Young Tree Care Survey

2024 Report

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I. Introduction

Canopy connects communities through thriving urban forests. Our mission is to collaborate with communities to grow and sustain equitable urban forests for all. We envision connected communities thriving within a vibrant urban forest.

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 essential benefits to our city and residents.

Noteworthy Program Changes in 2024

- Larger Saturday events were advertised (Kick-Off, Wrap-Up Blitz) to encourage more volunteers to attend. Volunteers who were interested in surveying, but couldn't attend the larger Saturday events were trained on an as-needed basis.
- We had started with surveying young trees planted within the past 4 years, but during the course of the survey, volunteers and intern, Brene (Image 1), noted that the trees planted 5 years ago also needed care. Due to this concern, the survey season was extended through Fall 2024 to Summer 2025 to include these additional trees. As such, some of these trees surveyed overlap with the new season of YTCS trees surveyed.
- Duplicates from previous years were found among the trees needed to be surveyed. The program manager cleaned the data by combining the duplicate data and removing one from the overall survey to ensure that duplicate trees would not be included in the overall mortality rate.
- Our software, TreePlotter, went through some updates which changed the survey process slightly – notably the addition of the "Inspect" tool. New features such as this will now allow us to capture historical data for the trees that are surveyed going forward.

II. Methodology

The Canopy Young Tree Care Survey (YTCS) takes place in the summer months and surveys publicly-owned street and park trees planted in Palo Alto in the past five (5) planting seasons. YTCS surveyors follow routes created in TreePlotter that show young tree locations. At each tree, overall health, soil moisture, diameter, mulch and weed condition, and stake and strapping needs are recorded in TreePlotter. At each site where trees are surveyed, a brochure is provided to homeowners with a review of their tree and tips on how to care for it. 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, canopy.org.

We have continued to use our new software, TreePlotter, to manage the city's young tree inventory. To access the map, users simply type in the web address on their mobile devices or through Canopy's website, create an account or log in using their social media account or email, and follow our instructions to find their route. Similar to the previous years, the majority of volunteers were high school students from Palo Alto and adjoining cities. Our young volunteers were enthusiastic about using their smartphones to survey trees, and after a 60-90 min training session on how to use TreePlotter, most found it very intuitive and set off surveying trees with very few complications.

This year we recruited 6 volunteers, who together logged approximately 85 hours surveying trees. YTCS is a wonderful opportunity for volunteers to get outside, and derive a meaningful experience by taking part in caring for trees in their community.

Image 1: Tree Survey & Data Analysis Intern - Brene Pita

Public Engagement

16 volunteers completed 56% of all routes
366 single family residences received “Is Your Tree Thirsty?” postcards in late June
505 single family residences received YTCS brochures after their trees were surveyed

Overview of Main Steps

These are the main steps for executing the Young Tree Care Survey:

1. Request the City of Palo Alto TreeKeeper data: import trees planted within the last year.
2. Perform formatting and quality control checks on TreeKeeper data to prepare for smooth import into TreePlotter.
3. Upload trees into TreePlotter, and create survey routes for volunteers. To create the routes, 7-22 trees are grouped by location and bounded inside a polygon so that volunteers can easily see the trees they are going to survey, and not those in other routes.
4. Prepare reference guides for volunteers detailing how to use TreePlotter when surveying trees, including definitions and instructions on what to look for when surveying trees (Image 3).
5. In early June, mail the “Is Your Tree Thirsty?” postcards (Image 5) to single family residences with a tree in the survey.
6. Assemble survey instructions/materials: prepare a map containing total number of routes in the survey, individual route maps, brochures for each house with trees, DSH tapes, moisture probes, pens, safety vests, clipboards, and Canopy satchels (Image 3).
7. Program Coordinator, Evany Wang, hosted 2 larger public events and multiple smaller YTCS training sessions. This year, we were intentional in reaching more volunteers than in previous years. Volunteers participated in 60-90 min training sessions explaining how to log into and use TreePlotter and how to survey a young tree (Image 6). Volunteers were then guided through a route individually or in a group. Routes were walked for the remainder of the event time. At the end, volunteers were given the opportunity to return the materials or check out routes and materials to survey more trees on their own time. Many volunteers opted to check out more routes to receive more service hours.
8. Quality control checks are necessary with this type of program, so as routes are completed it is the Tree Survey Intern’s job to complete the routes where trees were left unsurveyed, distribute leftover brochures, and look for trees marked “not found” by volunteers.
9. Once all trees are surveyed, start writing the YTCS report for the city, and provide maps and/or lists of red flags, thirsty, and missing trees, along with maps of actionable items like trees needing stakes removed/fixed, more mulch, etc.

