City of Folsom

Environmental & Water Resources Department

2019 SSMP SELF-AUDIT

(July 1st, 2017 - June 30th, 2019)

CITY OF
FOLSOM
DISTINCTIVE BY NATURE

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Introduction

On May 2, 2006, the State Water Resource Control Board (SWRCB) adopted Statewide General Waste Discharge Requirements (GWDR's) for Sanitary Sewer Systems, herein referred to as the "General Order". The purpose of the General Order is to ensure that wastewater collection systems are properly operated and maintained by the municipalities that are in charge of their operations. The General Order applies to all public collection system agencies in California that own or operate collection systems comprised of more than one mile of pipe or sewer lines and convey untreated wastewater to a publicly owned treatment facility. The principal elements of the order include requiring each agency to prepare a Sewer System Management Plan (SSMP), which outlines how the municipality operates and maintains the collection system and reporting of all Sanitary Sewer Overflow (SSOs) to the SWRCB's online SSO database (CIWQS), with the ultimate goal of minimizing sanitary sewer overflows (SSO's).

Background

The City of Folsom's (City) sanitary sewer system is made up of approximately 255 miles of gravity sewer mains, 94 miles of sewer laterals, and 4 miles of sewer force main. Pipes range in size from 2 to 33 inches in diameter and sewage is pumped throughout the system by 17 pump stations. The City has four major sewer sheds and 18 sewer sub-basins currently monitored by 20 metering sites that all discharge to a 54-inch main interceptor in Folsom Boulevard that is owned, operated and maintained by Sacramento Regional County Sanitation District (SRCSD). Additionally, the City will begin to incorporate the Folsom Plan Area (FPA) into the SSMP as development occurs.

Collection System Overview	
Miles of Gravity Sewer Mains	255 Miles
Miles of Sewer Force Mains	4 Miles
Miles of Sewer laterals (Lower Lateral)	94 Miles
Number of Pump Stations	17
Population Served (Includes Prison Population)	79,835

SSMP Internal Audit Overview

Section 10 of the WDR requires agencies to perform a self-audit every two years. The audit focuses on evaluating the effectiveness of the SSMP and Agency compliance with the SSMP requirements. The City's SSMP internal audit assesses the City's success in achieving compliance with various requirements of the SWRCB General Order No. 2006-003 and implementing programs as stated in the SSMP. The SSMP audit process allows the SSMP document to develop over time through the identification of deficiencies in the management, operation and maintenance of the sanitary sewer collection system and the implementation of changes to the SSMP to address the deficiencies. The 2019 self-audit report is the fifth internal audit since the adoption of the GWDR's and addresses the following items:

- SSO history over the past 2 years
- Specific identification of performance areas in need of improvement
- Evaluation of performance improvements identified in (07/01/2017 – 06/30/2019) Audit.
- Summarizes proposed modifications to the SSMP elements and programs over the next audit periods to address all identified areas of past poor performance.
- Summarizes proposed SSMP modifications (i.e. new programs, new performance indicators, etc.) not tied to poor performance, but tied to a desire to change or increase the scope of management, operations, and maintenance activities.

SSO History

Per the State Water Resources Control Board Order No. WQ2013-0058-EXEC, new spill categories, definitions and California Integrated Water Quality System (CIWQS) reporting requirements took effect on September 9, 2013. The most significant change in the order reclassified SSO spill categories to include a Category 3 spill, below are the definitions for each of the spill Categories.

Category 1:
Discharges of untreated or partially treated wastewater of **any volume** resulting from an enrollee's sanitary sewer system failure or flow condition that:

- Reach surface water and/or reach a drainage channel tributary to a surface water; or
- Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly.

Category 2:
Discharges of untreated or partially treated wastewater of **1,000 gallons or greater** resulting from an enrollee's sanitary sewer system failure or flow condition that **do not** reach surface water, a drainage channel, or a MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.

Category 3:
All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.

Over the past two years (07/01/2017 through 06/30/2019) the City of Folsom responded to 27 Sanitary Sewer Overflows (SSO's). Of the 27 spills, 26 were Category 3, 0 were Category 2, and 1 was Category 1. The mainline SSO's decreased when compared to the last SSMP audit period (FY 15-17). The primary causes of the SSO's were roots. As shown in the tables below, the City is well below the Regional and State average for Category 1, Category 2, and Category 3 SSOs.

Audit comparison

Year	Category 1	Category 2	Category 3	Total
Audit (FY 11-13)	2	39	0	41
Audit (FY 13-15)	1	0	47	48
Audit (FY 15-17)	3	0	35	38
Audit (FY 17-19)	1	0	26	27

* On September 9, 2013 Category 3 spills were added to the reporting through SWRCB Order No. WQ2013-0058-EXEC to CIWQS. All previous spills were classified as either Category 1 or Category 2SSO's.

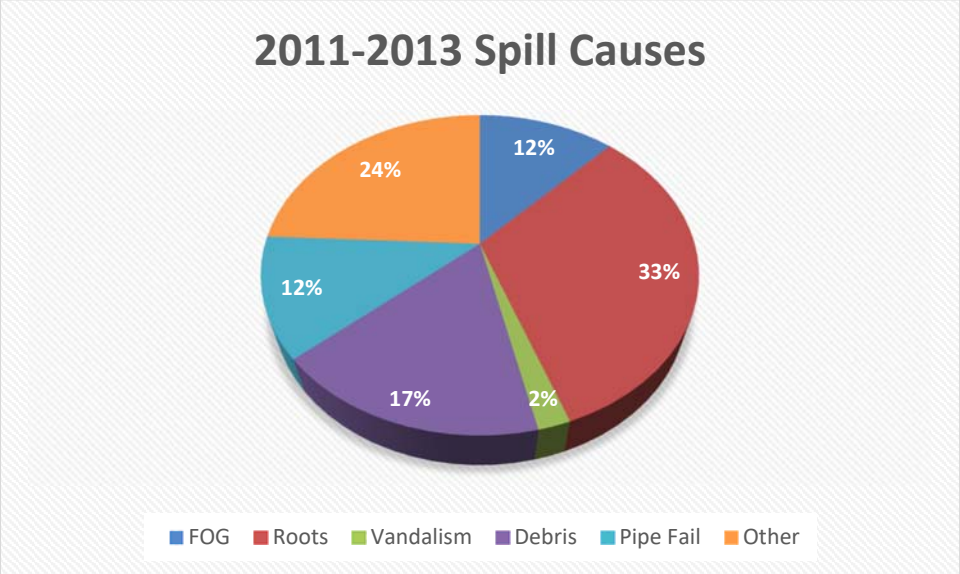
Category 1 Spill Rate Indices (#spills/100mi/year)			
Agency	Mainlines	Laterals	Other
City of Folsom	0.2	0	0
Region - Municipal - Average	3.58	28.08	3.64
State - Municipal - Average	2.83	15.52	1.66

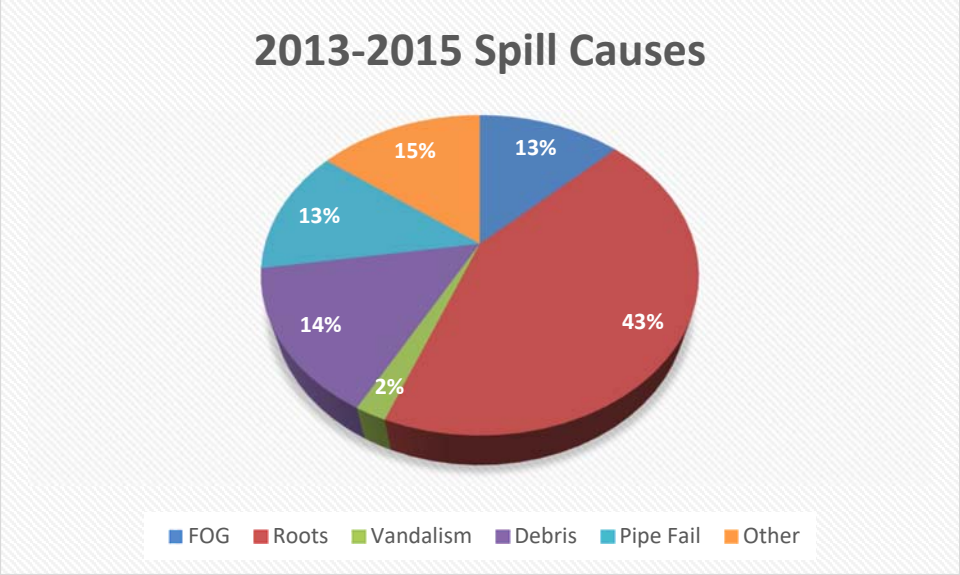
Category 2 Spill Rate Indices (#spills/100mi/year)			
Agency	Mainlines	Laterals	Other
City of Folsom	0	0	0
Region - Municipal - Average	2.69	0.27	1.23
State - Municipal - Average	1.66	0.53	2.05

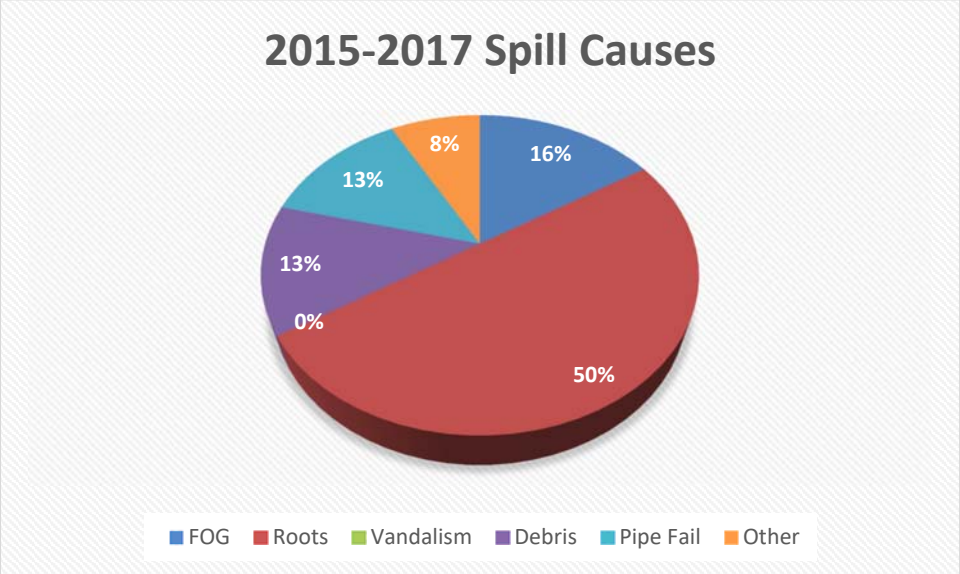
Category 3 Spill Rate Indices (#spills/100mi/year)			
Agency	Mainlines	Laterals	Other
City of Folsom	2.19	7.74	0
Region - Municipal - Average	5.81	22.11	1.64
State - Municipal - Average	4.51	15.49	1.68

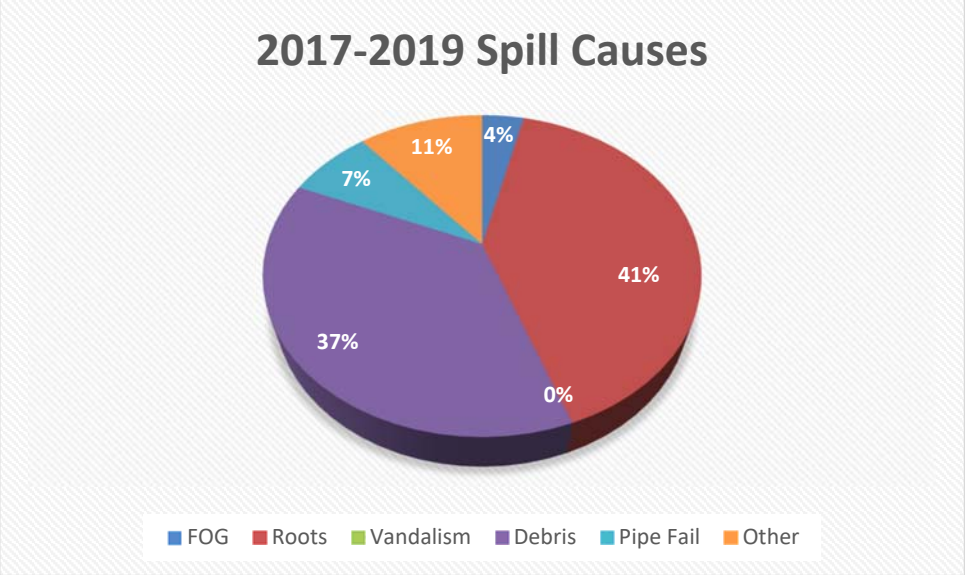
Data for State and Regional Municipal average was taken from the CIWQS database (www.waterboards.ca.gov/ciwqs/).

