

**Town of Los Altos Hills
Sanitary Sewer Collection System Progress Report
Contract Year 2015**

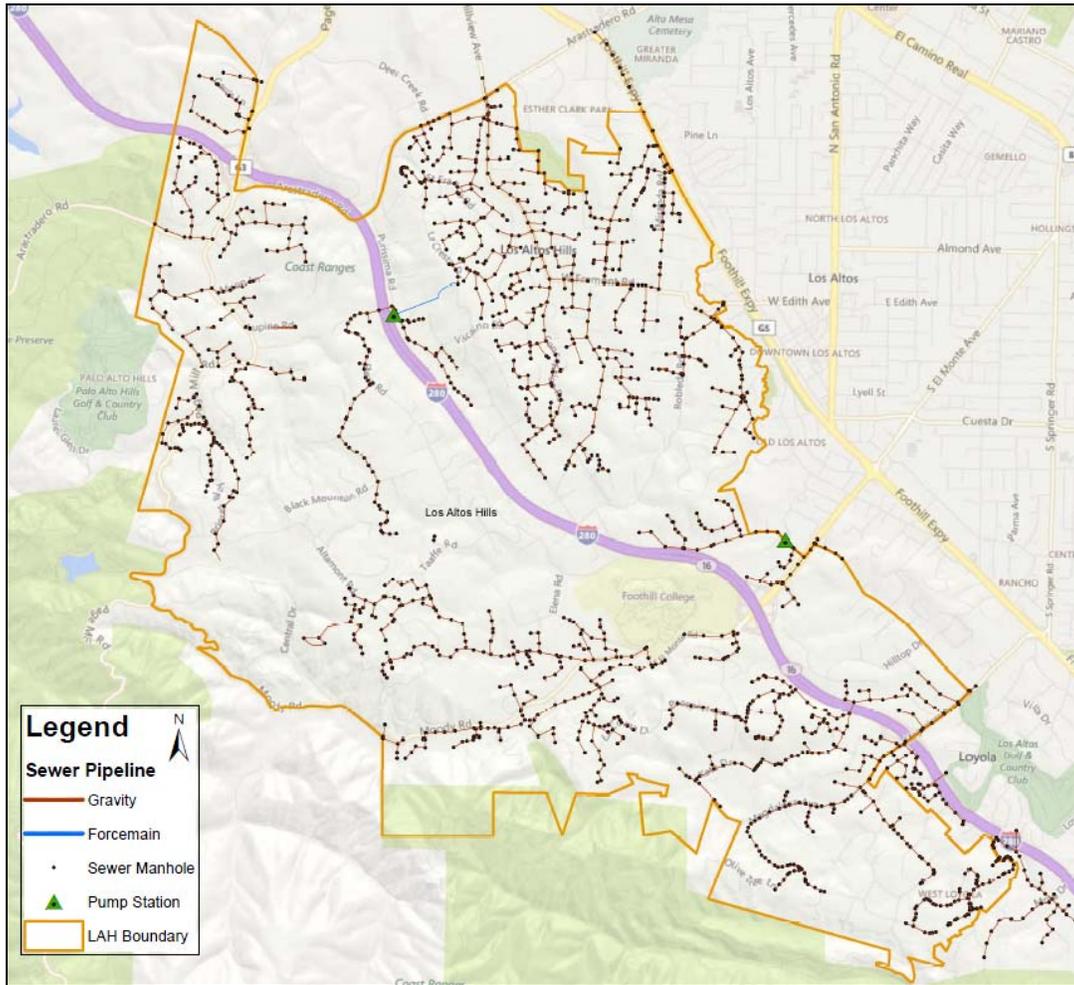
**Reporting Month: May 2016
Report Date: August 2, 2016**

I. INTRODUCTION

Figure 1 shows the Town of Los Altos Hills sewer system.

- Area served: 8.8 sq miles
- Miles of sewer pipelines: 55.78
- Number of residential parcels: 1,773
- Number of non-residential connections: 8

Figure 1. Town of Los Altos Hills Sewer System



II. PUBLIC WORKS DIRECTOR/CITY ENGINEER HIGHLIGHTS

a. SEWER SYSTEM MAINTENANCE HIGHLIGHTS

During the month of May 2016, the Town’s sewer maintenance contractor, West Bay Sanitary District (West Bay), completed all contract tasks on schedule. No significant issues were noted during cleaning and pump station inspection. During CCTV inspections, West Bay marked 5 pipes with structural grade 3 defects (described by NASSCO PACP as likely requiring action after 10 years) and 1 pipe with a structural grade 4 defect (described as likely requiring action in 5 to 10 years) for follow up. Follow up will involve either repair/rehabilitation under a future CIP, or pipe patch by West Bay under their current maintenance contract. The actions flagged by West Bay are not urgent, and the Town is reviewing their collective field notes and prioritizing follow up actions.

During this month there were no reported SSOs in the Town’s collection system.

A summary of completed sewer maintenance tasks is provided in Table 1, below. More detailed information is provided later in this report, and is also shown in the attached maps.