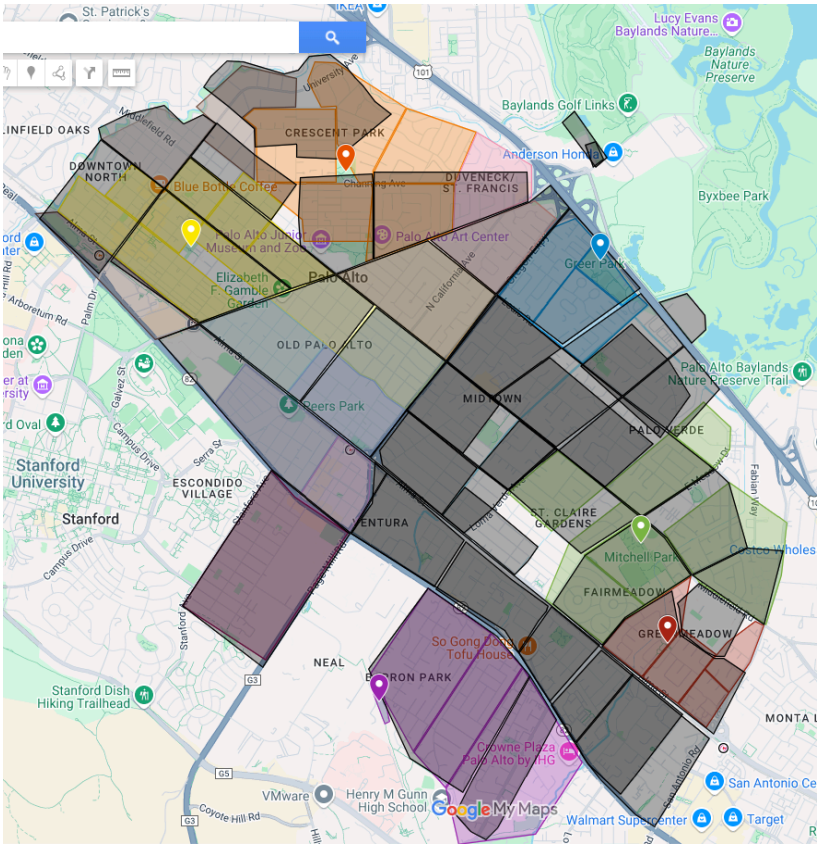
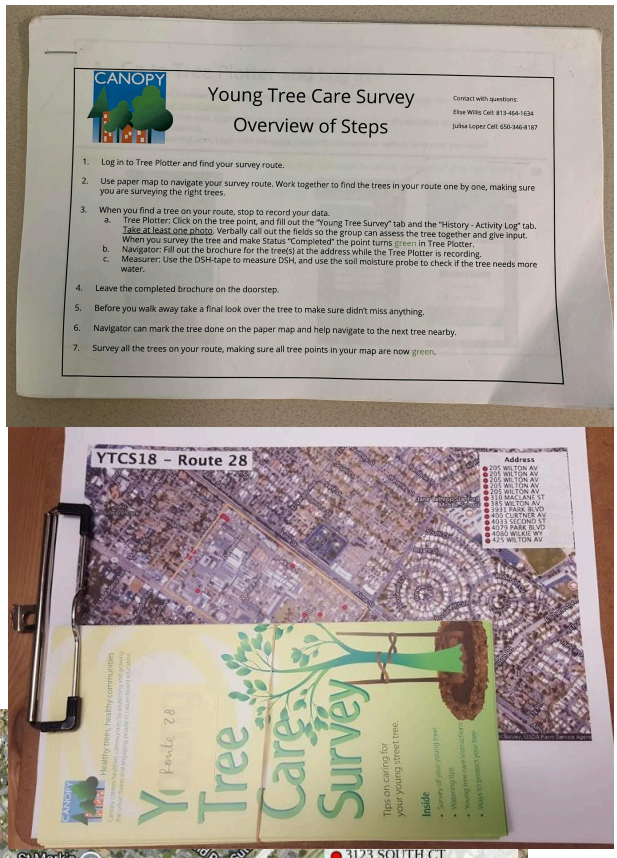


