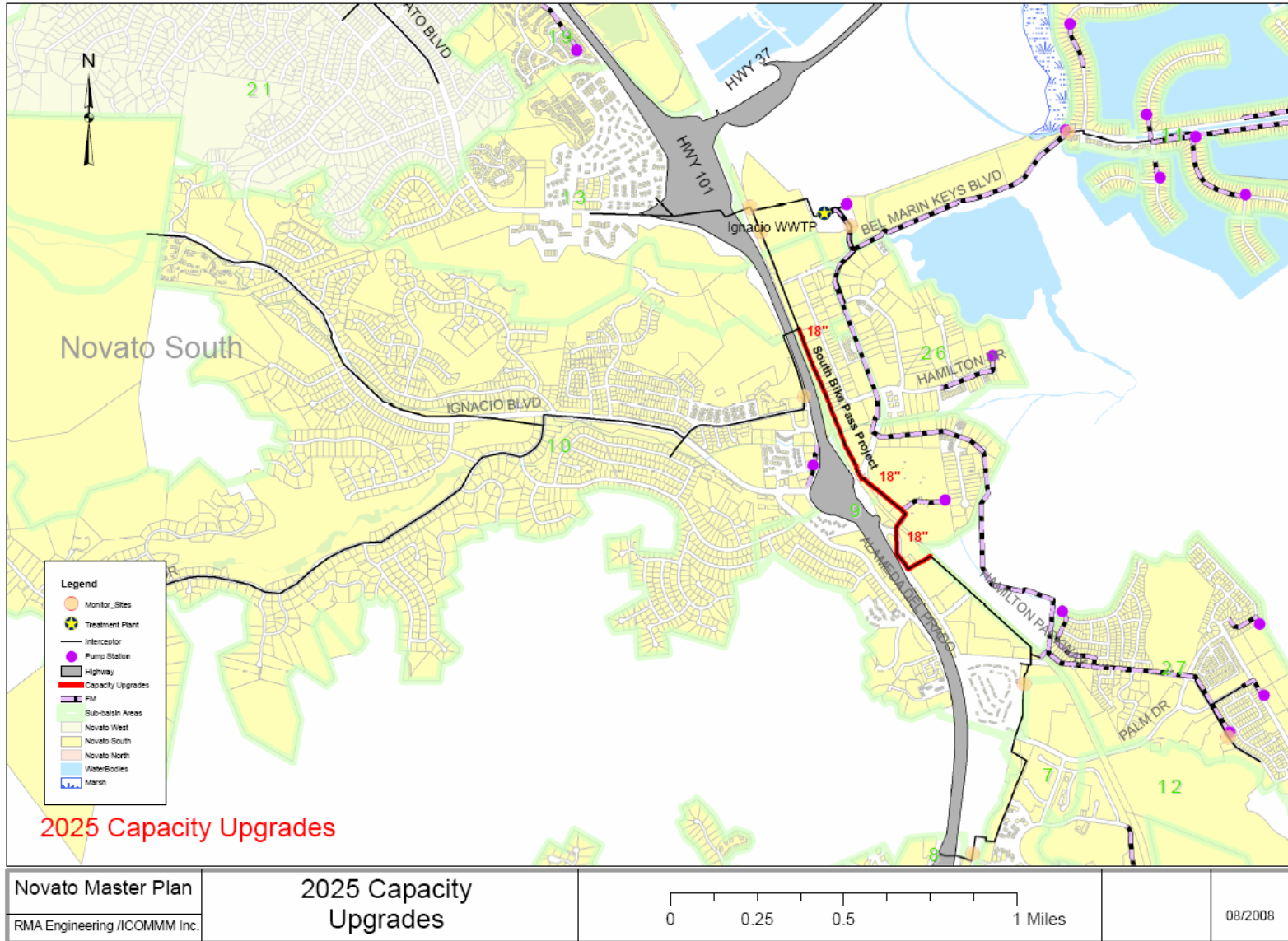
**2005 Wastewater Facilities Master Plan (SSES):** Provides recommend capital improvements and proposed facility cost estimates, based on projected requirements using the District's established design criteria.