Table 1. Summary of Completed Tasks (Contract Year August 2015 – July 2016)

Task	Month of May 2016	Contract Year to Date	Compare to One Year Goal
Sewer Cleaning <ul style="list-style-type: none"> • 36-month and 24-month Schedule • High Frequency (12- and 6-month) • Other, Unscheduled Cleaning 	<ul style="list-style-type: none"> • 1.21 miles • 2.62 miles • 0 miles 	<ul style="list-style-type: none"> • 15.31 miles • 7.46 mile • 0 miles 	89.05% of Goal (83.33% of Time Elapsed)
Pump Station <ul style="list-style-type: none"> • Preventive Maintenance • Unscheduled repairs 	<ul style="list-style-type: none"> • 4X • 0X 	<ul style="list-style-type: none"> • 42X • 2X 	83.33% of Goal
CCTV Inspection <ul style="list-style-type: none"> • Routine Schedule (30 mos) • Other Unscheduled CCTV 	<ul style="list-style-type: none"> • 1.20 miles • 0 miles 	<ul style="list-style-type: none"> • 15.32 miles • 0.04 mile 	87.16% of Goal
SSO Response <ul style="list-style-type: none"> • No. of SSOs – Sewer Main 	<ul style="list-style-type: none"> • 0 	<ul style="list-style-type: none"> • 5 	N/A

Cleaning

Figure 2a shows previous contract year (PREV) cleaning results and current contract year (CURR) cleaning progress for the Town’s pipes. Since August 1, 2014, 78.78 percent of the pipes within the Town’s collection system has been cleaned. Cleaning results from the previous contract year are also shown in this chart. Percentages are based on the number of pipe segments cleaned. Calculating percentages using the number of pipes is a more consistent approach compared to pipe lengths due to discrepancies between existing records and field observations.

Figure 2b shows cleaning results for the Town’s pipes for the current contract year only. Figure 2b expands the wedge shown in yellow in Figure 2a. In the new contract year, 38.36 percent of the cleaned pipes had debris, 20.66 percent had roots, 1.31 percent had grease, and 39.34 percent had clear results. Small amounts of broken pipe debris were encountered by cleaning crews in the previous months.

Figure 2a. Cleaning Progress as of May 31, 2016

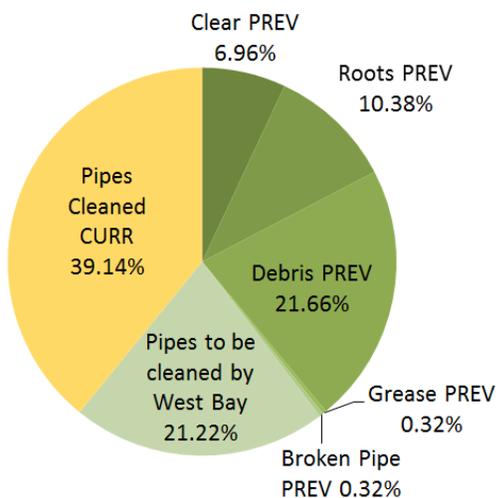
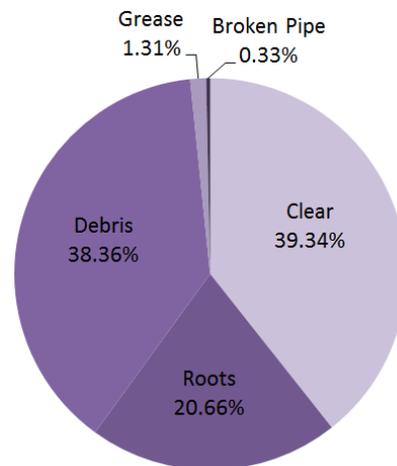


Figure 2b. Cleaning Results for the Current Year to Date. (Chart represents 39.14% of system).



During the previous contract year, West Bay had focused on cleaning pipes in the system that had high volumes of SSOs. As a result, there are fewer “Clear” pipe encountered in the system as shown in Table 2 and 3. In the current contract year, cleaning, which has occurred on a branch by branch basis, shows more “Clear” pipe. However, roots and debris in the pipes have remained an issue in the Town’s collection system.

Table 2. Cleaning Results PER CONTRACT YEAR by Percent of Pipe Segments

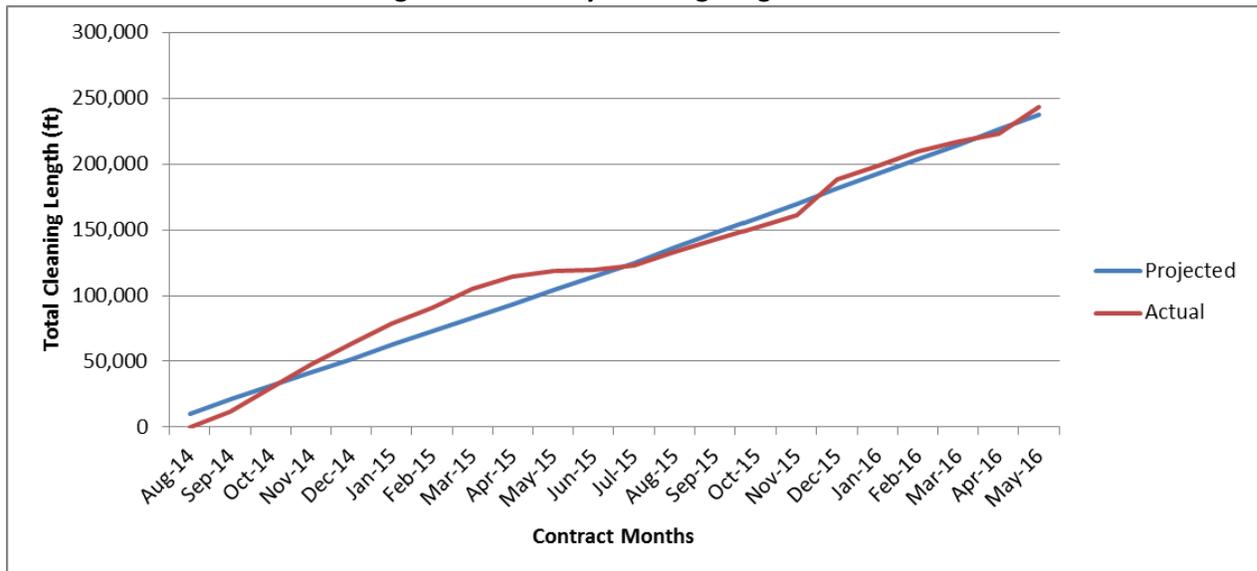
	Previous Contract Year (39.64% of System Cleaned)	Current Contract Year (39.14% of System Cleaned)
Clear	17.56%	39.34%
Roots	26.19%	20.66%
Debris	54.64%	38.36%
Other	1.61%	1.64%
Total	100% of Cleaned Pipes	100% of Cleaned Pipes

