



Section 1—Capital Improvement Program

1.1 Introduction

Projects that have been included in the Capital Improvement Program (CIP) were primarily based on the assessment of the conditions of pipelines and manholes from Closed Circuit Television (CCTV) inspection and results from hydraulic modeling. The CCTV inspection identifies particular deficiencies associated with the inspected pipelines and manholes and recommends the appropriate improvement method for each situation. The CCTV recommendations may include the following: pipeline spot repair, trenchless rehabilitation, open trench replacement, manhole rehabilitation, and manhole replacement. The CCTV recommendations are shown on Exhibit A. The locations of all pipelines inspected during the CCTV inspection are shown in Exhibit B. These pipelines were selected as a statistical sample closely representative of the entire system based on a distribution of pipe diameter, pipe material, and year of construction. These pipelines constituted approximately 15% of the total system. The hydraulic modeling effort resulted in the identification and/or confirmation of undersized pipelines and the recommended diameters for upsizing critical pipeline segments. Projects for system studies and further CCTV inspections as well as budgeting for future expected improvements has also been included. The CIP identifies projects for implementation over the next 10 years (through 2020).

1.2 Priority Criteria

Projects were generally prioritized in the following order:

- Projects resulting from CCTV inspections (condition assessments)
- CCTV Inspection Program
- Projects resulting from hydraulic modeling results (pipe capacity deficiencies)
- System studies (Inflow and Infiltration)
- Repair and Rehabilitation Program

The most urgent projects were those resulting from the CCTV inspections already conducted. These recommendations are based on the severity of actual field observed conditions. The CCTV Inspection Program was assigned the





second highest priority so the City could complete the inspection of the entire sewer system and assess the level of funding necessary to complete the repair and rehabilitation of the system.

Projects resulting from hydraulic modeling results have been assigned the third highest priority since they are based on results from a computer simulation of the system. Although the hydraulic model is considered an accurate representation of the City's system, the model results should be field verified by a CCTV inspection prior to performing the recommended improvements. As part of the CCTV Inspection Program, the pipe segments inspected first will be those determined to be deficient by the hydraulic model.

Special consideration has been given to CIP Project 07-000, Infiltration and Inflow Study, since determining the presence of cross connections and sources of infiltration and inflow were considered a high priority.

The Repair and Rehabilitation Program would be implemented towards the latter half of the CIP. The Repair and Rehabilitation Program will be the resulting projects from the CCTV Inspection Program, which will represent a considerable cost. The purpose of completing the CCTV Inspection Program early in the CIP is to allow the City to take the necessary measures to provide funding for these projects. For the purposes of this CIP, the costs used for the Repair and Rehabilitation Program were based on the statistical analysis of the 2009 CCTV inspection, discussed further in Section 7 of the Master Plan.

1.3 Project Cost

The projects have been distributed over a 10-year period. The estimated construction cost for each improvement project was based on the construction cost parameters that are shown in Table 1-1. Construction cost parameters are based on recent construction bid results of similar projects as well as engineering experience. Construction contingencies as well as engineering and administration fees have been included in the individual project costs. The costs shown in Table 1-1 are budgetary unit costs to assist the City in estimating the costs of future projects.





Table 1-1: Construction Cost Basis

[INSERT]





CITY OF BEVERLY HILLS

Sewer Master Plan

Σχτιον 1 □ Χαπιταλ Ιμπροπεμεντ Προγραμ





1.4 Capital Improvement Program Summary

The 10-year CIP is shown in Table 1-2. The CIP includes the project identification, project title, implementation year, and estimated construction cost. Detailed project sheets with exhibits have also been included in Section 1.6. The recommended budget for the 10-year CIP is \$39M, which includes the repair and rehabilitation of the entire system over the 10-year period.





Table 1-2: 10-year Capital Improvement Program

[INSERT]





1.5 Capital Improvement Project Numbering Convention

Each CIP project has been assigned a five-digit identification number consisting of a two-digit prefix and a three-digit suffix, for example: 01-100. The two-digit prefix indicates the principal project, while the three-digit suffix indicates the specific individual project type. This numbering convention allows for project organization by project type and allows for the easy addition and deletion of projects. See Table 1-3 for the CIP numbering convention.

Table 1-3: Capital Improvement Program Numbering Convention

Two-digit Prefix Guide		Three-digit Suffix Guide	
No.	Description	No.	Description
01	CCTV Area 1 Improvement Projects	000	General Project / Program
02	CCTV Area 2 Improvement Projects	001 - 100	Pipeline Complete Open Trench Replacement
03	CCTV Area 3 Improvement Projects	101 - 200	Pipeline Complete CIPP Lining
04	Hydraulic Capacity Analysis Improvements - Peck Drive Pipeline	201 - 300	Pipeline Spot Repair
05	Hydraulic Capacity Analysis Improvements - Gregory Way Pipeline	301 - 400	Manhole Replacement
06	Hydraulic Capacity Analysis Improvements - Oakhurst Drive Pipeline	401 - 500	Manhole Rehabilitation
07	Infiltration and Inflow Study	501+	Misc. / As needed
08	CCTV Inspection Program		
09	Repair and Rehabilitation Program		
10+	Misc. / As needed		

1.6 Capital Improvement Projects

This section includes detailed information regarding each individual CIP project, including a project description, costs involved, as well as project locations and the breakdown of specific project elements where necessary. The following projects have been included in the CIP and are discussed herein.





1.6.1 CCTV Area 1 Improvement Projects

This project includes the rehabilitation and replacement of selected sewer pipelines and manholes within CCTV Area 1 based on CCTV inspections. Area 1 is defined specifically in CCTV and Manhole Inspection Report 1 (separate) and is located generally in the northern portion of the City, as shown in Exhibit B. See the table for Project 01-000 and Exhibits 1A-1C for the project facilities and locations.

1.6.2 CCTV Area 2 Improvement Projects

This project includes the rehabilitation and replacement of selected sewer pipelines and manholes within CCTV Area 2 based on CCTV inspections. Area 2 is defined specifically in CCTV and Manhole Inspection Report 2 (separate) and is located generally in the southwestern portion of the City, as shown in Exhibit B. See the table for Project 02-000 and Exhibits 2A-2C for the project facilities and locations.

1.6.3 CCTV Area 3 Improvement Projects

This project includes the rehabilitation and replacement of selected sewer pipelines and manholes within CCTV Area 3 based on CCTV inspections. Area 3 is defined specifically in CCTV and Manhole Inspection Report 3 (separate) and is located generally in the southeastern portion of the City, as shown in Exhibit B. See the table for Project 03-000 and Exhibits 3A-3B for the project facilities and locations.

1.6.4 Hydraulic Capacity Analysis Improvements - Peck Drive Pipeline

This project includes the upsizing and replacement of selected sewer pipelines and manholes along Peck Drive as determined from the hydraulic capacity analysis. This project has been assigned the highest priority out of the three hydraulic capacity projects as it has the highest number of identified deficiencies under dry weather conditions. See Exhibit 4 for the project limits.

A preliminary evaluation was conducted to determine potential alternatives that should be investigated to further reduce the amount of pipelines that needed upsizing. This could include a sewer diversion that would route flow away from the undersized pipelines. It could also include an alternative pipeline alignment.





In regards to alternatives, the segment in Olympic Boulevard between Beverly Drive and Peck Drive could potentially be relieved if a portion of the flow could be diverted to the parallel line in the alley just north of Olympic Boulevard. The segment in Crescent Drive could potentially be relieved if a portion of the flow could be diverted to the alley east of Crescent Drive.

It should be noted that for sewers located in older cities that are fully built-out, sewer diversions and alternative alignments can be difficult to implement due to utility conflicts and existing sewer elevations. These considerations should be further investigated during preliminary design of the proposed pipeline.

1.6.5 Hydraulic Capacity Analysis Improvements - Gregory Way Pipeline

This project includes the upsizing and replacement of selected sewer pipelines and manholes along Gregory Way as determined from the hydraulic capacity analysis. This project has been assigned the second highest priority out of the three hydraulic capacity projects as it has a moderate number of identified deficiencies under dry weather and wet weather conditions. See Exhibit 5 for the project limits.

A preliminary evaluation was conducted to determine potential alternatives that should be investigated to further reduce the amount of pipelines that needed upsizing. This could include a sewer diversion that would route flow away from the undersized pipelines. It could also include an alternative pipeline alignment.

In regards to alternatives, a pipeline could be constructed in Charleville Boulevard to intercept the flow from the north and send flow to Robertson Boulevard. This would potentially relieve the deficiency in Gregory Way, however it would still require construction of a new pipeline.

As mentioned previously, for sewers located in older cities that are fully built-out, sewer diversions and alternative alignments can be difficult to implement due to utility conflicts and existing sewer elevations. These considerations should be further investigated during preliminary design of the proposed pipeline.





1.6.6 Hydraulic Capacity Analysis Improvements - Oakhurst Drive Pipeline

This project includes the upsizing and replacement of selected sewer pipelines and manholes along Oakhurst Drive as determined from the hydraulic model capacity analysis in the Master Plan. This project has been assigned the lowest priority out of the three hydraulic capacity projects because the deficiencies were identified primarily under wet weather conditions. See Exhibit 6 for the project limits.

It should be noted that there are four pipe segments on Oakhurst Drive located south of Burton Way that are not recommended for upsizing. These pipe segments have a significantly greater slope than the adjacent pipe segments being recommended for upsizing. The greater slope equates to greater hydraulic capacity, so these segments do not require upsizing. See the attached table and exhibits for the project locations.

A preliminary evaluation was conducted to determine potential alternatives that should be investigated to further reduce the amount of pipelines that needed upsizing. This could include a sewer diversion that would route flow away from the undersized pipelines. It could also include an alternative pipeline alignment.

In regards to alternatives, the segment in Oakhurst Drive could potentially be relieved if a portion of the flow could be diverted to the northeast or southwest on Santa Monica Boulevard, immediately upstream of the deficient segment, and then flow south in the parallel alignments to Oakhurst Drive.

As mentioned previously, for sewers located in older cities that are fully built-out, sewer diversions and alternative alignments can be difficult to implement due to utility conflicts and existing sewer elevations. These considerations should be further investigated during preliminary design of the proposed pipeline.

1.6.7 Infiltration and Inflow Study

This project includes a detailed infiltration and inflow study to further study sewer basins LC01, ECR, AZ01 and WH01 (ordered by importance) to identify causes of infiltration and inflow within the sewer system. This project includes system inspection by smoke testing and dye tracing to determine direct connections into the system. See Exhibit 7 for basin locations.





1.6.8 CCTV Inspection Program

CCTV inspection is a critical component to the City's overall assessment of the sewer system. Approximately 15% of the sewer system was inspected in 2009, and 1% of the system was inspected in 2007. A CCTV Inspection Program has been established to complete the CCTV of the remaining 84% of the system, and to rehabilitate the system based on the CCTV inspections.

The CCTV Inspection Program has been divided into two phases based on priority. The Phase 1 inspections include the following:

- Phase 1A: Pipe segments along Peck Drive, Gregory Way, and Oakhurst Drive that were determined in the Master Plan to be hydraulically deficient
- Phase 1B: Concrete pipes

Phase 1 includes a total of 138,000 LF and represents approximately 27% of the system. It should be noted that the criteria established was used to generally group pipelines. Pipelines may have been included that did not meet the specific criteria, but were in logical locations to include in Phase 1. The limits for Phase 1A and Phase 1B are shown on Exhibit 8.

Phase 2 includes the remaining pipe segments that were not inspected in 2009 by RBF, in 2007 by Psomas, or in Phase 1 of the CCTV Inspection Program. The Phase 2 inspections shall be divided into sub-phases, similar to Phase 1:

- Phase 2A: Pipe segments located north of Santa Monica Boulevard
- Phase 2B: Pipe segments located south of Santa Monica Boulevard

Phase 2 includes a total of 296,000 LF and represents approximately 57% of the system. The limits for Phase 2A and Phase 2B are shown on Exhibit 8.

Phase 1 and Phase 2 of the CCTV Inspection Program should be implemented in the first two consecutive years of the CIP (starting in 2010). Once this is completed, the City will have their entire sewer system





inspected by 2011. Starting in 2014, the City can implement a less aggressive CCTV Inspection Program where only 20% of the system is inspected each year, so the entire system is completely inspected every five years.

1.6.9 Repair and Rehabilitation Program

The Repair and Rehabilitation Program is a yearly program to rehabilitate the entire City sewer system over the 10-year CIP. The projects included in the program will be based on the results from Phase 1 and Phase 2 of the CCTV Inspection Program. The repair and rehabilitation required from the CCTV inspections conducted in 2009 have been included as separate projects (CCTV Area 1, 2, and 3), to be implemented in the first years of the CIP. The costs to repair the remainder of the system were determined from the statistical analysis in Section 7 of the Master Plan.



