



Sewer System Management Plan (SSMP)

Revised January 2019

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Sewer System Management Plan (SSMP) January 2019

BACKGROUND

In 2004, the San Francisco Regional Water Quality Control Board (SFRWQCB) indicated its intent to implement new regulations to uniformly monitor sanitary sewer overflows. Also envisioned was some type of collection system planning document, which all agencies would be required to produce.

The Bay Area Clean Water Agencies (BACWA), with a broad base of collection system management experience, elected to work collectively with the Regional Board to develop a system that would meet the needs of the Regulators, while retaining a common sense and practical approach to collection system management. Oro Loma staff actively participated on the BACWA collections sub-committee charged with developing the core details of the plan. Each element is the result of detailed negotiations with the SFRWQCB. On December 30, 2005, each District in Region II received a 13267 Order Letter outlining the agreed upon SSMP template and reporting requirements. The District first published its SSMP ahead of the requirement on January 28, 2005.

While BACWA was working with the SFRWQCB to develop the SSMP, the State Water Resources Control Board developed a similar requirement for the state, which would supersede the Regional Board agreements. On May 2, 2006, the State issued a Waste Discharge Requirement (WDR) requiring all collection systems to comply with State SSMP regulations. Actual implementation for the San Francisco region began May 2, 2007.

During the past 15 years, the District has successfully developed, refined, and implemented numerous processes and procedures that mirror the elements of the SSMP. The actual processes and procedures include too many pages to incorporate into this document. Therefore, in developing its SSMP, the District has summarized its activities and pre-existing core documents as they relate to each topic required by the State SSMP.

SYSTEM OVERVIEW

Oro Loma Sanitary District was formed in 1911 and remained relatively rural until experiencing significant residential growth following the end of World War II. As of 2019, there are 272 miles of public sewer, 32,000 building service connections, and 6,022 manholes. There are also 13 remote lift stations and 54 critical structures, such as diversion boxes, aerial sewers, and siphons. Average rainfall within the service area is 19 inches and generally occurs between November and April.

As of January 2019, the average age of the collection system is 58 years. The pipes are predominantly vitrified clay pipe (VCP) with cement mortar joints. For new pipes

installed today, the standard is 8" PVC. For rehabilitated pipes, the typical replacement is with 8" HDPE. Approximately 97% of the VCP sewers were installed prior to the introduction of modern pipe joints such as compression gaskets, which were not available until the 1960s. Additionally, more than half of the collection system was already in place before the introduction of improved VCP manufacturing standards, which began in the mid- 1950s. Notwithstanding this, video inspection indicates that the overall condition of the District's Collection System is very good.

The District has had an active Sewer System Management Program since 1988, and has experienced very few line stoppages in recent years. Overflows are even less frequent. Stoppages and overflows have been on a steady decline since 1992, when the District focused its efforts on aggressive line cleaning, continuous video inspection, and dedicated funding to repair or replace every line defect that could result in a service interruption.

Historically, roots and debris caused about 50% of District stoppages, and the remaining 50% was from "other causes." Vandalism in remote areas had caused over 50% of the overflows in excess of 1,000 gallons. The District has taken action to identify locations to install locking manhole covers in areas prone to vandalism (easements). There have been no stoppages or overflows caused by system deterioration or pipe collapse on the gravity system since the SSMP was approved.

The following table illustrates the correlation between increased sewer cleaning and reduced sewer overflows. From a high of 17, the District has reduced its frequency of overflows to one or less in six of the past 13 years.

