

Monthly Operating Report

Richmond WWTP and Collection System

October 2018

Executive Summary

- There were two NPDES permit violations in the month of October 2018. The monthly average effluent limits for BOD and TSS were 37 and 32 respectively. Both of those values are above the limit of 30 mg/l. An investigation into the cause of the violations is continuing. Plant staff is evaluating process changes and preparing to install polymer and chemical feed as remedial measures.
- The monthly acute aquatic bioassay test passed with 100% survival of the fathead minnows.
- Between the first and second week of September, conditions in the treatment plant developed such that the amount of solids in the activated sludge process began to drop without a clear understanding of why. This condition changes the process in a manner that reduces the plant's ability to treat wastewater. An investigation is underway by Veolia and City staff with the assistance of an outside consultant.

Wastewater Treatment Plant

- There were two odor complaints during October. Both originated several miles from the treatment plant and in neither case was the source determined to be the plant.
- There were no blending events for the month.
- Construction continues on Secondary Clarifier #3 with the project expected to be completed by the end of November. During the end stage work on the rehabilitation of Primary Sedimentation Basin #1, it was determined that the structural integrity of some of that basin's support structures (constructed in 1952/53) have deteriorated more than previously known. A minor strengthening retrofit project will be implemented in summer 2019 however that may not be adequate to avoid a process failure in the event of a substantial earthquake. Veolia and City staff is evaluating solutions to this situation, which could include more robust seismic retrofitting or accelerating the replacement of that process unit.

Table 1 Parameter	Monthly Performance Indicators	Limit/Target
Treatment Plant Operations:		
Influent Flow, daily average (MGD)	4.69	N/A
Effluent Flow, daily average (MGD)	5.10	N/A
Influent BOD ₅ , avg. mg/L	334	N/A
Influent TSS, avg. mg/L	384	N/A
Effluent TSS, monthly average mg/L	32	30 or less
Effluent BOD, monthly average mg/L	37	30 or less
% BOD Removal	89	> 85
% TSS Removal	90	> 85
NPDES Effluent Limit Violations	2	0
Blending events	0	0
Total volume blended, MG	0	0
Odor complaints	0	0
Digested sludge pumped to drying beds, MG	**1.460	N/A
Leachate received, GAL	404,200	N/A
Leachate received/treated YTD, MG	3.181	N/A

** Transport flow meter malfunction. Value used is total of raw and thickened sludge sent to digester

Maintenance

Asset Management Work Orders

Work Order Type	# Completed
Storm Water Pump Stations	70
Sewer Pump/Lift Stations	78
Treatment Plant	44
Corrective	24
Total	216

October 2018

Completed Projects

- Completed annual Influent Bar Screen Preventative Maintenance.
- Completed safety painting & landscaping project/upgrades around the plant facility.
- Rotorooter on site to assist with repeated blockage of admin building sewer laterals. Blockage appears due to a combination of mechanical issues and right angle turns in the pipes.
- Purchased and prepared to install a replacement autoclave used to sterilize lab equipment and materials

Look Ahead; November 2018

- Complete Potable Water Control System Replacement Project. (In Process, estimated completion date 11-20-2018)
- Complete 2nd bi-annual Digester Dystor Cover Inspection. (In Process, completion date 11-8-2018)
- Complete the 23rd Street Storm Water Pump Station Motor Control Panel Upgrade Project.

Collections System and Storm O&M

Sanitary Sewer System Highlights

Project is currently in first year of cycle for sanitary sewer pipe cleaning (2018-2021).

During the month of October, there was (1) sanitary sewer overflow event. Year-to-Date Wet-weather/Dry-weather YTD SSO totals are as follows:

- Wet-weather (rain event) = 1-YTD
- Dry-weather (non-rain event) SSOs = 8-YTD

Collection Systems staff continues preliminary pre-wet weather focus cleaning of known “Hot Spot” points in the wastewater collection system that become surcharged during periods of storm water inflow and infiltration as well as O&M work on storm system debris capture devices.

