

CITY OF PIEDMONT
CALIFORNIA



Sewer System

Asset Management

Implementation Plan

EPA Conditional Approval – May 13, 2013

Revised per Consent Decree and Final Adoption
by City Council: August 4, 2014

Revision Log

<i>Date</i>	<i>No.</i>	<i>Description of Revision</i>
1/30/13	A	Revised per EPA comment letter dated December 5, 2012
8/04/14	1	Revised per Consent Decree and adopted by City Council (references to CD and EBMUD RTSP, inspection and cleaning frequencies, updated budgets and rehabilitation plans)

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City of Piedmont

Asset Management Implementation Plan

A. EXECUTIVE SUMMARY

This Asset Management Implementation Plan (AMIP) has been prepared to comply with the requirement of the Stipulated Order for Preliminary Relief (hereinafter referred to as “SO”) noted on the following page “Legal Requirements”. This document describes the following activities as required in the SO:

1. The routine inspection methods and schedule for the City’s collection system, including the system for the evaluation of inspection findings and documentation of the assessed condition.
2. Maintenance protocols for the collection system, including routine cleaning schedules, maintenance of “hot spots” (locations with recurring issues or blockages), root prevention measures and schedule, a staffing plan for the cleaning and root control programs, and a Quality Assurance and Quality Control (QA/QC) program for the inspections and cleaning.
3. A plan for condition-based repair and replacement of sewer pipes, including a schedule, a 10-year financial plan for repair, rehabilitation and replacement of sewer pipes, measures to control inflow and infiltration (I/I) to the system and to reduce the frequency of Sanitary Sewer Overflows (SSOs), and a budget for emergency repair and replacement of sewer pipes. A tabulation is presented for the priority repair or replacement of sewers over four years, which may be revised as result of the inspection process or changing conditions. In addition, acute defects need to be addressed within one year of the inspection or assessment that identified the defect. The SO defines an acute defect as: “a failing in a sewer pipe in need of an urgent response to address an imminent risk of a Sanitary Sewer Overflow (SSO).”

This document is intended to be used in conjunction with the City’s Sewer System Management Plan (SSMP) to comply with the State of California Water Resources Board Order No. 2006-0003-DWQ “Statewide General Waste Discharge Requirements (WDR) for Sanitary Sewer Systems” and California Regional Water Quality Control Board Order No. R2-2009-0084/NPDES No. CA0038504 “Waste Discharge Requirements for the City of Piedmont Sanitary Sewer Collection System Alameda County”.

LEGAL REQUIREMENT

This document was prepared in accordance with the City of Piedmont AMIP requirements per Stipulated Order for Preliminary Relief (Case No. C 09-05684 RS) and modified as necessary per Final Consent Decree (Consolidated Case Nos. C 09-00186-RS and C 09-05684-RS). The following is a transcription of the AMIP requirements from the Stipulated Order, Section XI, subparagraph 73:

“B. By July 15, 2012, the City shall submit to EPA for review and approval pursuant to Section XIV* an AMIP that uses the EPA comments provided pursuant to subparagraph A** above. The City may tailor the EPA comments, and may omit portions of the EPA comments that do not apply to the City. The AMIP shall be updated as necessary to incorporate any revisions to the initial inspection and maintenance schedules, and to ensure that repair, renovation and replacement projects continue to be adequately identified and planned beyond the initial time frames specified in subparagraph 73.B.3 (*the SO incorrectly listed 72.B.3*). At a minimum, the AMIP shall include a description of the City of Piedmont's programs for:

1. **Routine inspection of the Collection System** according to a specified schedule, and that includes the following:
 - a) Inspection methods to be used, including direct visual inspection and CCTV inspection, and whether CCTV equipment is owned, purchased, leased, or a combination;
 - b) An inspection schedule, and protocol for determining the regular time interval on which repeat inspections will be performed; and
 - c) A system for timely evaluation of inspection findings and documentation of the assessed condition.

2. **Collection system maintenance protocols, including:**
 - a) A schedule for routine cleaning of the City of Piedmont's Collection System using standardized responses developed by the City to typical local problems that cause blockages such as debris, grease and roots. The City shall develop its routine cleaning schedule after evaluating the cleaning needs of the Collection System;
 - b) A list of locations where pipe blockages and SSOs have frequently occurred (hot spots), a hot spot cleaning schedule, and procedures for adjusting the hot spot cleaning schedule based on changing conditions;
 - c) Preventive measures to address blockage of sewer pipes by roots, including a description of root control methods; locations where root control methods may be used within the Collection System; and a schedule for application of root control methods; and
 - d) A plan for staffing the sewer system cleaning and root control programs, indicating whether staffing duties will be carried out by agency staff, by staff from other agencies, or by private contractor(s). To the extent that any sewer cleaning or root control duties conducted under this program will be carried out by private contractor(s), the City of Piedmont shall retain on file and make

available for inspection for a period of three years after the completion of work a description of each contractor and a copy of each contract, or a description of the procurement process.

- e) A Quality Assurance and Quality Control Program ("QA/QC Program") to ensure proper sewer cleaning. The QA/QC Program shall include a plan for inspecting the cleaning quality, which specifies a minimum percentage of cleaned pipe to be inspected at regular intervals and a schedule for inspections, the procedures for conducting the inspections, the time interval for any necessary re-cleaning, and criteria for increasing and decreasing the frequency of inspection.

3. Condition based repair and replacement of sewer pipe plan.

This plan shall include elimination of known improper flow connections, according to a schedule informed by the inspection results, and address both short-term (repairs of Acute Defects to occur within one year of completion of inspection and assessment) and long term repair, rehabilitation and replacement of sewer pipes.

The plan shall include the following:

- a) A schedule and 10 year financial plan for repair, rehabilitation, and replacement of sewer pipes. This schedule shall identify pipe reaches presently planned as priorities for rehabilitation or replacement over the next three years, with the understanding that the identified priorities are likely to be further developed and revised through the inspection and assessment process, and as a result of changed conditions. The City shall develop its schedule for repair, rehabilitation and replacement of sewer pipes using standardized responses developed by the City to observed defects, taking into account available peak flow rate data;
- b) Measures to control the inflow and infiltration as needed to reduce flows in the Collection System and reduce the frequency of SSOs; and
- c) The budget allocated for emergency repair and replacement of sewer pipe, the length of sewer pipe which underwent emergency repair and replacement during the previous year, and the cost thereof.

C. Beginning in 2013, as part of its Annual Report provided for in Section XIII, the City of Piedmont shall submit information to EPA summarizing the City's progress in implementing each element of the AMIP, and must include any proposed revisions to the maintenance and construction schedules along with any accompanying changes to the financial plan. If any Acute Defect has not been addressed within one year of the inspection and assessment identifying it, the City shall explain what new information or changed circumstances warrant not addressing the Acute Defect.”

*Section XIV of the Stipulated Order covers review and approval of deliverables by EPA.

**Subparagraph 73.A. covers the development of an asset management template by East Bay Municipal Utility District (EBMUD) and EPA comments on the template for use by the City as guidance in the preparation of the City's Asset Management Implementation Plan. As of the date of this document, EPA has not provided comments.

B. SYSTEM OVERVIEW

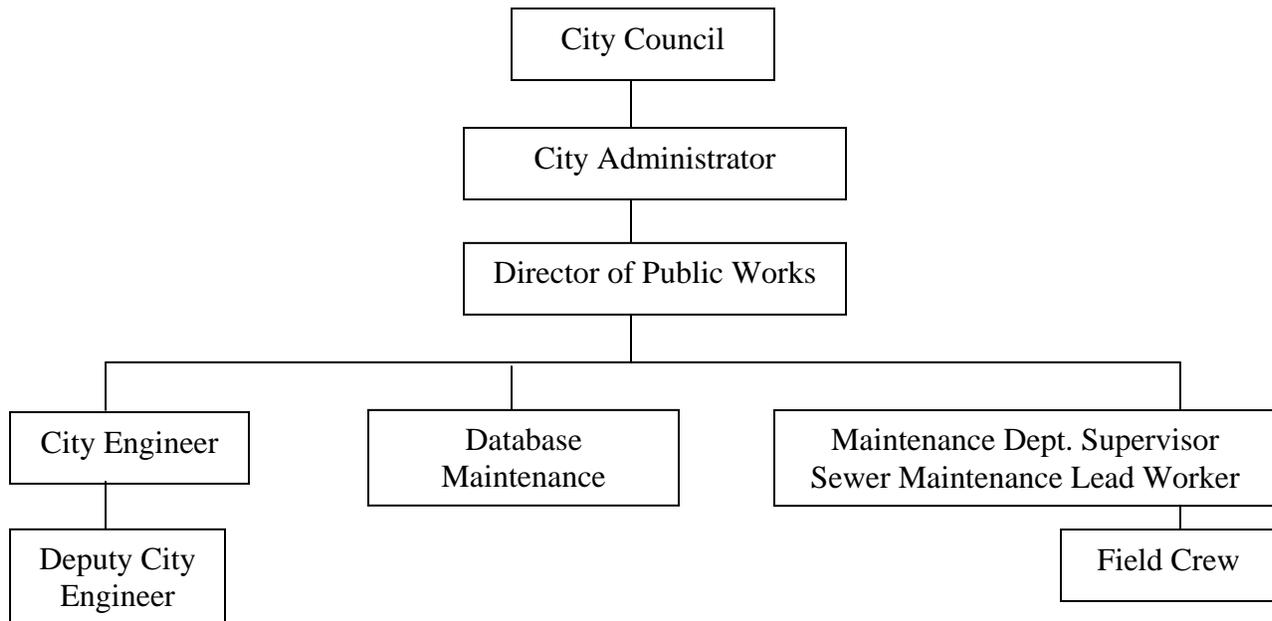
The City of Piedmont is comprised of approximately 1.7 square miles of residential and minor commercial land use. The population served has varied between 10,000 and 12,000 people over the last 50 years. The wastewater generated within the City is collected in approximately 50 miles of sanitary sewer pipelines, ranging in size from 6 to 18 inches in diameter, most of which was constructed between the years of 1900 to 1940. In accordance with an 1895 agreement between the Cities of Oakland and Piedmont, wastewater from Piedmont is discharged into the Oakland Collection system through seven points located along the southern city limits. In addition, flow from approximately 220 acres (80,000 linear feet of sewers) of the City of Oakland (the area is located northeast of Piedmont) is conveyed through the City of Piedmont's collection system. The collected wastewater is discharged through the City of Oakland to the East Bay Municipal Utility District (EBMUD) Special District No. 1 (District) interceptor. This interceptor transports the flows to the EBMUD Waste Water Treatment Plant (WWTP), located in Oakland near the east end of the Bay Bridge. After providing secondary treatment, the WWTP discharges treated effluent into San Francisco Bay.

