

City of Los Altos

Sewer System Management Plan (SSMP) - Audit 2015 & 2016

SSMP Audit

This audit reviews the City of Los Altos' (City) SSMP documentation and implementation for the period of calendar years 2015 and 2016. The audit is intended to meet State Water Resources Control Board (SWRCB) 2006 waste discharge requirements (WDR), State Water Board Order No. 2006-0003-DWQ, for agencies that own or operate wastewater collection systems. Consequently, this audit assesses the current state of compliance with WDR provisions, identifies "deficiencies" found in the SSMP and recommends corrective actions to remedy those deficiencies.

Humphrey Consulting (HC) performed this third party audit on behalf of the City through evaluation of SSMP documentation provided by the City, publically available data sources such as the City website and California Integrated Water Quality System (CIWQS), and meetings and conversations with City staff involved in the implementation of the City SSMP. The following table lists the audit participants:

Table 1 - Audit Participants

Participant	Role	Agency
Doug Humphrey	Lead Auditor	Humphrey Consulting
Chris Lamm	Engineering Services Manager	City of Los Altos
Aida Fairman	Associate Civil Engineer	City of Los Altos
Grant Gabler	Maintenance Supervisor	City of Los Altos

All participants attended an initial project kickoff meeting on February 6, 2017. City audit participants provided Humphrey with SSMP information throughout the audit in response to requests from Humphrey.

Audit Schedule

The City's SSMP includes both SWRCB and Regional Water Quality Control Board (RWQCB) Element language and requirements. One of the recommendations of this audit is that language related to RWQCB requirements for SSMPs should be deleted, since it is no longer required or applicable as indicated in the RWQCB's letter dated October 3, 2012. That correspondence notified agencies that own or operate sanitary sewer systems that they no longer needed to submit annual SSO or audit reports to the RWQCB, that the previous RWQCB requirements regarding SSMPs (except for SSO enforcement) were rescinded, and that the WDR requirement of audits every two years

was in effect. Consequently, audits reports are due for completion by June 24 (based on the original SSMP adoption date), every other year, and no submittal to the RWQCB or SWRCB is required.

SSMP Effectiveness

The evaluation of effectiveness of each SSMP Element, including a brief narrative of audit findings, is provided on the attached SSMP Elements Audit Report for 2015-2016. Any deficiencies and subsequent corrective actions are noted in the narratives for each element. It is also anticipated that the SSMP will be updated essentially at this time, as a result of this audit and its findings.

SSO Rate and Volumes

The rate of SSOs, SSO volume, and SSO volume that reaches waters are the most common measurements of SSMP effectiveness and success. The following is a summary of these parameters for Los Altos for the audit period of calendar years 2015 and 2016.

- The SSO rate dropped in the second year of the audit period (2016), and was lower than the Region rate reported in CIWQS. Los Altos' rates were 5.7/100 miles/year (2016) and 9.3/100 miles/year (2015). That compares to Region (Region 2, San Francisco Bay Region) rates of 7.25 in 2016 and 6.63 in 2015. The trend of the rate is decreasing, from 12.1 in 2014 to 5.7 in 2016. This is a positive sign and a good indication that the SSMP is effective in reducing the rate and occurrence of SSOs.

SSO Rate (SSOs/100 miles/year)

Year	SSOs	City SSOs/100mi./year	Region 2 (SSOs/100 mi./year)	State (SSOs/100 mi./year)
2016	8	5.7	7.22	4.94
2015	13	9.3	6.72	5.38

- The SSO volumes for the period are also lower than both State and Regional figures. The total volume of City SSOs in 2016 was 3141 gallons and in 2015 was 1462 gallons. That is 2242 gallons/100 miles/year in 2016 and 1044 gallons/100 miles/year in 2015. Regional figures were 37,302 and 4354 for 2016 and 2015 respectively. The following table shows the City, region, and State values for SSO in gallons per year, and gallons per 1000 miles per year. The City's record of SSO volumes continues to be very low and well under those of the Region and State.

This is an excellent measure of SSMP effectiveness, since SSO volumes are very low.

