

## **ELEMENT 4: OPERATION AND MAINTENANCE PROGRAM**

This Section describes the BCPUD's operation and maintenance program for its sanitary sewer system. It includes copies of the maps of the system, describes routine preventative operations and maintenance activities, identifies and prioritizes system deficiencies and rehabilitation actions needed, describes training activities and identifies critical equipment and replacement parts. This section fulfills the SWRCB Element 4 SSMP requirements.

### **SWRCB REQUIREMENTS FOR THE OPERATIONS AND MAINTENANCE PROGRAM ELEMENT**

The SSMP must include those elements listed below that are appropriate and applicable to the Enrollee's system:

- (a) Maintain an up-to-date map of the sanitary sewer system, showing all gravity lines segments and manholes, pumping facilities, pressure pipes and valves;
- (b) Describe routine preventative operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system;
- (c) Develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency. The plan should include regular visual and TV inspections of manholes and sewer pipes; a system for ranking the condition of sewer pipes and scheduling rehabilitation (focusing on pipes at risk of collapse or prone to frequent blockages due to pipe defects) and a capital improvement plan (CIP) addressing management and protection of infrastructure assets, a time schedule for implementing short and long-term projects, and a schedule for developing the funds needed to implement the CIP.
- (d) Provide training on a regular basis of all staff in sanitary sewer systems operations and maintenance, and require contractors to be appropriately trained; and
- (e) Provide equipment and replacement part inventories, including identification of critical replacement parts.

### **UP-TO-DATE MAP OF THE SANITARY SEWER SYSTEM**

Current maps of the BCPUD's sanitary sewer system are presented in Appendix 3. These maps will be updated from time to time to reflect rehabilitation and/or replacement projects.

## **ROUTINE PREVENTATIVE OPERATIONS AND MAINTENANCE ACTIVITIES**

The BCPUD sanitary sewer system is a gravity system that is self-cleaning and does not regularly (or even infrequently) experience collection main stoppages or blockages or sanitary sewer overflows. Nonetheless, BCPUD staff conducts regular preventative operations and maintenance activities to ensure continued proper functioning of the system. Specifically, every two years during the winter months the BCPUD staff hydro-jets the collection mains. In addition, the BCPUD retains an outside contractor approximately every two years to video and vacuum a portion of the collection system: on a rotating basis, the lower end of the system is videoed and vacuumed (i.e., Wharf and Brighton Roads) and two years later the upper ends of the system (i.e., Terrace Avenue and the Little Mesa) are videoed and vacuumed. On an as-needed basis, the district video-inspects and conducts smoke testing to identify/reduce infiltration and inflow and also inspects the exposed sewer laterals on the lagoon side of Wharf Road. Sewer system manholes on each of these ends of the system are inspected and either rehabilitated or replaced on an as-needed basis. BCPUD staff also inspects the system's lift station and treatment facilities on a daily basis in connection with the "daily run". BCPUD staff regularly evaluates the adequacy of maintenance equipment and makes purchases of new or replacement equipment on an as-needed basis. Finally, the district has implemented a system of Work Orders to track and memorialize specific preventative operations and maintenance activities.

## **REHABILITATION AND REPLACEMENT PLAN**

In 1990, the BCPUD completed an infiltration/inflow correction project to eliminate unwanted stormwater runoff and seawater intrusion whereby virtually the entire sanitary sewer system was slip-lined, all manholes were replaced, and all service laterals were replaced. The only section of the system not improved at this time was a section of Wharf Road, from the BCPUD lift station to the end of Wharf Road at Brighton Beach; this section is videoed and vacuumed periodically and any customers discovered to have compromised laterals are required to repair them promptly. Overall, the district's sanitary sewer collection system is in very good condition.

BCPUD staff regularly inspects the collection system during the above-described hydro-jetting and video/vacuuming maintenance activities and in response to customer complaints. As a result of BCPUD staff inspections and consultation with the district's outside engineers, the following capital improvement projects have been identified and prioritized for the collection system:

1. Rehabilitation of the lift station wetwell;
2. Inspection of the force-main from downtown to the treatment ponds; and
3. Relocation of collection main off of Terrace Avenue at Surfer's Overlook -- this section of the collection main is threatened by on-going bluff erosion (preliminary engineering is complete) -- although this project may not be necessary and/or as high a priority because the County of Marin replaced the road-level retaining walls and stabilized the upper bluff in Fall 2015.

## **STAFF TRAINING IN OPERATIONS AND MAINTENANCE**

All BCPUD staff are required to be CWEA certified in wastewater collection system maintenance. In addition, BCPUD staff receive training in operations and maintenance of the sanitary sewer system via on-the-job training and mentoring by the Chief Operator and the district's more experienced shift operator. BCPUD staff also receive training via the certification and recertification process required to maintain wastewater treatment licenses. This training is documented on a daily basis by the staff on daily work reports. From time to time the district also contracts out for additional training: for example, BCPUD staff receive training (usually annually) from the district's insurance provider, ACWA/Joint Powers Insurance Authority on subjects including, but not limited to , Defensive Driving, First Aid, CPR, Traffic Control, Confined Space Entry, Safe Handling of A/C Pipe and First Responder Awareness. All safety training is documented and records are on file with the BCPUD office.

## **EQUIPMENT AND REPLACEMENT PART INVENTORIES**

BCPUD staff has identified the critical components of the sanitary sewer system and redundancy has been built into the system at these components to ensure uninterrupted service in the event of component failure (i.e., lift station pumps to force main and irrigation pumps from ponds to spray fields). Back-up power has been installed at the lift station and by-pass pumping is available on a contract basis as needed in the event of an emergency. The lift station itself also serves as a containment area in the event of overflow events due to pump failure. An alarm system is in place at the lift station and it is on-line 24/7 to auto-dial the on-call staff operator in the event of an emergency. Routine parts are available on site and elsewhere in the district for minor repairs and trouble-shooting. Major pump repairs or replacements are performed by experienced outside contractors with whom the district has established long-term service relationships.