The City identified the cause of each spill from 07/01/2017 through 06/30/2019 and categorized each spill type in the pie chart below. Also included are the pie charts from FY 11-13, FY 13-15 and FY 15-17 to compare spill categories of the previous 2-year internal audits.


2011-2013 Spill Causes
12%
33%
2%
17%
12%
24%
FOG
Roots
Vandalism
Debris
Pipe Fail
Other


2013-2015 Spill Causes
13%
43%
2%
14%
13%
15%
FOG
Roots
Vandalism
Debris
Pipe Fail
Other





The top 3 spill causes over the past two years were roots, debris, and other (such as construction related activities). When comparing the pie chart to previous Fiscal Year audits, overall, the number of SSO's reduced by 9 since the last audit period, and the volume of SSO's decreased from 4,644 gallons in total volume during FY 15-17 to 859 gallons during FY 17-19.

In addition to categorizing each spill type and cause, the City also evaluates its SSO response time during business hours and after business hours. Between 07/01/2017 and 06/30/2019 the City responded to 21 SSO's during business hours with an average response time of 17 minutes. The remaining 6 SSO's

responded to during non-business hours yielded an average response time of 39 minutes. These response times are well within the City's goal of responding to a spill within 30 minutes during business hours and within 60 minutes during non-business hours. For further explanation of each description, refer to Appendix A, Section 1 – Goals.

Performance Review

Attached to this report are performance assessment sheets that summarize the collection and analysis of specific data to provide a basis by which performance in various areas related to the management, operation, and maintenance of the sanitary sewer collection system may be measured. During each SSMP audit period, data is collected relating to each assessed area and a grade is provided for the City of Folsom's performance. Below is a summary of the grade given for each area assessed. For additional information, refer to Appendix A.

SSMP Performance Review

Section	No.	Description	Grade '15-'17	Grade '17-'19
Goals	1	Provide uninterrupted sewer service to meet customer's desired service levels.	A	A
	2	Minimize the risk of Sanitary Sewer Overflows (SSOs) by reducing the impact and probability of SSOs	A-	A
	3	Mitigate any unforeseen SSOs to minimize water quality and environmental impacts	A	A
	4	Ensure adequate sewer capacity to address the City's growth and peak wet weather flows	A	A
	5	Sustain aging sewer infrastructures by implementing an asset management program to extend asset lifecycle	A	A
	6	Ensure adequate funding support and resources to sustain long-term asset management	A	A
Organization	1	Update City staff responsibilities of the SSMP elements once a year due to organizational changes	A	A
Legal Authority	1	Prevent illicit discharges into the City's sanitary sewer system including I & I from satellite wastewater collection systems and laterals, storm water, etc.	B-	A-
	2	Require proper design and construction of sewers and connections	A	A
	3	Ensure access for maintenance, inspection and repairs to publicly owned portions of laterals	A	A

	4	Limit the discharge of Fats, Oils and Grease (FOG) and other debris that may cause blockages	A	A
	5	Enforce violations of its sewer ordinances	B+	B+
Operations & Maintenance Program	I.1	Update mapping system to reflect new development projects, Capital Improvement Project (CIP) or asset corrections due to field investigation.	A	A
	I.2	Identify all sewer lines within the City that are not within the City's right of way and validate through documentation whether each of the sewer lines have dedicated sewer easements and whether the sewer is publicly or privately owned	A	A
	I.3	Continue to populate the Geographic Information System (GIS) mapping system to include information such as age of infrastructure, development associated with sewer infrastructure, pipe type, pipe size, etc.	A	A
	II.1	Develop and implement standard operating procedures (SOPs) such as Closed-Circuit Television (CCTV), manhole inspections, flushing and smoke testing.	A	A
	II.2	Manhole Inspection, Flushing, CCTV, FSE Inspections and Sewer Lateral Inspections are to be completed within a scheduled cycle.	C	C+
	II.3	Perform routine pump station inspections	A	A
	II.4	Develop and implement emergency response procedures	A	A
	II.5	Develop a list of construction related projects that identifies and prioritizes system deficiencies by implementing a short-term and long-term rehabilitation program to address each deficiency and create a time schedule for developing and implementing the rehabilitation program	A	A
	II.6	Establish a more effective odor control program	A	A
	III.1	Schedule and track attendance of all safety meetings as it relates to sewer operations	A	A
	IV.1	Maintain and update an equipment and replacement parts inventory list	A	A

Design & Performance Program	1	Maintain design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems	A	A
	2	Maintain procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects	A	A
Overflow Emergency Response Plan	1	Ensure the City's Sanitary Sewer Overflow Response Plan Flow Chart, Sanitary Sewer Overflow Report Form and the Sanitary Sewer Overflow Response Plan is up to date	A	A
	2	Review all SSO's within the CIWQS for accuracy. Compare CIWQS SSO database to City's Excel SSO database for consistency.	A-	B+
	3	SSO History (Category 1, 2, and 3 SSO's)	A	A
	3A	Number of Category 3 SSOs	A	A
	3B	Number of Category 2 SSOs	A	A
	3C	Number of Category 1 SSOs	A	A
	4	Category 1, 2 and 3 Spill Causes	A	A
	5	Average response time during normal business hours	A	A
	6	Average response time after normal business hours	A	A
FOG Control Program	1	Necessary Legal Authority to prohibit discharges of FOG into the City's sanitary sewer system	A	A
	2	Commercial FOG Requirements for the installation of grease removal devices (such as traps or interceptors)	A	A
	3	Maintain a Public Outreach Program	A	A
	4	FOG Inspection of Food Service Establishments (FSE's)	B+	A
	5	FOG outreach	A	A
	6	Lateral Inspections	B	B-
Sewer Evaluation and	1	Determination of maximum hydraulic capacity in key sewer main lines	A	A

Capacity Assurance Plan	2	Determination of existing groundwater infiltration and rain dependent infiltration levels in the system.	A	A
Monitoring, Measurement, & Program Modifications	1	Establish and prioritize appropriate SSMP activities	A	A
Communication Program	1	Communication with satellite agencies	B	A
	2	Communication of the SSMP with the public	A	A

Evaluation of Performance Improvements identified in the 2017 SSMP Audit

The City identified the following items to address during the past two years (07/01/2017 – 07/01/2019). Outlined below are the most critical items identified during the last audit period that were in need of improvements after assessing performance (See Appendix A for more detail).

- Revise standard operating procedures for flushing, sanitary sewer manhole inspections, sewer lateral inspections and CCTV to meet the City's timeline.
  - Continued to improve upon operational procedures in order to comply with the City's timeline. However, CCTV inspections and sewer lateral inspections need further improvement.

- Ensure all FSE's are inspected for FOG compliance on a 2-year cycle
  - Inspected 100% of FSE's in the last two years.

- Smoke test to reduce Inflow and Infiltration (I & I) within Basins 4, 6A, 6C and 14 per the City's updated System Evaluation and Capacity Assurance Plan (SECAP).

  - The City began sub-metering Basin 6A to identify if any I & I exists. Fourteen meters were placed within Basin 6A and monitored from February 2019 through April 2019. Staff collected data for Average Dry Weather Flow (ADWF) and Peak Wet Weather Flow (PWWF) and will further analyze the data to determine if there is any I & I. After analyzing the data, the City will either pursue smoke testing or additional CCTV to identify the sources of I & I. After completion of the Once work in basin 6A, sub-metering will occur in Basins 4, 6C and 14.

- Inspect all 22,000 sewer laterals over the next three years (2018-2020) with the selected outside consultant.

- In April of 2017, in order to increase efficiency of the lateral inspection program, the City issued a Request for Proposals (RFP's) for sewer lateral CCTV Inspection and awarded the project to a Contractor. This program consists of closed-circuit television (CCTV) inspection of all the City owned laterals (approximately 22,000) over a three-year period to proactively identify lateral issues for repair.

- On February 6th, 2019 the City of Folsom issued a Notice of Contract Termination to the Contractor for failing to perform within the contract schedule. At the time of contract termination, approximately 2,259 of the 22,000 sewer laterals were inspected. Moving forward the City plans to perform sewer lateral inspections of all 22,000 sewer laterals in house over a 10-year schedule.

- Continue to QA/QC the City's CMMS database (Lucity)
  - Continued the identification process of determining whether sewer lines located outside of the City right-of-way are publicly or privately owned.

  - Continued to populate the City's GIS system as it relates to sewer pipe material, age and sizes as development occurs.

- Work toward reducing SSO's over the next 2 years
  - Spills during FY 17-19 have been reduced from 38 SSO's to 27 SSO's from the previous FY 15-17.

Future Performance Improvements

The City will address the following items over the next 2 years (07/01/2019 –06/30/2021). Outlined below are the most critical items identified during this audit period that are in need of improvement after assessing performance (See Appendix A for more detail).

- Meet the 5-year cycle for flushing, sanitary sewer manhole inspections, and CCTV of sewer lines.
  - Purchase 2 additional CCTV cameras and an additional CCTV van to increase productivity of sewer mains/CCTV
  - Purchase 2 additional zoom cameras to increase productivity of SSMH inspections

- Continue to ensure all FSE's are inspected for FOG compliance on a 2-year cycle

- Begin the 10-year sewer lateral inspection program
  - Purchase the proper inspection equipment to begin the 10-year sewer lateral inspection program

- Update existing performance measures, or develop new ones, to make sure the City is meeting our 2-year schedule, 5-year schedule and 10-year schedule for inspecting the wastewater collection system.

- Continue to QA/QC the City's CMMS database (Lucity)

- Continue working to reduce SSO's

- Reduce I & I through smoke testing and/or CCTV based on sub-metering of sewer basin results

SSMP Modifications not tied to performance identified in (07/01/2017 – 06/30/2019) audit

Below is a list of proposed SSMP modifications that were identified in the (07/01/2017 – 07/01/2019) audit that were implemented and are now in place.

- Complete the 2017/2018 Sewer Evaluation and Capacity Assurance Plan (SECAP)

    - Completed an update to the City's SECAP. Recommendations included:
        - I & I reduction within Basin 4, 6A, 6C and 14
            - The City began sub-metering Basin 6A to help identify if any I & I. After completion of the work in Basin, sub-metering will occur in Basins 4, 6C and 14.
        - Pump Station No. 3 Flow Meter Installation
            - A new flow meter will be incorporated into PS No. 3 Rehabilitation Project which is currently under design and is expected to begin construction in Fiscal Year 19-20.
        - City WTP or Oak Ave PS Rain Gauge Installation
            - Installed rain gauges at both the WTP and the Oak Ave PS
        - Folsom Blvd Sewer Rehabilitation Project
            - This project is currently in pre-design. Once an alternative has been selected, design will begin followed by construction.
        - Oak Avenue Parkway Peak Wet Weather Flow (PWWF) Relief Project
            - Design of this project began in FY 19/20

- Continue replacing sewer infrastructure through CIP's
    - The City completed several CIP Projects over the past two years and is currently in the Design or Construction Phase of other projects:
        - Sewer Lateral Repair and Replacement Project (On-Going)
        - Sewer Access Maintenance Project (Design Phase)
        - Sewer Evaluation and Capacity Assurance Plan (Complete)
        - Pump Station No. 2 Odor Control Project (Complete)

- Pump Station No. 1 Basin Abandonment Project (Complete)
- Pump Station Condition Assessment (Complete)
- Sewer Lateral CCTV Inspection (On-Going)
- PS No. 3 Rehabilitation Project (Design Phase)
- Folsom Blvd Sewer Rehabilitation Project (Pre-Design Phase)
- Oak Avenue PWWF Relief Project (Pre-Design Phase)

- Continue to establish an effective sewer lateral inspection and repair program
  - In April of 2017, the City issued a Request for Proposals (RFP) for Sewer Lateral CCTV Inspection. This program consists of closed-circuit television (CCTV) inspection of all of the City owned laterals (approximately 22,000) over a three-year period to proactively identify lateral issues for repair; effectively reducing the risk of sanitary sewer overflows. Depending on the condition of the lateral, the City will repair the sewer lateral in house or put a list of laterals together as part of a Capital Improvement Project.

