

Monthly Operating Report

Veolia Richmond CPM, WPCP and Collection System

November 2018

Executive Summary

- 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 absent a clear understanding of why. The condition affected the settling and growth characteristics of the activated sludge system. Plant staff is evaluating process changes and has installed polymer and chemical feed as remedial measures. In addition, several consultants, expert in the field of wastewater process operations have been engaged to assist in the investigation. The City's pretreatment/source control staff has also been working with business and industry in the service area to determine that if there are any discharges of materials to the sewer system that may be impacting the plant's biological process.
- As a result of the conditions noted above, there were four NPDES permit violations during the month of November 2018. The monthly average effluent limits for BOD and TSS were 44 and 45 mg/l respectively. Both of those values are above the limit of 30 mg/l. In addition there was one exceedance each of the weekly average limit for BOD and TSS which is 45 mg/l.
- The monthly acute aquatic bioassay test passed with 100% survival of the fathead minnows
- Rehabilitation of the primary sedimentation basins and secondary clarifiers was completed in November. Construction projects at the treatment facility are complete for the time being and expected to resume in May of 2019.

Wastewater Treatment Plant

- There were four odor complaints during November. All were called in by individuals driving by the plant (repeat callers) on Canal Blvd and none were from residents impacted at their homes.
- There were no blending events for the month.

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| Table 1 Parameter | Monthly Performance Indicators | Limit/Target |
|---|--------------------------------|--------------|
| Treatment Plant Operations: | | |
| Influent Flow, daily average (MGD) | 5.46 | N/A |
| Effluent Flow, daily average (MGD) | 6.32 | N/A |
| Influent BOD ₅ , avg. mg/L | 308 | N/A |
| Influent TSS, avg. mg/L | 364 | N/A |
| Effluent TSS, monthly average mg/L | 45 | 30 or less |
| Effluent BOD, monthly average mg/L | 44 | 30 or less |
| % BOD Removal | 85 | > 85 |
| % TSS Removal | 86 | > 85 |
| NPDES Effluent Limit Violations | 4 | 0 |
| Blending events | 0 | 0 |
| Total volume blended, MG | 0 | 0 |
| Odor complaints | 4 | 0 |
| Digested sludge pumped to drying beds, MG | **1.340 | N/A |
| Leachate received, GAL | 378,594 | N/A |
| Leachate received/treated YTD, MG | 3.562 | 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 | 56 |
| Sewer Pump/Lift Stations | 75 |
| Treatment Plant | 73 |
| Corrective | 23 |
| Total | 227 |

November 2018

Completed Projects

- Completed 2nd bi-annual Digester Dystor Cover Inspection
- Completed Potable Water Control System Replacement Project
- Assisted operations with install of ferric and polymer feed system
- Installed ballasting system at primary sedimentation effluent area to assist with resolving plant process issues
- Working with Veolia Corporate Asset Management staff on repair and replacement plan for the next few years and inventory control system

Look Ahead; December- January 2018/2019

- Complete the 23rd Street Storm Water Pump Station Motor Control Panel Upgrade Project
- On boarding and training instrumentation and I&C technician

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 November, there was (1) sanitary sewer overflow event. Year-to-Date Wet-weather/Dry-weather SSOs are as follows for a total of 10:

- Wet-weather (rain event) = 1-YTD
- Dry-weather (non-rain event) = 9-YTD

Three (3) of the most recent SSO's were root-related incidents; the 2019 WWCS O&M Plan will be adjusted accordingly to address identified root problems in the system.

Relative to CCTV condition assessment production:

- Contractor CCTV efforts have been completed and CCTV video/pictures/PACP Report database clean-up too is near completion
- Approximately 8-miles of pipe segments were found to be inaccessible due to various entry constraints. Veolia reported to the City on 10/4/2018 this matter and included in the brief a very high-level outline of Veolia's plan(s) for accessing the lines in 2019

There were a total of (10) sanitary system calls, (2) of which were private lateral issues, (4) of which were sewer line main-related, and (4) of which non-City of Richmond system related; there was (17) 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