SSO Volume (Gallons & Gallons/100 miles/year)

Year	SSO Volume (Gals.)	City Gals./100mi./year	Region 2 (Gals./100 mi./year)	State (Gals./100 mi./year)
2016	3141	2242	37,302	27,913
2015	1462	1044	4354	21,550

- The SSO volume that reached surface water was 0 gallons or 0% and 100 gallons or 10% in 2016 and 2015 respectively. In comparison, the Region and State values were 73% and 51% and 68% and 17% for these same years, as shown in the table below. Clearly, the City figures are much lower and again, a good indicator that SSMP is effective in keeping SSO volume that reaches surface water at a minimum. This is a very important indicator, since the primary goal of the SSMP is to operate and maintain the collection system so that water quality is maintained and impacts from SSOs are minimized.

**SSO Volume Reaching Surface Water
(Gallons & SSO % Reaching Surface Waters)**

Year	City SSO Volume (Gals.)	City SSO Volume (% reaching water)	Region SSOs (% reaching water)	State SSOs (% reaching water)
2016	0	0	73	68
2015	100	10	51	17

Strengths

The following is a summary of the strengths of the City SSMP:

- The SSO rate is reasonable, and the trend is decreasing and lower than in 2014.
- The SSO volume is very low and the volume to surface water is also extremely low, actually 0 in 2016. This results from a low SSO rate and demonstrates that City staff implement the overflow emergency response plan effectively and provide efficient SSO responses.

- The time to respond (in person) to SSO events or "response time" is excellent - 33 minutes in 2016 and 27 minutes in 2015. This helps to minimize volumes and volumes to surface water.
- SSO reporting is timely and in accordance with requirements.
- The FOG control program is very active and effective, and inspections were conducted on 126 FSEs in 2016.
- The City has a thoughtful, comprehensive, planned preventive maintenance program. Implementation of the program is thorough and effective in accomplishing proper system operations and maintenance (O&M). The City employs condition assessment (CCTV work) in addition to preventive (regular cleaning) and reactive maintenance activities, and that assessment is an important diagnostic tool and resource that assists capital planning and can help to minimize catastrophic asset failures and minimize SSOs. It appears that staff has completed planned maintenance activities almost as planned.
- The City's record of no lift station failures continued throughout this audit period and there were no significant problems or issues with lift stations or force mains.
- The City has an extensive library of standard operating procedures (SOP) for important activities.
- The City's Municipal Code (MC) provides adequate legal authority to meet the requirements of the WDR.
- The record keeping of collection system activities is good, is of good quality, and is very comprehensive and accessible. Information for this audit was easy to obtain and was readily available upon request.
- This audit and update are performed within the timelines required by the WDR and MRP. The previous audit and SSMP updates were approved on March 24, 2015.

Deficiencies & Corrective Actions

Previous audit deficiencies for the audit completed in March 2015 included eight (8) deficiencies; 5 in the "major" category, two (2) that were "moderate", and one (1) "minor" deficiency.

All five major deficiencies have been corrected - the SORP incorporated required notification and monitoring changes, sampling and lab protocols have been defined, the SSMP Monitoring and Tracking Sheet has been modified, and the last SSMP update was submitted to and approved by the City Council. The fifth deficiency, conducting annual

audits and submitting to the RWQCB, was not done since it has been two years since the last audit. However, as noted in the "Audit Schedule" section above, the corrective action for this "deficiency" is actually incorrect because there is no longer a RWQCB requirement of annual audits and submittal to the RWQCB. The SWRCB requirement, per the 2013 MRP, is that audits must be done every two years and this audit is performed within that timeframe, so in essence this deficiency has been corrected.

The moderate deficiencies identified in March 2015 were all corrected. The SSMP Update was posted on the City website.

The minor deficiency was partially addressed, as two previous audits were added to the SSMP appendices, but the most recent 2015 audit has not yet been added, and this should still be done.