  - On February 6th, 2019 the City of Folsom issued a Notice of Contract Termination to the Contractor for failure to perform within the contract schedule. At the time of contract termination, approximately 2,259 of the 22,000 sewer laterals were inspected. Moving forward the City plans to inspect all 22,000 sewer laterals in house over a 10-year period.

- Improve upon PS No. 2 odor control
  - The City completed both design and construction of this project. A new carbon scrubber and odor control system was installed to mitigate odors within the surrounding area around Pump Station No. 2. Additionally, the City installed a wet well agitator (ANUE Technology) which help break apart Fats, Oils and Grease (FOG) mat in the sewer wet well and helps reduce odors.

- Address any deficiencies identified in the SECAP study through the City's Capital Improvement Plan.
  - As described above, the City is actively working on improvements recommended as a result of the 2017 SECAP. These projects include I & I reduction within Basins 4, 6A, 6C and 14, PS No. 3 flow meter installation, installation of a rain gauge at the Oak Ave Pump Station and the City's WTP, Folsom Blvd Sewer Rehabilitation Project and the Oak Ave PWWF Relief Project.
- Reduce I & I based on the 2017/2018 SECAP study recommendation
  - As described above, the City is actively working on reducing I & I in Basin 6A. Once Basin 6A is complete, the City will move toward reducing I & I in Basins 4, 6C and 14.

Future SSMP Modifications not tied to Performance for (07/01/2019 – 06/30/2021) Audit

- Implement new water and sewer design standards, construction specifications and construction details
- Update the City's organizational structure
- Complete Basin 6A I & I analysis, implement ways to reduce I & I within Basin 6A (smoke testing or CCTV) and continue to sub meter Basins 4, 6C and 14.
- Create a new SOP's for recently built pump stations
  - Easton Valley Parkway (EVP) Pump Station
  - Village H Pump Station
- Modify the existing Oak Avenue Pump Station Bypass SOP
- Create new maintenance and inspection SOP's for all sewer pipes and manholes that are inaccessible by vehicle
- Modify the existing Sanitary Sewer Overflow Response Plan to include how to respond to an SSO in areas that are inaccessible by vehicle
- Update the spare parts and inventory list within Section 4 of the SSMP to include the EVP Pump Station and the Village H Pump Station
- Continue replacing sewer infrastructure through CIP's
- Evaluate installing Mission Manhole covers or equal in areas where sewer manholes are inaccessible by vehicle. The Mission Manhole cover notifies the City of a high-level alarm within the manhole. This notification allows the City to respond faster and assess the cause of the high-level alarm. Installation of the Mission Manholes or equal in remote locations could help prevent an SSO or minimize the impact of an SSO.
- Re-Certify the City's 5-Year SSMP through City Council

Certification of Audit

By signing below, we certify that the information contained in this audit report is correct to the best of our knowledge.

Name	Position	Signature	Date
Marcus Yasutake	Environmental & Water Resources Director	Marcus Yasutake	7/18/19

Appendix A – SSMP Assessment

SSMP Section 1 - Goals

Responsible Person (RP):
Environmental & Water Resources Director

Summary:
In 2006 when the Waste Discharge Requirements (WDR's) were adopted through Order No. 2006-0003-DWQ by the State Water Resources Control Board (SWRCB) the City's Environmental & Water Resources (EWR) Department established goals to comply with Section 1 of the SSMP. The goals developed by the EWR Department include:

1. Provide uninterrupted sewer service to meet customers' desired service levels.
2. Minimize the risk of Sanitary Sewer Overflows (SSO's) by reducing the impact and probability of SSO's.
3. Mitigate any unforeseen SSO's to minimize water quality and environmental impacts.
4. Ensure adequate sewer capacity to address the City's growth and peak wet weather flows.
5. Sustain aging sewer infrastructures by implementing an asset management program to extend asset lifecycle.
6. Ensure adequate funding support and resources to sustain long-term asset management.

All goals were approved and adopted by the City Council on October 23rd, 2007 through Resolution No. 8160.

1. Provide uninterrupted sewer service to meet customer's desired service levels.

Discussion: To achieve uninterrupted sewer service to meet customer's desired service levels the Wastewater Collections Division employs a full time staff person who receives calls from customers regarding wastewater complaints during the business hours of 7:00 a.m. to 3:30 p.m. Calls received during business hours that involve field investigation have a goal for wastewater crews to be on-site within 30 minutes. Examples of field investigated calls include sewer backups, sewer spills, odor complaints, missing cleanout lids and other related items of sewer service. Calls that come in after hours instruct the caller to contact the Police Department (PD) in the event of a sewer emergency. PD will contact the on-call wastewater personnel, and a wastewater employee proceeds to be on-site investigating the problem within 60 minutes. Non-emergency voicemails are addressed first thing the next morning. As of October of 2012, the Wastewater Collections Division recently transitioned to tracking all calls through the City's Avaya phone system.

Grade: A

Recommendation: No action needed; the City will continue to uphold the goals as outlined above.

2. Minimize the risk of Sanitary Sewer Overflows (SSO's) by reducing the impact and probability of SSO's.

Discussion: To achieve minimizing the risk of Sanitary Sewer Overflows (SSO's) by reducing the impact and probability of SSO's, the City developed and employed a number of policies, procedures and practices. Some of the policies, procedures and practices are listed below:

- Perform Sanitary Sewer Inspection (Manhole Inspections, CCTV, flushing, etc.) of the entire wastewater system within the City of Folsom's scheduled cycle.
- Respond to all SSO's, with the goal of wastewater crews being on-site within 30 minutes during normal business hours and on-site within 60 minutes during non-business hours.
- Develop Standard Operating Procedures (SOP's) and provide frequent training on the SOP's

Over the past two years (07/01/2017 through 06/30/2019) the City of Folsom responded to 27 Sanitary Sewer Overflows (SSO's). Of the 27 spills, 26 were Category 3, 0 were Category 2, and 1 was Category 1. The mainline SSO's decreased when compared to the last SSMP audit period (FY 15-17). The primary cause of the SSO's were roots. As shown in the tables below, the City is well below the Regional and State average for Category 1, Category 2, and Category 3 SSOs.

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Audit (FY 17-19)	X	X	X	X

* On September 9, 2013 Category 3 spills were added to the reporting through SWRCB Order No. WQ2013-0058-EXEC to CIWQS, all previous spills were classified as either Category 1 or Category 2 SSO's

Grade: A

Recommendation: Continue to uphold the goals as outlined above, because the primary cause contributing to spills was roots. The City is addressing roots through ongoing sewer mainline and lateral replacement CIP projects as well as through the City's sewer lateral inspection and rehabilitation program. Additionally, the number of Category 1 spills decreased from the previous year from 3 to 1. The cause of the Category 1 spill was related to roots.

3. Mitigate any unforeseen SSO's to minimize water quality and environmental impacts.

Discussion: Mitigating any unforeseen SSO's to minimize water quality and environmental impacts are achieved through various actions. Some of the actions the City employs to achieve this goal are:

- Storm Emergency Response Team – Before, during and after a storm event, City staff visually inspects all major wastewater facilities to ensure all assets and infrastructure are operating under normal conditions and have not been affected by the storm event. Wastewater staff also use Supervisory Control and Data Acquisition (SCADA) data, rainfall data and projected weather patterns to prepare for a storm event. A recent example of the SERT Program working effectively occurred during the December 5th, 2018 storm event.

- Inspect all above ground wastewater mains every 6 months – As of 2012, the City implemented inspection of all above ground wastewater mains. Implementing this procedure resulted in identifying an above ground wastewater main located near a creek that was overgrown with vegetation. After the initial inspection, the City worked with the State Parks and Recreation Department and the Department of Fish and Game to clear the vegetation that was located within close proximity to the above ground wastewater main.

- From July 1, 2017 through June 30, 2019, the City inspected 100% of the FSE's within the City of Folsom. The City needs to continue to inspect FSE's on a 2-year cycle.

- In April of 2017, the City issued a Request for Proposals (RFP) for Sewer Lateral CCTV Inspection. This proactive program consists of closed-circuit television (CCTV) inspection of all of the City owned laterals (approximately 22,000) over a three year period to proactively identify and repair lateral issues; effectively reducing the risk of sanitary sewer overflows. However, on February 6th, 2019 the City of Folsom issued a Notice of Contract Termination to the Contractor for failing to perform within the contract schedule. At the time of contract termination, approximately 2,259 of the 22,000 sewer laterals were inspected. Moving forward the City plans to issue another RFP for inspection of all 22,000 sewer laterals over a 5-year period.

- Over the past two years (FY 17-19) 174 sewer laterals were repaired. All 174 repairs were repaired by the City's Utility Maintenance Division.

- Currently, the City has installed smart cover lids to help monitor sewer level at critical sanitary sewer manhole locations. These locations include Hinkle Creek SSMH monitoring, the Zoo Sewer line, Mangini Ranch Gravity Sewer Line Bridge Crossing and the Alder Creek Force Main Bridge Crossing. The addition of the smart covers at these locations will notify City staff of potential surcharging in these SSMH's.

Grade: A

Recommendation: No action needed; the City will continue to uphold the goals as outlined above.

4. Ensure adequate sewer capacity to address the City's growth and peak wet weather flows.

Discussion: In order to ensure adequate sewer capacity to address the City's growth and peak wet weather flows, the City conducts an updated sewer capacity and assurance plan approximately every 3 to 5 years. The City recently completed an update to the City's Sewer Evaluation and Capacity Assurance Plan (SECAP) in October 2017. Recommendations from the SECAP report included:

- I & I Reduction within Basin 4, 6A, 6C and 14
  - Currently, the City is sub-metering Basin 6A to help identify and reduce if inflow and infiltration exists. Once work in Basin 6A is completed, sub-metering will occur in Basin 4, 6C and Basin 14.
- Pump Station No. 3 Flow Meter Installation
  - A new flow meter will be incorporated into the PS No. 3 Rehabilitation Project which is currently under design and is expected to begin construction in Fiscal Year 19-20.
- City WTP and Oak Ave PS Rain Gauge Installation
  - Installed rain gauges at both the WTP and the Oak Ave PS
- Folsom Blvd Sewer Rehabilitation Project
  - This project is currently in pre-design. Once an alternative has been selected, design will begin followed by construction.
- Oak Avenue Parkway Peak Wet Weather Flow (PWWF) Relief Project
  - Design of this project will begin in FY 19/20

Grade: A

Recommendation: Continue working on implementing all recommendations based on the 2017 SECAP Report.