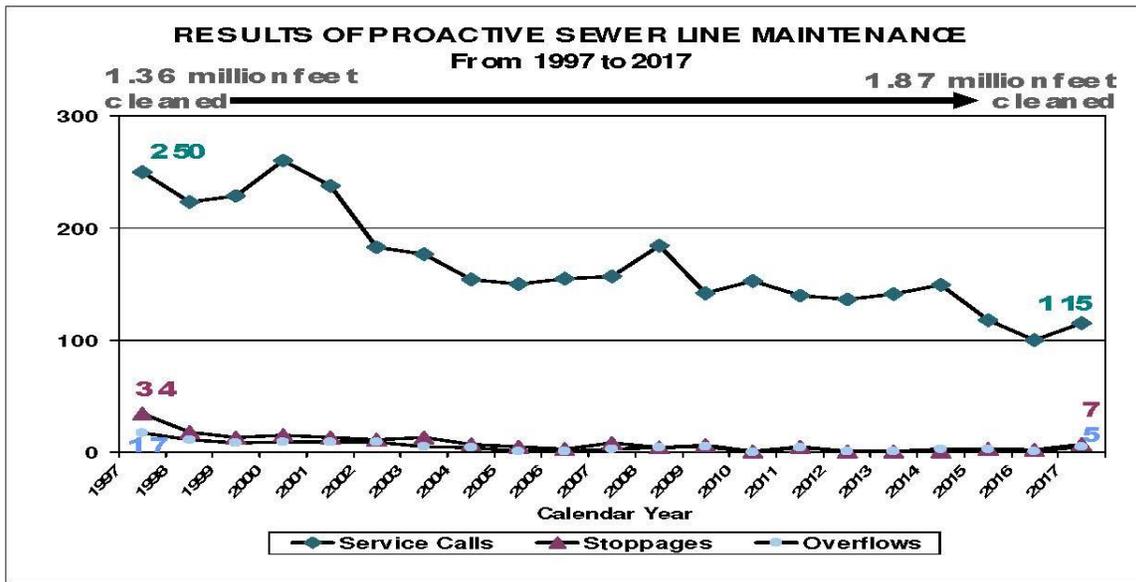
TABLE 19

**Proactive Sewer Line Maintenance and Results
1997-2017**

| Calendar Year | Total Cleaned & CCTV'd (ft) | Monthly Average (ft) | Service Calls | Stoppages | Overflows |
|---------------|-----------------------------|----------------------|---------------|-----------|-----------|
| 2017 | 1,873,595 | 156,133 | 115 | 7 | 5 |
| 2016 | 2,092,466 | 174,372 | 100 | 2 | 1 |
| 2015 | 2,006,671 | 167,223 | 118 | 3 | 3 |
| 2014 | 2,017,473 | 168,123 | 149 | *1 | 3 |
| 2013 | 2,217,645 | 184,804 | 141 | 1 | 1 |
| 2012 | 2,103,762 | 175,314 | 136 | 1 | 1 |
| 2011 | 2,105,110 | 175,426 | 140 | 5 | 4 |
| 2010 | 2,200,451 | 183,371 | 153 | 1 | - |
| 2009 | 2,157,948 | 179,829 | 142 | 6 | 5 |
| 2008 | 2,170,078 | 180,840 | *184 | 4 | 4 |
| 2007 | 2,092,457 | 174,371 | 157 | 8 | 3 |
| 2006 | 2,171,583 | 180,965 | 155 | 3 | 1 |
| 2005 | 2,189,737 | 182,478 | 150 | 5 | 1 |
| 2004 | 2,000,385 | 166,699 | 154 | 7 | 4 |
| 2003 | 2,092,140 | 174,345 | 177 | 13 | 5 |
| 2002 | 2,048,939 | 170,745 | 183 | 11 | 9 |
| 2001 | 2,084,782 | 173,732 | 238 | 13 | 9 |
| 2000 | 1,844,583 | 153,715 | 260 | 15 | 9 |
| 1999 | 2,126,747 | 177,229 | 229 | 13 | 8 |
| 1998 | 2,079,746 | 173,312 | 223 | 18 | 11 |
| 1997 | 1,362,872 | 113,573 | 250 | 34 | 17 |

* 2008 service calls showed a slight increase from 2007, as a result of the District's newsletter encouraging customers to report water leaks on the street to reduce sewer overflow response time and duration.
 * 2014 - 2 overflows occurred on Blackstone Ct. Forcemain (no stoppage).

GRAPH N



The District is situated along the San Francisco Bay and about two-thirds of the District is close to or within a flood plain elevation with correspondingly high levels of ground water, particularly during the rainy season. In fact, many of the original sewers are thought to have been installed at or below groundwater tables. Inflow/infiltration contribution measured at the treatment plant typically does not exceed two and one half times the plant's ADWF of 12.0 MGD. However, during an exceedingly wet weather period in February 1998, the plant recorded a one-day flow of 75.3 MGD. Interestingly, this was not one of the 11 highest-recorded storms since 1950 that have approached the intensity of the District's 10-year "Design Storm."

