

**WEST VALLEY SANITATION DISTRICT
OF SANTA CLARA COUNTY**



SEWER SYSTEM MANAGEMENT PLAN

WDID: 2SS010217

(Accepted by District Board: August 8, 2018)

Revised 9/16/20 to Reflect 2020 SSMP Audit Revisions

**WEST VALLEY SANITATION DISTRICT
SEWER SYSTEM MANAGEMENT PLAN**

TABLE OF CONTENTS

(TOC Revised 9/16/20 to Reflect 2020 SSMP Audit Revisions)

INTRODUCTION

SSMP ELEMENTS

Section I	Mission, Goals and Objectives
Section II	Organization
Section III	Legal Authority
Section IV	Operation and Maintenance Program
Section V	Design and Construction Standards
Section VI	Overflow Emergency Response Plan
Section VII	Fats, Oils, and Grease (FOG) Control Program
Section VIII	Capacity Management
Section IX	Monitoring, Measurement, and Program Modifications
Section X	SSMP Program Audits
Section XI	Communication Program

APPENDICES

Appendix A	
A.1	2020 Board of Directors
A.2	FY2018-23 Strategic Plan
A.3	FY2020-21 Strategic Objectives & Action Items
A.4	FY2020-21 Organization Chart
A.5	2020 Contact List
A.6	Ordinance Codes (Ch 6, 7,13, & 14)

**WEST VALLEY SANITATION DISTRICT
SEWER SYSTEM MANAGEMENT PLAN**

TABLE OF CONTENTS

(TOC Revised 9/16/20 to Reflect 2020 SSMP Audit Revisions)

Appendices (Continued)

Appendix B

- B.1 FY2020-21 O&M Budget
- B.2 Sewer and Storm Drain GIS Map
- B.3 Sewer Main Inventory
- B.4 Geozone Cleaning Map
- B.5 Pump Station Map
- B.6 CCTV Sub-Basin Map
- B.7 CoF/LoF/Risk Matrix
- B.8 CoF/LoF/Risk Maps
- B.9 5-Year CIP Budget, CIP Project List and Map
- B.10 CWEA and NASSCO Certifications
- B.11 Maintenance Vehicles and Emergency Equipment

Appendix C

- C.1 Overflow Emergency Response Plan
- C.2 Pump Station Emergency Response Plans
- C.3 Water Quality Monitoring Plan

Appendix D

- D.1 Introduction Letter to FSE
- D.2 FSE Inspection SOP

**WEST VALLEY SANITATION DISTRICT
SEWER SYSTEM MANAGEMENT PLAN**

TABLE OF CONTENTS

(TOC Revised 9/16/20 to Reflect 2020 SSMP Audit Revisions)

Appendices (Continued)

- D.3 FOG Outreach – BMP
- D.4 FOG Map
- D.5 Residential FOG Outreach

Appendix E

- E.1 Hydraulic Model Map
- E.2 2018 Hydraulic Analysis
- E.3 Hydraulic Deficiency and Priority Map
- E.4 2016 I/I Study
- E.5 2018 Smoke Testing Report
- E.6 CIP Project Map

Appendix F

- F.1 Annual SSO Report for 2019
- F.2 SSMP Development and Revision History
- F.3 2020 SSMP Audit Report

Appendix G

- G.1 FOG Outreach Materials
- G.2 BACWA Brochure - SSOs
- G.3 BACWA Brochure - Sewer Laterals
- G.4 WEF Brochure – It's a Toilet

**WEST VALLEY SANITATION DISTRICT
SEWER SYSTEM MANAGEMENT PLAN**

TABLE OF CONTENTS

(TOC Revised 9/16/20 to Reflect 2020 SSMP Audit Revisions)

Appendices (Continued)

G.5 WPSU - Liquid Assets Video

G.6 Public Recognition of District Logo and Services

Appendix H

H.1 RWQCB File 1210.57 (AMP), November 15, 2004

H.2 RWQCB File 1210.57 (MTC), July 7, 2005

H.3 SWRCB Order WQ 2006-0003-DWQ

H.4 SWRCB Order WQ 2008-0002-EXEC

H.5 RWQCB Letter-Discontinue Annual Report, October 3, 2012

H.6 SWRCB Order WQ 2013-0058-EXEC

Appendix I

I.1 SSMP Revision Detail

I.2 Historical Board Actions Approving SSMPs & SSMP Audits

WEST VALLEY SANITATION DISTRICT SEWER SYSTEM MANAGEMENT PLAN

INTRODUCTION

This Sewer System Management Plan (SSMP) is a document that describes the activities performed West Valley Sanitation District (District) to efficiently and effectively operate, maintain, and manage its wastewater collection system. The utilization of the SSMP by wastewater agencies that own collection systems has proven to reduce the overall number and frequency of sanitary sewer overflows (SSOs) and has decreased the associated risk to human health and the environment in each respective community throughout California. The District's SSMP was prepared in accordance with requirements established by the San Francisco Bay - Regional Water Quality Control Board (RWQCB) and the State Water Resources Control Board (SWRCB) and was initially adopted by the District Board on August 13, 2008.

As required by SWRCB Order WQ2006-0003-DWQ, this SSMP requires re-certification by the District Board every five years and must undergo an audit every two years. The last SSMP Audit was performed in April 2018 and the resulting updates and revisions are reflected in this document. The SSMP was presented to the District Board and was adopted and re-certified on August 8, 2018.

District Background

The District was formed in 1948 as County Sanitation District No. 4 of Santa Clara County under the provisions of the California County Sanitation District Act. In 1988 the District changed its name to West Valley Sanitation District of Santa Clara County, to better reflect its geographical service area. The District provides wastewater collection and disposal services to the cities of Campbell, Monte Sereno, a portion of Saratoga, the Town of Los Gatos, and the intervening unincorporated areas of Santa Clara County (Figure 1). The District Board consists of five representatives from each of the respective member entities. A list of the District's Board of Directors is provided in Appendix A.1. The District serves approximately 111,000 residents and its service area encompasses 28.3 square miles. The District owns and maintains approximately 415 miles of sewer mains and 210 miles of lower sewer laterals, for a total of 625 miles of sewer system.

Regulatory Background

The San Francisco Bay Regional Water Quality Control Board (RWQCB) established requirements for reporting of sanitary sewer overflows (SSOs) and submittal of an Annual SSO Report to the RWQCB in their letter dated November 15, 2004 (Ref. Appendix G.1, File No. 1210.57 (AMP)). Monitoring and Reporting Program (MRP) Requirements are attached to this letter.

In a letter dated July 7, 2005 the RWQCB notified all collection system agencies in the region that the preparation of a Sewer System Management Plan is required pursuant to Section 13267 of the California Water Code (Ref. Appendix G.2, File No. 1210.57 (MTC)).

Completion dates beginning August 31, 2006 and ending on August 31, 2008 were assigned to various groups of SSMP Elements. The District prepared its original SSMP in compliance with these requirements, with the District Board adopting the entire SSMP on August 13, 2008.

Pursuant to California Water Code Section 13263, the SWRCB issued Order 2006-0003-DWQ Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, as adopted by the SWRCB Board on May 2, 2006 (Ref. Appendix G.3). This Order established a statewide requirement for the development of a system-specific SSMP and initiated a statewide MRP that required SSO reporting to the California Integrated Water Quality System (CIWQS). Category 1 and Category 2 SSO spill designations were established through this Order. Additionally, the Order established the requirement to update and re-certify SSMPs every five years and perform an audit of the SSMP every two years.

The MRP requirements in Order 2006-0003-DWQ were amended by SWRCB Order 2008-002-EXEC, which was transmitted by letter dated February 20, 2008. The amendments were provided with the letter as Attachment A to Order 2006-0003-DWQ (Ref. Appendix G.4).

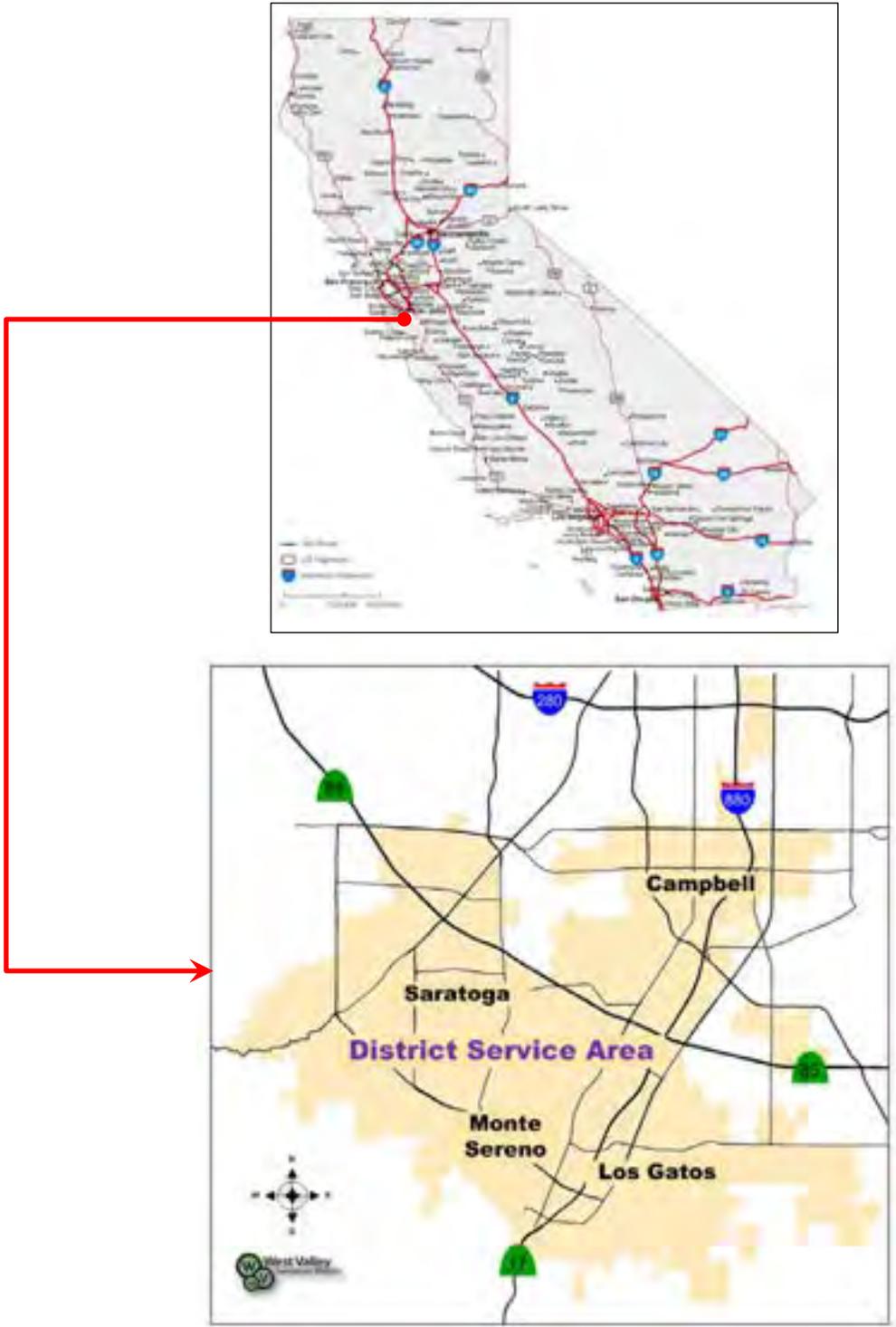
On August 29, 2012, the District and the Northern California River Watch (River Watch) entered into an agreement requiring the District to satisfy a number of obligations with regard to its maintenance operations, repair prioritizations, water quality testing requirements, and implementation of a Supplemental Environmental Project (SEP). This agreement has a termination date of ten (10) years and each obligation has an associated completion deadline. These obligations are discussed in the applicable sections of this SSMP and are referenced as a River Watch requirement.