5. Sustain aging sewer infrastructure by implementing an asset management program to extend asset life cycle.

Discussion: In order to sustain aging sewer infrastructure, the City continues to implement an asset management program to extend the life of each asset. This is achieved through various methods. The program begins with maintaining and inspecting the sewer system through manhole inspections, pipeline inspections (CCTV), flushing, cleaning, sewer lateral inspection and Food Service Establishment Fats, Oils and Grease inspections. Once the inspections have occurred and a priority rating has been assigned to each asset an action plan is developed based on that priority. Priorities are listed below:

- Priority 1 – Re-inspect within 5 years
- Priority 2 – Re-inspect within 2 years

- Priority 3 – Re-inspect within 6 months
- Priority 4 – Re-inspect within 1 month
- Priority 5 – Re-inspect within 2 weeks

Once the affected asset has been assigned a priority, different methods to rehabilitate the asset and extend its life are implemented. Some examples include:

- Clean and flush the sewer line to remove roots, debris, etc.
- Manhole Lining (Seals cracks and holes resulting in a reduction in Inflow and Infiltration)
- Cured in Place Pipe (Lining the inside of a sewer line to extend service life of pipe)

Grade: A

Recommendation: No action needed; the City will continue to uphold the goals as outlined above.

6. Ensure adequate funding support and resources to sustain long-term asset management.

Discussion: In order to ensure adequate funding support and resources for sustaining long-term asset management, the City develops a 5-year Capital Improvement Plan (CIP) along with a Wastewater Operations & Maintenance Budget. Each year this plan is approved and adopted by City Council. The City's annual wastewater budget typically ranges from $6 to $7 Million dollars. Of the $6 to $7 Million dollars, $1.8 to $2.2 Million dollars is set aside for rehabilitation and replacement projects which are consistent with the CIP Plan. The remaining balance is set aside for Wastewater Operations and Maintenance activities.

Grade: A

Recommendation: No action needed; the City will continue to uphold the goals as outlined above.

SSMP Section 2 - Organization

Responsible Person (RP):
Environmental & Water Resources Director

Summary:
Under the City's organizational structure, defined roles and responsibilities were established during the initial implementation of the City's SSMP. The Environmental & Water Resources (EWR) Department uses this organizational structure to assign tasks to individuals for each element of the SSMP.

1. Update City staff responsibilities of the SSMP elements once a year due to organizational changes.

Discussion: The City's organizational chart was updated in 2019. The organizational chart will continue to be updated with each internal audit.

Grade: A

Recommendation: Continue to update the City's Department Organization chart and employees responsible for each SSMP element due to organizational changes.

SSMP Section 3 - Legal Authority

Responsible Person (RP):
Environmental & Water Resources Director

Summary:
The City must demonstrate, through sanitary sewer system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:

- Prevent illicit discharges into its sanitary sewer system, including I/I from satellite wastewater collection systems and laterals, storm water, unauthorized debris, etc.
- Require proper design and construction of sewers and connections
- Ensure access for maintenance, inspection and repairs to publicly owned portions of laterals
- Limit the discharge of FOG and other debris that may cause blockages
- Enforce violations of its sewer ordinances

1. Prevent illicit discharges into the City's sanitary sewer system including I & I from satellite wastewater collection systems and laterals, storm water, etc.

Discussion: There are multiple areas in which the City strives to prevent illicit discharges. Folsom Municipal Code Title 13, Chapter 13.08 (Municipal Sewer System Regulations) provides the City with the legal authority to limit and enforce illicit discharges from upstream public and/or private satellite collection systems. Within the past two years the City has continued certain I & I reduction programs while implementing a number of new programs in order to help reduce I & I. Currently I & I reduction programs and procedures include:

- In 2018, the City was able to identify a significant source of I & I at the sewer lateral location at 4000 Riley Street. It was estimated that after repairing the lateral repair an estimated 7,200 gallons/day of I & I was stopped from entering the sewer system.

- Continued communication efforts with the Folsom Prison (The City's satellite agency) staff regarding the agreement set forth between the City and the Prison for ongoing maintenance, I & I reduction, etc.

- Over the past two years the City identified and repaired 174 sewer laterals due to roots, structural issues and offsets. All 174 repairs were repaired by the City's Utility Maintenance Division.

- Over the past two years the City continued to inspect sewer laterals and evaluate the condition of each lateral to determine if it needs to be rehabilitated. If the lateral needs repair, the repair can be made in house by the City's Utility Maintenance Sewer Division or

rehabilitated through the City's Sewer Service Lateral Capital Improvement Project Program. However, in order to increase efficiency and perform inspection and condition assessment in a timely manner, in April of 2017, the City issued a Request for Proposals (RFP) for Sewer Lateral CCTV Inspection. This proactive program consists of closed-circuit television (CCTV) inspection of all of the City owned laterals (approximately 22,000) over a three year period to proactively identify and repair lateral issues; effectively reducing the risk of sanitary sewer overflows. However, on February 6th, 2019 the City of Folsom issued a Notice of Contract Termination to the Contractor for failing to perform within the contract schedule. At the time of contract termination approximately 2,259 of the 22,000 sewer laterals were inspected. Moving forward the City plans to perform sewer lateral inspections of all 22,000 sewer laterals in house over a 10-year schedule. Once the laterals have been inspected, depending on the condition of the lateral, the City will repair the sewer lateral in house or put a list of laterals together as part of a Capital Improvement Project.

- The City typically identifies sources of inflow and infiltration (I & I) through smoke testing and CCTV inspection. There were 22 I & I repairs identified in the West Yost Associates I & I report that were the responsibility of the City. Action between FY 17-19 was taken to reduce I & I of the 22 repairs included CCTV, sealing manholes, replace cleanout assembly. Additionally, the 2017 SECAP Plan identified Basins 4, 6A, 6C, and 14 as a priority for reducing I/I. Currently, the City is sub-metering Basin 6A to help identify if any inflow and infiltration exists. Once work in Basin 6A is completed, sub-metering will occur in Basin 4, 6C and Basin 14.

- The City has also implemented numerous CIP projects to help reduce I/I. These projects include:
    - Sewer Lateral Repair and Replacement Project (On-Going)
    - Sewer Access Maintenance Project (Design Phase)
    - Sewer Access Road Project (Design Phase)
    - Sewer Evaluation and Capacity Assurance Plan (Complete)
    - Sewer Lateral CCTV Inspection (On-Going)
    - Folsom Blvd Sewer Rehabilitation Project (Pre-Design Phase)
    - Oak Avenue PWWF Relief Project (Pre-Design Phase)

Grade: A-

Recommendation: Continue to analyze sub-basin meter flow data within Basin 6A to determine specific locations of I & I. Once I & I has been determined, smoke test and/or CCTV to reduce I & I. Once work in Basin 6A is complete, continue working to reduce I & I within Basins 4, 6C and 14. Continue to identify areas of I & I through CCTV, manhole inspections, and lateral inspections. Continue to repair sources of I & I to minimize SSO's.

2. Require proper design and construction of sewers and connections.

Discussion: Folsom Municipal Code Title 16, Chapter 16.08.010 (Definitions & Responsibilities) and Chapter 16.36 (Improvements), requires all sewers and connections to be properly designed and constructed. Specific design and construction of sewers is covered within the City of Folsom Design Standards and the City of Folsom Construction Standards. Also, representatives from both engineering and operations are involved in the plan check and plan review process to ensure all sewers are designed and installed properly. Last, revisions to the Sewer Design Standards, Construction Standards and Construction Specifications have been completed and are expected to be adopted in 2019.

Grade: A

Recommendation: Continue to coordinate between engineering and operations for the plan check process to ensure proper design and installation.

3. Ensure access for maintenance, inspection and repairs to publicly owned portions of laterals.

Discussion: The Folsom Municipal Code Title 16, Chapter 16.32.010 (Dedication of streets, alleys and other public right-of-way or easements) states that, "as a condition of approval of a tentative map, the sub-divider shall dedicate or make an irrevocable offer of dedication of all parcels of land within the subdivision that are needed for streets and alleys, local transit facilities, public access easement, including access rights and abutters' rights, drainage, public greenways, bicycle paths, trans, open space easements, sunlight easements, landscape easements, scenic easements, public utility easement and other public easements…". Having this in place, allows the City to operate, maintain, inspect and fix any portion of the sewer system located within an easement. In addition, Folsom Municipal Code Title 13, Chapter 13.08 will be updated to clearly identify who owns and/or maintains the sewer service lateral from the building foundation to the property line (upper lateral portion) and who owns and/or maintains the sewer service lateral from the property line to the sewer main line (lower lateral portion).

Grade: A

Recommendation: No action needed; the City will continue to enforce the Folsom Municipal Code.

4. Limit the discharge of FOG and other debris that may cause blockages.

Discussion: The Folsom Municipal Code Title 13, Chapter 13.03 discusses the regulations to prohibit and control the discharge of Fats, Oils and Grease (FOG) into the Sanitary Sewer Collection System. The City continues to improve its FOG inspection program of all Food Service Establishments (FSE). The City recently completed another cycle of inspecting all FSE's within 2 years. The inspection program collects data specific to each FSE, educates the FSE of FOG Best Management Practices (BMP's) and notes when an FSE has violated any part of the City's FOG Ordinance. The City also educated residents and the public about Fats, Oils and Grease through Best Management Practice tips via the City's website, City Newsletters, and through various community events such as City Works Day.

Grade: A

Recommendation: Continue to inspect all FSE's on a 2-year cycle.

5. Enforce violations of its sewer ordinances

Discussion: The City's ordinance provides the City with the proper authority to issue notices to correct and notices of violation through the Folsom Municipal Code Title 13, Chapter 13.03.170 and Folsom Municipal Code Title 1, Chapters 1.08, 1.09 and 1.10. The City recently completed another cycle of inspecting all FSE's within 2 years in order to ensure each FSE is in compliance with the City's ordinance for minimizing FOG.

Grade: B+

Recommendation: Inspect all FSE's within a 2-year cycle. Continue to enforce violations of the City's sewer ordinances and educate FSE's on proper FOG handling procedures.

SSMP Section 4 - Operations & Maintenance Program

Responsible Person (RP):
Environmental & Water Resources Director

Summary:
Section 4 – Operations & Maintenance Program of the SSMP requires a variety of elements that each agency must comply with. These include:

I. Maintaining an up-to-date map of the sanitary sewer system
II. Routine operation and maintenance activities and Rehabilitation & Replacement Program
III. Training
IV. Equipment Inventory

I. Sewer System Mapping: The City of Folsom maintains a GIS map of the City's utility infrastructure, which includes the sanitary sewer collection system. The GIS map is generated by importing existing AutoCAD maps based on recorded as-built plans in order to create an inventory of utility infrastructure assets for the purpose of tracking and asset management.

1. **Update mapping system to reflect new development projects, CIP projects or asset corrections due to field investigation**.

Discussion: As new development projects and CIP projects are completed, as-built information is updated into the City's GIS system. The same process is used when field personnel find mapping errors. Corrections are drawn on a map and changes are made in GIS. To date all projects and known map errors have been revised.

Grade: A

Recommendation: No action needed.

2. **Identify all sewer lines within the City that are not within the City's right of way and validate through documentation whether each of the sewer lines have dedicated sewer easements and whether the sewer is publicly or privately owned.**

Discussion: The City continued the identification process of determining whether sewer lines located outside of the City right-of-way are publicly or privately owned.

Grade: A

Recommendation: Continue to update the mapping system when sewer lines located outside of the City's right-of-way are publicly or privately owned. Develop a plan and notification process to

inform those that own the private sewers that they are responsible for all operations, maintenance, repairs and costs associated with the private sewer.

3. Continue to populate the GIS mapping system to include information such as age of infrastructure, development associated with sewer infrastructure, pipe type, pipe size, etc.

Discussion: The City began working on this task in 2004 when the City switched from AutoCAD to GIS. Listed below is a table identifying the assets that are complete and those assets that still need additional information and the timeline for completing each task.

	Complete (%)	Incomplete (%)
Pipe Material	91%	9%
Pipe Age	87%	13%
Manhole	100%	-
Development	100%	-
Pipe Size	100%	-

Grade: A

Recommendation: Continue to improve and update the City's GIS mapping system as it relates to pipe material, pipe age, pipe size or manholes through sewer inspections.

II. Preventive Operation & Maintenance and Rehabilitation & Replacement Program: The Preventive Maintenance and Rehabilitation & Replacement Program outlines routine sewer operation and maintenance activities the City implements as part of the SSMP. The goals of the program are to:

- Develop and implement standard operating procedures (SOPs) such as CCTV, manhole inspections, flushing and smoke testing.
- Perform routine pump station inspections
- Develop and implement emergency response procedures
- Develop a list of construction related projects that identifies and prioritizes system deficiencies by implementing a short-term and long-term rehabilitation program to address each deficiency and create a time schedule for developing and implementing the rehabilitation program.

