2016 Young Tree Care Survey Report

Compiled by Michael DeBroeck, Young Tree Care Survey Intern

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.

Contents

Attached:

Full City Report: For the City of Palo Alto Urban Forestry Section. Including health condition and care recommendations for all 948 trees surveyed.

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

I. *Introduction*

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. Young street trees are on the front line of our urban forest and must tolerate the harshest urban conditions, especially during drought. Once established, they provide some of the greatest benefits to our city and residents.

The Canopy Young Tree Care Survey takes place in the summer months and surveys most street trees planted in Palo Alto in the past five planting seasons. At each site where trees are surveyed, information is left with homeowners or business owners on proper care for young trees. Also included is the species name, planting date, and current information collected about their particular tree(s) by the volunteers. Results from the survey are compiled and shared in a detailed report to the City's Public Works Urban Forestry Section to alert the staff about trees in need of care. Results of the survey are also posted on Canopy's website, http://canopy.org.

Last year, the Young Tree Care Survey 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-six survey routes. This not only made the surveying process easier for volunteers, but also allowed us to view and use the data as soon as it is obtained and vastly sped up the data collection, analysis, and reporting process.

II. *Survey Results*

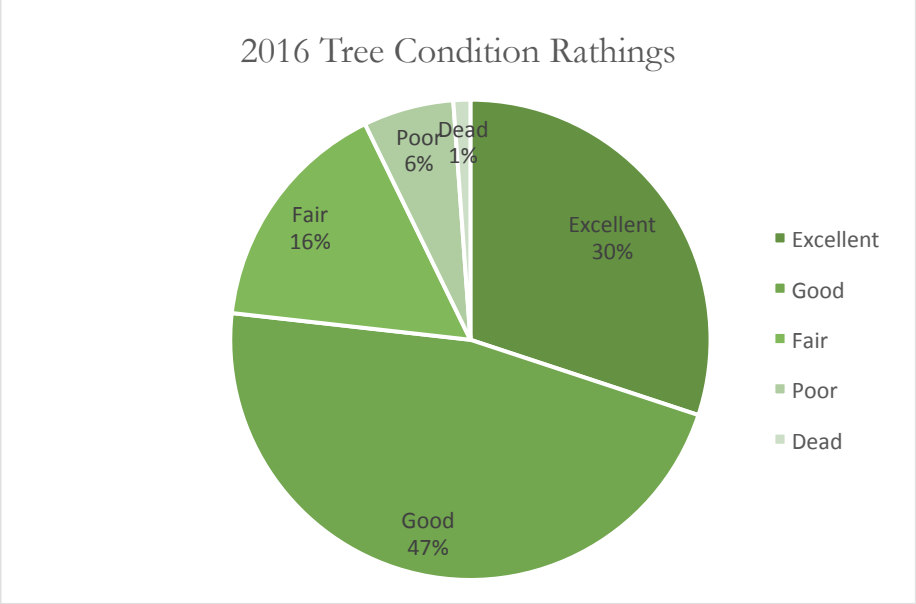
On the next page is a table summarizing the results of the survey. Each of the questions from the survey are on the left with the total number of trees for which the answer was "true" and the percentage of the total on the right. In the middle are the percentages from the previous five surveys for comparison. Following that are several graphs for easier visualization of important results. An explanation and evaluation of many of the individual questions follows.

