



Memorandum

TO: HONORABLE MAYOR AND
CITY COUNCIL

FROM: James R. Helmer
Katy Allen
John Stufflebean

SUBJECT: SEWER SYSTEM MANAGEMENT
PLAN (SSMP)

DATE: 08-04-08

Approved

Date

8/13/08

COUNCIL DISTRICT: City-Wide

RECOMMENDATION

Approval of the City of San Jose's Sewer System Management Plan (SSMP) that is required by State Water Resources Control Board (State Water Board) Order No. 2006-0003 - Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.

OUTCOME

The approval of the SSMP will ensure that the City is in compliance with the State Water Resources Control Board requirement to develop and implement a SSMP and will support the Environment and Utilities Services CSA Outcome 1 – Reliable Utility Infrastructure.

BACKGROUND

On May 2, 2006, the State Water Board adopted Order No. 2006-0003 - Statewide General Waste Discharge Requirements for Sanitary Sewer Systems. The Order requires public agencies that own or operate sanitary sewer systems to develop and implement a SSMP aimed at reducing sanitary sewer overflows (SSOs). It also requires these agencies to report all SSOs to the State Water Board. The SSMP must include eleven (11) elements demonstrating how the agency constructs, manages, operates and maintains its sanitary sewer system. These elements are described in the attached SSMP's Executive Summary and are summarized below:

1. Goals of the SSMP.
2. Organization and chain of communications for SSMP.
3. Legal Authority to operate and maintain its sewage collection system.
4. Sewer Collection System Operation & Maintenance Program.
5. Sewer Collection System Design and Performance Provisions.

6. Sewer Overflow Emergency Response Plan.
7. Fats, Oil and Grease Control Program.
8. Collection System Evaluation and Capacity Assurance Plan.
9. Operation and Maintenance Monitoring, Management and Plan Modifications.
10. SSMP Program Audits.
11. Communication Program with Public and Stake Holders.

Finally, the Order requires that the governing body for each agency approve its agency's SSMP at a public hearing. This approval must be given in two parts, at two separate times, during the development of the agency's SSMP. The Council approved the first part that addresses the Plan and Schedule for the development of the SSMP in September 2007. This memorandum recommends the adoption of the SSMP in its entirety to meet the second approval requirement.

ANALYSIS

Sanitary sewers often contain high levels of pathogenic organisms and toxic pollutants. Consequently, SSOs have the potential to pollute surface water and groundwater, threaten public health, adversely affect aquatic life and impair the recreational use and aesthetic enjoyment of surface waters. There are many causes of SSOs. Some major causes of SSOs include grease and root blockages in sewer lines, sewer line damage, manhole structure failures, pump station outages or failures, excessive storm or ground water inflow and infiltration, sewer system aging, various operation and maintenance issues and/or insufficient capacity. Many SSOs are preventable using source control measures and by improving management, operation, and maintenance of the sewer system. The purpose of the City's SSMP is to implement source control measures and improve the management, operation and maintenance of the sewer system in order to reduce the number of SSOs and mitigate the impacts of the SSOs that do occur.

The Department of Transportation (DOT), in collaboration with the Department of Public Works (DPW) and the Environmental Services Department (ESD), has prepared the City's SSMP. The executive summary of the Plan is attached. The Plan is posted on Department of Transportation's Website:

http://www.sanjoseca.gov/transportation/supportfiles/Sanitary_System_Management_Plan/ssmp_document_REVISED.pdf

In addition to compliance with the Order, the plan will work toward reducing SSOs by improving the design construction, management, operation, and maintenance of the City's sanitary sewer system. The document will be re-evaluated regularly and improvements will be implemented as deemed appropriate.

EVALUATION AND FOLLOW-UP

The City is required by the State Water Board's WDR to monitor implementation of the SSMP elements, measure the effectiveness of SSMP elements in reducing SSOs, and evaluate the success of the preventive maintenance program. The effectiveness should be evaluated by developing and tracking performance indicators on a regular basis. The City staff will make sure the SSMP remains current and useful over time, and update program elements, as appropriate, based on monitoring or performance evaluation.

The Environmental and Utilities Services CSA evaluates the reliability of the sanitary sewer system by measuring the percent of sanitary sewer lines in working condition. The City evaluates and reports on the number of sanitary sewer blockages that occur each year and the percentage that are cleared within four hours. The City also prepares progress reports documenting the effectiveness of the SSMP, potential changes and program activities on a periodic basis. In addition, City staff will bring forward any policy or resource allocation decisions required by or resulting from the SSMP at the appropriate time.