In 1975, the California Regional Water Quality Control Board (RWQCB) adopted a Water Quality Control Plan for the San Francisco Bay Basin that recommended regulating discharges from wet weather diversions and overflows for a 5 year storm event. In response to Regional Board requirements, the District and local communities coordinated efforts to resolve the problems of wet weather overflows and diversions. This coordination effort resulted in the adoption of an Infiltration/Inflow (I/I) Reduction Compliance Plan for each community involved.

In 1986, an infiltration/inflow study was conducted for the City's entire sanitary sewer system. Based on the study's findings, nine (9) of the City's twenty-two (22) sub-basins were recommended for rehabilitation. The City completed rehabilitation of these sub-basins along with the lower laterals located in public right-of-way in 2005, which accounts for approximately half of the sewer lines within the City. Since 2005, an additional four sub-basins have been rehabilitated. In addition, priority-based repairs have occurred in other basins. The amount of the City mains and lower laterals rehabilitated to date totals approximately 64 percent of the system. For the purposes of this Plan, rehabilitation has almost entirely consisted of replacement of pipe from node to node and replacement of lower laterals with new pipe and cleanouts, along with lining or replacement of manholes. If it was not feasible to replace a pipe from node to node, cured-in-place-pipe (CIPP) lining was used. Spot repairs are only used where the remainder of the pipe is a newer material (e.g. polyvinyl chloride, reinforced concrete or cast iron) in good condition.

The City of Piedmont Sub-Basin Map showing the sub-basins rehabilitated to date has been included for reference.

C. ORGANIZATION



Director of Public Works (DPW) – Ensures that the staff has the resources necessary to perform services, determines strategy, prepares sewer annual maintenance and capital project budgets, leads staff, delegates responsibility, authorizes outside contractors to perform services, provides updates and information to the City Council. He/she also serves as the alternate Legally Responsible Official (LRO).

City Engineer – Oversees, reviews and approves repair and rehabilitation plans, publicly bids projects and oversees construction of repair and rehabilitation projects.

Deputy City Engineer – Assist the City Engineer with plan review and approval, manages capital improvement delivery system; documents new and rehabilitated assets; and coordinates development and implementation of the AMIP. Evaluates the results of collection system inspection programs. He/she is also the designated Legally Responsible Official (LRO) in charge of overseeing the reporting process.

Database Maintenance – administrative assistant that enters inspection, maintenance and repair data into the computerized database, generates work orders and data required for reporting purposes.

Maintenance Supervisor – Manages field operations and maintenance activities, provides verbal report to DPW to ensure that he/she has adequate information to address service related problems on a timely basis, leads emergency response, reviews system inspection, cleaning and maintenance reports generated by field crews, evaluates situation and plan strategy with DPW, reviews and approves SSO reports prior to transmittal to the appropriate authorities, investigate SSOs, and trains field crews. In the event of the

temporary absence of the Maintenance Supervisor, the Sewer Maintenance Lead Worker may assume some of these duties.

Field Crew – Implements emergency response and documents SSO's for reporting, mobilizes sewer cleaning trucks, by-pass equipment, and other field related work.

All service calls are referred directly to the Maintenance Supervisor or Public Works Department during normal business hours. The City uses an after-hours 24-hour dispatch to take emergency calls at the Police Department. The police dispatcher then relays the message to the standby person by telephone (land line or mobile). The standby person makes a determination about the emergency and contacts the Maintenance Supervisor. Additional personnel can be summoned as needed.

D. LEGAL AUTHORITY

Discharges to the wastewater collection system are regulated by the City of Piedmont and EBMUD. EBMUD has adopted a useful ordinance that prohibits discharge of toxic or hazardous wastes, allows the District to monitor discharges, requires industrial discharges to obtain discharge permits and pay user fees in proportion to the amount and strength of their discharge, and prohibits discharge of stormwater inflows. The ordinance sets requirements that are primarily concerned with the District's wastewater treatment facilities.

The City of Piedmont's regulation governing sewers is in Chapter 17A of the City's Municipal Code (included in Appendix A). This section of the Municipal Code deals primarily with the wastewater collection system. On August 22, 2011, the City Council adopted Ordinance 697 N.S., amending Chapter 17A of the Piedmont Municipal Code, which included the adoption of East Bay Municipal Utility District's Regional Private Sewer Lateral Ordinance (EBMUD Ord. 359-13, updated August 22, 2013).

Section 17A.8 outlines private property owner responsibilities for the repair and maintenance of the entire private sewer lateral (referred to in the code as the "building sewer"), up to and including the connection to the City sewer main. Section 17A.9(f) gives the private property owner 48 hours after notification by the City to make all emergency repairs. If the repairs are not completed in 48 hours, the City shall have the right to make or have made the necessary repairs and recover said costs as authorized by the Municipal Code.

The City is able to access sewers located on private property for emergency repairs, maintenance or reconstruction as stated in the City Attorney Memorandum, dated March 14, 2007 (included in Appendix B).

E. ROUTINE INSPECTION OF THE COLLECTION SYSTEM

1. Inspection Methods

The following inspection methods are to be utilized:

Television Inspection

Closed-circuit television (CCTV) inspection of sewer pipes is effectively employed for evaluating the condition of the sewer mains and locating sewer laterals prior to design of major sewer repairs. CCTV inspection is also used for routine inspection of the collection system as part of the preventive maintenance program, as well as emergency inspection of blockages and SSOs.

In 2008, the City embarked on an aggressive CCTV inspection study on nine (9) sub-basins which had not yet been rehabilitated. This study, done by a contractor, inspected 99,000 feet of sewer mains, which encompassed approximately 41% of the entire city's sewer system. In August 2011, the City purchased a CUES Multi-Conductor CCTV system, with an OZ-3 pan/tilt/optical zoom camera head, contained within a Sprinter 3500 series van for use in video inspection and condition assessment of sewer mains. A CUES push-cam links with the CCTV system and is used in easement areas where access with a vehicle is not possible. This new system enables the City to respond quickly to issues and to determine causes of sewer blockages or problems. The City sewer maintenance staff is certified through the National Association of Sewer Service Companies (NASSCO) for pipeline assessments (PACP).

For the first ten (10) years of the Consent Decree, sewer mains are to be internally inspected with a CCTV camera at an annual average rate of no less than 26,800 linear feet of main. After the initial 10-year cycle, the next scheduled inspection for any specific pipe shall be based upon the previous inspection result and condition assessment, including consideration of pipes that have a higher risk for SSOs or pipe failure, such as sewer mains located adjacent to creeks. Until all private sewer laterals are replaced, it is important to continue the inspection of rehabilitated mains because defects in private laterals can allow debris to enter the city system and cause blockages. After completion of the large majority of private lateral replacements, it may be desirable to increase the inspection cycle on rehabilitated mains. Inspection of lines needing more frequent maintenance because of backups or in known problem areas (such as the older terra-cotta lines, non-replaced pipes in proximity to creeks, areas subject to root intrusion) will be inspected on a four (4) year cycle.

With the new CCTV system, the City staff performs the majority of regular CCTV inspections. It is anticipated this will continue; however the City may contract with private CCTV contractors if there are larger scale efforts required in the future.