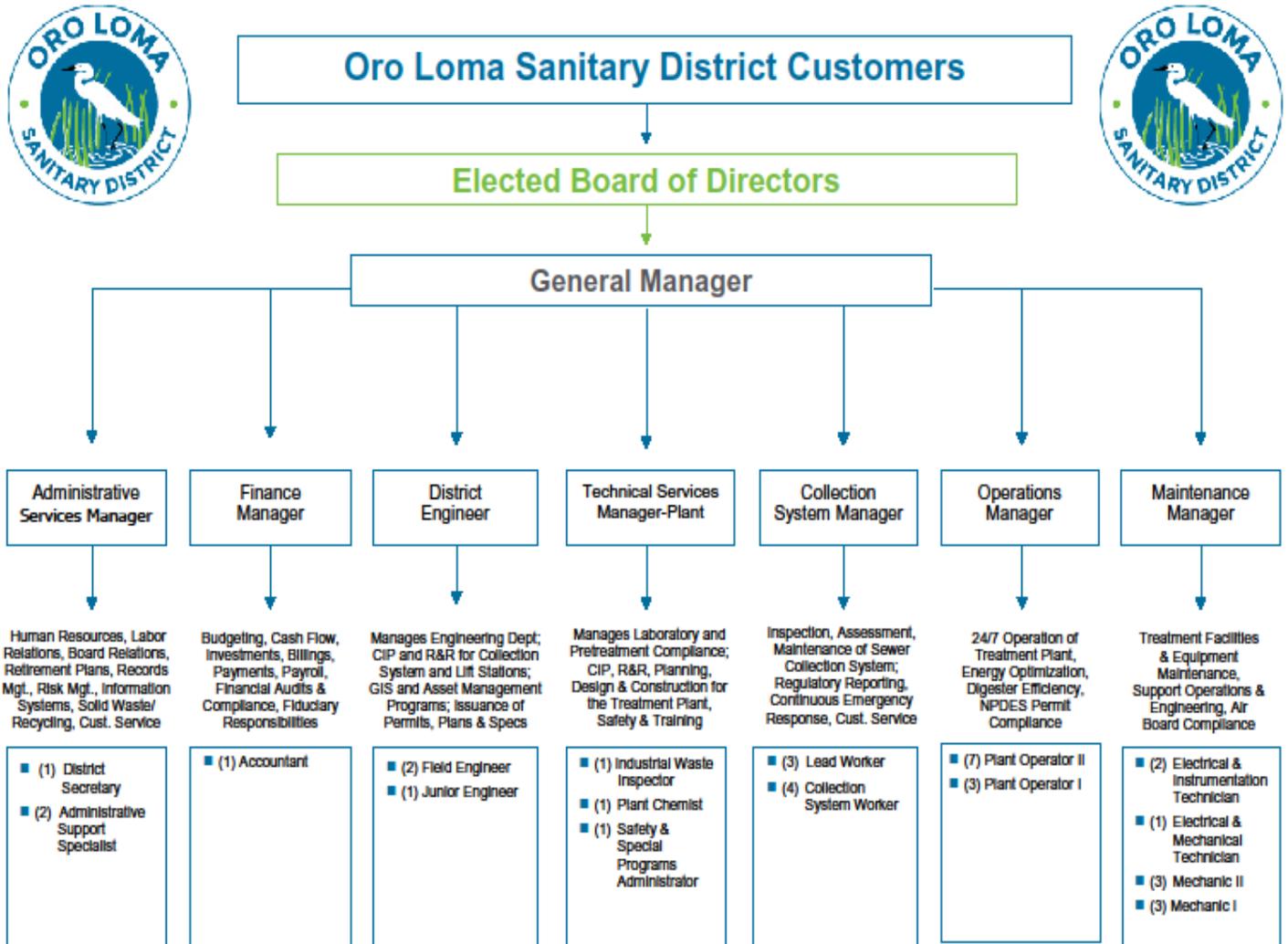
As a final note, Castro Valley Sanitary District owns 25% of the District's treatment plant and independently transports its sewage to a joint interceptor system located one and one half miles east of the Plant.

(i) GOALS

The Board, Management, and District staff work together to achieve the following goals, which are incorporated into the SSMP:

- Continue to professionally manage, operate, and maintain all parts of the wastewater collection system
- Provide adequate capacity to convey peak flows
- Minimize the frequency of SSOs
- Mitigate the impact of SSOs
- Achieve Collection System Team Goals, including annual production rates for cleaning and inspection, short response times to customer calls, and high levels of customer satisfaction.

(ii) ORGANIZATION



Reporting Structure — The Collections and Engineering Departments independently report to the District's General Manager. The purpose is to ensure that the General Manager receives an unfiltered flow of information from both groups. In most cases, the two groups have consensus on the need for and progress on various pipeline projects. However, in rare cases, the check and balance system ensures that the General Manager has adequate information to ensure that service-related problems are addressed on a timely basis.

Service Calls — District offices are open Monday through Friday, 8:00 a.m. to 5:00 p.m., and all service calls are referred directly to the Collection System Manager. While there is a 24-hour telephone at the plant, the District uses an after-hours 24-hour answering service to take emergency calls. Emergency calls to the District's main line go directly to the service to ensure quick response. The service then relays the message to the on-duty plant operator by telephone. The on-duty plant operator makes a determination about the emergency, and, if necessary, summons the Collections employee who is on 24-hour standby duty at that time. Collection workers summon additional help as necessary. The ability of the police, fire department, or citizens to talk to a live person 24 hours a day adds the positive benefits of human interaction, significantly reducing the possibility of a missed call or misunderstanding about the nature of a problem. The Collection System Manager and standby collection worker are each furnished with a District truck and cell phone.

The District's system of service call management, as well as dedicated collections and on-call staff, has resulted in best-in-class response time. Currently, the District manages its 'on-hours' response time to under 10 minutes. The District's response time for 'off-hours' calls is currently under 30 minutes. These response times work to eliminate or greatly reduce the impact of a stoppage, should one occur.