Submittal of Annual SSO Reports and Annual SSMP Audits to the RWQCB was discontinued per RWQCB letter dated October 3, 2012 (Ref. Appendix G.5). This letter effectively rescinded, except for enforcement purposes, the RWQCB's Water Code Section 13267 orders issued on November 15, 2004, and July 7, 2005. The SSMP Audit requirement established by the SWRCB was unaffected by this letter and continues to be performed every two years by early May.

The SWRCB issued Order No. WQ 2013-0058-EXEC, Amending Monitoring and Reporting Program for the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems by letter dated July 30, 2013 (Ref. Appendix G.6). This Order changed the definitions for SSO spill designations and added a third (Category 3) spill designation. It also defines new procedures for notification, reporting, monitoring, and record keeping. The primary impact to this SSMP was a need to modify Section VI – Overflow Emergency Response Plan, but more significantly, the need to revise the District's Sanitary Sewer Overflow and Backup Response Plan. The required changes to the MRP became effective on September 9, 2013.

Figure 1

**West Valley Sanitation District
Vicinity Map and Service Area**



SECTION I

MISSION, GOALS, AND OBJECTIVES

The District's Mission, Vision, Values, Goals, and Objectives described below are cited in the District's current Strategic Plan that was adopted by the District Board on April 11, 2018. The District Strategic Plan covers the period from Fiscal Year 2018-19 to Fiscal Year 2022-23 and is a dynamic document that will be continuously reviewed and updated to ensure the District is working towards its Vision of being a Bay Area industry leader. The District Strategic Plan and its Goals will be re-examined every five years, while the Objectives and Action Items will be reviewed on an annual basis. The Mission and Vision Statements, Values, and Goals are:

Mission Statement

To protect public health and the environment for the communities it serves through the safe, reliable, and cost-effective collection and conveyance of wastewater for treatment at the San José-Santa Clara Regional Wastewater Facility

Vision Statement

To be an industry leader in the greater San Francisco Bay Area by providing our customers with high-quality and value added services

Values

The District strives to create an environment of continuous improvement by demonstration of it's:

- Commitment to public good
- Transparency of operations
- Continuous environment of teamwork
- Respect for others and diversity of opinions
- Adherence to high ethical standards and integrity
- Encouragement of innovation and continuous improvement to provide cost-effective, high-quality service
- Responsive and respectful customer service

Goals

The following District Goals supports its Mission and establishes a strategic foundation for achieving its Vision.

A. Business and Financial Management

Provide cost-effective, financially sustainable, quality services through improved business and work processes.

B. Sewer System Management

Ensure uninterrupted collection and conveyance of wastewater through effective and efficient operation, maintenance, and management of the District's wastewater collection system.

C. Communication & Customer Service

Continuously improve the District's understanding and responsiveness to its customers and employees through increased collaboration and communication.

D. Work Environment

Provide a safe and supportive work environment to increase morale and to address the challenges of a changing workforce by retaining, attracting, and motivating a high quality and high performing staff.

Objectives and Action Items

There are a number of Objectives that have been developed for each Goal which in turn are supported by Action Items. The highest priority Action Items are developed each fiscal year by the District's Leadership Group (Executive Management and Department Supervisors). These Action Items and associated Objectives are presented to the District Board for their adoption. The entire list of Objectives in the District Strategic Plan is presented below, while the entire Strategic Plan is included as an Attachment (Ref. Appendix A.2, FY2018-19 to FY2022-23 Strategic Plan). The Objectives and Action Items adopted for FY2018-19 are provided in Appendix A.3. Note that the numbering scheme for Objectives coincides with that used for the listed Goals above.

GOAL A

- | | |
|---------------|--|
| Objective A.1 | Continuously improve business processes to achieve a highly effective, efficient, and seamless workflow. |
| Objective A.2 | Ensure all fiscal program elements and processes are transparent, sustainable, and fiscally sound. |

Objective A.3 Maintain effective strategic partnerships with regulatory and other stakeholder agencies to ensure mutually supportive and respectful relationships and to achieve delivery of exceptional District services.

Objective A.4 Effectively serve the public and protect District interests by ensuring all District Codes, Ordinances, Standards, Policies, and Procedures satisfy current laws, regulations, and best management practices.

GOAL B

Objective B.1 Optimize accuracy, scope, and security of data records utilized for all District functions.

Objective B.2 Ensure the sustained function and longevity of the District's infrastructure.

Objective B.3 Optimize District-wide proficiency by providing adequate physical resources and ongoing development of highly competent personnel.

Objective B.4 Identify and implement strategies to improve Operational efficiency and effectiveness.

GOAL C

Objective C.1 Improve focused Customer Outreach efforts to increase awareness of District's services that are available to the community.

Objective C.2 Enhance the level of Communication and Customer Service with each public interaction.

Objective C.3 Strive for continuous improvement and excellence across all District functions.

GOAL D

Objective D.1 Retain, attract, and motivate high quality and high performing staff.

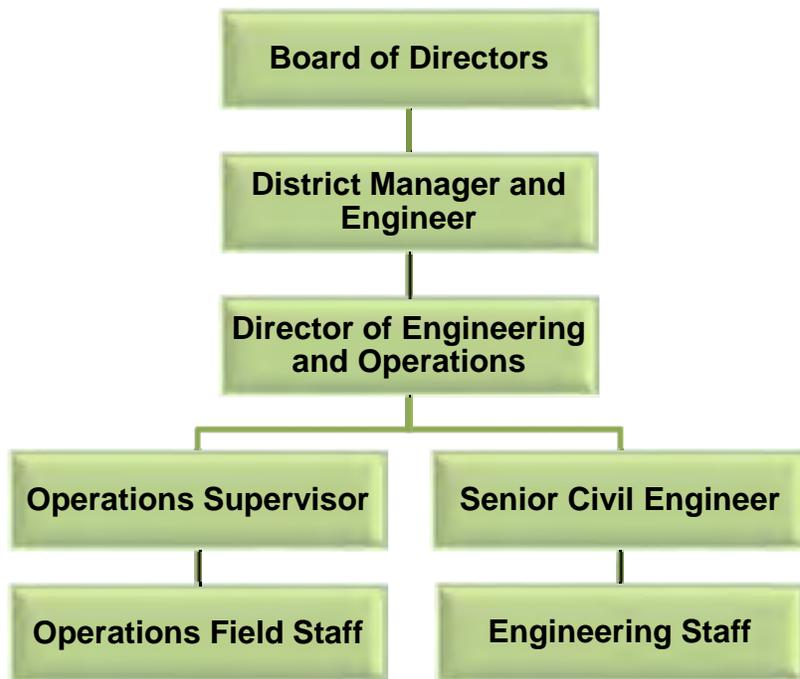
Objective D.2 Provide sufficient training and work experience opportunities throughout the District to encourage knowledge and skill development.

Objective D.3 Improve staff interaction and internal communication.

SECTION II – ORGANIZATION

Organization Chart

The abbreviated organization chart and position descriptions provided below identify District staff responsible for the implementation, management, and maintenance of the SSMP. The current organization chart for the entire District is provided in Appendix A.4.



Board of Directors – The District Board of Directors is governed by a five-member Board of Directors, comprised of the elected officials from each of the four municipalities in the District’s jurisdiction, and one member from the County of Santa Clara Board of Supervisors (Ref. Appendix A.1). At the beginning of each year, the municipalities and the County appoint one elected official to serve on the District Board for the subsequent year one year term. The Board’s function is to provide proper governance of the District to ensure that its policies and activities are in alignment with the needs and desires of the community served. The Board is responsible for approval of the certified SSMP as presented by the District Manager and Engineer.

District Manager and Engineer – The District Manager and Engineer is appointed by the District’s Board. The District Manager and Engineer is the chief administrative officer of the

District and is responsible for the overall development and implementation of the District's SSMP. The District Manager also serves as the District's Public Information Officer (PIO).

Director of Engineering and Operations - The Director of Engineering and Operations plans, manages, oversees and directs District-wide systems engineering, repair and maintenance, project design, construction management, project inspection and contract management. The Director coordinates the development and implementation of the District's SSMP and certifies that it is in compliance with the requirements set forth in SWRCB WDR Orders. The Director is designated as a Legally Responsible Official (LRO) for the District and authorized to certify reports made to the California Integrated Water Quality System (CIWQS) Program and is ultimately responsible for notification and reporting SSOs to the appropriate regulatory agencies.

Operations Supervisor – The Operations Supervisor plans, organizes and evaluates the work of Operations Field staff responsible for operation, cleaning, inspection, repair and maintenance of the District's sewer collection system. The Operations Supervisor leads emergency responses and investigations of SSO's and ensures these are appropriately documented for reporting purposes. The Operations Supervisor is also designated as a LRO and is typically the individual certifying SSO reports submitted to CIWQS. In the case of Category I SSOs, the Operations Supervisor has the responsibility to report these to CalEMA-OES within the required two-hour notification requirement.

Operations Field Staff – Operations Field Staff operate, clean, inspect, repair and maintain the District's sewer collection system. The Operations Field staff is responsible for responding to service requests including SSOs in accordance with the District's Sanitary Sewer Overflow and Backup Response Plan. SSOs are initially investigated and documented by field staff. The Supervising Lead Worker is designated as a Data Submitter for CIWQS and is typically the individual entering initial SSO data.

Engineering Staff – Engineering staff is responsible for the development and enforcement of the District's engineering standards. Engineering staff develops and manages the District's CIP and sanitary sewer repair programs. Engineering staff is also responsible for the review of proposed developments to verify that sufficient system capacity is available and ensure that new facilities are designed and installed in accordance with District standards. Engineering studies and programs that support the development of the District's CIP is also the responsibility of this department; e.g., Flow Monitoring, Hydraulic Modeling, Risk Based Prioritization Assessments, etc.

SSO Incident Command – In the event that command personnel are absent, the specific order of command is as follows:

District Manager → Director of Engineering and Operations → Operations Supervisor → Supervising Lead Worker → Lead Worker

Contact Information for the above individuals are provided in Appendix A.5.

Sanitary Sewer Overflow Response – The District office is open Monday through Friday, except for District holidays, from 7:30 am to 4:30 pm. All normal work hour service calls are referred directly to the Supervising Lead Worker or Operations Supervisor for dispatch of the required maintenance staff and equipment. All after hours calls are routed to the Santa Clara County Emergency Radio Communications Center who then directly notifies the District's on-call field operations staff. The on-call field operations staff person is furnished with a District service truck and cell phone to facilitate a timely response. If the SSO is determined to be a Category I event, the two-hour CalEMA-OES notification is made by the Supervising Lead Worker, Operations Supervisor, or if unavailable, the Director of Engineering and Operations.