Deficiencies identified in this Audit:

- There are no longer RWQCB requirements separate from SWRCB ones, so the references to the RWQCB are superfluous and should be removed.
Corrective Action: Remove all references to RWQCB throughout the SSMP.
- The City currently has designated only one legally responsible official (LRO) that can certify SSO reports in the State CIWQS system. The City should designate at least two LROs to ensure that there is 24 hour coverage for SSO certification.
Corrective Action: Designate one position in addition to the Associate Civil Engineer to be an LRO, and take the necessary steps through CIWQS to implement such addition.
- The SSMP Monitoring Tracking Sheet contains much good information needed to adequately assess SSMP performance, but the figures regarding causes of SSOs could be added. Also, there are no illustrations or graphs of trends and performance included or added as an attachment to the tracking sheet. Some suggested graphics are attached to this audit report.
Corrective Action: Add the SSO cause data to the tracking sheet, and add some graphs to illustrate some of the tracked data. The sheet and associated graphs should be posted on the City website each year.
- Annual audits are no longer needed and the audit section needs to be revised accordingly.
Corrective Action: Revise the audit element in the SSMP as suggested, and post the completed audits on the City website after accepted by the Council.
- There presently is no annual SSMP training for staff that implements the SSMP.
Corrective Action: Initiate annual SSMP refresher training for relevant staff.

- The SSMP Change Log, or "List of Revisions" as it was previously called, has not been kept up to date with significant SSMP revisions since the last SSMP update.
Corrective Action: Maintain the change log in the future by adding any significant changes to the SSMP as they occur.
- Numerous SSO starting times were determined to be the exact time that the City was notified about the SSO - 11 of the 13 in 2015 and 7 of the 8 in 2016. State enforcement staff has indicated they prefer that agencies develop and implement a system to determine start times that precede the time of notification, since in most cases it is extremely unlikely an SSO starts at exactly the time someone first notices it.
Corrective Action: Develop and implement a system, or assumed timing, for SSO start times so start times precede the notification (by public) time, and modify section III.D of the SORP accordingly.
- In section III.C3 of the SORP it states that sampling will occur for SSOs, without any qualification regarding the SSO size, location, or whether it reaches or impacts waters.
Corrective Action: Revise this section to indicate that sampling is to be performed only in SSO events when waters are impacted and SSOs exceed a certain magnitude (e.g., 10,000 gallons or if waters may be significantly impacted).
- Section VII of the SORP regarding a water quality monitoring plan (WQMP) is a statement of the State MRP requirements, not a plan. The sampling and lab testing that would be used as part of the WQMP and included in any required Technical report for SSOs in excess of 50,000 gallons is not detailed in the SORP.
Corrective Action: The City should identify a qualified laboratory and develop defined protocols and procedures to be included in the emergency response plan for the implementation, when required, of the sampling and water quality management plan. Section VII of the SORP should be revised, or a separate WQMP developed, to include this information and what bacteriological levels must be in order to cease sampling.
- Information regarding main line mileage in the CIWQS system differs from the figures in the SSMP.
Corrective Action: Change the main mileage figure in the CIWQS system to be correct and consistent with SSMP figure (or vice versa, use correct figure whatever they are).

Compliance

This audit finds the City to be in general compliance with the WDR.

City of Los Altos Sewer System Management Plan (SSMP) Audit 2015 & 2016

The purpose of the SSMP Audit is to evaluate the effectiveness of the City of Los Altos' (City's) SSMP and to identify any needed for improvement.

Directions: Please check YES or NO for each question. If NO is answered for any question, describe the updates/changes needed and the timeline to complete those changes.

		YES	NO
INTRODUCTION			
A.	Is the current system description complete and up-to-date? Are infrastructure statistics current and complete?		X
Discussion/Deficiencies/Corrective Actions: Some infrastructure statistics were previously not included and the introduction will be updated as a result of this audit.			
		YES	NO
ELEMENT 1 - GOALS			
A.	Are the goals stated in the SSMP still appropriate and accurate?	X	
Discussion/Deficiencies/Corrective Actions: Goals are appropriate and the City monitors results relevant to their goals. There is no need to revise goals, unless the City chooses to do so in the future.			
ELEMENT 2 - ORGANIZATION			
A.	Is the List of City Staff Responsible for SSMP current?		X
B.	Is the Sewer Staff Contact List current?	X	
C.	Is the City Organization Chart included and current?		X
D.	Are the position descriptions an accurate portrayal of staff responsibilities?	X	
E.	Is the Table regarding the SSO Reporting and Response Chain of Communication accurate and up-to-date?	X	
Discussion/Deficiencies/Corrective Actions: Both responsible staff and the City organization chart were revised. The Associate Civil Engineer will be added in the authorized representative section of this element since that position is an LRO. The organization chart has been revised to reflect the current City organization and will be included in an updated SSMP appendix. City staff is well aware of their SSMP responsibilities and the staff is very capable in regards to carrying out these responsibilities.			