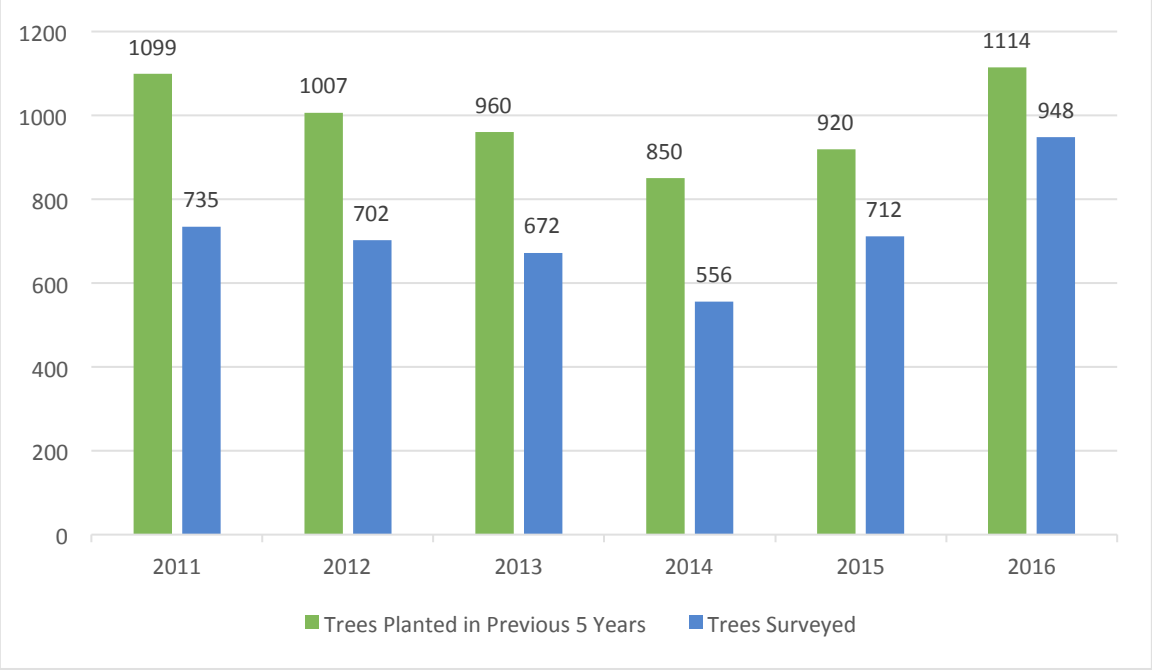
Canopy 2015 Young Tree Care Survey

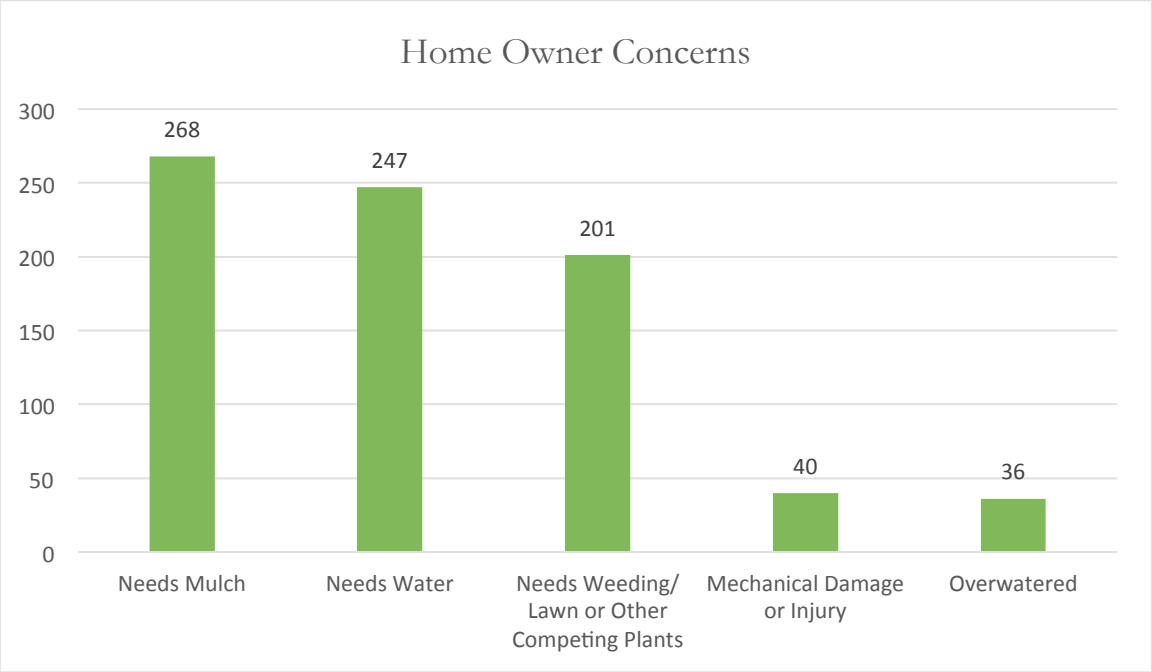
General						**2016**	
	2011	**2012**	**2013**	**2014**	**2015**	**#**	**%**
Trees Surveyed	735	702	672	556	712	948	N/A
Trees Planted in previous 5 years	1099	1007	960	850	920	1114	N/A
Condition Rating	**2011**	**2012**	**2013**	**2014**	**2015**	**#**	**%**
Excellent	-	-	-	20%	24%	237	28%
Good	-	-	-	45%	46%	368	43%
Fair	-	-	-	27%	16%	126	15%
Poor	-	-	-	7%	6%	48	6%
Dead	-	-	-	1%	1%	7	1%
Red Flag*	-	19%	10%	6%	4%	18	2%
Tree Not Found	0%	2%	1%	3%	1%	19	2%
Health Rating of 3	-	64%	55%	-	-	-	-
Health Rating of 2	-	21%	35%	-	-	-	-
Health Rating of 1	-	6%	8%	-	-	-	-
Health Rating of 0	-	1%	2%	-	-	-	-
Home Owner Concerns	**2011**	**2012**	**2013**	**2014**	**2015**	**2016 #**	**2016 %**
Needs water	32%	43%	46%	39%	51%	247	29%
Overwatered	-	-	-	-	2%	36	4%
Needs mulch	24%	40%	32%	29%	38%	268	31%
Needs weeding/lawn or other competing plants	-	-	-	18%	25%	201	23%
Needs weeding	12%	12%	11%	-	-	-	-
Lawn or other competing plants	16%	18%	16%	-	-	-	-
Weeded by surveyor	4%	6%	5%	2%	5%	38	4%
Mechanical damage or injury	4%	4%	5%	5%	10%	40	5%
City Concerns	**2011**	**2012**	**2013**	**2014**	**2015**	**2016 #**	**2016 %**
Needs basin re-building	10%	22%	21%	6%	21%	179	21%
Suckers need to be pruned	2%	5%	7%	5%	10%	76	9%
Suckers pruned by surveyor	1%	5%	9%	4%	11%	72	8%
Needs to be re-staked/re-strapped	-	10%	9%	6%	11%	59	7%

Stakes need to be removed	8%	29%	24%	29%	11%	93	11%
Root flare buried	9%	6%	5%	9%	16%	165	19%
Root flare cleared today	2%	2%	5%	9%	-	-	-