SECTION III – LEGAL AUTHORITY

Legal Authority of the District

Portions of the District Ordinance Code provide specific legal authority for the District to manage its wastewater collection system. The general areas of concern related to this SSMP are summarized below followed by the specific authority citations that address these areas. These Ordinance Chapters are provided in Appendix A.6.

- Prevent illicit discharges into its wastewater collection system
- Require that sewers and connectors be properly designed and constructed
- Ensure access for maintenance, inspection, or repairs for portions of the system owned or maintained by the District
- Limit the discharge of fats, oils, and grease (FOG) and other debris that may cause blockages
- Enforce any violation of its sewer ordinances

Authority to Prevent Illicit Discharges into District’s Wastewater Collection System

Chapter 7 of the District’s Ordinance Code, *Use of Public Sewers*, regulates the disposal of sanitary sewage into the District’s sanitary sewer system to protect the proper functioning of the collection system as well as the treatment plant. Chapter 7 includes, but is not limited to the following key provisions:

- | | |
|-------------------|--|
| 7.050 | <u>Discharge Into Sanitary Sewer System Prohibited</u> (without permit) |
| 7.080 | <u>Pretreatment by Owner</u> |
| 7.100 to
7.260 | <u>Discharge Prohibitions and/or Limits</u> (prohibition for storm water, obstructing or injurious substances, flammable or explosive substances, hot substances, FOG, solid or viscous matter, corrosive matter, toxic gases, vapors, or fumes, interfering substances, prohibition on use of diluting waters, copper based chemical compounds, suspended solids; dissolved matter, noxious or malodorous matter, radioactive matter, colored matter, garbage, and screened industrial waste) |

Authority to Require Proper Design and Construction of Sewers and Connections

Chapter 6 of the District’s Ordinance Code, *Design and Construction of Public Sewers*, establishes the standards and criteria to which sewers are to be constructed and connected to the District’s wastewater collection system. Chapter 6 includes, but is not limited to the following key provisions:

- 6.020 Design of Sewers (by a state licensed civil engineer and conformity to District's Design Standards and Specifications)

- 6.030 to Permit for Construction Required and Construction of Sewers
6.040 (permitted construction by approved contractors and required inspection)

- 6.050 to Backflow Protective Device (cites requirement, criteria, and
6.080 standards for installation)

- 6.090 Responsibility for Defects (persons performing work on or adjacent to District sewer is responsible for correcting defects/violations)

Authority to Ensure Access for Maintenance, Inspection and Repair of System

District Ordinance Code Section 6.100 Building Sewer Maintenance outlines the obligations of the District and property owners with regard to maintenance of the wastewater collection system and to ensure that the District can maintain laterals from the property line cleanout to the sewer main in the street. This Section also defines the responsibilities and obligations of the District and the property owner.

Authority to Limit Discharge of Fats, Oils and Grease and Other Debris

District Ordinance Code Section 7.140 Grease, Oils and Fats provides a limit on the concentration of Fats, Oils and Grease (FOG) that can be discharged to the District's sanitary sewer system. District Ordinance Code Section 7.250 Garbage prohibits the discharge of garbage (fruit, vegetable, animal, other solid waste) from food-processing plants, or industrial plants, grocery store, food service facility, or dwelling into the wastewater collection system. District Ordinance Code Section 7.270 Installation of Grease Control Devices and 7.280 Maintenance and Operation of Grease Control Devices requires the installation, operation, and maintenance of FOG removal devices and maintaining operation and maintenance records.

Authority to Enforce Ordinance Code Violations

Three chapters of the District Ordinance Code addresses enforcement actions with regard to Ordinance Code violations; Chapter 7, *Use of Public Sewers*, Chapter 13, *Prohibitions and Penalties*, and Chapter 14, *Administrative Enforcement*. Section 7.390 Enforcement provides the District Manager and Engineer, or his designated agents, the primary responsibility for enforcing the provisions of Chapter 7. Sections 13.010 through 13.060 provide the enforcement provisions for violation of any section of the District's Ordinance Code. Chapter 14 provides the District the ability to utilize an administrative enforcement mechanism in addition to the civil and criminal legal remedies provided in the Ordinance. These provisions include:

- 7.310 Suspension of Service (for preservation of public health or safety)

- 7.390 to Enforcement, Termination of Service, Penalties (enforcement

- 7.420 authority, termination of service and permit, reimbursement of violation correction costs, and assessment of civil penalties)
- 13.010 to Inspection, Violation, Disconnection (right of entry for Inspection, violation a misdemeanor, abatement of violation, disconnection)
13.060
- 14.030 Administrative Citations (authority to issue administrative citations to persons responsible for violation of Ordinance Code)
- 14.040 to Establishment/Collection of Fines, Penalties, and Late Charges
14.050 (setting and payment of fines, penalties, and late charges)

SECTION IV

OPERATIONS AND MAINTENANCE PROGRAM

The Operation and Maintenance (O&M) Program is essential to the fulfillment of the District's mission to serve the residents and businesses within its service area and is a significant part of the District's effort in reducing the occurrence of SSOs and mitigating their impact. This program encompasses these major elements:

- A. Resource and Budget Allocation
- B. Computerized Maintenance Management System
- C. Collection System Mapping
- D. Preventive Maintenance
- E. Rehabilitation and Replacement
- F. Staff Training and Certification
- G. Maintenance and Contingency Equipment

A) RESOURCE AND BUDGET ALLOCATION

The District consistently provides adequate resources and budget for its O&M Program. The District's current FY 2018-2019 budget allocates approximately \$3.2 million for its sewer operations and \$9.5 million for its CIP projects, not including other supporting department staff, or reserves. A summary of the FY2018-2019 Operating Budget is provided in Appendix B.1. Staffing in the Operations Department has been relatively consistent with a workforce of about ten maintenance workers, a supervising lead worker, and a department supervisor. Reference the District Organization Chart in Appendix A.4. In addition to having the responsibility for wastewater collection system operation and maintenance, the Operations Department staff also performs pump station maintenance, fleet maintenance, and some general building and grounds maintenance.

The Operation Department receives the full support and encouragement of the District with regard to training, certifications, and employee development. Acquisition of maintenance equipment, tools, supplies, and repair support needs, is properly planned and budgeted. All District fleet including service trucks, sewer cleaning equipment, and CCTV inspection vans are well maintained and kept in safe and good working order. There is a replacement protocol in place to ensure that its fleet doesn't remain in service beyond its useful life (generally no more than fifteen years old, or over 10,000 engine hours). This effort is supported by earmarking an annual vehicle reserve of over \$600,000.

B) COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM

The Computerized Maintenance Management System (CMMS), referred to as Lucity, was implemented by the District in 2003. It took considerable time to transfer and validate all of the asset information, and requiring several years for the GIS mapping component to be

adequately and accurately populated with the District's collection system. In order to extend the use of GIS mapping and introduce electronic work orders to field staff, the District recognized that it must find an uncomplicated, reliable, and user-friendly hardware and software solution that would provide the same degree of accessibility that was enjoyed in the office environment. At the end of 2012, the District began field integration of the Lucity work order system and GIS mapping. The software selected and presently utilized is referred to as Inframap and is developed by Iwater Inc., while the hardware being utilized consists of Panasonic Toughbook laptops. By 2013 the use of paper sewer maps in the field was eliminated.

In addition to sewer system mapping, maintenance staff have the ability to readily locate themselves in the field through the laptop's GPS feature and activating drawing layers containing aerial maps, property boundaries and addresses, creek locations, and storm drain mapping. This is particularly useful when locating sewer lines in heavily vegetated easements, or when responding to service calls during inclement weather where property addresses may not be visible. Other information available to maintenance staff includes work order lists, pipe cleaning history, and pipe asset information (ID number, diameter, flow direction, segment length, material type, and age). The editing feature in the software allows field staff to provide redline markups when corrections are needed to the mapping, which are then verified and processed by engineering within a few days. The sewer system mapping used in the field is always up-to-date as all changes to the sewer system mapping automatically downloads to the field laptops every afternoon as they are docked and charged.

C) COLLECTION SYSTEM MAPPING

Wastewater Collection System

A significant effort is placed upon maintaining a very complete, accurate, and up-to-date District mapping as an essential component for the proper operation and maintenance of a wastewater collection system. As previously described, all office and maintenance staff rely on the use of Lucity to access collection system mapping. The only District mapping component that the District is continuing to complete is the identification and accurate placement of lower sewer laterals. This is primarily the result of incomplete or unavailable lateral information shown on original Sewer Maps.

The effort to inspect properties to locate and survey lower laterals was initiated in mid-2009 and is referred to as the Lateral Mapping and Maintenance Program. Although not all laterals have a property line cleanout (cleanout), when one is found then it is surveyed utilizing Global Positioning System (GPS) survey equipment. This allows accurate placement of the lower lateral on the GIS map. If no cleanout is found, the laterals are mapped based on available information such as as-built reference distances. The District's experience indicates that approximately one-third of properties inspected are found to have cleanouts. Approximately 28,000 (85%) of the estimated 33,000 known

District laterals have been drawn in GIS with a reasonable degree of accuracy, while the remaining 5,000 lateral locations are in the process of being located.

Storm Drain System

In 2012 the District completed the task of creating a storm system layer in the District's GIS mapping system from original city storm system paper maps. In many cases, the original city storm system mapping was a rough graphical representation of the system requiring significant field verification of structure locations and structure identification numbering.

The availability of the storm system information in the field is vitally important when determining how to intercept an SSO from reaching a storm drain structure, or if already in the storm system, where to intercept the SSO before it discharges into a waterway. An example of a City's storm drain system overlaid on the District sewer collection system (GIS Sewer Map) is included in Appendix B.2.

D) PREVENTIVE MAINTENANCE

There are approximately 415 miles (9,424 lines) of mainline sewer pipe within the District, ranging in diameter from 3 to 39 inches, with nearly 88% of these lines comprised of pipes 6 and 8-inches in diameter. The average age of sewer mainlines in the District's collection system is 48 years old, with the oldest pipe installed in 1915 (103 years old). An inventory of main line sizes within the District is shown in Appendix B.3. It is estimated that the District has approximately 33,000 laterals, which equates to approximately 200 miles of lower lateral pipe. A large majority of these laterals are 4 inches in diameter, although some commercial properties have 6 inch laterals. The District owns three small pump stations, two of which pump in tandem to lift wastewater from the Arroyo Del Rancho residential area, while the third serves the Alta Tierra residential area.

The District has a very effective preventive maintenance program that maintains the integrity of the sewer system and ensures continuous and safe conveyance of wastewater, resulting in a reduced frequency, number, and volume of sanitary sewer overflows (SSOs). The District's preventive maintenance program has evolved into a very proactive program that is designed to locate, identify, and address problems that may exist in the collection system prior to the occurrence of a failure in the system. It is efficient by establishing, where possible, standard cleaning cycles in predetermined geographic areas. By creating large work orders bound within a single geographic area, high productivity is achieved by reducing travel time and utilizing the same work crews for continuity. It should be noted that the District's maintenance program is never static and continues to be re-examined in an effort to improve its efficiency and effectiveness.

The prioritization and scheduling of the District's preventive maintenance program is enhanced by the capabilities of Lucity, which is used to electronically store, track, and manage all operations and maintenance activities pertaining to the collection system.