**Collection System Master Plan 2008:** Collection System Master Plan including wastewater flow projections and a hydraulic analysis. Includes recommend system capital improvements and maintenance activity prioritization and cost analysis.

**Capital Improvements Program Expenditure Projections 2010-2015:** Developed by the District, this document outlines how the District proposes to continue to pay for the Capital Replacement and Improvement Programs, by noting fund balances, funding sources and fund uses, and encompasses both collection and treatment system costs.



**Figure 8.1 – 2025 Novato North Sewershed Capacity Upgrades**



**Figure 8.2 – 2025 ITP Sewershed Capacity Upgrades (Novato South)**

**Novato Sanitary District**  
**Sanitary Sewer Management Plan (SSMP)**

**Section 9**  
**Monitoring, Measurement, and**  
**Program Modifications**

August 2008  
(Revised March 2010 by NSD staff)

Initial version (August 2008)  
by  
RMA / Engineering and Management Inc.  
Bishop Ranch No. 3, 2603 Camino Ramon, Ste. 170  
San Ramon, CA 94583

**NOVATO SANITARY DISTRICT**  
**SEWER SYSTEM MANAGEMENT PLAN (SSMP)**  
**SECTION NINE – MONITORING, MEASUREMENT, AND PROGRAM**  
**MODIFICATIONS**

**9.1 Regulatory Requirements**

**9.1.1 SFRWQCB**

*SSMP Element 9: Each wastewater collection system agency shall monitor the effectiveness of each SSMP element and update and modify SSMP elements to keep them current, accurate, and available for audits as appropriate.*

**9.1.2 SWRCB GWDR:**

*GWDR SSMP Element No. 9: The Enrollee shall:*

- (a) Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities;*
- (b) Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;*
- (c) Assess the success of the preventative maintenance program;*
- (d) Update program elements, as appropriate, based on monitoring or performance evaluations; and*
- (e) Identify and illustrate SSO trends, including: frequency, location, and volume.*

**9.2 Overview**

This section of the SSMP discusses how the District measures the effectiveness of SSMP elements and monitors their implementation. Effectiveness is measured by developing and tracking performance indicators on a regular basis.

Monitoring, tracking and reporting of routine maintenance activities and SSO abatement programs are reported monthly and summarized annually. Information on the collection system is maintained that allows analysis and evaluation of changed conditions.

Key performance indicators incorporated include:

- Number of dry weather SSOs over the past 12 months, (12 month average)
- Number and characteristics of wet weather SSOs over the past 12 months,
- SSOs by cause (e.g. roots, grease, debris, pipe failure, pump station failure, capacity, other)
- Volume distribution of SSOs (e.g. number of SSOs < 100 gallons, 100 to 999 gallons, 1,000 to 9,999 gallons, > 10,000 gallons)
- Annual volume of SSOs
- Number and characteristics of backups over the past 12 month
- Number of lateral related stoppages over the past 12 months

- Stoppages by cause
- Average time to respond to an SSO
- Ratio of planned sewer cleaning to unplanned sewer cleaning
- Backlog of repair, rehabilitation, and replacement projects
- Plans developed for, or implementation of, activities to target specific problems identified, such as roots, structural deficiencies, or fats, oil, and grease (FOG)

### **9.3 Monitoring, Tracking and Reporting.**

#### **9.3.1 Overview**

The District uses the ICOM3 infrastructure management system to track maintenance, SSOs and other related activities. Historic maintenance data can be digitally linked to the GIS for analysis of repeat problem areas. This process allows the District to adjust maintenance activities to prevent stoppages and develop reports for annual audits required for the SSMP.