Table 1-1
City of Beverly Hills
Sanitary Sewer Collection System Master Plan

CIP Construction Cost Basis Parameters

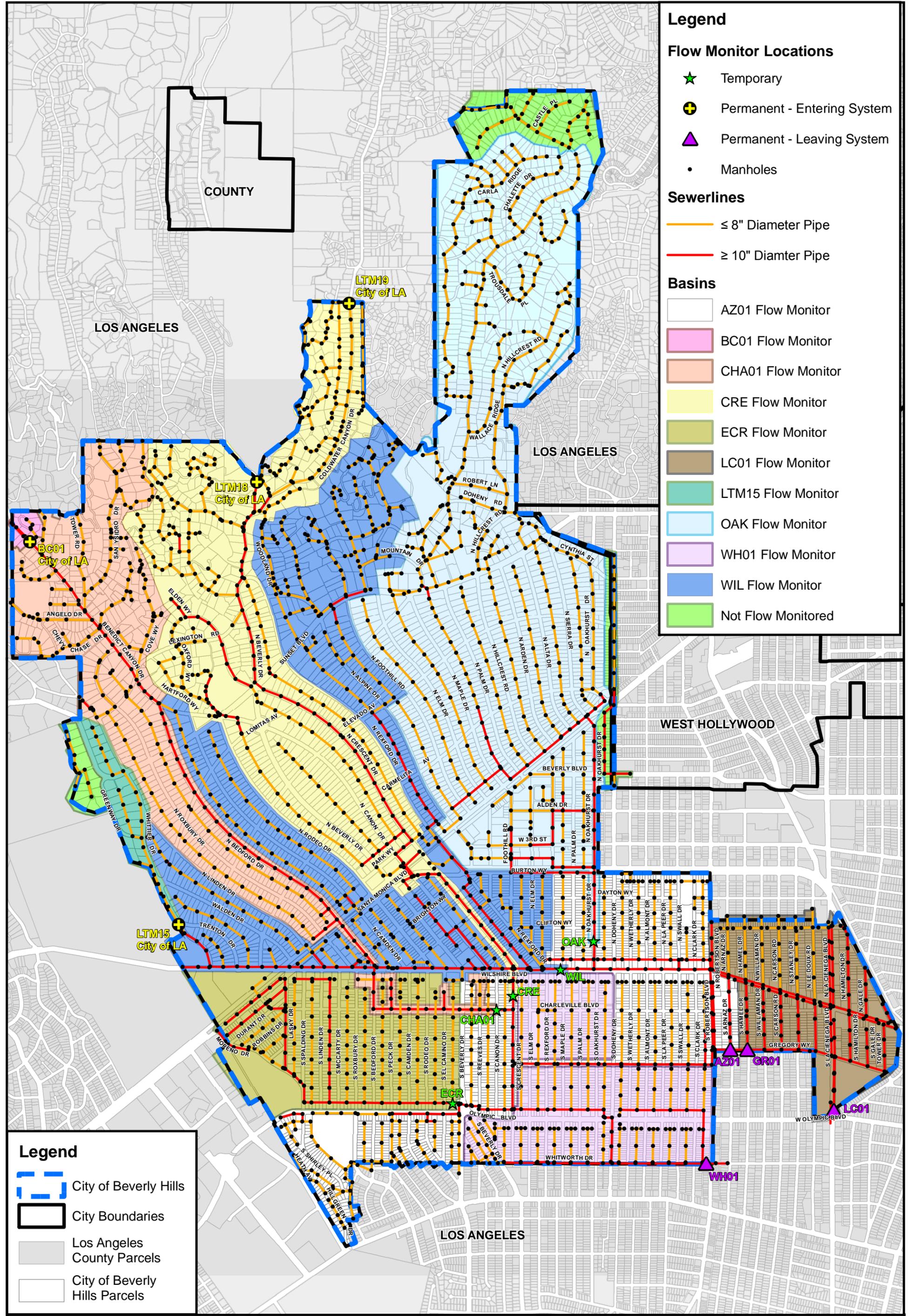
Description	Unit Cost	
Cleaning		
Manhole Cleaning With Confined Space	\$2,000.00	EA
<u>Hydro Scour Cleaning</u>		
Hydro Scour 6" - 10" dia Pipe Cleaning	\$2.20	LF
Hydro Scour 12" - 24" dia Pipe Cleaning	\$2.50	LF
Hydro Scour 27" - 36" dia Pipe Cleaning	\$10.00	LF
<u>Root Removal</u>		
Lateral Root Removal after Clean Out Installed	\$300.00	EA
Further Inspection Required		
<u>CCTV Inspection</u>		
CCTV Inspection 6" to 12" Diameter	\$1.10	LF
CCTV Inspection 15" to 36" Diameter	\$2.20	LF
<u>Manhole Inspection</u>		
Manhole Location with Survey Crew (Updating GIS, determining precise coordinates)	\$1,800.00	EA
Confined Space Entry (3 Man Crew)	\$1,000.00	EA
Open Trench		
<u>Pipeline Excavation and Installation</u>		
8" - 18" Diameter Replacement 0 ft - 5 ft Deep	\$250.00	LF
8" - 18" Diameter Replacement 5 ft - 10 ft Deep	\$300.00	LF
8" - 18" Diameter Replacement 10 ft - 12 ft Deep	\$350.00	LF
8" - 18" Diameter Replacement 12 ft - 16 ft Deep	\$450.00	LF
8" - 18" Diameter Replacement 16 ft - 20 ft Deep	\$600.00	LF
(See notes below for pipes > 18" dia)		
21" Diameter Replacement 5 ft - 12 ft Deep	\$390.00	LF
24" Diameter Replacement 5 ft - 12 ft Deep	\$405.00	LF
27" Diameter Replacement 5 ft - 12 ft Deep	\$420.00	LF
30" Diameter Replacement 5 ft - 12 ft Deep	\$435.00	LF
32"/33" Diameter Replacement 5 ft - 12 ft Deep	\$455.00	LF
36" Diameter Replacement 5 ft - 12 ft Deep	\$475.00	LF
39" Diameter Replacement 5 ft - 12 ft Deep	\$500.00	LF
42" Diameter Replacement 5 ft - 12 ft Deep	\$525.00	LF
Note for pipes > 18" dia:		
1. For depths from 12 ft - 16 ft, increase above unit cost by \$150.		
2. For open trench installations deeper than 16 ft, unit costs increase significantly.		
Trenchless installations should be considered, such as microtunneling.		
External Point Repair 5 ft to 10 ft Deep. 1 ft to 10 ft in length	\$7,000.00	EA
<u>Sewer Lateral Replacement</u>		
8" - 18" Diameter Replacement 0 ft - 5 ft Deep	\$3,500.00	EA
8" - 18" Diameter Replacement 5 ft - 16 ft Deep	\$5,000.00	EA
<u>Sewer Structure Replacement</u>		
Lateral Cleanout Installed	\$900.00	EA
Drop Connection	\$2,000.00	EA
Sewer Main End of Line Cleanout 0 ft - 5 ft Deep	\$2,500.00	EA
Sewer Main End of Line Cleanout 5 ft - 10 ft Deep	\$4,000.00	EA
Sewer Main End of Line Cleanout 10 ft - 16 ft Deep	\$6,000.00	EA
Manhole Installed 0 ft - 5 ft Deep	\$5,000.00	EA
Manhole Installed 5 ft - 10 ft Deep	\$8,000.00	EA
Manhole Installed 10 ft - 16 ft Deep	\$12,000.00	EA
Manhole Installed 16 ft and Greater	\$16,000.00	EA
Manhole Plug Installation	\$1,000.00	EA
Structure Abandonment		
<u>Sewer Main Abandonment</u>		
Sewer Abandonment 6" - 15" Diameter	\$80.00	LF
Sewer Abandonment 18" - 42" Diameter	\$125.00	LF

Description	Unit Cost	
Trenchless Rehabilitation		
<u>Sewer Lateral</u>		
Sewer Lateral Connection and Lining "T-Liner"	\$3,500.00	EA
<u>Sewer Lateral Connection (SLC)</u>		
Sewer Lateral Connection "Top Hat" Method	\$1,200.00	EA
Reestablish Lateral After Lining Sewer Main	\$250.00	EA
Note for sewer lateral rehabilitation:		
1. Sewer lateral rehabilitation will take place when mainline is being rehabilitated.		
2. Sewer lateral rehabilitation is the responsibility of the property owner if mainline sewer is not being rehabilitated.		
<u>Sewer Main</u>		
8" Diameter Trenchless Lining	\$37.00	LF
10" Diameter Trenchless Lining	\$45.00	LF
12" Diameter Trenchless Lining	\$54.00	LF
15" Diameter Trenchless Lining	\$85.00	LF
18" Diameter Trenchless Lining	\$115.00	LF
21" Diameter Trenchless Lining	\$140.00	LF
24" Diameter Trenchless Lining	\$165.00	LF
27" Diameter Trenchless Lining	\$185.00	LF
30" Diameter Trenchless Lining	\$205.00	LF
32"/33" Diameter Trenchless Lining	\$225.00	LF
36" Diameter Trenchless Lining	\$245.00	LF
39" Diameter Trenchless Lining	\$265.00	LF
42" Diameter Trenchless Lining	\$285.00	LF
<u>Sewer Structure Rehabilitation</u>		
Manhole Step Removal	\$500.00	EA
Manhole Bench and Trough Rehabilitation	\$600.00	EA
Manhole Wall Rehabilitation	\$250.00	VF
<u>Spot Repair</u>		
Hydrophilic Grout Injection with Sealant	\$1,000.00	EA
Remove Protruding Lateral Tap	\$350.00	EA
8" Diameter Sectional Lining (0 ft - 10 ft)	\$3,500.00	EA
10" Diameter Sectional Lining (0 ft - 10 ft)	\$4,000.00	EA
12" Diameter Sectional Lining (0 ft - 10 ft)	\$5,000.00	EA
15" Diameter Sectional Lining (0 ft - 10 ft)	\$5,200.00	EA
18" Diameter Sectional Lining (0 ft - 10 ft)	\$6,000.00	EA
21" Diameter Sectional Lining (0 ft - 10 ft)	\$7,000.00	EA
24" Diameter Sectional Lining (0 ft - 10 ft)	\$9,000.00	EA
27" Diameter Sectional Lining (0 ft - 10 ft)	\$10,500.00	EA
30" Diameter Sectional Lining (0 ft - 10 ft)	\$12,000.00	EA
32"/33" Diameter Sectional Lining (0 ft - 10 ft)	\$13,500.00	EA
36" Diameter Sectional Lining (0 ft - 10 ft)	\$15,000.00	EA
39" Diameter Sectional Lining (0 ft - 10 ft)	\$16,500.00	EA
42" Diameter Sectional Lining (0 ft - 10 ft)	\$18,000.00	EA
Note for spot repair:		
1. For depths greater than 10 ft, increase above unit cost by \$1000.		
<u>Construction Contingencies</u>		20%
<u>Engineering and Administration</u>		15%

Note: Unit rates assume an economy of scale and are for construction costs only.

CCTV Summary
Comparison Between September 2009 and September 2010 Submittals

Area 1	Unit	2009	2010
CIPP	LF	2,250	2,467
Open Trench Replacement	LF	4,200	1,295
Spot Repair	EA	20	17
Manhole Rehabilitation	EA	12	10
Manhole Replacement	EA	23	0
Area 2	Unit	2009	2010
CIPP	LF	8,130	8,109
Open Trench Replacement	LF	270	270
Spot Repair	EA	7	6
Manhole Rehabilitation	EA	58	60
Manhole Replacement	EA	3	3
Area 3	Unit	2009	2010
CIPP	LF	8,000	8,855
Open Trench Replacement	LF	0	0
Spot Repair	EA	5	2
Manhole Rehabilitation	EA	39	37
Manhole Replacement	EA	0	0



Legend

Flow Monitor Locations

- ★ Temporary
- ⊕ Permanent - Entering System
- △ Permanent - Leaving System
- Manholes

Sewerlines

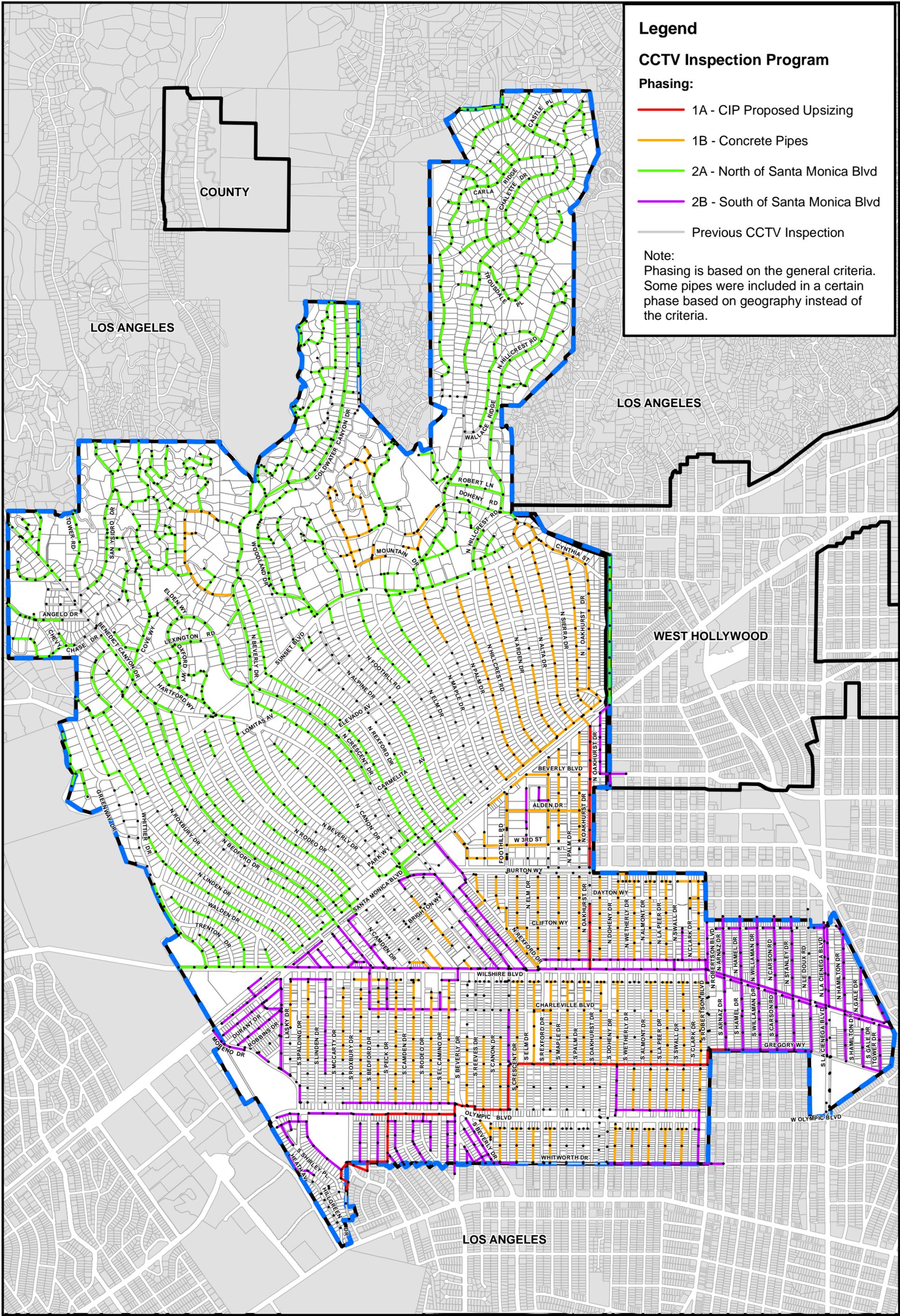
- ≤ 8" Diameter Pipe
- ≥ 10" Diameter Pipe

Basins

- AZ01 Flow Monitor
- BC01 Flow Monitor
- CHA01 Flow Monitor
- CRE Flow Monitor
- ECR Flow Monitor
- LC01 Flow Monitor
- LTM15 Flow Monitor
- OAK Flow Monitor
- WH01 Flow Monitor
- WIL Flow Monitor
- Not Flow Monitored

Legend

- ▭ City of Beverly Hills
- ▭ City Boundaries
- ▭ Los Angeles County Parcels
- ▭ City of Beverly Hills Parcels



Legend

CCTV Inspection Program

Phasing:

- 1A - CIP Proposed Upsizing
- 1B - Concrete Pipes
- 2A - North of Santa Monica Blvd
- 2B - South of Santa Monica Blvd
- Previous CCTV Inspection

Note:
 Phasing is based on the general criteria. Some pipes were included in a certain phase based on geography instead of the criteria.