The Collection System Manager makes a report for every SSO. For those SSOs that need additional engineering analysis, the report includes analysis and recommendations for corrective action by the District Engineer. All reports of SSOs go to the General Manager, who reviews them and insures that they are forwarded to appropriate regulators on a timely basis.

(iii) LEGAL AUTHORITY

District Ordinances — The District has a Pre-Treatment Ordinance (Ordinance 39 as amended) regulating what materials can be placed into the sewer, including a requirement for grease interceptors. The District's pre-treatment official regularly inspects businesses that may not be complying with the District's ordinance and works closely with the collection crews to ensure that their independent efforts are coordinated. The District also has an ordinance (Ordinance 35-15) requiring backwater prevention devices and cleanouts to be installed on all new construction and retrofitted in a number of situations, including lateral replacement and home additions. The District requires grease traps or interceptors on businesses that generate grease or chemicals as byproducts.

(iv) OPERATION AND MAINTENANCE PROGRAM

Collection System Maps — Each of the District’s 100 base maps are digitized and formatted into an ArcGIS based mapping system. The Graphical Information System (ArcGIS) mapping system is linked to the Collection Department CMMS program, a street directory, and TV Inspection Records. The link allows the map to be populated with key data such as rim elevation, pipe length, and other data. Maps are continuously updated by Engineering as new tracts are accepted and map corrections are identified by the Collection crew based upon field observations. Engineering provides updated map pages to all map holders on a regular basis.

Pipe Inventory Collection System Characteristics by Pipe Material

| Material | Sanitary Sewer | Siphon | Force main | Total Footage | Miles | % |
|-----------------------------|------------------|--------------|---------------|------------------|---------------|-------------|
| ABS - AB Styrene | 34,590 | 0 | 0 | 34,590 | 6.55 | 2.4% |
| ACP - Asbestos Concrete | 31,603 | 0 | 597 | 32,323 | 6.12 | 2.2% |
| CIP - Cast Iron | 852 | 125 | 78 | 1,055 | 0.20 | 0.1% |
| CLS - Cement Lined-Steel | 0 | 0 | 0 | 0 | 0.00 | 0.0% |
| CPP - Cast in Place Poly | 2,281 | 0 | 0 | 2,281 | 0.43 | 0.2% |
| DIP - Ductile Iron | 12,061 | 150 | 2,990 | 15,201 | 2.88 | 1.1% |
| FRP - Fiberglass Reinforced | 4,364 | 0 | 0 | 4,364 | 0.83 | 0.3% |
| PCT – Polycrrete | 1,808 | 523 | 0 | 2,331 | 0.44 | 0.2% |
| PEP – Polyethylene | 169,728 | 378 | 2,363 | 172,469 | 32.66 | 12.0% |
| PVC - Polyvinyl Chloride | 128,843 | 215 | 3,648 | 132,716 | 25.14 | 9.2% |
| RCP - Reinforced Concrete | 29,734 | 42 | 3,650 | 33,426 | 6.33 | 2.3% |
| VCP - Vitrified Clay | 1,002,650 | 585 | 355 | 1,006,606 | 190.65 | 70.0% |
| Total | 1,418,514 | 2,018 | 13,681 | 1,437,362 | 272.23 | 100% |

Source: OASIS Database as of October 31st, 2018

System Maintenance — In 2008, a seventh member was added to the crew of six employees as a part of a succession planning effort. In 2010, one of three long-tenured members of the crew retired, lowering the crew back to the original number of six. The practice was initiated again in early 2013, in advance of an anticipated retirement in late 2013. Management continued to monitor the needs of the crew and workload, and in 2018 determined the need to add one full-time position due to workload and workforce planning. This equates to 38.85 miles of sewer line per member and is in line with industry best practices for staffing (AWWA Benchmarking Study 2016). The crew is equipped with modern equipment, including a hydrovac truck, three hydros, a rodder, two CCTV vans, four pickup trucks and a backhoe. The crew provides 24/7 emergency standby and is trained and equipped to make emergency repairs on lines up to 8" in diameter.

Smoke Testing — The District owns smoke testing equipment to detect defects, cross connections, and unauthorized connections to the system.

Computerized Maintenance and Management System (CMMS) — The District uses the Operator Assisted Sewer Inspection System (OASIS) computer program to electronically store and retrieve data such as service calls, manhole designations, numbered line segments, line sequencing, and cleaning schedules. This program also electronically interfaces with the District's digitized base mapping system.

Video Inspection — The District has two modern TV vans that use digital video equipment and conduct underground pipe inspection on a daily basis. The District's entire collection system is video inspected every three years. The second van, in addition to assisting with daily video inspection of the District, is utilized for routine cleaning as well. Line segments that have historically been hydro jetted for routine cleaning are now being televised, and cleaning is pinpointed to only the required areas. This reduces the amount of mechanical cleaning and subsequent damage to the pipes. This has led to the conservation of over 7.2 million gallons of water since the program was implemented.