The ICOM3 system also manages CCTV inspection data. Inspection data is collected in a format that is compatible with ICOM3. The system allows for developing a history of operation of assets that help identify approaching problems in operation and allow investigation and correction evaluation prior to an overflow event.

#### **9.3.2 Monitoring**

Target performance levels are established at the start of the budget year. Maintenance activities are recorded in the ICOM3 database for asset management purposes. Information is stored on a per asset basis by activity type for tracking the performance and maintenance history of the individual assets of the sanitary sewer system.

During the first five years of operating with the new maintenance system, the District's objective is to collect all of the physical, hydraulic, and structural and condition damage of the assets of the sanitary sewer collection system. Asset information is updated at the next cleaning or condition assessment activity.

#### **9.3.3 Tracking**

Tracking is measurement of the annually targeted unit costs of performance of maintenance activities and those achieved by the District collection system crews, to provide a basis for comparison. Monthly reporting and performance comparisons are the subjects of the monthly maintenance activities performance report prepared by the Collection System Supervisor. The tracking function further measures increasing levels of asset damage being incurred over time as provided by CCTV inspections. Results can be tracked in separate reports at the end of the calendar year as required.

#### **9.3.4 Reporting**

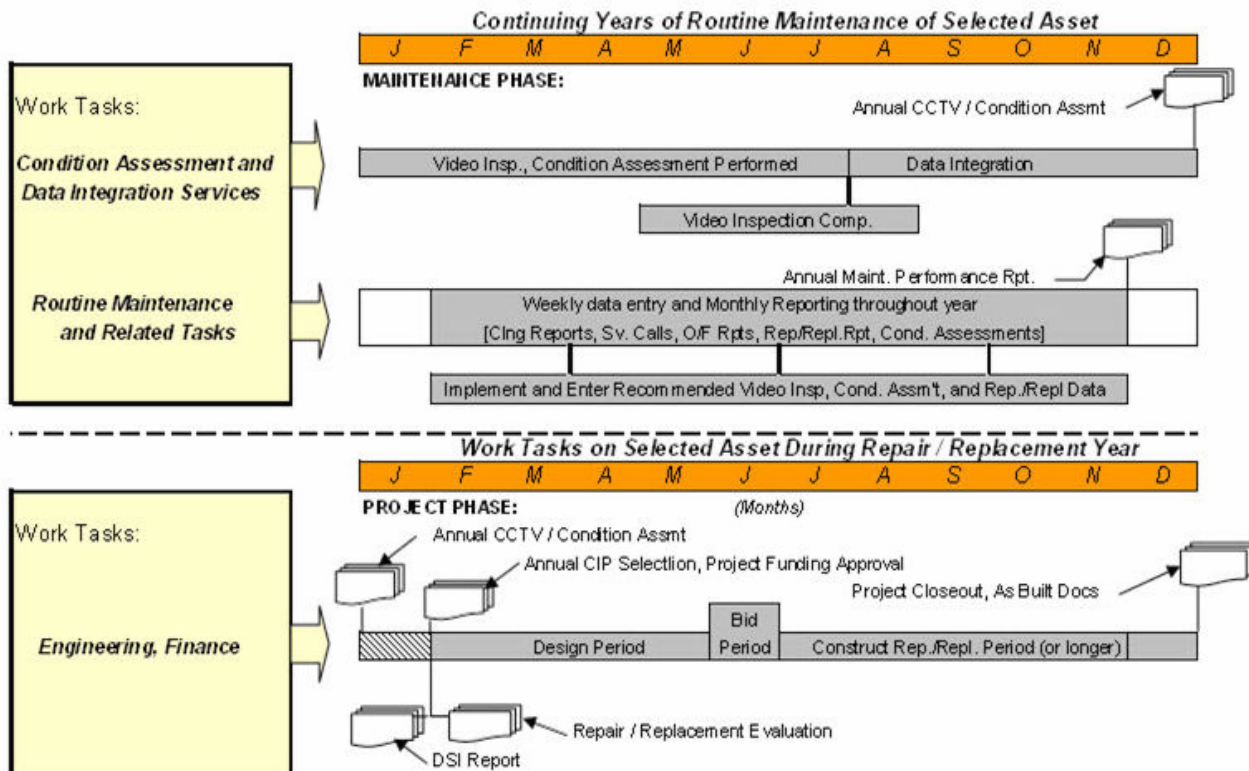
A Collection System activity performance report is distributed each month for feedback from management and responsible supervisors. The periodic feedback by these individuals to the Collection System Superintendent is used to solicit ideas and changes in current operations to