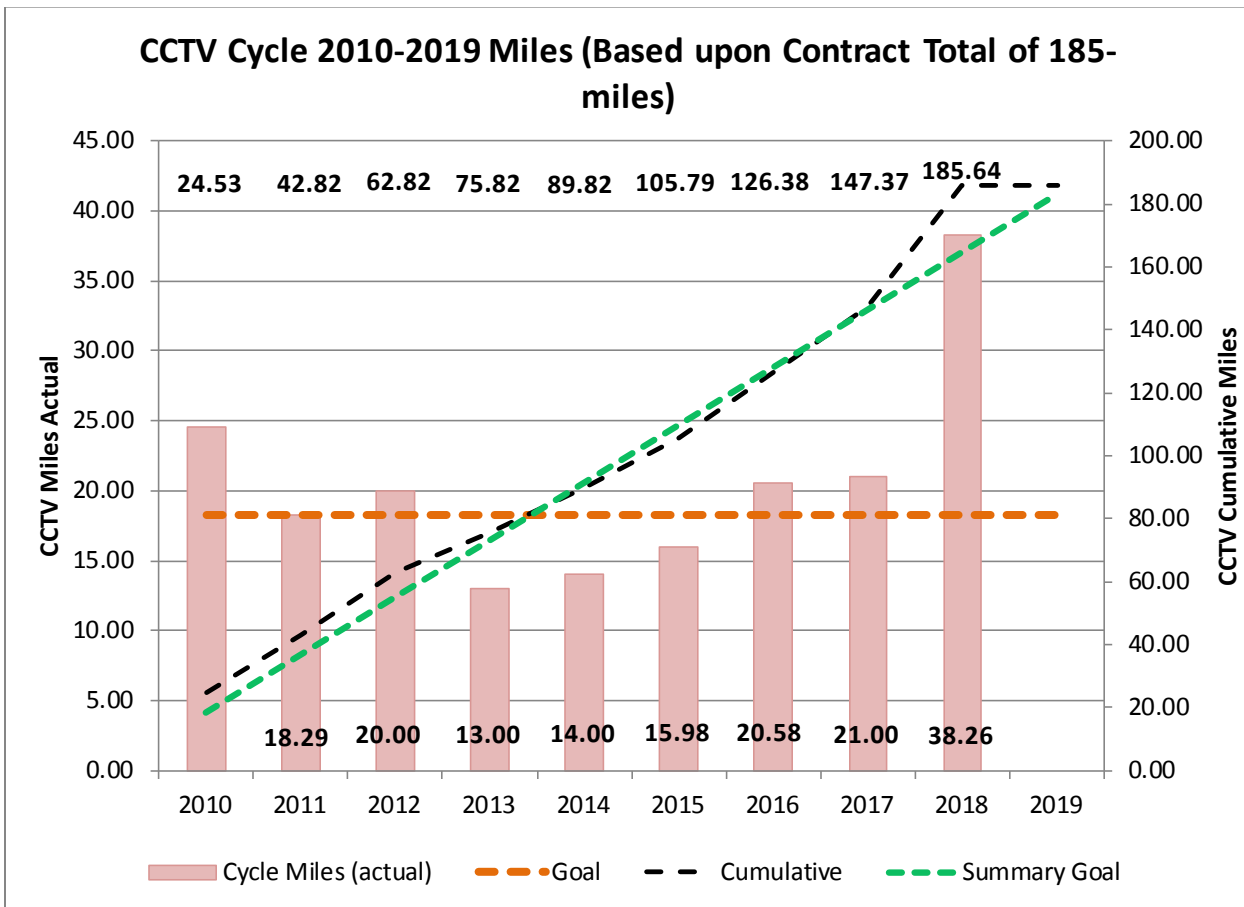
- Cleaned (20) Catch Basins
- Cleaned (0) V-ditches