Image 2: Canopy created a total of 85 routes in 2024.

Volunteers distributed our “Young Tree Care Survey” brochure with tips on watering and protecting young trees and information about the value of the urban forest. 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. It 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, pen, individual map of their route (Image 4), smartphones logged into TreePlotter, pre-labeled brochures for each survey address, a soil moisture probe, DSH tape, and safety vests. Volunteers were trained, grouped into teams, and assigned routes that could be completed within a 2-3 hour span. After the training sessions, several volunteers checked out survey materials and completed other routes on their own time. The 85 survey routes (Image 2) were completed by May 31st, 2025.



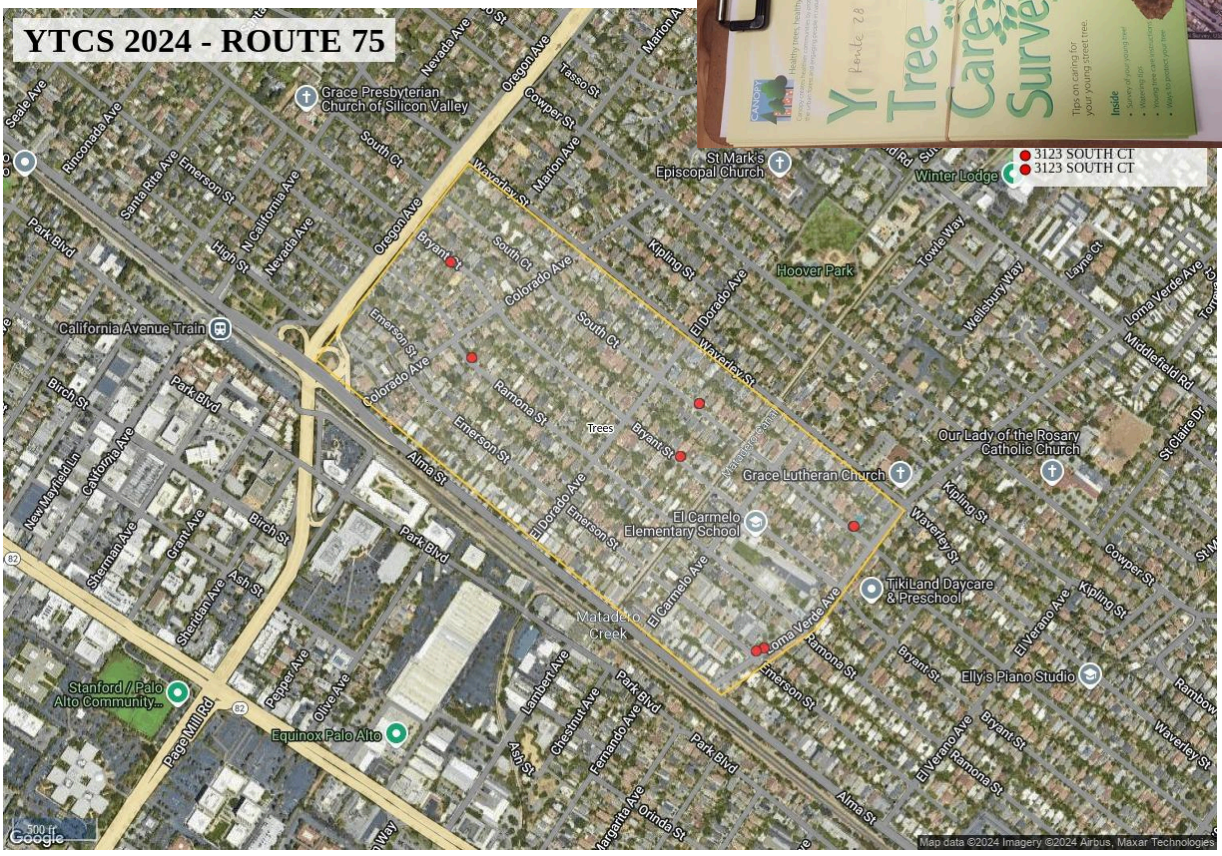


Image 3 (top): Volunteers receive a clipboard with reference guides (upper), a route map and brochures (below), a DSH tape, soil moisture probe, a safety vest, and a Canopy satchel to keep it all together.

Image 4 (bottom): Close-up of a survey route map, which displays the route name, area to survey, tree points, legend with addresses with trees, and street names to help navigate.

Our “Is Your Tree Thirsty?” campaign accompanies the survey each year to raise awareness about tree care and tree watering among the general public. A large banner reading “Is Your Tree Thirsty?” was 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 website for more information.

Is Your Tree Thirsty?

Trees are the most valuable element of the urban landscape because of the many benefits they provide and the investment they represent.

Here are 3 simple ways to help your young street tree survive hot summer months:

Check if it's thirsty—Dig roughly 6 inches deep into the soil, to see if the tree needs to be watered. At 6 inches deep, the soil should be damp, but not saturated. If it's dry and crumbly, your tree needs water.

Give it a drink—First, build a basin around the base of your tree. Each week, fill the basin gradually with 10-15 gallons of water. As the tree grows, widen the basin. Provide more water, but less often. For detailed watering instructions for young and mature trees, visit canopy.org.

Mulch it—Protect the tree's roots from drying out and promote a healthy underground environment by covering the watering basin with a layer of mulch 3 to 5 inches thick, extending in a 4 foot diameter around the base of the tree. Thick wood chips and leaves work well. Don't pile the mulch directly against the trunk as this will promote decay.

More tree care resources at canopy.org

CANOPY 2501 E. Bayshore Road, Palo Alto, CA 94303

Image 5: “Is your tree thirsty” postcard mailing (front and back)

