2017 Young Tree Care Survey Report

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Compiled for: The City of Palo Alto

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I. Introduction

Canopy's Mission

Canopy plants and cares for trees where people need them the most. We bring the life-giving benefits of trees to the schools, neighborhoods, and public spaces of the San Francisco Mid-Peninsula.

Attachments

Full City Report: For the City of Palo Alto Urban Forestry Section. Including health condition and care recommendations for all 1,065 trees surveyed.

Full Thirsty Tree and Red Flag Report: Previously sent in batches as individual surveys were finished, and in full here.

Canopy is a nonprofit organization working to promote a healthy urban forest by educating, inspiring and engaging the community in the stewardship of young and mature trees. We created the Young Tree Care Survey to address these goals. The Young Tree Care Survey seeks to educate homeowners on the proper care of young trees, to notify the City of Palo Alto of any problems with young street trees that need to be addressed, and to engage community volunteers in the process, including some "first aid" tree care. Young publicly-owned trees are on the front line of our urban forest and must tolerate the harshest urban conditions. Once established, they provide some of the greatest benefits to our city and residents.

The Canopy Young Tree Care Survey (YTCS) takes place in the summer months and surveys most publicly-owned street and park trees planted in Palo Alto in the past five planting seasons. At each site where trees are surveyed, information particular to those trees is left with homeowners or business owners as well as generic young tree care information. Survey results for all trees are compiled and shared in a detailed report to the City's Public Works Urban Forestry Section to alert staff about trees in need of care, and as a way to assess trends over the years. Results of the survey are also posted on Canopy's website, http://canopy.org.

Three years ago, the YTCS Coordinator digitized the survey process by creating a mobile app for each of the survey routes. We continued to use this digitized process for this year's forty-eight survey routes. This made the surveying process much easier for most volunteers and allowed Canopy and the City to view and use the data as soon as it was obtained, which sped up the data collection, analysis, and reporting process.

II. Survey Results

Below is a table summarizing the results of the survey. The far left hand column lists the survey fields, and the far right hand columns list the total number of trees for which the answer was "true" and the percentage of the total. The middle columns are the percentages from the previous five surveys for comparison.

Following the table are several graphs for easier visualization of important results. An explanation and evaluation of many of the individual questions follows in the Evaluation and Conclusion sections of this report.

Canopy 2015 Young Tree Care Survey

General						**2017**	
	2012	**2013**	**2014**	**2015**	**2016**	**#**	**%**
Trees Surveyed	702	672	556	712	948	1065	N/A
Trees Planted in previous 5 years	1007	960	850	920	1114	1380	N/A
Condition Rating	**2012**	**2013**	**2014**	**2015**	**2016**	**#**	**%**
Excellent	-	-	20%	24%	28%	374	35%
Good	-	-	45%	46%	43%	444	42%
Fair	-	-	27%	16%	15%	126	12%
Poor	-	-	7%	6%	6%	34	3%
Dead	-	-	1%	1%	1%	11	1%
Red Flag*	19%	10%	6%	4%	2%	22	2%
Tree Not Found	2%	1%	3%	1%	2%	37	3%
No Rating Recorded	-	-	-	-	-	22	2%
Did not survey	-	-	-	-	-	17	2%
Homeowner Concerns	**2012**	**2013**	**2014**	**2015**	**2016**	**2017 #**	**2017 %**
Needs water	43%	46%	39%	51%	29%	384	36%
Over-watered	-	-	-	2%	4%	24	2%
Needs mulch	40%	32%	29%	38%	31%	246	23%
Needs weeding/lawn or other competing plants	-	-	18%	25%	23%	209	20%
Needs weeding	12%	11%	-	-	-	-	-
Lawn or other competing plants	18%	16%	-	-	-	-	-
Weeded by surveyor	6%	5%	2%	5%	4%	154	14%