Source:
 City of Beverly Hills, 2009

City of Beverly Hills
 CIP Project No. 08-000
 CCTV Inspection Program



Legend

CCTV Manholes

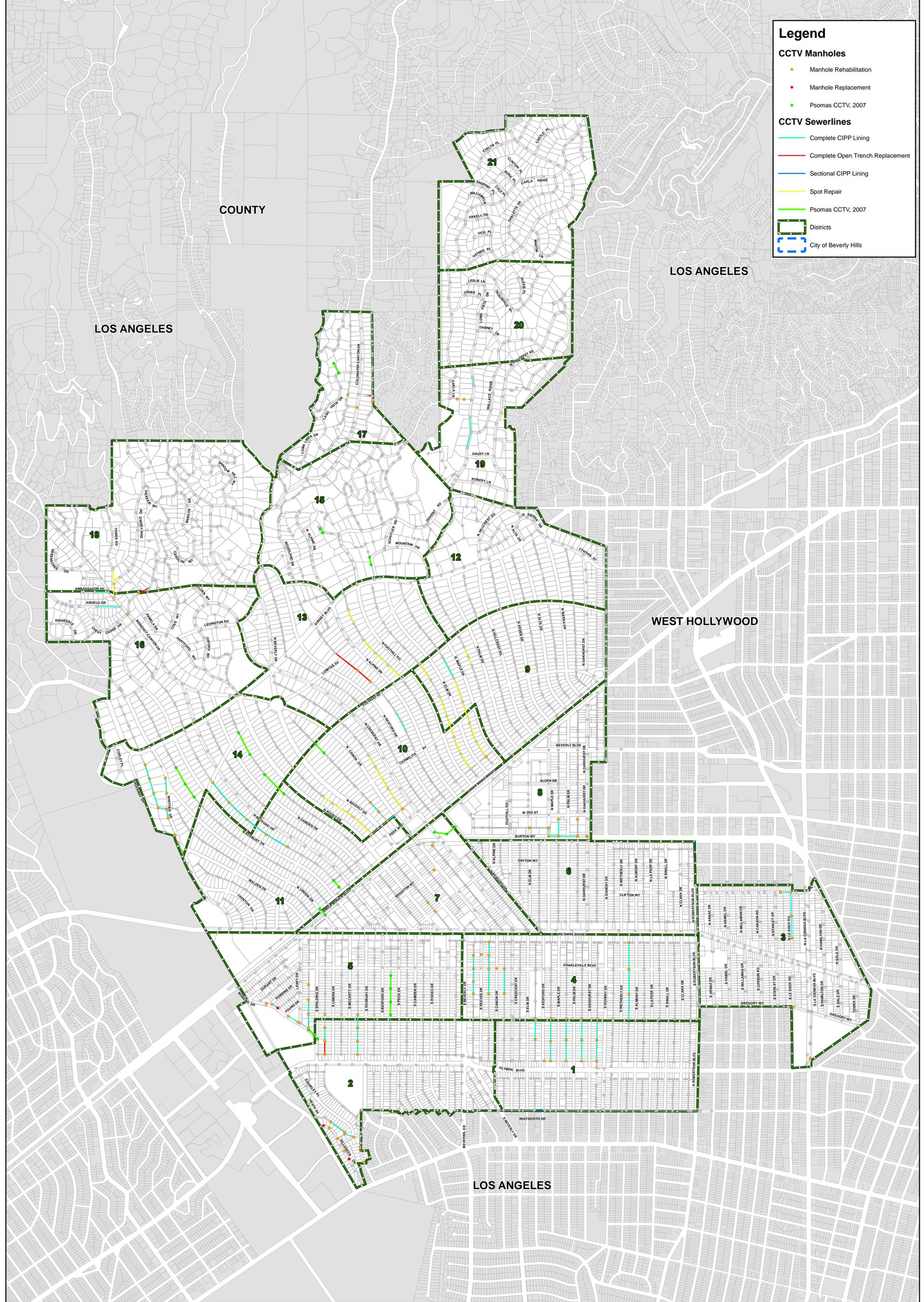
- Manhole Rehabilitation
- Manhole Replacement
- Psomas CCTV, 2007

CCTV Sewerlines

- Complete CIPP Lining
- Complete Open Trench Replacement
- Sectional CIPP Lining
- Spot Repair
- Psomas CCTV, 2007

Districts

City of Beverly Hills



0 1,000 2,000 Feet

Source: City of Beverly Hills, 2009

City of Beverly Hills
CCTV Recommendations

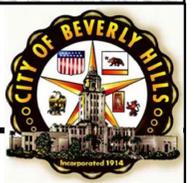
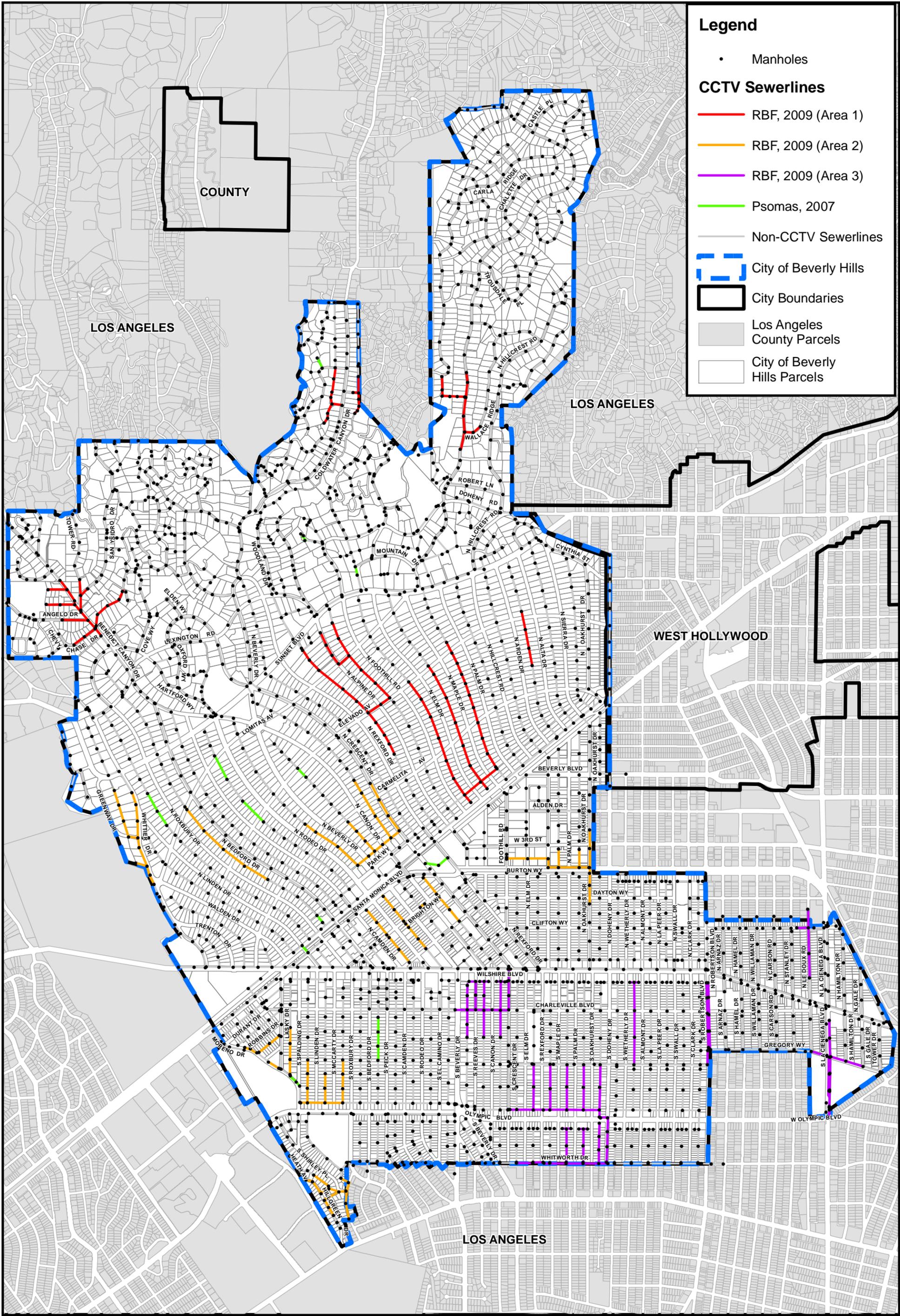
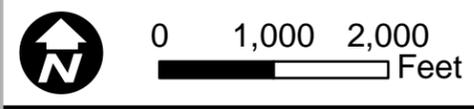


Exhibit A



Legend

- Manholes
- CCTV Sewerlines**
 - RBF, 2009 (Area 1)
 - RBF, 2009 (Area 2)
 - RBF, 2009 (Area 3)
 - Psomas, 2007
 - Non-CCTV Sewerlines
- City of Beverly Hills
- ▭ City Boundaries
- ▭ Los Angeles County Parcels
- ▭ City of Beverly Hills Parcels



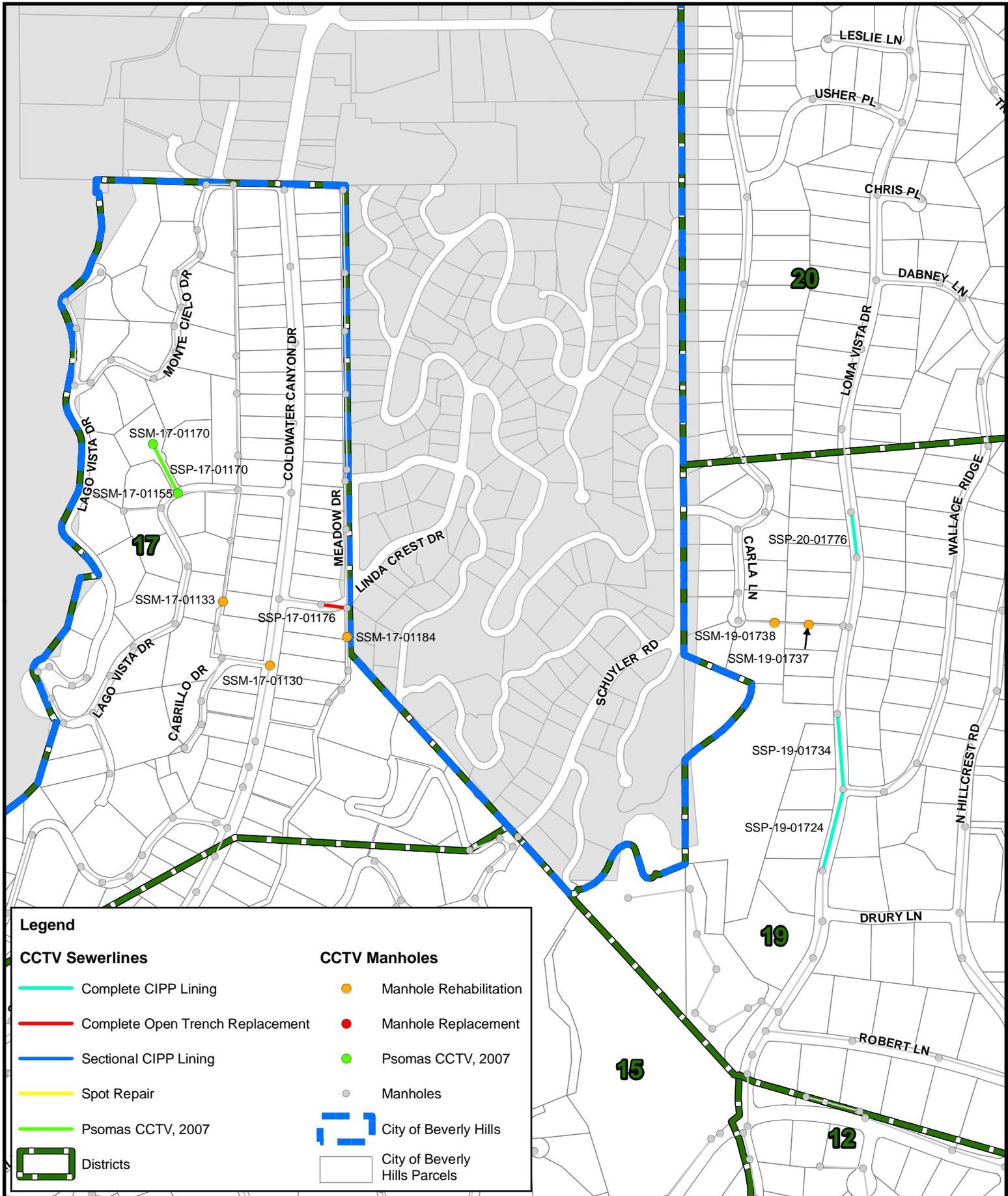
Source:
City of Beverly Hills, 2009

City of Beverly Hills
Pipeline and Manhole Inspections



Exhibit B

Project ID:	01-000
Project Name:	CCTV Area 1 Improvements
Description/Purpose:	This project includes the rehabilitation and replacement of selected sewer pipelines and manholes within CCTV Area 1 based on CCTV inspections. Area 1 is defined specifically in CCTV and Manhole Inspection Report 1 (separate) and is located generally in the northern portion of the City. See the attached table and exhibits for the project facilities and locations.
Total Project Cost:	\$1,071,000
Fiscal Year:	2010/11
Total FY 2010/11 Cost:	\$1,294,000
Exhibit:	(See attached)



Legend

CCTV Sewerlines	CCTV Manholes
Complete CIPP Lining	Manhole Rehabilitation
Complete Open Trench Replacement	Manhole Replacement
Sectional CIPP Lining	Psomas CCTV, 2007
Spot Repair	Manholes
Psomas CCTV, 2007	City of Beverly Hills
Districts	City of Beverly Hills Parcels