1. Develop and implement standard operating procedures (SOPs) such as CCTV, manhole inspections, flushing and smoke testing.

Discussion: The City first developed SOP's when it received an NPDES and Cease and Desist Order from the State Water Resources Control Board (SWRCB) in 2001. Since this time, new SOP's have been developed and modified as part of the City's SSMP required by the SWRCB Waste Discharge

Requirements (WDR) Order No. 2006-003 that was implemented in 2006 and was formally adopted and approved by City Council in August of 2009. SOP's developed by the City include pump station inspections, manhole inspections, CCTV and flushing inspections. SOP's are updated on a continuous basis to account for staff changes, procedural changes and operational changes. Examples of SOP's that have been recently added include the EVP Lift Station, Village H Lift Station, and pipes/sanitary sewer manholes inaccessible by vehicle. In addition, the Oak Avenue Pump Station Emergency Bypass Procedure Plan was recently updated.

Grade: A

Recommendation: All SOP's are up to date and in place. Continue updating existing SOP's and creating new SOP's as necessary in order to comply with the SSMP.

2. Manhole Inspection, Flushing, CCTV, FSE Inspections and Sewer Lateral Inspections are to be completed within a scheduled cycle.

Discussion:

The City has established a schedule for different maintenance/inspection activities as follows:

- 2-Year Cycle
  - Inspect all 400 Food Service Establishments for FOG compliance (Average of 4/week)
- 3-Year Cycle
  - Contract out sewer lateral inspection through the RFP process
- 5-Year Cycle
  - Flush all 255 miles of mainline (Average of 5,200 lineal feet/week)
  - CCTV all 255 miles of mainline (Average of 5,200 lineal feet/week)
  - Inspect all 6,266 SSMH (Average of 24 per week)

In addition to the scheduled maintenance and inspection activities, the City also performs pump station inspections on a daily basis, performs responsibility checks, responds to sanitary sewer overflows, identifies and corrects areas of inflow and infiltration that have been identified through sub-metering or through smoke testing and participates in weekly training.

Table 1 below shows the City's performance regarding flushing, CCTV, SSMH inspections over the last 5-year cycle (2014-2018). Table 2 identifies all FSE's that have been inspected over the past 2-year cycle (2017-2018). Over the past inspection cycle, the City inspected 100% of FSE's, flushed 93% of all sewer lines, inspected 87% of all sanitary sewer manholes and performed CCTV of 55% of the City's system. The primary cause of not meeting the CCTV inspection is due to camera failure or CCTV van failure and the downtime it takes to repair the equipment/van. In order to increase

productivity, it is recommended to purchase multiple CCTV cameras and an additional CCTV van. If the camera or van is down for service, the backup camera and van can be utilized.

Additionally, the City began a proactive sewer lateral inspection program. Initially, the program began in-house, however, due to the number of laterals in order to increase efficiency the City issued a Request for Proposals (RFP's) for sewer lateral CCTV inspection in April of 2017. The proactive program consisted of CCTV inspection of all the City owned laterals (approximately 22,000) over a three-year period. The goal of the inspection was to identify and repair lateral issues. On February 6th, 2019, the City of Folsom issued a Notice of Contract Termination to the Contractor for failure to perform within the contract schedule. At the time of contract termination, approximately 2,259 of the 22,000 sewer laterals were inspected. The City recently converted a Utilities Technician position to a Collection Technician position that allows the City to begin inspecting laterals in house. The goal of the recent position conversion is to inspect 22,000 laterals over a 10-year period.

Table 1 WASTEWATER INSPECTIONS (5 Year Schedule)

Basin	Miles	SSMH	Fiscal Year	Flushing (%)	CCTV (%)	SSMH (%)
4	12.6	306	FY 17/18	92%	0%	78%
7	13.33	301	FY 17/18	100%	100%	88%
10	8.93	220	FY 17/18	78%	71%	58%
3	11.73	271	FY 17/18	98.3%	66%	85%
13	12.2	334	FY 18/19	0%	0%	72%
1	19.59	638	FY 15/16	100%	88%	91%
5	0.561	10	FY 18/19	100%	100%	100%
12	20.98	513	FY 14/15	96%	83%	93%
8	46.79	1042	FY 16/17	93%	7%	100%
14	6.6	225	FY 18/19	0%	0%	0%
2	9.74	258	FY 16/17	75%	96%	86%
11	7.86	254	FY 15/16	100%	32%	100%
9	16.69	376	FY 16/17	85%	96%	79%
16	12.1	283	FY 16/17	81%	57%	97%
6	27.5	627	FY 14/15	96%	95%	96%
15	9.04	236	FY 15/16	100%	100%	97%
17	16.85	372	FY 14/15	99%	95%	96%
Weighted Average Percentage				**93%**	**55%**	**87%**

Table 2 FSE FOG Inspections (2 Year Schedule)

PRIORITY	BASIN #	YEAR	FOG
1	4	2017	100%
2	7	2017	100%
3	10	2017	100%
4	3	2017	100%
5	13	2017	100%
6	1	2017	100%
7	5	2017	100%
8	12	2017	100%
9	8	2018	100%
10	14	2018	100%
11	2	2018	100%
12	11	2018	100%
13	9	2018	100%
14	16	2018	100%
15	6	2018	100%
16	15	2018	100%

Grade: C+

Recommendation: In general, the City does a good job of inspecting pump stations weekly, responding to sewer and SSO calls, meeting the 2-year schedule for FSE inspections and the 5-year schedule for flushing and SSMH inspections. However, CCTV of mainlines needs improvement. In order to increase productivity it is recommended to purchase multiple CCTV cameras and an additional CCTV van. If the camera or van is down for service, the backup camera and van can be utilized.

The converted Utilities Technician position to Collection Technician position, allows the City to inspect all 22,000 sewer laterals over a 10-year period. This program should begin as soon as the position is filled.

The revised maintenance/inspection activities schedule would be as follows:

- 2-Year Cycle
    - Inspect all 400 Food Service Establishments for FOG compliance (Average of 4/week)

- 5-Year Cycle

- Flush all 255 miles of mainline (Average of 5,200 lineal feet/week)
- CCTV all 255 miles of mainline (Average of 5,200 lineal feet/week)
- Inspect all 6,266 SSMH (Average of 24 per week)

- 10-Year Cycle
  - Inspect all 22,000 sewer laterals (Average of 43 per week)

Continue with daily pump station inspections, performing responsibility checks, responding to sanitary sewer overflows, responding to sewer calls, identifying and correcting areas of inflow and infiltration that have been identified through sub-metering or through smoke testing, and continue participating in weekly training.

3. Perform routine pump station inspections

Discussion: Pump Station inspections are inspected on a weekly, monthly, semi-yearly and yearly basis. The scope of pump station inspection varies depending on the inspection interval. An SOP has been developed for each specific pump station and the necessary action items that field staff needs to follow based on the type of inspection (weekly, monthly, semi-annual or annual inspection). Inspections are recorded on Preventive Maintenance Templates and input by City staff in Lucity (The City's CMMS System). To date, all pump station inspections are on schedule.

Grade: A

Recommendation: No action needed, all pump station inspections are up to date and recorded in Lucity. Continue inspections and documentation.

4. Develop and implement emergency response procedures

Discussion: In addition to Standard Operating Procedures, the City also developed Emergency Operating Procedures. These procedures include topics such as sewer force-main break, sewer main break, pump station failure. The City has the ability to bypass pump at all pump stations within the City of Folsom in the event of a complete pump station failure. Emergency bypass pumping procedures have been written for each of these stations and the crews are trained regularly on performing bypass pumping as seen in the chart below.

Bypass Pump Station Training	
Pump Station	Date
PS No. 2	05/18/2017
Oak Ave PS	08/15/2017
PS No. 2	02/08/2018
Oak Ave PS	09/12/2018
Young Wo PS	06/09/2018

Oak Ave PS	04/03/2019

Recently the City acquired two new pump stations (EVP Pump Station and Village H Pump Station). As a result of the construction of these two pump stations, new emergency bypass pump SOP's were created. The ability to bypass pumping capability at each of the stations reduces the risk of SSO's during a power/electrical failure.

Grade: A

Recommendation: No additional action needed, continue to update and implement new emergency procedures as necessary and continue training on all emergency procedures such as bypass pumping.

5. **Develop a list of construction related projects that identifies and prioritizes system deficiencies by implementing a short-term and long-term rehabilitation program to address each deficiency and create a time schedule for developing and implementing the rehabilitation program.**

Discussion: During each of the inspections (manhole, CCTV, lateral inspections) performed by the City's Wastewater Division, an overall condition assessment is assigned as outlined below:

- Rating 1 – Noted and follow up inspection within 5 years
- Rating 2 – Noted and follow up inspection within 2 to 3 years
- Rating 3 – Replace within 6 months
- Rating 4 – Replace within 1 month
- Rating 5 – Emergency (Replace within 2 weeks)

If the asset rating is a 3 or higher, the asset is categorized into one of two areas. Once the inspection request is completed and a rating of 3 or higher is assigned to that asset, a work order is generated and scheduled for repair or replacement by the City's Utilities Maintenance Division within the timeframe listed above. Typical repair or replacement projects performed by the Utility Maintenance Division include replacing cleanouts, repairing/replacing laterals, and repairing/replacing main lines. For FY 17-19, 174 sewer construction requests were made and 174 of the 174 (100%) were completed within the past two fiscal years (FY 17-19). In addition to the City's Utility Maintenance Division performing sewer lateral repairs, the City also periodically develops together a Capital Improvement Project for an outside Contractor to perform sewer lateral repairs. During the 2017-2019 audit period, no repair services were performed by an outside Contractor.

Assets such as sewer pipelines with a rating of 3 or higher that are large enough in scope of work are placed on a CIP list. Listed below are the projects that were completed within the past two years or projects that are currently in the design or construction phase.

- Sewer Lateral Repair and Replacement Project (On-Going)
- Natoma Alley Sewer Rehabilitation Project (Design Phase)
- Sewer Access Road Project (Design Phase)
- Pump Station No. 2 Odor Control Project (Complete)
- Pump Station No. 1 Basin Abandonment Project (Complete)
- Sewer Lateral CCTV Inspection (On-Going)
- PS No. 3 Rehabilitation Project (Design Phase)
- Folsom Blvd Sewer Rehabilitation Project (Pre-Design Phase)
- Oak Avenue PWWF Relief Project (Pre-Design Phase)

Grade: A
Recommendation: Continue to proceed with Utility Maintenance repair/replacement work and CIP Projects.

6. Establish a more effective odor control program

Discussion: Currently the City of Folsom has three known locations that cause odor issues. The three areas are Oak Avenue Pump Station, Rowberry/Walden/Withers residential subdivision area, and Pump Station No. 2.

Upgrades to reduce/eliminate odor at all three known locations have been made between 2015 and 2019. Currently, each location has an effective method to reducing/eliminating odor as outlined below:

- Oak Avenue Pump Station
  - Installation of a pig launching station to clean the Oak Avenue Force Main
  - ANUE Water Technologies system installed to create surface agitation in the Oak Avenue PS wet well that breaks up and prevents organic and bi-organic matter buildup. This system helps reduce odor and eliminates FOG mat that typically forms in wet wells.
  - Both items have been effective in reducing/eliminating odors in the surrounding Oak Ave PS area.
- Rowberry/Walden/Withers residential subdivision area
  - Installation of 1,800 feet of underground vent pipe
  - Installation of a carbon scrubber
  - Both the vent pipe and the carbon scrubber have been effective in reducing the amount of odor complaints in the surrounding Rowberry/Walden/Withers subdivision community.
- PS No. 2
  - Installation of a carbon scrubber at PS No. 2 Facility

- ANUE Water Technologies system installed to create surface agitation in the Oak Avenue PS wet well that breaks up and prevents organic and bi-organic matter buildup. This system helps reduce odor and eliminates FOG mat that typically forms in wet wells.
- Both items have been effective in reducing/eliminating odors in the surrounding PS No. 2 area

Grade: A

Recommendation: Maintain the 3 existing odor control facilities. As new odor problems arise, address the problem as needed.