Needs major pruning	3%	6%	4%	-	-	-	-
Needs structural pruning	-	-	-	14%	11%	127	15%
Needs clearance pruning	-	-	-	10%	7%	37	4%

* Calculated in a different way before 2014







III. *Evaluation*

This year, Young Tree Care Survey Coordinator Intern Michael DeBroeck led the survey effort and Program Director Michael Hawkins led the trainings for the seventh year. Below is an analysis of some of the more interesting findings in this year's survey.

We surveyed a total of 948 trees this year, more trees than the last 10 years. This year, we also surveyed the largest percentage of all planted trees in the last few years. It should be

noted that not every street tree planted in the last 5 years is included in the survey. The trees planted in meridians and in locations inaccessible to our volunteers were not surveyed.

Also, in order to accommodate the extended planting season, we acquired list of 57 planned tree plantings from the City's Urban Forestry Division and added the sites to our survey. Of the 57 planned sites, 15 trees were found (Condition Ratings: 1 "Excellent," 7 "Good," 3 "Fair," 1 "Poor," and 3 "Dead."). Adding these planned plantings allowed us to survey these 15 trees at the optimal time, right after planting. The next few paragraphs show how we were able to accomplish this. However, it would be optimal to have all the trees planted or to have confirmation which trees had been planted before the survey begins. We highly recommend ending the planting season as close to the end of March as possible.