Relative to CCTV condition assessment production:

- Though more than 60% of the CCTV condition assessment work has been completed, the timely delivery of the completed CCTV condition assessment information associated with Baykeeper Settlement Agreement task that were on scheduled to be completed by 11/1/2018 will not be achieved and will, in fact, be delayed by approximately 3- to 4-weeks
- The related Risk Assessment Analysis (RAA) that is reliant upon the CCTV condition assessments was discussed with the consultant performing the RAA and the consultant stated that with the 60% completion of CCTV work and the routine submission to the consultant of the remaining CCTV condition assessment work as soon as it becomes available, a work-around is possible such that the initial draft of the RAA, just 1/3/2019 can be achieved
- During the month of November-2018, Veolia will hire a third CCTV contractor to complete the condition assessments. Coupled to this, with Veolia Collection Group work finishing up

October 2018

with pre-wet weather focus activity, a re-prioritization of Veolia staff to perform CCTV condition assessment work can be made thereby allowing the a more-timely transfer of CCTV condition assessment to the consultant performing the RAA such that the 1/3/2019 delivery of the draft RAA by the consultant can be made

There were a total of (7) sanitary system calls, (5) of which were property lateral issues, (1) of which were sewer line main-related, and (1) of which non-City of Richmond system related; there was (8) storm system service call. Below, see Table 2-a for Collection System Performance Indicators and the Table 2-b for Collection System Activity Summary for performance indicator data specifics.

Sanitary Sewer Point Repair:

(0) Sanitary system repairs performed during the month

Storm Water System Highlights

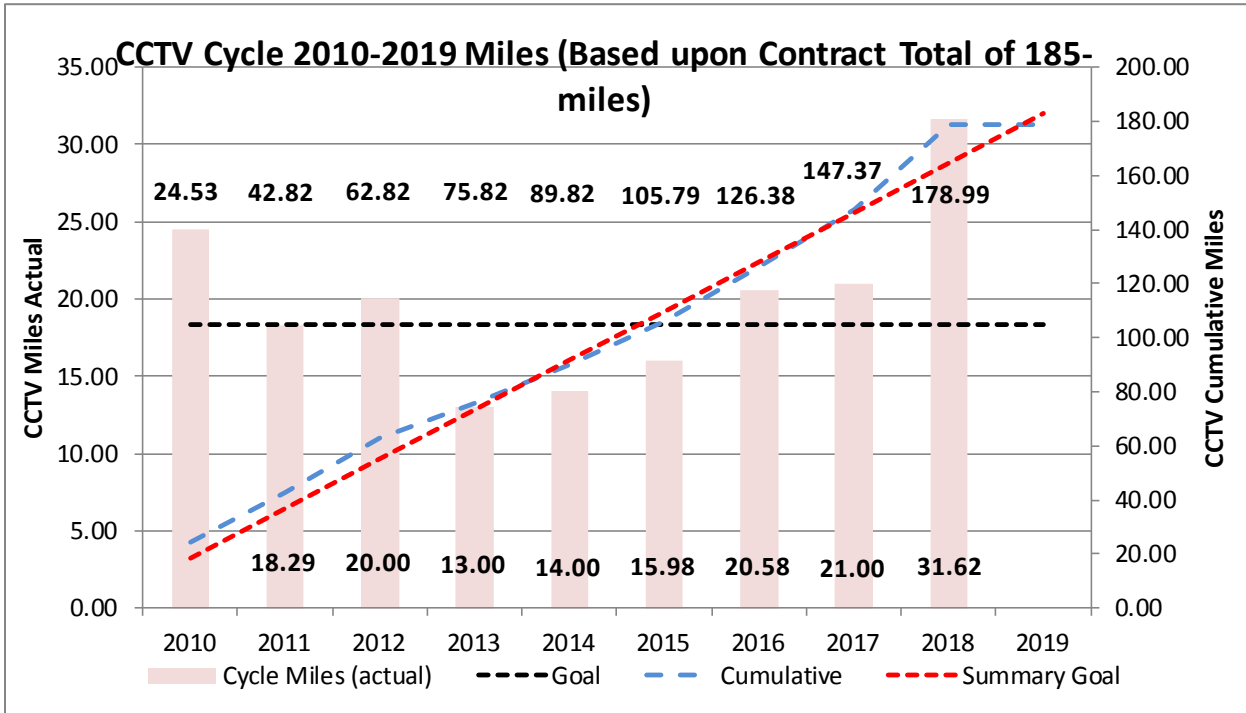
- Cleaned (159) Catch Basins
- Prepared for then commenced cleaning of Richmond Parkway fly-over storm inlets
- Cleaned (3) V-ditches