Manhole Visual Inspection

Manhole inspection is performed as an ancillary step whenever a manhole is opened or entered for cleaning, TV inspection, or other reasons. A field crew member records any structural problems or evidence of infiltration/inflow on the standard manhole inspection form, which is entered into the computer database (see below for further discussion on

inspection record-keeping). Manholes are inspected on a minimum of once every 10 years to correspond to the CCTV cycle. Inspections may be done more often if a line is accessed for non-scheduled maintenance or repairs. City staff is NASSCO certified for manhole assessments (MACP).

Refer to Condition-Based Repair section for manhole repairs and rehabilitation.

2. Inspection Schedule

A typical schedule of the inspection program over multiple years is shown on Table 1. This schedule incorporates the frequencies for each activity discussed in Section E.1. Priority for inspections is given to sewer mains in poor condition and will change accordingly as the pipes are rehabilitated.

TABLE 1 – TYPICAL INSPECTION SCHEDULE

Activity/Year	1	2	3	4	5	6	7	8	9	10	11	12
1. CCTV Inspection	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10
2. CCTV Inspection for problem areas	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
3. Manhole inspection	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10

3. Inspection Evaluation and Condition Assessment Documentation

Collection System Database:

The City is using OASIS (Operator Assisted Sewer Information System), which provides the following capabilities for the management of the wastewater collection system:

- 1) System-wide data for the entire range of system structures:
 - a. Manholes
 - b. Mainlines
 - c. Service laterals
 - d. Catch basins/storm water inlets
 - e. Septic tanks
- 2) For each structure, the system maintains:
 - a. Location data including structure identification, addressing, mapping, and location references.
 - b. Engineering data including material type, size, and related characteristics.
 - c. Preventive maintenance schedules for an unlimited number of activities for each structure.
 - d. Inspection schedules for a variety of inspection methods.
 - e. Condition assessment for an unlimited number of inspections. Assessment ratings are categorized and scaled in parallel to the standardized PACP ratings system.

- f. Capital rehabilitation/replacement planning scheduling, including priority ranking and inclusion of local impact factors such as environmental sensitivity.
 - g. Construction history containing complete construction data on the original installation and subsequent rehabilitation/replacement events, including those scheduled for the future.
 - h. Miscellaneous data such as structure ownership and maintenance responsibility.
- 3) Maintenance work orders, both emergencies and scheduled events, with the ability to maintain an unlimited number of problem histories and actions taken. Of critical importance is the ability to include regulatory SSO data in a work order when such an event occurs.
 - 4) Complete report design and printing based on user-defined criteria for the following areas:
 - a. Structure inventory data
 - b. Structure condition assessments
 - c. Structure capital planning
 - d. Inspection schedules and subsequent production
 - e. Preventive maintenance schedules and subsequent production
 - f. Sanitary sewer overflow (SSO) activity
 - g. Miscellaneous reports
 - 5) Complete linkage to popular geographic information systems (GIS) such as ESRI's ArcGIS and Autodesk's AutoCAD Map is provided with native support for the Microsoft Access database format used by OASIS. GIS queries can be run using a direct connection to system data without any extra programming or security layer management required.

GIS and Mapping Systems:

The City of Piedmont has a fully-functional Geographic Information System (GIS) using ESRI ArcView GIS software, which was implemented in 1994, consisting of multiple layers from all City departments. The sewer layer was created in 2001 and is updated upon completion of each sub-basin of the city's capital improvement projects. The City also updates the sewer layer based upon routine inspections and maintenance performed throughout the year.

Additionally, the City has hard copy maps of the sewer system that are available for use by the staff and contractors. A master wall map showing the City's entire sewer system is posted at the Corporation Yard and is used by staff for reference, service planning and discussion. Updates from the master wall map are included in the GIS system and are used as a planning tool for capital improvement projects or priority repair planning.

The City's long-range goal is to equip the Maintenance Supervisor and Sewer Maintenance Lead Worker with tablet computers linked to the GIS system so that the most current records can be readily accessed in the field.

Evaluation of Findings & Condition Assessment Documentation

After a CCTV inspection or manhole inspection is completed by maintenance staff, the Maintenance Supervisor will review the results of the inspection with the staff within two weeks of completion. The review will primarily focus on proper inspection and condition assessment of the remaining terra-cotta lines, non-replaced mains in proximity to creeks and mains in areas subject to root intrusion. See Section F.5. for additional requirements. If no issues or concerns are detected, the inspection records will be forwarded to Database Maintenance for entry into OASIS. If there are issues or concerns, the Maintenance Supervisor will review the findings with the Director of Public Works and consult with the Deputy City Engineer if necessary. A determination will be made if there is a need for emergency repairs (such as a severe blockage that cannot be removed with City equipment or a collapsed pipe); if the problem is an acute defect that needs to be repaired within one year, or if the location needs to be inspected again in a shorter period of time or placed on the problem area list.

The Deputy City Engineer will review the annual CCTV and manhole inspection results with the Maintenance Supervisor each year to evaluate the effectiveness of the inspection efforts and if any revisions to this plan need to be made. The initial annual review will be to verify that in general pipes and manholes are being properly inspected and rated and that critical repairs or main replacements are being added to the priority schedule. After the initial review, the reviews will focus on the problem areas as identified in Section E.1.

F. COLLECTION SYSTEM MAINTENANCE PROTOCOLS

1. Routine Cleaning Schedule

Routine Cleaning

Per the Consent Decree, sewer lines in the collection system shall be cleaned at a minimum of once every five (5) years (an average of 53,700 feet per year) to reduce the potential for blockage and to increase flow capacity. Roots shall be controlled in locations with frequent root intrusions. After the initial 5-year cycle under the Consent Decree, mains that are greater than 15 inches diameter may be cleaned based upon condition assessment, taking into consideration any information concerning the accumulation of sediment, debris and FOG (fats, oils or grease) derived from CCTV inspections or cleaning history.

2. Hot Spot Locations and Procedures

The City does not currently have “hot spot” locations where pipe blockages or SSOs have occurred frequently as these locations have been eliminated with the prior pipe rehabilitation or replacement work. Locations will be added to a hot spot list if:

- More than one SSO occurs in a segment within a 12-month period, or
- The Maintenance Supervisor determines there could be a high probability of an overflow in a segment within next 12 months.

If two consecutive inspections or cleanings indicate no problems, the Maintenance Supervisor may remove the location from the hot spot list.

The City does not have any restaurants or other businesses that generate large amounts of fats, oils or grease (FOG). The only registered food service establishment (FSE) is the local grocery and delicatessen, which generates minimal FOG. As the majority of the City is residential, no spills have occurred as a result of grease blockages. Accordingly, there have not been any FOG occurrences of note in the collection system in recent years and there is not a need to have a commercial FOG control program in place. Small areas of grease deposits have been isolated. Upon the discovery of these areas, the line is cleaned and EBMUD FOG materials (see below) are distributed to the affected area.

Piedmont is one of the seven collection systems EBMUD’s wastewater treatment area. The agencies and EBMUD have developed a regional FOG program, as part of the East Bay Collection Systems Technical Advisory Board (TAB) programs, to reduce FOG related SSOs and continue working collaboratively on development and implementation of FOG control. This regional FOG program consists of FOG hot spot investigations, residential hotspots response, enforcement support, reporting, public education and public outreach throughout EBMUD’s wastewater service area. If, through CCTV inspection, the maintenance crew flags an area as a potential FOG problem, they distribute door hangers prepared by EBMUD in that area. In addition, the City provides educational information periodically on the City website.

Line segments that inspection records show to have more frequent cleaning due to blockages from accumulated debris or roots are cleaned on a two (2) year cycle. Prior

practice within the City has been to replace a main from manhole to manhole with new pipe where an SSO is caused by a defective pipe. If funds are not available at that time or it is not feasible to replace the pipe, a line segment that has two or more SSOs within the scheduled four (4) year cleaning cycle will be placed on the two (2) year cycle.

3. Root Control Methods and Schedule

The City of Piedmont controls roots by applying a herbicide foam from within the sanitary sewer, which kills the roots in a confined area within and around the sewer. The herbicide is effective in killing the problem roots and is not harmful to the tree. The foam used is approved by the EPA as an acceptable root control product which does not interfere with wastewater treatment processes. The City coordinates the root foaming work with EBMUD treatment plant operations staff. At this time, the root foaming work is done by a licensed contractor. This is anticipated to continue in the future as it much more efficient. A properly trained City sewer maintenance staff worker is on-site during the root foaming process to ascertain that the specified scope of work is being done properly.

Sewer lines are selected for foaming on an as-needed basis as determined by CCTV inspection and sewer cleaning. Rehabilitated lines need less focus than older lines that have not been rehabilitated. Line segments that maintenance records show to have frequent root problems are cleaned more frequently. The City has identified older terra cotta pipelines through prior CCTV work. These lines are particularly susceptible to root intrusion and total approximately 90,000 linear feet of pipe. In addition, there is another 10,000 linear feet of pipe that is susceptible to roots due to the specific location and amount of trees. The City will root foam these pipelines on a two (2) year cycle. If, during CCTV inspections, root intrusions from private sewer laterals into City mains or other defects are noted, the City will notify the property owner and request that the property owner address the issue within 90 days. The City has taken the extra step of codifying this provision as an additional triggering event for private sewer lateral testing.

