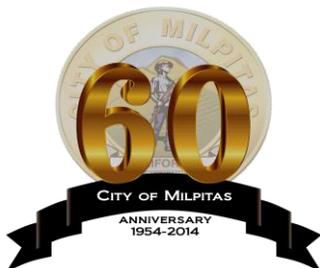


Sewer System Management Plan 2014 Update

Activities to Manage the Wastewater Collection
System Effectively



City of Milpitas
455 East Calaveras Blvd.
Milpitas, CA 95035
www.Milpitas.ca.gov
(408) 586-3000

Sewer System Management Plan 2014 Update

Revised by City of Milpitas
Utility Engineering Staff

Approved by Milpitas City Council on August 18, 2009
Updated June 2014



City of Milpitas
455 East Calaveras Blvd.
Milpitas, CA 95035
www.Milpitas.ca.gov
(408) 586-3000

Sewer System Management Plan

City of Milpitas

Certificate of Compliance

This certification is included to ensure compliance with the State Water Resource Control Board, General Order 2006-0003-DWQ and Order No. WQ 2013-0058-EXEC.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision. The information submitted is to the best of my knowledge and belief, true, accurate, and complete.

Name: _____

Jeff Moneda

Title: Public Works Director/City Engineer

Date: _____

RESOLUTION NO. 8403

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MILPITAS APPROVING THE RE-CERTIFICATION OF THE CITY'S SEWER SYSTEM MANAGEMENT PLAN IN ACCORDANCE WITH THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD'S ADOPTED STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR SANITARY SEWER SYSTEMS, WATER QUALITY ORDER NO. 2006-003

WHEREAS, on May 2, 2006, the California State Water Resources Control Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, requiring owners of public sanitary sewer collection systems to prepare a Sewer System Management Plan (SSMP); and

WHEREAS, the SSMP is a document that addresses procedures to operate, maintain and manage wastewater collection systems; and

WHEREAS, utilization of the SSMP provides the guidelines and procedures to reduce the number and frequency of sanitary sewer overflows (SSOs) and thereby decrease the risk to human health and the environment in our community; and

WHEREAS, on August 18, 2009, the City Council approved and certified the Sanitary Sewer Management Plan; and

WHEREAS, the SSMP must be updated every five (5) years, and must include any significant program changes, and re-certification by the governing board of the legislative body is required in accordance with Section D.14 of the Order No. 2206-003 when significant updates to the Sanitary Sewer Management Plan are made.

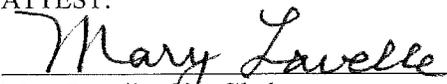
NOW, THEREFORE, the City Council of the City of Milpitas hereby finds, determines, and resolves as follows:

1. The City Council has considered the full record before it, which may include but is not limited to such things as the staff report, testimony by staff and the public, and other materials and evidence submitted or provided to it. Furthermore, the recitals set forth above are found to be true and correct and are incorporated herein by reference.
2. The City Council hereby approves and re-certifies the 2014 Sanitary Sewer Management Plan attached hereto as Exhibit A.
3. The Resolution shall take effect immediately upon adoption.

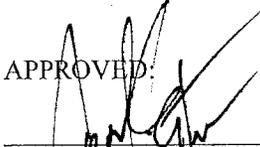
PASSED AND ADOPTED this 19th day of August 2014, by the following vote:

AYES: (5) Mayor Esteves, Vice Mayor Polanski, Councilmembers Giordano, Gomez, and Montano
NOES: (0) None
ABSENT: (0) None
ABSTAIN: (0) None

ATTEST:


Mary Lavelle, City Clerk

APPROVED:


Jose S. Esteves, Mayor

APPROVED AS TO FORM:

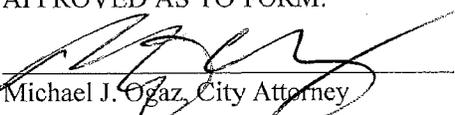

Michael J. Ogaz, City Attorney

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Appendix C	ABAG Sanitary Sewer Overflow and Backup Response Plan - DRAFT
Appendix D	Milpitas Municipal Code Excerpts
Appendix E	Sanitary Sewer System Map
Appendix F	Sanitary Sewer Pipe Ages Map
Appendix G	Sanitary Sewer Pipe Materials Map
Appendix H	Storm Drain Facilities Map
Appendix I	Five-Year Capital Improvement Program
Appendix J	Excerpt from City of Milpitas <i>Engineering Plans and Map Procedures and Guidelines</i>
Appendix K	Excerpt from City of Milpitas <i>Standard Specifications for Sanitary Sewers</i>
Appendix L	Excerpt from City of Milpitas <i>Standard Drawings</i>
Appendix M	Audit Record
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ABBREVIATIONS

ABAG	Association of Bay Area Governments
BACWA	Bay Area Clean Water Agencies
BAWQA	Bay Area Water Quality Association
BMP	Best Management Practice
CA	California
CCTV	Closed-Circuit Televising
Cal OES	California Office of Emergency Services
CIP	Capital Improvement Program
CIWQS	California Integrated Water Quality System
CWEA	California Water Environment Association
DES	(San Jose) Department of Environmental Services
FOG	Fat, Oils, and Grease
GIS	Geographical Information System
GRD	Grease Removal Device
GWDR	General Waste Discharge Requirements
I/I	Inflow/Infiltration
LRO	Legally Responsible Official
MRP	Monitoring & Reporting Program
NOI	Notice of Intent
NPDES	National Pollution Discharge Elimination Systems
RWQCB	San Francisco Bay Regional Water Quality Control Board
SCADA	Supervisory Control and Data Acquisition
SOP	Standard Operating Procedure
SSMP	Sewer System Management Plan

SSO	Sanitary Sewer Overflow
SWRCB	State Water Resources Control Board
US	United States
WARN	Water Agency Response Network
WDR	Water Discharge Requirements
WPCP	San Jose/Santa Clara Water Pollution Control Plant

GLOSSARY

Bay Area Clean Water Agencies (BACWA)	The San Francisco Bay Area Joint Powers Authority is comprised of wastewater treatment and collection system agencies. The BACWA vision is to: Develop a region-wide understanding of the watershed protection and enhancement needs through reliance on sound scientific, environmental and economic information, and ensure that this understanding leads to long-term stewardship of the San Francisco Bay Estuary.
Blockage	A build up of debris in the sewer that stops the flow of wastewater and allows the water to back up behind the blockage, sometimes causing an overflow. Also called a stoppage .
City	The City of Milpitas.
Geographical Information System (GIS)	A database linked with mapping, which includes various layers of information used by government officials. Examples of information found on a GIS can include a sewer map; sewer features such as pipe location, diameter, material, condition, last date cleaned or repaired. The GIS also typically contains base information such as streets and parcels.
Inflow/Infiltration (I/I)	Inflow is generally considered to be extraneous water that enters the system as a direct result of a rain event, such as through improper connections to the sanitary sewer, through flooded manhole covers, or through defects in the sewer. Infiltration is generally considered to be extraneous water that enters the sewer system over longer periods of time, such as groundwater seepage through cracks in the sewer. While it is impossible to control all I/I, it is certainly desirable to reduce I/I when cost-effective.
Lateral	The portion of sewer that connects a home or business with the main line in the street. Laterals are owned and maintained by the property owner.
Legally Responsible Official (LRO)	The Legally Responsible Official is responsible for reporting all spills to the applicable regulatory agencies within the prescribed timelines.
Regional Water Quality Control Board (RWQCB)	The San Francisco Bay Regional Water Quality Control Board (also known as RWQCB). Its mission is to preserve, enhance and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations.
Sanitary Sewer Overflow (SSO)	Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs include: <ul style="list-style-type: none">Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; andWastewater backups into buildings and on private property that are caused by blockages or flow conditions within the publicly owned portion of a sanitary sewer system.
State Water Resource Control Board (SWRCB)	The umbrella agency responsible for implementation of State laws.

1 GOALS

Element

1

SWRCB Requirements:

The goal of the SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer collection system. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur.

RWQCB Requirements:

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

The City of Milpitas is located in northeastern Santa Clara County between the Cities of San Jose and Fremont. It comprises 13 square miles of residential, commercial, industrial, agricultural and recreational land uses, roughly oriented around the intersections of SR 237 with I-880 on the west and I-680 on the east. It has a residential population of just over 70,000 and hosts a number of High Tech electronic research, development and manufacturing facilities typical of the Silicon Valley.

The City of Milpitas owns and operates its municipal sewer collection system consisting of 175 miles of gravity pipe and 5 miles of force main. The system also includes two pump stations: the Venus Station which lifts sewer out of a low-lying Pines neighborhood and the Main Sewer Pump Station which pumps all City sewage through dual 2.5 mile force mains to the San Jose/Santa Clara Water Pollution Control Plant (WPCP) located in San Jose at 700 Los Esteros Road for treatment.

The City of Milpitas has prepared this Sewer System Management Plan (SSMP) to comply with the State Water Resource Control Board (SWRCB) General Order 2006-0003-DWQ and WQ 2013-0058-EXEC. (see Appendix A). The SSMP provides a plan and schedule to properly manage, operate, and maintain all components of the municipal sanitary sewer system. Since the City has proactively planned for adequate capacity and performed aggressive preventive maintenance over the past several years, it already has a low incidence rate of sanitary sewer overflows (SSOs), averaging approximately two incidences per year, with three SSOs in 2009, zero in 2010, one in 2011, four in 2012 and two in 2013. This SSMP documents past activities and provides guidance to maintain a low SSO rate, as well as mitigate any SSOs that do occur.

The provisions of the SSMP were developed and updated to ensure that the City is able to meet its goals by:

- Implementing a collection system maintenance program to minimize the frequency of sanitary sewer overflows.
- Respond to sanitary sewer overflows quickly and mitigate the impact of the SSO.
- Mitigating the impact of sewer overflows that do occur as well as follow up investigations to identify the cause of the overflow event and using that information to either adjust the maintenance schedule or schedule a repair/replacement.

- Properly manage, operate and maintain all elements of the wastewater collection system to better allocate resources and manpower.
- Develop and maintain design construction standards and specifications for the installation and repair of the collection system and its associated infrastructure.
- Maintain comprehensive and up-to-date maps of the wastewater collection system.
- Provide training on a regular basis for staff in collection system maintenance and operations.
- Maintain a Fats, Oils, and Grease (FOG) program to limit fats, oils, and grease, and other debris that may cause blockages in the sewage collection system.
- Develop a closed-circuit televising (CCTV) program for the collection system.

The City has implemented policies and procedures for the systematic inspection and continued maintenance of its infrastructure. The City personnel are utilizing the procedural training available through organizations such as Bay Area Water Quality Association (BAWQA) and California Water Environment Association (CWEA).