Mechanical damage or injury	4%	5%	5%	10%	5%	68	6%

City Concerns	**2012**	**2013**	**2014**	**2015**	**2016**	**2017 #**	**2017 %**
Needs basin re-building	22%	21%	6%	21%	21%	228	21%
Suckers need to be pruned	5%	7%	5%	10%	9%	57	5%
Suckers pruned by surveyor	5%	9%	4%	11%	8%	145	14%
Needs to be re-staked/re-strapped	10%	9%	6%	11%	7%	86	8%
Stakes need to be removed	29%	24%	29%	11%	11%	168	16%
Root flare buried	6%	5%	9%	16%	19%	200	19%
Root flare cleared today	2%	5%	9%	-	-	56	5%
Needs major pruning	6%	4%	-	-	-	-	-
Needs structural pruning	-	-	14%	11%	15%	110	10%
Needs clearance pruning	-	-	10%	7%	4%	50	5%

* Calculated differently before 2014

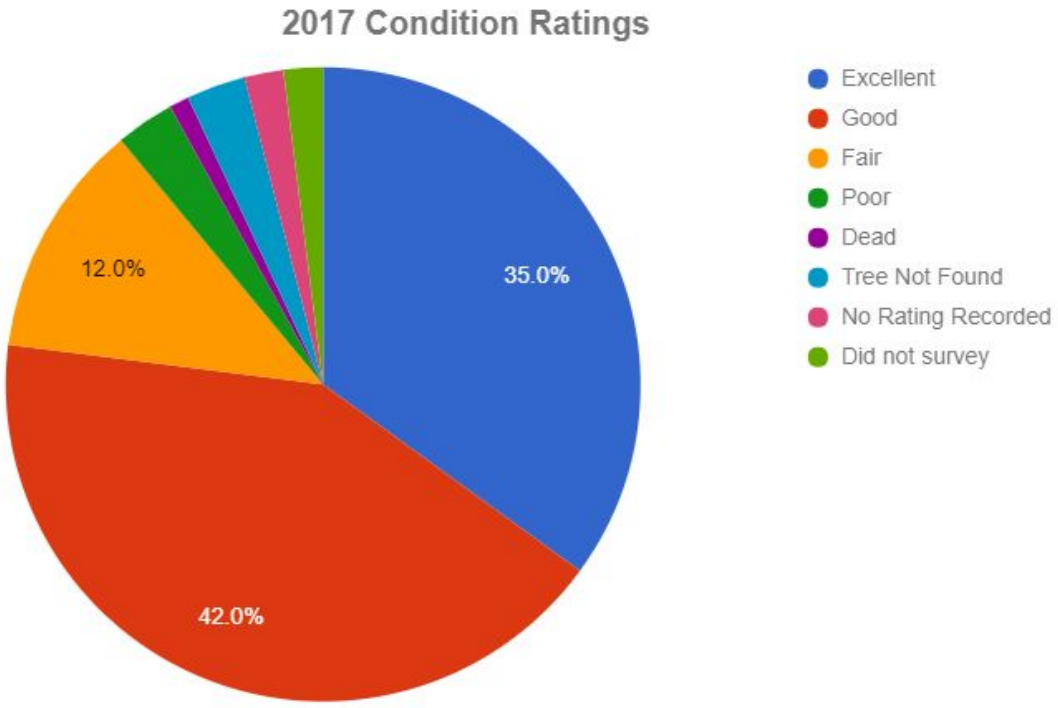

Figure 1. Condition Ratings for trees surveyed (by percent) for 2017.