Maintenance history information, asset information, service call data, cleaning schedules, and closed circuit television (CCTV) data are all kept and managed through the Lucity database. The linking of the District's GIS and Lucity database is a powerful feature for field use and provides office staff the ability to graphically represent or tabulate any collection system asset or historical maintenance data to help facilitate its analysis. The primary components of the sewer system receiving preventive maintenance include main lines, lower laterals, manholes, and pump stations. The District's preventive maintenance program for each component is described below through a discussion of specific maintenance routines, cleaning methods, and service call response procedures.

Sewer Main Maintenance

The cleaning of the District's sewer mains constitutes the largest maintenance activity in the District. Based on prior cleaning history and resource capabilities, it was determined that an effective cleaning frequency to be used for routine mainline maintenance is twenty-four (24) months. To increase efficiency and minimize travel time, the District's service area is divided into twenty-four (24) geographic zones, or Geozones, so that mainline cleaning in a particular zone would generally be cleaned during its designated month, or once every two years (ref. Geozone Map in Appendix B.4.). Since there are different maintenance needs, not all mainline cleaning neatly falls into a 24 month Geozone cleaning and other cleaning frequencies are then utilized. Increased frequencies, or specialty cleaning routines, are required to address mainlines with greater maintenance demands such as siphons (2 months), pipes with FOG and heavy root problems (3 to 12 months), and pipes with minimal slopes (3 to 12 months). The District has also recognized the need for an expanded frequency so a thirty-six (36) month cleaning frequency is assigned for lines greater than 15 inches and those that are replaced or rehabilitated using high density polyethylene (HDPE) or polyvinyl chloride (PVC) pipe. As a result of the varied cleaning frequencies used, the District typically cleans approximately 325 miles of mainline annually. Manholes are accessed and visually inspected during cleaning operations.

Lateral Maintenance

Lateral maintenance is currently one of the District's greatest maintenance challenges. With a total of 33,000 laterals, it is estimated that 11,000 laterals have a cleanout and 22,000 do not. Per District Ordinance, the property owner is responsible for maintenance of the lower lateral if a cleanout has not been installed. Prior to 2009 most lateral maintenance was essentially a reactive program; i.e., maintenance was performed only upon receiving a service call. The only scheduled maintenance used at that time was a six-month lateral cleaning schedule for "problem" laterals. As part of the Lateral Mapping and Maintenance Program, each lateral found with a property line cleanout would receive cleaning and assignment of a cleaning frequency. Cleaning frequencies that are currently utilized have been expanded well beyond the original 6-month list to reflect pipe condition and stoppage history. These cleaning frequencies include: 6, 18, 36 (3 years), 60 (5 years), 120 (10 years), 180 (15 years) and 300 (25 years) months. In special

circumstances, frequencies less than 6 months may be deemed necessary to keep severe problem laterals open while waiting for repairs to be completed. For recently replaced or rehabilitated laterals, pipe material may dictate the cleaning frequency selected. For example, a 300-month frequency may be assigned for laterals using HDPE and PVC pipe, while a 120-month frequency may be assigned for laterals recently spot repaired or rehabilitated using CIPP. The District currently cleans approximately 1,500 laterals annually.

The District is currently examining options on how to improve the pace of lateral cleanout installation. Current District Ordinance requires the property owner to install their own cleanout if their laterals “have, or will experience an unreasonable frequency of blockages”. Although the District has incorporated lateral and cleanout installation into each rehabilitation project, more aggressive approaches should be considered in the future.

Pump Station Maintenance

Each pump station has two grinder pumps (lead, lag) with the two tandem pump stations having 11Hp pumps, while the third pump station has 20Hp pumps. In response to a pump station condition assessment, during the period from 2009 to 2011, a significant amount of work was performed to update and rehabilitate these pump stations. This work included: replacement of pump control panels, installation of manual transfer switches, replacement of piping, replacement and or repair of pumps, and installation of protective coating in the wet wells. A weekly inspection and testing is performed at each pump station to verify that all components are properly working. System vitals are monitored remotely and properly alarmed should a failure or fault occur. The location map of the pump stations and associated pump information is included in Appendix B.5. For routine pump maintenance activities (impeller and bearing replacement, float replacement, control panel light replacement) trained in-house maintenance staff are utilized. More complicated maintenance activities (pump rebuild, motor rewind, high voltage electrical) are contracted out to specialized contractors or to the pump manufacturer.

Cleaning Methods

The District utilizes a variety of tools and equipment to perform the required maintenance for mainlines and laterals, depending on the location, expected debris type, and accessibility. The two primary cleaning methods for mainlines are high velocity cleaning (HVC) and power rodding. Performing HVC cleaning requires the use of a Vactor Jetter or Combination (vacuum) unit. HVC trucks are outfitted with a complement of nozzles and cutters that enable the crew to clean a variety of different sizes of pipe as well as remove different types of debris. This method is utilized when truck access is available and where the lines are safe to clean without causing residential backups. Power rodding is performed using the OK Champion continuous rodding truck. This truck is also equipped with a variety of cleaning tools and used in those areas where an HVC truck is unable to access or where a pressurized cleaning method may cause unintentional toilet burping.

For mainlines located in easements inaccessible to either the HVC or continuous rodder, the maintenance crews resort to the use of hand rods or chemical root control. Chemical root control is normally performed by an outside contractor. Whichever cleaning method is used, the estimated quantity and type of debris that was removed by the cleaning operation is documented and entered into the Lucity database. This data along with CCTV inspections are later analyzed to confirm the effectiveness of the cleaning operation used and also to determine whether the cleaning frequency is appropriate for that particular line.

Lower lateral cleaning has traditionally been performed by using an electric power snake/cable, or "Spartan". This is a portable unit that is kept on each service truck and is manually rolled to the property line cleanout for use. The maintenance staff hand guides the cable through the lateral which is typically outfitted with 2 to 4-inch blade attachments. Strong resistance or impassibility using this effort indicates the presence of an obstruction and may require the use of a 1-inch spade or blowbag. If the larger blades cannot easily pass through the lateral at final pass, a CCTV inspection is performed to further investigate the problem and determine if a spot repair is necessary. Other than debris remaining on the blades, there is typically no record available of debris type or debris amount found in laterals. A new equipment that the District will be employing in 2018 is a trailer mounted jetter. The trailer mounted jetter can produce significant pressure (3,000 psi), however, the flow rate is much lower than the HVC units (12 gpm vs 80 gpm). Although it could be used for routine lateral cleaning, it is intended for use on more difficult applications such as long laterals (the Spartan is not very effective beyond 75 feet), lateral cleanouts with limited access, mainlines located on narrow roadways or within a condominium complex, among other challenging applications.

Service Call Procedures

The District office is open Monday through Friday from 7:30 am to 4:30 pm except for District holidays. All regular business hour service calls are typically received by the administrative staff or the Operations office. If received by the administrative staff, the call is referred directly to the Supervising Lead Worker or Operations Supervisor. All after hour calls are automatically routed to the Santa Clara County Emergency Radio Communications Center who then directly notifies the District's on-call field operations staff via an assigned mobile phone. The on-call field operations staff is available 24 hours a day during their on-call period and is furnished with a service truck and equipment to facilitate a timely response. A response time goal for the District is to provide a response within 30 minutes for service calls during work hours and within 60 minutes for service calls made after hours.

District service trucks are adequately equipped to manage lower lateral blockages. These trucks also have spill containment devices to prevent minor SSOs from entering a storm drain inlet or channel. Should the situation require larger equipment and staffing, the on-call person would contact a secondary on-call staff and any additional staff as needed. The additional staff would obtain the required equipment from the District yard prior to

travelling to the emergency site. Documentation of each callout request is recorded in Lucity and assigned a work order.

Should the service call involve a Category I SSO, the Operations Supervisor would be contacted to make the necessary notifications to California Office of Emergency Services (CalEMA - OES). For response procedures reference the Sewer Backup and Sewer Overflow Response Guide shown in Section VI - Overflow Emergency Response Plan. Some additional River Watch Agreement requirements are also shown in this same Guide.

E) REHABILITATION AND REPLACEMENT

Since the average age of the District's system is around 48 years old, preventive maintenance by itself is insufficient to ensure the long term viability of the system. The rehabilitation and replacement of the collection system is addressed through the District's Capital Improvement Program (CIP) and is the largest spending component of the District budget. The two major components of the District's CIP are its sewer rehabilitation (long term repair) projects and sewer repair service contract (short term repair). Sewer rehabilitation projects typically address the rehabilitation or replacement of miles of sewer main, laterals, and manholes in a defined area or basin either as a District project or as a Joint project with the City of San Jose. These are planned out as part of a 5 and 10-Year CIP. Since there are a number of factors to consider in developing long term rehabilitation or replacement projects, considerable more effort is required to evaluate the need and priority of each CIP project. The District utilizes a Risk Prioritization Model to analyze all of these factors to produce a numerical risk rating to help evaluate and prioritize these projects. The District's Multi-Year Sewer Repair Service Contract typically provides as-needed repairs to isolated defects in a main or lateral pipeline. The determination and prioritization of repairs for the Multi-Year Sewer Repair Service Contract is primarily based on an evaluation of pipeline condition, maintenance history, and sewer stoppage/SSO history.

System Inspection

Inspections of the District's sewer mains are made using the District's two CCTV vans equipped with CUES state-of-the-art motorized cameras, and an easement mainline (push) camera. As part of the inspection process, each pipe is evaluated and assigned a condition rating through the use of the NASSCO PACP rating system.

The motorized main line cameras have a complement of tracks, wheel types and sizes to allow it to traverse through pipe of varying slope, conditions, material types, and pipe sizes (from 6 to 15 inches in diameter). There are two camera types in use; high resolution digital side scanning and pan-and-tilt digital video camera. The side scanning camera technology utilizes a high resolution camera to take 180°+ digital photos at four frames/second, while the video camera takes digital videos as the motorized cameras traverse down the pipe. Inspection of difficult access mainlines requires the use of the

mainline push camera. Inspection of larger pipe requires the rental of a larger camera, or utilization of consultant services.

The District's mainline CCTV inspection program is performed by grouping mainlines into 44 sub-drainage basins (ref. Appendix B.6). Similar to sewer main Geozone cleaning, this method allows the CCTV crew to limit their travel time as they focus on one geographic area at a time. It is important to inspect the collection system on a regular basis to monitor the condition of pipe and to evaluate the effectiveness of cleaning operations. In 2009 the CCTV inspection frequency for the entire system averaged well over 15 years, but it has been the goal of the District to reduce that frequency to 8 years in recognition of its importance to proper operations and maintenance.

On August 29, 2012 the District entered into an Agreement with Northern California River Watch to settle a potential lawsuit against the District. As part of that Agreement, the 8-year CCTV inspection frequency was stipulated and a timeframe of 10 years (August 29, 2022) was established to meet this goal. The District has continued to increase its CCTV production since 2009 and currently has 70% of the collection system on an 8-year frequency.

Inspections of sewer laterals utilize lateral (push) cameras and are currently performed only when a lateral experiences a stoppage or SSO, or has constrictions that are observed during preventive maintenance.

Condition Assessment

The assessment of a collection system involves every component of the District collection system, including pipelines, manholes, and pump stations. The assessment of pipeline condition is the most significant condition assessment responsibility the District has. It is of key importance to regularly perform pipeline condition assessments to initially establish a condition baseline and have the ability to monitor condition changes over time. The condition rating of a pipeline is one of the key parameters used in the Risk Prioritization Model, which in turn is used to help develop the District's CIP.