Storm Water System Point Repairs

(0) Storm system repairs performed during the month

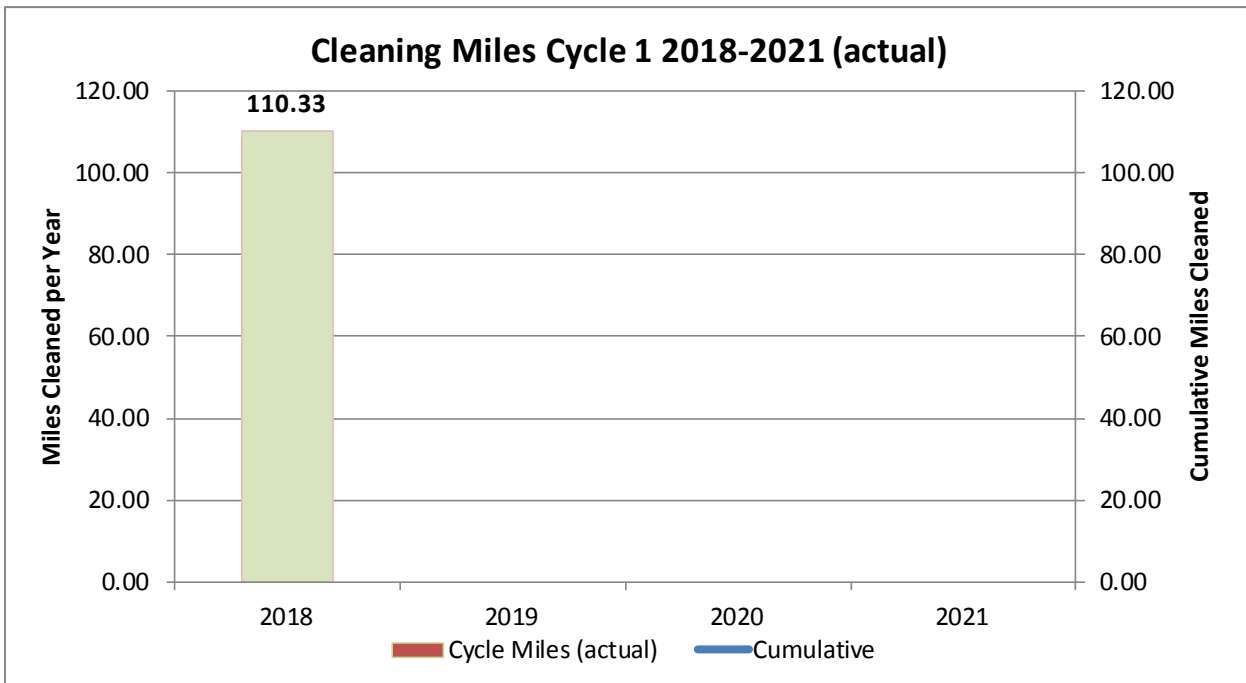
Collection Systems Monthly Performance Indicators

Veolia is in the 9th year of a 10-year CCTV cycle. Cycle start date was January 1, 2010. *