Where roots have accumulated to the point that foaming is ineffective, roots are cut using a root saw or chain flail that is connected to the City's hydro flusher. Root cutting debris is collected at the downstream manhole by use of a debris-catching basket and is disposed of in accordance with applicable regulations. In addition, the City participates in the East Bay Collection Systems Root Control Working Group. The purpose of the group is to provide a forum for the sharing information regarding root control activities and mechanisms between EBMUD staff and the collection system agencies.

A typical schedule of the cleaning, hot-spot and root control measures over several years is shown in Table 2, which incorporates the frequencies for each activity discussed above.

TABLE 2 – TYPICAL MAINTENANCE SCHEDULE

Activity/Year	1	2	3	4	5	6	7	8	9	10	11	12
1. Main Cleaning	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5
2. Hot Spot Inspection & cleaning	X		X		X		X		X		X	
3. Root Foaming where req'd.	X		X		X		X		X		X	

4. Staffing Plan

The City staff currently provides the above-noted work, except for root foaming work. There are four staff members dedicated to streets and sewer maintenance work. Two of the staff form the CCTV team and two of the staff perform servicing activities such as cleaning and root cutting. Root foaming has been budgeted in the 10-year financial plan at \$110,000 for every two year cycle (\$55,000 per year).

Per the Stipulated Order, if the City has cleaning or root foaming activities performed by a private contractor, the City shall retain on file and make available for inspection for a period of three (3) years after completion of the work, a description of each contractor and a copy of each contract, or a description of the procurement process.

5. QA/QC Program

CCTV inspection of 5% of the total footage pipes that are cleaned (approximately 2,700 feet each year during the 5-year cycle, or a total of 13,425 feet over 5-years) will be done within two months of the cleaning to verify the adequacy of the cleaning and if proper cleaning procedures are being used. Lines that are not properly cleaned will be re-cleaned within 3 months of the CCTV inspection review and re-inspected within 6 months of the re-cleaning. CCTV inspection of 2% of the total footage of pipes that receive root foaming will be done within six months of the foaming activity to verify the effectiveness of the root foaming and to determine if mechanical root removal or additional foaming is required.

The results of the QA/QC CCTV inspection results are shared with the sewer maintenance staff and videos are reviewed. The Maintenance Supervisor will determine any changes to the procedures that are needed to ensure effective cleaning or root control activities (such as the use of a different cleaning head or a different root cutting head). After the first 5-year cleaning cycle for lines larger than 15-inch diameter that have not shown any build-up of sediment, debris, grease or other materials during both cleanings, the Maintenance Supervisor may consider placing those lines on a longer cleaning cycle. Conversely, lines that have shown a regular build-up of sediment, debris, grease or other materials should be considered for placement on the 2-year cleaning cycle. Inspection and cleaning forms are reviewed by the reviewed by Maintenance Supervisor prior to being submitted for OASIS database entry.

G. CONDITION-BASED REPAIR AND REPLACEMENT

1. Schedule and 10-year Financial Plan

The City generates approximately two-million dollars through its sewer tax that covers the cost of sewer related operations, maintenance and general sewer projects. This budget also covers the reimbursement of the SRF loan that the City has used and will continue to use to fund its sanitary sewer capital improvement projects. The proposed FY 14-15 sewer budget below represents the typical annual sewer-related income and expenditures.

Current Income

The City of Piedmont is a charter city created under the laws of the State of California. The City derives the majority of its income via a levy of a user charge to its customers. The user charge is comprised of a fixed “connection” fee component and a large user component based upon lot size, which correlates with water usage.

TABLE 3 - CITY SEWER INCOME

<u>Income Source</u>	<u>Estimated Amount</u>
1. Sewer Service (User) Charges	\$2,275,200
2. Interest Earned	13,500
3. Contributed or Borrowed Capital	--
4. State Revolving Loan Fund	--
5. EPA Grant Funds	--
6. Total Income (2014-15)	\$2,288,700

Income is reflected from the user charges. The City anticipates annual increases in rates based upon the CPI.

Current Expenditures

Expenditures of the City are detailed in Table 4 – City Sewer Related Expenses.

TABLE 4 - PROJECTED CITY SEWER EXPENSES

<u>Category</u>	<u>Estimated Amount</u>
1. Maintenance	\$450,000
2. General Sewer Replacement	348,772
3. EPA Compliance	300,000
4. Equipment Maintenance	67,703
5. Alameda County Clean Water	37,031
6. SRF Debt Service	553,963
TOTAL	\$1,757,469

Table 5 shows the planned budget for the activities under this plan:

TABLE 5 - PROJECTED AMIP EXPENSES

CATEGORY	ESTIMATED COST
1. CCTV Inspection/Cleaning/FOG Control	\$450,000
2. Main Rehabilitation	348,772
3. Equipment Maintenance	67,703
4. Emergency Repairs	300,000
9. TOTAL	\$1,166,475

Outstanding Long-Term Indebtedness

Other than State Revolving Fund (SRF) loans for prior rehabilitation phases I through IV, the City has no long-term indebtedness to be paid from the Special Municipal Sewer Tax. See Table 4 – SRF Debt Service.

Four-Year Rehabilitation Plan

Based upon the prior CCTV studies, a four-year plan has been developed to replace critical main segments. Lines selected for immediate repair or replacement are the ones that were identified during the study that could pose a service disruption or of such an age or condition that a failure or collapse could occur within a few years. It is anticipated that the mains will be replaced with high-density polyethylene (HDPE) pipe, as has been used in prior rehabilitation projects. The City also replaces aging mains in their entirety from manhole to manhole, rather than attempting “spot” or partial repairs of the pipes. This method results in infiltration reductions.

The following table contains the list of main segments proposed for replacement over the first 4 years of this plan. The work has been estimated to use the allotted \$340,000 per year based upon pipe replacement at \$120 per foot of pipe; this unit price includes the estimated costs for: engineering, construction bid document preparation, construction, construction

inspection, and administration. The actual length of pipe replaced in any given year may be more or less than the amount contained in this table due to the variability of construction costs. In addition, \$30,000 per year has been allotted to rehabilitate approximately 20 manholes each year. Rehabilitation on manholes in good to fair condition typically consists of interior lining and waterproofing; manholes in poor condition are typically replaced with new manholes. The City will seek to maximize the amount of pipe and manholes rehabilitated in any given year based upon the available funds and construction unit costs. Bid alternatives may be solicited to allow flexibility in the contracting process.

Table 6: Proposed 4-year Priority Rehabilitation Projects

The list is dependent upon an evaluation each year of any problems that were encountered in the City sewer system, or if there was an SSO or failure in a pipe that is not on this list. As noted in the SO, this list has been developed with the understanding that it may be further developed and revised through the inspection and assessment process, or it may be revised due to changed conditions noted above. Information obtained from the EBMUD RTSP (Regional Technical Support Program) may also dictate changes in the lines to be rehabilitated in any given year (see section G.2. below). The City reserves the right to change pipes that are on the list to direct the funding to the most critical pipes each year or as required by the Consent Decree via the RTSP.

The list is focused on replacement of the remaining terra-cotta pipes within the City system as these lines typically have the highest I/I rates. By focusing on the mains that have the highest I/I rates as well as possible defects due to age, this plan will further the I/I reductions that have been obtained through the replacement of 67% of the City mains to date and reduce the potential for SSO’s.

YEAR 1 – 2013/2014 (work completed)

Subbasin	Street Name	Structure # (From)	Structure # (To)	Approx. Length (Feet)
H1	Harvard Rd.	331-3A	331-4A	116
H1	Harvard Rd.	331-4A	330-14	146
H1	Harvard Rd.	330-14	330-13	76
H1	Harvard Rd.	330-13	330-12	31
H1	Harvard Rd.	330-12	330-11	144
H1	Harvard Rd.	330-11	330-10	115
H1	Harvard Rd.	330-10	330-09	112
H1	Harvard Rd.	330-09	330-08	29
H1	Harvard Rd.	330-08	330-07	40
H1	Harvard Rd.	330-07	330-06	214
H1	Harvard Rd.	330-06	330-05	306
H1	Harvard Rd.	331-52	331-25	130
H1	Harvard Rd.	331-71	331-70	67

H1	Harvard Rd.	331-70	330-11	42
H1	Ranleigh Way (rear easement)	331-25	331-24	72
H1	Ranleigh Way (rear easement)	331-24	331-22	160
H1	Ranleigh Way (rear easement)	331-21	331-22	50
H1	Portsmouth Rd.	330-61	330-07	48
H1	Portsmouth Rd. (rear easement)	331-48	331-47	32
H1	Portsmouth Rd. (rear easement)	331-47	331-46	25
H1	Portsmouth Rd. (rear easement)	331-46	331-33	117
H1	Portsmouth Rd. (rear easement)	331-34	331-33	134
H1	Portsmouth Rd. (rear easement)	331-33	331-32	14
H1	Portsmouth Rd. (rear easement)	331-32	331-31	111
H1	Oakmont Rd. to Harvard Rd.	331-75	331-73	136
H1	Oakmont Rd. to Harvard Rd.	331-73	331-72	36
H1	Oakmont Rd. to Harvard Rd.	331-72	331-71	108
H1	Prospect Rd.	331-36	331-35	86
W3	Hillside Ct (west and south of)	431-66	431-59	361
Year 1				3,058