likely enhance performance and productivity of the maintenance crews. Monthly reporting by the Collection System Supervisor is supplemented at year end with the Annual Collection System Activity Performance Report; this Program status information may be included in the Collection System annual report, or required compliance documentation used to summarize performance and objectives met each year. Additionally, starting in 2010, the Wastewater Operations Committee of the District's Board of Directors meets monthly to (among others) review the performance of the Collections System department against performance parameters including but not limited to (a) Employee hours worked, (b) Productivity, (c) Stoppages, (d) benchmarks (total footage, average footage, total stoppages/100 miles, callouts/100 miles, overtime/100 miles, etc.).

### 9.4 Continuous Improvement

The complete history of collection system maintenance operations and performance is housed in the ICOM3 data warehouse. The objective is to provide all personnel of the collection system staff with information on the initial and ongoing problems being identified in the system, and further bring engineering, maintenance and financial resources into a mutually supported action plan designed for timely decisions and actions to address corrective needs of the system and achieve the compliance goals of the SSMP.

**FIGURE 9.1 MONITORING, TRACKING and REPORTING FOR DECISION SUPPORT**



## 9.5 Maintenance Performance

As mentioned earlier, a report summarizing monthly maintenance activities is produced to track performance. Activities tracked include cleaning volume by activity, CCTV footage, the number and type of overflows, callouts and the costs associated with those events. An annual maintenance performance report is produced at the end of each Fiscal Year, since this is the time new performance targets are adopted and changes in equipment and personnel rates are made. Assets are identified during this maintenance phase by W.O. # or by Asset Number. The Asset Number is usually the map identifier such as a Manhole or Pump Station number, or in the case of a line segment the Manhole-to-Manhole number.

1. Measures and Activities performed on the collection system: These include reactive maintenance activities such as response to reported callouts and overflow conditions. Planned maintenance includes special maintenance activities such as smoke testing and/or root foaming when determined necessary, and preventive and proactive maintenance activities of line cleaning and CCTV/condition assessment work which are to be the common routine maintenance activities of the District. All maintenance activities will be evaluated for performance by District staff or by outside contractors (general or specialty).
2. Overflow Response and F.O.G. Response: are among the reactive maintenance activities performed on demand by District staff and/or furnished by outside contractors. Maintenance activities take place throughout the year under the control and responsibility of either the Field Services or Collections System departments. The findings of all maintenance investigations are recorded to the specific collection system asset in the Asset Management System. Recording, tracking and reporting of operations performance and unit costs of production are available monthly and summarized annually to check targeted performance.
3. Monitoring, Measurement and Program Modifications: is an Engineering and Management function emanating from the Maintenance Activities performed during the calendar year. The annual summary report includes the CCTV/condition assessment work performed during the year now included with all of the damage rated line segments from prior work on the system. Engineering staff performs the damage ranking of the investigated line segments. Highest ranked line segments are then evaluated for repair, replacement or deferral and continued maintenance because of it being outside planned funding limitations.
4. Alternative Repair / Replacement Analysis: Identifies the correction methodology that provides the least annual cost of operation and continuing maintenance over the expected useful life of the repair or replacement, and features:
  - Cost Analysis for most cost-efficient Repair / Replacement Method and the annual costs of maintenance over the shortest extended useful life of the construction.
  - For the selected construction methodology, both the annual operations costs and the total estimated project cost are calculated and listed.