POLICY ALTERNATIVES

Not applicable.

PUBLIC OUTREACH/INTEREST

- Criterion 1:** Requires Council action on the use of public funds equal to \$1 million or greater. **(Required: Website Posting)**
- Criterion 2:** Adoption of a new or revised policy that may have implications for public health, safety, quality of life, or financial/economic vitality of the City. **(Required: E-mail and Website Posting)**
- Criterion 3:** Consideration of proposed changes to service delivery, programs, staffing that may have impacts to community services and have been identified by staff, Council or a Community group that requires special outreach. **(Required: E-mail, Website Posting, Community Meetings, Notice in appropriate newspapers)**

ESD and DOT conduct extensive public outreach and education to residents and businesses related to sanitary sewer overflows, preventing grease blockages and Best Management Practices for handling of grease waste. Residential education on the negative impacts of discharging fats, oil, and grease (FOG) into the sanitary sewer system includes targeted radio advertisements and public service announcements, distribution of "grease scrappers" with the message, information at community events and garbage bills inserts. Additionally, ESD inspects all food service facilities on a one to three year frequency for compliance with grease removal device maintenance requirements, and distributes educational materials during these inspections. ESD also conducts the plan checks for all new and remodeling restaurants and other food service facilities to determine proper grease removal device sizing.

In areas where a sewer overflow is attributed to the build up of FOG in the sewer pipes, DOT canvasses the vicinity with multi language door hanger type flyers notifying the neighbors of the event and reinforcing the message to avoid pouring these items into the drains and describe their negative impacts. Both the annual mailer and the door hanger provide information in English, Spanish, and Vietnamese.

The last two elements of the SSMP – Communication Program and Final SSMP Implementation – require the City to communicate on a regular basis with the public on the development, implementation and performance of the SSMP. In order to accomplish this, the staff has conducted outreach by posting the SSMP on the City website and soliciting public input. The stakeholders such as developers, contractors, and plumbers whose business could be impacted by certain requirements or elements of the SSMP have been contacted and their inputs have been encouraged. In addition, the staff has disseminated information to plumbers and sewer contractors regarding the need to reduce SSOs.

The City has conducted meetings with the tributary agencies which share the City sanitary sewer system, and has incorporated their comments in the SSMP.

COORDINATION

This memorandum has been coordinated with the City Attorney's Office and the City Manager's Budget Office.

FISCAL/POLICY ALIGNMENT

Not Applicable.

COST SUMMARY/IMPLICATIONS

There are no fiscal impacts at this time. Approval of the SSMP does not require additional funding. However, additional funding may be required in the future as changes in the SSMP are developed by the City or directed by the State Water Board. For example, the State Water Board may determine that an increase in sewer pipe cleaning frequencies is necessary, and therefore, additional maintenance resources are needed. Any additional funding needs as a result of changes in the SSMP will be quantified and brought forward during future budget processes.

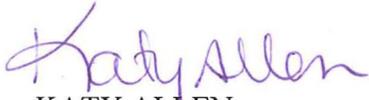
BUDGET REFERENCE

Not Applicable.

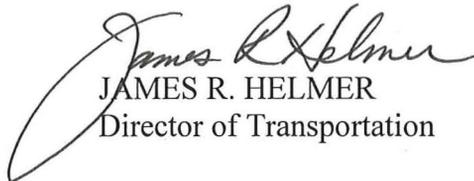
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CEQA

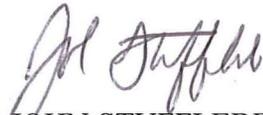
CEQA: Not a Project



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For questions please contact Kevin O'Connor, Deputy Director, at (408) 277-3028.

Attachment



City of San Jose
Sewer System Management Plan

EXCECUTIVE SUMMARY

The State Water Resources Control Board (State Water Board) has, by Order No. 2006-0003, required public agencies that own or operate sanitary sewer systems to develop and implement a Sewer System Management Plan (SSMP) aimed at reducing sanitary sewer overflows (SSOs). It has also required these agencies to report electronically all SSOs to the Board.