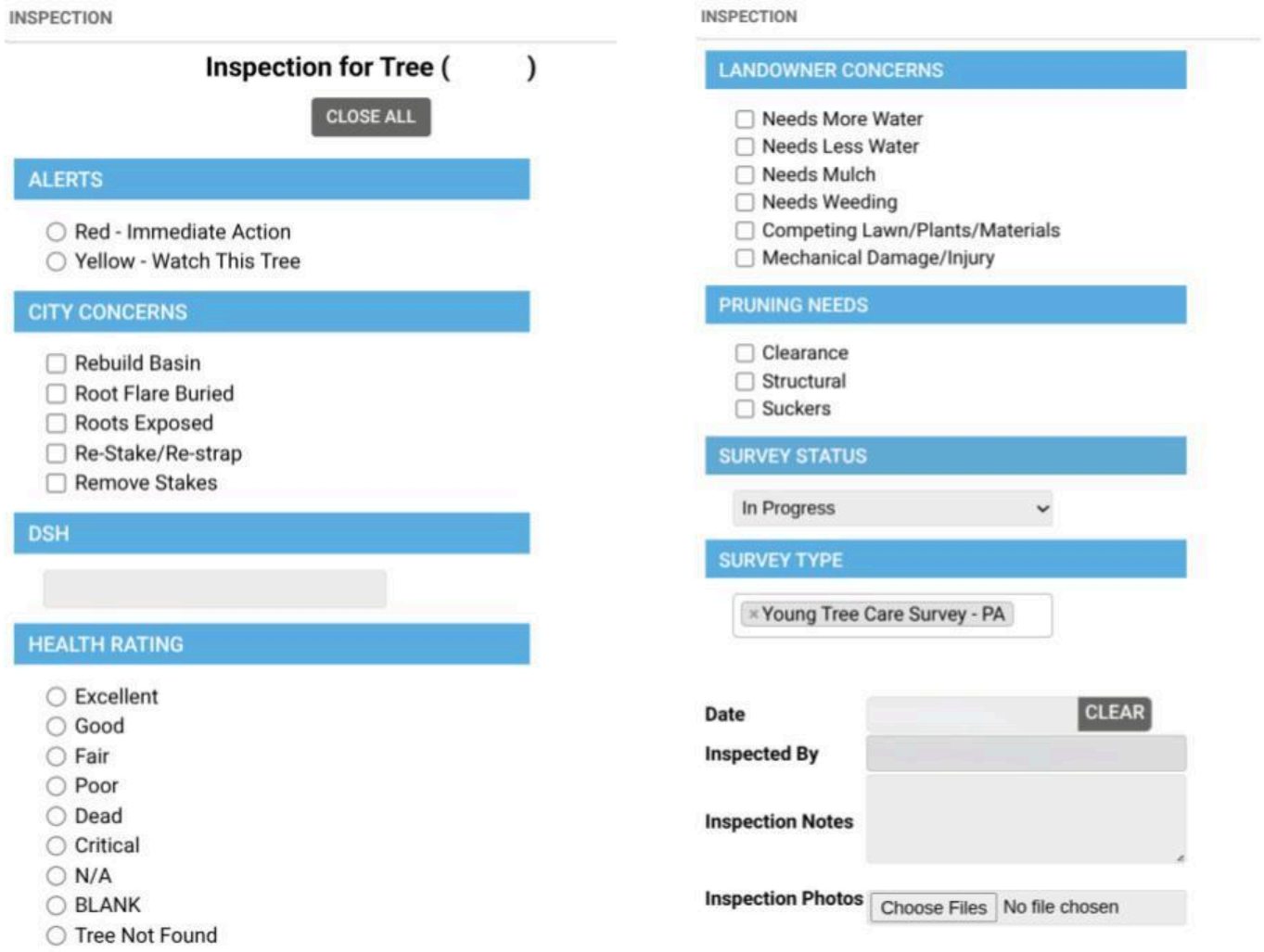


Image 6: Surveying a tree in Tree Plotter includes filling out a "Young Tree Survey" tab with survey findings (left column), and noting the actions taken in the "Activity Log" tab (right column).

III. Survey Results

The following table summarizes the results of the survey. The far left hand column lists the survey fields. The middle columns are the percentages from the previous years' surveys for comparison. This year's columns (2024# & 2024%) list the total number of trees for which the answer was "true," and the percentage of the total for this year's survey. The final column on the right shows the percent change from the previous year to the current survey year.