Storm Water System Point Repairs

(0) Storm system repairs performed during the month

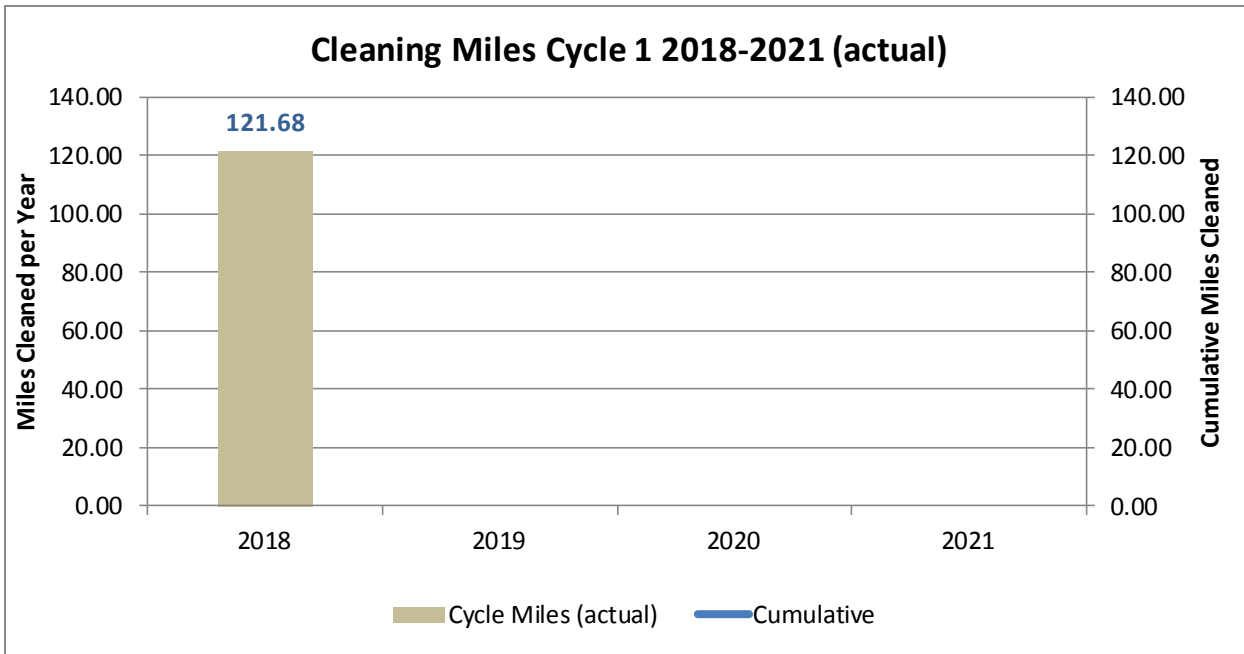
Collection Systems Monthly Performance Indicators