The District performs pipeline condition assessment by performing closed circuit television (CCTV) inspection as described above. During the inspection, pipeline deficiencies are found, identified, and documented. The District utilizes the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) coding system to evaluate the overall pipe condition for sewer mains. Using the PACP system provides a consistent and widely recognized numerical rating for both structural and O&M pipeline deficiencies. These condition ratings are assigned a grade from 1 to 5 based on the particular defect observed (5 being the worst defect). Some agencies have adopted failure time estimates in conjunction with these grades, however, these time estimates are very subjective and provide only a general sense of repair urgency. The grades and an example of failure times used include:

5 – Very significant defect grade (0 to 5 years)

- 4 – Significant defect grade (5 to 10 years)
- 3 – Moderate defect grade (10 to 20 years)
- 2 – Fair defect grade (20+ years)
- 1 – Good defect grade (50+ years)

Currently there are approximately 340 lines (4%) of the 9,424 lines in the District collection system that do not have condition assessment information. Although these lines were inspected, the missing information is due to older CCTV technology prior to 2002 (VHS and Beta video tape) and the inability to transfer these inspections to the Lucity system. The District is positioned to perform CCTV inspections on these remaining lines in the next few years.

Sewer laterals are not currently rated using the Lateral Assessment and Certification Program (LACP) which is the lateral counterpart to PACP. CCTV inspections are not performed on all laterals and is only performed when defects or obstructions are found during lateral cleaning or permit inspections. Laterals with significant defects are brought to the attention of the Engineering Department where it is further analyzed along with its service history to determine its repair priority for the service repair contract. Similarly, manholes are not inspected using the Manhole Assessment and Certification Program (MACP). Rather, when manhole inspections are performed it is usually performed from ground level and based primarily on visual observations, not CCTV.

Risk Assessment

The determination of repair priority for long term CIP projects can be very challenging due to the complexity in analyzing all of the various factors affecting the pipeline's risk of failure. The District has developed a risk-based prioritization model (Risk Model) to provide a more objective approach to CIP project prioritization and help aid in developing its 5-Year and 10-Year CIP rehabilitation project plans. It should be noted that the development of a CIP project and its prioritization does not solely rely upon the results of the Risk Model, but must also take into consideration other significant factors such as project timing, budget allocation, resource availability, coordination with municipal projects, etc.

The Risk Model is based on guidelines recommended by the National Association of Clean Water Agencies (NACWA) in their publication "Implementing Asset Management: A Practical Guide". In short, the Risk Model quantifies risk as a product of the Consequence of Failure (CoF) and Likelihood of Failure (LoF). The CoF parameters reflect failure impacts to the community and environment, while LoF parameters reflect system conditions that affect failure or degree of failure. The NACWA Risk Matrix, and parameters used in the CoF Matrix and LoF Matrix from the current Risk Model are illustrated in Appendix B.7.

The initial risk-based prioritization study was completed in October 2010 and later refined in 2014. The current Risk Model was developed by HDR and was completed in 2018. The

current model has updated risk equations and is now a “dynamic” model in that will automatically extract current risk parameter information from the Lucity database and automatically updates Risk Maps when prompted to run. Maps showing the District collection system’s CoF, LoF, and Overall Risk Scores are provided in Appendix B.8. Risk scores are calculated and assigned for each pipe segment and are grouped into four zones of risk; Very Low, Low, Medium, and High. The results from the latest Risk Model illustrate the relatively risk profile of the District’s collection system:

High Risk (0.5% of the collection system)
Medium Risk (8% of the collection system)
Low Risk (24% of the collection system)
Very Low Risk (68% of the collection system)

Sewer Rehabilitation

Sewer rehabilitation projects account for a majority of the District’s CIP expenditure and requires a significant effort from Engineering Department resources. Most sewer rehabilitation projects typically address the rehabilitation or replacement of miles of sewer main, laterals, and manholes in a defined area or basin that has been identified in the District Risk Model as “high risk” to the District. The District has completed a number of CIP Projects over the last two decades, rehabilitating or installing nearly 40 miles of mainline, 2,500 sewer laterals, and rehabilitation of hundreds of manholes. The rehabilitation rate based on the above is about 2.0 miles of mainline per year or about 0.5%. It is assumed that the current trend of using plastic pipe (HDPE or PVC) as a replacement to VCP will help prolong the life of the collection system. In the FY2018-2023 5-Year CIP budget the District has proposed to rehabilitate nearly 15 miles of pipe, amounting to 3 miles/yr or (0.7%). The 5-Year CIP Budget and a 5-Year and 10-Year CIP Project List are provided in Appendix B.9. It should be noted that the 10-Year CIP shown is currently being developed and does not necessarily shown all of the projects that are anticipated.

Sewer Repair

Isolated main and lateral sewer repairs are addressed through the District’s Multi-Year Sewer Repair Service Contract. The most recent round of multi-year service contracts began in FY2010/2011 to address the mounting numbers of planned and emergency “point repairs” needed throughout the District’s collection system. Over time, the budget for the multi-year service repair contracts have grown from \$250,000 to the current annual budget of \$1.3 million. The increase in funding was due in part to the requirements of the River Watch Agreement to prioritize the repair of mainlines near waterways and also to address the increase in laterals requiring repair due to a more aggressive lateral inspection program. To date these service contracts have resulted in over 330 main and lateral repairs, significantly reducing the potential for a number of sewage overflows and stoppages.

F) STAFF TRAINING AND CERTIFICATION

The District's training program covers a number of areas involving, or associated with wastewater collection systems and serves to develop and maintain highly qualified, knowledgeable, and capable staff. This training is provided through a variety of modes (self-study, seminars, conferences, on-the-job, etc.) and begins from the first day on the job and continues regularly thereafter. Since safety training constitutes a significant portion of the training received each year, the District utilizes the services of a safety consultant to monitor, track, and provide this service. A majority of safety training provided is through an on-line course.

The CWEA Technical Certification Program provides certification in a variety of wastewater disciplines to promote and enhance the education and effectiveness of the wastewater professional. The District encourages its maintenance staff to obtain CWEA certification to demonstrate their level of competency in the area of collection system maintenance. By providing adequate staff training and establishment of certain grade level requirements as a condition of career advancement, the District reinforces the importance it places on certification. The District also requires and or encourages certification as Grade I Plant Maintenance Technologist for select Specialty positions.

Training Frequency and Subject Matter

Although all ongoing training is considered to be important and necessary, the initial orientation training for maintenance staff is especially important to establish a sound knowledge base for equipment, safety, and maintenance procedures. Maintenance staff is provided many training opportunities in a number of subject matters pertaining to collection system operation and maintenance. Within the first year of hire, all Maintenance Worker Trainees are enrolled and must pass the Office of Water Programs, CSU Sacramento (Ken Kerri) "Operation and Maintenance of Wastewater Collections Systems – Volume I and II" courses.

These individuals must also indoctrinate themselves with basic safety and collection equipment operation by studying equipment procedures, training movies, and in-field training by an experienced maintenance staff, prior to fully participating on work crews (See discussion on Competency Based Training below) *. On a regular basis, safety training is received weekly through tailgate safety meetings, web-based or instructor led safety meetings. A less structured, but valuable training is received on-the-job through mentoring by senior staff. There are also a number of seminar training opportunities provided by local CWEA, at regional or state CWEA conferences, and through CSRMA. The District employs the use of Risk Control Online training programs which provides nearly 60 different training modules covering CalOSHA required training, District Safety Plans, specific maintenance work activities, and health and wellness subject matter. Annual training is required for CalOSHA subjects, while others are scheduled for two to three-year training frequencies. To maintain brevity, only a few sample training topics are shown for major subject areas.

Wastewater Collection System Operation and Maintenance

- Sewer Cleaning Equipment O & M
- Collection System Toolbox
- CCTV Operation and Maintenance
- NASSCO/PACP Certification
- SSO and Backup Response
- Pump Station O&M
- Electrical Basics and Troubleshooting

Collection System Management

- Lucity Work Modules (CMMS)
- GIS Mapping
- Global Positioning System (GPS)

Safety

- Confined Space
- Lockout/Tagout
- Traffic Safety
- CPR/AED
- Hazmat
- Ergonomics

Personnel and Other

- Supervision and Management Training
- Communication
- MS Office Suite

* The District has embarked on a new training process referred to as Competency Based Training (CBT) that will be utilized for specific maintenance equipment/activity training. Competency Based Training ensures that all maintenance staff receives consistent and the most comprehensive training possible. Starting with development of tailored Standard Operating Procedures for each equipment/activity by subject matter experts, each maintenance staff will be extensively trained and then assessed whether they have the knowledge and demonstrable skill to complete the subject tasks. It is anticipated that in the next three to five years, the CBT process for most major subject areas can be completed and fully implemented.

CWEA and NASSCO PACP Certification

Achieving certain levels of CWEA Certification is required for promotion to a higher maintenance positions. In the Maintenance Worker Series, the Maintenance Worker Trainee is required to have a CWEA Grade 1 Certification before promotion to

Maintenance Worker I, and promotion to a Maintenance Worker II requires the individual to have a CWEA Grade 2 Certification.

In line with the District's emphasis on certification, all current maintenance staff, other than the Maintenance Worker Trainee, are certified as Collection System Maintenance Grade 1 or higher level. Currently, nearly half of the maintenance staff has attained a Grade 3 or 4 certification level. The District further encourages maintenance staff by offering pay incentives to those wishing to exceed the certification grade requirements for their position. Grade 1 Plant Maintenance Technologist Certification is required for the Pump Station Specialist, while it is encouraged for the Maintenance Mechanic Specialty.

It is a requirement that all persons who assign defect ratings to pipe or manhole structures as part of a video inspection program, must be certified by NASSCO in PACP/LACP/MACP programs. The District encourages all employees who assist in these inspections, or utilize inspection videos and defect ratings, obtain NASSCO certification. A number of employees across different departments currently have NASSCO certification. CWEA and NASSCO certifications are presented in Appendix B.10

G) MAINTENANCE AND CONTINGENCY EQUIPMENT

The District maintains a host of equipment for both routine maintenance and for contingency or emergency operations. For specific emergency situations, the District has several types of equipment stored at the District yard and are kept in a prepared state for immediate service. Included in this discussion is the availability of parts, supplies, and contractor services. A list of the District's primary maintenance and emergency equipment is included in Appendix B.11.

Maintenance and Emergency Equipment

The District owns an assortment of maintenance vehicles that is appropriate for the size and characteristic of the sewer collection system. The Vactor jetter and combination units are used to perform a majority of cleaning maintenance on District sewer mains, while the OK Champion Rodder is used for cleaning maintenance on sewer mains with difficult accessibility. These units are outfitted with a complement of nozzles and or cutters that enable these trucks to be used to clean a variety of different pipe sizes and remove different types of debris accumulation. For sewer laterals which are typically 4-inch diameter pipe, the District has four (4) service trucks that are each equipped with heavy duty power snakes or cabling machines (Spartans) that are utilized preventive maintenance and customer service calls. These service trucks also carry spill containment mats to contain SSOs and prevent sewage from entering storm drains. To aid in the maintenance of sewer laterals the District has recently acquired a trailer mounted jetter that will be used on those laterals that are exceptionally long or are difficult to access.