Table 3. Cleaning Results TO DATE by Percent of Pipe Segments

	Previous and Current Contract Year (78.78% of System CCTV'd)
Clear	28.41%
Roots	23.43%
Debris	46.53%
Other	1.63%
Total	100% of Cleaned Pipes

Figure 3 shows West Bay cleaning progress since they started maintaining the Town’s sanitary sewer collection system in August 2014. West Bay has been effective in meeting each year’s total cleaning footage goal on average, as projected in the previous and current contract.

Figure 3. West Bay Cleaning Progress



CCTV Inspection

Figures 4a and 4b show CCTV inspection results for structural and O&M defects, respectively. Percentages are shown based on the number of pipe segments inspected. As of May 2016, 51.52 percent of the system has been inspected. Of the 51.52 percent, 28.65 percent was inspected during the current contract year. Less than one percent of the inspected pipes in the previous contract year have National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) Structural Grade 4 or 5 defects. These defects are characterized by NASSCO as being likely to require action within 1 to 10 years.

Pipes with NASSCO PACP Grade 4 or 5 Operations and Maintenance (O&M) defects have been placed on the hot spot list that is maintained by West Bay. Pipes on the hot spot list receive a more frequent cleaning schedule of 12 and 6 months. Pipes showing Grade 4 or 5 O&M defects will remain on the hot spot list until the O&M issues are resolved. The hot spot list is maintained by West Bay outside of the Lucity database. West Bay continues to update the hot spot list in Lucity on a monthly basis. They anticipate to complete uploading the entire high frequency schedule by July 2016. The remaining inspected pipes have O&M defects of 3 or below. The remaining 48.48 percent of pipes in the system have not been inspected by West Bay, and will be inspected on their contracted schedule.

Figure 4a. CCTV Inspection Results as of May 31, 2016 (Structural Defects)

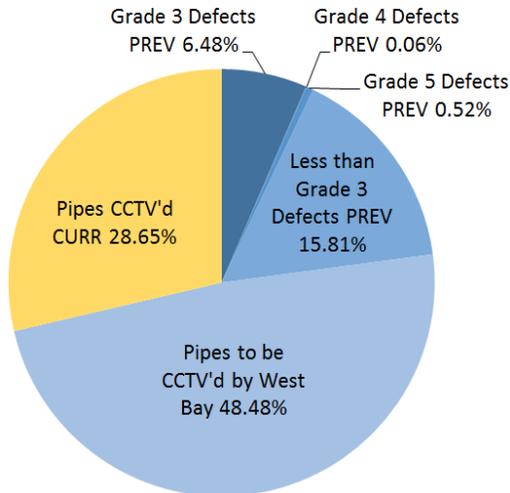
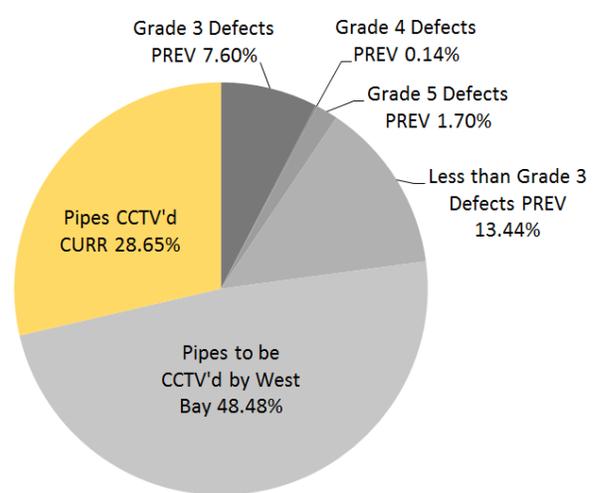


Figure 4b. CCTV Inspection Progress as of May 31, 2016 (O&M)



Figures 5a and 5b show structural and O&M defects found during the current contract year. These charts reflect results for 28.65 percent of the system. During this period, 59.04 percent of inspected pipes had no structural defects, 34.51 percent had Grade 3 or better structural defects, and 6.45 percent had Grade 4 or 5 structural defects.

Less than 4 percent of the pipes that were inspected in this new contract year have NASSCO PACP O&M Grade 4 and 5 defects. In addition, 57.11 percent of the inspected pipes have been recorded to have Grade 3 or lower defects.

Figure 5a. CCTV Inspection Results CURR August 2015 – May 31, 2016 (Structural). (Chart represents 28.65% of system).