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

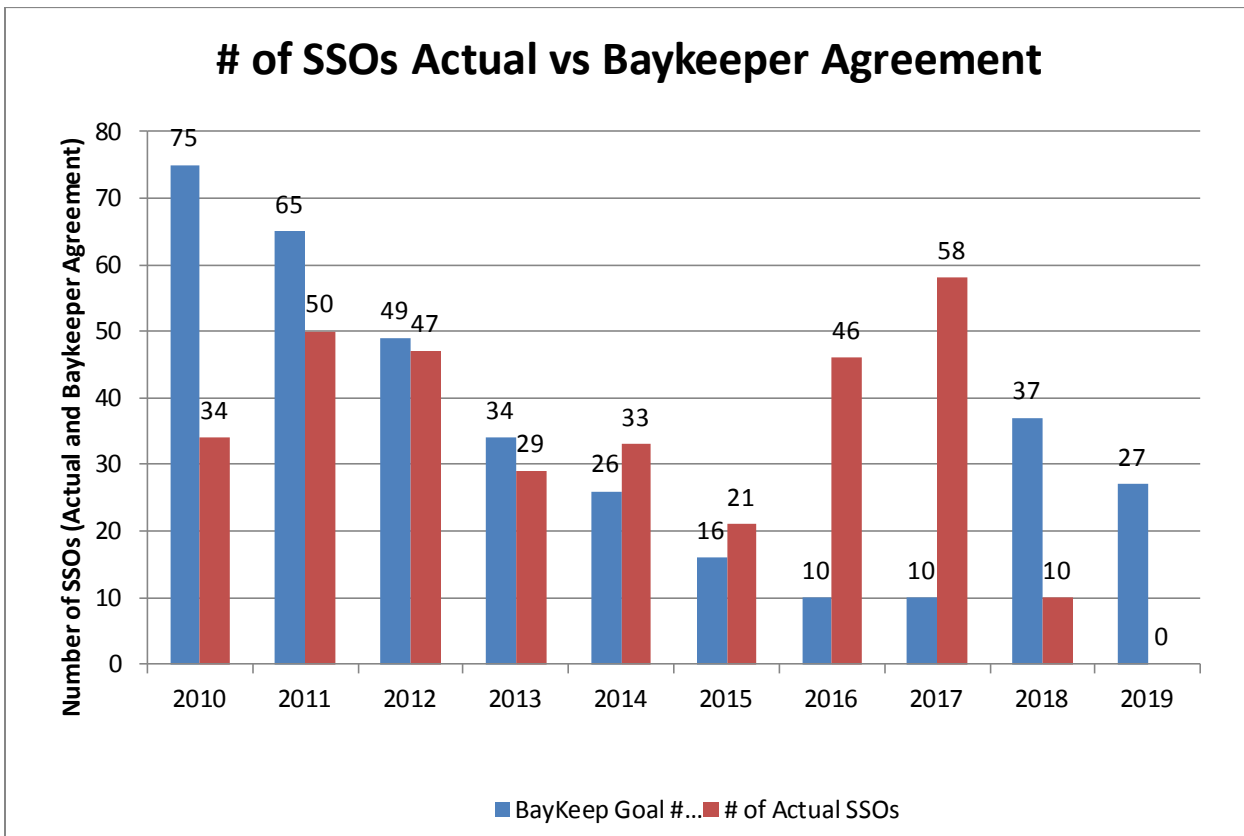


*Note: goal mileage is based upon 18.5-miles/year to correspond with Contract Amendment #1 system mileage of 185-miles and recently reported City GIS mileage of 183-miles

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) | 10 | N/A |
| Service Call Response Time (minutes) | <30 | <30 |
| Private Lateral Service Calls; Regular/After Hours | 0/2 | N/A |
| Regular/OT Hours Spent on Private Lateral Calls | 0/6 | N/A |
| Point Repairs Completed | 0 | N/A |
| Manhole Inspections | 0 | N/A |
| Manhole Repairs | 0 | N/A |
| CCTV (Closed Circuit TV) (ft.) | 35,072 | 7,000 |
| GPS Surveys | 0 | As needed |
| Cleaning (ft.) | 59,923 | 20,130 |
| Cleaning QA/QC Events | 23 | 8 |
| SSOs for current month – Mainline | 1 | 3.1/Month |
| Total Mainline SSO Volume (gallons) | 98 | 0 |
| Total Mainline SSO Volume Recovered (gallons) | 98 | 100% |
| % Mainline SSO Volume Recovered | 100% | 100% |
| # SSOs – Wet Weather (localized capacity issue) | 0 | 0 |
| # 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 | 9 | |
| Number and Percentage of SSOs During 2018 with Discharge Reaching Storm Water Conveyance | 4 of 10 = 40% | N/A |