## **9.6 Cost Data for Maintenance Performance Analysis.**

Cost metrics are used to evaluate the resource requirements necessary for providing the desired level of system maintenance. Tracking labor, equipment, and materials costs for routine maintenance activities can be used to estimate future budgets based on the programmed levels of activity. Each maintenance activity requires resources whose cost changes at the start of each Fiscal Year.

The ICOM3 system can be updated annually to include the hourly charge rate for equipment, personnel or crew rates and related expendables utilized in the performance of the task. In time, the costs of performance experienced by the collections crews will establish a continuing basis for estimated performance of the District's system and will become a useful tool in forecasting maintenance performed by outside contractors in the collection system.

## **9.7 Annual Maintenance Performance Reporting**

This annual report summarizes the monthly maintenance reporting activity. It provides a record of maintenance performance as it relates to unit costs and can display the relationship of cost per cleaning volume, the number and type of overflows, callouts and the costs associated with unscheduled and unforeseen events.

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**NOVATO SANITARY DISTRICT**  
**SEWER SYSTEM MANAGEMENT PLAN (SSMP)**  
**SECTION TEN – SSMP AUDITS**

**10.1 Regulatory Requirements**

**10.1.1 SFRWQCB**

*SSMP Element 10: Each wastewater collection system agency shall conduct an annual audit of their SSMP which includes any deficiencies and steps to correct them (if applicable), appropriate to the size of the system and the number of overflows, and submit a report of such audit.*

**10.1.2. SWRCB GWDR**

*GWDR SSMP Element 10: As part of the SSMP, the Enrollee shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and the Enrollee's compliance with the SSMP requirements identified in this subsection (D.13), including identification*

**10.2 General**

The SSMP Audits element of the SSMP requires that the District conduct an annual audit of its SSMP that identifies any deficiencies, and steps to correct them that are appropriate to the size of the District's system and the number of overflows. The District must submit a report of its annual audit to the SFRWQCB.

In general, these audits will focus on evaluating the effectiveness of the SSMP and the District's compliance with the SSMP requirements, including identification of any deficiencies in the SSMP and steps to correct them.

**10.3 SSMP Audits Discussion**

The District will perform annual audits of its SSMP beginning in December 2008. The audit will be completed internally, by an appropriate third party auditor, or possibly by a neighboring sanitary district or agency familiar with the requirements of this element of the SSMP.

Upon completion of the audit, the District Manager-Engineer will submit a report of the audit to the SFRWQCB by March 15 of the year following the calendar year for which the audit was completed. For the 2010 audit year, the District utilized a format developed by RMC Water/Oakley Water Strategies of Walnut Creek, CA and distributed to the BACWA Collection system member agencies (see Attachment 10A).

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**ATTACHMENT 10A: 2010 SSMP ANNUAL AUDIT REPORT  
FORM**

**Novato Sanitary District  
Annual Sewer System Management Plan Audit Form  
2010**

The purpose of the Sewer System Management Plan (SSMP) Audit is to evaluate the effectiveness of Novato Sanitary District's (NSD) SSMP and to identify deficiencies, if any, and steps to correct them. The audit is submitted pursuant to the requirements included in the State Water Resources Control Board Order No. 2006-0003-DWQ and San Francisco Bay Regional Water Quality Control Board's Sewer System Management Plan Development Guide, July 2005. Information collected in the Annual Report of Sanitary Sewer Overflows is used in preparing this audit and therefore the two reports are intended to be submitted simultaneously.

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**Directions:** Please update the following attachments [*as applicable*] to Novato Sanitary District (NSD) SSMP before completing the questions below. Check the corresponding box upon completion.