		YES	NO
ELEMENT 3 – LEGAL AUTHORITY			
Does the SSMP contain current references to the Los Altos Municipal Code documenting the City’s legal authority to:			
A.	Prevent illicit discharges?	X	
B.	Require proper design and construction of sewers and connections	X	
C.	Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained b the City?	X	
D.	Limit discharges of fats, oils and grease?	X	
E.	Enforce any violation of its sewer ordinances?	X	
F.	Were any changes or modifications made in the past two years (this audit period) to City Sewer Ordinances, Regulations or standards?	X	
Discussion/Deficiencies/Corrective Actions:			
No changes were made to the Los Altos Code that affects any of the legal authority aspects of the SSMP. Changes have been made to agreements with other agencies, specifically Los Altos Hills, and these will be reflected in the updated SSMP.			
ELEMENT 4 – OPERATIONS AND MAINTENANCE			
Collection System Maps			
A.	Does the SSMP reference the current process and procedures for maintaining the City’s wastewater collection system maps?	X	
B.	Are the City’s wastewater collection system maps complete, current and sufficiently detailed?	X	
C.	Are storm drainage facilities identified on the collection system maps? If not, are SSO responders able to determine locations of storm drainage inlets and pipes for possible discharge to waters of the state?	X	
Prioritized Preventive Maintenance			
C.	Does the SSMO describe current preventive maintenance activities and the system for prioritizing the cleaning of sewers?	X	
D.	Based upon information in the Annual SSO Report, are the City’s preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?	X	
Scheduled Inspections and Condition Assessments			
E.	Is there an ongoing condition assessment plan sufficient to develop a capital improvement plan addressing the proper management and protection of infrastructure assets? ? Does the plan include a time schedule for implementing the short and long-term plans plus a schedule for developing the funds needed for the capital improvement plan?	X	
Contingency Equipment and Replacement Inventory			
F.	Does the SSMP list the major equipment currently used in the operation and maintenance of the collection system?	X	

		YES	NO
G.	Are contingency and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?	X	
Training			
H.	Does the SSMP document current training expectations and programs?	X	
I.	Are training records current?	X	
<p>Discussion/Deficiencies/Corrective Actions:</p> <p>O&M details will be revised in the SSMP update to reflect current operational practices. System maps are updated regularly. The SSMP and appendices document the O&M practices, and the current preventive maintenance footages for 30,60,90 day and 6 months scheduled cleaning will be revised in the SSMP update. Condition assessment is used in prioritizing rehabilitation and there's a CIP plan that addresses rehabilitation needs. Training is conducted on a regular basis - the City should implement a regular, annual SSMP training though. There is a revised critical equipment inventory list, and that will be revised in the SSMP update.</p>			
ELEMENT 5 - DESIGN AND PERFORMANCE STADARDS			
A.	Does the SSMP reference current design and construction standards for the installation for new sanitary sewer systems, pump stations and other appurtenances and for the rehabilitation and repair of existing sanitary sewer systems?	X	
B.	Does the SSMP reference current procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and the rehabilitation and repair of existing sewer lines?	X	
<p>Discussion/Deficiencies/Corrective Actions:</p> <p>No changes were needed as the City's design and performance standards are all current, are appropriate, and accurately reflected in the existing SSMP.</p>			
ELEMENT 6 – OVERFLOW AND EMERGENCY RESPONSE PLAN			
A.	Does the City's Sanitary Sewer Overflow Emergency Response Plan (OERP) contain proper notification procedures so that primary responders and regulatory agencies are informed of all sanitary sewer overflows (SSOs) as required by the WDR and MRP?	X	
B.	Does the OERP have a program to ensure an appropriate response to all overflows?	X	