General	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024#**	**2024%**	**Change**
Trees Surveyed	1438	1566	1466	229/863*	501	502	840	-	-
Health Rating	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024#**	**2024%**	**% Change**
Excellent	22.7%	19.4%	30.6%	34.5%	34.9%	25.7%	301	35.8%	+10.1%
Good	62.7%	65.8%	47.8%	48.5%	37.5%	48%	348	41.4%	-6.6%
Fair	9.4%	9.7%	10.2%	10.5%	13.4%	16.9%	106	12.6%	-4.3%
Poor	3.6%	2.2%	2.1%	1.7%	3.8%	2.6%	28	3.3%	+0.7%
Critical	-	-	-	0.9%	1.2%	2.2%	13	1.5%	-0.7%
Dead	0.5%	1.3%	2.9%	1.7%	1.4%	0.8%	4	0.5%	-0.3%
Red Flag	1.3%	2.0%	2.7%	4.4%	3.8%	4.6%	37	4.4%	+0.2%
Tree Not Found	5%	5.1%	1.6%	1.7%	4.6%	3.8%	40	4.8%	+1.0%
No Rating Recorded / Did not survey	1%	0.8%	1.6%	0.4%	3.0%	0.0%	0	0	+/-0%
Homeowner Concerns	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024#**	**2024%**	**% Change**
Needs water	37%	53.3%	36.6%	40.2%	30.7%	28.5%	381	45.2%	+16.7%
Over-watered	3.4%	1.9%	2.7%	0.0%	1.0%	2.6%	31	3.7%	+1.1%
Needs mulch	21.6%	25.2%	21%	46.7%	38.3%	20.5%	392	46.5%	+26.0%
Competing lawn or plants	15.4%	15.8%	12.8%	17.0%	16.6%	20.1%	195	23.1%	+3.0%
Needs weeding	14%	15.5%	11.6%	12.7%	11.6%	13.5%	149	17.7%	+4.2%
Mechanical damage or injury	1.3%	2.0%	3.1%	5.7%	6.4%	1.8%	31	3.7%	+1.9%
City Concerns	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024#**	**2024%**	**% Change**
Needs basin rebuilt	23%	27.8%	18.1%	67.2%	48.5%	23.5%	246	29.2%	+5.7%
Suckers need to be pruned	7.2%	10.7%	8.5%	24.5%	15.4%	27.1%	163	19.3%	-7.8%
Needs re-staking/re-strapping	7.8%	6.8%	5.9%	17.5%	12.4%	9.2%	43	5.1%	-4.1%
Stakes need to be removed	14.2%	13.3%	11.1%	28.4%	17.2%	14.9%	228	27.0%	+12.1%
Root flare buried	12.7%	8.2%	6%	19.7%	33.5%	29.1%	86	10.2%	-18.9%
Exposed roots	-	-	-	-	-	-	30	3.6%	+3.6%
Needs structural pruning	9.3%	7.3%	16.2%	44.5%	43.7%	15.5%	244	28.9%	+13.4%
Needs clearance pruning	5.8%	5.8%	4.4%	15.7%	9.6%	5.4%	150	17.8%	+12.4%