2 ORGANIZATION

2.1 SSMP Roles & Responsibilities

SWRCB Requirements:

SSMP must identify:

- A. Name of the responsible or authorized representative as described in section J (pg. 19) of this order;
- B. Names & numbers for management, administrative, and maintenance positions responsible for implementing specific measures of SSMP. 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 Health and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or Cal OES).

RWQCB Requirements:

Each wastewater collection system agency shall, at 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

The Public Works Director/City Engineer, Principal Utility Engineer, and Public Works Manager, all with the City of Milpitas Department of Public Works, are authorized to serve as Legally Responsible Officials (LROs) for the purposes of certifying the component of this plan and for reporting SSOs in the California Integrated Water Quality System electronic database.

Figure 2-1 shows the City's organization chart and City staff who manage all sanitary sewer activities within the City, whether it be reporting SSOs, analyzing capacities of the sanitary sewer system, or maintaining sanitary sewer facilities.

City Council – Approves operating budgets and capital improvement program enters agreements on behalf of the City.

City Manager – City's executive officer. Oversees and coordinates works of all departments.

City Attorney – City's legal counsel. Advises on content of sewer ordinances, coordinates ordinance adoption, provides legal interpretations, and serves in enforcement actions.

Public Works Director/City Engineer (Contingent LRO) – Establishes sewer system plans strategy, leads and assigns duties of engineering staff, prepares budgets and serves as the spokesperson for SSO related events. (See section 2.2: Chain of Communication: SSO Reporting).

Principal Utility Engineer (Secondary LRO) – Oversees and prepares wastewater collection system planning documents, documents new and rehabilitated assets, proposes rate analysis reports and staff recommendations, and coordinates development and implementation of SSMP.

Public Works Manager (Primary LRO) – Manages field operations and maintenance activities, provides relevant information to management, prepares and implements contingency plans, leads emergency response, investigates and reports SSOs, and trains field crews. (See section 2.2: Chain of Communication: SSO Reporting).

Public Works Maintenance Crew/Standby Crew – Perform preventive maintenance activities, mobilize and respond to notification of stoppages and SSOs (mobilize sewer cleaning equipment, by-pass pumping equipment, and portable generators).

WPCP – Provides pre-treatment program inspection and permitting to ensure compliance of the WPCP operations with its NPDES discharge permit.

Figure 2-1: SSMP Organization Flowchart

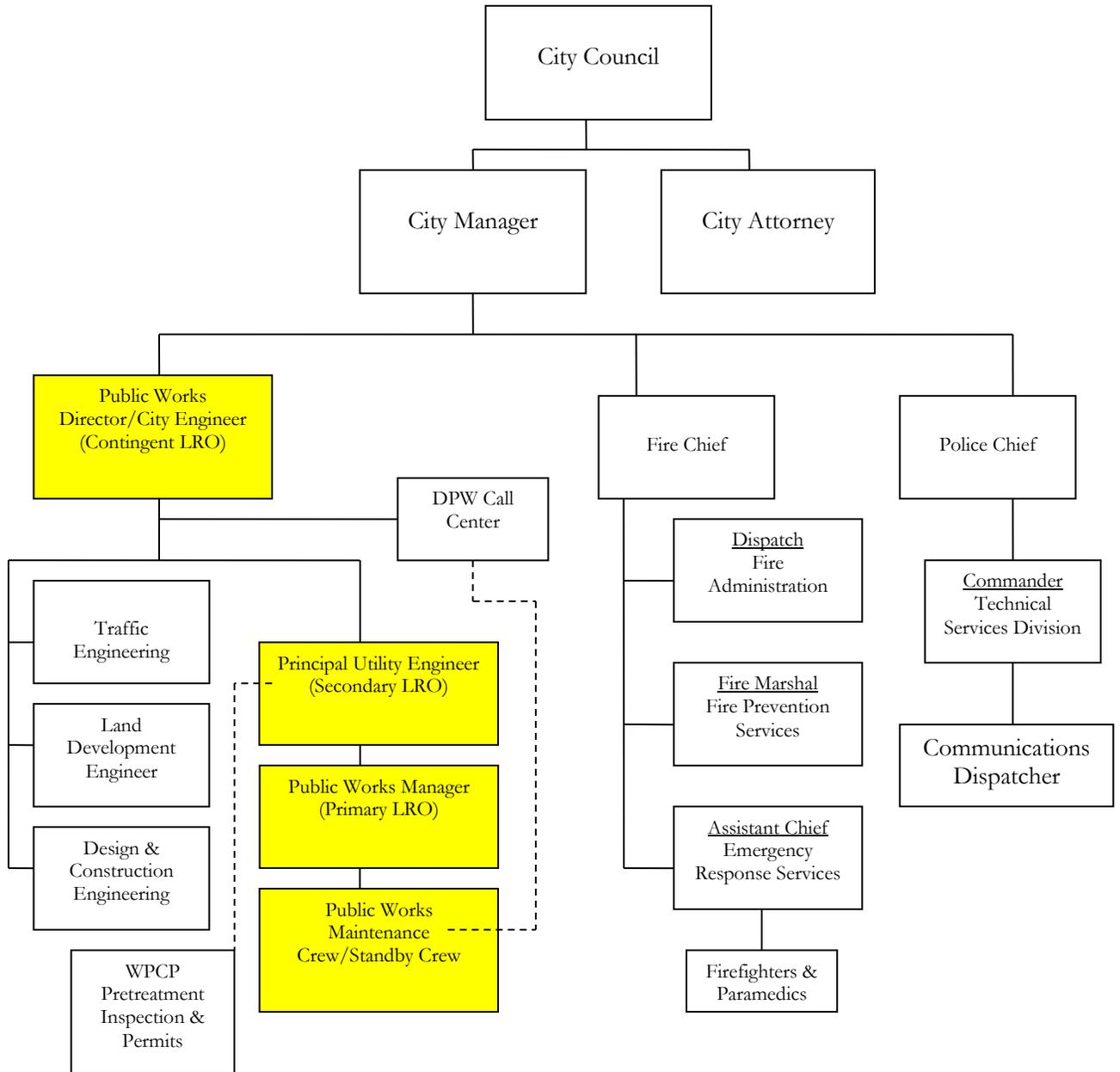


Table 2-1: City SSO Contact List

Names	Business Hours	After Hours	Email
Public Works Call Center	408-586-2600 (8:00 a.m. – 5:00 p.m.)	911 or 408-586-2400	
Glen Campi, Public Works Manager (Primary LRO)	408-586-2643	408-690-3617 408-699-8463	gcampi@ci.milpitas.ca.gov
Steven Machida Principal Utility Engineer (Secondary LRO)	408-586-3355	408-658-4841	smachida@ci.milpitas.ca.gov
Jeff Moneda, Public Works Director/City Engineer (Contingent LRO)	408-586-3345 408-586-2603	408-908-0086	jmoneda@ci.milpitas.ca.gov
Public Works Maintenance Crew/Standby Crew Pager		408-699-2725	

The Principal Utility Engineer has primary responsibility for the SSMP to ensure it is current. The Principal Utility Engineer and Public Works Manager are responsible for implementation of various elements within this SSMP as delineated in Table 2-2 below.

Table 2-2: SSMP Elements & Responsibilities

	SSMP Chp.	Principal Utility Engineer	Public Works Manager
Goals	1	√	
Organization	2	√	
Legal Authority	3	√	
Operations and Maintenance Program	4		√
Design and Performance Provisions	5	√	
Overflow Emergency Response Plan	6		√
FOG (Fats, Oils, Grease) Control Program	7	√	√
System Evaluation and Capacity Assurance Plan	8	√	
Monitoring, Measurement, and Plan Modifications	9	√	√
SSMP Audits	10	√	
Communication Program	11	√	√

2.2 Chain of Communication: SSO Reporting

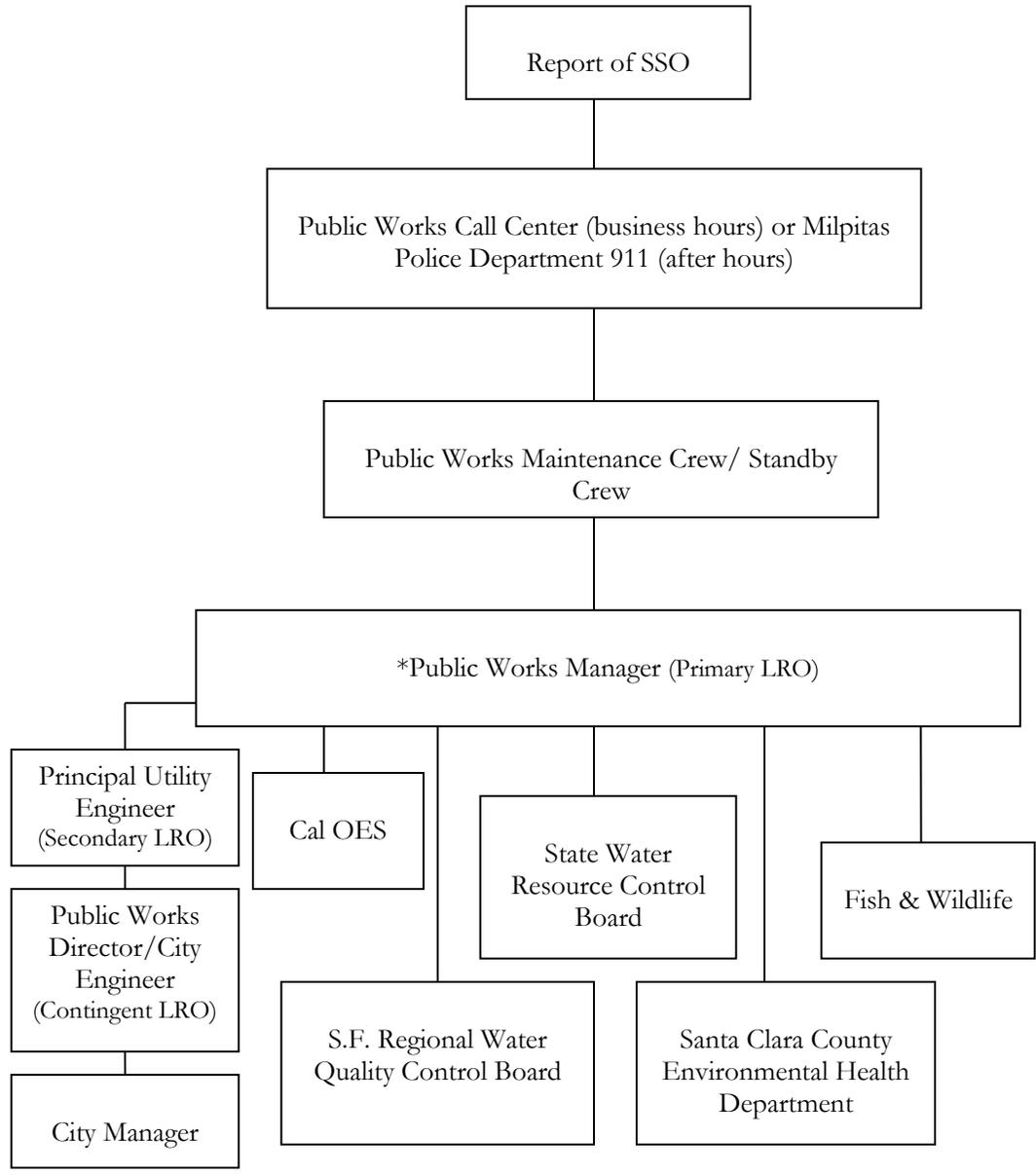
The SSMP must identify:

- C. Chain of communication for reporting SSOs, from receipt of complaint or other information, including persons responsible for reporting SSO to the State and Regional Water Board and other agencies if applicable (such as County Health, County Environmental Health Agency, Reg. Water Board &/or Cal OES).