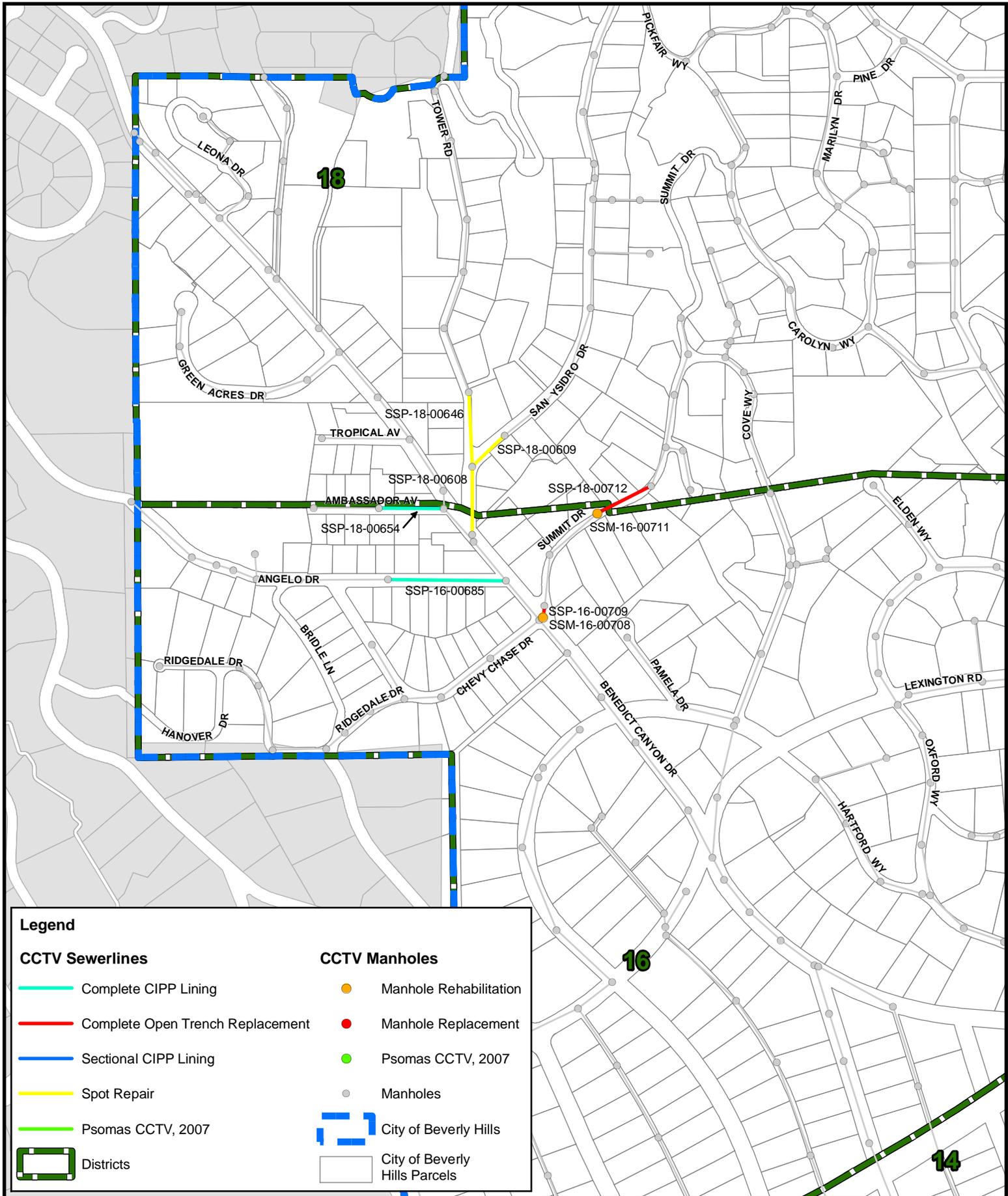
0 250 500
Feet

Source:
City of Beverly Hills, 2009

City of Beverly Hills
CIP Project No. 01-000
CCTV Area 1 Improvements



Exhibit 1A



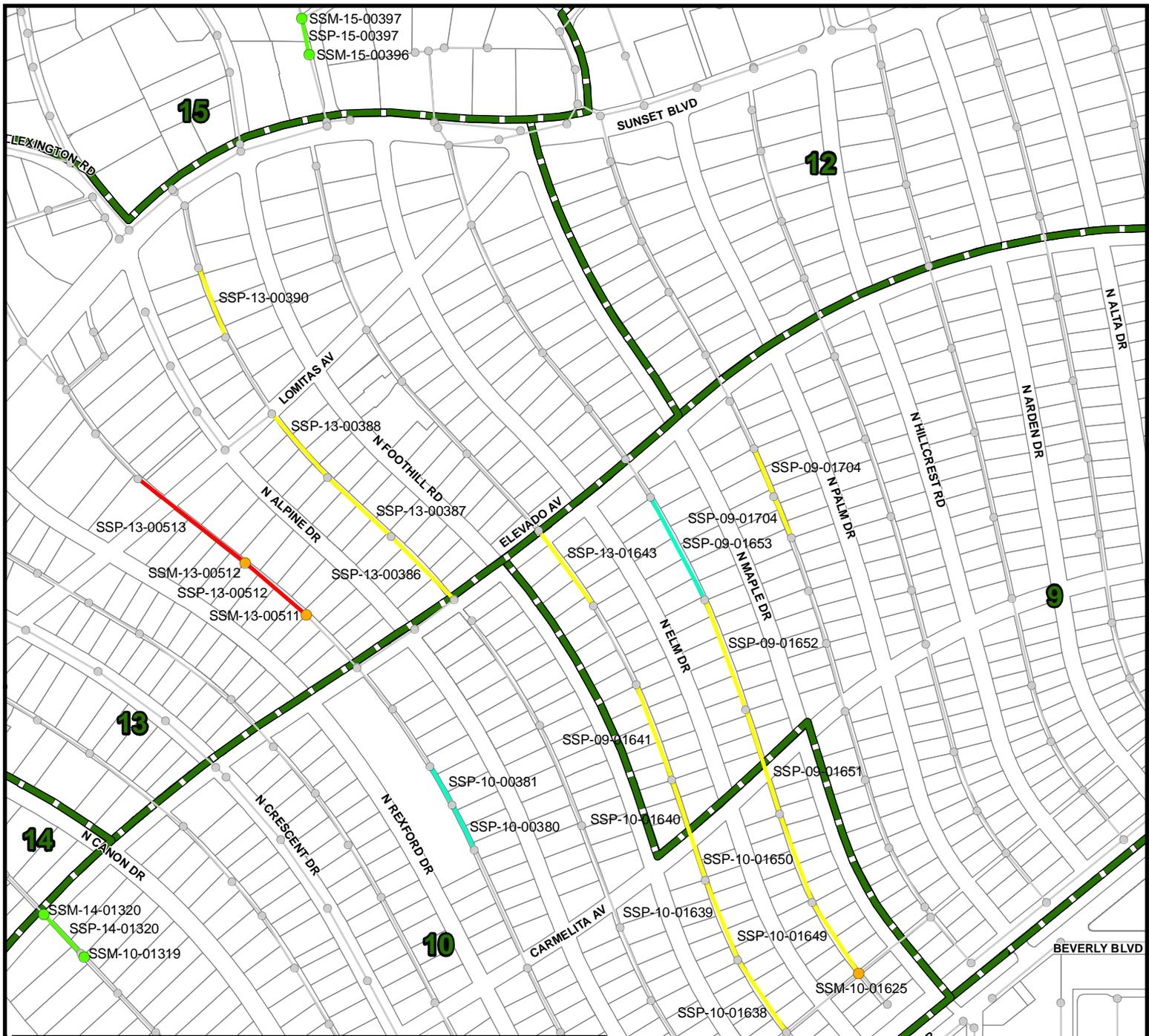
0 250 500 Feet

Source:
City of Beverly Hills, 2009

City of Beverly Hills
CIP Project No. 01-000
CCTV Area 1 Improvements

Exhibit 1B





Legend	
CCTV Sewerlines	CCTV Manholes
Complete CIPP Lining	Manhole Rehabilitation
Complete Open Trench Replacement	Manhole Replacement
Sectional CIPP Lining	Psomas CCTV, 2007
Spot Repair	Manholes
Psomas CCTV, 2007	City of Beverly Hills
Districts	City of Beverly Hills Parcels



Source:
City of Beverly Hills, 2009

City of Beverly Hills
CIP Project No. 01-000
CCTV Area 1 Improvements

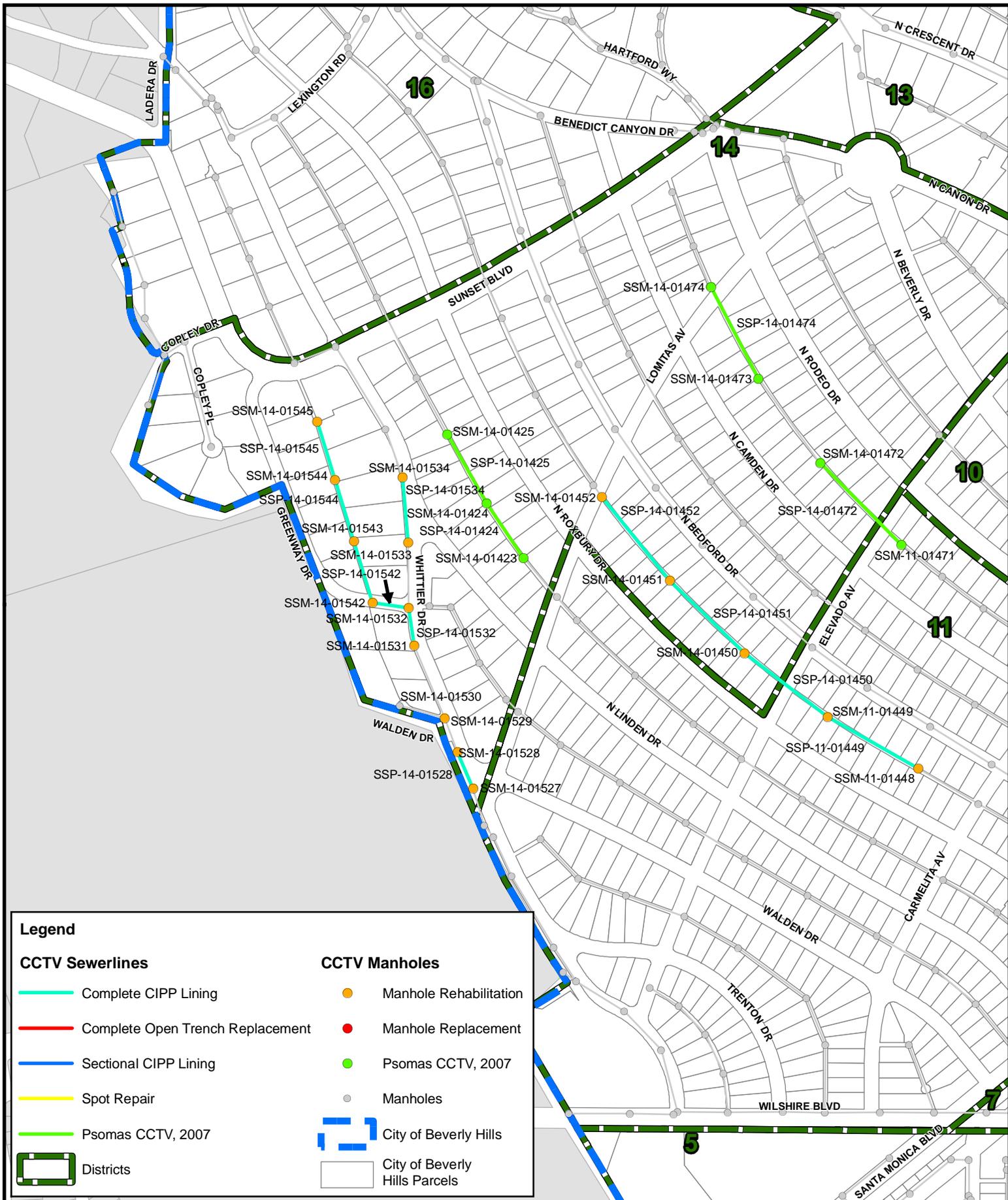


Exhibit 1C

City of Beverly Hills
Sanitary Sewer Collection System Master Plan
CIP Project No. 01-000
Area 1 Sewer Improvements

Item No.	CIP No.	Old Facility No.	Facility No.	Facility Type	Length (ft)	Exist Diam (in)	Rec Diam (in)	Location	Repair Method	Cost
1	01-101	10_701-10_700	SSP-10-00380	Pipeline	213	10	N/A	Alley west of N Alpine Drive	Complete CIPP Lining	\$ 19,735
2	01-102	10_702-10_701	SSP-10-00381	Pipeline	187	10	N/A	Alley west of N Alpine Drive	Complete CIPP Lining	\$ 10,250
3	01-103	16_461-16_430	SSP-18-00654	Pipeline	264	8	N/A	Ambassador Avenue	Complete CIPP Lining	\$ 17,018
4	01-104	16_508-16_428	SSP-16-00685	Pipeline	498	8	N/A	Angelo Drive	Complete CIPP Lining	\$ 34,376
5	01-105	19_1149-19_1148	SSP-19-01724	Pipeline	329	8	N/A	Loma Vista Drive	Complete CIPP Lining	\$ 15,823
6	01-106	19_1159-19_1149	SSP-19-01734	Pipeline	305	8	N/A	Loma Vista Drive	Complete CIPP Lining	\$ 15,185
7	01-107	19_1162-19_1161	SSP-20-01776	Pipeline	180	8	N/A	Loma Vista Drive	Complete CIPP Lining	\$ 7,160
8	01-108	9_1026-9_1025	SSP-09-01653	Pipeline	490	8	N/A	Alley west of N Maple Drive	Complete CIPP Lining	\$ 38,480
9	01-001	13_706-13_705	SSP-13-00512	Pipeline	338	6	8	Alley west of N Alpine Drive	Complete Open Trench Replacement	\$ 101,400
10	01-002	13_707-13_706	SSP-13-00513	Pipeline	572	6	8	Alley west of N Alpine Drive	Complete Open Trench Replacement	\$ 179,600
11	01-003	16_418-16_417	SSP-16-00709	Pipeline	36	6	8	Benedict Canyon Drive	Complete Open Trench Replacement	\$ 10,800
12	01-004	17_1587-17_1586	SSP-17-01176	Pipeline	103	6	8	Lindacrest Drive	Complete Open Trench Replacement	\$ 30,900
13	01-005	18_421-16_420	SSP-18-00712	Pipeline	247	6	8	Summit Drive	Complete Open Trench Replacement	\$ 74,100
14	01-201	10_1000-10_999	SSP-10-01638	Pipeline	367	8	N/A	Alley west of N Elm Drive	Spot Repair	\$ 9,600
15	01-202	10_1001-10_1000	SSP-10-01639	Pipeline	367	8	N/A	Alley west of N Elm Drive	Spot Repair	\$ 12,000
16	01-203	10_1022-10_998	SSP-10-01649	Pipeline	361	8	N/A	Alley west of N Maple Drive	Spot Repair	\$ 1,191
17	01-204	10_1023-10_1022	SSP-10-01650	Pipeline	395	8	N/A	Alley west of N Maple Drive	Spot Repair	\$ 12,869
18	01-205	13_1005-9_1004	SSP-13-01643	Pipeline	393	8	N/A	Alley west of N Elm Drive	Spot Repair	\$ 9,600
19	01-206	13_713-10_712	SSP-13-00386	Pipeline	369	8	N/A	Alley west of N Foothill Rd	Spot Repair	\$ 10,800
20	01-207	13_714-13_713	SSP-13-00387	Pipeline	371	8	N/A	Alley west of N Foothill Rd	Spot Repair	\$ 4,800
21	01-208	13_715-13_714	SSP-13-00388	Pipeline	357	8	N/A	Alley west of N Foothill Rd	Spot Repair	\$ 12,000
22	01-209	13_717-13_716	SSP-13-00390	Pipeline	365	8	N/A	Alley east of N Alpine Drive	Spot Repair	\$ 12,000
23	01-210	18_464-18_463	SSP-18-00608	Pipeline	277	8	N/A	Tower Road	Spot Repair	\$ 4,109
24	01-211	18_465-18_464	SSP-18-00609	Pipeline	182	8	N/A	San Ysidro Drive	Spot Repair	\$ 3,500
25	01-212	18_501-18_464	SSP-18-00646	Pipeline	303	8	N/A	Tower Road	Spot Repair	\$ 4,167
26	01-213	9_1002-10_1001	SSP-09-01640	Pipeline	446	8	N/A	Alley west of N Elm Drive	Spot Repair	\$ 14,000
27	01-214	9_1003-9_1002	SSP-09-01641	Pipeline	427	8	N/A	Alley west of N Elm Drive	Spot Repair	\$ 28,139
28	01-215	9_1024-10_1023	SSP-09-01651	Pipeline	463	8	N/A	Alley west of N Maple Drive	Spot Repair	\$ 18,700
29	01-216	9_1025-9_1024	SSP-09-01652	Pipeline	496	8	N/A	Alley west of N Maple Drive	Spot Repair	\$ 7,200
30	01-217	9_991-9_990	SSP-09-01704	Pipeline	408	8	N/A	Alley west of N Palm Drive	Spot Repair	\$ 24,500
31	01-401	10_998	SSM-10-01625	Manhole	N/A	N/A	N/A	Alley west of N Maple Drive	Manhole Rehabilitation	\$ 5,100
32	01-402	10_999	SSM-13-00511	Manhole	N/A	N/A	N/A	Alley west of N Alpine Drive	Manhole Rehabilitation	\$ 5,100
33	01-403	13_1005	SSM-13-00512	Manhole	N/A	N/A	N/A	Alley west of N Alpine Drive	Manhole Rehabilitation	\$ 5,600
34	01-404	16_417	SSM-16-00708	Manhole	N/A	N/A	N/A	Benedict Canyon Drive	Manhole Rehabilitation	\$ 2,850
35	01-405	17_1595	SSM-17-01184	Manhole	N/A	N/A	N/A	Coldwater Canyon Bridle Path	Manhole Rehabilitation	\$ 6,300
36	01-406	17_1601	SSM-17-01133	Manhole	N/A	N/A	N/A	Alley east of Lago Vista Drive	Manhole Rehabilitation	\$ 6,300
37	01-407	19_1229	SSM-19-01737	Manhole	N/A	N/A	N/A	Loma Vista Drive	Manhole Rehabilitation	\$ 4,500
38	01-408	19_1230	SSM-19-01738	Manhole	N/A	N/A	N/A	Carla Lane	Manhole Rehabilitation	\$ 3,100
39	01-409	9_989	SSM-16-00711	Manhole	N/A	N/A	N/A	Summit Drive	Manhole Rehabilitation	\$ 5,850
40	01-410	9_991	SSM-17-01130	Manhole	N/A	N/A	N/A	Coldwater Canyon Drive	Manhole Rehabilitation	\$ 4,600
Subtotal										\$ 793,302
Construction Contingencies										\$ 158,660
Engineering and Administration										\$ 118,995
Total Estimate										\$ 1,071,000