The SSMP must describe how the City of San Jose (City) constructs, manages, operates, and maintains its sanitary sewer system by addressing each of the 11 elements of the plan. These elements are summarized below:

1. Goals of the SSMP
2. Organization and Chain of Communications for SSMP
3. Legal Authority to Operate and Maintain Sewage Collection System
4. Sewer Collection System Operation & Maintenance Program
5. Sewer Collection System Design and Performance Provisions
6. Sewer Overflow Emergency Response Plan
7. Fats, Oil and Grease Control Program
8. Collection System Evaluation and Capacity Assurance Plan
9. Operation and Maintenance Monitoring, Management and Plan Modifications
10. SSMP Program Audits.
11. Communication Program with Public and Stake Holders

The following is a summary of the City's SSMP.

ELEMENT 1 - GOALS

The goals of the SSMP are to enable the City to achieve the following:

- Eliminate/minimize both dry weather and wet weather sanitary sewer overflows.
- Mitigate the impact of sanitary sewer overflows that do occur.
- Properly manage, operate and maintain all parts of the wastewater collection system.
- Provide adequate capacity to convey peak flows.

ELEMENT 2 - ORGANIZATION

The names and positions of staff responsible for developing and implementing the SSMP are as follows:

DOT James R. Helmer, Director
Joe Vafa, Senior Civil Engineer
Philip Lee, Associate Engineer
Robert Sgambati, Sewer Maintenance Superintendent

DPW Katy Allen, Director
Michael O'Connell, Division Manager
Thuy Nguyen, Senior Civil Engineer
Shelley Guo, Associate Engineer

ESD John Stufflebean, Director
John Mukhar, Senior Civil Engineer
Stephen Lowes, Sanitary Engineer

ELEMENT 3 – LEGAL AUTHORITY

The City has the legal authority to construct, maintain, and operate its sanitary sewers as well as implement and enforce the requirements of the SSMP. The following principal documents provide the City with this authority:

- Chapter 15.14 of the SJMC; Ordinance 27626 describes sewer use regulations, including control of infiltration and inflow into the sewer system.
- Chapter 19.32 of the SJMC; Ordinance 26386 describes the installation, provisions for maintenance easements, testing, and inspection of new and rehabilitated sewers by developers and associated fees.
- Chapters 15.16 and 15.17 of the SJMC describe the sewer connection programs, procedures and fees.
- The City's Standard Specification and Standard Plans adopted in 1992 provide the required design and construction standards for new and rehabilitated sewers and sewer connections.

ELEMENT 4 – OPERATION & MAINTENANCE

The sanitary sewer collection system consists of approximately 2,200 miles of sewer pipes, 35,000 manholes, 16 pump stations, and other related infrastructure. The City operates and maintains the sanitary sewer system through a balanced Sanitary Sewer Maintenance Program that includes the following elements.

System Inventory and Mapping – The City's sanitary sewer collection system assets are fully inventoried in an Oracle Spatial database system that is able to provide full mapping capability and asset attribute descriptions. Updates to the data are made regularly in order to accurately reflect conditions in the field.

Preventive Operations and Maintenance – The City constantly monitors sanitary sewer blockages and other conditions that indicate the need for regular cleaning maintenance. Cleaning cycles are established and performed based on this assessment and can range from monthly to 15 years. Regularly scheduled maintenance is also performed on all pump stations.

Rehabilitation and Replacement – The City has a 5-year Sanitary Sewer Capital Improvement program designed to adequately manage system capacity and rehabilitate and replace infrastructure. The City's current 2008-2012 sewer capital program is approximately \$100 million. Approximately \$68 million is allocated for major interceptor and neighborhood collection system rehabilitation and replacement projects throughout the City.

Training – City staff responsible for maintaining the sewer system are thoroughly trained and experienced in performing the duties required to safely and effectively operate and maintain the sewer system. Employees are trained and certified to follow standard operating procedures for all sewer cleaning, repair and other maintenance functions. Employees are trained and required to hold special licenses and competency certifications in order to properly and safely operate vehicles and equipment. Employees are also rotated among different crews and sections to learn new skills and maintain existing skills.

Contingency Equipment & Replacement Inventories – The General Services Department works closely with the operations and maintenance staff to ensure vehicles are functioning properly and safely. Replacement equipment needs are evaluated annually and considered during the budget process.

Condition Assessment - The City is currently implementing a project to begin assessing the physical conditions of the sanitary sewer system. This assessment will be critical in identifying future system rehabilitation and replacement priorities and funding needs.