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

| Richmond CA Collection System Activity Summary | | | VEOLIA | |
|--|------------------|------------|---------------------------------------|--------------|
| Collection and Conveyance | | | | |
| Report Period November-18 | | | | |
| Line Cleaning Summary | | | | |
| Total Lines Cleaned: 226 | | | | |
| Total Footage Cleaned: 59,922.88 ft | | | | |
| Total Footage with Cleaning Method: 24,098.65 ft | | | | |
| Unknown Cleaning Method Footage: 35,824.24 ft | | | | |
| Footage by Cleaning Method | | | | |
| Regular Monthly | | | | |
| REAR | 933.34 ft | | | |
| SPINNER | 6,294.48 ft | | | |
| PENETRATOR | 1,960.30 ft | | | |
| Service Call | | | | |
| REAR | 0.00 ft | | | |
| SPINNER | 3,470.00 ft | | | |
| PENETRATOR | 0.00 ft | | | |
| SSO | | | | |
| REAR | 0.00 ft | | | |
| SPINNER | 302.00 ft | | | |
| PENETRATOR | 202.00 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 | 0.00 ft | | | |
| SPINNER | 4,152.21 ft | | | |
| PENETRATOR | 622.31 ft | | | |
| Special Project | | | | |
| REAR | 30.00 ft | | | |
| SPINNER | 6,132.00 ft | | | |
| PENETRATOR | 0.00 ft | | | |
| Pipe Clean Production | | | Work Order Scheduling | |
| By Crew Leader | | | Planned Field Generated | |
| ARMSTRONG | 14.00 | 1 | 14.00 | 0 1 |
| HENDRICKS | 147.46 | 1 | 147.46 | 2 0 |
| LEWIS | 15,261.89 | 18 | 847.88 | 8 39 |
| HILL | 0.00 | 0 | 0 | 0 0 |
| WALLIS | 0.00 | 0 | 0 | 0 0 |
| MENDOZA | 19,037.97 | 18 | 1,057.67 | 42 33 |
| SIMONETTI | 808.37 | 3 | 269.46 | 4 0 |
| Totals | 35,269.69 | 41 | 860.24 | 56 73 |
| Pipe Clean by Pipe Material | | | Pipe Clean Work Order Analysis | |
| Footage | | | Field Generated | |
| VCP | 22,649.27 | 79 | | |
| PVC | 7,155.01 | 25 | | |
| Unknown or Other | 30,118.61 | 122 | | |
| Totals | 59,922.88 | 226 | | |
| CCTV Activity Summary | | | Work Order Scheduling | |
| CCTV Total Footage | | | Planned Field Generated | |
| 35072.33 ft | | | 189 76 | |
| Successfully Imported | | | CCTV Work Order Analysis | |
| Number of Lines Tved: 250 | | | | |
| Total Footage Tved: 35,072.33 ft | | | | |
| Unsuccessfully Imported | | | | |
| Number of Lines Tved: 15 | | | | |
| Total Footage Tved: 1,772.60 ft | | | | |

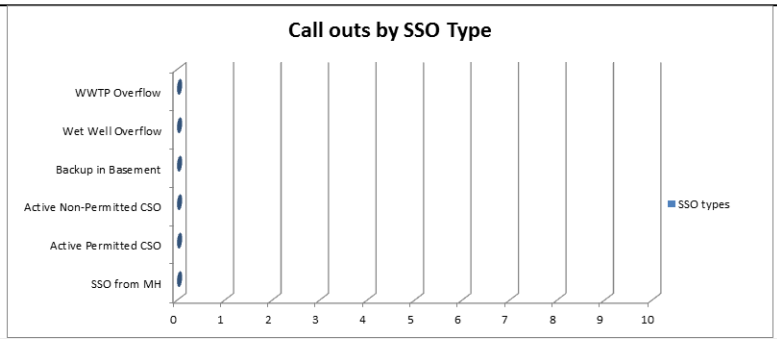
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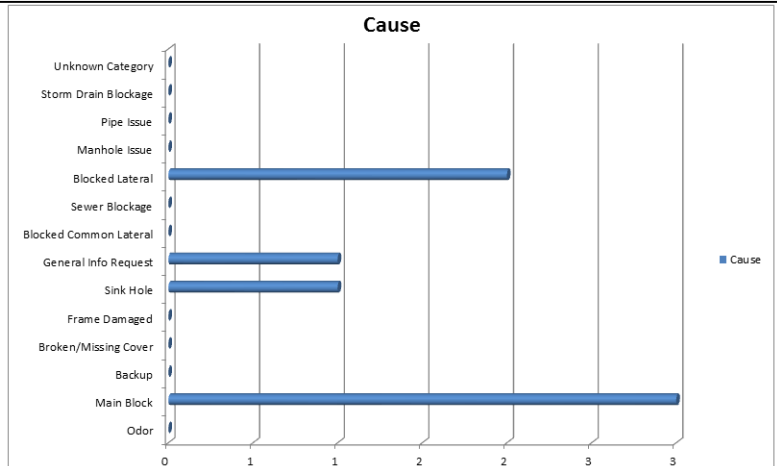
| | |
|---|---|
| Manhole Inspections | |
| Number of Manholes Inspected: | 0 |
| Fats,Oils & Grease Inspections | |
| Number of FOG Inspections: | 0 |
| Pipe Repair | |
| Number of Pipe Repair: | 0 |
| Manhole GPS Inspections | |
| Number of Manholes GPS: | 0 |
| Manhole Maintenance | |
| Number of Manholes Repaired: | 0 |
| 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 | 0 |
| Exercise FM Pressure Valve | 0 |
| Markout Locations | 0 |