- Novato Sanitary District Phone List (Element 2 Appendix) – see Section 2
- List of SSO Responders' After-Hours Alternate Phone Numbers – see Section 2
- List of Known Plumbers that Install Grease Traps and/or Vaults - NA
- Renderers for Novato Sanitary District – see section 4

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**Directions:** Please circle **YES** or **NO** for each question. To answer the following questions refer to the text of the SSMP Element, any referenced material in the text, all corresponding Attachments, and any data collected to assist in assessing SSMP effectiveness. For any **NO** responses describe the updates or changes needed and the timeline to completion in "Description of Scheduled Updates/Changes to the SSMP" on Page 5 of this form.

**ELEMENT I. GOALS**

1. Are the goals stated in the SSMP still appropriate and accurate?  YES /  NO

**ELEMENT II. ORGANIZATION**

2. Is the SSMP up-to-date with NSD organization and staffing contact information?  YES /  NO

**ELEMENT III. OVERFLOW EMERGENCY RESPONSE PLAN**

3. Does the SSMP contain or reference an up-to-date version of NSD's Overflow Emergency Response Plan?  YES /  NO
4. Considering the information in the Annual SSO Report, is the Overflow Emergency Response Plan effective in handling SSOs?  YES /  NO

**ELEMENT IV. FATS, OILS, AND GREASE (FOG) CONTROL PLAN**

- 5. Does the SSMP reference up-to-date information about NSD's FOG control program?  YES /  NO
- 6. Based upon information in the SSO Annual Report, is the current FOG program effective in documenting and controlling FOG sources?  YES /  NO

**ELEMENT V. LEGAL AUTHORITY**

- 7. Does the SSMP reference up-to-date information about NSD's legal authority?  YES /  NO
- 8. Does NSD have sufficient legal authority to control sewer use and maintenance?  YES /  NO

**ELEMENT VI. MEASURES AND ACTIVITIES**

**a. COLLECTION SYSTEM MAPS**

- 9. Does the SSMP reference up-to-date information about NSD's maps?  YES /  NO
- 10. Are NSD's collection system maps complete, up-to-date, and sufficiently detailed?  YES /  NO

**b. RESOURCES AND BUDGET**

- 11. Does the SSMP reference up-to-date information about NSD's resources and budget?  YES /  NO
- 12. Are NSD's resources and budget sufficient to support effective sewer system management?  YES /  NO
- 13. Do NSD's planning efforts support long-term goals?  YES /  NO

**c. PRIORITIZED PREVENTIVE MAINTENANCE**

- 14. Does the SSMP reference up-to-date information about NSD's preventive maintenance activities?  YES /  NO
- 15. Based upon information in the Annual SSO Report, are NSD's preventive maintenance activities sufficient and effective in reducing and preventing SSOs and blockages?  YES /  NO

**d. SCHEDULED INSPECTIONS AND CONDITION ASSESSMENT**

- 16. Does the SSMP reference up-to-date information about NSD's inspections and condition assessment?  YES /  NO
- 17. Is NSD's scheduled inspections and condition assessment system effective in locating, identifying, and addressing deficiencies?  YES /  NO

**e. CONTINGENCY EQUIPMENT AND REPLACEMENT INVENTORIES**

18. Does the SSMP reference up-to-date information about equipment and replacement inventories?  YES / NO
19. Are contingency equipment and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?  YES / NO

**f. TRAINING**

20. Does the SSMP reference up-to-date information about NSD's training expectations and programs?  YES / NO
21. Do supervisors believe that their staff are sufficiently trained?  YES / NO
22. Are staff satisfied with the training opportunities and support offered to them?  YES / NO

**g. OUTREACH TO PLUMBERS AND BUILDING CONTRACTORS**

23. Does the SSMP reference up-to-date information about NSD's outreach to plumbers and building contractors?  YES / NO
24. Has NSD conducted or participated in any outreach activities to plumbers and building contractors?  YES / NO

**ELEMENT VII. DESIGN AND CONSTRUCTION STANDARDS**

25. Does the SSMP contain or reference up-to-date information about NSD's design and construction standards?  YES / NO
26. Are design and construction standards, as well as standards for inspection and testing of new and rehabilitated facilities sufficiently comprehensive and up-to-date?  YES / NO