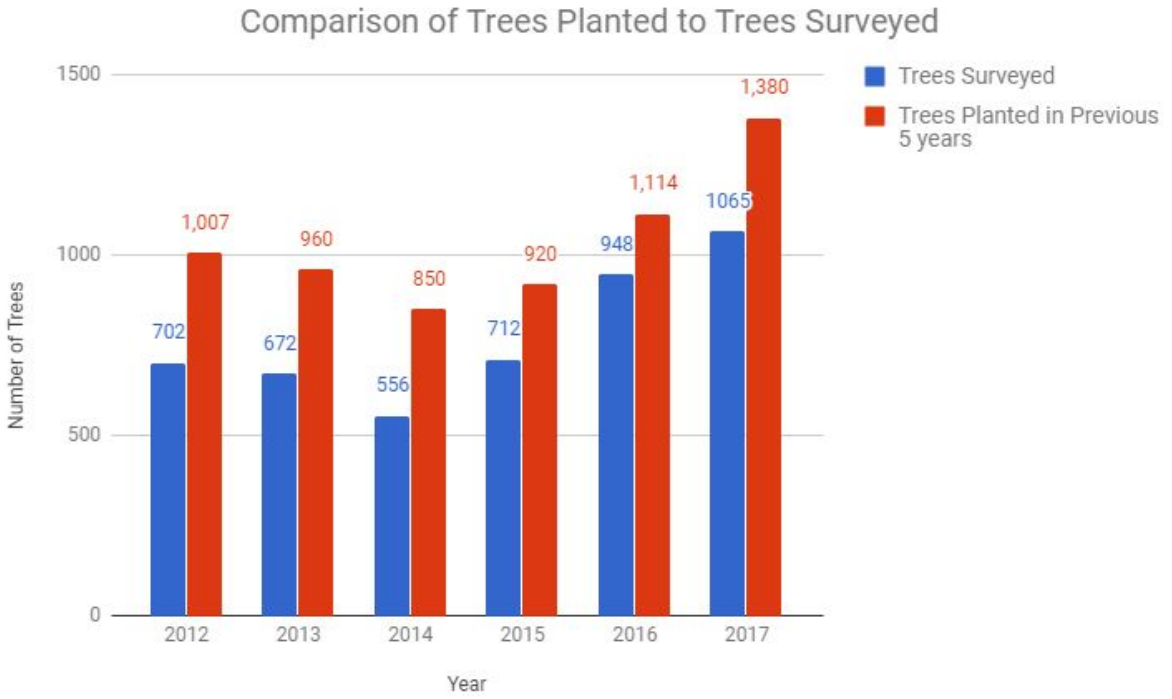

Figure 2. Chart comparing the number of trees planted in the previous 5 years to the number of trees surveyed.