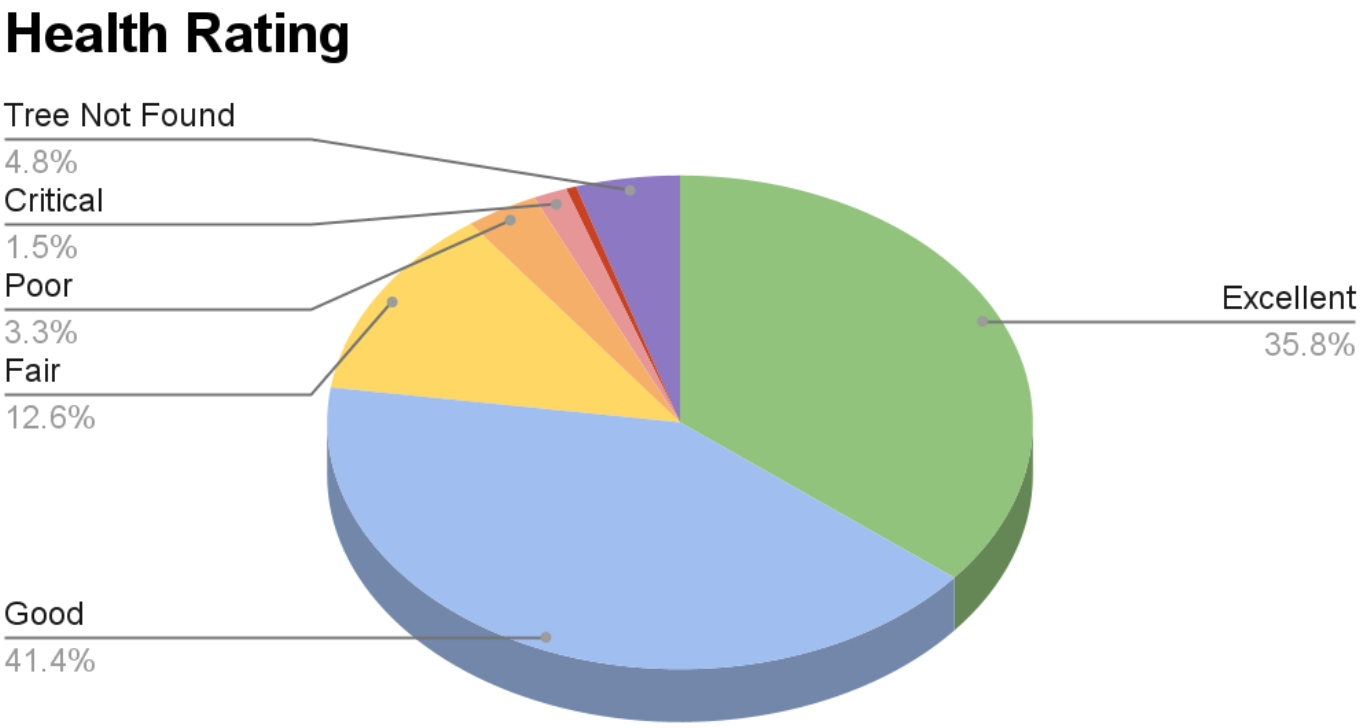


Figure 1: Health Ratings for trees surveyed (by percent) for 2024.