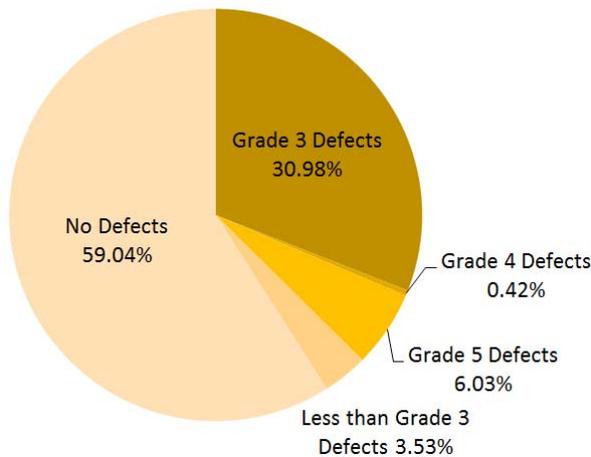
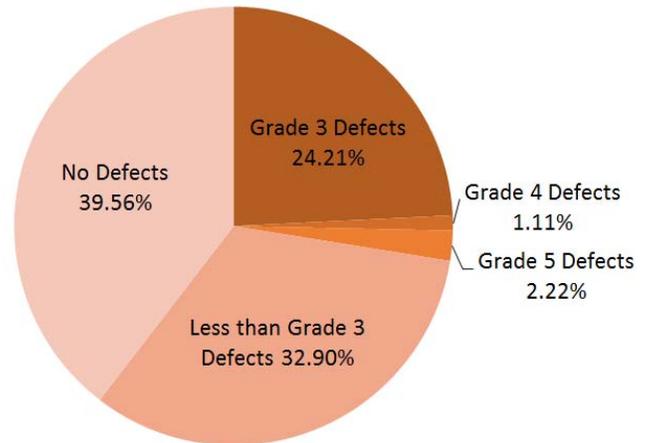


Figure 5b. CCTV Inspection Results CURR August 2015 – May 31, 2016 (O&M). (Chart represents 28.65% of system).



The current contract year focused CCTV operations on Branch 5 of the system, which had the largest number of prior SSO locations. As a result, West Bay encountered more pipes in the system having NASSCO PACP Structural Grade 5 defects compared to the previous year as shown in Table 4 and 5. The CCTV results, combined with West Bay’s field follow up notes, have been used to develop the Capital Improvement Program to address the most critical pipes with Grade 4 and 5 structural issues.

Table 4. CCTV Results PER CONTRACT YEAR by Percent of Pipe Segments

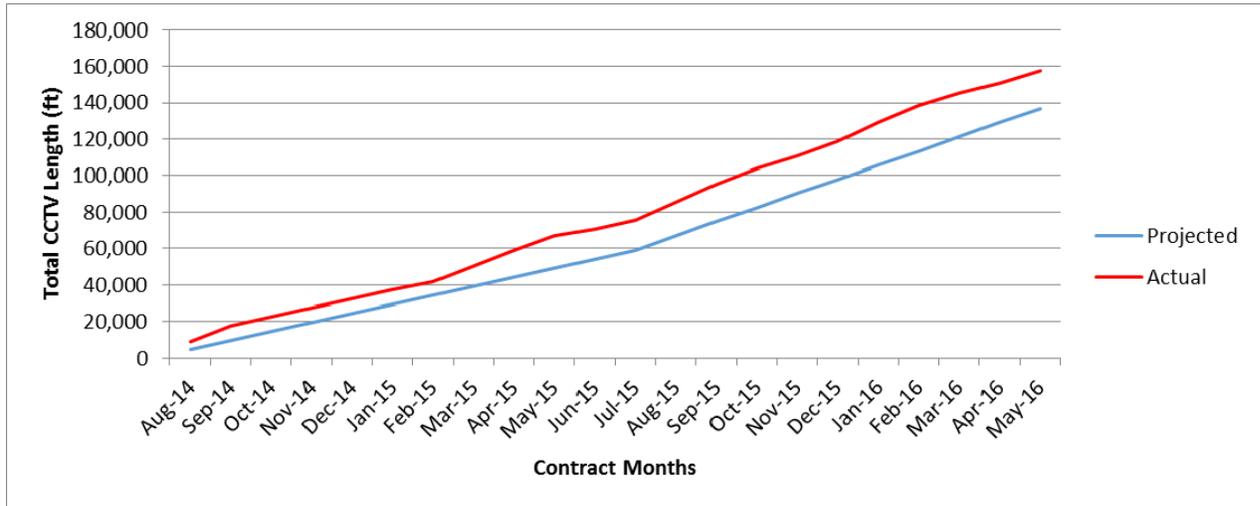
	Previous Contract Year (22.87% of System CCTV'd)	Current Contract Year (28.65% of System CCTV'd)
Grade 5	2.27%	6.03%
Grade 4	0.26%	0.42%
Grade 3 or Less	97.46% includes 64.89% with no defects	93.55% includes 59.04% with no defects
Total	100% of CCTV'd Pipes	100% of CCTV'd Pipes

Table 5. CCTV Results TO DATE by Percent Pipe Segments

	Previous and Current Contract Year (51.52% of System CCTV'd)
Grade 5	4.44%
Grade 4	0.36%
Grade 3 or Less	95.20% (includes 61.51% with no defects)
Total	100% of CCTV'd Pipes

Figure 6 shows West Bay CCTV progress since it started maintaining the Town’s sanitary sewer collection system in August 2014. West Bay has consistently exceeded the CCTV inspection goal as projected in previous and current contract years.