In an emergency where sewage bypass pumping is required, the District has several pump options depending upon the particular situation and flow requirements. These pumps

include a trailer mounted 1,500 gpm 6-inch self-priming pump with a capacity of about 2.1 mgd, four smaller portable trash pumps ranging from 3-inch to 4-inch with capacities of approximately 400 gpm. Associated suction and discharge hoses with Camlock type connectors are kept with the pumps. For emergency power supply needs at any of the District pump stations, a trailer mounted 60 kW generator with a forty foot cabled quick connect plug is available for connection to station mounted manual transfer switches.

The District has an informal agreement with the City of San Jose maintenance department to assist with additional equipment. This was utilized several years ago when there was a significant Category 1 SSO event where emergency pump equipment was loaned to the District.

Replacement Parts and Supplies

The District maintains an inventory of replacement parts for each pump station and a modest supply of material for the repair of pipe and manholes. Although each pump station has more than adequate capacity to handle incoming flow with just one of the two pumps installed at each station, spare pumps and significant components (impellers, bearings, etc.) are kept on hand for quick repairs. Since the repair of pipelines, other than manhole cover and frame replacements, are performed by outside contractors, the District maintains a small supply of clay and plastic pipe of various diameter and their associated couplings should they be needed on short notice. In terms of the repair or emergency replacement of large cleaning equipment, the local equipment representative (Owen Equipment) is authorized to make repairs to these units and has available units for lease should the need arise.

Emergency Repairs

Repairs to pipelines and manholes, or electrical issues at pump stations, are typically performed by outside contractors that we currently have ongoing contracts with. These contractors are on an on-call open service contract with the District to provide emergency and routine service when requested. Emergency pipeline repairs are currently addressed in a multi-year service repair contract with an annual budget of \$1.3 million. If the need should arise where the magnitude of repair is beyond the capabilities of the service repair contractor, a standing contract is available with a major construction contractor with vast resources. Similarly, the electrical needs of the District's pump stations is met utilizing an on-call electrical contractor. Engineering support or consultation, if needed, is available through existing engineering consultant contracts.

SECTION V

DESIGN AND CONSTRUCTION STANDARDS

Design and Construction Standards

District Ordinance Chapter 6.020 - Design of Sewers requires that the design, construction, modification, or repair of any new or existing public and private sewers within the District be constructed in accordance with the Ordinance, most current District Design Standards, and good engineering and planning practices. The District's 2007 Standard Specifications for Sanitary Sewer Construction is the current District Design Standards and is on file at the District office and can be accessed through the District's website at: <http://www.westvalleysan.org/documents/engineering/designstandards>. Enforcement of these standards, through design review, construction inspection, and materials testing provides assurance and confidence that the District's collection system, and the private systems connected to it, will function as designed and will effectively transport the collected wastewater stream throughout its long service life. Since the District Design Standards are over ten years old, the District is currently embarking on a multi-year effort to review and update these design standards.

Standards for Installation, Rehabilitation and Repair

The District has minimum design standards that address such issues as flow projection, design criteria for hydraulics, minimum pipe diameter, installation depth, pipe material, location, slope, manholes, and pump stations. The standards also address plan preparation requirements, standard easement requirements, requirements for dedicating facilities to the District and standard construction details. The current District Design Standards are partially based on the "Standard Specifications for Public Works Construction", also known as the "Greenbook", published by Public Works Standards, Inc. Prior to approval by the District Manager and Engineer, a review of all design documents submitted for any significant new or rehabilitation construction work is performed by the Senior Civil Engineer and engineering staff to ensure it meets the District Design Standards.

The current review and update effort will ensure that current design practices, new construction technology, construction methodology, and construction materials are incorporated. It will also provide an opportunity to examine whether there is a need for continued reference to the Greenbook. It is anticipated that all standard details will be updated.

Standards for Inspection and Testing of New and Rehabilitated Facilities

District engineering staff and occasionally consultant inspection services, inspect all new construction, repairs and rehabilitation work. Inspection staff insures that all construction

SECTION V

DESIGN AND CONSTRUCTION STANDARDS

meets District standards and requirements. All new and rehabilitated sewers are cleaned, pressure tested and internally inspected using closed circuit television (CCTV) before acceptance. Flexible pipe is also mandrel tested to verify that it remains fully circular and is absent of any deflection defects. The District requires that all new and rehabilitated sewers be warranted for a period of one (1) year following final acceptance. Prior to the expiration of the warranty period (and release of warranty bonds), these facilities are visually inspected, CCTV inspected as required, and maintenance records are reviewed to ensure that the facilities are functioning properly.

SECTION VI

OVERFLOW EMERGENCY RESPONSE PLAN

Overflow Emergency Response Plan

The District's Overflow Emergency Response Plan (OERP) is a stand-alone document that contains all of the key elements necessary for an appropriate SSO response: notification, emergency incident response, reporting, and impact mitigation. The current plan titled Sanitary Sewer Overflow and Backup Response Plan (SSO Plan) was prepared by DKF Solutions Group LLC and is dated September 25, 2015 (ref. Appendix C.1)

This SSO Plan includes a Response Field Guide and is supplemented by Emergency Response Plans for the District's three pump stations (ref. Appendix C.2). The purpose of these documents is to provide a standardized course of action for District staff to follow and to ensure that the District is adequately prepared to respond to an SSO event. In all SSO situations, the District's goal is to quickly respond to the SSO event, secure the wastewater overflow area, relieve the cause of the overflow, notify and report to the appropriate regulatory agencies, and ensure that the affected area is cleaned as soon as possible to minimize health hazards to the public and protect the environment. The SSO Plan is incorporated into the body of this Section.

Two of the significant changes made to this SSO Plan, in accordance with SWRCB Order WQ 2013-0058-EXEC, are:

1. Changes to the SSO spill categories that redefine Category 1 and Category 2 spills and inclusion of a Category 3 spill and Private Lateral Sewage Discharge (PLSD) designations.
2. Incorporates the requirement to develop and implement a SSO Water Quality Monitoring Program to assess impacts from SSOs to surface waters in which 50,000 gallons of greater are spilled to surface waters.

The SSO spill classifications are incorporated into this SSO Plan and a SSO Water Quality Monitoring Plan was developed and completed by DKF Solutions Group, LLC in December 2014 (ref. Appendix C.3).

SECTION VII

FATS, OILS, AND GREASE CONTROL PROGRAM

Regional Fats, Oils, and Grease (FOG) Control Program

In many sanitary sewer collection systems Fats, Oils, and Grease (FOG) is known to be a significant cause, and or contributor, of sewer blockages in pipe and the cause of operational disruptions and damage to sewage pump stations. Although service areas that include commercial and institutional food service establishments (FSEs) are obvious sources of FOG, residential communities, especially those of medium and high density multi-family residences, can also be a significant source of FOG. It is the purpose of the Regional FOG Control Program to ensure all customers in our service area are in compliance with the District Ordinance, and state and federal requirements, to prevent sewage overflows caused by FOG related blockages in our sewer collection system.

A major component of the Regional Program is the FOG Compliance Program, which used to be performed by the City of San José Environmental Services Department (ESD) on behalf of the District since FY2008-09. The Compliance Program included FSE plan review, facility inspections, and facility staff training/outreach. This service was terminated on June 30, 2017 requiring the District to develop its own Compliance Program including the development of all of the associated training/outreach materials, obtaining the necessary tools and equipment, and providing staff training. A letter to all known FSE business owners was mailed in June 2018 to describe this transfer of responsibility (ref. Appendix D.1). All plans for new or remodeled FSEs that are submitted as part of the District sewer permitting process, is now reviewed by District staff for proper sizing of grease capture devices.

The Regional Program is a comprehensive program that includes the FOG Compliance Program and other related efforts to support the elimination of FOG from both FSE and non-FSE sources. The Regional Program includes:

- FOG Compliance Program and Facility Inspection
- FOG Maintenance and Mapping
- Source Control
- Residential FOG Outreach
- Legal Authority and Enforcement

FOG Compliance Program and Facility Inspection

The District's FOG Compliance Program is specifically created for the oversight of commercial and institutional FSEs and heavily focused on the inspection of grease control devices (GCD), review of GCD maintenance records, and training/outreach. The FSE GCD Standard Operating Procedure (SOP) is attached as Appendix D.2 for reference. The District has a rigorous inspection program that covers all FSEs in its service area. Each facility is inspected on an established frequency with an increased emphasis for those facilities that have a history of non-compliance, or outstanding corrections. Review of the maintenance and pumping records, inspection of the grease control devices, interviews with kitchen staff regarding grease waste handling, food scrap disposal, dishwashing and sink use, and inspection of floor drains, are addressed during the inspection process. The District maintains a database in its Computerized Maintenance Management System (Lucity) that contains all FSE facility information, inspection reports and violation notices.

Training and educational materials are provided on an as-needed basis to FSEs regarding best management practices (BMP) for grease management based on the findings of the inspection process. This is a very important aspect of facility inspection as new owners, managers, and employees are taught the importance of proper grease management and prevention of FOG related SSOs. This training is also very useful for changes in kitchen staff and serves as a refresher for staff who are not familiar with FOG BMPs. The FOG outreach material continues to be enhanced and a version of the best management practices currently being utilized is presented in Appendix D.3.

FOG Maintenance and Mapping

Pipeline cleaning methods and cleaning frequencies are regularly evaluated to ensure its effectiveness. Reviewing cleaning history and noting lines that are prone to FOG dictate how and when those lines should be cleaned and if the current cleaning protocol is adequate. Accumulation of FOG in the District's pump stations have not historically been a significant problem as it serves a very small number of single family homes and is managed regularly through weekly preventive maintenance.

Documentation of the type and quantity of debris removed in each pipeline is made during cleaning operations. Grease is a specific debris type that is tracked as part of the preventive maintenance program, sanitary sewer overflow (SSO) response, or closed circuit television (CCTV) inspection. By identifying these FOG impacted lines on a GIS map, maintenance decisions regarding frequency and cleaning methodology are challenged and modified accordingly. FOG Compliance is also alerted of the suspected FSE FOG source areas for future targeting (ref. Appendix D.4).

Source Control

All plans for new or remodeled commercial FSEs that are submitted for a District sewer permit must be reviewed by the Santa Clara County Department of Environmental Health

(DEH). Using requirements from DEH and the Uniform Plumbing Code, the District reviews submitted plans for properly sized and designed grease control devices. Upon receipt of an approved permit, each FSE is provided a written notification of the requirement to properly maintain grease control device(s) and complete record keeping of each maintenance and pumping activity. Occasionally, an FSE requests a variance on interceptor maintenance and pumping, which is then reviewed by the District to determine if it is warranted and whether approval should be granted.

Sewers that require excessive cleaning, or have a history of stoppages or SSOs caused by FOG are analyzed to determine possible upstream sources of grease. If the suspected FOG source is a permitted FSE, the District will follow up with the facility, or facilities, in an attempt to determine if they are the source of FOG. Based on the results of the inspection(s), the District may issue a notice requiring corrective actions. Foul odors that emanate from an improperly maintained or malfunctioning grease interceptor is another issue that the District monitors.