YEAR 2 – 2014/2015

Subbasin	Street Name	Structure # (From)	Structure # (To)	Approx. Length (Feet)
H1	Harvard Rd. easement	331-69	331-67	123
H1	Harvard Rd. easement	331-67	331-66	80
H1	Harvard Rd. easement	331-66	331-05	180
H1	Harvard Rd. easement	331-05	330-10	32
H1	Annerly Rd.	331-64	331-5A	117
H1	Annerly Rd.	331-5A	331-90	170
H1	Annerly Rd.	331-90	331-62	112
H1	Oakmont Ave.	331-08	331-06	226
H1	Oakmont Ave.	331-06	331-06A	326
H1	Oakmont Ave.	331-06A	331-04	57
H1	Harvard Rd.	331-05	331-06A	153
H1	Portsmouth Rd.	331-31	330-09	296
H1	Wildwood Ave.	331-2A	330-10	208
H1	Ranleigh Way (rear easement)	331-20	331-19	76
H1	Ranleigh Way (rear easement)	331-19	331-18	52
H1	Ranleigh Way (rear easement)	331-18	331-17	49
H1	Ranleigh Way (rear easement)	331-17	331-16	48
H1	Ranleigh Way (rear easement)	331-16	331-14	322
H1	Ranleigh Way	331-22	331-29	102
G2	Lake Ave.	402-93	402-86	50

G2	Lake Ave.	402-86	402-82	245
G2	Lake Ave.	402-82	402-81	24
G2	Lake Ave.	402-81	402-56	172
Year 2				3,220

YEAR 3 – 2015/2016

Subbasin	Street Name	Structure # (From)	Structure # (To)	Approx. Length (Feet)
P1	Wildwood Gar.	308-20	308-17	125
P1	Wildwood Gar.	308-22	308-19	100
P1	Wildwood Gar.	308-23	308-17	155
P1	Park Ln. (cul-de-sac SW of Oak Rd)	308-02	308-03	140
P1	Oak Rd	308-07	308-09	130
P1	Oak Rd.	308-2A	308-07	129
P1	Oak Rd.	308-2A	300-29	19
G7	Abbott Way	405-48	405-47	94
G7	Abbott Way	405-39	405-40	138
G7	190 Maxwelton	405-40	405-42	200
G7	Maxwelton Rd. & Moraga Ave.	400-73	400-72	202
G7	Monte Ave.	404-67	404-68(CO)	338
G7	Moraga Ave	405-1A	405-01	54
G7	Moraga Ave	405-01	405-03	416
G7	Moraga Ave	405-03	End	135
G7	Moraga Ave to Red Rock Ave.	400-65	400-64	178
G7	Moraga Ave./Mesa Ave.	400-56	405-04(CO)	282
G7	Moraga Ave.	400-75	400-73	292
Year 3				3,127

YEAR 4 – 2016/2017

Subbasin	Street Name	Structure # (From)	Structure # (To)	Approx. Length (Feet)
V1	Valant Pl. (north of cul-de-sac)	341-1A-11-10-09-08	340-07	450
V1	Valant Pl. (north of cul-de-sac)	CO-03, 340-08	340-03	350
V1	330 Hampton Rd.	341-2B	341-2C	105
V1	Glen Alpine Rd.	341-37	340-36	375
V1	Littlewood Dr.	343-08	343-07	132
V1	Littlewood Dr.	343-07	343-06	150
V1	Littlewood Dr.	343-16	343-15	136
V1	Littlewood Dr.	343-15	343-14	134
V1	Littlewood Dr.	343-14	343-12	56

V1	Littlewood Dr.	343-12	343-13	153
V1	Littlewood Dr.	343-12	343-08	135
V1	Littlewood Dr.	343-08	343-10	35
V1	Littlewood Dr.	343-10	343-11	60
V1	Littlewood Dr.	343-08	343-09	80
W6	Sheridan Av. (north of btw Sierra & Highland)	420-13	420-21	500
Year 4				2,851

For each year beyond the first four years, the rehabilitation program and anticipated funding noted above will continue by focusing on pipes requiring frequent maintenance due to such issues as root intrusion and sags, as well as on-going replacement of the remaining terra-cotta pipelines. Each year, maintenance records for the CCTV inspections and cleanings will be reviewed to determine if the annual work under this plan needs to be adjusted. If sufficient funds are available, sewer rehabilitation work may be combined into larger capital projects to take advantage of the economies of scale.

2. I/I Control and SSO Reduction Measures

In addition to the measures noted above for regular inspections, cleaning and root control, which greatly help to reduce the incidence of controllable SSO's*, along with the planned rehabilitation programs which help to reduce infiltration, the following activities are planned:

- Eliminate sources of Inflow and Rapid Infiltration in the system as identified by EBMUD through the CD Regional Technical Support Program (RTSP). Eliminate high priority sources within 24 months of notification and incorporate non-high priority sources into a capital improvement plan within 24 months of notification. In addition, notifications shall be made to property owners of illicit connections and private high priority sources, and appropriate enforcement actions shall be taken if required.
- The Sub-basin Flow Monitoring Program was completed in 2012 and the *Sub-basin Flow Monitoring and I&I Assessment Plan Report* was submitted to EPA on December 1, 2012 (review and comment by EPA pending). In conjunction with this Plan, the I&I Assessment report will be used to further target future main replacement programs. As noted previously, the prime focus is on remaining terra-cotta pipes. The first year of the program shown in Table 6 targets sub-basin H1, which has a “high” classification in the I&I Assessment Report.
- Continued activities under the Regional Sewer Lateral program.
- As sewer rehabilitation projects are done, the lower (street) portion of a private lateral is replaced. As the City has replaced approximately 67% of the mains, 67% of the lower laterals have been replaced. Lower laterals will continue to be replaced when mains are rehabilitated. In addition, the City will inspect and repair or rehabilitate as necessary all upper sewer laterals on City facilities within the first ten years of the Consent Decree.

*for the purposes of this plan, controllable SSO's are defined as ones that can be prevented by the City's operation and maintenance (O&M) and sewer rehabilitation programs. SSO's which are not controllable are those caused by foreign material and debris introduced into the City system by other agencies, property owners and/or contractors, root or debris intrusion from private sewer laterals, or from the actions and damage caused by other agencies or contractors, by severe natural conditions (such as storm events exceeding the design storm or earthquakes) or acts of vandalism.

3. Emergency Repair and Replacement Budget

The current sewer fund budget includes \$300,000 each fiscal year for emergency repair and replacement work.

The CD requires addressing any "acute defect" within one year of the inspection and assessment that identified the defect.

H. ANNUAL REPORTING

Beginning in 2015, as part of its Consent Decree Annual Report, the City shall submit information to EPA summarizing the City's progress in implementing each element of the AMIP, including cleaning and inspection footages, and main and manhole rehabilitation rates, and must include any proposed revisions to the maintenance and construction schedules along with any accompanying changes to the financial plan. If any Acute Defect has not been addressed within one year of the inspection and assessment identifying it, the City shall explain what new information or changed circumstances warrant not addressing the Acute Defect. Refer to the Consent Decree for reporting details. The Annual Report shall be prepared by the Director of Public Works and the Deputy City Engineer in consultation with the Maintenance Department Supervisor.

APPENDIX A

Chapter 17A
BUILDING SEWERS¹

§17A.1	Definitions
§17A.2	Building Sewer Lateral Required
§17A.3	Prohibited Uses
§17A.4	Building Sewer Lateral Connection Bond and Building Permit
§17A.5	Building Sewer Lateral: Standards, Design, and Materials for Construction
§17A.6	Building Sewer Lateral Standards for Measurements, Tests, and Analyses
§17A.7	Abandonment of Existing Building Sewer Laterals
§17A.8	Building Sewer Lateral Maintenance and Required Inspection
§17A.9	Required Time of Compliance
§17A.10	Sewer Service Charges
§17A.11	Sewer Connection Charge Fund
§17A.12	Septic Tanks and Cesspools Prohibited
§17A.13	Cost Recovery – Building Sewer Lateral Overflows
§17A.14	Administrative Penalties – Non Compliance
§17A.15	Adoption of the EBMUD Regional PSL Ordinance

SECTION 17A.1 DEFINITIONS

Unless otherwise defined by this Code, terms in this chapter shall be as defined in the latest editions of American Public Works Association Standard Specifications for Public Works Construction, the California Plumbing Code, and the Standard Methods for the Examination of Water and Wastewater, published jointly by the American Public Health Association, the American Water Works Association, and the Water Pollution Control Federation.