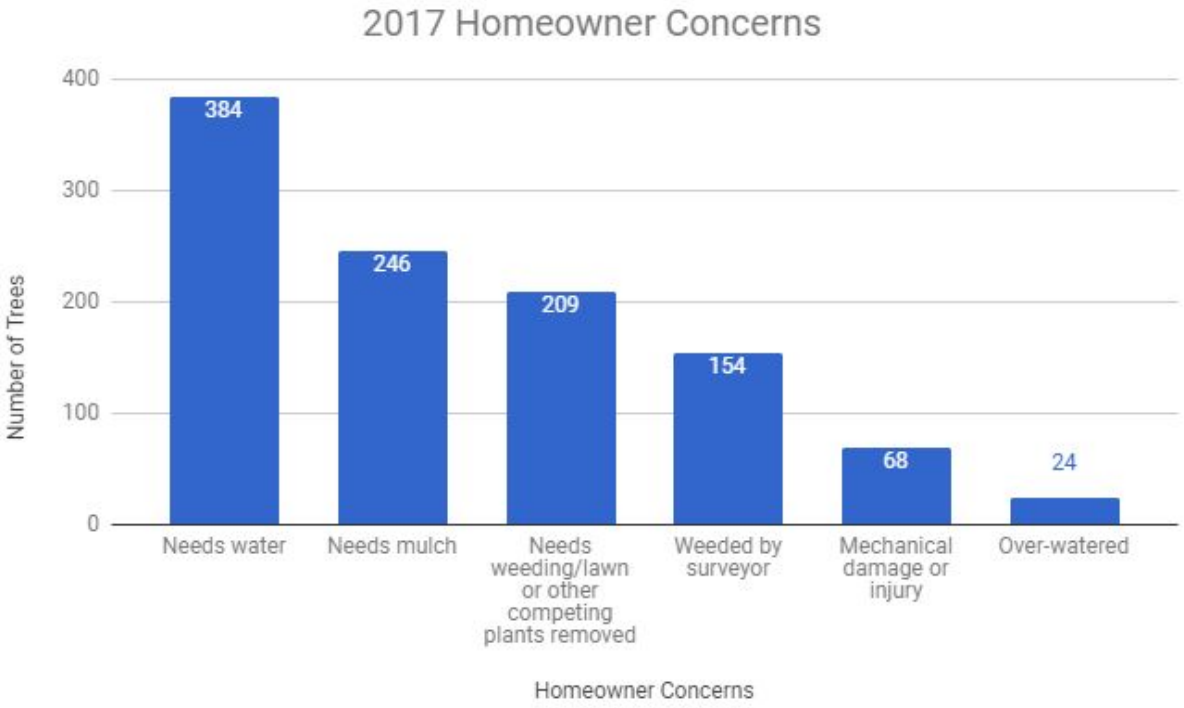

Figure 3. Number of trees with homeowner concerns recorded for 2017.

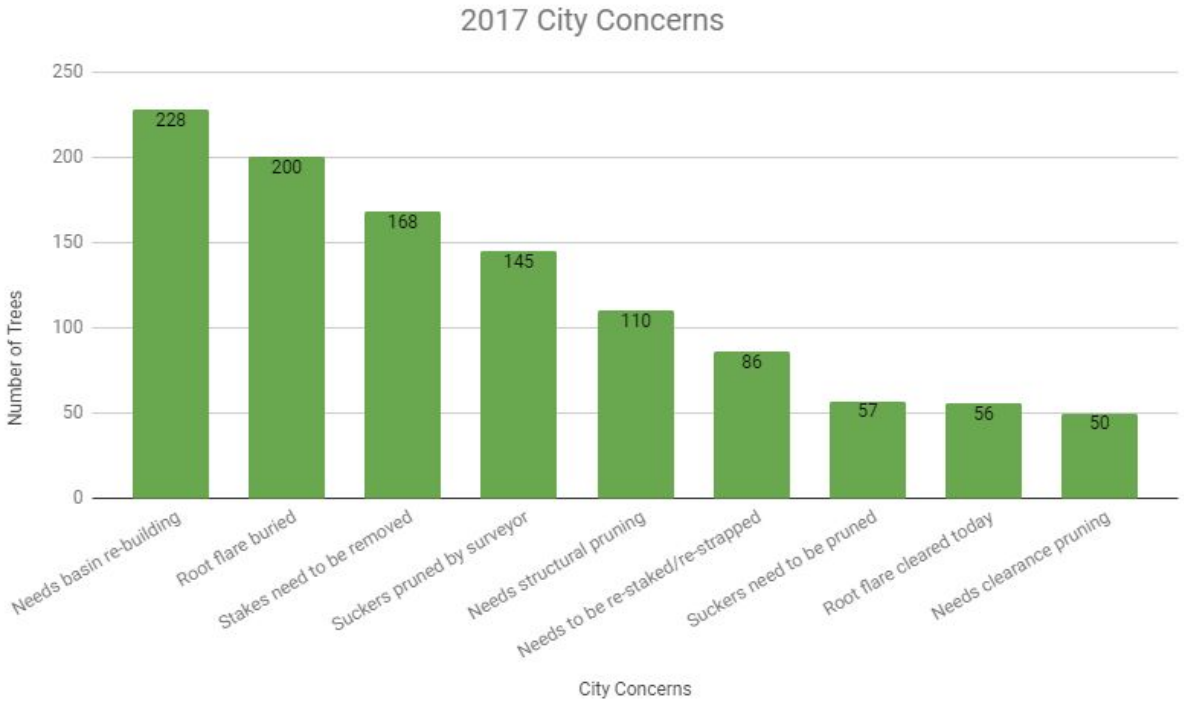

Figure 4. Number of trees with city concerns recorded for 2017.