		YES	NO
C.	Does the OERP contain procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities of all SSOs that potentially affect public health or reach waters of the State in accordance with the MRP? Does the SSMP identify the officials who will receive immediate notification of such SSOs?	X	
D.	Are staff and contractor personnel aware of and appropriately trained on the procedures of the OERP?	X	
E.	Does the OERP contain procedures to address emergency operations such as traffic and crowd control and other necessary response activities?	X	
F.	Does the OERP ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting from SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge?	X	
G.	Was required training on SSMP and OERP completed and documented?		X
H.	Does the OERP contain a water quality monitoring plan that is current? Have employees been trained on this plan and what is needed for an SSO with a large volume?		X
I.	If applicable, was sampling performed within 48 hours for all SSOs greater than 50,000 gallons and was a Technical Report prepared and filed on the CIWQS website?	X	
<p>Discussion/Deficiencies/Corrective Actions:</p> <p>The SORP is still current and reflects the City's emergency response plan. Revisions were needed to the sections III.C3 regarding SSO sampling, III.D regarding SSO start times, and section VII regarding the water quality monitoring plan, and will be made as part of the SSMP update. All other sections are proper and address WDR requirements for emergency response.</p>			
<p>ELEMENT 7 – FATS, OILS AND GREASE (FOG) CONTROL PROGRAM</p>			
A.	Does the FOG Control Program include efforts to educate the public on proper handling and disposal of FOG?	X	
B.	Does the FOG Control Program identify sections of the collection system subject to FOG blockages, establish a cleaning schedule and address source control measures to minimize these blockages?	X	
C.	Are requirements for grease removal devices, best management practices (BMPs), record keeping and reporting established in the City's FOG Control Program?	X	

		YES	NO
D.	Does the City have sufficient legal authority to implement and enforce the FOG Control Program, including prohibition of discharges, measure to prevent SSOs and blockages caused by FOG?	X	
E.	Is the current FOG program effective in minimizing blockages of sewer lines resulting from discharges of FOG to the system?	X	
F.	Is there a plan and schedule for the disposal of FOG generated within the City?		X
G.	Does the FOG Control Program include development and implementation of source control measures for all sources of FOG discharged to the system for each sewer system subject to FOG blockages?	X	
H.	Does the FOG Control Program include the authority to inspect grease producing facilities, enforce when necessary, and does the City have sufficient staff to inspect and enforce its FOG ordinance	X	
Discussion/Deficiencies/Corrective Actions:			
The City has a comprehensive FOG control program that addresses all required items, with the possible exception of a FOG disposal plan. A total of 126 inspections of FSEs occurred in 2016 and there was only one FOG-caused SSO in 2016, a significant reduction from 2013-2015 results and indicative of the effectiveness of the City's efforts in FOG control.			
ELEMENT 8 - SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN			
A.	Does the City of Los Altos Sanitary Sewer Master Plan evaluate hydraulic deficiencies in the system and provide estimates of peak flows associated with condition similar to those causing overflow events, if applicable?	X	
B.	Does the City's Capital Improvement Plan (CIP) establish a schedule of approximate completion dates for both short and long- term improvements and is the schedule reviewed and updated to reflect current budgetary capabilities and activity accomplishment?	X	
Discussion/Deficiencies/Corrective Actions:			
No changes were needed as the City's system evaluation and capacity assurance plan is current and accurately reflected in the existing SSMP. There have been no capacity issues experienced and the City has effectively managed collection system capacity.			
ELEMENT 9 - MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS			
A.	Does the City maintain relevant information that can be used to establish and prioritize appropriate SSMP activities?	X	