Figure 6. West Bay CCTV Progress



Pump Station Maintenance

During this month, routine maintenance was conducted at Purissima and O’Keefe pump stations. There were no issues observed during West Bay’s weekly inspections.

SSO Review

Table 6 shows SSOs to date by cause. During this month, there were no reported SSO within the Town’s Sewer Collection System. However, a call was made by a homeowner regarding a possible SSO related to a private lateral. West Bay responded to the call and determined that it was not a mainline issue since there were no flow problems on the mainline. The homeowner was advised to call a private plumber to address the issue.

Over the past 5 years, the predominant cause of SSOs has been roots. However, as indicated by the reduced number of SSOs in 2015, the use of chemical root control, combined with improved sewer maintenance methods in place by West Bay, have reduced root-related issues within the Town’s sewer system.

Table 6. SSOs to May 31 2016, by Cause

Cause of SSOs	2016	2015	2014	2013	2012
Root Intrusion	1	5	16	9	10
Debris	0	1	1	2	0
Grease	0	0	0	0	0
Structural	0	0	1	0	1
Pump Station Failure	0	0	0	0	1
Other	0	1	0	1	2
Total SSOs/yr	1	7	18	12	14

Root Foaming Program

As an effort to address root related issues in the collection system, the Town is implementing a root foaming program. The Town, with the support of West Bay and VWHA, identified pipes with root-related issues that have recurred after the initial root foaming effort. Root-related issues were determined using both cleaning and CCTV maintenance records. Duke’s Root Control provided chemical root control on the identified pipes with root related issues through West Bay’s contract. Table 7 summarizes the work performed by Duke’s Root Control from April 26 through May 9, 2016.

Table 7. 2016 Root Foam Program

Pipe size	Length of Pipe Root Foamed
6-inch sewer pipes	9.10 miles
8-inch sewer pipes	1.02 miles
12-inch sewer pipes	0.19 mile
Total	10.31 miles

Attachment I include maps providing additional information on cleaning and CCTV inspection results, SSOs, and the recent Root Foaming Program.

b. Summary of Meetings Held during Reporting Month

There were no meetings held during this reporting month.

c. Computerized Maintenance Management System (CMMS) Updates

During the reporting month, routine input of cleaning and CCTV inspection progress to date was added to the CMMS.

d. Geographic Information System (GIS) and Progress on Manhole Data Collection

West Bay is continuously working on updating the Town’s GIS mapping maintenance system.

e. Maintenance Planning

West Bay has continued to implement the agreed maintenance plan from previous discussions with the Town and VWHA.

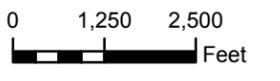
f. Other

Table 8 provides updates and progress on the Town’s sewer system management activities that are completed in addition to operations, maintenance, and SSO response.

Table 8. Staff Support Activities Summary of Progress

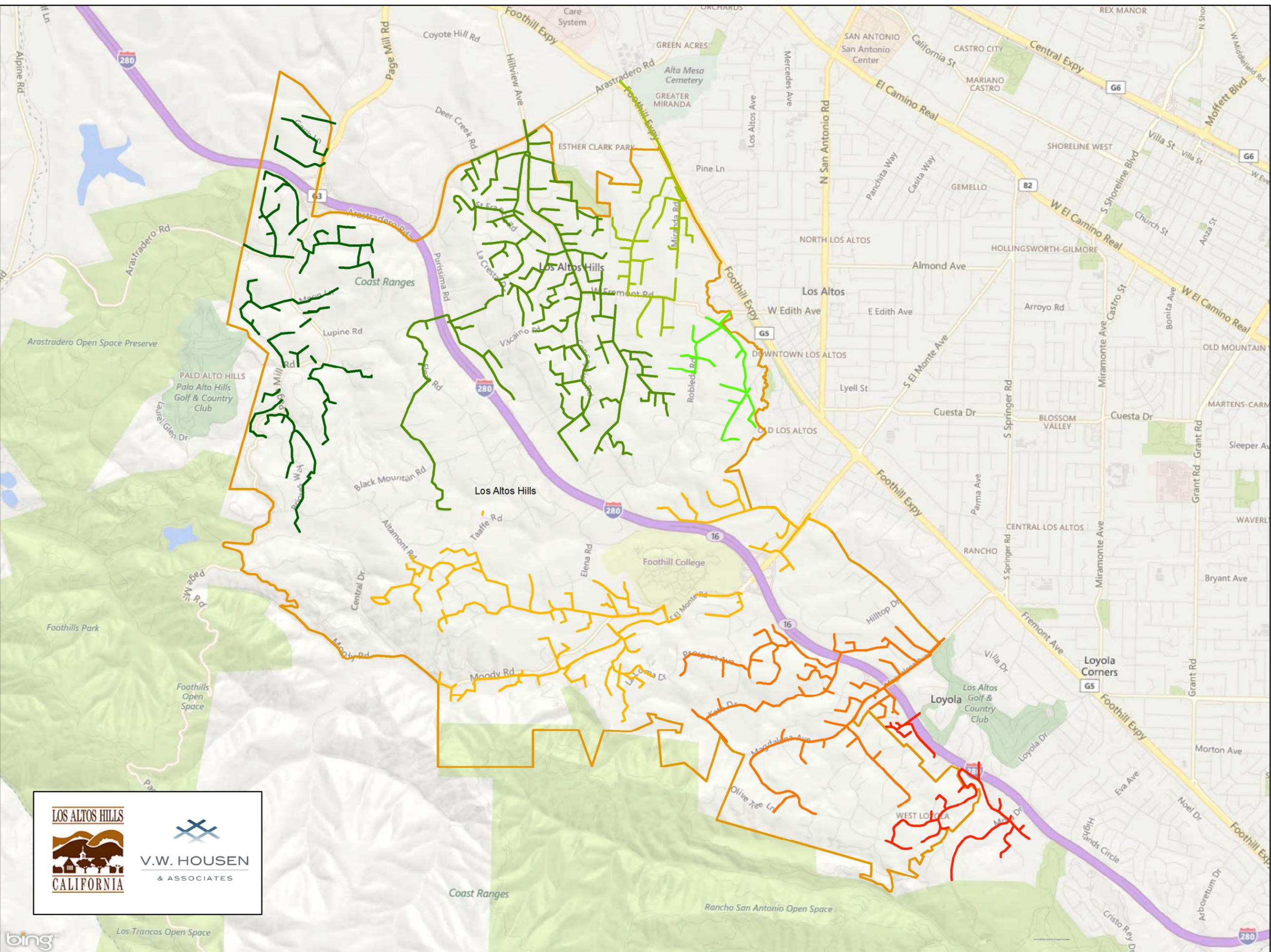
Staff Support Activities	Progress and Comments
SSMP 3 rd Party Review	<ul style="list-style-type: none"> Humphrey Consulting completed their 3rd party review of the Town’s SSMP. VWHA has completed the SSMP update. The City Council adopted the final document on May 19, 2016.
2016 Sewer CIP	<ul style="list-style-type: none"> The Town’s risk model has been completed. Based on risk model results, a repair list was developed for the CIP. VWHA submitted the final document for the CIP that includes input from both the Town and West Bay. The City Council awarded the construction contract on May 19, 2016.
Cleaning and CCTV programs	<ul style="list-style-type: none"> West Bay continues to perform cleaning of Branches 6 and 7 then moving on to the remaining uncleaned pipes in Branch 2. After CCTV of pipes in Branch 3, West Bay started CCTV of remaining pipes in Branch 2.
2015-16 Hot Spot program	<ul style="list-style-type: none"> West Bay has added pipes to the High Frequency (hot spot) list on an ongoing basis following their matrix, to address pipes that have maintenance issues including pipes where an SSO has occurred.
Sanitary Sewer Master Plan	<ul style="list-style-type: none"> West Bay has collected MH data this month and will continue this work over the next several months. Master Plan development will follow data collection. V&A has completed collecting rainfall data. VWHA is analyzing the collected data and will prepare a summary, including an evaluation of dry weather flow allocation per connected parcel. Draft report is anticipated to be completed in July 2016, with a final report in August 2016.