III. Sewer System Operations and Maintenance Training: Training is a critical element to the SSMP. Training employees helps increase employee knowledge and operational know how. Ultimately, training staff on various elements of the SSMP is critical to reducing the number of SSO's. Training of City staff occurs in many different forms such as; tailgate meetings, formal meetings, seminars, educational classes, etc.

1. **Schedule and track attendance of all safety meeting as it relates to sewer operations.**

Discussion: Training frequency and dates are logged and can be seen in the table listed below. Frequency of training depends on the importance of the topic. Some topics are reviewed whenever there is a new hire while other topics are reviewed on an ongoing or annual basis.

Training	Frequency N=New Employee, A=Annual Training, Bi-A=Bi-Annual,	Forms	Dates	Done
6A-ARC SOP including Bypass	A			
Accident Review and Investigation	A			
Aerial Devices	N			
ARC Flash/ 2 Day Class/ refresher	N/O			
Asbestos Awareness	N/A			
Battery Handling & Maintenance	N			
Chemical or Petroleum Surface Spill	A			
ARV Valve Repair Demo	N/O			
Compressed Gas Safety	N			
Confined Space Entry	N/O	Confined Space 2019.pdf	4/9/19	X
Confined Space Risk & Responsibility	A			
Corp Yard HazMat Training	A			
CSON - Collection System Operations Notice Overview				
Defensive Driving /Expect the Unexpected	A			
Defensive Driving (staff who drive at work)	N			
Backing, Parking, Intersections Bickmore	A			
Del Norte SOP including Bypass	A			
Drug and Alcohol Testing	A			

Electrical Safety	N			
Emergency Action/Fire Prevention	N/O			
Emergency Eye Wash	N			
Employee Wellness/Blood Borne Pathogens	N/A			
Equipment Operation Safety (department specific)	N/O			
Ergonomics- Back Injury Prevention/Safety	N			
Ergonomics- Office	N			
Excavation/Trenching/Shoring	N			
Fall Protection	N			
First Aid/CPR (designated staff)	N/ 2Year			
Rough Terrain Forklift-Bobcat Versa Handler V 723	N/ 3Year			
GHS Harzard Communication (OHSA)				
Hazards of Working in Hot Weather	A			
Hearing Conservation	N/A			
Heat Illness Prevention/UV Protection	A-SPRING			
Housekeeping/Organize				
Hydro-Ranger Milltronics Training				
Injury & Illness Prevention Program	N/O			
Ladder Safety	N			
Lake Forest SOP including Bypass	A			
Lead Awareness	N/O			
Lockout/Tag Out	N/O			
Mountain Oak SOP including Bypass	A			
MSA Gas meter training	0		4/9/19	X
New Employees Safety Orientation/Specific Job Hazards	N			
Oak Avenue Bypass Training	A			
Orangevale Ave SOP including Bypass	A			
Outdoor Hazards (plants, animals, insects)	A-SPRING	Insect hazards.pdf	2/27/19	X
Personal Protective Equipment Requirements (PPE)	N/O			
Pesticide Use Safety	N/O	Safety Training 2019.xlsx	12/3/2018/19	X
Respirator Fit Test	A			
Rigging/Hoisting	N			
Run. Hide. Fight. Surviving an Active Shooter Event				
Safety Awareness: Real Accidents, Real Stories				
SSMP Overview	A			
SSO reporting /Spill Volume/ Refresher	Bi-A			
Station 2 Bypass Pump Training	A			
Stress in the Work Place	A			
Supervisor Safety Training (designated employees)	N/O			
Power Tool Safety (department specific)	N/O			
Traffic Control & Flagger Training	N			
Tree Work	N			
Vac All Training	N	Confined Space and Vac con training.pdf	4/11/19	X
Water Safety	A			
Welding & Cutting Safety/Fire Watch/Hot Work	N			
Workplace Violence/Evacuation Drills	N			
Young Wo SOP including Bypass	A			
Mueller CO. Reliable Connections	O			

Grade: A

Recommendation: Continue Training Efforts as outlined in the schedule above.

IV. Equipment & Replacement Parts Inventory: Maintaining an Equipment & Replacement Parts Inventory is critical to the operation of an agencies sewer system. During an emergency such as a pump failure it is important to have spare parts on hand to be able to react quickly to the emergency and minimize the down time due to a failure.

1. **Maintain and update an equipment and replacement parts inventory list.**

Discussion: As shown in the figure below, the City maintains a spreadsheet that lists all critical equipment relevant to the City's sewer system. Items such pump manufacturers, pump horsepower, manufacturers of various items, serial numbers, generators, etc. The Equipment & Replacement Parts Inventory was last updated in 2019 to include the EVP Pump Station and the Village H Pump Station.

OAK AVENUE

Station Type:
Receives flow from:
Pumps it to:

EQUIPMENT NAME	TYPE	SERIAL NO.	MANUFACTURER	MODEL NO.	CAPACITY	SIZE (HP)	V/PH/Hz	SPEED	HEAD (TDH)	NOTES	RECOMMENDED PREVENTIVE MAINTENANCE*	FREQUENCY*
Pump #1	PUMP		PACO								Check semi-annually for stable and smooth operation. Check the unit running records for hourly usage vs. power consumption, vibration and pump output to determine if internal inspection is required.	6 mos 6 mos
PUMP-1 PACO Pumps U.S. Electric Motors	MOUNTED PUMP		PACO								1. Pull pumps twice a year for inspection and wash down with pressure hose. 2. Check bubbler switches. 3. Check the seal oil in the seal chamber yearly or when the seal alarm signal is given.	1. 6 mos 2. 3 mos 3. 12 mos
PUMP-1 PACO Pumps U.S. Electric Motors	MOUNTED PUMP		PACO								1. Pull pumps twice a year for inspection and wash down with pressure hose. 2. Check bubbler switches. 3. Check the seal oil in the seal chamber yearly or when the seal alarm signal is given.	1. 6 mos 2. 3 mos 3. 12 mos
BACKFLOW VALVE-1	VLV		Val Matic	301BW						150 psi, w.p.	1. Check and clean as needed.	As needed
BACKFLOW VALVE-2	VLV		Val Matic	301BW						150 psi, w.p.	1. Check and clean as needed.	As needed
BACKFLOW VALVE-3	VLV		Val Matic	301BW						150 psi, w.p.	1. Check and clean as needed.	As needed
GENERATOR TURNOVER												Weekly
WET WELL	WELL										1. Clean grease from wet well.	6 mos/when needed
SUMP PUMP	PUMP		GOULD	V551IB		1/2		1725			1. Check sump pump for normal operation.	2 wks/when needed
COMPRESSOR (2)	COMP		INGRAM	HRIOW B2		60Hz						
HEATER	HVAC		DAYTON	VR4205M		5W				AIR PUMP	1. Check heater for normal operation in winter months.	Routine Inspection Vis
MOTOR-1	MOTOR									GAS	1. Inspect and grease as needed.	Routine Inspection Vis
MUFFIN MONSTER MOTOR	MOTOR	18065	JWC ENVIRONMENTAL	CMD		30R5 HP	V-208/230/460 Ph-3 Hz-50/60	1725			1. Check motor and grease as needed.	Routine Inspection Vis
EMERGENCY GENERATOR	EGU	625004	KOHLER	135RZD			Ph-3 Hz-60	1800			1. Change oil and filter. 2. Tune up.	6 mos 12 mos
SNAP ARM VALVE	VLV		NO. 52SC								1. Inspect valve for normal operation. 2. Spray with oil.	Routine Inspection Vis Routine Inspection Vis
3-WAY VALVE	VLV										1. Inspect valve for normal operation.	Routine Inspection Vis
AUTO VALVE	VLV										1. Inspect valve for normal operation.	Routine Inspection Vis
REFRIGERATED AIR DRYER	HVAC										1. Check air dryer for normal operation.	Routine Inspection Vis
EXHAUST FAN	HVAC		JEN FAN CO.	CWD 100A		1/3	Ph-1 V-115/230	1800			1. Check fan for normal operation.	Routine Inspection Vis
SAFETY VALVE	INC										1. Inspect and crack open safety valve.	Weekly
TANK VALVE	VLV										1. Bleed out condensation.	Routine Inspection Vis
V-NOTCH CHLORINATOR			WALLACE & TIERNAN	SIOK								Daily
ACUTER 35 GAS DETECTION SYSTEM			WALLACE & TIERNAN	RJ150								Daily
EMERGENCY CHLORINE SCRUBBER SYSTEM			US FILTER									Weekly
EMERGENCY EYE WASH			GAURDIAN EQUIPMENT									Weekly
CHATTERBOX REMOTE MONITOR		4-4999	RACO									Daily
LIQ-5/30 PROGRAMABLE CONTROLLER			TESCO									Daily
HEATER (NATURAL GAS)			AEI CORP.									

Grade: A

Recommendation: No action needed, continue to update the spreadsheet as necessary.

SSMP Section 5 - Design & Performance Program

Responsible Person (RP):
Environmental & Water Resources Director

Summary:
Design and Construction Standards are important to help streamline the process for both design review and construction. It is important to recognize the close relationship between design and construction. These processes can best be viewed as an integrated system. Design is the process of creating something new like sewer system infrastructure, usually represented by detailed plans and specifications while construction is the process of identifying activities and resources required to make the design a physical reality.

1. **Maintain design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems.**

   Discussion: The City requires design engineers and contractors to adhere to the most recent version of the City of Folsom Standards. The City currently has the following documents:

   - Design Manual
   - Standard Specifications
   - Standard Details

   The City has recently updated the Sewer Design and Construction Standards and Specifications and Sewer Design and Construction Standards. The Standards and Specifications are expected to be adopted in FY 19-20. The Standards and Specifications were last updated in January of 2014. In addition, the City of Folsom conducts plan review meetings with both the engineering and operations division to ensure all sewers are properly designed and installed.

   Grade: A

   Recommendation: None, continue to incorporate the new standards.

2. **Maintain procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.**

   Discussion: The City of Folsom adopted detailed standard construction specifications that all construction must adhere to. In addition, City inspectors oversee each aspect of the construction project including the installation and testing of new sewers, pumps. The City recently updated the standard specifications and construction details and are expected to be adopted in FY 19-20.

   Grade: A

Recommendation: Ensure City inspectors are familiar with the new standards once they are adopted.

SSMP Section 6 - Overflow Emergency Response Plan

Responsible Person (RP):
Environmental & Water Resources Director

Summary:
In the event of a Sanitary Sewer Overflow (SSO), it is of greatest importance to limit the liability, severity of damage, and protect the natural resources of the City of Folsom. The source of the SSO should be stopped and contained as soon as possible. In addition to cleanup procedures, the City is responsible for notification of affected residents, property owners, and agencies that could be impacted by an SSO. The City's Overflow Emergency Response Plan is intended to provide City staff with procedures to be followed for SSO response and notification. The City of Folsom's success in preventing the occurrence of sanitary sewer overflows is a key metric in gauging the overall success of several SSMP programs. Proper procedures, response & notification so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner are critical to an SSO event.

1. **Ensure the City's Sanitary Sewer Overflow Response Plan Flow Chart, Sanitary Sewer Overflow Report Form and the Sanitary Sewer Overflow Response Plan is up to date.**

   Discussion: Category 1, 2 and 3 Flow charts have been updated and revised. These revisions further clarified responsibility and procedures. Additionally, the SSO Report form and SSO Response Plan have been updated to reflect organization personnel changes.

   Grade: A

   Recommendation: No action needed.