| | |
|-------------------------------------|----|
| Number of Call Outs | |
| Total Number of Call Outs: | 10 |
| Call outs from Customer Complaints: | 9 |
| Call outs from SSO: | 1 |

| | |
|----------------------------|---|
| 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 | 3 |
| Backup | 0 |
| Broken/Missing Cover | 0 |
| Frame Damaged | 0 |
| Sink Hole | 1 |
| General Info Request | 1 |
| Blocked Common Lateral | 0 |
| Sewer Blockage | 0 |
| Blocked Lateral | 2 |
| Manhole Issue | 0 |
| Pipe Issue | 0 |
| Storm Drain Blockage | 0 |
| Unknown Category | 0 |
| Totals | 7 |



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 | 0 | N/A |
| Storm Service Calls | 20 | N/A |
| Storm CCTV (ft) | 1-segments (140-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) | 0-segments (0-LF) | N/A |
| Pump Stations/Inlet/Outlet Channels Cleaned | 0 | N/A |
| Catch Basins/Inlets/Storm Drains Cleaned | 20 | 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 |

NOVEMBER 2018

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 100% complete.*

- Construction is complete; as-built drawings were received October 26, 2018.
- Final invoicing was drafted and will be sent to City in early December.
- Close out project files will be delivered to Patrick Phelan of the City of Richmond in early December.

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

- Veolia provided CCTV data submittal on October 31, 2018 and on November 13, 2018. V.W. Housen is reviewing the dataset and isolated data to be included in the RAA. VWHA will initiate a first pass at the Risk Model in December and provide a draft updated RAA for Grade 5 repairs by January 3, 2019 for review.

November 2018

- SF Baykeeper (BK) 2019 RAA Document to be submitted by January 15, 2019.
- Per the City's request, VWHA began sending weekly update emails to BK Group at the beginning of November.

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 28 point repairs in November.
- Urgent point repair work was added to this project regarding a collapsed pipe segment on San Pablo Ave and was completed in November.
- A proposed pipe segment point repair on 32nd & McBryde was removed from Phase 1 project due to recent updated CCTV review showing further deterioration of the pipe and this segment will be added to future Phase of project for a full line replacement.
- Regarding Phase 2, CPM will formalize the Phase 2 project once the FY18/19 RAA is finalized in January 2019. Phase 2 will consist of approximately 0.48 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, \$7,674,491 for both projects.*

- Notice to Proceed was issued effective October 1, 2018. Approximately 3,600LF have been installed through November.
- Change Order 3 was executed in November which changed a proposed easement point repair to a full line replacement on Hoffman due to recent review of more current CCTV data revealing multiple Grade 5 defects in the pipe segment.

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.*

- 90 percent design submittal is schedule to be completed on January 25, 2019. Design review meeting will be scheduled for the end of January/early February.
- Bid ready documents will be finalized in March 2019. Bidding through the City's BidsOnline process scheduled for April-June 2019 timeframe with construction to begin in the fall of 2019. Baykeeper Construction deadline is June 30, 2021.

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 was executed in November.
- City budget for this effort reduced to \$250K for this fiscal year and moving forward.
- Force Main Manholes identified to be rehabbed under the Force Main Assessment project completed in early 2018 by V&A Consulting Engineers will be added to this project.

November 2018

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 monitors were installed on November 30, 2018; flow monitoring will continue through March 31, 2019.
- The Hydraulic Model network development has begun. Review of the latest GIS pipe and node layers is underway; anticipated to be completed at the end of December.

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.*

- NCE provided design alternative #2 in early November, and Veolia and the City had comments regarding NCE's design.
- NCE is making changes to their design and will be resubmitting in December.

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 98% complete.*

- Carollo is still on hold regarding their design efforts until further notice.
- Secondary Clarifier No. 3 Mechanism has been installed and signed off by Ovivo. The leveling grout has been poured; Pressure Relieving Valves (PRVs) have been installed and are working.
- Secondary Clarifier No 3 will be turned over to Operations on December 7, 2018.