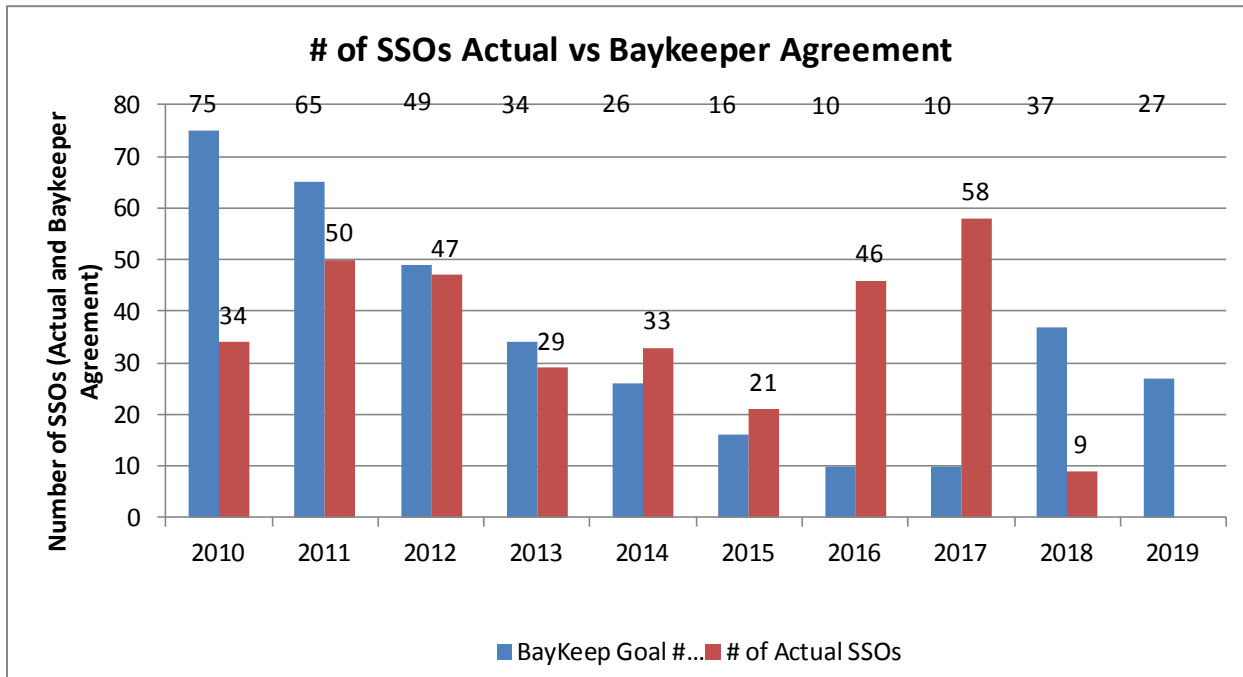


*Note: goal mileage is based upon 18.5-miles/year to correspond with Contract Amendment #1 system mileage of 185-miles and recently reported City GIS mileage of 183-miles

Veolia is in the 1st year of a 4-year sewer cleaning cycle. Cycle start date was January 1, 2018.



SSO performance compliance with past and 2018 Baykeeper Settlement Agreement



Sanitary System Performance Indicators

Table 2-a

Performance Indicator	Monthly Actual	Target/Limit
Service Calls (Public Facilities/Assets)	7	N/A
Service Call Response Time (minutes)	<30	<30
Private Lateral Service Calls; Regular/After Hours	0/5	N/A
Regular/OT Hours Spent on Private Lateral Calls	8/18	N/A
Point Repairs Completed	0	N/A
Manhole Inspections	0	N/A
Manhole Repairs	0	N/A
CCTV (Closed Circuit TV) (ft.)	45,254	7,000
GPS Surveys	0	As needed
Cleaning (ft.)	109723	20,130
Cleaning QA/QC Events	42	8
SSOs for current month – Mainline	1	3.1/Mth
Total Mainline SSO Volume (gallons)	20	0
Total Mainline SSO Volume Recovered (gallons)	20	100%
% Mainline SSO Volume Recovered	100%	100%
# SSOs – Wet Weather (localized capacity issue)	0	0

Monthly Operating Report
 Richmond WWTP and Collection System

October 2018

# SSOs – Engineered Overflow Structure	0	0
Total SSO Volume from Engineered Overflow Structure	0	N/A
SSOs – Private Laterals	0	N/A
General Maintenance	2	N/A
Potential SSOs Eliminated due to Smart Cover Monitors	0	N/A
SSOs – Mainline – Resulting in Property Damage	0	0
Total Wet Weather SSOs Year to Date	1	20 Combined Wet Weather/Dry Weather Annual - Baykeeper
Total Dry Weather SSOs Year to Date	8	
Number and Percentage of SSOs During 2018 with Discharge Reaching Storm Water Conveyance	4 of 9 = 44%	N/A

Table 2-b Data detail to the Sanitary System Performance Indicators noted in Table 2-a above are as follows:

Monthly Operating Report
Richmond WWTP and Collection System

October 2018

Richmond CA Collection System Activity Summary



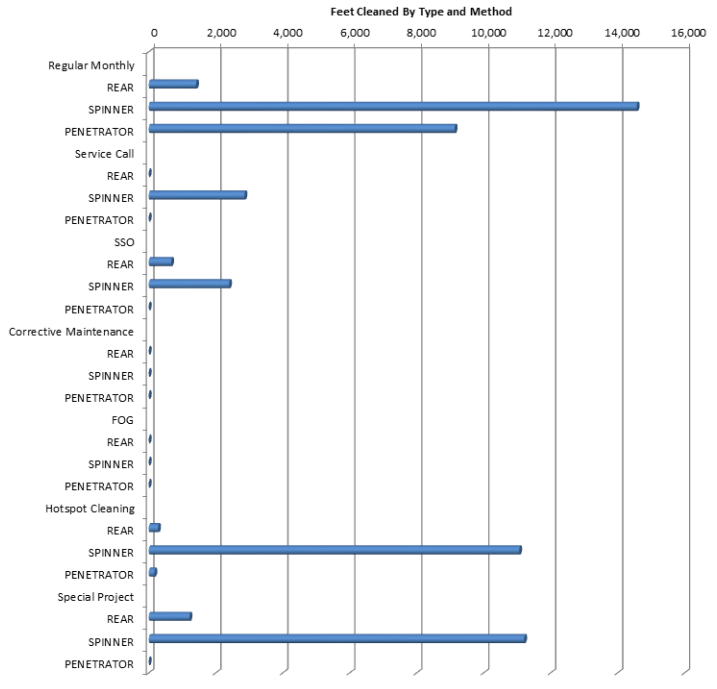
Collection and Conveyance
Report Period **October-18**

Line Cleaning Summary

Total Lines Cleaned:	415
Total Footage Cleaned:	109,722.57 ft
Total Footage with Cleaning Method:	54,989.56 ft
Unknown Cleaning Method Footage:	54,733.01 ft

Footage by Cleaning Method

Regular Monthly		
REAR	1,411.99 ft	
SPINNER	14,573.36 ft	
PENETRATOR	9,133.72 ft	
Service Call		
REAR	0.00 ft	
SPINNER	2,860.00 ft	
PENETRATOR	0.00 ft	
SSO		
REAR	670.00 ft	
SPINNER	2,399.24 ft	
PENETRATOR	0.00 ft	
Corrective Maintenance		
REAR	0.00 ft	
SPINNER	0.00 ft	
PENETRATOR	0.00 ft	
FOG		
REAR	0.00 ft	
SPINNER	0.00 ft	
PENETRATOR	0.00 ft	
Hotspot Cleaning		
REAR	278.00 ft	
SPINNER	11,064.48 ft	
PENETRATOR	169.00 ft	
Special Project		
REAR	1,218.00 ft	
SPINNER	11,211.77 ft	
PENETRATOR	0.00 ft	

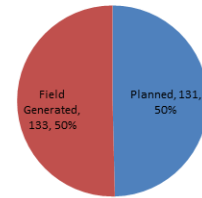


Pipe Clean Production

By Crew Leader	Footage	# of days	Footage per day	Planned	Field Generated
ARMSTRONG	501.19	2	250.59	2	0
HENDRICKS	5,316.86	6	886.14	16	0
LEWIS	37,012.63	16	2,313.29	95	78
HILL	0.00	0	0	0	0
WALLIS	1,356.78	2	678.39	3	0
MENDOZA	22,697.62	17	1,335.15	15	55
SIMONETTI	0.00	0	0	0	0
Totals	66,885.07	43	1,555.47	131	133

Work Order Scheduling

Pipe Clean Work Order Analysis



Pipe Clean by Pipe Material

Pipe Material	Footage	# of Segments
VCP	63,003.94	247
PVC	4,253.60	18
Unknown or Other	42,465.03	150
Total	109,722.57	415

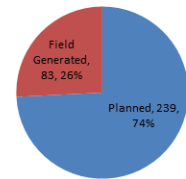
CCTV Activity Summary

CCTV Total Footage	45254.04 ft
Successfully Imported	
Number of Lines Tved:	269
Total Footage Tved:	45,254.04 ft
Unsuccessfully Imported	
Number of Lines Tved:	54
Total Footage Tved:	14,419.52 ft