2. **Review all SSO's within CIWQS for accuracy.**

   Discussion: Overall, the City does a good job of inputting and performing QA/QC of SSO reports. All SSO's are input by the Wastewater Collection Lead Worker into Excel. Once the SSO Excel Form is complete, the document is reviewed by the Senior Engineer and Utilities Section Manager. Once the QA/QC process has been completed all data is transferred by the Wastewater Collection Lead Worker from Excel into the CIWQS database. Once the data has been uploaded into CIWQS it is then approved by the City's Legal Responsible Official (LRO). During the FY17-19 reporting period, there were four discrepancies between the City's SSO reports and CIWQS. Better QA/QC for entering data such as public or private spill locations and verification of all spill reports being entered into CIWQS is required.

2017-2019 Audit Period

CIWQS vs. City of Folsom SSO Reporting QA/QC Discrepancies						
No.	**SSO ID**	**Address**	**Date**	**Volume**	**Private/ Public**	**Discrepancy**
1	842014	604 E. Bidwell St	11/29/2017	7 gal	Private	This is a duplicate SSO report in CIWQS. Duplicate Needs to be deleted.
2	None	6608 Folsom Auburn Rd	12/5/2017	31 gal	Private	Not reported in CIWQS. Needs to be uploaded to CIWQS.
3	None	7238 Pine Grove	12/11/2017	10 gal	Private	Not reported in CIWQS. Needs to be uploaded to CIWQS.
4	None	9477 Greenback	1/10/2018	50 gal	Private	Not reported in CIWQS. Needs to be uploaded to CIWQS.

Grade: B+

Recommendation: Continue to accurately enter SSO information into the Excel Form and CIWQS database.

3. SSO History (Category 1, 2 and 3 SSO's)

Per the State Water Resources Control Board Order No. WQ2013-0058-EXEC, new spill categories, definitions and CIWQS reporting requirements took effect on September 9, 2013. The most significant change in the order reclassified SSO spill categories to include a Category 3 spill. Each of the spill Categories are defined below:

Category 1:
Discharges of untreated or partially treated wastewater of **any volume** resulting from an enrollee's sanitary sewer system failure or flow condition that:

- Reach surface water and/or reach a drainage channel tributary to a surface water; or
- Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly.

Category 2:
Discharges of untreated or partially treated wastewater of **1,000 gallons or greater** resulting from an enrollee's sanitary sewer system failure or flow condition that **do not** reach surface water, a drainage channel, or a MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.

Category 3:
All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.

3A. Number of Category 3 SSOs.

Discussion: Of the 27 spills, 26 were category 3 SSO's. As shown in the table below, the City is well below the Regional and State average.

2017-2019 Audit Period

Category 3 Spill Rate Indices (#spills/100mi/year)			
Agency	Mainlines	Laterals	Other
City of Folsom	2.19	7.74	0
Region - Municipal - Average	5.81	22.11	1.64
State - Municipal - Average	4.51	15.49	1.68

Grade: A

Recommendation: The City of Folsom is well below the regional and statewide average of Category 3 SSO spills. Additionally, the number of Category 3 spills decreased from 35 SSO's during FY 15-17 to 27 SSO's during FY 17-19. Continue to minimize the number of Category 3 spills.

3B. Number of Category 2 SSOs.

Discussion: Utilizing the data from the CIWQS website, of the 27 spills that occurred from 07/01/2017 through 06/30/2019, zero spills were classified as Category 2 SSOs. The number of spills per 100 miles per year within the City was compared against the State and Regional average. As shown in the table below, the City is well below the Regional and State average.

2017-2019 Audit Period

Category 2 Spill Rate Indices (#spills/100mi/year)			
Agency	Mainlines	Laterals	Other
City of Folsom	0	0	0
Region - Municipal - Average	2.69	0.27	1.23
State - Municipal - Average	1.66	0.53	2.05

Grade: A

Recommendation: The City of Folsom is well below the regional and statewide average of Category 2 SSO spills. The City had zero Category 2 SSO's during FY 17-19.

3C. Number of Category 1 SSOs.

Discussion: Utilizing the sewer asset database and the CIWQS website, there was 1 Category 1 SSO occurring within the past two years. The spill was caused by roots. The City continues to be well below the Regional and State average, however, the City needs to continue to work on reducing the number of Category 1 SSO's.

2017-2019 Audit Period

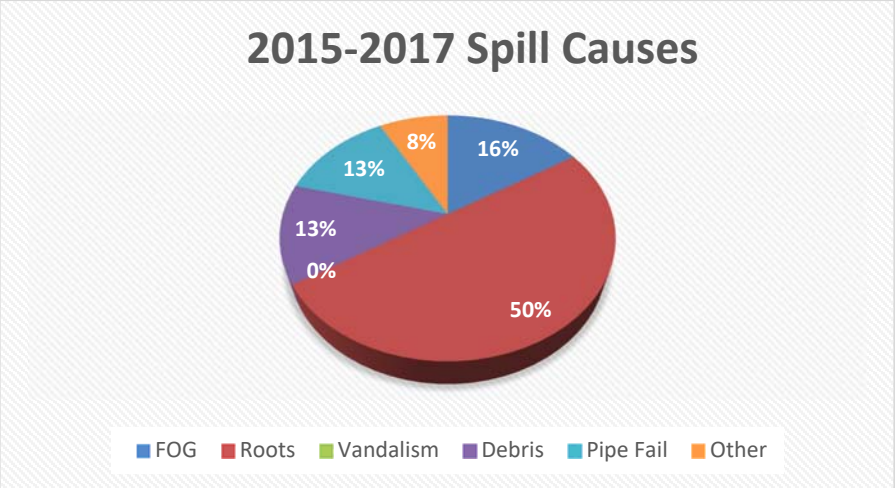
Category 1 Spill Rate Indices (#spills/100mi/year)			
Agency	Mainlines	Laterals	Other
City of Folsom	0.2	0	0
Region - Municipal - Average	3.58	28.08	3.64
State - Municipal - Average	2.83	15.52	1.66

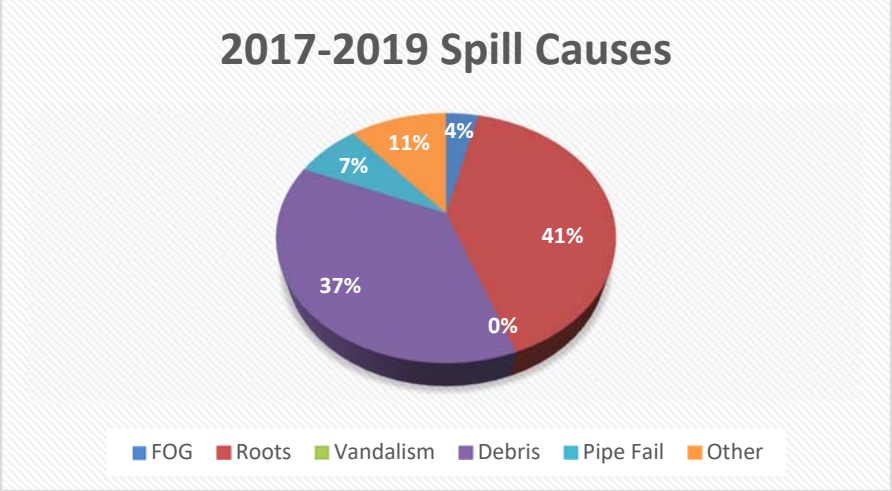
Grade: A

Recommendation: The City of Folsom is well below the regional and statewide average of Category 1 SSO spills and should continue to work to prevent Category 1 SSO's.

4. Category 1, 2 and 3 Spill Causes

Discussion: The chart below evaluates the cause of the 38 spills that occurred from 07/01/2017 through 07/01/2019 and compares the spill cause to those from the 2015-2017 SSMP self-audit.





The top 3 spill causes over the past two years were roots, debris, and other (such as construction related activities). When comparing the pie chart to previous Fiscal Year audits, overall, the number of SSO's reduced by 9 since the last audit period, and the volume of SSO's decreased from 4,644 gallons in total volume during FY 15-17 to 859 gallons during FY 17-19.

Grade: A

Recommendation: Since most of the City's spills occur within the sewer lateral, the City began a proactive and progressive lateral inspection program to inspect all 22,000 sewer laterals over a 10-yer period in order to identify sewer lateral deficiencies with the goal of reducing spills and other potential overflow related spills such as roots, grease, and structural defects.

5. Average response time during normal business hours.

Discussion: The City had 21 spills during normal business hours between July 1, 2017 and July 1, 2019. The average response time of those 21 spills was 17 minutes.

Grade: A

Recommendation: Ensure staff members are thoroughly aware of spill response procedures in the event of future SSOs, per the requirement of the SSMP Section VI – Overflow Emergency Response Plan.

6. Average response time after normal business hours.

Discussion: The City had 6 spills after hours between July 1, 2017 and July 1, 2019. The average response time of those 6 spills was 39 minutes.

Grade: A

Recommendation: Ensure staff members are thoroughly aware of spill response procedures in the event of future SSOs, per the requirement of the SSMP Section VI – Overflow Emergency Response Plan.

SSMP Section 7 - FOG Control Program

Responsible Person (RP):
Environmental & Water Resources Director

Summary:
The purpose of the FOG Control Program is to control the discharge of FOG from City of Folsom facilities, such as food services establishments, apartments, single family homes, etc., in order to reduce the potential for FOG accumulation in the sanitary sewer collection system.

1. Necessary Legal Authority to prohibit discharges of FOG into the City's sanitary sewer system.

Discussion: On March 13, 2007, the City Council adopted Ordinance No. 1071 which addresses the prohibition and control of discharging fats, oils and grease into the City's Sanitary Sewer System. The ordinance can be found in Title 13, Section 13.03 of the City's Folsom Municipal Code. On August 25, 2015 through Ordinance No. 1233, City Council approved revisions to Section 13.03 of the Folsom Municipal Code to improve upon the regulations of fats, oils and grease

Grade: A

Recommendation: Continue to review the ordinance periodically to ensure the ordinance is still relevant and up to date.

2. Commercial FOG Requirements for the installation of grease removal devices such as traps or interceptors.

Discussion: Currently, the building department and community development department in conjunction with the Environmental & Water Resources (EWR) Department work together during the plan review process to ensure all food service establishments are installing the proper grease control device. Prior to 2012, most decisions were made through verbal discussions. To help streamline the process the EWR Department created a set of "Grease Control Device Guidelines" for the Building Department to refer to when reviewing plans. On August 25, 2015 through Ordinance No. 1233, City Council approved revisions to Section 13.03 of the Folsom Municipal Code to improve upon the regulations of fats, oils and grease.

Grade: A

Recommendation: Continue the plan review process as described above. Continue to review the ordinance periodically to ensure the ordinance is still relevant and up to date.

3. Maintain a Public Outreach Program

Discussion: The City developed numerous articles to help provide residents and business owners within the City of Folsom with the proper tools and knowledge to prevent sanitary sewer pipe blockages that cause backups and sanitary sewer overflows. The articles are posted on the City's website (www.folsom.ca.us) and include material such as:

Commercial FOG

- Why a FOG Program
- Proper Disposal of FOG BMP's
- Grease Removal Devices
- Grease Interceptor Maintenance
- Grease Trap Maintenance
- How To Recycle Kitchen Grease
- Selecting a Grease hauler
- Requirements for New & Remodeled FSE's
- Dumpster & Recycling Containers
- Equipment Cleaning
- Grease Interceptor Cleaning Record Form
- Employee FOG Training Log

Residential FOG

- Why a FOG Program
- The Do's and Don'ts of FOG

In addition, there is additional FOG outreach and educational materials listed on the website for residents and business owners to view.

Grade: A

Recommendation: Update the FOG material as necessary.

4. FOG Inspection of FSE's

Discussion: In April of 2013, the City began a more robust FOG inspection program to inspect all Food Service Establishments (FSEs). The inspection program collects data specific to each FSE, educates the FSE of FOG Best Management Practices (BMP's) and notes when an FSE has violated any part of the City's FOG Ordinance. The City inspected 100% of all FSE's within the City of Folsom. The City will continue to inspect all FSE's on a 2-year cycle.