III. Evaluation

This year, Community Forestry Program Manager Elise Willis and Young Tree Care Survey Intern Laura Duffy coordinated the survey effort and volunteer trainings. Below is an analysis of the findings from the 2017 Young Tree Care Survey.

We surveyed a total of 1,065 trees this year. It should be noted that not every street tree planted in the last 5 years is included in the survey. Several trees planted in medians and locations not accessible to our volunteers were not surveyed. Several tree locations downloaded from TreeKeeper had inaccurate xy coordinates, therefore 17 trees were not surveyed and a portion of the 37 trees “not found” could still be alive where planted, but due to poor GPS locations were not located for the survey.

For the third year, we continued to survey park trees. Based on last year’s finding,we tried to assign the routes with park trees to volunteers who were using the survey route app, which allowed them to have a live map with the trees and their location, making locating the trees much easier. Adding the park trees allowed the opportunity for more of the young city trees to be surveyed.

We chose not survey the large number of trees planted in Bol Park and along the Bol Bike Path during 2015. Last year, our volunteers had issues locating the individual trees and only provided general information from the survey routes, which was sent to the city.

The “Trees planted in the previous 5 years” line in the table and chart above indicate the total number of all public trees planted by the City in the previous five years as found in TreeKeeper, the City’s tree inventory database. At 1,380, the number of trees planted in the last five years continued to increase for a third year. Canopy and the City’s Urban Forestry Division are striving to plant more public trees, particularly in South Palo Alto. We have jointly embarked on the South Palo Alto Tree Initiative, and a goal of a 98% street tree occupancy rate.

This year we measured the DSH (diameter at standard height) for all trees in the survey, rather than just measuring the trees planted 5 years prior (e.g. trees that will not be surveyed next year). While no evaluation is needed, this information is included in the full report printout for the City and should be added to TreeKeeper. In order to reduce confusion for volunteers, this year we had them measure circumference at standard height (CSH) and then converted it to DSH before sending the data to the city.

“Condition Rating” was renamed from “Health Rating” this year to better reflect what the survey has been recording. This adds structure into consideration of the tree’s overall health. “Health Rating” was added as a criterion in 2012 and switched from a 0 to 3 scale to a value scale of “Excellent, Good, Fair, Poor, Dead” in 2014. Although these ratings can be subjective and will vary based on the tree knowledge of the volunteer, clear written definitions of each value are distributed and reviewed at each survey training. The distribution of ratings this year indicate condition improvement from 2016, with 35% receiving a rating of “Excellent” (compared to 28% in 2016), 42% “Good” (43% in 2016), 12% “Fair” (15% in 2016), 3% “Poor” (6% in 2016, and 1% “Dead” (1% in 2016). The decrease in “Good” ratings is offset by the increase in “Excellent” ratings, showing an overall improvement in the condition of surveyed trees.

“Red Flag” was added as a category in 2012 and was adjusted in 2014 to give the surveyors—instead of the survey administrator—the discretion to mark a tree as “Red Flag.” 22 trees (2%) were labeled as “Red Flag” by surveyors, about the same as 2016. We ask surveyors to use this label sparingly so the trees most in need of care can be identified and given care. As individual surveys came in, batches of “Red Flag” reports were sent to the City so that immediate care could be administered. An Excel spreadsheet of the “red flags” and “thirsty trees” was delivered to the City of Palo Alto in the middle and end of the summer.

“Needs Water” increased from 29% in 2016 to 36% in 2017. The previous winter rains were better than previous drought years, which we hoped would help the young trees. However, many trees showed signs of needing water, which could be due to residents’ lack of watering and the cumulative effects of drought. Lack of water is a significant challenge facing young trees in California’s urban forests. Residents and business owners often don’t realize that the City counts on them to water street trees adjacent to their residence. Canopy’s “Is Your Tree Thirsty?” campaign raises awareness about tree care and specifically the need to water during the first few summers following planting. The campaign includes postcards mailed to residents, the tree care brochure left on the homeowner’s porch during the survey, and the “Is Your Tree Thirsty?” banner hung during the summer in prominent locations.