Beginning in 2008, the District began recording pipe observations using a national condition scoring standard developed by the National Association of Sewer Service Companies (NASSCO). The standard has been adopted by many agencies throughout the United States and provides a consistent method to assess the condition of a sewer system between individual operators and from one collection system to another. The scoring methodology also allows staff to rank the condition of each pipe in its system based upon its structural and operational characteristics. As the inspection continues and the assessment database grows, staff will utilize these scores to rank and prioritize the rehabilitation projects in the District's capital improvement program.

In addition to using the NASSCO scoring, staff applied an additional process step to align with District priorities. For example, an offset pipe that restricts an inspection camera would be considered by NASSCO as a 3. For Oro Loma, this requires a spot repair and would be scored a 5. In other cases, NASSCO's scoring calls for

a score of 5 for a pipe with a decade of observations showing that a defect is stable in a serviceable pipe. To allocate resources to the most pressing issues, the District now uses additional scoring over and above the NASSCO standards.

Lift Stations — The District has 13 lift stations with pump horsepower ratings ranging from 2HP to 88HP. All stations have redundant pumps and five have on-site backup generators. The other eight have adequate wet-well capacity for an extended power outage, as well as quick connect systems to allow connection to the District's portable generators. In the event of redundant pump failure, hoses, pumps and pump-around solutions have been preplanned and tested in training exercises. Personnel from every department have also been cross-trained to deliver and connect emergency power to the lift stations. Each lift station has a data sheet indicating the number of homes connected to it, and in the event of total pump failure, how much time there is before the station will overflow. All 13 stations are connected by a licensed UHF radio system to a supervisory control and data acquisition (SCADA) system at the treatment plant, which is operated 24 hours a day, seven days a week.

Plant operators carry a cell phone connected to the SCADA system. Lift stations have a dedicated mechanic who services and inspects each facility based on a computerized maintenance schedule. Duties include changing fluids, checking batteries and battery chargers, exercising standby generators, cleaning wet wells, clearing bar screens, applying degreaser, and changing odor control agents.

The District successfully operates redundant pump configurations and successfully maintains a replacement inventory in the event of unexpected failure. Lift stations are completely rehabilitated on an as-needed basis with new pumps, stainless steel pump rails, new cables, and updated electrical and instrumentation.

Line Maintenance — The collections crew cleans and televises the system on an ongoing basis. They achieve an average monthly performance totaling 150,000 feet of combined service (Total System = 1.45 million feet). In difficult areas, cleaning is immediately followed by video inspection to ensure adequate cleaning. The District's CMMS program schedules line cleaning on the following cycles:

- High Frequency Cleaning: 1-, 3-, 6-, and 12-Month Intervals
- Routine Cleaning: 2.5 Years
- Routine CCTV Inspection: 3.0 Years

Flow Monitoring — The District reviews the plant influent flows annually to determine changes in collection system performance. As changes are noted, flow monitoring is performed to determine locations and causes. Approximately every five years, the District monitors the flows in all the major trunk sewers. This data is used to calibrate the flow model and identify changes in inflow/infiltration patterns.

Structures — There are 54 critical structures consisting of large junction boxes, freeway crossings, siphons, and earthquake fault crossings. These structures are inspected every five years and rehabilitated as necessary.

Hydraulic Modeling — In 2014, the District converted its Hydra-based flow model to the Danish Hydraulic Institute’s integrated water modeling system - MIKE URBAN. The new software provides sophisticated and realistic modeling. The District is currently using the model to identify existing storage opportunities in the system to limit peak flows through the treatment facility.

Capacity Studies — Developers are required to hire independent engineers to conduct hydraulic capacity studies for residential developments of 10 units or more. The study examines both existing downstream line capacity and capacity at projected build-out. Commercial developments are also subject to the same requirements. These studies are kept on file by the District and are available for inspection.

Collection System Master Plan — The District has a 2001 Master Plan prepared by Carollo Engineers. This is an update to a 1988 Master Plan prepared by CH2MHill. The Carollo Plan hydraulically modeled the District’s entire Collection System using all lines 10 inches in diameter and larger. The analysis was based on extensive flow monitoring and recommendations were made based on a 10-year 24-hour Design Storm (2.87 inches/24 hrs. with a peak intensity of 0.5 inches per hour). The plan called for upsizing various line segments to eliminate bottlenecks and remain within a manhole surcharge criteria of half full. All the required lines were either upsized or found to be adequate based upon subsequent storm flow monitoring. The plan also recommends upsizing various lines based on actual growth through a projected buildout in 2020. As new or replacement pipes are installed, the hydraulic model and affected sections of the Master Plan are updated. In 2014, the District updated the hydraulic model, performed additional flow monitoring, and calibrated the new model. The results of the study showed that based on the 10-year 24-hour design storm, the District will experience no sanitary sewer overflows (SSOs) due to capacity limitations.