SSO reports are routed to the City’s Public Works call center during normal business hours. After hours reporting comes through the City’s 9-1-1 emergency system. The Utility Maintenance Standard Operating Procedures (SOP) (Appendix B) describes roles and responsibilities of City personnel when responding to, and reporting SSOs. The Public Works Maintenance crew is using the Association of Bay Area Governments (ABAG) Overflow and Back-up Response Plan (Appendix C), which incorporates the City’s SSO Response SOP, for detailed response and clean-up guidelines for sanitary sewer overflows. This plan identifies the chain of communication for responding to, and reporting SSOs. The Public Works Manager has primary

responsibility to insure that the City responds appropriately and all reports to all regulatory agencies are made within the pre-designated timeline. The table of contents and selected excerpts from the ABAG Overflow and Back-up Response Plan are included in Appendix C and are discussed in Element 6. Figure 2-2 identifies the City’s Chain of Communication in the event of an SSO. Information on notification of outside agencies is shown in Appendix B.

Figure 2-2: SSO Chain of Communication Flow Chart



*The Public Works Manager has primary responsibility to make the electronic reports of SSOs to CIWQS within the State’s reporting timeline. These are within 2 hours, or as soon as practicable without impeding the SSO response for a Category 1 or 2 spill of any amount reaching surface waters or 1,000 gallons or greater that does not reach surface waters, respectively. If less than 1,000 gallons and fully captured, reporting must be certified within 30 days after the end of the calendar month in which the SSO occurs. In the Public Works Manager’s absence, the Principal Utility Engineer will make the necessary reports, or if both staff are absent, the Public Works Director/City Engineer will make the reports. In the event the SSO cannot be reported online, the reporting LRO is to submit via fax. Fax information can be found in the SSO Response Envelope.

Responsibility for SSMP Implementation The Public Works Manager is responsible for developing, implementing, and maintaining all elements of the City's SSMP.

3 LEGAL AUTHORITY

The City has enrolled in the State’s general sanitary sewer overflow program for its sewer collection system as required by Order 2006-0003-DWQ and WQ 2013-0058-EXEC (see Appendix A). Use of the City’s sanitary sewer system is regulated by the Milpitas Municipal Code, Title VIII, Chapter 2 (see Appendix D), which is sufficient to comply with the General Order. The Principal Utility Engineer is responsible to establish design criteria, and implement and enforce use regulations.

SWRCB Requirements:

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 (I/I, storm-water, chemical dumping, unauthorized debris and cut roots, etc);
- B. Require that sewers and connections be properly designed;
- C. Ensure access for maintenance, inspection or repairs for portions of the lateral owned /maintained by Public Agency;
- D. Limit the discharge of FOG and other debris that may cause blockages, and
- E. Enforce any violation of its sewer ordinance.

RWQCB Requirements:

Each wastewater collection system agency shall, at a minimum, describe its legal authority through sewer use ordinances, service 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.

The following is a partial list of sanitary sewer ordinance sections:

Title VIII, Chapter 2, Article II, Section 2.15	Drainage and Unpolluted Water Connections Prohibited
Title VIII, Chapter 2 Article IV, Section III-2-5.02	Responsibility for Enforcement
Title VIII, Chapter 2, Article V, Section VIII-2-5.10	Pretreatment by Owner
Title VIII, Chapter 2, Article V, Sections VIII-2-5.11 -5.28	Specific requirements on wastewater discharge constituents.
Title VIII, Chapter 2, Article V, Sections VIII-2-5.29 - 5.30	Installation, Maintenance & Operation of Grease Control Devices
Title VIII, Chapter 2, Article V, Sections VIII-2-5.38 - 5.49	Specific requirements on customer wastewater discharge permits & reports
Title VIII, Chapter 2, Article V, Section VIII-2-5.50	Power to Inspect
Title VIII, Chapter 2, Article V, Sections VIII-2-5.51 - 5.52	Correction of Violations, Collection of Costs, Injunction & Civil Penalties
Title VIII, Chapter 2, Article XI, Section 11.01	Design Standards
Title VIII, Chapter 2, Article XII, Section 12.05	Violation Unlawful
Title VIII, Chapter 2, Article XII, Section 12.06	Termination of Service and Disconnection of Facilities
Title VIII, Chapter 2, Article XIII, Section 13.01	Maintenance by City
Title VIII, Chapter 2, Article XIII, Section 13.02	Maintenance by User

In addition, the City’s agreement with the San Jose/Santa Clara Water Pollution Control Plant (WPCP) allows the City to discharge Milpitas sewage into the WPCP for treatment and disposal. WPCP Source Control Inspectors issue Industrial Wastewater Discharge Permits, perform inspections, and monitor effluent quality. The Milpitas sewer collection system is considered to be a satellite system to the WPCP.

4 OPERATION & MAINTENANCE PROGRAM

Element

4

The City operates and maintains its sewer collection system effectively. Fundamentals of the Operation and Maintenance Program (O&M) include asset mapping, prevention activities, replacement plan and financing, training, and parts inventory. These fundamentals are described in more detail in this section.

SWRCB Requirements:

The Sewer System Management Plan (SSMP) must include those elements listed below that are appropriate and applicable to the Enrollee's system:

- A. Maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes, and applicable stormwater conveyance facilities;
- B. Describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventive Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders;
- 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 of ranking the condition of the 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 replacements 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;
- D. Provide training on a regular basis for staff in sanitary sewer system operations and maintenance, and require contractors to be appropriately trained; and
- E. Provide equipment and replacement part inventories, including identification of critical replacement parts.

RWQCB Requirements

- Collection System Map – Each wastewater collection system agency shall maintain up-to-date maps of its wastewater collection system facilities.
- Resources and Budget - Each wastewater collection system agency shall allocate adequate resources for the operation, maintenance, and repair of its collection system.
- Prioritized Preventive Maintenance – Each wastewater collection system agency shall prioritize its preventive maintenance activities.
- Scheduled Inspections and Condition Assessment - Each wastewater collection system agency shall identify and prioritize structural deficiencies and implement a program of prioritized short-term and long-term actions to address them.
- Contingency Equipment and Replacement Inventories - Each wastewater collection system agency shall provide contingency equipment to handle emergencies, and spare/replacement parts intended to minimize equipment/facility downtime.

RWOCB Requirements (cont)

- **Training** – Each wastewater collection system agency shall provide training on a regular basis for its staff in collection system operations, maintenance, and monitoring.
- **Outreach to Plumbers and Building Contractors** – 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.

4.1 Collection System Maps

Requirement:

- 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 storm-water conveyance facilities.

The sanitary sewer system service area lies entirely within the City of Milpitas. Appendix E show an up-to-date map of the City’s sewer system, including gravity and pressure pipes, valves, manholes, pump stations and siphons. The City Geographical Information System (GIS) and Auto-CAD systems map the sanitary sewer information, such as pipe location, diameter, material, condition, and length. The GIS/Auto-CAD also contains base information such as streets and parcels. The City’s sewer plat maps are generated directly from the GIS/Auto-CAD. The Land Development Section of Engineering maintains up-to-date information of the GIS/Auto-CAD systems. The sanitary sewer collection system includes over 175 miles of sewer mains, two force mains, and two pump stations. The City’s storm system is completely separate from the sanitary sewer system; a map is included in or Appendix I. The following maps can be found in this plan:

Appendix F	Sanitary Sewer Pipe Ages Map
Appendix G	Sanitary Sewer Pipe Materials Map
Appendix H	Storm Drain Facilities Map

Requirement:

- B.** Describe routine preventive operation & maintenance activities by staff & contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning & 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.

4.2 Preventive Maintenance

A good preventive maintenance program is an important component in keeping a system in good repair and preventing excessive infiltration/inflow (I/I), service interruptions, and system failures, which can result in SSOs. A preventive maintenance program also protects the capital investment in the collection system. Preventative maintenance is documented in a log by the maintenance crew and maintained by the Public Works Manager (see Appendix P)

The City’s preventive maintenance activities include the following:

- Scheduled weekly cleaning for high problem areas or areas with frequent stoppages. Other areas, with more moderate frequency problems, receive cleaning on a monthly or 6-month schedule. And low frequency areas, the remainder of the City receive sewer line cleaning on an 18 month basis.
- Proactively repair or replace problem areas with structural deficiencies in the City's CIP (see Element 8.3 for additional discussion).
- Root control in areas that are known to have recurring SSOs or premature structural damage due to root intrusion.
- Investigate and resolve customer complaints upon notification, 24 hours a day.
- Periodic cleaning of force mains to maintain pump station efficiency and prevent backups.
- Keep maintenance activity records to support appropriate analysis and reporting.
- Weekly cleaning of one problem siphon and quarterly cleaning of all other siphons.

4.3 Rehabilitation & Replacement Plan

Requirement:

C. Develop a rehabilitation & replacement (R/R) plan to identify & prioritize system deficiencies & implement short- & long-term rehab actions to address each deficiency. Program should include regular visual & TV inspections of manholes, sewer pipes, and a system for ranking the condition of sewer pipes & scheduling rehabilitation. R/R should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. R/R should include a Capital Improvement Plan addressing proper management and protection of the infrastructure assets. Include a time schedule for implementing short-& long-term plans plus a schedule for developing the funds needed for Capital Improvement Plan.