Work Order Scheduling

239 83

CCTV Work Order Analysis

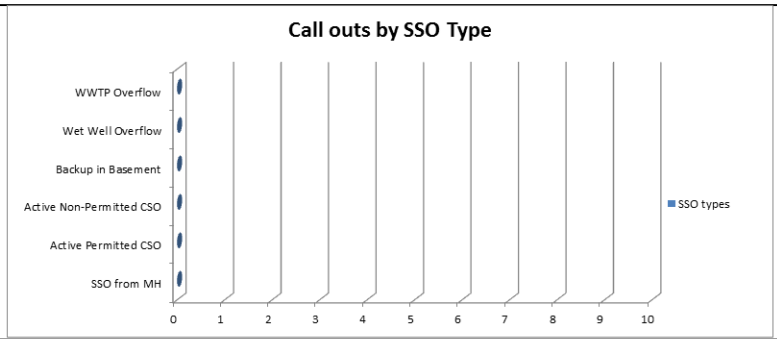


Monthly Operating Report Richmond WWTP and Collection System

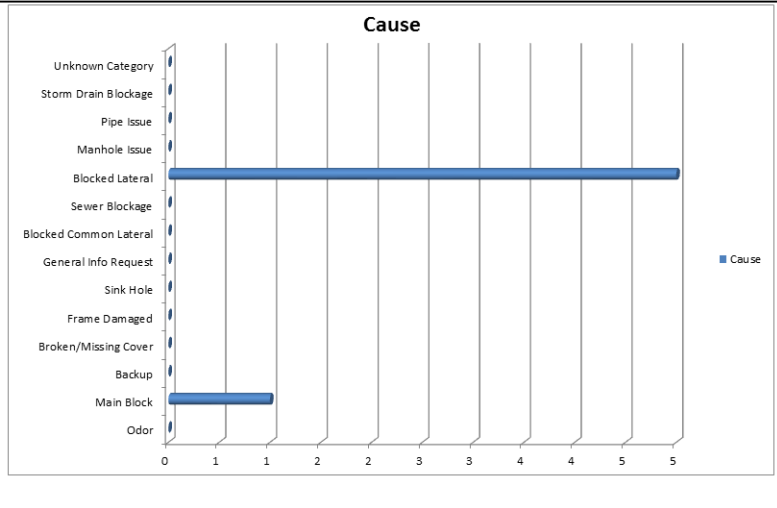
October 2018

Manhole Inspections	
Number of Manholes Inspected:	0
Fats,Oils & Grease Inspections	
Number of FOG Inspections:	0
Pipe Repair	
Number of Pipe Repair:	0
Manhole GPS Inspections	
Number of Manholes GPS:	0
Manhole Maintenance	
Number of Manholes Repaired:	1
Manhole Cleaning	
Total Number of Manholes Cleaned:	0
Total number buckets of debree removed:	0
Average number buckets of debree removed:	0
General Maintenance Activities	
Vactor Cleaning	0
Jet Cleaning	0
Pump Out	0
Manual Cleaning	0
Visual Inspection	2
Exercise FM Pressure Valve	0
Markout Locations	0
Number of Call Outs	
Total Number of Call Outs:	7
Call outs from Customer Complaints:	7
Call outs from SSO:	0

Call outs from SSO:	
Call outs by SSO Type	
SSO from MH	0
Active Permitted CSO	0
Active Non-Permitted CSO	0
Backup in Basement	0
Wet Well Overflow	0
WWTP Overflow	0



Call outs from Customer Complaints:	
Call outs by Cause	
Odor	0
Main Block	1
Backup	0
Broken/Missing Cover	0
Frame Damaged	0
Sink Hole	0
General Info Request	0
Blocked Common Lateral	0
Sewer Blockage	0
Blocked Lateral	5
Manhole Issue	0
Pipe Issue	0
Storm Drain Blockage	0
Unknown Category	0
Totals	6