Collection System Long-Term Rehabilitation Plan — The District’s Board established significant 10-Year Strategic Plan Goals related to the collection system in 2016. The Board’s vision was for the system to be in better condition in 10 years, despite degradation due to aging. This big picture goal translated into two primary sub-goals, including reductions in the mileage of Grade 3, 4, and 5 defects and reducing the percentage of the system requiring high-frequency maintenance.

District engineering staff maintains a 5-year plan prioritized for sewer system repair, replacement, rehabilitation, and enlargement. The plan inventories the District’s pipe system by age, type, and size. It also creates an annual plan and budget for two categories of repairs: point repairs and pipeline replacements. Lines selected for point repairs or replacements generally have defects posing imminent service disruption to a small segment of the collection system.

Pipe defects are identified and repaired in the following manner: the Collections crew member in the CCTV van identifies the pipe defect during routine CCTV inspection of the system and marks the defect using PACP and the code “start repair.” The Collection System Manager reviews the “start repairs” and submits

work requests to Engineering for analysis and repair. The District Engineer reviews all work requests, investigates the defects and determines if the defect is to be watched, repaired, or if the pipe is to be replaced. Repairs and pipe replacements with the risk of imminent failure are immediately addressed through change order work on existing sewer repair contracts. All other repairs are completed within 18 months and pipe replacements are placed on the five-year pipe replacement list.

Point Repair — The District identifies approximately 120 pipe defects every year that warrant immediate repair. These repairs are performed within 18 months of identification and consist of broken drops, broken pipes, root intrusion, worn manhole channels, and broken manhole castings.

Pipeline Replacement — A pipeline is replaced when it needs to be upsized to accommodate the District's 10-year Design Storm, or there are enough defects that point repairs would be more costly than half the replacement cost. All 6" line replacements are replaced with 8" HDPE or greater, depending upon the flow requirements. Pipelines that require replacement are placed, when identified, on a five-year list that is prioritized on an annual basis. Every year the District uses the prioritized list to develop a replacement project of approximately 3-4 miles of pipe.

USA Marking Program — The District participates in the USA Marking Program and augments its efforts by distinguishing risk from third party excavation or drilling as likely or unlikely. In cases where risk is likely, the District marks the lines and coordinates field efforts to avoid and/or discover damage to District pipelines. The field efforts include using on-site District inspectors during construction and video inspection of District pipelines after work around our pipelines is complete.

Collection Systems Reliability/Post-Earthquake — The Hayward Fault crosses through the District. The District has identified all the fault crossings and plotted the location of each sewer line crossing. There are a total of 14 fault/sewer crossings ranging in size from 6-24 inches. The District has also identified and documented critical assets, including freeway crossings, lines in special easements, and unique structures that are critical to the overall operation of the collection system. After an earthquake, the ability to quickly assess the condition of the Collection System is vital. The District has pre-selected 28 manholes which, upon inspection, will identify line failures. The 28 locations are broken down and prioritized into three lists of 10 sites, labeled A, B, and C. Each sheet contains directions to the manhole, as well as what normal flow conditions should look like. Directions start at the Plant and lead to each manhole location. This system is designed so that in an emergency, the task can be assigned to any District employee able to open a manhole cover.

Training — The District is committed to training its workforce. This includes management training for managers, and customer service, equipment use, and safe work practices training for staff. Typically, safety training occurs every other Wednesday for a one-hour period. Each year, employees receive approximately 40

hours of dedicated training. These hours are in addition to daily insight and optimization of work practices from the manager and lead workers. Collection workers also participate in CWEA programs and vendor sponsored training courses and events.

Replacement Inventories – The District maintains a replacement inventory for the 13 lift stations and the collection system, including spare pumps for all the stations. The stations operate in all conditions without the need for redundant pumps. The inventory list is included in the District’s Contingency Plan that is updated annually. The District also has a number of portable pumps up to 6" in diameter. All pumps are stored in a single location along with palletized lengths of extra hose with quick connect couplings. The District also maintains a number of portable electronic generators ranging in size from 5,000 Watts to a trailer-mounted 150 kW generator.

Plumber’s Outreach — Historically, a large fraction of District overflows were caused by the introduction of foreign objects into the sewer by construction crews or plumbers. Examples include construction debris thrown into manholes, root balls cut out of laterals, or broken pieces of pipe from a break or new installation. To raise the awareness of this issue within the construction community, the District developed an outreach flyer that explains our goal of zero overflows, that their actions have caused problems in the past, that plumbing companies can be held responsible for overflows attributed to their activities, and that we are available 24 hours a day at no cost to inspect a line if they suspect that debris may have been introduced.

(v) **DESIGN AND PERFORMANCE PROVISIONS**

Standards for Installation, Rehabilitation and Repair — The District’s Engineering Department maintains a book of sewer system installation and Design Standards. These standards are required for both new installations and replacement facilities. They are available to contractors and citizens at no charge and are updated as necessary.