The City completed a Utility Depreciation Study in 2002. This study established a pipe replacement program based upon pipe material and age. A Sewer Replacement Study has been included in the five-year Capital Improvement Program (CIP) (Appendix I) which will determine actual pipe conditions, needed corrective actions and a prioritization based on those findings. The Sewer System Replacement Project has been included in the CIP in anticipation of those results. See Element 8.3 for more discussion on the Capital Improvement Program. A systematic inspection program is one component for keeping a system in good repair and preventing excessive I/I, service interruptions, and system failures, which can result in SSOs.

The City's inspection activities include the following:

- Routine inspections of the collection system facilities, including pump stations.
- Inspections based on customer complaints and/or SSOs.
- Periodic flow monitoring for capacity analysis.
- Condition assessments based on pipe age.
- Maintenance of records to support appropriate analysis and reporting.
- CCTV as needed.

Construction on the City's Main Lift Station Replacement project was completed in Spring, 2009. This station serves the entire City and has a wet weather capacity of 45 mgd. At the beginning of the project the design team prepared a Functionality and Operation Report (Winzler and Kelly November 7, 2005).

Functional requirements were developed for each process, including the comminutors, pump selection, wet well design, valve vault, force main, control building and garage, wet well ventilation, odor control, electrical system, instrumentation and controls, on-site SCADA and communications, site improvements and cathodic protection.

Rehabilitation of the Venus Pump Station was completed in March 2009. This small satellite station serves about 1,200 homes. The work includes sandblasting and coating the wet well, replacement of pumps, control panel and access hatch, installation of alarms and a manual electric transfer switch.

Funding

The City's sewer utility is a self-supporting enterprise. Revenues derived from sewer rates and other sources, including reserves, must be sufficient to cover all operating and capital expenditures each year. The City aims to balance its budgets each year. Fund reserves generated in surplus years are typically used to make up any revenue shortfalls in deficit years.

The City has evaluated several aspects of the sanitary sewer system's fiscal needs. The Sewer Master Plan has identified pipe deficiencies and treatment capacity shortfalls that must be mitigated to meet build-out conditions. The Utility Depreciation Study identified the age and materials of the collection system and established a long term replacement schedule. The Financial Utility Master Plan incorporated the proposed Master Plan projects and replacement needs and developed a cash flow scenario for a 20 year period. The City of Milpitas has demonstrated its commitment to provide and operate a functional sewer collection system with sufficient capacity monitoring, measurement & program modifications.

The City's rate structure conforms to the State Water Resources Control Board (SWRCB) revenue program guidelines that require each customer or class to pay sewer rates in proportion to the cost of service received. Milpitas customer rates are allocated based on estimated wastewater flows and strengths. Sewer rates are adopted by City Council via ordinance. The sewer enterprise maintains four separate funds. Each of these funds is treated as a separate accounting entity.

Sewer Fund – This is the main operating fund of the sewer enterprise. The fund is used to pay for all operating and maintenance costs for wastewater collection and treatment, and for ongoing capital and replacement projects as budgeted each year. The primary source of revenue is sewer service charges.

Sewer Capital Improvement Program (CIP) Fund – Each year the City sets aside the full cost of capital improvements approved that year by transferring money to the CIP fund. These funds are fully committed to specific CIPs that were budgeted in past years. The CIP fund typically carries a significant balance that is reserved for the remaining costs of projects approved in prior years, but still under construction.

Treatment Plant Construction Fund – This fund is generally used to fund capital improvements at the regional treatment plant or within the City's collection system. The main source of revenues for this fund is treatment plant connection fees and sewer connection fees collected from new development. This fund may also be used to finance the acquisition of additional capacity in the wastewater treatment plant.

Sewer Infrastructure Fund – This fund was established in 2000/01 to build reserves to offset the future costs to replace facilities reaching the end of their useful lives. The main source of revenue for this fund is transfers from the sewer fund.

Expenses typically fall into four categories: City operations, City capital improvements, WPCP operations, or WPCP capital improvements. The Milpitas City Council has established target reserve levels for the Sewer Fund.

4.4 Training Schedule

Requirement:

D. Provide training on a regular basis for staff in sanitary sewer system operations & maintenance, and require contractors to be appropriately trained.

The City's utility maintenance crews have been trained by the Public Works Manager. Within the last year, crew members attended sanitary sewer maintenance training conducted by and held at Union Sanitary District. This major training included topics such as equipment, replacement, and spill volume identification. In addition to in-house training, personnel also attend available webinar training, e.g. training hosted by David Patzer and/or ABAG. On-going training logs and back up training documentation are housed in the Public Works Department which includes safety, system maintenance and updates on regulatory compliance and maintenance issues, personal protective equipment, vehicle safety, hydro-flushing equipment, and confined space training.

4.5 Equipment & Replacement Inventories

Requirement:

E. Provide equipment and replacement part inventories, including ID of critical replacement parts.

Equipment is kept in inventory to minimize equipment/facility downtime in the event of an unplanned failure. This includes replacement parts for pumps, motors, pipes, and vehicles, and appropriately maintained emergency response equipment and accessories to allow utility maintenance crews to effectively respond to incidents and efficiently perform routine maintenance. Without an adequate inventory of replacement parts, the City may experience high volume and/or extended overflow events in the event of a breakdown or malfunction. The City has installed a dedicated back-up generator at the Main Lift Station. The City also has bypass pumps and hoses in the event of a large scale failure. The City can obtain equipment and material from the following vendors, contractors, and other agencies in the event of a large-scale failure. (see Appendix N)

5 DESIGN & PERFORMANCE PROVISIONS

Element

5

SWRCB Requirements:

- 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.
- B. Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

RWQCB Requirements:

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.

5.1 Design & Construction

The City has standards for design installation, rehabilitation and repair, inspection, and testing of new and rehabilitated facilities in the following documents.

Engineering Plans and Map Procedures and Guidelines, Section VIII – (see Appendix J)

Standard Specifications for Sanitary Sewers – (see Appendix K)

Standard Drawings – (see Appendix L)

These Standards are available as hard copy documents and on the City’s web page.

6 OVERFLOW EMERGENCY RESPONSE PLAN

SWRCB Requirements:

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 CA 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 US 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.

RWQCB Requirements:

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.

The City worked with ABAG to develop its “City of Milpitas Sanitary Sewer Overflow and Backup Response Plan” (Appendix C). An entire copy of the re-certified SSMP will be available in each utility maintenance vehicle and utility standby vehicle, which includes a copy of the SOP for field response. Vehicles are also equipped with, an SSO Response Envelope. All Maintenance Crew and Standby Crew have been properly trained in responding to an SSO and have been made aware the procedures of the City’s SOPS and the ABAG SSO and Back Up Response Plan.

The purpose of the Response Plan is to ensure that City personnel follow established guidelines in responding, relieving, cleaning and decontaminating sanitary sewer overflows and backups which may occur within the City service area in order to safeguard public health and the environment. The Response Plan also includes guidelines so that notification and reporting is made to the appropriate local, state and federal

authorities. The Public Works Manager has primary responsibility to insure that the City responds appropriately and all notifications are made. In the event of his/her absence, the Principal Utility Engineer or the Public Works Director are the legally responsible officials (LRO) for reporting to the applicable regulatory agencies. The reporting LRO is also responsible for notifying other LROs on SSO clean up and reporting status.

Sewer Overflow Response Plan

I. SSO Detection

- A. Public Observation
- B. Receipt of a Pump Station Alarm
- C. City Personnel Observation

II. SSO Response and Procedure

- A. Safety
- B. Initial Response
- C. Containment
- D. Restore Flow
- E. SSO Volume Estimation
- F. Estimating of Recovery Volume of Spilled Sewage
- G. Cleanup
- H. Public Notification
- I. Water Quality Sampling and Testing

III. Weekly SSO Meetings (Failure Analysis Investigation)

IV. SSO Documentation and Reporting

- A. SSO Categories
- B. Internal SSO Reporting Procedures
- C. External SSO Reporting Procedures
- D. Internal SSO Documentation
- E. External SSO Record Keeping Requirements

V. Equipment

- A. Closed Circuit Television (CCTV) Inspection Unit
- B. Camera
- C. Portable Generators, Portable Pumps, Piping and Hoses

VI. SSO Response Training

- A. Initial and Annual Refresher Training
- B. SSO Response Drills
- C. SSO Training Record Keeping
- D. Contractors Working on City Facilities

INTRODUCTION

The purpose of this Overflow Emergency Response Plan is to provide Standard Operating Procedures (SOPs) for an orderly and effective response to Sanitary Sewer Overflows (SSOs). This plan provides courses

of actions for SSO detection, response, containment, volume estimation, recovery, clean up, analysis, documentation, and reporting.

I. SSO Detection

A. Public Observation

Public observation is the most common way that the City is notified of blockages and spills. Contact information for reporting sewer spills and backups are on the City's website: <http://ci.milpitas.ca.gov>. The public is instructed to call the City offices at (408) 586-2600 between 8:00 am and 5:00 pm. Milpitas Police Department at 911 dispatches sewage related called to the first responder after hours, weekends, and holidays. The City recently implemented the My Milpitas Smartphone application as a resource for our community. This application allows the community and those visiting our community to report city related concerns including the reporting of possible SSO events.

When a report of a sewer spill or backup is made, City staff receives the call, takes the information from the caller, and fills out a Service Request.

The person who receives the call will verbally communicate the service request to the Maintenance Crew or Public Works Manager for follow up.

B. Receipt of Pump Station Alarm

Pump Station alarms are considered high priority events that warrant prompt response.

C. City Personnel Observation

City crews conduct periodic inspections of its sewer system facilities as part of their routine activities. Any problems noted with the sewer system facilities are reported to the Public Works Call Center (business hours) or Police Department 911 (after hours). Work orders are issued to correct non-emergency conditions.

II. SSO Response and Procedures

A. Safety

The Maintenance Crew is responsible for following safety procedures at all times. Special safety precautions must be observed when performing sewer work to protect and restore public health, environment, and property from sewage spill events.

There may be times when City Staff responding to a sewer system event are not familiar with potential safety hazards for that particular sewer task. In such cases, it would be appropriate to call the Public Works Manager to discuss and identify hazards, discuss safety issues, consider the order of work, and check safety equipment before starting the job. If appropriate, the Public Works Manager may decide to call out more experienced personnel or respond to the site.

B. Initial Response

All sanitary sewer system calls require a response to the reported location of the event in an attempt to minimize or eliminate an overflow. The first responder must arrive at the site of the reported problem immediately and visually check for potential sewer stoppages or overflows.

Response Time – It is the goal of the City to respond to an SSO within 30 minutes of the first call during regular business hours (Monday thru Friday between 8:00 am and 5:00 pm), and within 60 minutes after hours and during weekends and holidays.