Grade: A

Recommendation: Continue FSE inspections as scheduled, identify any FSE's in violation, and ensure FSE's are brought into compliance. Continue to remove FSE's from the inspection list that do not require a grease control device.

5. FOG outreach

Discussion: In April of 2013, the City began a FOG outreach program. The program consists of FOG inspection SOP, checklists, ordinance, and outreach material. In addition to the FOG outreach for FSE's, the City also has hangers for when a FOG related SSO occurs in residential neighborhoods to educate the public how to prevent a potential blockage.

Grade: A

Recommendation: Continue to educate the FSE's and public on how to prevent FOG related buildup in the sewer system.

6. Lateral Inspections

Discussion: In April of 2017, in order to increase efficiency of the lateral inspection program, the City issued a Request for Proposals (RFP's) for sewer lateral CCTV Inspection. This proactive program consists of closed-circuit television (CCTV) inspection of all the City owned laterals (approximately 22,000) over a three-year period to proactively identify and repair lateral issues.

On February 6th, 2019 the City of Folsom issued a Notice of Contract Termination to Innerline Engineering for failing to perform within the contract schedule. At he time of contract termination approximately 2,259 of the 22,000 sewer laterals were inspected. Moving forward the City plans to perform sewer lateral inspections of all 22,000 sewer laterals in house over a 10-year schedule.

Grade: B-

Recommendation: Re-issue an RFP to inspect all 22,000 sewer laterals over a 5-year period.

SSMP Section 8 - Sewer Evaluation and Capacity Assurance Plan

Responsible Person (RP):
Environmental & Water Resources Director

Summary:
The Environmental & Water Resources Department (EWR) uses Sewer InfoWorks to evaluate the hydraulic capacity of key portions of the City's sanitary sewer collection system which is broken up into 18 basins. The hydraulic capacity of these key portions of the system are compared to existing flow monitoring data to determine the potential for SSOs due to the capacity being exceeded during peak wet weather sewer flows. Additionally, the City analyzes flow monitoring data to quantify actual I & I rates experienced by the sanitary sewer collection system.

The City recently completed an update in October 2017 to the City's Sewer Evaluation and Capacity Assurance Plan (SECAP).

1. Determination of maximum hydraulic capacity in key sewer main lines.

Discussion: In October 2017, the City's SECAP Report identified areas of concern via the 10-yr/6-hour wet weather storm event which is defined as:

1. Any location where surcharging is occurring to within less than 5 feet from the surface of the upstream manhole (5-ft freeboard due to a downstream restriction in flow. Note that some smaller diameter pipes and associated manholes are installed less than 5 feet deep, and in those cases, these are not considered capacity deficiencies.

2. Any location where surcharging above the crown of the pipe exceeds 2'-0" due to a downstream restriction in flow.

Areas of Concern are identified below:

1. 27-Inch Trunk Folsom Blvd
    a. The Folsom Blvd 27" trunk has some locations where pipe slope is minimal, and the line is slightly under capacity at existing conditions resulting in minor surcharging. For GP and UBO scenarios, however, surcharging increases and is almost entirely driven by assumed growth in Folsom State Prison flows. Current Prison flows are only 70% of permitted ADWF and 50% of permitted max PDWF.
2. 12" Main Blue Ravine & Bidwell (and upstream of Flower Drive Basin 6C)
    a. The 12" main on Blue Ravine (built in 2010 under the Basin 6 Flow Diversion Project) is under capacity. Modeled peak wet weather flows are approximately 2.1 MG, but the pipe as designed has a capacity of 1.5 mgd at d/D = 1. This is causing surcharging in the branching manhole B12-2161 next to the Blue Ravine/Bidwell bridge crossing.

The upstream portions of Flower Drive are modeled as slightly surcharged but have greater than 5 feet of freeboard.

3. 6" Main Montrose Drive (Basin 6B)
    a. Several 6" lines along Montrose Drive are under capacity due to flatter than recommended slopes. No action is recommended, however, as a 6" overflow weir exists at the Montrose and School intersection (directs flow to Basin 6A). This weir controls excess surcharging and subsequent downstream flow levels by diverting most of the surcharged flow.
4. Oak Ave Pump Station
    a. Modeled PWWF influent at the Oak Ave PS has max values of 6.2 mgd (existing), 6.4 mgd (General Plan), and 6.7 mgd (ultimate build-out). These numbers closely match the January 2017 flow meter results of 6.3 mgd. Existing max pumping capacity with two pumps is 7.0 mgd, with the third redundant pump providing an addition 3.5 mgd capacity.

Grade: A

Recommendation:

(1) The City is currently in the pre-design to address the first area of concern, the Folsom Blvd 27" trunk sewer. Once pre-design is complete and an alternative has been selected, the City will move into the design phase of this project followed by construction.

(2) The first step to address the second area of concern regarding the 12" Main at Blue Ravine & East Bidwell Street is to install a Mission Manhole covers as nearby manholes to confirm that the SSMH is surcharging during a storm event as the model indicates. If there is significant surcharging near this location of concern, one possible solution could be to install a diversion weir structure within the sanitary sewer manhole of concern. This would effectively restore small, controlled overflows into the older line, and redirect flow to Bidwell and then Orchard Drive, which has sufficient capacity.

(3) The third area of concern, the 6" Main on and around Montrose Drive being under capacity will continue to be monitored. As stated above, there is an existing weir at the Montrose and School intersection that controls excess surcharging and subsequent downstream flow levels by diverting most of the surcharged flow into Basin 6A.

(4) In order to help relieve Peak Wet Weather Flows (PWWF) at the Oak Avenue Pump Station, the City is proposing to build a gravity sewer line upstream of the Oak Avenue Pump Station that will help relieve PWWF at the Oak Avenue Pump Station by diverting flows away from the Oak Avenue Pump Station and into Basin 10. Design of this project is scheduled to begin in July of 2019.

The City has also implemented the additional items below as recommended by the SECAP:

- Pump Station No. 3 Flow Meter Installation
  - A new flow meter at Pump Station No. 3 will be incorporated into the PS No. 3 Rehabilitation Project which is currently under design and is expected to begin construction in Fiscal Year 19/20.
- City WTP or Oak Ave PS Rain Gauge Installation
  - Installed rain gauges at both the WTP and the Oak Ave PS

2. Determination of existing groundwater infiltration and rain dependent infiltration levels in the system.

Discussion:
Determining the relative magnitude of observed Rain Derived Inflow and Infiltration (RDII) and Groundwater Infiltration (GWI) per In-Dia.-Mi of sewer system per Basin is a useful method of ranking actual basin performance. The Basins are ranked relative to each other based on different categories. A higher ranking (closer to zero) indicates a larger response to storm events, (i.e. "Leakier basin"). It is recommended that an overall I & I reduction program strategy focus on targeting high-ranked basins to solve specific capacity issues, particularly aiming and reducing I & I within Basins 4, 6A, 6C and 14.

A targeted basin I & I reduction program is anticipated to last several years, with Phase 1 being an investigation period to identify specific system rehabilitation CIPs, and Phase 2 being the construction of these projects and confirmation of the rehab CIP effectiveness in reducing I & I.

Grade: A

Recommendation:
The City began sub-metering Basin 6A in February of 2019 in order to help identify and reduce I & I. Data from the wet weather season and dry weather season of 2019 is still being analyzed to more accurately identify where the sources of I & I are located. Once I & I has been determined, smoke testing and/or CCTV will occur to reduce I & I. Once work in Basin 6A is complete, the City will continue to work to reduce I & I efforts within Basins 4, 6C and 14.

SSMP Section 9 - Monitoring, Measurement, and Program Modifications

Responsible Person (RP):
Environmental & Water Resources Director

Summary:
The WDR/SSMP Monitoring, Measurement, and Program Modification requirement specifies that each enrollee shall establish and prioritize appropriate SSMP activities.

1. Establish and prioritize appropriate SSMP activities.

Discussion: The following audit elements are used to help establish and prioritize appropriate SSMP activities:

- *Preventive, Corrective, and Emergency Work Order History* – These items are tracked, updated and input through the City's CMMS program (Lucity).
- *PM Schedules* – All PM are tracked through Lucity. A work order is generated for each item on the PM schedule. This includes routine flushing of trouble lines, pump station inspections, etc. All PM's over the past two years have been met.
- SSO History – All SSO's are reported through the California Integrated Water Quality System (CIWQS). Furthermore, the City keeps a copy of all SSO's categorized by year and address on the local City server. All spills as of 07/01/19 have been input into CIWQS and saved to the City's local server.
- *Performance Measures* – Performance Measures such as flushing, manhole inspections, CCTV, etc. are updated quarterly. All performance measures information is up to date as of 07/01/19.
- *Staff Training Records* – All training records are schedule and logged on the City's local server. All scheduled training as of 07/01/19 has been met.
- *Condition Assessment Data* – The condition of all assets such as manholes, pipes, etc. are logged within the City's CMMS (Lucity). Any asset with a priority rating of 3 or higher is scheduled for replacement within 6 months or sooner. All scheduled repairs are logged and kept track of via an Excel spreadsheet. As of 07/01/19, all scheduled maintenance has been met.
- *Program Improvements* – Program Improvements are assessed and implemented throughout each Calendar Year. The two most recent programs implemented to improve the effectiveness of the City's SSMP include the lateral inspection program and the FOG inspection program. In addition, the City has worked diligently over the past 4 years to address odor and grease issues throughout the City's sewer system (Oak Avenue Pump Station, Rowberry-Walden Odor Control Facility and Pump Station No. 2)

Grade: A

Recommendation: No Action needed. Continue to monitor, measure, and modify programs within the SSMP to improve the effectiveness of the SSMP.

SSMP Section 11 - Communications Program

Responsible Person (RP):
Environmental & Water Resources Director

Summary:
The City shall communicate on a regular basis with the public on the development, implementation and performance of its SSMP.

1. Communication with satellite agencies

Discussion: The City's only satellite agency is the Folsom State Prison (FSP). The City began more frequent ongoing communication with FSP starting in 2012. Meeting agendas between the City and FSP typically include:

- The City of Folsom and FSP Sewer Line Agreement
- Annual Operations and Maintenance of joint facilities
- Upcoming CIP projects that affect the joint facilities
- Sewer System Management Plan
- Meter Accuracy/Calibration
- Site Improvements

The City holds annual meetings to continue ongoing communication with its satellite agency. Special meetings to address items such as updates to the Waste Discharge Requirements (WDR's) may occur more frequently.

The City also meets annually with the Sacramento Regional County Sanitation District whom which receives all of the wastewater flows from the City of Folsom. The City and Regional San discuss:

- Wastewater Discharge Requirements
- Sanitary Sewer Management Plan
- FOG control efforts
- Legislative and Regulatory Affairs update
- Inflow and Infiltration

Grade: A

Recommendation: Continue meeting with the Folsom State Prison and Regional San on an annual basis to maintain communication compliance as outlined within the SSMP. The City should schedule additional meetings as necessary to address updates to the WDR.

2. Communication of the SSMP with the public.

Discussion: Communication with the public about the City's SSMP is accomplished through two avenues. First, communication is achieved through City Council meetings where the public has the opportunity to comment on any element of the City's SSMP at any of the scheduled City Council Meetings throughout the year. Second, the City developed a link on the City of Folsom website (www.folsom.ca.us) where the public can view and provide input on the City's SSMP. Comments are addressed and corrected accordingly. All applicable comments are taken into consideration during the annual audit and review process. Currently, the City of Folsom's website provides the following list of documents for public review:

- State Water Resources Control Board Order No. 2006-003
- State Water Resources Control Board Order No. 2008-002
- SSO on-line database (CIWQS)
- City of Folsom SSMP
- Resolution No. 8526 adopting the City's SSMP
- 2011 SSMP Self-Audit
- 2013 SSMP Self-Audit
- 2015 SSMP Self-Audit
- 2017 SSMP Self-Audit
- 2019 SSMP Self-Audit

Grade: A

Recommendation: Continue to update the City's website as necessary.