Residential FOG Outreach

A difficult FOG source to address is the residential FOG component as it is typically originating from many households, or a number of unidentifiable multi-family dwellings. The most effective method of addressing this problem is to provide information to the neighborhood, or specific multi-family facility, to raise awareness of the detrimental effects of improper grease disposal. The District has in the past provided public outreach to residents by distributing FOG related information in strategically identified residential areas using material shown in Appendix D.5. These materials are also available at the service counter at the District office for distribution to the public. Another outreach method is the use of the District's website to provide informative links to FOG related information and issues. The District is considering increased efforts in the future to address multi-family complexes suspected of being a FOG source. This effort will likely involve notification to the facility's homeowners association or facility manager regarding the need to prevent FOG from entering the system and encourage the facility to follow BMPs to reduce FOG contributions to the collection system.

Legal Authority and Enforcement

There are a number of Ordinance Codes that grant the District general authority for enforcement, inspection, termination of service, penalties, etc. Refer to Section III – Legal Authority for a list of applicable Ordinance Codes.

The District has legal authority to prohibit the discharge of FOG as cited in several sections of Ordinance Chapter 7, specifically stated in Ordinance Section 7.140 – Grease, Oil and Fats, Ordinance Section 7.270 - Installation of Grease Control Devices, and Ordinance Section 7.280 – Maintenance and Operation of Grease Control Devices.

There are also legal and administrative remedies to enforce the FOG related Ordinances. Legal remedies are addressed in Ordinance Section 7.420 – Civil Penalties, and Ordinance Section 13.020 – Violation is a Misdemeanor. The administrative remedy is addressed throughout Ordinance Chapter 14 – Administrative Enforcement.

SECTION VIII

CAPACITY MANAGEMENT

The Capacity Management Section describes the capacity management element of the District's collection system, which includes a discussion of capacity assessment, system evaluation, and capacity assurance. The purpose of this element is to document the process used to assess the hydraulic capacity requirements for the District's collection system, discuss the results of the evaluation, and demonstrate that all significant deficiencies are properly addressed through the District's Capital Improvement Program (CIP).

Capacity Assessment

A critical function of the District's wastewater collection system is to provide adequate capacity to handle current and future wastewater flows. A capacity assessment examines the collection system under varying flow conditions from current dry weather to future wet weather flow scenarios to determine the adequacy of the collection system to handle these flows.

The previous capacity assessment effort began in November 2006 when the District contracted with RMC Water and Environment (RMC) to initiate a multiple phase study beginning with the development of a hydraulic model for the District's trunk sewer system (pipe sizes ≥ 10 "). This initial effort required RMC to perform a number of tasks including:

- Review existing sewer system information
- Wet weather flow monitoring
- Developing current and future dry weather flows
- Developing design flow and hydraulic criteria
- Evaluation and selection of hydraulic modeling software
- Developing a hydraulic model of the collection system

The hydraulic modeling software utilized was InfoWorks™ and was developed and calibrated using collection system and wet weather flow monitoring data. In order to evaluate the collection system, a design storm was developed to represent a future peak wet weather flow event. The design storm utilized was adapted from the City of San Jose's 10-year design storm at San Jose Airport which is based on the intensity-duration-frequency (IDF) statistical data and guidelines described in the County of Santa Clara Storm Design Requirements. The end result was the use of a 10-year, 24-hour synthetic rainfall event.

Since the 2009 hydraulic study, the District has completed several major CIP projects which have addressed some of the major hydraulic deficiencies identified. However, it was

recognized that the 2009 hydraulic model was somewhat limited in that it only incorporated pipe ≥ 10 " diameter or approximately 338,000 linear feet of sewer (15% of the District's system). Since a majority of lines (88%) in the District's system is comprised of 6 and 8-inch pipe, there was a considerable number of small lines serving as trunk sewers that needed to be included in the hydraulic model in order to achieve more accurate results. Subsequently, the District began efforts to update and improve the hydraulic model and re-evaluate the hydraulic deficiencies in its collection system. On June 25, 2014 the Board approved a new contract with RMC (now referred to as Woodard & Curran, or W&C) to expand the model to include an additional 241,000 linear feet of sewer, increasing the total hydraulic model to more than 550,000 linear feet (25% of the District's mainline system). The comparison of the two hydraulic model maps is illustrated in the map provided in Appendix E.1. The updated hydraulic model and capacity analysis was completed in May 2018 and is presented in Appendix E.2. Similar to the 2009 analysis, the design storm remains a 10-year, 24-hour design storm, except the storm pattern and hourly rainfall intensities are based on the updated (2007) Santa Clara County Drainage Manual.

System Evaluation

As in the 2009 hydraulic model and collection system evaluation, the design storm was superimposed on the base wastewater flow (BWF) such that the peak intensity of the rainfall dependent inflow and infiltration (RDI/I) coincided with the daily peak BWF at 6 am. Model simulations were conducted to identify areas that may have insufficient capacity to convey peak dry weather flow (PDWF) and design peak wet weather flow (PWWF) using the criteria below. This approach gives a conservative flow response in the collection system and is a typical methodology in determining the peak wet weather flow generated by a design storm.

In the hydraulic analysis the determination of whether a line is deficient is based on the following hydraulic analysis criteria:

Small Pipes (≤ 15 ")

- No surcharge at PWWF - minimal surcharge allowed if pipe is deep, max. $d/D=0.75$ at PDWF

Large Pipe (>15 ")

- No surcharge at PWWF - surcharge of 1 foot if MH depth $\geq 5'$, max. $d/D=1.00$ at PDWF

Due to the increase in collection system modelled, it was expected that the 2018 hydraulic model would reveal a greater number of deficiencies than identified in the 2009 hydraulic analysis. The updated hydraulic analysis described a total of 34 deficiencies found in the District collection system involving the footage of pipe shown in parenthesis; 15 deficiencies (40,000 lf) were classified as significant, 9 (8,500 lf) were classified as moderate, and 10 (8,000 lf) were classified as minimal. In addition, each of these deficiencies were ranked with relative priority ratings from 1 to 4 (with 1 being the highest priority). In Table 6 of this study, there are 6 significant deficiencies that are ranked with a 1 priority. Between the planned 5 and 10-Year CIP projects, including the San Jose CIP projects involving joint trunk lines, all of these deficiencies will be addressed. Maps

showing the deficiency rating and priority ranking are included in the 2018 Analysis and is also presented in Appendix E.3. The evaluation also confirmed that essentially all of the District's collection system is capable of handling PDWF conditions as only two of the identified PWWF deficiencies (ST-1 and ST-2) also showed PDWF deficiencies. The results of the 2018 hydraulic model have now been incorporated into the District's Risk Prioritization Model. Recognizing that there are hydraulic deficiencies that remain in the system, the District has installed fourteen flow level monitoring at critical overflow points at manholes identified in the hydraulic study. Mission M-80 manhole floats are being used to monitor these manhole levels by providing real time data alerts to operations staff ahead of potential overflow events.

Capacity Assurance Plan

Design Criteria

The District ensures that its collection system is properly designed and any new or rehabilitation work conforms to design capacity standards. Reference Section V – Design and Construction Standards for additional discussion. These design standards are more conservative than the hydraulic analysis criteria shown above and include:

Small Pipes ($\leq 15''$)

- Max. $d/D=0.50$ at PDWF
- Max. $d/D=0.75$ at PWWF

Large Pipe ($>15''$)

- No surcharge at PWWF
- Max. $d/D=0.75$ at PDWF

Capacity Enhancement

The District's CIP addresses both short and long term projects to address identified hydraulic deficiencies. As a result of the Risk Prioritization process and the consideration of other parameters (pipe condition, SSO history, potential SSO magnitude, community impacts, etc.) not all hydraulic deficiencies identified may be captured in the District's CIP. Although other parameters are considered, hydraulic deficiency carries significant weight as a parameter in the Likelihood of Failure (LoF) matrix when determining a pipe's risk score (ref. Appendix B.7).

In addition to increasing pipe size as part of the short and long term CIP, the District embarked on a concurrent effort to reduce RDI/I. In FY 2014-15 the District initiated its Inflow and Infiltration Reduction Program by hiring V&A Consulting Engineers to analyze basins within our service area in order to identify sources of I/I. Based on previous flow monitoring data, sixteen drainage basins were selected for analysis (designated as E01 to E16). Over the next two fiscal years, additional flow monitoring and analysis was performed to further delineate these original sixteen basins into smaller sub-basins in an attempt to pinpoint specific I/I sources. In the December 2016 V&A Study, the sixteen basins were evaluated and ranked in terms of their Peaking Factors for inflow and infiltration (Ref. Appendix E.4.). In June 2018, smoke testing was performed on Basin

E10, which was previously identified as being ranked 2nd in inflow peaking. The results of the smoke testing is very positive showing a total of 7 “smoke returns” found, with 2 of these being significant sources of inflow (Ref. Appendix E.5).

CIP Schedule

Reference Section IV for a discussion of the District’s CIP, schedule, and budget. The District’s 5-Year CIP budget is shown in Appendix B.9. A map of completed District CIP projects from 2000 including the current 5-Year CIP projects are provided in Appendix E.6. This map also includes some future San Jose joint trunk sewer projects.

SECTION IX

MONITORING, MEASUREMENT, AND MODIFICATIONS

The process of monitoring, measuring, and making program modifications is necessary to ensure that the District's SSMP continues to be relevant and effective. Results from monitoring and measuring serve as the basis for the SSMP audit as described in Section X. Monitoring refers to the actions necessary to oversee the implementation of each element of the SSMP, measurement refers to methods used to gage effectiveness through development and tracking of performance criteria, while program modifications are necessary changes to the SSMP to maintain or enhance its effectiveness. Although each SSMP element may have unique criteria established for determining its own effectiveness, the most defining and overall measure of the SSMP's effectiveness is achievement of a continuous trend in reducing and or stabilizing the occurrence and severity of SSOs. In other words, a successful implementation of each element should result in an effective SSMP.

Monitoring

Monitoring of the District's SSMP focuses on each element in terms of its implementation and measurement. Monitoring the implementation of SSMP elements would achieve the following goals:

- Stated objectives of each element are valid and achievable
- Tasks cited in each element leads to reaching these objectives
- Tasks are being implemented
- Responsibility for implementation is identified

Monitoring the measurement criteria to ensure that:

- Performance standards adequately reflect effectiveness
- Performance standards are quantifiable
- Measurement used is comparable to established industry standards
- Trending is performed to develop performance history
- Measurements used for all elements results resulted in a net reduction or stabilization of Sanitary Sewer Overflows (SSO)

Measurement

By establishing specific performance indicators for each element, an assessment can be made to determine the degree of success achieved. Where possible, quantitative performance indicators; e.g., number of SSO occurrences, length of lines cleaned, spill response times, number of capital projects completed, etc., are used. Some of the key measurements used in each element are summarized below in Table IX-1. Although the evaluation of these measurements on an annual basis is important for ensuring that specific details of the SSMP are on target, the trending analysis of these measurements

has the most value for measuring the SSMP's overall success. Some selected trending data are provided in Appendix E.1.