Maintenance Crew /First Person at SSO site Role is to:

- Identify and clearly assess the affected area and extent of spill and note arrival time at spill site.
- Establish perimeters and control zones with traffic cones, barricades, vehicles, or terrain.
- Document conditions upon arrival with photographs.
- Promptly notify the LRO in the event of a Category 1 or 2 SSO or when the spill appears to be large, in a sensitive area, or there is doubt regarding the extent, impact, or how to proceed.
- Contain and control the sewage discharged to the maximum extent possible.
- Make every effort to prevent the discharge of sewage into waterways.
- Restore the flow as soon as practicable and contact the caller for additional information.
- Return the spilled sewage to the sewer system.
- Restore the area to its original condition (or as close as possible).

Note: Containment is a higher priority than restoring flow, but this depends on the circumstances.

- If the problem is in a private sewer lateral and the flow has entered public right of way, then the first responder should:
 - Request the resident to cease activities that are causing continuation of the sewer spill (e.g. flushing toilets, washing laundry, etc.)
 - Request the resident to call a plumber to correct the problem with their lateral and stand by until the plumber arrives.
 - Contain any spilled sewage that has entered the public right of way and return it to the sanitary sewer system.

C. Containment

Decide whether to proceed with clearing the blockage to restore the flow or to initiate containment measures. The guidance for this decision is:

- Small Spills (less than 50 gallons) – proceed with clearing the blockage.
- Moderate spill where containment is anticipated to be simple (greater than 50 gallons to 999 gallons) – proceed with containment measures.
- Large spills where containment is anticipated to be difficult (greater than 1000 gallons) – proceed with clearing the blockage however, call the Public Works Manager for additional assistance after 15 minutes if unable to clear the blockage and implement containment measures.

The Maintenance Crew/First Person at the SSO site should also attempt to contain as much of the spilled sewage using the following steps:

- Determine the immediate destination of the overflowing sewage.
- Plug storm drains using air plugs, sandbags, and/or plastic mats to contain the spill, whenever appropriate. If spilled sewage has made contact with the storm drainage system, attempt to contain the spilled sewage by plugging downstream storm drain facilities.

- Contain/direct the spilled sewage using dike/dam or sandbags.
- Pump around the blockage/pipe failure/pump station.

D. Restore Flow

Attempt to remove the blockage from the system and observe the flows to ensure that the blockage does not recur downstream.

If blockage cannot be cleared within a reasonable time (15 minutes), or the sewer facility requires construction repairs to restore flow, then initiate containment and/or bypass pumping. If assistance is required, immediately contact the Public Works Manager, other employees, contractors, and equipment suppliers.

E. SSO Volume Estimation

A variety of approaches exist for estimating the volume of a sanitary sewer spill. It should be noted that the person preparing the estimate should use the method most appropriate to the sewer overflow in question and use the best information available. Below are three commonly used methods:

1. **Eyeball Estimate** – The volume of small spills can be estimated using an “eyeball estimate”. To use this method imagine the amount of water that would spill from a bucket or a barrel. A bucket contains 5 gallons and a barrel contains 50 gallons. If the spill is larger than 50 gallons, try to break the standing water into barrels and then multiply by 50 gallons. This method is useful for contained spills up to approximately 50 gallons.
2. **Measured Volume** – The volume of most spills that have been contained can be estimated using this method. The shape, dimensions, and the depth of the contained wastewater are needed. The shape and dimensions are used to calculate the area of the spills and the depth is used to calculate the volume.

- | | |
|--------|---|
| Step 1 | Sketch the shape of the contained sewage. |
| Step 2 | Measure or pace off the dimensions. |
| Step 3 | Measure the depth at several locations and select an average. |
| Step 4 | Convert the dimensions, including depth, to feet. |
| Step 5 | Calculate the area in square feet using the following formulas: |

Rectangle:	Area = length (feet) x width (feet)
Circle:	Area = diameter (feet) x diameter (feet) x 0.785
Triangle:	Area = base (feet) x height (feet) x 0.5

- | | |
|--------|---|
| Step 6 | Multiply the area (square feet) times the depth (in feet) to obtain the volume in cubic feet. |
| Step 7 | Multiply the volume in cubic feet by 7.5 to convert to gallons. |

3. **Duration and Flowrate** – Calculating the volume of spills, where it is difficult or impossible to measure the area and depth, requires a different approach. In this method, separate estimates are made of the duration of the spill and the flowrate. The methods of estimating duration and flowrate are:

Duration: The duration is the elapsed time from the time the spill started to the time that the flow was restored. Duration time for an SSO does not include the time required to perform cleaning efforts.

Flow Rate: The flowrate is the average flow that left the sewage system during the time of the spill. The City has developed a Manhole Flowrate Chart (see Appendix Q) and is used to estimate the manhole overflow rate. A City manhole and cover was used to develop the Flowrate chart. Photographs showing the actual measurement should be taken in documenting the basis for the flowrate estimate.

SSO Start Time: The start time is sometime difficult to establish. Below are suggestions for determining spill start times:

- **Nearby Witnesses:** Witnesses can be used to establish start time. Contact and interview the reporting party, nearby residents, business owners or any witnesses that may have observed the incident. Inquire as to their observations. Spills that occur in public right of are usually observed and reported promptly. Spills that occur out of the public view can go on longer. Sometimes, observations like odors or sounds (e.g. water running in a normally dry creek bed) can be used to estimate the start time.
- **Site Conditions:** Conditions at the spill site change over time. Initially there will be limited deposits of toilet paper and other sewage solids. After a few days to a week, the sewage solids form a light-colored residue. After a few weeks to a month, the sewage solids turn dark. The quantity of toilet paper and other materials of sewage origin increase over time. These observations can be used to estimate the start time in the absence of information. Taking photographs to document the observations can be helpful if questions arise later in the process.
- **Accounting for Flow Variations:** It is important to remember that spills may not be continuous. Blockages are not usually complete (some flow continues). In this case the spill would occur during the peak flow periods (typically 10:00 to 12:00 and 13:00 to 16:00 each day). Spills that occur due to peak flows in excess of capacity will occur only during and for a short period after heavy rainfall.
- **Spill Volume/Flowrate:** Start time can be calculated using estimated flowrate and estimated spill volume. City Staff will use the Milpitas Manhole Flowrate Chart (see Appendix Q) to estimate the flow rate and to estimate the spill volume using approved methodology (see E.2 Measured Volume). The start time then is calculated by using both the estimated flow rate and the estimated spill volume.

SSO Stop Time: The stop time is usually much easier to establish. The stop time is determined when field crews confirm that the SSO has stopped. This typically is the time when the blockage has been removed.

Spill Volume Calculation Using Flow Rate: One duration and flow rate have been estimated the volume of the spill is the product of the duration in hours or days and the flow rate in gallons per hour or gallons per day.

Example:	Spill Start Time:	14:00
	Spill Duration:	3 Hours
	Flow Rate:	3.3 gallons per minute

$$1.3 \text{ gallons per minute} \times 60 \text{ minutes per hour} \times 3 \text{ hours} = 594 \text{ gallons}$$

F. Estimating of Recovery Volume of Spilled Sewage

The following methods can be used, depending on the circumstances for estimating recovered sewage volume:

1. **Truck Sewage Recovery Method:** The sewage recovery and cleanup effort often requires fresh de-chlorinated water to clean the affected area or storm pipe lines. The collected liquid in the tank would not represent the actual spill sewage volume if water is introduced for cleanup. By using this method, City crews will use two Vactor trucks, one with an empty tank at a downstream storm drain manhole or inlet and one with filled fresh de-chlorinated water at an upstream storm drain manhole or inlet where fresh de-chlorinated water is introduced. The total recovered volume will include cleanup water and sewage which can be used to calculate the sewage spill volume. The total amount of the collected water less the cleanup water introduced would provide the actual sewage spill/recovered.
2. **Pipe Volume Calculation:** Using this method, before vacuuming the sewage from the storm pipe line into a tank, the crew will block the storm pipe line downstream, video the storm main and measure the level of liquid standing in the pipe. By knowing the pipe size, level of liquid in the pipe, and the length of pipe filled, the spill sewage volume can be calculated.

G. Clean Up

The recovery and clean up phase begins when the flow has been restored and the spilled sewage has been contained to the extent possible. Clean up and disinfection procedures should be implemented to reduce the potential for human health issues and adverse environmental impacts that are associated with an SSO event. The procedures described are for dry weather conditions.

• Hard Surface Areas

- Collect all signs of sewage solids and sewage related material either by hand or with the use of rakes and brooms.
- Wash down the affected area with clean de-chlorinated water. Take all reasonable steps to contain and vacuum up the wastewater which should be returned to the sanitary sewer system.
- Disinfect all areas that were contaminated from the overflow using the disinfectant solution of household bleach diluted 10:1 with water. Apply minimal amounts of disinfectant solution using a hand sprayer.
- Document the volume and application method of disinfectant that was employed.
- Allow the area to dry and repeat as necessary.

• Landscaped and Unimproved Natural Vegetation

- Collect all signs of sewage solids and sewage related material either by hand or with the use of rakes and brooms.
- Wash down the affected area with clean de-chlorinated water. The flushing volume should be approximately three times the estimated volume of the sewer spill.
- Either contain or vacuum up the wash water so that none is released.
- Allow the area to dry and repeat as necessary.

- **Natural Waterways**

- The Department of Fish and Wildlife (DFW) should be notified in the event an SSO impacts any creeks or natural waterways. DFW will provide the professional guidance needed to effectively clean up spills that occur in these sensitive environments. Contact the California Department of Fish and Wildlife (CDFW) at:

1(707) 944-5500 Monday-Friday, 8 AM – 5 PM

1(888) 334-2258 After Hours

If there is no immediate response, follow up with Cal OES and request CDFW call back.

- Clean up should proceed quickly in order to minimize negative impact.

- **Wet Weather Modifications**

- Omit flushing and sampling during storm events wherein flushing and sampling may be impractical and unsafe as well as provide meaningless results.

- **Follow-Up Activities**

- If sewage has reached the storm drain system, the combination sewer cleaning truck should be used to vacuum/pump out the catch basin and any other portion of the storm drain that may contain sewage. City Maintenance Crew may use two Vactor trucks, one with an empty tank at a downstream storm drain manhole or inlet and one with filled fresh de-chlorinated water at an upstream storm drain manhole or inlet where fresh de-chlorinated water is introduced.
- In the event that an overflow occurs at night, the location should be re-inspected first thing the following day. The Maintenance Crew should look for any signs of sewage solids and sewage-related material that may warrant additional cleanup activities.

H. Public Notification

Post “Raw Sewage” signs and place barricade/cones with caution tape to keep vehicles and pedestrians away from contact with spilled sewage. Do not remove the signs until directed by the Santa Clara County Health Department.