For the third year, we collected data for trees that are overwatered. Overwatered trees decreased to 2% this year from 4% last year. At 2%, not many trees were being overly watered, which is encouraging during a time of mandated water use reduction. However, this metric can be difficult to measure as a tree that has just been watered may appear overwatered even if it is then allowed to dry out between waterings.

“Needs Mulch” decreased to 23%, down from 31% in 2016 and 38% in 2015. Using mulch effectively is one of the best ways to conserve water in the landscape and has many other benefits for the tree. Canopy will continue to work with residents to replenish mulch on the street trees adjacent to their homes as well as on their own trees. We recommend that programs such as the free mulch pick up days the City offered last year be continued.

Trees marked as having significant “Mechanical Damage or Injury” was at 6% this year, similar to the 5% last year. This is the normal range over the last 5 years of measurements, minus the jump to 10% recorded in 2015, in which volunteers mistook small injuries or natural trunk scars with the large wounds that this field is supposed to account for.

“Needs Basin Re-Building” remained the same as 2015 and 2016, at 21%. Watering basins are most important during the first dry season after planting. It is advisable to rebuild any basins that are not intact early in the spring or summer following planting. Excessive pressure from water delivered by the watering truck often leads to watering basins being washed away, often into the street. Residents are not inclined to do watering themselves, and become reliant on the City, further stretching City resources. We strongly advise the City to lower the pressure of the watering truck to keep the watering basins intact and remind residents it is their responsibility to to resume watering.

“Root Flare Buried” increased to the highest ever percentage at 19% last year, and remained at 19% in 2017. This is a very serious problem because trees often die from being planted too low. Volunteer surveyors did take the time to clear the root flare of 57 trees while they surveyed - a very important and often quick step to improve a tree’s environment.

Trees needing structural pruning dropped from 19% in 2016 to 10% in 2017. Trees needing clearance pruning stayed about the same as last year, at 5%. Young trees in the city are in need of both structural and clearance pruning, and addressing this need can significantly reduce the need for much more costly tree work later in the tree’s lifespan. Volunteers are given clear instructions on how to identify trees in need of structural and clearance pruning. Canopy believes all young trees should be assessed by a certified arborist and structurally pruned as needed at least 3 times during the first 5 years after planting and we advise the City to adjust their pruning schedule for young trees accordingly.

It is possible that some variation in data collection is due to volunteers using the app instead of pen and paper. In the app, users select either “Yes” or “No” to respond to each field as opposed to the paper version, where users only check a field if it needs attention. Since the app requires volunteers to pay more attention to each individual line, it is possible that this phenomenon prompted volunteers to check off more concerns for each tree. This very phenomenon may

similarly explain why there are comparatively fewer comments from the app platform than paper, as typing can be more cumbersome than writing when you have to free both hands to type.

Canopy continues to look at ways to improve the Young Tree Care Survey We look forward to the improvements that will be possible next year with Tree Plotter as the platform for the survey. We will continue to work with the City of Palo Alto's Urban Forestry Division to make sure we are meeting their needs. We will continue to work on improving and streamlining the Young Tree Care Survey. Any comments or suggestions by surveyors, city staff, or the community at large are much appreciated. Contact Program Director Michael Hawkins at michael@canopy.org or Community Forestry Program Manager Elise Willis at elise@canopy.org.

IV. Methodology

The Young Tree Care Survey is a volunteer-based effort. This year we recruited 55 volunteers for our surveys, who together logged approximately 508 hours. Historically, our volunteers represent a broad cross-section of the community, including high school students, college students, retired community members, and local community groups. This year, a disproportionate number of volunteers were high school students, with most routes completed by the 45 volunteers who are students from Palo Alto, East Palo Alto, and Mountain View.