- (a) APWA: shall refer to the American Public Works Association
- (b) ASTM: shall refer to the American Society for Testing and Materials.
- (c) BUILDING SEWER LATERAL: The section of sewer pipe that carries sewage and liquid waste from a point two (2) feet from the building or structure served, up to and including the connection to the public sewer. The building sewer lateral is comprised of the upper and lower sewer lateral and is the sole responsibility of the property owner.
- (d) CCTV: shall refer to a closed-circuit television method of inspecting any underground sewer piping system.
- (e) CITY: When used herein shall refer to the City of Piedmont

1-4600 et seq. As to authority of city to construct, establish and maintain drains and sewers, see Gov. C., Section 38900. As to sewer right-of-way law of 1921, see Gov. C., Section 3900 et seq. As to trees obstructing sewers, etc., declared a nuisance, see section 12.13 of this Code. As to sewers in subdivisions, see Section 19.24.

(f) **CLEANOUT:** A segment of pipe connected to a building sewer lateral which rises vertically to the ground surface and provides access to the building sewer lateral for purposes of routine inspection, flushing, and servicing in order that the building sewer lateral remain free-flowing.

(g) **CODE:** Shall refer to Chapter 17A of the Piedmont Municipal Code.

(h) **COMPLIANCE CERTIFICATE:** A certificate issued by EBMUD indicating that a building sewer lateral complies with the requirements as set forth in the EBMUD Regional PSL Ordinance No. 311, Title VIII.

(i) **DIRECTOR:** Shall mean the Director of Public Works for the City of Piedmont and his authorized representative.

(j) **EBMUD or DISTRICT:** The East Bay Municipal Utility District, Special District No. 1

(k) **EBMUD REGIONAL PSL ORDINANCE:** Shall refer to East Bay Municipal Utility District Ordinance 311, Title VIII, Regulation of Private Sewer Laterals, its implementation and any future amendments or modifications thereto.

(l) **FOG:** Shall refer to Fats, Oils, and Grease in the sanitary sewer system.

(m) **INFILTRATION and INFLOW (I/I):** Stormwater that enters a sanitary sewer system intended only for wastewater flows.

(n) **LOWER SEWER LATERAL:** That part of the building sewer lateral extending from the property line and/or two-way cleanout to the publicly-owned sewer main.

(o) **NOTICE TO PROCEED:** A written notice from the City specifying that the temporary City action preventing the repair or replacement of any part of the building sewer lateral is lifted and further, that the property owner shall proceed with the repair or replacement of that part of the building sewer lateral such that it is completed and the appropriate Compliance Certificate be obtained within the specified time limit set by the Director.

(p) **NOTICE OF VIOLATION:** A written notice from the City specifying that a building sewer lateral is not in compliance with this Code .

(q) **PLUMBING CODE:** Shall refer to the latest adopted edition of the California Plumbing Code.

(r) **PUBLIC SEWER:** The publicly-owned collection system that carries sewage and liquid waste from building sewer laterals to the wastewater treatment facilities.

(s) **REPAIR:** For purposes of this Code, "repair" means a spot mending of an

existing building sewer lateral to address a specific section of pipe that is not in compliance with this Code.

(t) **REPLACEMENT:** For purposes of this Code, “replacement” means that entirely new underground pipes, fittings, joint connections, clean-outs, caps, and other required components of the new building sewer lateral are installed and constructed in conformance with this Code. Complete lining of an existing building sewer lateral in conformance with this Code shall also be considered a replacement.

(u) **SANITARY SEWER SYSTEM:** The entire wastewater collection system including public sewers and all building sewer laterals.

(v) **SEWER MAIN:** the publicly owned sanitary sewer piping system.

(w) **STORMWATER:** natural occurring water created by the weather, underground springs, and surface or subsurface drainage of said water.

(x) **UPPER SEWER LATERAL:** That part of the building sewer lateral extending from the property line and/or cleanout, running on private property to the building or structure served. When an upper sewer lateral connects to a rear or side yard sewer main located on private property in an easement, the entire lateral, including the connection to the sewer main, shall be considered the building sewer lateral.

(y) **VERIFICATION TEST:** A specific on-site testing of the building sewer lateral established by EBMUD to assure compliance with the EBMUD Regional PSL Ordinance and this Code.

(z) **WASTEWATER:** All sewage, industrial and other waste and waters, whether treated or untreated, discharged into or permitted to enter a sanitary sewer system.

SECTION 17A.2 BUILDING SEWER LATERAL REQUIRED

(a) **Building Sewer Lateral Required:** Every building in which plumbing fixtures are installed and every premise having waste drainage piping shall have a connection to the public sewer in conformance with this Code.

(b) **No Direct Discharges to Public Sewers:** No person shall discharge any substance directly to a manhole or other opening in a public sewer other than through an approved building sewer lateral except with the written approval of the Director.

(c) **Cleanout Required.** In addition to the required building sewer lateral as defined in Section 17A.2 (a) above, the property owner shall be responsible for the installation of a two (2) way cleanout in the building sewer lateral between the upper and lower lateral in a location approved by the Director. Such cleanout shall be a double-wye conforming to the City of Piedmont Standard Details.

SECTION 17A.3 PROHIBITED USES

(a) Limitation on Use.

1. Use of the sanitary sewer system is limited to the discharge of sewage and/or industrial wastes in such a quantity and of such a quality as shall not endanger the condition, operation or capacity of the sanitary sewer system and the wastewater treatment facilities.
2. No person shall discharge, deposit, or throw into a building sewer lateral or the sanitary sewer system, any substance which may cause an obstruction or damage to the sewer system, or which may cause a nuisance or hazard, or which will in any manner obstruct the efficient operation or maintenance of the sewer system treatment facilities.

(b) Stormwater and Groundwater Prohibited. It shall be unlawful for any person to discharge any stormwater, surface water, groundwater, roof runoff or subsurface drainage into any building sewer lateral or public sewer.

(c) Prohibited Discharges. No discharge shall be made to a building sewer lateral or public sewer that does not meet all requirements set by the City or the District. No one required by the City or the District to have a waste discharge permit shall discharge to a building sewer lateral or public sewer without a valid permit from the City or the District.

(d) Additional Prohibited Uses. No person shall discharge any of the following waters or waste into a building sewer lateral or the sanitary sewer system:

1. Any unpolluted industrial process water.
2. Any liquid or vapor having a temperature detrimental to the sewer system.
3. Any gasoline, benzene, naphtha, fuel oil, or other flammable or explosive liquid, solid, or gas.
4. Any water or waste which contains fats, oils, or grease in excess of those standards established by EBMUD and the City.
5. Any garbage, except garbage from dwellings and establishments where food is prepared and consumed on the premises, and which has been ground to such a degree that all particles will be carried freely under the flow conditions prevailing in the public sewers. No particle shall in any event be greater than 3/8-inch in any dimension.
6. Any sand, cement, lime, plaster, cinders, ashes, metal, glass or other heavy solids; any straw, shavings, animal hair, feathers, paunch manure or other fibrous matter; any tar, asphalt, resins, plastics or other viscous substance;

or any other matter of such a nature as to obstruct the flow in sewers or cause other interference with the proper operation of the sewer system.

7. Any waters or wastes containing excessive amounts of acid, alkali, or dissolved sulfide, or having any other corrosive property capable of causing damage or hazard to sanitary sewer system structures, equipment or personnel.
8. Any waters or wastes containing a toxic or poisonous substance in sufficient quantity to injure or interfere with the operation and maintenance of the sanitary sewer system.
9. Any waters or wastes containing more than 500 milligrams per liter of suspended solids.
10. Any noxious or malodorous gas or substance capable of creating a public nuisance.
11. Any radioactive wastes.
12. Any waste having more than 1 milligram per liter of sulfides.
13. Any waste having a pH of less than 5.5 or more than 10.5.
14. Any material that obstructs or prevents the effective maintenance or normal operation of the building sewer lateral or sewer main.

(e) Special Agreements. The City, the District, and any individual or industrial concern discharging any water or waster of unusual strength, character, composition or volume into the sanitary sewer system may enter into a contract permitting such discharge. If the discharge shall cause additional or extraordinary expense to the City, the individual or industrial concern shall be required to reimburse the City as determined by the Director.

(f) Sampling Structures. The Director shall have the right to require any property owner to construct and maintain, at their own expense, a sampling structure in an accessible location for the purpose of sampling and determining the flow of sewage or industrial wastes through their building sewer lateral. The design of the structure shall be completed by a licensed engineer approved by the Director.

SECTION 17A.4 BUILDING SEWER LATERAL CONNECTION BOND and BUILDING PERMIT

(a) Bond Required. If required by the Director, every person engaged in the business of installing building sewer laterals in the City, which installation will connect to any sewer main owned by the City, shall deposit with the City Clerk the sum of one thousand dollars (\$1,000) as a guarantee that all such installations will be accomplished in the manner specified

by the Director and in accordance with this Code. Said bond shall be held for one year following completion and acceptance of the installation. As an alternative to the deposit of cash as called for herein, this requirement may be satisfied (a) with a surety company bond in a form and with a bonding company acceptable to the City Clerk in the amount of the cash deposit of (b) with an interest bearing deposit in the amount of the cash deposit, which deposit would be assigned to the City in a form and with a depository acceptable to the city clerk, all for the purposes of carrying out the requirements set forth herein, and upon satisfactory compliance with such requirements, the bond or interest bearing deposit shall be released by the City.