Town of Los Altos Hills Sanitary Sewer Collection System Map Sewer Basins (Branches)



Legend

- Branch 1
- Branch 2
- Branch 3
- Branch 4
- Branch 5
- Branch 6
- Branch 7
- LAH Boundary

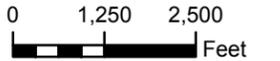


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& ASSOCIATES



Town of Los Altos Hills Sanitary Sewer Collection System Map Pipes Cleaned from Aug 2014 - May 2016

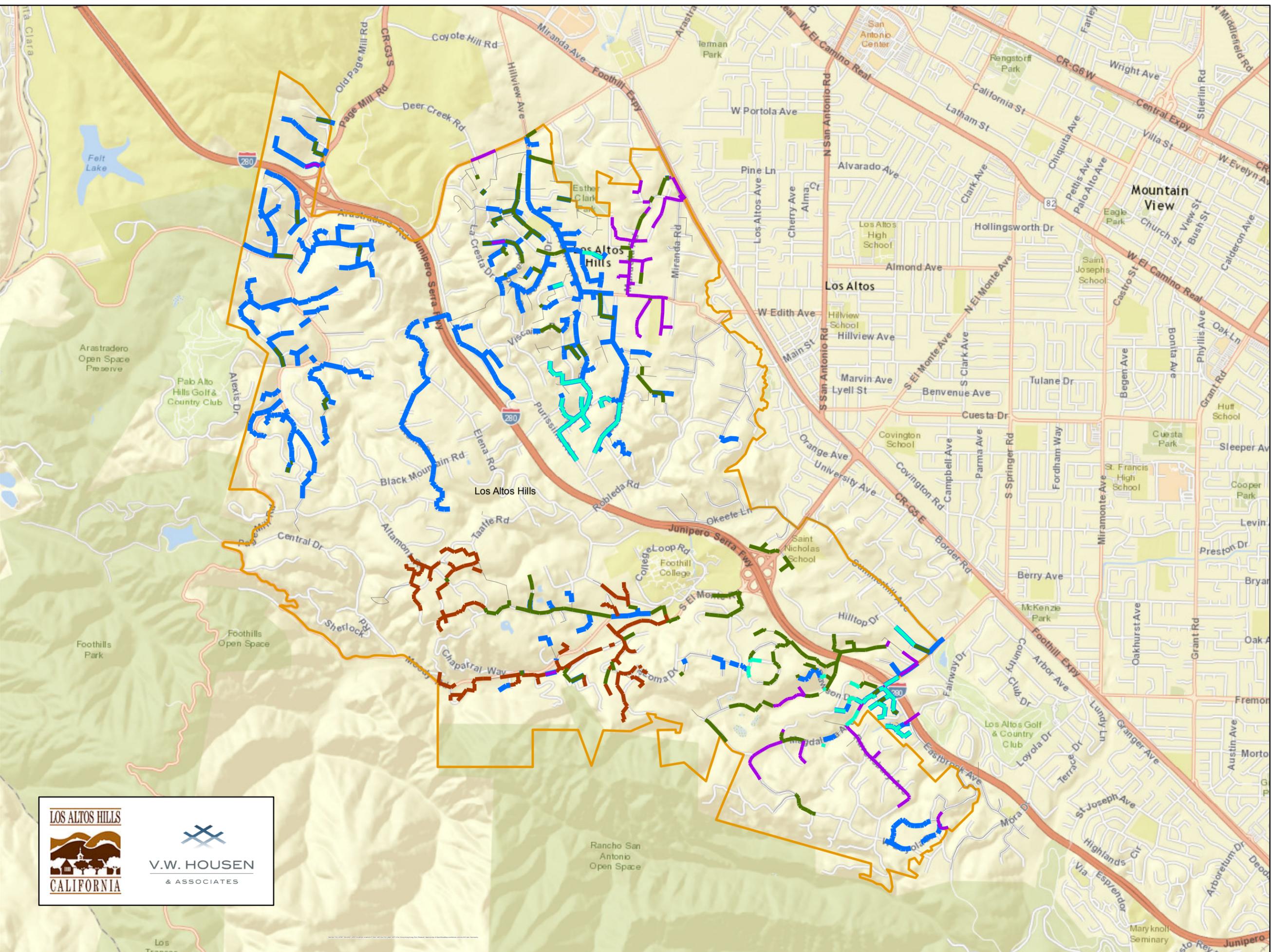


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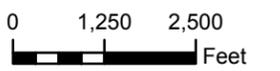
- Prev Yr (Aug14 - Jul15)
- Qtr 1 (Aug15-Oct15)
- Qtr 2 (Nov15 - Jan16)
- Qtr 3 (Feb16 - Apr16)
- Qtr 4 (May16)
- Sewer Pipeline
- LAH Boundary

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Town of Los Altos Hills
 Sanitary Sewer Collection System Map
 Pipes CCTV'd from Aug 2014 - May 2016