Creeks and streams that have been contaminated as a result of an SSO will have signs posted at visible access locations until the risk of contamination has subsided to acceptable levels.

Warning signs, once posted, will be inspected every day to ensure that they are still in place.

Major spills may warrant broader public notice. The Public Works Director/City Engineer will authorize contact with local media when significant areas may have been contaminated by sewage.

I. Water Quality Sampling and Testing

Water quality sampling and testing is required when 50,000 gallons or greater are spilled to surface water to determine the extent and impact of the SSO. Water quality samples will be taken whenever adverse impacts to surface waters (i.e. fish kill) is visually observed, the sampling

can be safely obtained from the impacted water body, and the act of sampling does not prevent the City from completing the necessary SSO response actions.

- Conduct water quality sampling within 48 hours after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters. Water quality results are required to be uploaded into CIWQS in which 50,000 gallons or greater are spilled to surface waters.
- The following steps should be taken to collect water quality samples:
 - a) Samples should be collected from upstream of the spill, from the spill area, and downstream of the spill (e.g. creeks).
 - b) Samples should be collected near the point of entry of the spilled sewage and every 100 feet along the shore of stationary water bodies.
- The City of San Jose Environmental Services Department laboratory will analyze the sample to determine the nature and extent of impact from the discharge. Additional sample will be taken to determine if posting of warning signs should be discontinued. The basic analyses should include pH, temperature, total coliform, fecal coliform, biochemical oxygen demand (BOD), dissolved oxygen, and ammonia nitrogen.

III. Weekly SSO Meetings (Failure Analysis Investigation)

The objective of the failure analysis investigation is to determine the “primary cause” of the SSO and to identify corrective actions needed that will reduce or eliminate future potential for the SSO to recur. Every SSO event is an opportunity to evaluate the response and reporting procedures. Each overflow event is unique, with its own elements and challenges including volume, cause, location, terrain, and other parameters.

All relevant participants meet weekly to review the procedures used and to discuss what worked and where improvements could be made in responding to and mitigating future SSO events. The results of the debriefing should be recorded and tracked to ensure the action items are completed.

The investigation should include:

- Reviewing and completing the Sanitary Sewer Overflow Report
- Reviewing past maintenance records
- Reviewing available photographs
- Viewing a CCTV inspection video to determine the condition of the line segment immediately following the SSO and reviewing the inspection reports and logs.
- Reviewing input from City Crews who responded to the spill.

IV. Weekly SSO Meetings (Failure Analysis Investigation)

All SSOs should be thoroughly investigated and documented for use in managing the sewer system and meeting established reporting requirements. Reporting and documentation requirements vary based on the type of SSO.

A. SSO Categories

The SWRCB has established guidelines for classifying and reporting SSOs. There are three categories of SSOs as defined by the SWRCB:

- **Category 1** – Discharges of untreated or partially treated wastewater of any volume resulting from an enrollee’s sanitary sewer system failure or flow condition that:
 - Reach surface water and/or reach a drainage channel tributary to a surface water; or
 - Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or ground water infiltration basin (e.g., infiltration pit, percolation pond).
- **Category 2** – Discharges of any untreated or partially treated wastewater of 1,000 gallons or greater resulting from an enrollee’s sanitary sewer system failure or flow condition that do not reach surface water, a drainage channel, or a MS4 unless the entire SSO discharged to a storm drain system is fully recovered and disposed of properly.
- **Category 3** – All other discharges of any untreated or partially treated wastewater an enrollee’s sanitary sewer system failure or flow condition.
- **Private Lateral Sewage Discharge (PLSD)** – Discharges of any untreated or partially treated wastewater resulting from blockages or other problems within a privately owned sewer lateral connected to the enrollee’s sanitary sewer system or from other private sewer assets. PLSD’s that the enrollee becomes aware of may be voluntarily reported to the California Integrated Water Quality System (CIWQS) Online SSO Database.

B. Internal SSO Reporting Procedures

Internal Reporting Category 1 or 2 SSOs

1. The Maintenance Crew/First person at the SSO site will, immediately following the SSO event, notify the LRO.
2. The Maintenance Crew/First person at the SSO site will fill out the SSO Report Form and make the report available to the LRO. The LRO will meet with the City crew at the site of the SSO event to assess the situation and to document the conditions with photos immediately after the SSO event.
3. In the event of a Category 1 or 2 SSO or an overflow in a sensitive area, the LRO will notify the Public Works Director/City Engineer accordingly.

Internal Reporting Category 3 SSOs

1. The Maintenance Crew/First person at the SSO site will notify the LRO immediately after confirming the SSO event.
2. The Maintenance Crew/First person at the SSO site will fill out the SSO Report Form and make the report available to the LRO.

C. External SSO Reporting Procedures

The California Integrated Water Quality System (CIWQS) electronic reporting system will be used for reporting SSO information to the SWRCB when required. If there are no SSOs during the calendar month, the LRO will certify a no-spill report. The LRO will add a “to do task item” on his/her calendar as a reminder to submit timely No Spill Certification.

In the event that CIWQS is unavailable, the LRO will forward all required information to the Region 2 Water Quality Control Board (RWQCB) office in accordance with the time schedules identified above. In such event, the City will submit the appropriate reports using CIWQS as soon as practical.

External Reporting Category 1 or 2 SSOs

1. Within two hours of becoming aware of any **Category 1 SSO greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water**, notify the California Office of Emergency Services (Cal OES, **(800) 852-7550**) and obtain a notification control number. The City will also notify the Santa Clara County Department of Environmental Health of the Category 1 or 2 SSO event within this time period.

The City shall provide updates to Cal OES regarding substantial changes to estimated volume of untreated or partially treated sewage discharged and any known change to impact.

2. Within 3 business days of being notified of the Category 1 or 2 spill event, the LRO or LRO will submit the draft SSO report using CIWQS.
3. Within 15 calendar days of the conclusion of the SSO response and remediation, the LRO will certify the final report using CIWQS after it is reviewed for accuracy by the First Responder and LRO. The LRO will update the certified report as new or changed information becomes available. The updates can be submitted at any time and must be certified.

External Reporting Category 3 SSOs

Within 30 calendar days of the end of the month in which the SSO occurred, the LRO will certify the electronic report in CIWQS. The report will include the information to meet the GWDR requirements.

External Reporting Private Lateral Sewage Discharges

The LRO may report private lateral SSO using CIWQS and specifying that the sewage discharge occurred and was caused by a private lateral and identifying the responsible party, if known.

D. Internal SSO Documentation

Category 1 and 2 SSOs

The following steps are taken to document both Categories 1 and 2 SSOs for internal documentation:

- The first responder will complete the Sanitary Sewer Overflow Report Form and provide copies to the LRO.
- The LRO will prepare a file for each individual SSO. The file should include the following information:
 - Initial service call information

- Sanitary Sewer Overflow Report form
- Copies of the CIWQS report forms
- Volume estimates
- Weekly SSO meetings

E. External SSO Record Keeping Requirements

The GWDR requires that individual SSO records be maintained by the City for a minimum of 5 years from the date of the SSO. This period may be extended when requested by the Regional Water Board Executive Officer. All records shall be made available for review upon State or Regional Water Board staff's request. Records shall be retained for all SSOs, including but not limited to the following when applicable:

- Copy of Certified CIWQS report(s);
- All original recordings for continuous monitoring instrumentation;
- Service call records and complaint logs of calls received by the City;
- SSO calls;
- SSO records;
- Steps that have been and will be taken to prevent the SSO from recurring and a schedule to implement those steps;
- Work orders, work completed, and any other maintenance records from the previous five years which are associated with responses and investigations of system problems related to SSOs;
- A list and description of complaints from customers or others from the previous five years; and
- Documentation of performance and implementation measures for the previous five years.

If the SSO water samples are taken for water quality results, the records of monitoring information shall include the following;

- The date, exact place, and time of sampling or measurements;
- The individual(s) who performed the sampling or measurement;
- The date(s) analyses were performed;
- The individual(s) who performed the analyses;
- The analytical technique or method used; and
- The result of such analyses.

V. Equipment

The City maintains or can access specialized equipment that is required to support this Overflow Emergency Response Plan (OERP) including:

- A. Closed Circuit Television (CCTV) Inspection Unit** – A CCTV Inspection Unit is required to determine the primary cause for all SSOs from gravity sewers.
- B. Camera** – A digital, disposable, or cell phone camera is required to record the conditions upon arrival, during clean up, and upon departure.
- C. Portable Generators, Portable Pumps, Piping, and Hoses** – Portable generators, pumps, piping, and hoses are needed to pump around failed sewers, force mains, or pump stations.

VI. SSO Response Training

A. Initial and Annual Refresher Training

All City personnel who may have a role in responding to, reporting, and/or mitigating a sewer system overflow will receive training before they are placed in a position where they may have to respond. Training of new personnel include shadowing with current personnel, experienced in responding to an SSO, before they are released to respond as a first person at a possible SSO event. Current employees receive annual refresher training and as needed on this plan and the procedures to be followed.

B. SSO Response Drills

Periodic training drills will be held to ensure that employees are up to date on the procedures, the equipment is in working condition, and the required materials are readily available. The training drill should cover scenarios typically observed during sewer related emergencies (e.g. mainline blockage, mainline failure, force main failure, pump station failure, and lateral blockage). The results and the observations during the drills should be recorded and action items should be tracked to ensure completion.

C. SSO Training Record Keeping

Records will be kept of all training that is provided in support of this plan. The records for all scheduled training courses and for each overflow emergency response training event will include date, time, content, name of trainer(s), and name of attendees.

D. Contractors Working on City Sewer Facilities

All contractors working on City sewer facilities will be contractually required to develop a project-specific Overflow Response Plan. All contractor personnel will be required to receive training in the contractor's Overflow Response Plan and to follow it in the event they cause or observe an SSO.

7 FOG CONTROL PROGRAM

SWRCB Requirements:

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.

RWQCB Requirements:

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 Sewer System Management Plan (SSMP). If an agency determines that a FOG program is not needed, the agency must provide justification for why it is not needed.

Fats, oil, and grease (FOG) is a common cause of sewer system blockages that could result in SSOs. The City works with the City of San Jose Department of Environmental Services (DES) to insure restaurants have properly-sized and properly-maintained grease removal devices. Restaurants may be required to subscribe to a tallow service. In addition, the City has provided outreach materials for residents.

The City has evaluated its SSOs and found that over the past five years, only 8 SSOs resulted from FOG and were non-reoccurring. These data are shown in Table 9-1 in Element 9.