Actively involving residents in the care and enjoyment of Palo Alto's Urban Forest is a major part of our mission, and the annual Young Tree Care Survey is a major element in reaching this goal. This year's youth engagement skyrocketed thanks to the targeted outreach at the Palo Alto Unified School District's summer Living Skills class, where we led tree walks for over 500 students involved in the summer session. By promoting the YTCS training days after leading the walks, many students participated in order to reach their volunteer hour requirements.

Similar to last year, the City's Urban Forestry Division provided the list of recent tree plantings, taken from the city's street tree inventory database (TreeKeeper). We used the survey list from last year, dropped the trees older than five years, and added the new list to create information tables. With help from Canopy staff and volunteer Ben Schleimer, we used Google MyMaps to divide trees into geographic areas ("routes"), create route maps, and print a large-scale map of all trees and routes. This step helps streamline volunteer survey time. In previous years, the City's GIS Department assisted us with using GIST, but we found using MyMaps simplifies the process and keeps the preparation of the survey under our control.

Volunteers distributed our "Young Tree Care Survey" brochure with tips on watering and protecting young trees, information about the value of the urban forest, and a personalized survey form to educate residents. Volunteer surveyors filled out the back of brochures with survey information related to the young trees' urgent needs and included notes to direct resident attention to their trees. The personalized brochure was left at the door of each residence and additional blank brochures were handed out to residents that approached volunteers with questions about the survey, city trees, and/or Canopy.

Each survey team was equipped with a clipboard, red pen, individual map of their route, a list of trees on their route, downloaded app on a smartphone, paper survey forms, pre-labeled brochures for each residence or business, a soil moisture probe, measuring tape, gloves, and safety vests. Volunteers were trained, divided into teams, and assigned routes that could be completed within a 2-3 hour span. Many surveys were completed during the two scheduled survey trainings. After the trainings, many volunteers checked out survey materials and completed other routes on their own time. The 48 surveys were completed during June, July, and August 2017.

Volunteers performed first care on young street trees again this year. In addition to marking the survey form, volunteers weeded around the tree base, removed suckers, and cleared soil from the root flare of young trees whenever possible. This step gives volunteers a chance to do some basic hands-on tree care, contributes immediately to the health of the trees, and spares the City of a large cumulative maintenance project.

Our “Is Your Tree Thirsty?” campaign accompanies the survey each year. Large banners reading “Is Your Tree Thirsty?” are prominently displayed at the train overpasses of University Ave and Embarcadero Rd, as well as at a prominent location on El Camino Real near Sand Hill Road. We also sent a watering reminder postcard to each residence where a tree had been planted in the last five (5) years. Postcards contain information on proper watering practices and our web address for more information.

V. Conclusion

Trees contribute significantly to the health and vitality of the City of Palo Alto. Our urban forest draws people to our community and contributes to our quality of life, and Canopy’s Young Tree Care Survey involves the community to ensure young tree survival into the future. This has become increasingly important as our urban forest matures, and education and outreach brings increased awareness to our trees. The Young Tree Care Survey helps our urban forest managers understand the state of our recently planted public trees, in order to guide management actions.

An Excel spreadsheet with the “Red Flag” and thirsty tree report is provided separately to the Urban Forest Division. This has been done in hopes that the department will schedule maintenance accordingly and attend to the trees most in need.

Next year’s Young Tree Care Survey will be better than any previous year, as we use the newly purchased web-based tree mapping tool, Tree Plotter, to survey the young trees in Palo Alto. This will not only enhance data collection and expedite reporting to the City of Palo Alto, but will be a valuable and dynamic tool to engage the public.

If you have any questions or recommendations on how the survey can be improved, please send an email to Canopy Program Director Michael Hawkins, michael@canopy.org or Community Forestry Program Manager Elise Willis, elise@canopy.org.