Storm Water System Performance Indicators

Table 3

Performance Indicator	Monthly Actual	Target/Limit
Storm Point Repairs	0	N/A
Storm Manhole Repairs	0	N/A
Storm Manhole Inspections	7	N/A
Storm Service Calls	8	N/A
Storm CCTV (ft)	3-(180-Ft)	N/A
Storm GPS Surveys	0	N/A
Storm Pipe Cleaning (ft)	8-segments (2,350-Ft)	N/A
Storm General Maintenance Cleaning (Linear feet of V-Ditches, Culverts or Creeks)	3-segments (211-LF)	N/A
Pump Stations/Inlet/Outlet Channels Cleaned	1	N/A
Catch Basins/Inlets/Storm Drains Cleaned	159	N/A
Storm Vaults Cleaned/Inspected	0	N/A
GSRD (trash capture device) Cleaning/Inspections	0	4/year
Flap Gate/Duck Bill Inspections	0	4/year

CAPITAL IMPROVEMENT PROGRAM

13th Street & Dunn and 23rd Street Rehabilitation Projects. *W.R. Forde; V.W. Housen & Associates. The 13th Street & Dunn project has been combined with the 23rd Street Sewer Replacement. The project was awarded to W.R. Forde at \$8.1M. Revised by CO \$10.7M. Construction is approximately 100% complete.*

- Construction is complete; as-built drawings were received October 26, 2018.
- Once the Contractor completes the necessary close out paperwork, retention will be released and final invoicing to the City will occur. (expected in November)

2019 Risk Model Update and Risk Assessment Analysis (RAA). *V.W. Housen & Associates (VWHA)*

- Veolia provided a partial CCTV data submittal on October 31, 2018. V.W. Housen is working with this dataset and will adjust findings as allowable if additional data is received. VWHA will update the Risk Model and provide a draft updated RAA for Grade 5 repairs by January 3, 2019 for review.
- SF Baykeeper (BK) 2019 RAA Document to be submitted by January 15, 2019.
- Per the City's request, VWHA will begin sending weekly update emails to BK Group the beginning of November.

October 2018

Baykeeper (BK) Sewer Pipe Rehabilitation – Phase I & II. *Bay Hawk and W.R. Forde (Phase I)*

- Construction on Phase 1 began on October 1, 2018 of 41 point repairs on 22 line replacements as part of FY17/18 funding.
- Bay Hawk completed 14 point repairs in October.
- Urgent work under this umbrella project was completed at Harbor Way South and S. 8th Street by W.R. Forde (second lowest bidder) prior to the City's paving schedule.
- Regarding Phase 2, CPM will formalize the Phase 2 project once the FY18/19 Risk Assessment Analysis (RAA) is finalized in January 2019. Phase 2 will consist of approximately 0.37 miles to reach the rolling 2 mile/year rolling average per the BK Agreement.

Cutting/Carlson & Hoffman Boulevard Projects. *V. W. Housen & Associates (VWHA). These projects replace pipelines which have NASSCO Pipeline Assessment Certification Program (PACP) Structural Grade 4 and 5 level defects in the sewer sheds that flow to Cutting Boulevard. The intention is the reduction of inflow and infiltration which will reduce the need to upsize the Cutting Boulevard interceptor, thereby reducing overall cost and construction impact to the City. Design is 100% complete. Construction W.R. Forde, \$7,582,071 for both projects.*

- Notice to Proceed was issued effective October 1, 2018. Approximately 750LF, or 0.14 miles, was installed during October.
- Change Order 1 was executed for realignment of sewer on Hoffman and 13th due to unforeseen concrete encasement around the existing sewer segment and easement issues due to 580 Freeway.
- Contractor encountered an EBMUD water line installed 3 feet from the City's sewer pipe along Hoffman near Marina Way South. The backfill of EBMUD water line install was apparently improper, causing a shared trench issue for WR Forde. This resulted in a potential change order (PCO 2) to remove asphalt and compaction and recompact & reasphalt the EBMUD trench for stability and safety. (Approximately 195'L x 17'W); the City is planning to submit a claim with EBMUD regarding the cost for this change.

Lift Station MP & Assessment. *V. W. Housen & Associates. The purpose of this project is to prepare a Master Plan for the City of Richmond's sewer collection system lift stations, which are managed and operated by Veolia Water. The Master Plan will include a hydraulic and condition assessment of the existing facilities and a 10-year capital improvement plan (CIP) that includes recommended capacity and rehabilitation improvements. Planning is 100% complete.*

- The final report was distributed on October 13, 2018.
- This project is complete; closeout and final billing is planned for November.