Inspection and Testing of New and Rehabilitated Facilities — The District has several Engineering staff members that inspect new construction and repairs. The Engineering staff ensures that all construction meets District standards and codes. All sewers constructed by outside contractors are pressure cleaned, tested, and video inspected before acceptance.

(vi) **CONTINGENCY PLAN**

As part of the Contingency Plan, the District has adopted Standard Procedure No. I.A.8, COLLECTION SYSTEM SERVICE CALL RESPONSE AND SANITARY SEWER OVERFLOW RESPONSE, HANDLING, AND REPORTING. The Plan is updated annually or as regulatory changes occur, thus eliminating the need to update this SSMP when these changes are required. The plan includes procedures

for overflow mitigation, emergency response, clean-up, spill recovery, internal and external resources, and rehabilitation of damaged dwellings and buildings. It also includes provisions for public notification, testing for contamination, and notification to regulators. The plan addresses overflows at lift stations and sanitary sewers. The District has a dedicated 24/7 response vehicle and a vacuum truck to maximize recovery of sewage that reaches the street and/or storm sewer. The District defines an overflow as any time raw sewage escapes from the public sewer onto public or private property. All overflows, backups, etc., are investigated as to their causes and corrective action needed to prevent future incidents. All overflows are documented with written reports. Category 1, 2 and 3 overflows are reported to the appropriate agencies as required by MRP Order No. WQ 2013-0058-EXEC.

(vii) **FOG CONTROL PROGRAM, (FATS, OILS and Grease)**

Fats, Oils, and Grease Control (FOG) — The District’s Industrial Waste Inspector is informed by Engineering when new or updated commercial establishments are connecting to the sewer and any pretreatment equipment is being installed. The District has a hot-spot identification program for FOG from existing dischargers. The Collections Department staff refers excess grease or other potential non-desirable discharges coming from commercial establishments to the Industrial Waste Inspector for investigation and enforcement, if necessary. The Industrial Waste Inspector typically requests the AIMS video camera data available to support enforcement efforts. The District communicates FOG best practices routinely via its newsletter, website, and social media outreach.

(viii) **SYSTEM EVALUATION CAPACITY AND ASSURANCE PLAN**

Financial Commitment — The District’s capacity assurance efforts rely on its Collection System Master Plan and its internal Collection System Long-Term Rehabilitation Plan, which are updated annually. Using these documents as source data, capital projects are scheduled in a 2-year budget process. Point repairs are made soon after discovery and are frequently re-prioritized to ensure uninterrupted sewer service. Line repairs are part of the District’s repair and replacement budget, which allocates the amounts listed below every year.

| | |
|---|----------------------------|
| Point and Line Repairs | \$ 1,250,000 |
| Pipeline Replacement | \$ 4,000,000 |
| Source Detection | \$ 10,000 |
| GIS Mapping System Upgrades And Asset Management Program | <u>\$ 50,000</u> |
| Total | <u>\$ 5,310,000</u> |

The District also funds major structure or trunk sewer replacements in its capital budget. The District’s Capital Improvement Plan includes \$26.6 million for collection system upgrades over the next five years. .

Climate Change Resiliency - Collection System Managers are faced with the challenge of responding to climate change. The challenge is compounded by the uncertainty of whether change will lead to more or less precipitation and at what rate. For Oro Loma, we assume that Climate Change will lead to less annual precipitation, but that it will occur in more intense periods. This assumption is conservative in that it requires the District to provide for peak storm capacity and periods of low flow – mimicking both flood and drought conditions on a regular basis.

The District's current Pipeline Program is well aligned with adaption to Climate Change. At an average rate of 1.5% per year of pipe replacement, the District will have replaced nearly 2/3 of its collection system with HDPE pipe in the next 50 years. HDPE is a flexible and jointless piping system that is expected to reduce infiltration in our system over time. Less infiltration will counter the impacts of higher-intensity storms. HDPE is also a smoother pipe and its jointless construction counters the impacts of drought or drought-like low flows. In short, the District's pace of pipe rehabilitation is expected to stay ahead of impacts from climate change.

Although the District does not maintain or manage private sewer laterals, the trend is similar for property owners. In FY 2017/18, 0.3% of laterals in the District were replaced with HDPE pipes. Over time, these jointless and flexible connections will reduce the amount of infiltration reaching the collection system. Even if the rate stays constant, staff projects that private laterals will be upgraded faster than the impacts from climate change.

(ix) MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS

The Collections department prepares a monthly report tied to specific performance measures, which are reviewed and refined each fiscal year. This includes a list of spot repairs identified and submitted for repair, stoppages, overflows, miles televised, miles cleaned, number of service calls, and service call response time during and after business hours.