Table IX-1

SSMP Element		Performance Parameters	
		Monitoring	Measurement
I	Mission, Goals and Objectives	<ul style="list-style-type: none"> Goals reflect District goals and priorities 	<ul style="list-style-type: none"> Degree of goal achievement
II	Organization	<ul style="list-style-type: none"> Current staff and positions are reflected 	<ul style="list-style-type: none"> Adequate staffing levels to achieve SSMP goals
III	Legal Authority	<ul style="list-style-type: none"> Legal authorities are properly cited 	<ul style="list-style-type: none"> Adequate legal authority
IV	Operation and Maintenance Program	<ul style="list-style-type: none"> Maintenance measures reflect current program and best current practices Maintenance measures are being implemented Are maintenance measures positively affecting measurement criteria Resources are adequate to achieve success CIPs address rehabilitation priorities and needs 	<ul style="list-style-type: none"> Number and volume of main/lateral SSOs Trend of main/lateral SSOs Number of pump station failures Length of lines cleaned Length of lines CCTV'd Number of capital projects completed Mapping is accurate and current Equipment and tools are adequate to perform work Staff has adequate training and properly certified
V	Design & Construction	<ul style="list-style-type: none"> Design and construction QA measures in place Current standards are utilized and are appropriate New technology and methods are considered 	<ul style="list-style-type: none"> Number of design errors found during construction Number of construction deficiencies found after construction Design and construction standards are current Design incorporates the use of new technologies
VI	Overflow Emergency Response Plan	<ul style="list-style-type: none"> Emergency response measures reflect current procedures Response actions reflect best and current practice 	<ul style="list-style-type: none"> Staff follows steps identified in program Response times Percent of SSO captured Reporting compliance to RWQCB/SWRCB

VII	Fats, Oils, and Grease (FOG) Control Program	<ul style="list-style-type: none"> • Description matches current program • Implementation of all FOG related actions • Timeline for FOG actions 	<ul style="list-style-type: none"> • Number of grease related blockages and SSO's • Number of inspections performed • Percentage of businesses in compliance
VIII	Capacity Management	<ul style="list-style-type: none"> • Capacity analysis study reflects actual conditions and utilizes accepted design standards and approaches • Capacity issues are investigated in further detail or addressed as CIP in accordance with District priorities • CIP reflects current priorities • Progress of CIP projects 	<ul style="list-style-type: none"> • Number of study identified capacity issues • Number of SSOs caused by capacity limitations • Number of CIP projects completed • On-schedule record of CIP projects • Development of medium and long term CIP
IX	Monitoring, Measurement, and Program Modifications	<ul style="list-style-type: none"> • Monitoring, measurements, and modifications result in continuous improvement of SSMP 	<ul style="list-style-type: none"> • Monitoring and validation of SSMP Elements • Measurements are appropriate and meaningful
X	SSMP Program Audits	<ul style="list-style-type: none"> • SSMP and elements are being evaluated for effectiveness • Successes highlighted and challenges addressed through modifications 	<ul style="list-style-type: none"> • Audits performed annually • Results reported with SSO report to SWRCB by 3/15 • Modifications are made as necessary
XI	Communication Program	<ul style="list-style-type: none"> • Complete and accurate stakeholder information • Communication modes are being utilized 	<ul style="list-style-type: none"> • Activity on website access • Number of public/private inquiries

Program Modifications

Although the SWRCB requires that the SSMP be updated every five years, the SSMP should be considered as a very dynamic document, and may require updating on a more frequent basis. Routine changes to administrative information, notwithstanding, minor changes will likely be required to address improvements identified through the annual SSMP Audit (Section X) or through modifications required as conditions change. Although major changes to the SSMP requires formal adoption by the District Board and re-certification by authorized staff, minor changes or revisions to the body and appendices of the SSMP is performed without the same level of formality.

The primary responsibility for proposing and initiating modifications to the SSMP will be that of the Director of Engineering and Operations, with input of engineering and operations staff. Review and approval of the modification, in addition to determining whether it constitutes a major or minor change, will be the responsibility of the District Manager and Engineer. A history of the Board's SSMP adoption and revision history is shown in Appendix E.2.

SECTION X

SSMP AUDIT

SSMP Audit

The purpose of the SSMP Audit is to evaluate the effectiveness of the District's SSMP, to ensure that all elements within the SSMP are compliant and current with SWRCB requirements, and that the SSMP is being implemented and managed appropriately. The SSMP Audit is a critical process that promotes continuous improvement of the District SSMP, ultimately resulting in enhanced effectiveness and efficiency of District operations. Prior to calendar year 2012 an annual SSMP Audit was required by the San Francisco Bay Regional Water Quality Control Board (RWQCB), but has since been discontinued per RWQCB's letter, dated October 3, 2012. The SSMP Audit, as stated in SWRCB Order No. 2006-0003-DWQ, is a biennial audit (every two years) with the next deadline set for May 2, 2020. The 2018 SSMP Audit, which covered the years 2016 and 2017, was performed and completed by the required deadline and was presented to the District Board on May 9, 2018 (ref. Appendix F.3).

Assessment

The audit process is a self-assessment of the District's SSMP that includes the examination of events, experiences, and data during the two-year time period since the previous audit. The Audit highlights successes and challenges experienced during this time period and attempts to correlate how the SSMP influenced that outcome. The District SSMP Audit consists of two major components: SSMP Effectiveness and SSMP Compliance. SSMP Effectiveness is evaluated by discussion and review of key performance indicators and SSMP Compliance is evaluated by a review of elements within the SSMP.

The 2018 SSMP Audit indicates that the District's SSMP is both effective and compliant and that the District is functioning very well. The effectiveness of the District's SSMP is demonstrated by comparing Sanitary Sewer Overflow (SSO) Spill Rate Indices to state and regional averages. A long standing and accepted indicator of a well performing sewage collection system is achieving a spill rate of less than 3.0 SSOs per 100 miles of collection system. In 2017 the District achieved a very low sewer main SSO spill indices of 2.41 SSOs/100 miles, as compared to state and regional averages of 14.07 and 16.18, respectively. Comparison of the District's sewer main SSO spill volume indices indicates a similar favorable comparison of 49 gallons/1000 capita/yr, as compared to state and regional averages of 11,375 and 4,258, respectively.

A detailed review of SSMP Elements can be found in the 2018 SSMP Audit, but in summary the District's SSMP is compliant and contains all required elements. A Narrative

for Recommended Updates and Revisions at the end of the 2018 SSMP Audit describes some of the recommended improvements and the respective actions required. Most of these findings are administrative updates of charts and lists, while some recommended improvements may require an extended amount of time to develop and incorporate. Examples of some of these improvements include: creating a Standard Operating Procedures (SOP) for SSO event documentation and record keeping, completion of Competency Based Training (CBT) for Maintenance Staff, etc. It should be noted that all recommendations can be easily addressed and that no significant deficiencies were found.

Audit Elements

The District's SSMP Audit is comprehensive and addresses all elements of the SSMP to properly demonstrate the degree of effectiveness achieved. The following are some of the areas addressed in the Audit:

- a. The stated purpose or goals are valid and reflects current regulation and District Policy
- b. The executable actions reflect current processes and procedures
- c. All other information shown is correct and current
- d. The status of actions or improvements that were previously proposed in the SSMP
- e. All unplanned actions or improvements that were implemented
- f. Modifications made to the SSMP since the last audit
- g. The monitoring and measurements identified in Section IX
- h. Overview of the SSMP's effectiveness in achieving the stated goals
- i. Proposed changes to the SSMP
- j. Proposed improvements to the collection system, operational procedures, maintenance program, etc., for the upcoming year

Reporting

The District's SSMP Audit is available for review by stakeholders and the public by visiting the District website at: <http://www.westvalleysan.org/documents/engineering/ssmp> and is also kept on file for viewing by visiting the District Office. In addition, the presentation of this Audit to the District Board for their acceptance is one method of informing each of the municipalities served by the District. As part of the District's obligation to Northern California River Watch, an electronic copy of the 2018 SSMP Audit was provided for their review.

SECTION XI

COMMUNICATION PROGRAM

Communication Program

The purpose of the Communication Program is to describe the means by which the District communicates with its stakeholders and the public on the development, implementation, and performance of the SSMP. Another aspect of this Program is to increase public awareness of services provided by the District and other related wastewater industry information through the District's public outreach efforts.

Modes of Communication

There are several opportunities for stakeholders and the public to participate and provide input into the development and update of the District SSMP. During its initial development stage, as with each SSMP Audit and update of the SSMP, the SSMP and related documents are presented to the District Board for review and acceptance. As previously noted, SSMP Audits are performed every two years and re-certification and acceptance of updated SSMPs are required every five years. In addition to the extensive initial development process, to date there have been three SSMP Audit Reports and four updates and re-certifications of the SSMP that have been presented to the Board (ref. Appendix F.2). Prior to each Board Meeting, these documents are included in Board Agenda packet which are readily available for review on the District's website.

Once the SSMP is accepted by the Board, it becomes available on the District website for review and downloading at: <http://www.westvalleysan.org/documents/engineering/ssmp>.

The primary contact for matters concerning this SSMP and public outreach effort is:

Edward Oyama, Director of Engineering and Operations
West Valley Sanitation District
100 East Sunnyoaks Avenue
Campbell, CA 95008
T: (408)385-3011
E: eoyama@westvalleysan.org

Stakeholders

In addition to the public, parties that are considered as stakeholders include the District's Board of Directors and the cities they represent, the City of San Jose, Santa Clara County Department of Environmental Health, Santa Clara Valley Water District, and the San Jose-Santa Clara Regional Wastewater Facility. E-mail notifications to stakeholder contacts will

provide an opportunity to present future SSMP Audits and SSMPs for an opportunity to provide their input. This will help to ensure that communication lines between the District and its stakeholders are open and that information about activities or policies that may have an impact on them is shared.

Public Outreach

Communication of District services, collection system and wastewater related information, and other pertinent information is very important to the understanding and appreciation for this District and the wastewater industry as a whole. The District's website provides links to regulatory and wastewater industry sites, including the State of California's SSO reporting site (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/), the California Water Environment Association's site (<http://cwea.org/>), and the Water Environment Federation information website (<http://www.wef.org/>), among others.

Forms of advertisement being considered are local newspapers and assistance from member city's public outreach programs. FOG community outreach materials include a District letter informing the public of grease issues, a "Fat-Free Sewers" brochure developed by the Water Environment Federation, a grease scraper, and grease can lid. These materials are shown in Appendix G.1. Reduction of SSOs is a District wide goal and BACWA brochures titled Sanitary Sewer Overflows and Sewer Laterals is distributed as part of the District permit process. These brochures are illustrated in Appendix G.2 and G.3. To emphasize to the public that some things do not belong in the sewer, the brochure "It's a TOILET, Not a Trashcan!" is provided with the FOG packet and permit packet. This brochure is shown in Appendix G.4.

Raising public awareness on the critical state of infrastructure and how it profoundly impacts each and every person is vitally important for their understanding of why capital improvements are necessary. The infrastructure related to water, wastewater, and stormwater systems is the focus of the "Liquid Assets" video provided on the District's website (ref. Appendix G.5). It is valuable information that provides insight into the need for public agencies to re-invest funds in order to keep our infrastructure intact and working properly.

Another outreach effort is focused on increasing District recognition and to inform the public of our "free" service to assist them with some of their sewer issues. Every service truck has decals showing our District logo and prompting them to learn more about the District by visiting our website (ref. Appendix G.6). The District also prompts the public to "call us FIRST" and emphasizing to the public that they can anytime, 24/7 for any sewer related overflow or backup. Their calls for service are very important to the District since every second counts when an overflow or backup occurs. Any delay in addressing the blockage, would likely increase the volume of sewage spilled and consequently, the cost of restoration and damage to the environment or home.