MacDonald and Virginia Project. *V. W. Housen & Associates. These projects replace pipelines which have NASSCO Pipeline Assessment Certification Program (PACP) Structural Grade 4 and 5 level defects in the vicinity of MacDonald and Virginia. The intention is the reduction of inflow and infiltration which will reduce the need to upsize the Cutting Boulevard interceptor, thereby reducing overall cost and construction impact to the City.*

- VWHA has completed the project definition based on CCTV data review.
- Aerial survey and field work for topographic survey have been completed; utility information has been received and lateral location is in process.

October 2018

- 90 percent design submittal has been delayed pending receipt from Veolia of CCTV data for pipes without data within the project area. Completion is planned for January 2019 or later, depending on when this data is received.
- Depending on the design submittal schedule, bid ready documents are forecast for March/April 2019. Baykeeper Construction deadline is June 30, 2021.

Manhole Rehabilitation Project FY17/18. *Bay Hawk. In-house design to replace approximately 75 manholes within the City's collection system.*

- 75 manholes have been rehabilitated thus far.
- The project is complete; final closeout and billing are underway.

Manhole Rehabilitation Project FY18/19. *Bay Hawk. In-house design continued to replace additional manholes within the City's collection system.*

- The Task Authorization (TA) for FY18/19 Manhole Rehabilitation will be sent to City in November.
- City budget for this effort reduced to \$250K for this fiscal year and moving forward.

Sewer Master Plan Update. *V. W. Housen & Associates. The purpose of this project is to update the City's wastewater collection system hydraulic model to a full-pipe model. This effort includes system-wide flow monitoring during the 2017-18 wet weather season; update the City's Risk Management Model to reflect current CCTV inspection and O&M data; develop recommendations to address pipeline capacity issues and rehabilitation and replacement (R&R) needs; develop an updated Capital Improvement Program (CIP) that builds upon the existing CIP; develop an updated Master Plan report that incorporates the work described above. Project is 12% complete.*

- Flow monitoring will begin on December 1, 2018 and continue through March 31, 2019, assuming rain occurs in November 2018. If rain does not occur, the start date will be moved to coincide with the first substantial rainfall.
- The Hydraulic Model is on hold until spring 2019, following the 2018-19 Flow Monitoring Program.

WWTP Stormwater Perimeter Site Evaluation and Topo Survey. *Nichols Consulting Engineers (NCE). The purpose of this project is to complete a review of existing information, topographic surveys and field data collection, preliminary hydrologic and hydraulic analyses, review regulatory and permitting requirements, and develop improvement alternatives for stormwater flows and flooding that come from the hillside watershed area to the west of the Richmond Water Pollution Control Plant during wet weather. Assessment of existing conditions is 100% complete; development of design alternatives is 75% complete; and assessment of associated permitting and planning document requirements is 50% complete.*

- NCE reviewed the constructability of various types of swales and temporary detention basins behind and around the plant.
- NCE provided the design plans, estimated construction cost, and summary of design and operation considerations of alternative #1 to the City and Veolia on October 25th. This alternative included the use of concrete channels, detention basins, and underground storm drain pipe connections and facilities.

October 2018

- NCE will provide design alternative #2 in November, including a preliminary look at permitting and planning document expected for both alternatives.
- Concerns exist regarding delayed deliverables and lack of communication issues; Veolia staff is increasing efforts to address these concerns.

WWTP High Priority Projects. *Engineers: Carollo Engineers; Contractor: C. Overaa Construction & Co. This project is a result of the WWTP Critical Improvements Project Design. The purpose of this project is to replace aging infrastructure and to improve treatment reliability and operating efficiency, beginning with the secondary Clarifiers. Initial design services are 95% complete; design services during construction are 12.5% complete; construction is 89% complete.*

- Carollo is still on hold regarding their design efforts until further notice.
- Secondary Clarifier No. 1 is back on line.
- Secondary Clarifier No. 3 has been taken off line, the old mechanism been removed, and the grout is in process of being removed from the Clarifier.
- Primary Sedimentation Basin No 1 has been completed and is back on line with the new flights and chain installed.
- Future projects under this umbrella project include the Screening and Grit Facility Upgrades and the Aeration System Upgrades, forecast to begin mid-2019.