		YES	NO
B.	Does the City monitor implementation and, where appropriate, measure the effectiveness of each element of the SSMP?	X	
C.	Does the City assess the success of the preventive maintenance program?	X	
D.	Does the City update program elements, as appropriate, based on monitoring or performance evaluations	X	
E.	Does the City identify and illustrate SSO trends?		X
<p>Discussion/Deficiencies/Corrective Actions:</p> <p>Important SSO data has been accumulated and reported historically by the City, and staff uses the data to assess its preventive maintenance program success and update its pm program. However, some additional information shown visually through graphs and illustrations is recommended. The number of SSOs by cause, volumes and volumes recovered should also be tracked and illustrated.</p> <p>SSO Rates, Volumes, & Causes Discussion:</p> <p>The trend of SSO occurrences for the audit period is decreasing, as there were 13 in 2015 and 8 in 2016, and 17 in the year prior to this period. SSOs and the corresponding SSO rates of 12.9, 9.3, and 5.7 SSOs/100 miles/year for 2014-2016 are compared to the Regional and State rates for the same period in the graphs included in Appendix H. The City's rate in 2016 (5.7) is now lower than the Region's rate (7.22) and close to the State's rate (4.94).</p> <p>The causes of the City's SSOs are indicated in a chart in Appendix H. Roots continue to be the cause of the majority of SSOs, while SSOs caused by FOG problems have decreased to only one in calendar year 2016. This is reflective of the emphasis and work the City has placed on determining the cause of SSOs and focusing efforts on those causes to successfully reduce SSOs.</p> <p>The volume of City SSOs is very low, slightly over 3000 gallons in 2016 and 1462 gallons in 2015. The majority of SSO volume is recovered and returned to the sewer system; 90% in 2015 and 99% in 2016, and only 6% of total SSO volume reached waters in 2015 and none reached waters in 2016. These results are also shown in graphs in Appendix H. These are excellent indicators that reflect the aggressive efforts the City has made to minimize SSOs and their impacts if and when they occur. There are minimal to no water quality impacts if SSO volumes do not reach waters, so a special effort is made to recover as much SSO volume as possible and practical and the City has been very successful in this regard.</p> <p>The City cleaned and videoed lines generally as scheduled during the period and average emergency response times were excellent, 27 (excluding one unusual incident) and 22 minutes for 2015 and 2016 respectively.</p>			
ELEMENT 10 – SSMP AUDITS			
A.	Does the audit focus on evaluating the effectiveness of the SSMP?	X	
B.	Was the audit completed on time, every two years, and kept on file (preferably as an appendix to the SSMP)?	X	

Discussion/Deficiencies/Corrective Actions:			
The previous SSMP and City practice was to complete an annual audit and submit that audit to the Regional Board office in Oakland. The SSMP has been revised to implement the biennial audit, as required by the SWRCB, in line with the 2012 direction from the Regional Board in Oakland. Future audits will be performed every two years as a result, and the last three audit reports will be retained as appendices to the SSMP.			
ELEMENT 11 – COMMUNICATION PROGRAM			
A.	Does the City communicate with the public on a regular basis about the implementation and performance of the SSMP, and provide the public and opportunity for input? feedback?	X	
B.	Did City staff communicate with satellite collection systems? Are all agreements with satellite systems current or are changes necessary to these agreements?	X	
Discussion/Deficiencies/Corrective Actions:			
The current SSMP and appendices are posted on the City website and the Public Works section has a page dedicated to collection system items. The updated SSMP should be posted on this page once completed and approved by Council, and staff should consider posting SSO data and graphs here as well. The City seems to have open communications with its satellite systems and has worked with them to revise their agreements as needed.			
		YES	NO
Change Log			
A.	Is the SSMP Change Log, current and up to date?		X
Discussion/Deficiencies/Corrective Actions:			
The Change Log or "Revisions List" as it was previously termed was not current at the time of the audit. However, a new Change Log was completed and prepared that notes the major changes made in the SSMP update subsequent to the audit, and is now current. This Log should be kept current and used anytime there are significant changes made to SSMP items prior to the next audit and SSMP update.			