Project ID:	02-000
Project Name:	CCTV Area 2 Improvements
Description/Purpose:	This project includes the rehabilitation and replacement of selected sewer pipelines and manholes within CCTV Area 2 based on CCTV inspections. Area 2 is defined specifically in CCTV and Manhole Inspection Report 2 (separate) and is located generally in the southwestern portion of the City. See the attached table and exhibits for the project facilities and locations.
Total Project Cost:	\$1,694,000
Fiscal Year:	2011/2012
Total FY 2011/12 Cost:	\$2,186,000
Exhibit:	(See attached)



Legend

CCTV Sewerlines	CCTV Manholes
Complete CIPP Lining	Manhole Rehabilitation
Complete Open Trench Replacement	Manhole Replacement
Sectional CIPP Lining	Psomas CCTV, 2007
Spot Repair	Manholes
Psomas CCTV, 2007	City of Beverly Hills
Districts	City of Beverly Hills Parcels

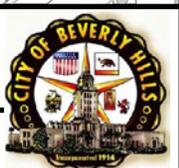


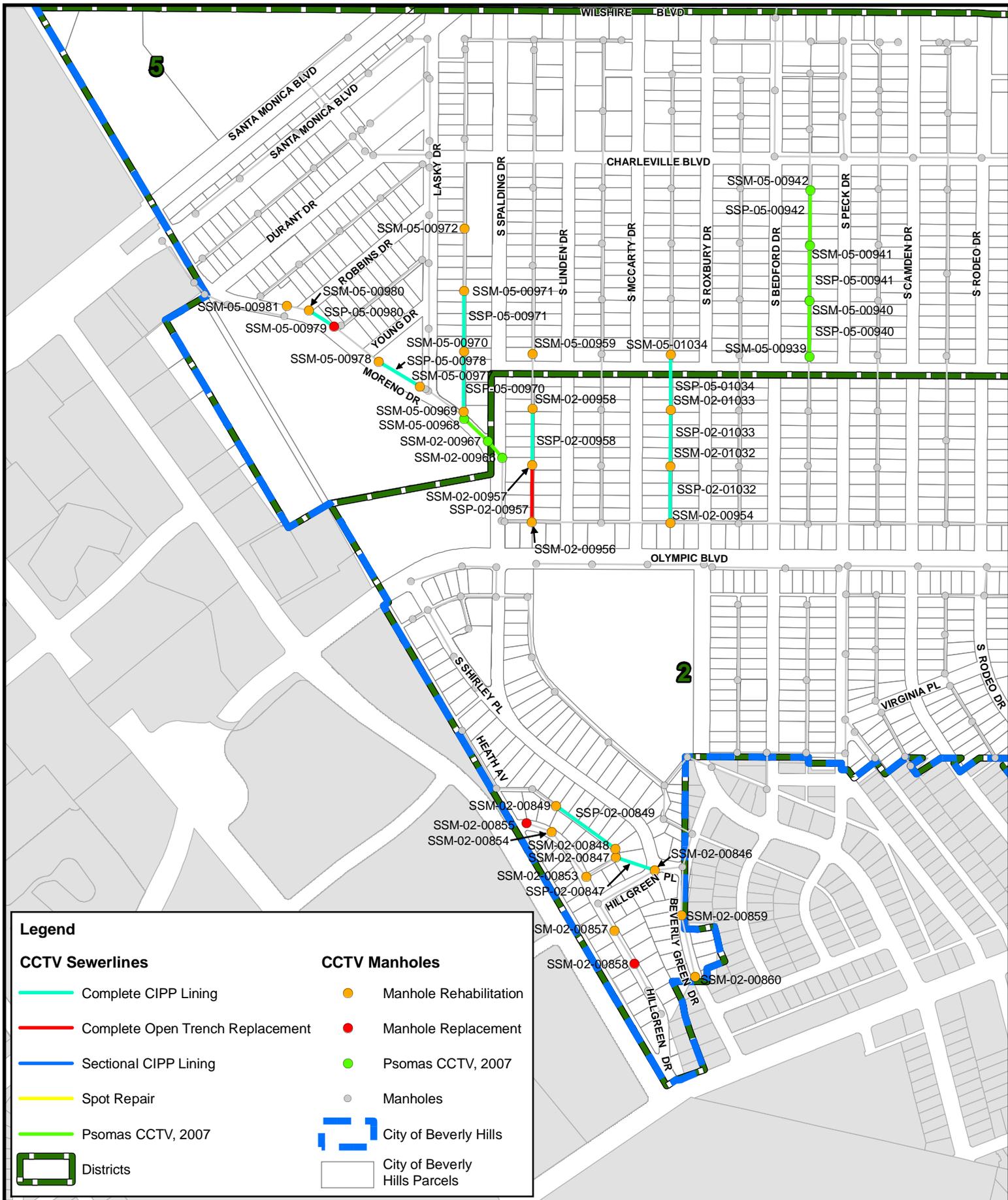
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Source:
City of Beverly Hills, 2009

City of Beverly Hills
CIP Project No. 02-000
CCTV Area 2 Improvements

Exhibit 2A





Legend

CCTV Sewerlines	CCTV Manholes
Complete CIPP Lining	Manhole Rehabilitation
Complete Open Trench Replacement	Manhole Replacement
Sectional CIPP Lining	Psoamas CCTV, 2007
Spot Repair	Manholes
Psoamas CCTV, 2007	City of Beverly Hills
Districts	City of Beverly Hills Parcels



0 250 500 Feet

Source:
City of Beverly Hills, 2009

City of Beverly Hills
CIP Project No. 02-000
CCTV Area 2 Improvements

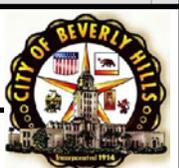


Exhibit 2C

City of Beverly Hills
Sanitary Sewer Collection System Master Plan
CIP Project No. 02-000
Area 2 Sewer Improvements

Item No.	CIP No.	Old Facility No.	Facility No.	Facility Type	Length (ft)	Exist Diam (in)	Rec Diam (in)	Location	Repair Method	Cost
1	02-101	10_1716-10_1715	SSP-11-01311	Pipeline	200	10	N/A	Allen north of Park Way	Complete CIPP Lining	\$ 30,870
2	02-102	10_1762-10_1761	SSP-10-01313	Pipeline	245	8	N/A	Alley west of N Canon Drive	Complete CIPP Lining	\$ 40,515
3	02-103	11_1441-11_1440	SSP-11-01449	Pipeline	500	8	N/A	Alley west of N Bedford Drive	Complete CIPP Lining	\$ 65,950
4	02-104	14_1442-11_1441	SSP-14-01450	Pipeline	501	8	N/A	Alley west of N Bedford Drive	Complete CIPP Lining	\$ 69,237
5	02-105	14_1443-14_1442	SSP-14-01451	Pipeline	500	8	N/A	Alley west of N Bedford Drive	Complete CIPP Lining	\$ 74,300
6	02-106	14_1444-14_1443	SSP-14-01452	Pipeline	510	8	N/A	Alley west of N Bedford Drive	Complete CIPP Lining	\$ 55,320
7	02-107	14_603-14_602	SSP-14-01528	Pipeline	196	8	N/A	Whittier Drive	Complete CIPP Lining	\$ 14,252
8	02-108	14_607-14_606	SSP-14-01532	Pipeline	183	8	N/A	Whittier Drive	Complete CIPP Lining	\$ 13,771
9	02-109	14_609-14_608	SSP-14-01534	Pipeline	315	8	N/A	Whittier Drive	Complete CIPP Lining	\$ 19,155
10	02-110	14_617-14_607	SSP-14-01542	Pipeline	173	8	N/A	Greenway Drive	Complete CIPP Lining	\$ 6,401
11	02-111	14_618-14_617	SSP-14-01543	Pipeline	319	8	N/A	Alley west of Whittier Drive	Complete CIPP Lining	\$ 15,803
12	02-112	14_619-14_618	SSP-14-01544	Pipeline	309	8	N/A	Alley west of Whittier Drive	Complete CIPP Lining	\$ 18,933
13	02-113	14_620-14_619	SSP-14-01545	Pipeline	291	8	N/A	Alley west of N Linden Drive	Complete CIPP Lining	\$ 24,917
14	02-114	2_136-2_135	SSP-14-01545	Pipeline	175	8	N/A	Alley east of Greenway Drive	Complete CIPP Lining	\$ 13,485
15	02-115	2_139-2_138	SSP-02-00847	Pipeline	198	8	N/A	Hillgreen Place	Complete CIPP Lining	\$ 14,826
16	02-116	2_141-2_140	SSP-02-00849	Pipeline	350	8	N/A	Alley east of Hillgreen Drive	Complete CIPP Lining	\$ 25,700
17	02-117	2_263-2_262	SSP-02-00958	Pipeline	271	8	N/A	Alley west of S Linden Drive	Complete CIPP Lining	\$ 29,527
18	02-118	2_280-2_204	SSP-02-01032	Pipeline	268	8	N/A	Alley west of S Roxbury Drive	Complete CIPP Lining	\$ 18,666
19	02-119	2_281-2_280	SSP-02-01033	Pipeline	270	8	N/A	Alley west of S Roxbury Drive	Complete CIPP Lining	\$ 36,990
20	02-120	5_247-5_246	SSP-05-00978	Pipeline	231	8	N/A	Moreno Drive	Complete CIPP Lining	\$ 8,547
21	02-121	5_249-5_248	SSP-05-00980	Pipeline	143	8	N/A	Moreno Drive	Complete CIPP Lining	\$ 15,429
22	02-122	5_257-5_256	SSP-05-00970	Pipeline	314	8	N/A	Alley west of S Spalding Drive	Complete CIPP Lining	\$ 16,654
23	02-123	5_258-5_257	SSP-05-00971	Pipeline	292	8	N/A	Alley west of S Spalding Drive	Complete CIPP Lining	\$ 37,804
24	02-124	5_282-2_281	SSP-05-01034	Pipeline	265	8	N/A	Alley west of S Roxbury Drive	Complete CIPP Lining	\$ 22,055
25	02-125	8_1349-8_1348	SSP-08-02018	Pipeline	387	10	N/A	Burton Way	Complete CIPP Lining	\$ 21,165
26	02-126	8_1350-8_1349	SSP-08-02019	Pipeline	194	10	N/A	Burton Way	Complete CIPP Lining	\$ 8,730
27	02-127	8_1351-8_1350	SSP-08-02020	Pipeline	168	10	N/A	N Maple Drive	Complete CIPP Lining	\$ 8,114
28	02-128	8_1360-8_1349	SSP-08-02029	Pipeline	343	8	N/A	Alley east of N Maple Drive	Complete CIPP Lining	\$ 58,941
29	02-001	2_262-2_206	SSP-02-00957	Pipeline	270	8	10	Alley west of S Linden Drive	Complete Open Trench Replacement	\$ 81,000
30	02-201	10_1719-10_1718	SSP-10-01325	Pipeline	506	8	N/A	Alley west of N Beverly Drive	Spot Repair	\$ 46,500
31	02-202	10_1720-10_1719	SSP-10-01326	Pipeline	500	8	N/A	Alley west of N Beverly Drive	Spot Repair	\$ 47,600
32	02-203	10_1721-10_1720	SSP-10-01327	Pipeline	250	8	N/A	Alley west of N Beverly Drive	Spot Repair	\$ 14,825
33	02-204	10_1772-10_1715	SSP-10-01288	Pipeline	508	8	N/A	Alley west of N Crescent Drive	Spot Repair	\$ 31,176
34	02-205	10_1773-10_1772	SSP-10-01289	Pipeline	500	8	N/A	Alley west of N Crescent Drive	Spot Repair	\$ 13,150
35	02-206	10_1774-10_1773	SSP-10-01290	Pipeline	273	8	N/A	Alley west of N Crescent Drive	Spot Repair	\$ 24,500
36	02-401	10_1715	SSM-10-01287	Manhole	N/A	N/A	N/A	Alley east of North Canon Drive	Manhole Rehabilitation	\$ 3,350
37	02-402	10_1716	SSM-11-01311	Manhole	N/A	N/A	N/A	Alley east of North Beverly Drive	Manhole Rehabilitation	\$ 3,850
38	02-403	10_1761	SSM-10-01312	Manhole	N/A	N/A	N/A	North Canon Drive	Manhole Rehabilitation	\$ 2,100
39	02-404	10_1762	SSM-10-01313	Manhole	N/A	N/A	N/A	North Canon Drive	Manhole Rehabilitation	\$ 2,100
40	02-405	11_1440	SSM-11-01448	Manhole	N/A	N/A	N/A	North Bedford Drive	Manhole Rehabilitation	\$ 3,100
41	02-406	11_1441	SSM-11-01449	Manhole	N/A	N/A	N/A	North Bedford Drive	Manhole Rehabilitation	\$ 3,100
42	02-407	14_1442	SSM-14-01450	Manhole	N/A	N/A	N/A	North Bedford Drive	Manhole Rehabilitation	\$ 3,100
43	02-408	14_1443	SSM-14-01451	Manhole	N/A	N/A	N/A	North Bedford Drive	Manhole Rehabilitation	\$ 3,100
44	02-409	14_1444	SSM-14-01452	Manhole	N/A	N/A	N/A	Lomitas Avenue	Manhole Rehabilitation	\$ 1,600
45	02-410	14_602	SSM-14-01527	Manhole	N/A	N/A	N/A	Whittier Drive	Manhole Rehabilitation	\$ 2,600
46	02-411	14_603	SSM-14-01528	Manhole	N/A	N/A	N/A	Whittier Drive	Manhole Rehabilitation	\$ 2,600
47	02-412	14_604	SSM-14-01529	Manhole	N/A	N/A	N/A	Whittier Drive	Manhole Rehabilitation	\$ 2,600
48	02-413	14_606	SSM-14-01531	Manhole	N/A	N/A	N/A	Whittier Drive	Manhole Rehabilitation	\$ 2,850
49	02-414	14_607	SSM-14-01532	Manhole	N/A	N/A	N/A	Whittier Drive	Manhole Rehabilitation	\$ 2,350
50	02-415	14_608	SSM-14-01533	Manhole	N/A	N/A	N/A	Whittier Drive	Manhole Rehabilitation	\$ 2,850
51	02-416	14_609	SSM-14-01534	Manhole	N/A	N/A	N/A	Whittier Drive	Manhole Rehabilitation	\$ 2,600
52	02-417	14_617	SSM-14-01542	Manhole	N/A	N/A	N/A	Greenway Drive	Manhole Rehabilitation	\$ 2,600
53	02-418	14_618	SSM-14-01543	Manhole	N/A	N/A	N/A	Whittier Drive	Manhole Rehabilitation	\$ 2,850
54	02-419	14_619	SSM-14-01544	Manhole	N/A	N/A	N/A	Whittier Drive	Manhole Rehabilitation	\$ 2,850
55	02-420	14_620	SSM-14-01545	Manhole	N/A	N/A	N/A	Whittier Drive	Manhole Rehabilitation	\$ 3,350
56	02-421	2_135	SSM-14-01545	Manhole	N/A	N/A	N/A	Alley east of Greenway Drive	Manhole Rehabilitation	\$ 2,850
57	02-422	2_136	SSM-02-00846	Manhole	N/A	N/A	N/A	Hillgreen Place	Manhole Rehabilitation	\$ 2,100

City of Beverly Hills
Sanitary Sewer Collection System Master Plan
CIP Project No. 02-000
Area 2 Sewer Improvements