For the second year, we continued to survey park trees. We refined our technique based on last year's findings. Some volunteers had trouble locating these trees, so we tried to assign the routes with park trees to volunteers using the survey route app. This allowed them to have a live updated map with the trees and their location, making locating the trees much easier. Adding the park trees allowed us to survey more of the young city trees.

Starting this year, "Z" and "X" listed trees were added to the survey. These trees have inexact addresses so were avoided in previous years. However, the new digitized process and survey app made locating these trees much easier, so they were added to the survey. It should be noted that many of the "Z" and "X" listed trees were park trees.

This year, we surveyed the large number of trees planted in Bol Park and along the Bol Bike Path during 2015. Our volunteers had issues locating the individual trees and were only able to provide generalized information about the survey routes. This generalized report was sent to the City's Urban Forestry Section soon after the survey route was completed. All these trees were planted together and the report can be used to provide the appropriate care for the trees. However, this is far from ideal.

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 1114, the number of trees planted in the last five years continued to increase for a second year, reversing in 2015 after the steady decline starting in 2010.** Canopy and the City's Urban Forestry Division are striving to plant more trees, particularly in South Palo Alto. The Urban Forest Master Plan states several goals to address this problem, including assessing the reasons for the disparity in canopy coverage between north and south Palo Alto, and a goal of a 98% street tree occupancy rate, from the current 95%. We are looking forward to surveying more and more trees in the coming years.

At the request of the City's Urban Forester Walter Passmore, surveyors are asked to measure the diameter at standard height (DSH) of all trees being surveyed for the fifth and final time. 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. Structure is considered as well as 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 "Dead, Poor, Fair, Good, Excellent" 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 slight condition improvement from 2015, with 43% receiving a rating of "Good" (in comparison with 46% in 2015), 28% "Excellent" (24% in 2015), 15% "Fair" (16% in 2014), 6% "Poor" (6% in 20145, and 1% "Dead" (1% in 2015).** 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." As individual surveys came in, batches of "Red Flag" reports were sent to the City so that immediate care could be administered. Additionally, a separate report of these trees has been attached to this summary report to the City of Palo Alto. **18 trees (2%) were labeled as "Red Flag" by surveyors, down from 4% in 2015.** We ask surveyors to use this label sparingly so the trees most in need of care can be identified and given care.

"Needs Water" decreased dramatically to 29% from 51% in 2015. This is a promising sign that residents are starting to understand the value of trees and the need to water them, even during the exceptionally dry years we've had and mandatory cutbacks in residential water usage. This change could also be a result of residents turning their irrigation back on due to the relatively wet winter. It is also possible that Canopy's "Is Your Tree Thirsty" and "Save Our Water, Save Our Tress" campaigns educated people enough to invest water into their street trees. Lack of water has always been the biggest challenge facing young trees in the urban environment. 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. The "Save Our Water, Save Our Trees" campaign is a coordinated effort with statewide organizers.

We collected data for trees that are overwatered. Overwatered trees increased to 4% this year from 2% last year, the first year we recorded this. At 4%, not many trees were being overly watered, which is encouraging during a time of mandated water use reduction, but the increase is a little worrisome. 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.

This year, we sent partial lists of thirsty trees to the Urban Forestry section as surveys were completed for the water truck crew to check on. The City agreed to have crews investigate whether or not the homeowner had acted on the surveyor's feedback to water their tree, and if they hadn't, the crew watered the young tree and again reminded the homeowner of their responsibility to water the young tree. Canopy is pleased with the Urban Forestry section's extra help to ensure that dry city trees survive during the drought.

"Needs Mulch" decreased to 31%, down from 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 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 cut in half from 10% to 5% this year, back to 2014 levels. This drop could be explained by volunteers understating the injuries they see and not filling in this field erroneously. It is more likely, due to the large jump in reported mechanical damage last year, that in 2015 confused 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 2013 and 2015, 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 also leads to watering basins being washed away, often into the street. Canopy has reported this to the city about this on more than one occasion and we hope the City will be altering their watering truck practices soon.