(b) Permit Required. A written permit shall be obtained from the Director before construction, repair, or abandonment of a building sewer lateral. However, no permit shall be required for the clearance of sewer stoppages in a privately-owned building sewer lateral.

(c) Permit Application. The applicant or applicant's representative shall apply in person for the permit. No permit shall be issued until the following has been submitted by the applicant and approved by the Director.

1. Site plan showing the proposed location of the building sewer lateral including location of the connection to the public sewer and of all clean outs on the building sewer lateral.
2. List of materials that shall be used to construct the building sewer lateral.
3. Verification that the contractor to permit construction/repairs of the building sewer lateral has an active City business license.
4. Payment of sewer permit fees as follows:
 - a. For a new sewer connection and inspection thereof, the applicant shall pay the current New Sewer Connection Fee as set from time to time by a resolution of the City Council.
 - b. For replacement or repair of a building sewer lateral and inspection thereof, the permit fee shall be in accordance with the City Building Permit Fees as set from time to time by a resolution of the City Council.

(d) Form and Conditions of the Permit. The permit, when signed by the Director, shall constitute permission to do the work. The permit shall be void if the work is not commenced and completed within the period specified on the permit unless an extension of time is granted in writing by the Director. Permits shall not be transferable.

(e) Notice of Commencement of Work. The permittee shall give notice of the time of commencement of the work to the Director and Underground Service Alert, as required by law, at least forty-eight (48) hours before the work is started. Similar notice shall be given to the Police Department, Fire Department and utility companies if required on the permit.

(f) Revocation of Permit. The Director may revoke a building sewer lateral permit for non-compliance with any applicable laws or regulations.

(g) Final Inspection Unless otherwise deemed an exception by this Code, any building permit issued by the City for any property that is subject to the provisions of this Code and the EBMUD Regional PSL Ordinance shall not receive a Final Inspection unless a Compliance Certificate is issued by EBMUD and filed with the City.

SECTION 17A.5 BUILDING SEWER LATERAL: STANDARDS, DESIGN, and MATERIALS FOR CONSTRUCTION

(a) Standards:

1. All construction standards and methods shall comply with the City of Piedmont Standard Plans, the current adopted edition of the California Plumbing Code, the latest edition of the APWA Standard Specifications for Public Works Construction, applicable standard of the American Society for Testing and Materials, and the current edition of the EBMUD Regional PSL Ordinance. The Director shall be responsible for resolving possible conflicts between any of these standards.

(b) Design:

1. All aspects of the building sewer lateral design, including but not limited to the size, slope, and alignment, the method of excavation, placing of the pipe, testing of the building sewer lateral and the backfilling the trench shall be in conformance with this code, the current adopted edition of the California Plumbing Code, the latest edition of the APWA Standard Specifications for Public Works Construction, and the current edition of the EBMUD Regional PSL Ordinance. All connection joints shall be watertight and free of defects and shall conform to the standards as set forth in ASTM D 3212. All gaskets shall conform to the standard set forth in ASTM F477.

2. Any new connection of a new building sewer lateral to the sewer main, or any connection of a new building sewer lateral to an existing fitting at the sewer main, shall be inspected by the Director prior to the actual connection construction occurring for verification of the proper design, materials, and methods, which shall be in compliance with this Code. Unauthorized and non-conforming connections to the sewer main can only be repaired by the City. The cost of repairing any unauthorized or non-conforming connections to the sewer main shall be the responsibility of the property owner to which such connection serves.

3. Whenever possible, the building sewer lateral shall be brought to the building at an elevation below the basement floor. Within buildings where any interior building sewage drain is below the building sewer lateral such that proper flow via gravity as specified by this Code cannot be achieved, this sanitary sewage can be discharged by means of an approved mechanical sewage pump facility and discharged into the building sewer system. The design of said pumping system shall be in accordance with this Code, other applicable regulations, and receive the approval of the Director during the building permit plan check process.

(c) Materials:

1. All materials used in the construction, repair, or replacement of any building sewer lateral shall be in conformance with the City of Piedmont Standard Plans, the current adopted edition of the California Plumbing Code, the latest edition of the APWA Standard Specifications for Public Works Construction, applicable standard of the American Society for Testing and Materials.

SECTION 17A.6 BUILDING SEWER LATERAL STANDARDS for MEASUREMENTS, TESTS, and ANALYSES

(a) All measurements, tests, and analyses of the characteristics of waters, wastewaters and their conveyance to which reference is made in this Code, shall be determined in accordance with the latest editions of the EBMUD Regional PSL Ordinance , APWA Standard Specifications for Public Works Construction, the California Plumbing Code, and the Standard Methods for the Examination of Water and Wastewater, published jointly by the American Public Health Association and the American Water Works Association.

SECTION 17A.7 ABANDONMENT OF EXISTING BUILDING SEWERS

An existing building sewer lateral or its connection, which is to be abandoned shall be removed or sealed with a permanent, watertight plug at the connection to the public sewer in a manner satisfactory to the Director. All other openings of the abandoned building sewer lateral including plumbing connections, clean outs, rat holes, etc. shall also be similarly sealed.

SECTION 17A.8 BUILDING SEWER LATERAL: MAINTENANCE and REQUIRED INSPECTION

(a) Responsibility. It shall be the responsibility of the property owner to perform all required maintenance, repairs and inspections to keep the building sewer lateral in the condition as specified by paragraph (b)1 below.

(b) Required Maintenance.

1. The building sewer lateral must be maintained to meet the following minimum requirements:

- a. The building sewer lateral shall be kept free from roots, grease deposits, and other solids which may impede the flow or obstruct the transmission of waste.
- b. All joints shall be tight and all pipes shall be sound to prevent exfiltration by waste or infiltration by groundwater or stormwater.
- c. The building sewer lateral pipe shall be free of any structural defects, cracks, breaks, or missing portions and the grade shall be uniform without

sags or offsets.

d. No area drains, foundation drains, roof leaders, sump pumps or other direct connections that allow stormwater or groundwater into the building sewer lateral will be allowed.

e. The building sewer lateral shall have a two-way clean out located approximately at the property line or, in the case where the building sewer is all within private property, in a location approved by the Director. All clean outs shall be securely capped with an approved cap at all times, except during maintenance activities.

f. The building sewer lateral shall be free from breaks, openings, and rat holes.

g. The building sewer lateral shall be free of any material that obstructs or prevents the effective maintenance or normal operation of the building sewer lateral or the City sewer main.

h. . Property owners and food service operators are required to control the discharge of fats, oils, and grease (FOG) into the sanitary sewer system from their properties or food service establishments, and not cause or contribute to FOG related sanitary sewer overflows, blockages, or increased maintenance in the sanitary sewer systems according to the current standards established by EBMUD and the City.

2. The Director shall determine the criteria and acceptable methods of evaluating building sewers to ensure compliance with the above requirements.

(c) Required Inspections, Replacement and Compliance Certificate

1. OWNER RESPONSIBILITIES:

It shall be the responsibility of the property owner to perform all required inspections of their building sewer lateral, obtain all required building permits, perform all required construction, schedule and pass the EBMUD Verification Test, obtain and file with the City, a Compliance Certificate from EBMU, and obtain a Final Inspection from the City for their building sewer lateral when one or more of the following triggering events occurs:

a. TITLE TRANSFER:

Prior to the sale or transfer of an entire real property estate or the fee interest in that real property estate and does not include the sale or transfer of partial interest, including a leasehold. In addition, the following shall not be considered a “title transfer” for purposes of Chapter 17A:

to

(i) transfer by a fiduciary in the course of the administration of a decedent's estates, guardianship, conservatorship, or trust.

(ii) transfer from one co-owner to one or more other co-owners, or from one or more co-owners into or from a revocable trust, if the trust is for the benefit of the grantor or grantors.

(iii) transfer made by a trustor to fund a living trust.

(iv) transfer made to a spouse, to a registered domestic partner as defined in Section 297 of the State of California Family Code, or a person or persons in the lineal line of co-sanguinity of one or more of the transferors.

(v) transfers between spouses or registered domestic partners resulting from a decree of dissolution of marriage or domestic partnership, or a decree of legal separation or from a property settlement agreement incidental to a decree.

b. CONSTRUCTION and REMODELING:

Whenever a property owner or authorized agent applies for a building permit for any type of construction on the subject property that exceeds \$100,000 in construction cost.

c. CHANGE IN WATER SERVICE SIZE:

Whenever a property owner or authorized agent applies to EBMUD to increase or decrease the size of the property's water meter.

d. NOTICE OF VIOLATION:

Whenever a property owner or authorized agent has received a written Notice of Violation from the City with respect to the condition of the building sewer lateral based on testing conducted by the City or its authorized representative.

e. CITY INSPECTION:

Whenever the property owner or authorized agent has received a written communication from the City with respect to the condition of the building sewer lateral based on observations from the City or its authorized representative.