(x) SSMP PROGRAM AUDITS

The District will audit its SSMP Program at intervals of no more than two years. A written report will be prepared and kept on file. The audit will focus on evaluating the effectiveness of the SSMP and the District's compliance with SSMP requirements.

(xi) COMMUNICATION PROGRAM

The District will communicate with the public on development, implementation, and performance of its SSMP through its newsletter and public outreach efforts. The District will also provide the public with the opportunity to offer input through the newsletter, public tours, open house, and at public meetings at which the Board of Directors reviews and approves the SSMP.

(xii) RE-CERTIFICATION AND AVAILABILITY

The SSMP is updated every five years to incorporate significant program changes. Re-certification by the District's Board of Directors is also performed when significant updates to the SSMP are made. To complete the re-certification process, the District posts the online location of the SSMP to the CIWQS online SSO Database. The District includes a downloadable copy of the approved SSMP, critical supporting documents referenced in the SSMP, and proof of the local governing board approval of the SSMP. This information can be found on the District's website, OroLoma.org.



Oro Loma Sanitary District SSMP Change Log: 2018

| Date | SSMP Element | Description of Change/Revision Made | Change Authorized by |
|------------|------------------------|---|----------------------|
| 11/09/2018 | System Overview | Language and Statistic Updates <ul style="list-style-type: none"> Change of manhole number due to abandonment during rehabilitation. Change of Lift Station number due to the elimination of one Lift Station. Change of "Table 19" to include the last 20 years of data. Change of "Graph N" to include the last 5 years. | C.J.B |
| 11/09/2018 | (i) | No Changes Required | C.J.B. |
| 11/09/2018 | (ii) | New Organization Chart <ul style="list-style-type: none"> Replace the old Organization chart with the newest version. | C.J.B |
| 11/09/2018 | (iv) | Pipe Material Percentage Update <ul style="list-style-type: none"> Change in "Pipe Material Inventory" to reflect changes due to Line Replacement. | C.J.B |
| 11/09/2018 | (iv) | Pipe Material Percentage Update <ul style="list-style-type: none"> Change in "Pipe Material Inventory" to reflect changes due to Line Replacement. System Maintenance Language Change <ul style="list-style-type: none"> Change to the existing staffing levels from 6 to 7. Video Inspection Language Change <ul style="list-style-type: none"> Change to "Video Inspection" to reflect the utilization of the second van for cleaning lists and water conservation. Change to "Video Inspection" to incorporate the use of a "Modified NASSCO Score" for triage and prioritization of repairs and Line Replacements. Lift Station Language Change <ul style="list-style-type: none"> Change to "Lift Stations" to reflect the elimination of one Lift Station. | C.J.B |

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|------------|------------|---|--------|
| 11/09/2018 | (iv) cont. | <p>Line Maintenance Language Change</p> <ul style="list-style-type: none"> • Change to “Line Maintenance” from 175,000 to 150,000 average monthly performance. • Change to “Line Maintenance” Routine CCTV Inspection schedule from 2.5 years to 3 years. <p>Flow Monitoring Language Change</p> <ul style="list-style-type: none"> • Change to “Flow Monitoring” to similarly align with strategic goals. <p>Hydraulic Modeling Language Change</p> <ul style="list-style-type: none"> • Change to “Hydraulic Modeling” to similarly align with strategic goals. <p>Collection System Master Plan Language Change</p> <ul style="list-style-type: none"> • Change to “Collection System Master Plan” to similarly align with strategic goals. • Deletion of the “Line Repair” section as we no longer do Line Repair. • Change to “Pipeline Replacement” to similarly align with strategic goals. <p>Replacement Inventories Language Change</p> <ul style="list-style-type: none"> • Change to “Replacement Inventories” to reflect the elimination of one Lift Station. | C.J.B |
| 11/09/2018 | (v) | <p>Design and Performance Provisions Language Change</p> <ul style="list-style-type: none"> • Change to “Inspection and Testing of new and Rehabilitated Facilities” to reflect current staff duties. | C.J.B |
| 11/09/2018 | (vi) | No Changes Required. | C.J.B |
| 11/09/2018 | (vii) | <p>Fats, Oils and Grease Control (FOG) Language Change</p> <ul style="list-style-type: none"> • Change to Fats, Oils and Grease (FOG) to reflect current staff duties. | C.J.B |
| 11/09/2018 | (viii) | <p>System Evaluation Capacity Assurance Plan</p> <ul style="list-style-type: none"> • Change to “Financial Commitment” to reflect “GIS Mapping System Upgrades” and Collection System Upgrades. • Addition of “Climate Change Resiliency” Language | C.J.B. |
| 11/09/2018 | (ix) | No Changes Required | C.J.B. |
| 11/09/2018 | (x) | No Changes Required | C.J.B. |
| 11/09/2018 | (xi) | No Changes Required | C.J.B. |
| 11/09/2018 | (xii) | No Changes Required | C.J.B. |