Prepared By: Douglas Humphrey, Humphrey Consulting

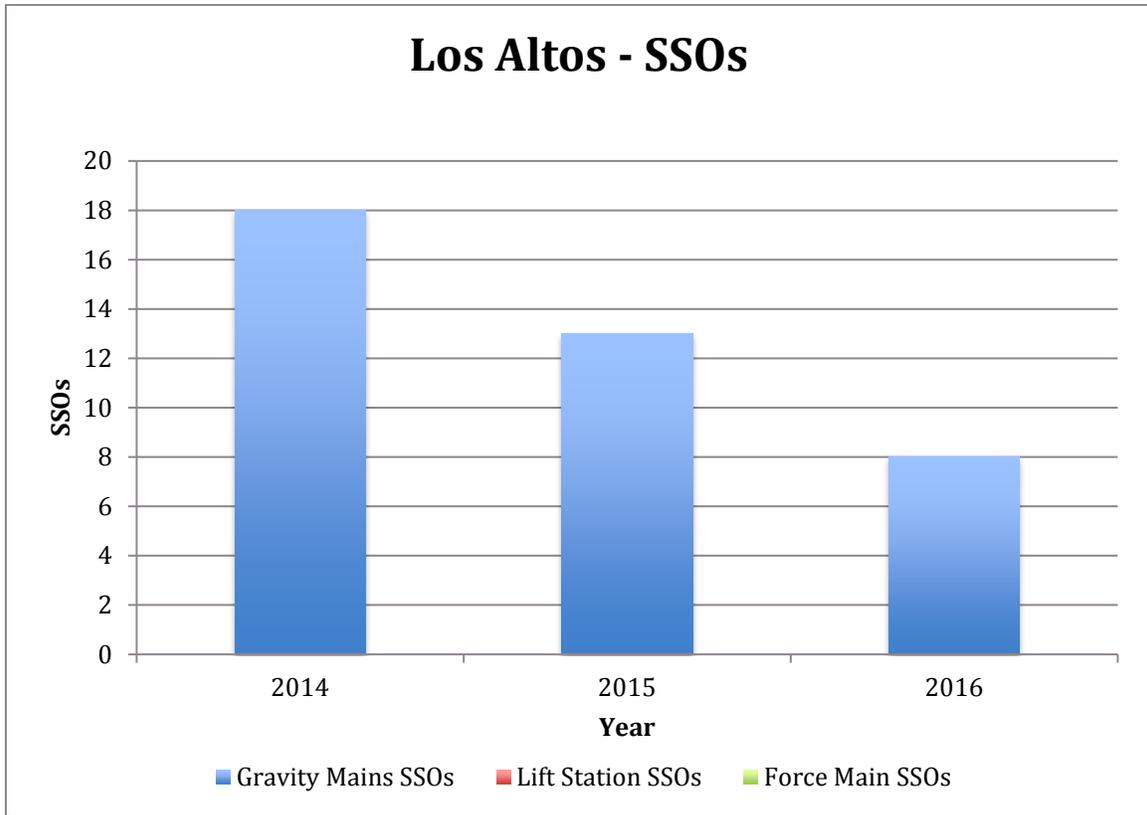
Reviewed By: Aida Fairman, City of Los Altos