7.1 Outreach

Requirement:

- A. An implementation plan and schedule for a public education outreach promoting proper disposal of FOG.

The City periodically provides outreach to the community through a variety of methods, including educational information via the City’s website. Regional efforts result in articles in the area newspapers and radio spots to promote proper disposal of FOG. The DES extends outreach to the City’s restaurants, the largest contributors of FOG. This includes Grease Management Best Management Practices (6 fact sheets – Grease Trap Maintenance, Grease Interceptor Maintenance, Maintenance Documentation, Power-Operated Grease Removal Devices, Chemicals, Enzymes and Bacteria, Vapor/Ventilation Hood Cleaning, and a poster – Managing Fats, Oils, & Grease, “It’s Easier Than You Think”). Additionally, outreach material is available at the Building Department to plumbers and contractors to assist in the prevention of SSOs.

7.2 FOG Disposal

Requirement:

- 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.

Fats, oils, and grease from non-residential sites can be disposed of:

- A. Hauled by tallow companies;
- B. Hauled by other licensed companies (possible component for bio-diesel fuel);
- C. WPCP is investigating the conversion of an existing facility to accept FOG. This may be a possible future option.

7.3 Legal Authority

Requirement:

- C. The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG.

The Milpitas Municipal Code, Title VIII, Chapter 2 (see Appendix D) governs dischargers’ use of grease traps and digesters and regulates the discharge of illegal materials. Section 5.16 prohibits grease, oils, and fats discharge into the sanitary sewer, and Section 5.29 discusses installation and maintenance of oil and grease removal devices. Sections 5.03 and 5.50 identify the City Engineer and WPCP Director as having enforcement authority.

7.4 Grease Removal Devices

Requirement:

- 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.

The City of Milpitas has adopted discharge limits for fats, oils, and grease into the sanitary sewer system. The Milpitas Building Department requires food service facilities to demonstrate that the WPCP staff has approved the grease interceptor size prior to issuance of building permits. San Jose's Environmental Engineering staff determines the requirements for grease removal devices (GRD). The size and type of GRD required is determined based upon the facility's potential for discharging grease in the wastewater. The size of the restaurant, the cooking and cleaning equipment installed, and the number of meals served, are some of the factors considered in order to determine the standard required GRD size. Requirements range from a small grease trap beneath the pot sink to a large in-ground grease interceptor.

Staff may discuss Best Management Practices (BMPs) to restaurant representatives during the plan check, including kitchen practices to minimize the discharge of grease into the sewer system, maintenance tips for grease traps and interceptors, and record keeping requirements. The San Jose Department of Environmental Services (DES) Inspectors verify the installation and connections of the GRD.

The plan review process also involves a GRD certification. This certification involves the restaurant representative signing an acknowledgement of GRD requirements. Some of the requirements acknowledged in the certification is the minimum acceptable cleaning frequency for the type of GRD being required, an on-site maintenance schedule, cleaning instructions, and cleaning records and receipts

7.5 Restaurant Inspections

Requirement:

- E. Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the FOG ordinance;

The City's Ordinance, found in the Milpitas Municipal Code, Title VIII, Chapter 2, Section 5.50 (Appendix D) grants the City Engineer and the DES the right to access upon all properties for the purpose of inspection. The City of Milpitas defers inspections to the DES. The DES staff inspects all restaurant and other food service facilities. Their initial inspection includes determining if the restaurant generates grease, if there is a GRD in place, and reviewing the cleaning records for the GRD, as well as practices used to clean floor mats, vent hoods, and outside areas. Enforcement actions are taken against any restaurant that does not clean their GRD at the minimum set frequency (monthly for grease traps and quarterly for grease interceptors) or keep 3 years of cleaning records. Facilities generating grease are re-inspected periodically (every one to three years), depending on the number of areas of concern observed during the inspection. BMPs are distributed to restaurant operators during the inspections, as appropriate, including the kitchen practices to minimize the discharge of grease into the sewer system, maintenance tips for grease trap and interceptors, and record keeping requirements. Additionally, County Health conducts quarterly inspections of food facilities, which are helpful to ensure continuing compliance to Program requirements.

To assist businesses to comply, the DES Inspectors provide various brochures and booklets such as "Good Practices to Protect Our Creeks and Bay – Guidelines for Restaurants, Grocery Stores, Cafeterias, Bakeries and Delicatessens," posters on "Good Cleaning Practices". Some of these items are available in multiple languages for those individuals where English is not the primary language. The DES believes that education is

the key to compliance and works with businesses to this end. If a higher level of enforcement is necessary, the Milpitas Municipal Code authorizes the City to terminate or revoke permits, impose civil penalties, issue citations, and action by the City Attorney.

7.6 Sanitary Sewer System FOG Blockages

Requirement:

- F. An identification of sanitary sewer system sections subject to FOG blockages and establishment of a cleaning maintenance schedule for each section.

The Public Works Maintenance Division follows a preventative maintenance schedule for areas of the sewer systems that have experienced problems with FOG or other blockages. Preventative maintenance consists of flushing or jetting sewers that accumulate sediment or grease on a biweekly or monthly basis. Between frequent flushing of the lines in targeted areas and the DES Inspectors conducting inspections, including follow up visits when necessary, the City of Milpitas implements effective source control measures to minimize blockages, and subsequently reduce the quantity of SSOs as is expressed in our SSO history.

7.7 FOG Source Control Measures

Requirement:

- 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.

Source control is an effective method to minimize FOG in the sanitary sewer collection system. The WPCP has implemented a grease trap program for restaurants, which are the largest potential FOG source. In addition, outreach materials are periodically distributed to residents and published for general circulation.

8 **SYSTEM EVALUATION & CAPACITY ASSURANCE PLAN**

8.1 Capacity Assessment

SWRCB Requirements:

Prepare and implement a 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 sizes, 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 Sewer System Management Plan (SSMP) review and update requirement as described in Section D.14.

RWQCB Requirements:

Capacity Assessment: Each wastewater collection system agency shall establish a process to assess the current and future capacity requirements for the collection system facilities.

System Evaluation and Capacity Assurance Plan: 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.

Capacity assessment evaluates if adequate capacity exists in all portions of the collection system and that downstream portions that will receive wastewater from new connections can handle additional flow. Prepared capacity assessments include:

- The 2004 Sewer Master Plan Revision was completed in August 2004 (Raines, Melton & Carella, Inc.).
- The 2009 Sewer Master Plan Update was adopted in May 2010 (RMC Water & Environment).

Sewer Master Plans are typically updated when significant changes in land use occur. The 2009 Sewer Master Plan Update incorporates a sound methodology to provide wastewater volume estimates. The methodology starts with land use zoning for each parcel and develops average base wastewater generation flows for each type of zoning. Several site-specific large users, such as manufacturing facilities, have been included as “point loads”. Wet-weather monitoring provided data for groundwater infiltration and rainfall-dependent infiltration/inflow estimates. The total wastewater discharge is calculated to be the sum of the base wastewater flow multiplied by a peaking factor, plus groundwater infiltration, plus rainfall-dependent infiltration/inflow. In addition, multiple scenarios were developed using assumed land use changes over time. The 2009 Sewer Master Plan Update incorporates proposed land use change scenarios, specifically, the waste flow increase from the Transit Area Specific Plan and the potential 19 General Plan Amendments, while taking into account the reduced waste from more environmentally friendly business practices. The wastewater discharge data from these scenarios is entered into the Hydra sewer system hydraulic model to identify collection system deficiencies. Sewer system improvements, such as parallel or replacement pipes, are then recommended.

In addition to providing sufficient collection system capacity, the City of Milpitas must contract for wastewater treatment capacity. The City of Milpitas is a tributary agency to the San Jose/Santa Clara Water Pollution Control Plant (WPCP). The Update indicates that the City will need 14.2 mgd to meet the highest intensity land use scenario within 20 years. In 2009 the City purchased 0.75 mgd capacity from Cupertino Sanitary District, bringing the total available treatment capacity to 14.25 mgd. Treatment capacity consists of four components: flow, biochemical oxygen demand (BOD), suspended solids, and ammonia. Since Cupertino Sanitary District does not have excess BOD, the City acquired three of the four components. The City will monitor the discharge and procure adequate BOD treatment capacity as needed. The capacity can be obtained from the regional treatment plant by a number of methods including:

- Purchase additional capacity when the treatment plant is expanded.
- Purchase rights to use excess capacity held by other tributary agencies.
- Adopt mutual agreements with other tributary agencies use of excess capacity when needed.
- Pursue other regional solutions.

Requirement:

B. Design criteria: where design criteria do not exist or are deficient, undertake the evaluation identified in (a) to establish appropriate design criteria.

8.2 Capacity Enhancement Measures

Design criteria have been established in the City’s Sewer Master Plan Updates to determine estimated wastewater volume. These criteria include base wastewater flow generation factors, peak factors, groundwater infiltration, and rainfall dependent inflow.

Additional design criteria are contained in the City’s *Engineering Plans and Map Procedures and Guidelines* (see Appendix J). These criteria focus on the sewer collection components and include pipe material, velocity, manhole spacing, easements, minimum diameter, and pretreatment requirements.

8.3 System Evaluation & Capacity Assurance Plan

Requirement:

C. Capacity Enhancement Measure: The steps needed to establish 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 reductions programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.

The CIP is a comprehensive five-year plan of capital improvement projects for the City of Milpitas (see Appendix I) Capital improvement projects are purchases or construction of capital assets including streets, park developments or upgrades, the acquisition of land, major construction of public facilities, and major repair/rehabilitation of City infrastructure and facilities. Only funding for current year projects is appropriated by City Council on an annual basis. Funding is projected for subsequent years for planning purposes. The CIP is reviewed annually to allow for necessary adjustments. Sewer system capital projects are typically generated from three sources: the Sewer Master Plan, Utility Depreciation Study, and operational deficiencies.

The 2009 Sewer Master Plan Update (RMC, May 2010) identifies improvements to the sanitary sewer system resulting from identified capacity deficiencies based upon land use. A list of recommended capital improvement projects to correct potential wet-weather conveyance deficiencies under existing, near and long-term conditions are summarized on Table 7-7-1 on page 7-2 of the Master Plan. These recommendations include budget estimates and general scheduling targets for project implementation.

Recommendations from the Update identify several collection system capacity improvements that will be needed over the next several years due to the higher density Transit Area Specific Plan and the 19 General Plan Amendment land uses. In September 2008, the Milpitas City Council adopted a Transit Area Development Impact Fee to pay for these improvements. Developers may be required to install projects adjacent to their developments. These projects may not be included in the CIP.

The City completed a Utility Depreciation Study in 2002. This study established a pipe replacement program based upon pipe material and age. However, actual repair or replacement will be determined by evaluating the pipes actual condition through CCTV inspection.