"Root Flare Buried" increased to the highest ever percentage at 19%. This is a very serious problem because the roots of trees that are planted too low do not get enough oxygen, which can kill the tree. If the volunteer surveyors are correct in their assessment (which is questionable with volunteer surveyors) as many as 19% of recently planted trees may need to be replanted or they will perish.

Trees needing structural pruning increased from 11% to 15%. Trees needing clearance pruning decreased, from 7% to 4%. Nonetheless, young trees in the city are in need of both structural and clearance pruning and attending to this need will drastically reduce the need for much more costly tree work later in the tree's lifespan. Volunteers are given clear, if brief, instructions on how to identify trees in need of structural and clearance pruning. Canopy believes all young trees should be structurally pruned as needed at least 3 times during the first 5 years after planting.

It is possible that some result variation 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. (A sample app can be previewed at https://www.appsheet.com/Template/mobilepreview?appId=79aa46e2-ca0f-45a1-81ef-66a2131862f1) Since the app requires volunteers to pay more attention 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. Additionally, the app enabled more volunteers to complete the surveys alone; in this case, individuals might have checked off more fields than they would have if they consulted another person's opinion.

Canopy continues to look at ways to improve the Young Tree Care Survey. This year, trees marked **"Not Found"** by volunteers were searched for by the YTCS intern after all survey routes had been completed. Of the trees marked "Not Found," I was able to locate nearly all of them. Thus, they were subsequently surveyed and are not included in the "Not Found" total in the above chart, leading to only 19 trees (1%) "Not Found" this year.

We will continue to work with the City of Palo Alto's Urban Forestry Division to make sure we are meeting their needs. Any comments or suggestions by surveyors, city staff, or the community at large are much appreciated. Contact treesurveyintern@canopy.org or reach Program Director Michael Hawkins, michael@canopy.org.

IV. *Methodology*

The Young Tree Care Survey is a volunteer-based effort. This year we recruited **36 volunteers for our surveys who together logged over 210 hours.** Our volunteers represent a broad cross-section of the community, including high school students, college students, retired community members, and local community groups. 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, the City's Urban Forestry Division sent us a list of the recent tree plantings, taken from the city's street tree inventory (TreeKeeper). We then used the surveyed trees list from last year, dropped the trees older than five years and added the new list to create info 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 to print large-scale maps 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, the City's geographic information system. We found using MyMaps simplifies the process and keeps the preparation of the survey under our control.

Volunteers distributed our "Young Tree Care" 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 completed brochures with survey information related to the young trees' urgent needs and included notes to direct resident attention to the 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 or 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 one of the two (2) scheduled survey trainings. After the trainings, some volunteers check out survey materials and completed other routes on their own time. All forty-six (46) surveys were completed during the June 25 – August 18, 2016 window.

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. 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. Additionally this year, through a coordinated statewide effort with California Releaf and California Urban Forest Council, we mounted a "Save Our Water and Our Trees" campaign, including rebranding our "Is Your Tree Thirsty" banner and postcards and took out ads in local papers. Now more than ever, it is important to let people know trees are worth the effort.

V. *Conclusion*

The health and vitality of the City of Palo Alto as a whole depends on maintaining a healthy urban forest. Our urban forest draws people to our community and contributes to our quality of life. Canopy's Young Tree Care makes sure that young trees survive and our urban forest will be maintained into the future. This has become increasingly important as our urban forest matures. Annual removals have risen beyond annual plantings and our city tree crews are stretched thin. Educational outreach brings increased awareness and appreciation of our city trees. Understanding the biggest problems we face with our city trees through the Young Tree Care Survey will help us shape our programs in the future to meet the needs of our urban forest better. 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.

An electronic listing of trees and their corresponding problems has been provided separately to the Urban Forest Division, as well as printed and electronic copies of the separate "Red Flag" and thirsty tree report and trees surveyed that were not listed on TreeKeeper. This has been done in hopes that the department will schedule maintenance accordingly and attend to the trees most in need.