2. INDIVIDUALLY OWNED UNITS IN A MULTI UNIT BUILDING:

For all individually-owned units within a multi-unit building, such as a condominium, which is served by a single or shared building sewer lateral(s) the homeowners' association or the responsible party for this type of multi-unit building, shall be responsible for compliance to the following requirements within ten (10) years of the adoption of this Code.

- a. authorize the required inspection(s) to determine if the building sewer lateral(s) serving said property are, as determined by the Director, in compliance with this Code and the EBMUD Regional PSL Ordinance.
- b. if repair or replacement is required by the Director, obtain the required building permit, perform such work, and obtain the required inspections as specified by this Code.
- c. obtain a Compliance Certificate from EBMUD as specified in the EBMUD Regional PSL Ordinance and a Final Inspection from the City as specified in this Code.

3. EXCEPTIONS

- a. A property owner of a structure may request an exemption from EBMUD if the building sewer lateral is less than 10 years old from the date of any triggering event described above, and said property owner provides a valid building permit showing that the building sewer lateral was replaced in total, received a Final Inspection, and said building sewer lateral is deemed by the Director to not otherwise be in violation of this Code.
- b. If at the time of repair or replacement of any building sewer lateral, there is an action in place by the City that would prevent the repair or replacement of the lower sewer lateral in compliance with this Code, the City may temporarily waive the requirements of this Code for the lower sewer lateral. In such case, a Compliance Certificate will only be required for the upper sewer lateral. Upon conclusion of the City action, the City will rescind the waiver and shall issue a Notice to Proceed to the affected property owner, now directing them to complete the repair or replacement of the lower sewer lateral within a specific time limit such that the lower sewer lateral will be in compliance with this Code and the EBMUD Regional PSL Ordinance. Failure to obtain a valid Compliance Certificate for the lower sewer lateral in a timely manner and to otherwise not comply with the terms in the Notice to Proceed shall constitute a violation of this Code and will be subject to enforcement by the City according to this Code.

SECTION 17A.9 REQUIRED TIME OF COMPLIANCE

(a) It shall be the responsibility of the property owner to comply with all time limits set forth by the Director for any work related to this Code that is pertinent to their property. The time limit for compliance will be established by the Director and specified in the first written communication and/or Notice of Violation to the property owner. Non-compliance in excess of said time limits may be deemed a violation of this Code and could subject the property owner to Cost Recovery and Administrative Penalties as specified in this Code.

(b) Emergency Work

Nothing in this Code shall prevent any reasonable person from doing such work and making such excavations as may be necessary for the preservation of life or property when such necessity arises; provided, however, that the person doing such work or excavations shall obtain a building permit as specified in this Code on the next working day.

(c) Right of Entry

The Director may enter, inspect, and test any buildings, structures, or premises to secure compliance or prevent a violation of any portion of this Code. No premises shall be entered until a reasonable notice is given to the property owner or authorized agent except to protect life or public safety.

(d) Emergency Work by City

1. Whenever, in the opinion of the Director, the public health, safety, or welfare shall require that repairs or protective measures to a building sewer lateral be made or instituted immediately, he is hereby authorized to proceed with all necessary work to abate the condition and may enter upon private property for such purpose. He may erect and maintain all necessary barricades, warning lights, and other protective devices upon public or private property. He shall notify the owner of the premises as the circumstances shall permit.

2. The owner of the property upon which the condition exists and the person creating such condition shall be jointly and severally liable to the City for all costs incurred by it in abating the emergency condition and erecting and maintaining said protective devices.

(e) Order to Abate

The Director shall investigate all dangerous and unsanitary conditions existing in or about building sewers laterals and shall periodically require that building sewer laterals be tested. If such a condition is a menace to life, health, safety, or property, or is in violation of law, he shall, in writing, order the owner of the premises to discontinue use of the sewer, or to discontinue all construction work with respect to the sewer, and to abate the condition in such manner as shall comply with the law. Any stoppage in the building sewer lateral or break in the watertight integrity of the building sewer lateral shall be conclusively presumed to be a menace to life, health, safety or property for purposes of requiring abatement of such a condition.

(f) Time Requirement for Emergency Building Sewer Lateral Repair

Upon notification by the City of a faulty building sewer lateral which has been deemed an emergency situation by the Director, the property owner shall repair or replace said faulty building sewer lateral within forty-eight (48) hours from the date of notification, verbal or

written. If the property owner fails to comply with said order, the City shall have the right to make or have made the necessary repairs and recover said costs as authorized by this Code.

SECTION 17A.10 SEWER SERVICE CHARGES

(a) Every person owning real property which is connected to the City sanitary sewer facilities shall pay a charge for sewer service based upon the use of such property in accordance with Chapter 20E of the Municipal Code

SECTION 17A.11 SEWER CONNECTION CHARGE FUND

The Sewer Connection Charge fund is hereby established. Money collected by the City for sewer connection charges as herein set forth shall be placed in the Sewer Connection Charge Fund and shall be used only to expand the capacity of the sewer system by construction or modification and activities required thereby.

SECTION 17A.12 SEPTIC TANKS and CESSPOOLS PROHIBITED

Septic tanks and cesspools are specifically prohibited in the City notwithstanding any statement in the latest adopted edition of the Plumbing Code to the contrary. (Ord. No. 479 N.S., §2 (11/3/86))

SECTION 17A.13 COST RECOVERY – BUILDING SEWER LATERAL OVERFLOWS

The City shall have the authority to recover from the property owner, the City's expenses incurred in responding to, abating, or repairing any sewer overflow from a defective building sewer not otherwise addressed by the property owner in a timely manner as specified in this Code. The City may collect the incurred costs by use of all legal means, including the recordation of a lien against said property.

SECTION 17A.14 ADMINISTRATIVE PENALTIES – NON COMPLIANCE

The City shall have the authority to assess administrative penalties on the property for the property owner's failure to meet any requirement of this code, or for continued violation of any requirement of this code, according to the following schedule. The City may collect the incurred costs by use of all legal means, including the recordation of a lien against said property. The City shall have the authority to waive, suspend, or otherwise modify any administrative penalty established by this code.

(a) \$500 for the first violation which remains out of compliance in excess of the time limit established in the first Notice of Violation.

(b) \$1,000 for the second violation occurring within three(3) years of the first violation.

(c) \$2,500 for each additional violation exceeding two (2) violations within three (3) years of the first violation.

SECTION 17A.15 ADOPTION of the EBMUD REGIONAL PSL ORDINANCE

The East Bay Municipal Utility District Ordinance 311, Title VIII, Regulation of Private Sewer Laterals is hereby adopted by reference. The City Council may from time to time designate by resolution, any amendments or modifications to the ordinance thereto, as the ordinance may be periodically revised by the District. One copy of the EBMUD Regional PSL Ordinance shall be kept on file at the Department of Public Works.

APPENDIX B

**City of Piedmont
California**



MEMORANDUM

Date: March 14, 2007
To: Russell Moore, City Engineer
From: George Peyton, City Attorney
Subject: Access to City Sewers on Private Property

SUMMARY

The City of Piedmont is able to access sewers located on private property for repairs, maintenance or reconstruction based on a series of means.

BACKGROUND

Parts of Piedmont were laid out around the turn-of-the-century before the City was officially incorporated, so that a number of sewers in the City were initially built many years ago, and some do not have clearly recorded easements. It has been my practical experience as the City Attorney and the Deputy City Attorney since 1966 that I have never encountered any legal problem with the City gaining access to repair or maintain or rebuild sewers, specifically including sewers that are located on private property.

ANALYSIS

There are various legal means for the City to obtain access to sewers located on private property, as follows:

1. The City itself has a series of provisions in the Piedmont City Code under Chapter 17A relating to sewers, building sewers, and maintenance thereof. In Section 17A.8 of the Piedmont City Code there is a specific provision entitled "Right of Entry", allowing the Director of Public Works the right to carry out the provisions of Section 17A of the Code.
2. Assuming that the City desires legal access to a City sewer on private property in an unrecorded sewer easement, the City can claim title to the property based on adverse possession.

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March 14, 2007
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3. Another legal basis for cities to acquire access to easements is through easements by right of prescription, and an important case based on this reasoning is Reinsch v. City of Los Angeles, 243 Cal. App. 2d 737, 744, 52 Cal. Rptr. 613 (1966). There are various requirements for an easement by prescription, including the fact that it has been used continuously for at least 5 years. In Piedmont's situation, these unrecorded sewer easements have been used by the City in most cases well in excess of 50 years, and often for a least 75 or 80 years. The Reinsch case dealt with the City of Los Angeles having the right of access to a storm sewer or drain where there was no recorded easement involved, but there was evidence that the City had used the storm sewer for many years, just as in the case in Piedmont.

4. An additional legal approach to access for an unrecorded easement is on the basis of implied dedication, particularly with evidence of acquiescence, or consent of the private property owner. An important case for this precedent is Union Transportation Company v. Sacramento County, 42 Cal. 2d 235, 241, 267 P.2d 10 (1954).