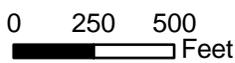
Item No.	CIP No.	Old Facility No.	Facility No.	Facility Type	Length (ft)	Exist Diam (in)	Rec Diam (in)	Location	Repair Method	Cost
58	02-423	2_137	SSM-02-00847	Manhole	N/A	N/A	N/A	Alley east of Hillgreen Drive	Manhole Rehabilitation	\$ 3,600
59	02-424	2_138	SSM-02-00846	Manhole	N/A	N/A	N/A	South Spalding Drive	Manhole Rehabilitation	\$ 3,850
60	02-425	2_139	SSM-02-00847	Manhole	N/A	N/A	N/A	Hillgreen Place	Manhole Rehabilitation	\$ 3,350
61	02-426	2_140	SSM-02-00848	Manhole	N/A	N/A	N/A	Hillgreen Drive	Manhole Rehabilitation	\$ 2,850
62	02-427	2_141	SSM-02-00849	Manhole	N/A	N/A	N/A	Hillgreen Place	Manhole Rehabilitation	\$ 3,350
63	02-428	2_145	SSM-02-00853	Manhole	N/A	N/A	N/A	Hillgreen Drive	Manhole Rehabilitation	\$ 3,600
64	02-429	2_146	SSM-02-00854	Manhole	N/A	N/A	N/A	Hillgreen Drive	Manhole Rehabilitation	\$ 3,600
65	02-430	2_149	SSM-02-00857	Manhole	N/A	N/A	N/A	Hillgreen Drive	Manhole Rehabilitation	\$ 2,850
66	02-431	2_151	SSM-02-00859	Manhole	N/A	N/A	N/A	Beverly Green Drive	Manhole Rehabilitation	\$ 3,100
67	02-432	2_152	SSM-02-00860	Manhole	N/A	N/A	N/A	Beverly Green Drive	Manhole Rehabilitation	\$ 2,600
68	02-433	2_204	SSM-02-00954	Manhole	N/A	N/A	N/A	South Roxbury Drive	Manhole Rehabilitation	\$ 3,350
69	02-434	2_206	SSM-02-00956	Manhole	N/A	N/A	N/A	South Spalding Drive	Manhole Rehabilitation	\$ 3,350
70	02-435	2_262	SSM-02-00957	Manhole	N/A	N/A	N/A	South Linden Drive	Manhole Rehabilitation	\$ 3,100
71	02-436	2_263	SSM-02-00958	Manhole	N/A	N/A	N/A	South Linden Drive	Manhole Rehabilitation	\$ 3,100
72	02-437	2_280	SSM-02-01032	Manhole	N/A	N/A	N/A	South Roxbury Drive	Manhole Rehabilitation	\$ 3,100
73	02-438	2_281	SSM-02-01033	Manhole	N/A	N/A	N/A	South Roxbury Drive	Manhole Rehabilitation	\$ 3,100
74	02-439	5_246	SSM-05-00977	Manhole	N/A	N/A	N/A	Moreno Drive	Manhole Rehabilitation	\$ 2,850
75	02-440	5_247	SSM-05-00978	Manhole	N/A	N/A	N/A	Moreno Drive	Manhole Rehabilitation	\$ 2,850
76	02-441	5_249	SSM-05-00980	Manhole	N/A	N/A	N/A	Moreno Drive	Manhole Rehabilitation	\$ 2,600
77	02-442	5_250	SSM-05-00981	Manhole	N/A	N/A	N/A	Moreno Drive	Manhole Rehabilitation	\$ 3,350
78	02-443	5_256	SSM-05-00969	Manhole	N/A	N/A	N/A	Moreno Drive	Manhole Rehabilitation	\$ 2,850
79	02-444	5_257	SSM-05-00970	Manhole	N/A	N/A	N/A	South Spalding Drive	Manhole Rehabilitation	\$ 2,350
80	02-445	5_258	SSM-05-00971	Manhole	N/A	N/A	N/A	South Spalding Drive	Manhole Rehabilitation	\$ 2,850
81	02-446	5_259	SSM-05-00972	Manhole	N/A	N/A	N/A	South Spalding Drive	Manhole Rehabilitation	\$ 2,850
82	02-447	5_264	SSM-05-00959	Manhole	N/A	N/A	N/A	Gregory Way	Manhole Rehabilitation	\$ 3,100
83	02-448	5_282	SSM-05-01034	Manhole	N/A	N/A	N/A	Gregory Way	Manhole Rehabilitation	\$ 3,100
84	02-449	7_1402	SSM-07-01582	Manhole	N/A	N/A	N/A	Santa Monica Boulevard	Manhole Rehabilitation	\$ 1,850
85	02-450	7_1403	SSM-07-01574	Manhole	N/A	N/A	N/A	Brighton Way	Manhole Rehabilitation	\$ 2,350
86	02-451	7_1412	SSM-07-01562	Manhole	N/A	N/A	N/A	North Beverly Drive	Manhole Rehabilitation	\$ 3,350
87	02-452	7_1413	SSM-07-01561	Manhole	N/A	N/A	N/A	Dayton Way	Manhole Rehabilitation	\$ 3,350
88	02-453	8_1347	SSM-08-02016	Manhole	N/A	N/A	N/A	Burton Way	Manhole Rehabilitation	\$ 3,850
89	02-454	8_1348	SSM-08-02017	Manhole	N/A	N/A	N/A	Burton Way	Manhole Rehabilitation	\$ 3,350
90	02-455	8_1349	SSM-08-02018	Manhole	N/A	N/A	N/A	Burton Way	Manhole Rehabilitation	\$ 3,350
91	02-456	8_1350	SSM-08-02019	Manhole	N/A	N/A	N/A	Burton Way	Manhole Rehabilitation	\$ 3,100
92	02-457	8_1351	SSM-08-02020	Manhole	N/A	N/A	N/A	North Maple Drive	Manhole Rehabilitation	\$ 2,350
93	02-458	8_1352	SSM-08-02021	Manhole	N/A	N/A	N/A	Alley north of Burton Way	Manhole Rehabilitation	\$ 4,600
94	02-459	8_1360	SSM-08-02029	Manhole	N/A	N/A	N/A	Alley west of N Palm Drive	Manhole Rehabilitation	\$ 2,350
95	02-460	8_1361	SSM-08-02030	Manhole	N/A	N/A	N/A	Alley west of N Oakhurst Drive	Manhole Rehabilitation	\$ 3,100
96	02-301	2_147	SSM-02-00855	Manhole	N/A	N/A	N/A	Hillgreen Drive	Manhole Replacement	\$ 12,000
97	02-302	2_150	SSM-02-00858	Manhole	N/A	N/A	N/A	Hillgreen Drive	Manhole Replacement	\$ 12,000
98	02-303	5_248	SSM-05-00979	Manhole	N/A	N/A	N/A	Moreno Drive	Manhole Replacement	\$ 8,000
Subtotal										\$ 1,254,808
Construction Contingencies										\$ 250,962
Engineering and Administration										\$ 188,221
Total Estimate										\$ 1,694,000

Project ID:	03-000
Project Name:	CCTV Area 3 Improvements
Description/Purpose:	This project includes the rehabilitation and replacement of selected sewer pipelines and manholes within CCTV Area 3 based on CCTV inspections. Area 3 is defined specifically in CCTV and Manhole Inspection Report 3 (separate) and is located generally in the southeastern portion of the City. See the attached table and exhibits for the project facilities and locations.
Total Project Cost:	\$1,384,000
Fiscal Year:	2012/2013
Total FY 2012/13 Cost:	\$1,884,000
Exhibit:	(See attached)



Legend

CCTV Sewerlines	CCTV Manholes
Complete CIPP Lining	Manhole Rehabilitation
Complete Open Trench Replacement	Manhole Replacement
Sectional CIPP Lining	Psomas CCTV, 2007
Spot Repair	Manholes
Psomas CCTV, 2007	City of Beverly Hills
Districts	City of Beverly Hills Parcels



Source:
City of Beverly Hills, 2009

City of Beverly Hills
CIP Project No. 03-000
CCTV Area 3 Improvements

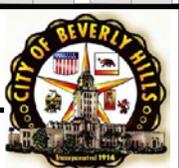
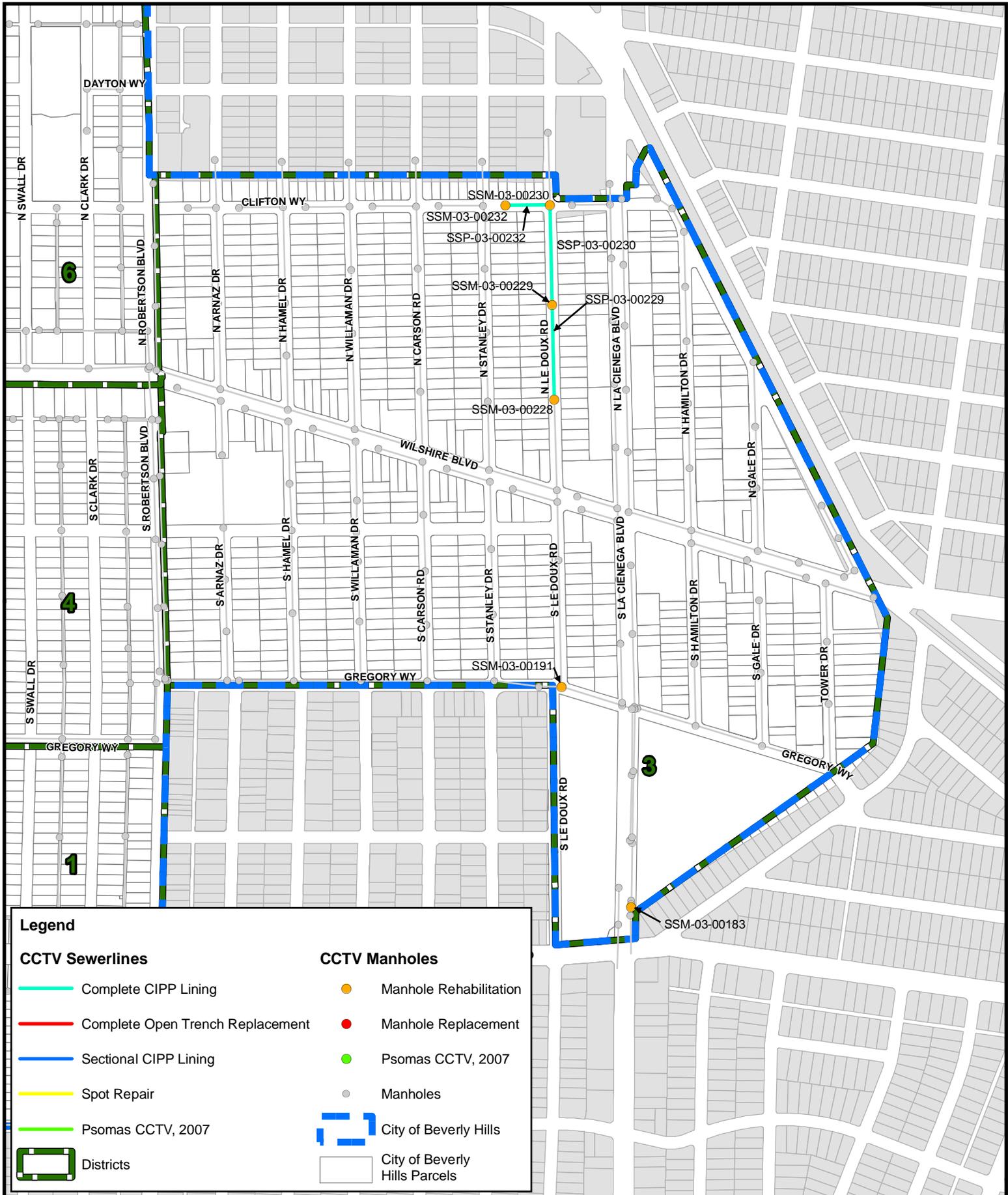
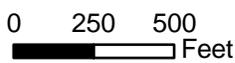


Exhibit 3A



Legend

 Complete CIPP Lining	 Manhole Rehabilitation
 Complete Open Trench Replacement	 Manhole Replacement
 Sectional CIPP Lining	 Psomas CCTV, 2007
 Spot Repair	 Manholes
 Psomas CCTV, 2007	 City of Beverly Hills
 Districts	 City of Beverly Hills Parcels



Source:
City of Beverly Hills, 2009

City of Beverly Hills
CIP Project No. 03-000
CCTV Area 3 Improvements



Exhibit 3B

City of Beverly Hills
Sanitary Sewer Collection System Master Plan
CIP Project No. 03-000
Area 3 Sewer Improvements