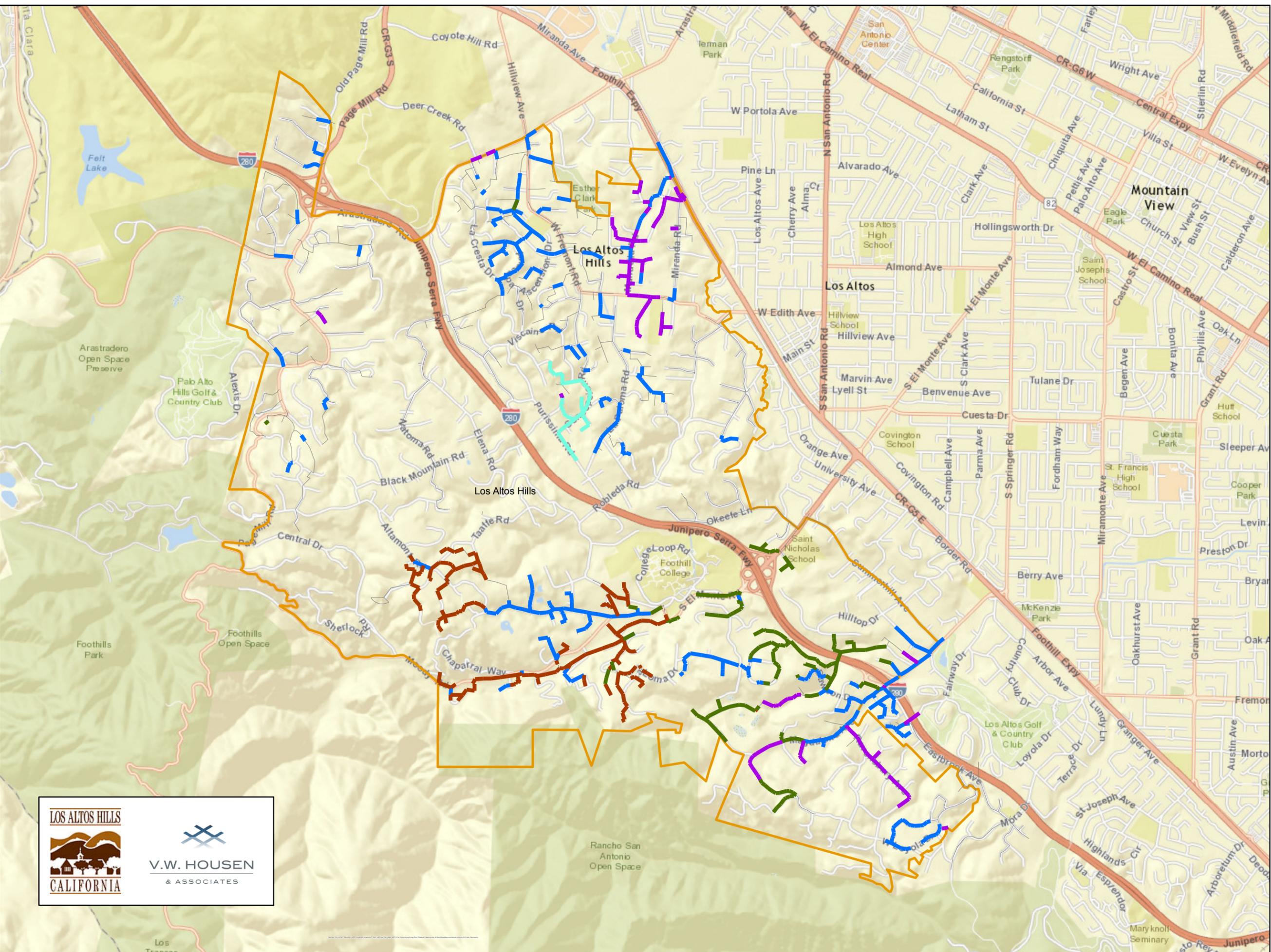


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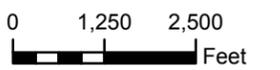
- Prev Yr (Aug14 - Jul15)
- Qtr 1 (Aug15 - Oct15)
- Qtr 2 (Nov15 - Jan16)
- Qtr 3 (Feb16 - Apr16)
- Qtr 4 (May16)
- Sewer Pipeline
- LAH Boundary

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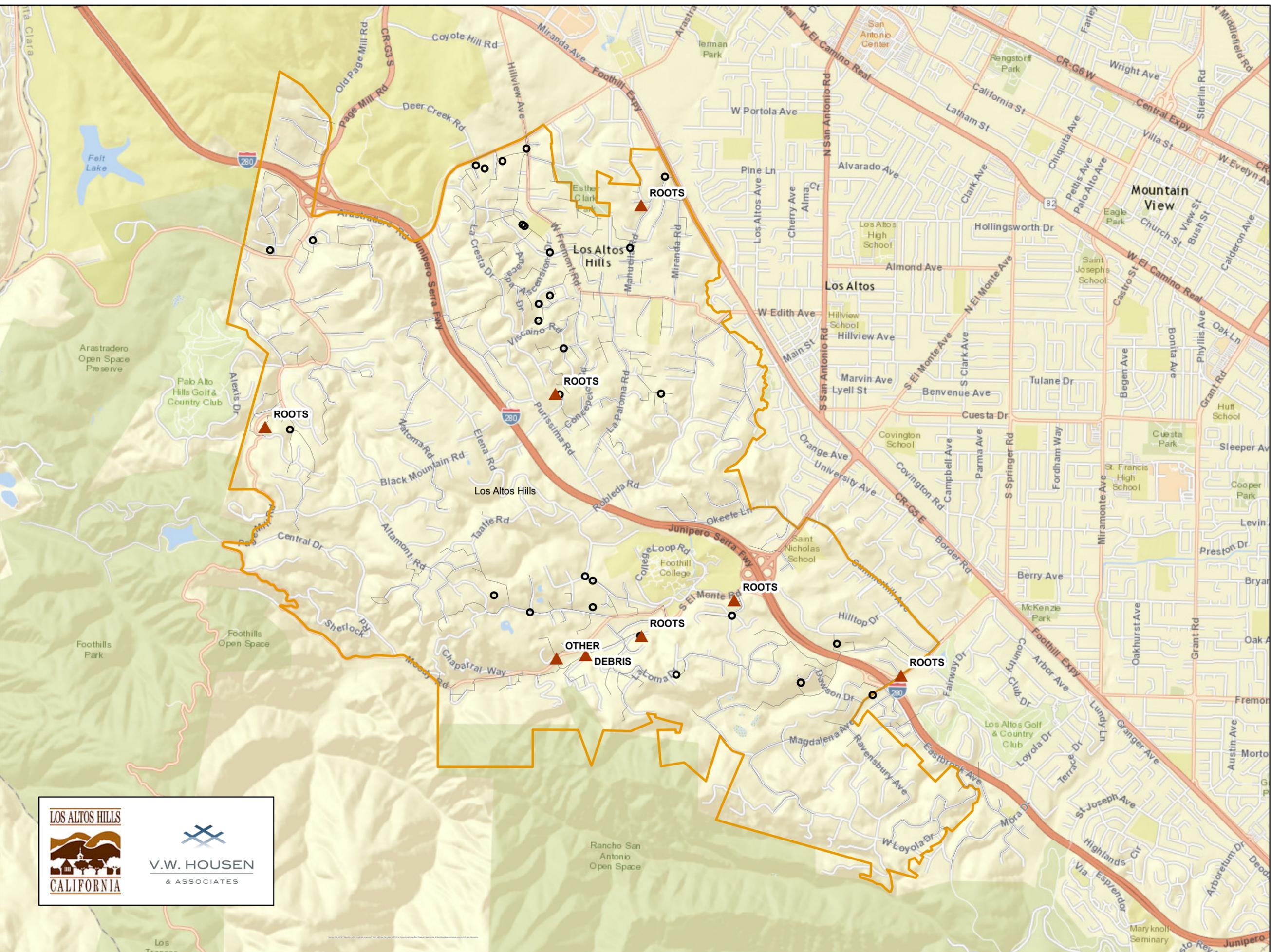
Town of Los Altos Hills Sanitary Sewer Collection System Map SSOs from 2013 - May 2016



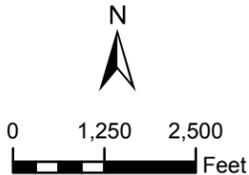
Legend

-  2015-2016 SSOs (all Cat 3)
-  2013-2014 SSOs
-  Sewer Pipeline
-  LAH Boundary





Town of Los Altos Hills Sanitary Sewer Collection System Map Pipes Root Foamed by Duke's Root Control



Legend

-  Sewer Pipes Root Foamed
-  Sewer Pipeline
-  LAH Boundary