The City has operated a sewer collection system since the 1950's. Since 1975, the City has pumped its wastewater through a two-mile long force main to the WPCP for treatment. The City continues to establish and assess projects that focus on providing sufficient capacity and assesses capacity requirements as well as major sewer facility improvements. Included are projects such as Main Sewage Pump Station Improvements, Venus Pump Station, Sewer Master Plan, Sewer System Replacement, Sewer System Hydraulic Modeling and the Transit Area Specific Plan Sewer Line Replacement projects.

Operational deficiencies are typically due to structural settlement, such as sags. Several years ago many sewer lines with unusually high maintenance requirements were confirmed with the City's video inspection program to have structural deficiencies. These sites receive more frequent flushing and have been targeted for repairs as part of the Sewer Deficiency Program. Since its inception, \$4.9 million has been allocated to the Sewer Deficiency Program.

8.4 Schedule of Completion

Requirement:

D. Schedule: Develop a schedule of completion dates for all portions of the CIP developed in A.-C. This schedule shall be reviewed and updated consistent with the SSMP review and update requirements (D-14).

Annually, the City reviews proposed capital projects to verify project scope and priority. Collection system projects are prioritized based upon physical condition and capacity. The capital program is then adjusted accordingly. A proposed five year schedule of projects is shown in Appendix I.

The SSMP is a living document, to be continuously updated to ensure that it contains current information. The Principal Utility Engineer shall be responsible for reviewing and updating this plan every five years, and more frequently as needed.

9 MONITORING, MEASUREMENT & PROGRAM MODIFICATIONS

Element

9

9.1 SSMP Activity Prioritization

SRWCB Requirements:

The Enrollee shall:

- A. Maintain relevant information that can be used to establish and prioritize appropriate Sewer System Management Plan (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.

RWQCB Requirements:

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 audit as appropriate.

Program effectiveness is most commonly measured by the frequency of SSO occurrences. Prioritization of SSMP elements is based upon each element's likelihood of reducing SSOs. The City's operation and maintenance program are the most important SSMP element since daily activities and response have a direct impact on reducing SSOs. The results are immediately apparent.

City staff track the following performance indicators to monitor the effectiveness of this plan:

- Volume distribution of SSOs (e.g. number of SSOs < 100 gallons, 100 to 999 gallons, 1,000 to 9,999 gallons, > 10,000 gallons).
- Volume of SSOs contained in relation to total volume of SSOs.
- SSOs by cause (e.g. roots, grease, debris, pipe failure, pump station failure, capacity, other).
- Number of stoppages over the past 12 months.
- Average time to respond to an SSO.

Other elements, such as hydraulic studies and the resulting capital improvement program may take years to implement. The resulting impact on SSOs is long-term.

9.2 Implementation & Effectiveness

Requirement:

- A. Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP.

The City has implemented all elements of this SSMP. The elements are effectively minimizing SSO occurrences.

9.3 Assessment of Preventive Maintenance Program

Requirement:

- B. Assess the success of the preventative maintenance program.

The Milpitas preventive maintenance program includes weekly maintenance for site warranting more rigorous maintenance and/or cleaning frequency. This attention to system operations has resulted in a very low rate of SSOs, as seen in Figure 9-1, which is the program's goal.

9.4 Program Updates

Requirement:

- C. Update program elements, as appropriate, based on monitoring or performance evaluations;

The SSMP is reviewed annually for updates in compliance with the Regional Water Quality Control Boards required audit, due March 15. The Principal Utility Engineer shall review and update Program elements as needed, but at a minimum, will review, revise and recertify the Program at the State's requirement of every five years.

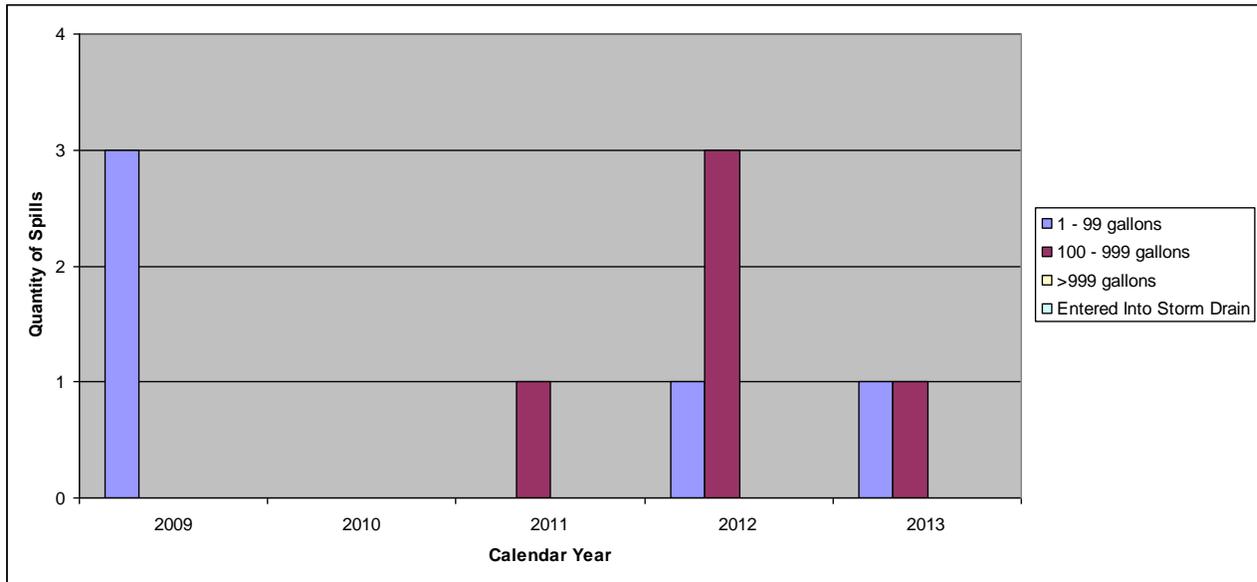
9.5 Trends: Frequency, Location & Volume

Requirement:

- D. Identify and illustrate SSO trends, including frequency, location, and volume.

The City maintains records on SSOs. Figure 9-1 shows the frequency and volume of SSOs by year. Table 9-1 shows the SSOs causes. Appendix O shows the location of SSOs in Milpitas. From these data, it is apparent that the City experiences a very low SSO rate.

Figure 9-1: Annual Volume of SSOs, 2009 – 2013



There were no SSO's for calendar year 2010. SSO Location Map (see Appendix O)

Table 9-1: Causes of SSOs, 2009 – 2013

Cause Category	Number	Percent of Total
Blockage:		
Roots	0	0
Grease	8	80%
Debris	1	10%
Debris from Laterals	1	10%
Vandalism	0	0
Animal Carcass	0	0
Construction Debris	0	0
Multiple Causes	0	0
Subtotal for Blockage	10	100%
Infrastructure Failure	0	0
Inflow & Infiltration	0	0
Electrical Power Failure	0	0
Flow Capacity Deficiency	0	0
Natural Disaster	0	0
Bypass	0	0
Cause Unknown	0	0
Contractor Error/Private Party	0	0
Total	10	100%

10 SSMP PROGRAM AUDITS

Element

10

Every year, the Principal Utility Engineer shall conduct an audit of the SSMP program. The purpose of the audit is to evaluate the effectiveness of the SSMP.

SWRCB Requirements:

As part of the SSMP, enrollee shall conduct periodic internal audits, appropriate to the size of the system and number of SSOs. At 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, PG.10), including identification of any deficiencies in the SSMP and steps to correct them.

RWQCB Requirements:

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.

Effectiveness is most commonly measured by the frequency of SSO occurrences. If SSOs have occurred, the audit shall include:

- SSO cause
- Method to prevent future SSO
- Review whether response is appropriate
- Propose changes to process or SSMP

At this time, the rate of SSOs is very low. When an SSO occurs, the Principal Utility Engineer and the Public Works Manager discuss its cause, its location, and the adequacy of the crew's response to correct the problem, contain the spill and clean up the site. The City is not experiencing recurring problems that would indicate an underlying flaw in the public's use of the system, the condition of the infrastructure, or the crew's response. (see Appendix M for most recent audit record.)

11 COMMUNICATION PROGRAM

Element

11

The City will effectively communicate with the public and other agencies about the development and implementation of the SSMP and continue to address any feedback.

SWRCB Requirements

The Enrollee 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 Enrollee as the program is developed and implemented.

The Enrollee shall also create a plan of communication with systems that are tributary and/or satellite to the Enrollee's sanitary sewer system.

The City will continue to post the SSMP and other related information on the City's website for input by the public as well as dissemination of important SSMP requirements. Additional links such as the Association of Bay Area Governments' (ABAG) "Sewer Smart," the Santa Clara Valley Water District's "Best Management Practices" for storm water discharges, and the City's Standard Design Details are available for residential and commercial customers.

Communication with other local sanitary sewer agencies

The City is a tributary agency to the City of San Jose's and City Santa Clara's Water Pollution Control Plant. Other tributary agencies include the West Valley Sanitation District, Cupertino Sanitary District, County Sanitation District No. 2-3 and the Burbank Sanitary District. Collectively, these agencies along with the City have been included in a communication program initiated by the City of San Jose to establish a collaborative approach during the development and implementation of, and future improvements, to the SSMP.

Wastewater collection agencies share the same watershed basins with storm water collection agencies or cities and Santa Clara Valley Water District. Since all are subject to State WDR and/or NPDES permitting, it is imperative that open communication be maintained which acknowledges a partnership of stakeholders with the common interest of keeping the South Bay, creeks and their tributaries free of pollutants. Specifically, this City shares the Watershed basins, defined by Penitencia Creek, Scott Creek Berryessa Creek and Coyote Creek with the cities of Fremont and San Jose.

The City will be communicating with the above agencies to note the identified areas at risk in the event of SSOs and working to develop strategies for joint response, when practical, to contain and prevent SSOs from reaching fishable creeks or receiving waters to the Bay.

Communication with other local Watershed Stakeholders

California Water/Wastewater Agency Response Network (CalWARN) was established with a mission to support and promote statewide emergency preparedness and mutual assistance for member public and private water and wastewater utilities, has been active for approximately 12 years. The organization is divided into six regions within the state. The cities of Milpitas and Santa Clara are currently members of CalWARN. Within Santa Clara County the City of Sunnyvale, California Water Service Company, San Jose Water Company, San Jose Municipal Water System and Santa Clara Valley Water District are also members. Membership in this organization of all the tributary agencies and others having common watershed interests, would be a first step toward accomplishing the stated objectives above described and is encouraged. Additional information for CalWARN can be found at its website www.calwarn.org.