Item No.	CIP No.	Old Facility No.	Facility No.	Facility Type	Length (ft)	Exist Diam (in)	Rec Diam (in)	Location	Repair Method	Cost
1	03-101	1_1922-1_1905	SSP-01-00057	Pipeline	401	8	N/A	Alley west of S Maple Drive	Complete CIPP Lining	\$ 72,050
2	03-102	1_1936-1_1904	SSP-01-00049	Pipeline	427	8	N/A	Alley west of S Palm Drive	Complete CIPP Lining	\$ 58,549
3	03-103	1_1943-1_1903	SSP-01-00085	Pipeline	431	8	N/A	Alley west of S Oakhurst Drive	Complete CIPP Lining	\$ 58,197
4	03-104	1_1950-1_1902	SSP-01-00039	Pipeline	426	8	N/A	Alley west of S Doheny Drive	Complete CIPP Lining	\$ 62,512
5	03-105	3_48-3_47	SSP-03-00229	Pipeline	455	8	N/A	North Le Doux Road	Complete CIPP Lining	\$ 29,335
6	03-106	3_49-3_48	SSP-03-00230	Pipeline	482	8	N/A	North Le Doux Road	Complete CIPP Lining	\$ 30,684
7	03-107	3_51-3_49	SSP-03-00232	Pipeline	213	8	N/A	Clifton Way	Complete CIPP Lining	\$ 9,731
8	03-108	4_1818-4_88	SSP-04-00787	Pipeline	494	8	N/A	Alley west of S Almont Drive	Complete CIPP Lining	\$ 49,028
9	03-109	4_1819-4_1818	SSP-04-00788	Pipeline	494	8	N/A	Alley west of S Almont Drive	Complete CIPP Lining	\$ 65,528
10	03-110	4_1820-4_1819	SSP-04-00789	Pipeline	551	8	N/A	Alley west of S Almont Drive	Complete CIPP Lining	\$ 64,887
11	03-111	4_1918-1_1917	SSP-01-00081	Pipeline	426	8	N/A	Alley west of S Rexford Drive	Complete CIPP Lining	\$ 28,012
12	03-112	4_1923-1_1922	SSP-01-00058	Pipeline	455	8	N/A	Alley west of S Maple Drive	Complete CIPP Lining	\$ 57,085
13	03-113	4_1937-1_1936	SSP-01-00050	Pipeline	425	8	N/A	Alley west of S Palm Drive	Complete CIPP Lining	\$ 51,975
14	03-114	4_1944-1_1943	SSP-01-00086	Pipeline	426	8	N/A	Alley west of S Oakhurst Drive	Complete CIPP Lining	\$ 53,512
15	03-115	4_1951-1_1950	SSP-01-00040	Pipeline	425	8	N/A	Alley west of S Doheny Drive	Complete CIPP Lining	\$ 58,975
16	03-116	4_343-4_342	SSP-04-00812	Pipeline	239	8	N/A	Alley west of S Reeves Drive	Complete CIPP Lining	\$ 10,593
17	03-117	4_344-4_343	SSP-04-00813	Pipeline	265	8	N/A	Alley west of S Reeves Drive	Complete CIPP Lining	\$ 12,305
18	03-118	4_345-4_344	SSP-04-00814	Pipeline	270	8	N/A	Alley west of S Reeves Drive	Complete CIPP Lining	\$ 19,240
19	03-119	4_350-4_349	SSP-04-01049	Pipeline	505	8	N/A	Alley west of S Canon Drive	Complete CIPP Lining	\$ 34,435
20	03-120	4_351-4_350	SSP-04-01050	Pipeline	267	8	N/A	Alley west of S Canon Drive	Complete CIPP Lining	\$ 12,379
21	03-121	4_352-4_351	SSP-04-01051	Pipeline	272	8	N/A	Alley west of S Canon Drive	Complete CIPP Lining	\$ 12,814
22	03-122	4_358-4_357	SSP-04-01057	Pipeline	506	8	N/A	Alley west of S Crescent Drive	Complete CIPP Lining	\$ 38,472
23	03-201	1_2008-1_2006	SSP-01-00143	Pipeline	80	8	N/A	Alley south of Olympic Blvd	Spot Repair	\$ 3,788
24	03-501	1_1967-1_1966	SSP-01-00098	Pipeline	188	10	N/A	Whitworth Drive	Sectional CIPP Lining	\$ 4,900
25	03-401	1_1902	SSM-01-00038	Manhole	N/A	N/A	N/A	Doheny Drive	Manhole Rehabilitation	\$ 4,100
26	03-402	1_1903	SSM-01-00047	Manhole	N/A	N/A	N/A	South Oakhurst Drive	Manhole Rehabilitation	\$ 3,350
27	03-403	1_1904	SSM-01-00048	Manhole	N/A	N/A	N/A	South Palm Drive	Manhole Rehabilitation	\$ 3,350
28	03-404	1_1905	SSM-01-00056	Manhole	N/A	N/A	N/A	South Maple Drive	Manhole Rehabilitation	\$ 3,350
29	03-405	1_1906	SSM-01-00069	Manhole	N/A	N/A	N/A	South Maple Drive	Manhole Rehabilitation	\$ 16,150
30	03-406	1_1917	SSM-01-00080	Manhole	N/A	N/A	N/A	South Rexford Drive	Manhole Rehabilitation	\$ 3,100
31	03-407	1_1922	SSM-01-00057	Manhole	N/A	N/A	N/A	South Maple Drive	Manhole Rehabilitation	\$ 3,350
32	03-408	1_1936	SSM-01-00049	Manhole	N/A	N/A	N/A	South Palm Drive	Manhole Rehabilitation	\$ 3,100
33	03-409	1_1943	SSM-01-00085	Manhole	N/A	N/A	N/A	South Oakhurst Drive	Manhole Rehabilitation	\$ 3,350
34	03-410	1_1950	SSM-01-00039	Manhole	N/A	N/A	N/A	South Doheny Drive	Manhole Rehabilitation	\$ 3,850
35	03-411	3_10	SSM-03-00191	Manhole	N/A	N/A	N/A	Gregory Way	Manhole Rehabilitation	\$ 4,850
36	03-412	3_2	SSM-03-00183	Manhole	N/A	N/A	N/A	South La Cienega Blvd	Manhole Rehabilitation	\$ 3,850
37	03-413	3_47	SSM-03-00228	Manhole	N/A	N/A	N/A	North Le Doux Road	Manhole Rehabilitation	\$ 3,350
38	03-414	3_48	SSM-03-00229	Manhole	N/A	N/A	N/A	North Le Doux Road	Manhole Rehabilitation	\$ 3,350
39	03-415	3_49	SSM-03-00230	Manhole	N/A	N/A	N/A	North Le Doux Road	Manhole Rehabilitation	\$ 3,350
40	03-416	3_51	SSM-03-00232	Manhole	N/A	N/A	N/A	Clifton Way	Manhole Rehabilitation	\$ 2,350
41	03-417	4_1818	SSM-04-00787	Manhole	N/A	N/A	N/A	South Almont Drive	Manhole Rehabilitation	\$ 3,350
42	03-418	4_1819	SSM-04-00788	Manhole	N/A	N/A	N/A	Charleville Blvd	Manhole Rehabilitation	\$ 3,100
43	03-419	4_1820	SSM-04-00789	Manhole	N/A	N/A	N/A	South Almont Drive	Manhole Rehabilitation	\$ 3,350
44	03-420	4_1918	SSM-01-00081	Manhole	N/A	N/A	N/A	Gregory Way	Manhole Rehabilitation	\$ 2,850
45	03-421	4_1923	SSM-01-00058	Manhole	N/A	N/A	N/A	Gregory Way	Manhole Rehabilitation	\$ 2,850
46	03-422	4_1937	SSM-01-00050	Manhole	N/A	N/A	N/A	Gregory Way	Manhole Rehabilitation	\$ 2,600
47	03-423	4_1944	SSM-01-00086	Manhole	N/A	N/A	N/A	Gregory Way	Manhole Rehabilitation	\$ 3,100
48	03-424	4_1951	SSM-01-00040	Manhole	N/A	N/A	N/A	Gregory Way	Manhole Rehabilitation	\$ 2,350
49	03-425	4_342	SSM-04-00812	Manhole	N/A	N/A	N/A	South Reeves Drive	Manhole Rehabilitation	\$ 2,100
50	03-426	4_343	SSM-04-00813	Manhole	N/A	N/A	N/A	South Reeves Drive	Manhole Rehabilitation	\$ 1,850
51	03-427	4_344	SSM-04-00813	Manhole	N/A	N/A	N/A	Charleville Boulevard	Manhole Rehabilitation	\$ 2,100
52	03-428	4_345	SSM-04-00814	Manhole	N/A	N/A	N/A	South Reeves Drive	Manhole Rehabilitation	\$ 2,350
53	03-429	4_349	SSM-04-01048	Manhole	N/A	N/A	N/A	South Canon Drive	Manhole Rehabilitation	\$ 2,850
54	03-430	4_350	SSM-04-01049	Manhole	N/A	N/A	N/A	Charleville Boulevard	Manhole Rehabilitation	\$ 2,100
55	03-431	4_351	SSM-04-01050	Manhole	N/A	N/A	N/A	South Canon Drive	Manhole Rehabilitation	\$ 3,100
56	03-432	4_352	SSM-04-01051	Manhole	N/A	N/A	N/A	South Canon Drive	Manhole Rehabilitation	\$ 2,850
57	03-433	4_357	SSM-04-01056	Manhole	N/A	N/A	N/A	South Crescent Drive	Manhole Rehabilitation	\$ 2,350

City of Beverly Hills
Sanitary Sewer Collection System Master Plan
CIP Project No. 03-000
Area 3 Sewer Improvements

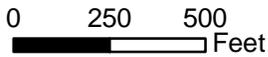
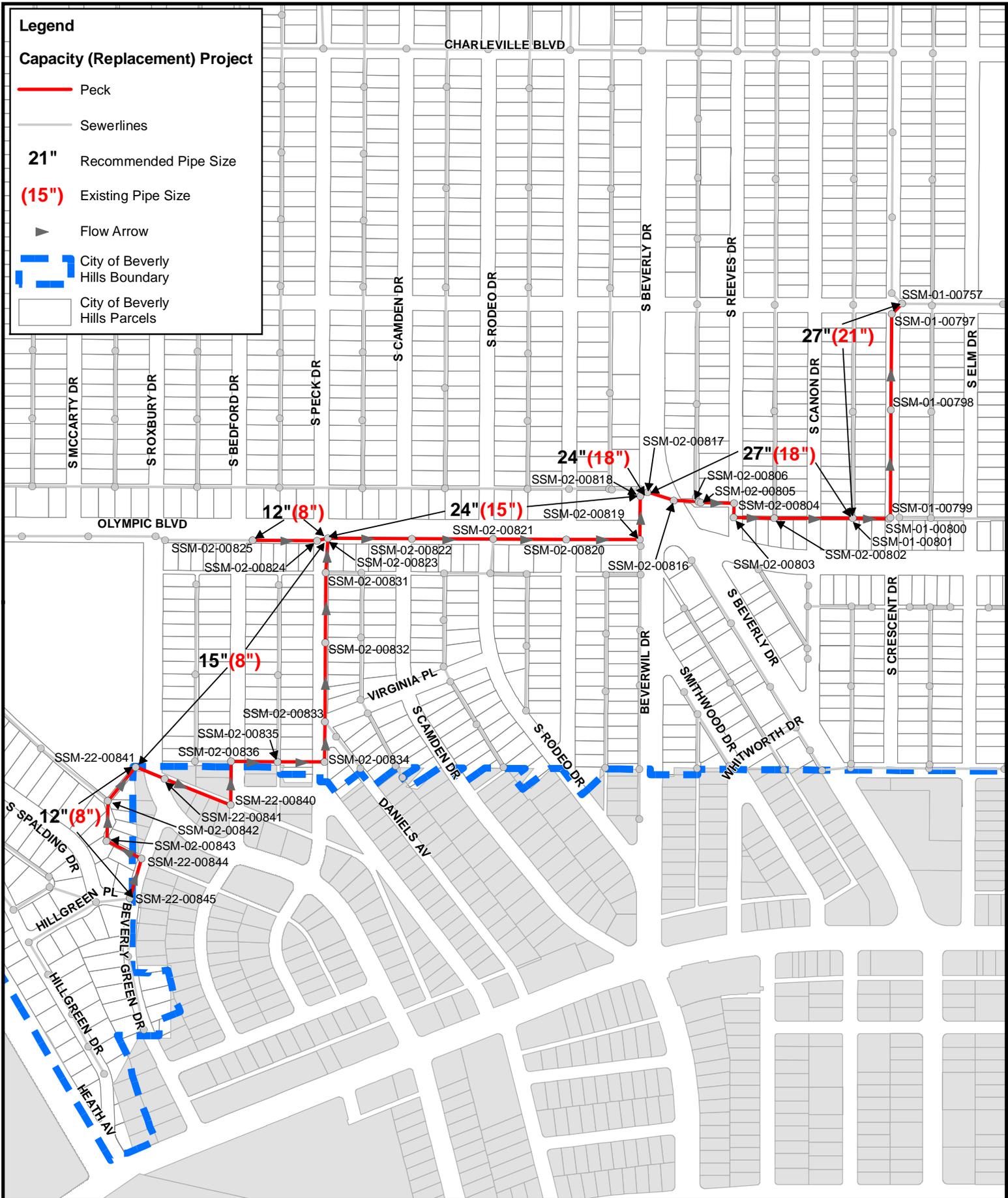
Item No.	CIP No.	Old Facility No.	Facility No.	Facility Type	Length (ft)	Exist Diam (in)	Rec Diam (in)	Location	Repair Method	Cost
58	03-434	4_358	SSM-04-01057	Manhole	N/A	N/A	N/A	Charleville Boulevard	Manhole Rehabilitation	\$ 2,600
59	03-435	4_365	SSM-04-00752	Manhole	N/A	N/A	N/A	South Canon Drive	Manhole Rehabilitation	\$ 3,850
60	03-436	4_366	SSM-04-00752	Manhole	N/A	N/A	N/A	Charleville Boulevard	Manhole Rehabilitation	\$ 3,100
61	03-437	4_88	SSM-04-00749	Manhole	N/A	N/A	N/A	South Reeves Drive	Manhole Rehabilitation	\$ 3,350
									Subtotal	\$ 1,025,236
									Construction Contingencies	\$ 205,047
									Engineering and Administration	\$ 153,785
									Total Estimate	\$ 1,384,000

Project ID:	04-000
Project Name:	Sewer Improvements Along Peck Drive
Description/Purpose:	This project includes the upsizing and replacement of selected sewer pipelines and manholes along Peck Drive as determined from the hydraulic capacity analysis. This project has been assigned the highest priority out of the three hydraulic capacity projects as it has the highest number of identified deficiencies under dry weather conditions. See the attached table and exhibits for the project locations.
Total Project Cost:	\$3,664,000
Fiscal Year:	2013/14
Total FY 2013/14 Cost:	\$3,664,000
Exhibit:	(See attached)

Legend

Capacity (Replacement) Project

- Peck
- Sewerlines
- 21"** Recommended Pipe Size
- (15")** Existing Pipe Size
- ▶ Flow Arrow
- City of Beverly Hills Boundary
- City of Beverly Hills Parcels



Source:
City of Beverly Hills, 2009

City of Beverly Hills
CIP Project No. 04-000
Sewer Improvements Along Peck Drive



Exhibit 4

City of Beverly Hills
Sanitary Sewer Collection System Master Plan
CIP Project No. 04-000
Sewer Improvements Along Peck Drive

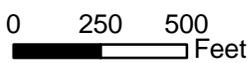
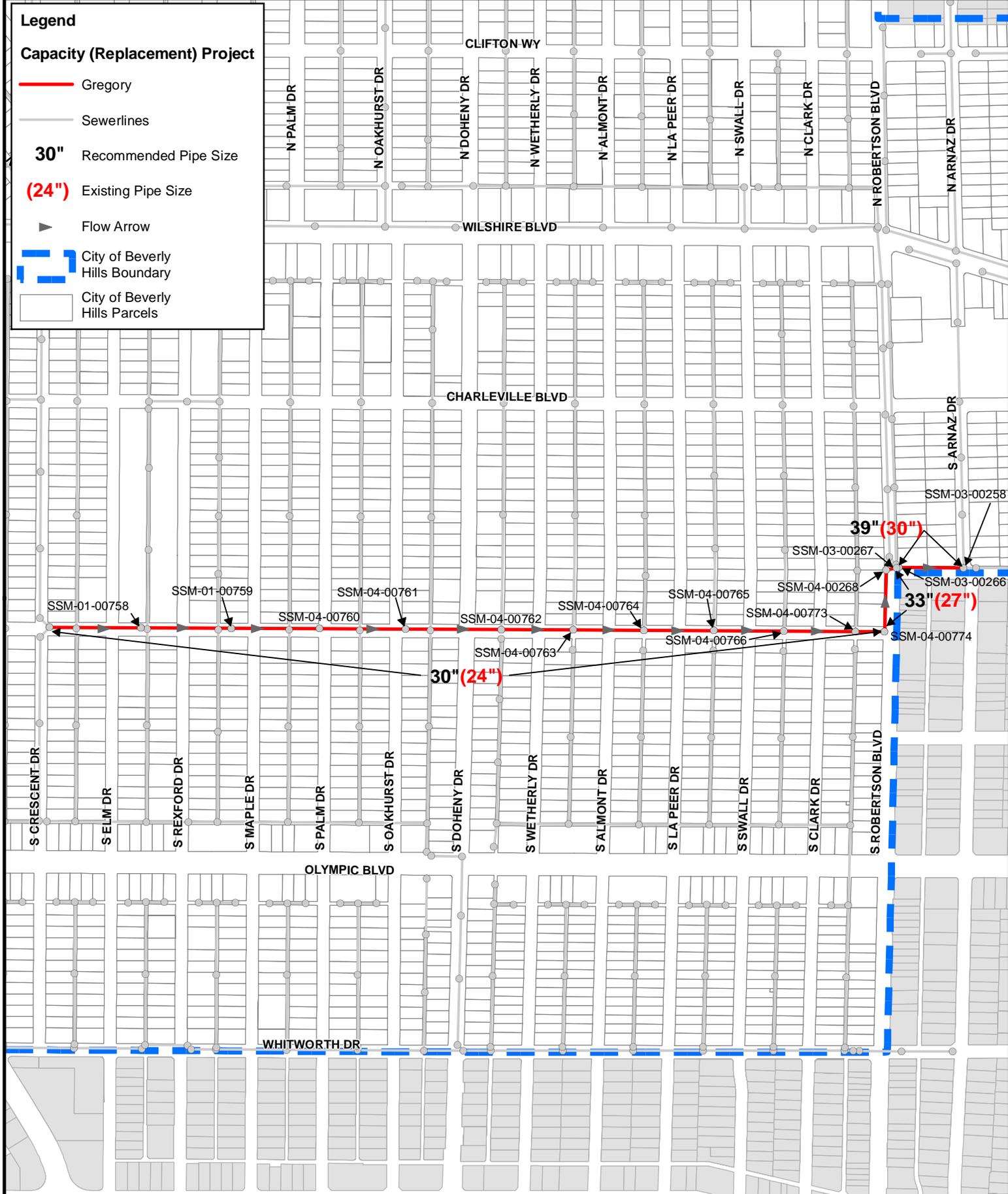
Item No.	Facility Type	Quantity	Unit	Rec Diam (in)	Repair Method	Cost
1	Pipeline	719	LF	12	Complete Open Trench Replacement	\$ 258,720
2	Pipeline	1851	LF	15	Complete Open Trench Replacement	\$ 684,733
3	Pipeline	1347	LF	24	Complete Open Trench Replacement	\$ 545,399
4	Pipeline	1975	LF	27	Complete Open Trench Replacement	\$ 829,401
	Total	5891	LF		Total Pipe Costs	\$ 2,318,253
5	Manhole	33	EA	N/A	Replacement	\$ 396,000
					Subtotal	\$ 2,714,000
					Construction Contingencies	\$ 543,000
					Engineering and Administration	\$ 407,000
					Total Estimate	\$ 3,664,000