**ELEMENT VIII. CAPACITY MANAGEMENT**

27. Does the SSMP reference up-to-date information about NSD's capacity assessment?  YES / NO
28. Has NSD completed a capacity assessment and identified and addressed any hydraulic deficiencies in the system?  YES / NO

**ELEMENT IX. MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS**

29. Does the SSMP reference up-to-date information about NSD's data collection and organization?  YES / NO
30. Is NSD's data collection and organization sufficient to evaluate the effectiveness of the SSMP?  YES / NO

**ELEMENT X. SSMP AUDITS**

31. Will this SSMP Audit be submitted with the Annual Report to the Regional Water Board by March 15?  YES /  NO

**ELEMENT XI. COMMUNICATION PROGRAM**

32. Has NSD effectively communicated with the public and other agencies about the development, implementation and performance of the SSMP?  YES /  NO
33. Has NSD provided the public the opportunity for input as the program is developed and implemented?  YES /  NO

## **Description of Scheduled Updates/Changes to the SSMP**

*Directions: For each question answered **NO**, please reference the SSMP Element and the audit question number when describing the content of any updates/changes needed and the timeline to completion.*

**NOVATO SANITARY DISTRICT**  
**SEWER SYSTEM MANAGEMENT PLAN (SSMP)**  
**SECTION ELEVEN - COMMUNICATION PROGRAM**

**11.1 SSMP Requirements**

*11.1.1 SFRWQCB Requirement*

*None.*

*11.1.2 SWRCB Requirement*

*GWDR SSMP Element 11: The District shall communicate on a regular basis with the public on the development, implementation, and performance of its 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 and/or satellite to the District's sanitary sewer system.*

**11.2 Communication Plan Discussion**

*11.2.1 District Website*

The District maintains a website ([www.novatosan.com](http://www.novatosan.com)) to inform the public about its activities. Typical information available on the website includes general information about the District (including its collection system), District regulations, ordinances and codes, permit forms, pollution prevention materials, community links, and general water education information. The web-site also serves to update the public on the District's construction projects or as a tool to convey any late-breaking news. Contact information for the District as well as individual staff members is available on the website. Viewers can also contact the District directly via an e-mail web-link on the website.

*11.2.2. Newsletters, Press Releases, etc.*

The District publishes periodic newsletters and issues periodic press releases to the local newspapers (the Marin Independent Journal, the Novato Advance, the Pacific Sun and Novato Patch), the Novato chamber of Commerce, and the Downtown Novato Business Association, to inform the public about its activities. Recent information pieces in District newsletters on the collections system have included informational and educational pieces such as "Here's how you can prevent Sewer Spills and Backups"; "You Can Stop the FOG! Fats, Oils and Grease"; and "Improved Maintenance Lowers Costs and Improves Quality" which describes the District's annual investment in the collection system as well as the District's transition to a computerized asset management approach.

Information on the development and implementation of SSMP elements will be included in the District's newsletter. District staff reports on the progress of SSMP development and implementation periodically at the District's Board Meetings, which are held twice a month (on the second and fourth Mondays) and are open to the public. Staff also updates the Board as applicable on the status of collection system projects, as they are planned and executed.

### ***11.2.3 Mailings and Mailing Lists***

The District maintains a database (mailing list) of its customers and which it utilizes as part of its newsletter mailings. The District also maintains a mailing list of interested entities that request agenda packages for its Board meetings for generic or specific reasons, and Board meeting packages are mailed to all these parties. Minutes from the Board Meetings are also available on the District's website.

### ***11.2.4 Satellite and Tributary Systems***

The District owns, operates and maintains its own collection system and does not have any satellite systems.

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**ATTACHMENT 11A: DISTRICT WEBSITE HOMEPAGE**

**ATTACHMENT 11B:      EXAMPLES OF RECENT NEWSLETTERS**