ELEMENT 5 – DESIGN AND PERFORMANCE PROVISIONS

The City utilizes industry standards as well as its own design, construction, and performance provisions for the installation of new sanitary sewer systems and the rehabilitation or repair of existing systems. These standards and provisions include, among other things, design procedures, construction standards, materials specifications, and a level of service policy that are necessary to have an effective sewer system. The following are the documents where these standards and provisions are found:

- San Jose Standard Specifications and Standard Details for Construction (1992)
- San Jose Design Guidelines for Sanitary Sewers (1991)
- San Jose Sanitary Sewer Design Procedures
- San Jose Sanitary Sewer Level of Service Policy (1982)
- Caltrans Standard Specifications

- National Public Works Standards (Greenbook)
- San Jose Construction Inspection Guidelines
- San Jose Material Testing Laboratory requirements

ELEMENT 6 – OVERFLOW EMERGENCY RESPONSE PLAN

The City responds to sanitary sewer overflows and other sewer system emergencies according to a well established emergency response plan. This plan covers the necessary procedures and timeframes for properly handling an incident and mitigating its impacts, including:

- Incident assessment
- Personnel contact and deployment
- Maintenance actions
- Environmental impact mitigation measures
- Public notification
- Internal and interagency communications and reporting
- On-going incident and system monitoring

ELEMENT 7 – FATS, OIL & GREASE (FOG) CONTROL

Fats, oils, and greases (FOG) are the primary reason for most sanitary sewer blockages. FOG are introduced into the sewer system from various sources, including residences, industrial businesses, and restaurants. The City has a FOG program that provides a balanced approach to address the problem, as summarized below:

Building Design and Construction Standards – The City requires that grease removal devices be installed in certain applications, such as restaurants. Procedures are in place to ensure this occurs during the plan review, permit issuance, and inspection processes.

Standard Restaurant Inspections – All restaurants and other food service facilities are regularly inspected to ensure grease production, collection, and disposal are occurring properly. Enforcement actions are taken against any restaurant that is not in compliance.

Sewer Pipe Investigations – Inspectors will investigate areas of concern where there is an indication that excess grease is accumulating to determine the source of FOG. If identified, appropriate actions are taken to eliminate the source.

Outreach – The City performs a number of outreach efforts to inform the public about the problems caused by FOG and how to reduce or eliminate them. This includes an informational insert in the garbage bill sent to every residential property during the fall, door hangers left by maintenance crews after maintenance has occurred in an area, brochures provided to restaurants and businesses, and occasional local media pieces.

ELEMENT 8 – SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

In 2002, the City initiated Phase 1 of a Sanitary Sewer Master Plan project and completed capacity assessments of the City's South, Central, and North Areas using the 2020 General Plan amended as of January 2003. Phase 2 of the plan was started in 2006 to complete the remaining East and West areas with additional flow monitoring data and recently approved land use policies and General Plan amendments.

The City's master plan takes advantage of new computer technologies and graphical data along with flow monitoring, rainfall data, and rainfall dependent infiltration and inflow analysis to develop proper hydraulic models and capacity needs. This information is combined with various land use planning scenarios to identify sewer system deficiencies and drive the Sanitary Sewer Capital Improvement Program Plan.

ELEMENT 9 – MONITORING, MANAGEMENT AND PLAN MODIFICATIONS

Monitoring, managing and modifying the SSMP are necessary to ensure its effectiveness. The City currently maintains and evaluates a number of performance indicators used to monitor and manage the SSMP as well as the Sanitary Sewer Maintenance program. Some of these indicators are listed below:

- Number of SSO per year
- % of sewer lines without obstructions
- % of blockages cleared within 4 hours
- % of repairs completed within established timeframes
- Miles of sanitary sewer lines cleaned
- Miles of sanitary sewer lines inspected

In addition, the City annually submits a SSO report to the Region 2 Water Board for their review.

ELEMENT 10 - SSMP PROGRAM AUDITS

The City has prepared a comprehensive approach to annually evaluate the effectiveness of each element of the SSMP and will continue to work with other agencies throughout the Bay Area to identify and implement best management practices through the SSMP.

ELEMENT 11 – COMMUNICATIONS PROGRAM

The City has performed effective communications and outreach to the public, stakeholders, satellite agencies on the development, implementation and performance of the SSMP. These efforts are described below:

Satellite Agencies - The City is, has and will continue to facilitate regular meetings to work with the neighboring agencies on subjects such as future improvements to SSMP, master plan, capacity issues, emergency response plans, and capital programs.

General Public - A link on the City's website was provided to encourage review and comment on the SSMP sections as it was developed. A contact is also provided on the website for direct communications and discussions.

Land Developers, Consulting Engineers, and Contractors – Information was disseminated about the SSMP in meetings and by flyers as part of the usual business engagement.