Grant Gabler, City of Los Altos

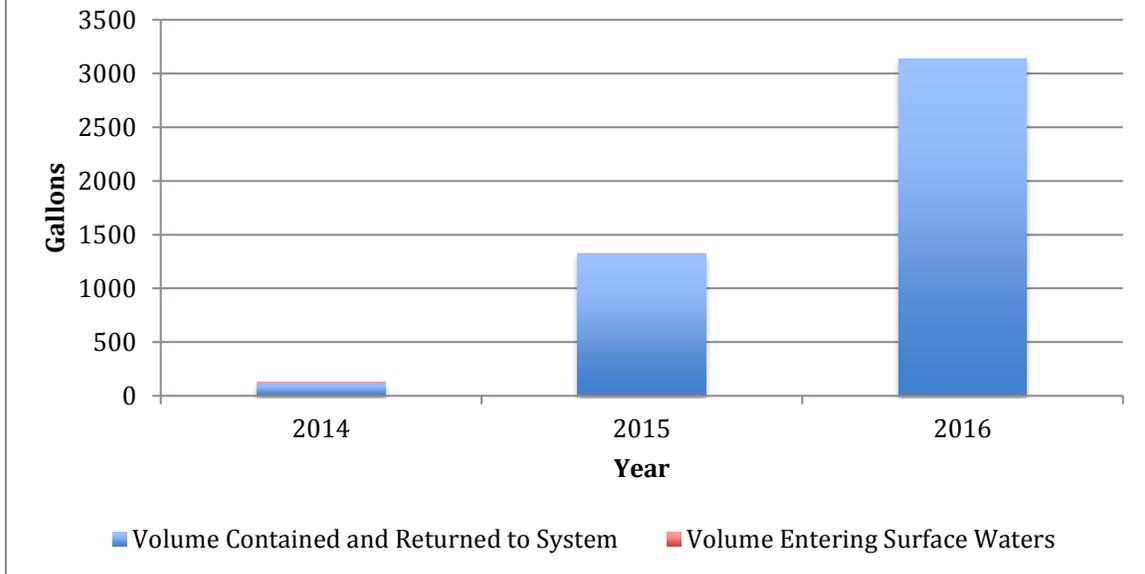
Approved for Filing on: April 14, 2017

ATTACHMENT - SSO PERFORMANCE

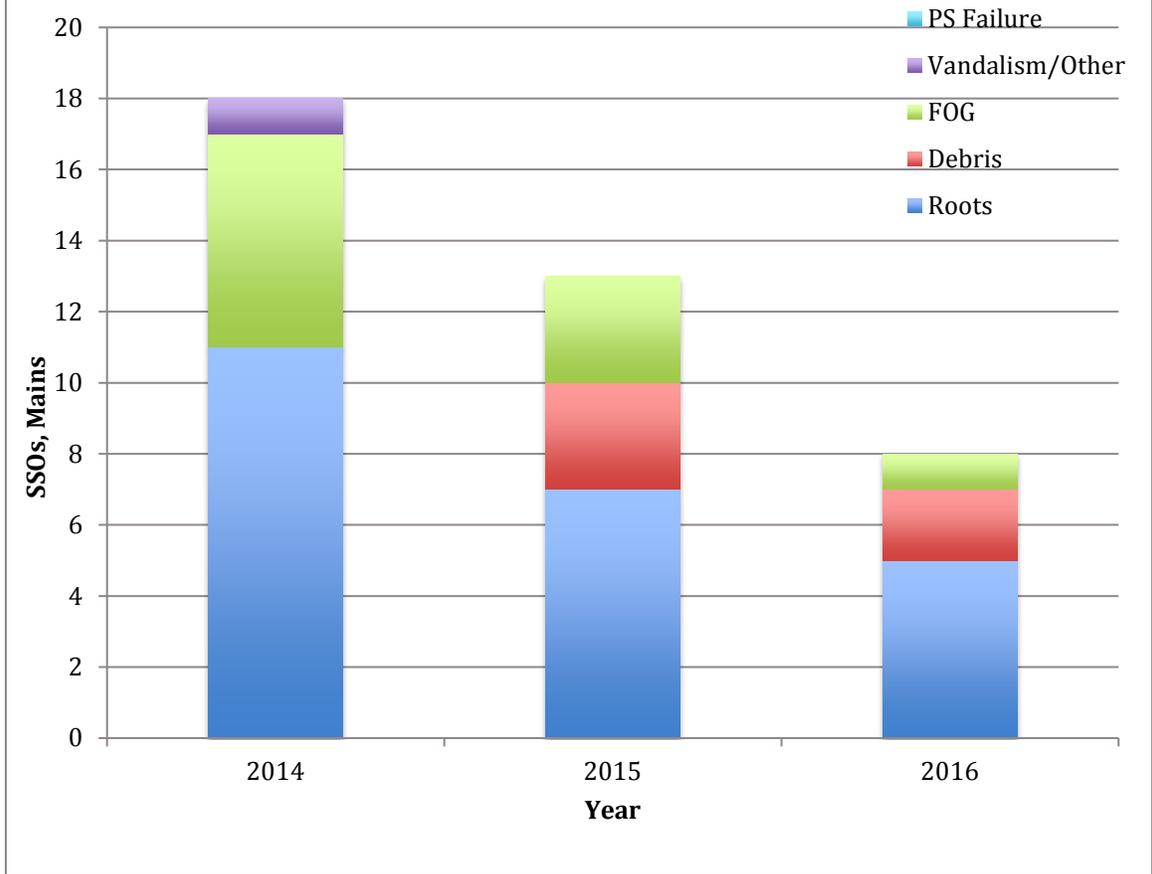
SSO RATES, CAUSES, & VOLUMES TO WATERS



Los Altos - SSO Volumes Returned to System, Entering Surface Waters



Los Altos - SSO Causes



Los Altos SSO Rate Comparison to Region & State