Project ID:	05-000
Project Name:	Sewer Improvements Along Gregory Way
Description/Purpose:	This project includes the upsizing and replacement of selected sewer pipelines and manholes along Gregory Way as determined from the hydraulic capacity analysis. This project has been assigned the second highest priority out of the three hydraulic capacity projects as it has a moderate number of identified deficiencies under dry weather and wet weather conditions. See the attached table and exhibits for the project locations.
Total Project Cost:	\$2,795,000
Fiscal Year:	2014/15
Total FY 2014/15 Cost:	\$4,694,000
Exhibit:	(See attached)

Legend

Capacity (Replacement) Project

- Gregory
- Sewerlines
- 30"** Recommended Pipe Size
- (24")** Existing Pipe Size
- Flow Arrow
- City of Beverly Hills Boundary
- City of Beverly Hills Parcels



Source:
City of Beverly Hills, 2009

City of Beverly Hills
CIP Project No. 05-000
Sewer Improvements Along Gregory Way

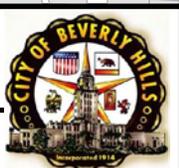


Exhibit 5

City of Beverly Hills
Sanitary Sewer Collection System Master Plan
CIP Project No. 05-000
Sewer Improvements Along Gregory Way

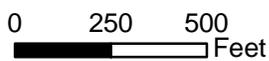
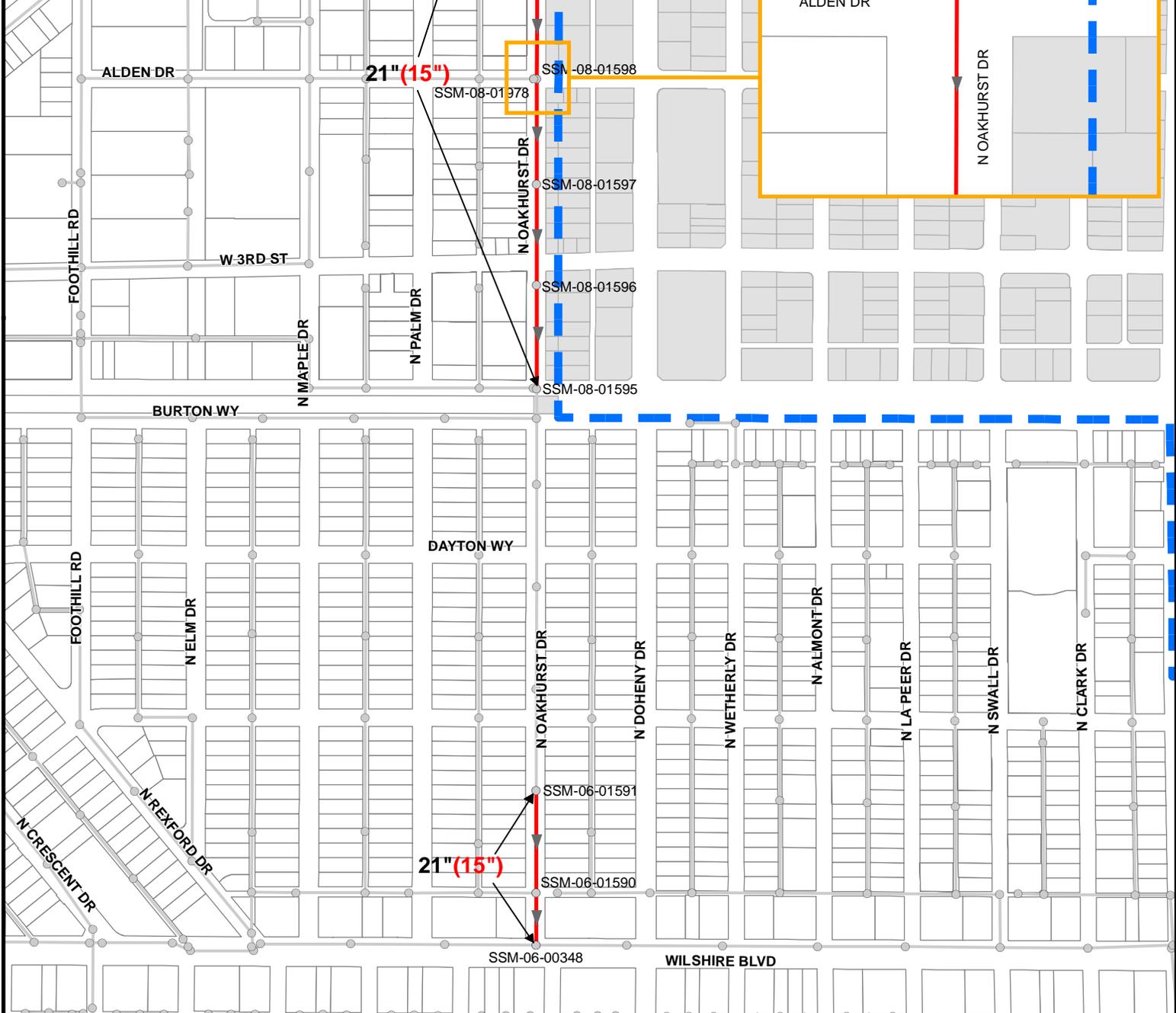
Item No.	Facility Type	Quantity	Unit	Rec Diam (in)	Repair Method	Cost
1	Pipeline	3688	LF	24	Complete Open Trench Replacement	\$ 1,604,211
2	Pipeline	300	LF	27	Complete Open Trench Replacement	\$ 136,552
3	Pipeline	298	LF	30	Complete Open Trench Replacement	\$ 148,781
	Total	4286	LF		Total Pipe Costs	\$ 1,889,544
4	Manhole	15	EA	N/A	Replacement	\$ 180,000
					Subtotal	\$ 2,070,000
					Construction Contingencies	\$ 414,000
					Engineering and Administration	\$ 311,000
					Total Estimate	\$ 2,795,000

Project ID:	06-000
Project Name:	Sewer Improvements Along Oakhurst Drive
Description/Purpose:	This project includes the upsizing and replacement of selected sewer pipelines and manholes along Oakhurst Drive as determined from the hydraulic capacity analysis. This project has been assigned the lowest priority out of the three hydraulic capacity projects identified because the deficiencies were identified primarily under wet weather conditions. The Oakhurst project was found to be deficient during a design storm event, but not during average dry weather flows. There was a high amount of inflow and infiltration observed in the sewer system, which contributes to the pipeline segments being deficient in capacity. It is recommended that the City complete the inflow and infiltration study and complete the CCTV investigation of the entire system prior to implementing the capacity improvement projects. By assigning the I&I and CCTV projects a higher priority, the City may be able to identify the locations of inflow and infiltration and mitigate the problems, in the hopes that the capacity upgrades will no longer be required. It is recommended that the need for this project be revisited after the completion of the I&I study and the CCTV evaluation of the pipe segments. See the attached table and exhibits for the project location.
Total Project Cost:	\$1,729,000
Fiscal Year:	2014/15
Total FY 2014/15 Cost:	\$4,694,000
Exhibit:	(See attached)

Legend

Capacity (Replacement) Project

- Oakhurst
- Sewerlines
- 21"** Recommended Pipe Size
- (15")** Existing Pipe Size
- ▶ Flow Arrow
- - - City of Beverly Hills Boundary
- City of Beverly Hills Parcels



Source:
City of Beverly Hills, 2009

City of Beverly Hills
CIP Project No. 06-000
Sewer Improvements Along Oakhurst Drive



Exhibit 6

City of Beverly Hills
Sanitary Sewer Collection System Master Plan
CIP Project No. 06-000
Sewer Improvements Along Oakhurst Drive

Item No.	Facility Type	Quantity	Unit	Rec Diam (in)	Repair Method	Cost
1	Pipeline	12	LF	15	Complete Open Trench Replacement	\$ 4,291
2	Pipeline	2904	LF	21	Complete Open Trench Replacement	\$ 1,132,512
	Total	2915	LF		Total Pipe Costs	\$ 1,136,804
3	Manhole	12	EA	N/A	Replacement	\$ 144,000
					Subtotal	\$ 1,281,000
					Construction Contingencies	\$ 256,000
					Engineering and Administration	\$ 192,000
					Total Estimate	\$ 1,729,000

Project ID:	07-000
Project Name:	Infiltration and Inflow Study
Description/Purpose:	This project includes a detailed infiltration and inflow study to further study sewer basins LC01, ECR, AZ01 and WH01 (ordered by importance) to identify causes of infiltration and inflow within the sewer system. This projects includes system inspection by smoke testing and dye tracing to determine direct connections into the system. See the attached exhibit for basin locations.
Total Project Cost:	\$500,000
Fiscal Year:	2012/13
Total FY 2012/13 Cost:	\$1,884,000
Exhibit:	(See attached)

Project ID:	08-000
Project Name:	CCTV Inspection Program
Description/Purpose:	This project includes the ongoing closed circuit television (CCTV) inspection of City sewer pipelines and manholes in order to identify system defects or deficiencies and plan accordingly for needed improvements. The City should inspect the remaining 84 percent of their system over the next 2 years. The City should inspect 100 percent of the system every 5 years.
Total Project Cost:	\$223,000 (2010/11), \$492,000 (2011/12), then \$850,000 every 5 years.
Fiscal Year:	Continuous
Exhibit:	(See attached)

City of Beverly Hills
Sanitary Sewer Collection System Master Plan
CIP Project No. 08-000
CCTV Inspection Program

Phase 1

Item No.	Quantity	Unit	Description	Cost
1	2,839	LF	Phase 1A (≤ 12" Diameter)	\$ 3,123
2	11,541	LF	Phase 1A (> 12" Diameter)	\$ 25,390
3	122,489	LF	Phase 1B (≤ 12" Diameter)	\$ 134,738
4	970	LF	Phase 1B (> 12" Diameter)	\$ 2,133
Total	137,839	LF	Subtotal	\$ 165,000
			Construction Contingencies	\$ 33,000
			Engineering and Administration	\$ 25,000
			Total Estimate	\$ 223,000

Phase 2

Item No.	Quantity	Unit	Description	Cost
1	185,973	LF	Phase 2A (≤ 12" Diameter)	\$ 204,570
2	10,173	LF	Phase 2A (> 12" Diameter)	\$ 22,380
3	75,817	LF	Phase 2B (≤ 12" Diameter)	\$ 83,398
4	24,167	LF	Phase 2B (> 12" Diameter)	\$ 53,168
Total	296,130	LF	Subtotal	\$ 364,000
			Construction Contingencies	\$ 73,000
			Engineering and Administration	\$ 55,000
			Total Estimate	\$ 492,000

Project ID:	09-000
Project Name:	Repair and Rehabilitation Program
Description/Purpose:	The Repair and Rehabilitation Program is a yearly program to rehabilitate the entire City sewer system over the 10-year CIP. The projects included in the program will be based on the results from Phase 1 and Phase 2 of the CCTV Inspection Program. The repair and rehabilitation required from the CCTV inspections conducted in 2009 have been included as separate projects (CCTV Area 1, 2, and 3), to be implemented in the first years of the CIP. The costs to repair the remainder of the system were determined from the statistical analysis in Section 7 of the Master Plan.
Total Project Cost:	\$24,400,000
Fiscal Year:	Continuous
Exhibit:	N/A

Table X-X
City of Beverly Hills
Sanitary Sewer Collection System Master Plan
Capital Improvement Program

CIP No.	CATEGORY	TOTAL
	Sub-Category Project Title / Facility Number(s)	
	PIPELINES	
	Complete CIPP Lining	

Table X-X
 City of Beverly Hills
 Sanitary Sewer Collection System Master Plan
 Capital Improvement Program

CIP No.	CATEGORY	TOTAL
	Sub-Category Project Title / Facility Number(s)	
	Total	\$1,770,325
	Complete Open Trench Replacement	
	Spot Repair	\$6,114,104
	MA	
	Ma	

Not Update

Table X-X
City of Beverly Hills
Sanitary Sewer Collection System Master Plan
Capital Improvement Program

CIP No.	CATEGORY Sub-Category Project Title / Facility Number(s)	TOTAL
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Table X-X
City of Beverly Hills
Sanitary Sewer Collection System Master Plan
Capital Improvement Program

CIP No.	CATEGORY Sub-Category Project Title / Facility Number(s)	TOTAL
	Total	\$346,950
	Manhole Replacement	
	Total	\$223,600
	MISCELLANEOUS	
	Total	\$500,000
	TOTAL	\$9,582,916

Notes:
Coord = Repair/Replacement done based on coordination with adjacent facilities.

Check
\$9,582,916

**Table 1
City of Beverly Hills
Sewer Master Plan**

CIP Cost Basis Parameters

Description	Unit	Cost
Construction		
<u>Pipeline Excavation and Installation</u>		
8" Diameter Replacement	LF	\$100.00
10" Diameter Replacement	LF	\$150.00
12" Diameter Replacement	LF	\$200.00
15" Diameter Replacement	LF	\$275.00
18" Diameter Replacement	LF	\$380.00
21" Diameter Replacement	LF	\$500.00
24" Diameter Replacement	LF	\$600.00
27" Diameter Replacement	LF	\$700.00
30" Diameter Replacement	LF	\$800.00
33" Diameter Replacement	LF	\$900.00
36" Diameter Replacement	LF	\$1,175.00
39" Diameter Replacement	LF	\$500.00
42" Diameter Replacement	LF	\$525.00
Sewer Structure Replacement	EA	\$12,000.00
Contingency		20%
<u>Engineering and Administration Fees</u>		15%

Note: Pipeline costs are for construction only and include existing pipe abandonment/removal, earthwork, pavement replacement, lateral reconnections, shoring and bracing, and traffic control.

**City of Beverly Hills
Sanitary Sewer Collection System Master Plan
Project Numbering Convention**

Example CIP Project Number:



Two-digit Prefix Guide		Three-digit Suffix Guide	
No.	Description	No.	Description
01	CCTV Area 1 Improvement Projects	000	General Project /
02	CCTV Area 2 Improvement Projects	001 - 100	Pipeline Complete
03	CCTV Area 3 Improvement Projects	101 - 200	Pipeline Complete
04	Hydraulic Capacity Analysis Improvements - Peck Drive Pipeline	201 - 300	Pipeline Spot Repair
05	Hydraulic Capacity Analysis Improvements - Gregory Way Pipeline	301 - 400	Manhole Replacement
06	Hydraulic Capacity Analysis Improvements - Oakhurst Drive Pipeline	401 - 500	Manhole Rehabilitation
07	Infiltration and Inflow Study	501+	Misc. / As needed
08	CCTV Inspection Program		
09	Repair and Rehabilitation Program		