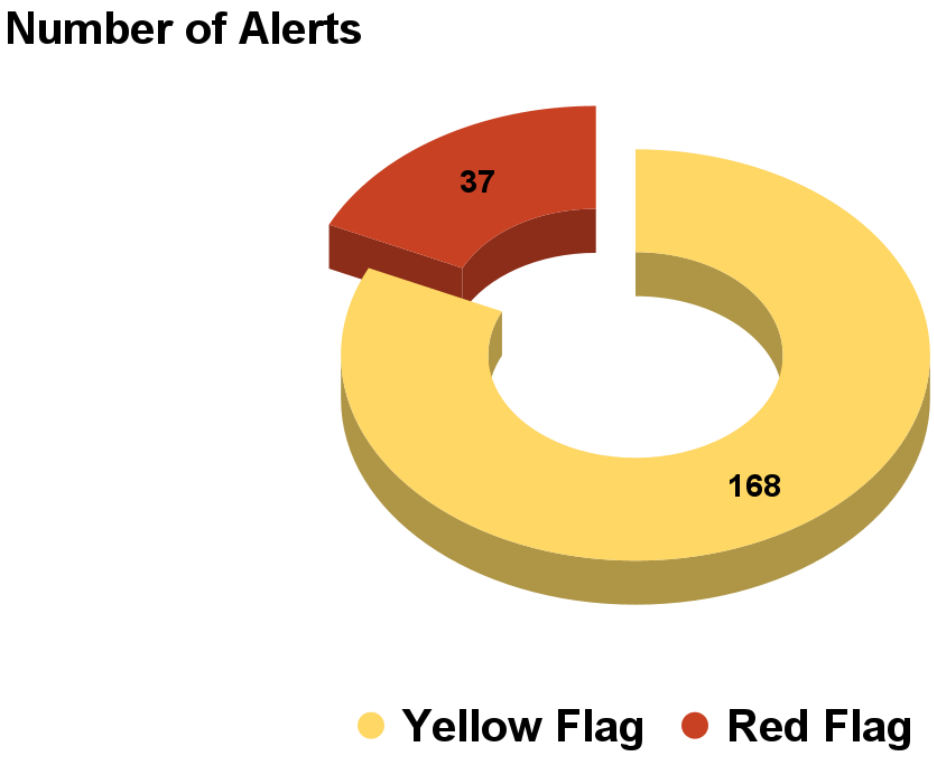


Figure 2: Number of red and yellow alerts for trees surveyed for 2024.

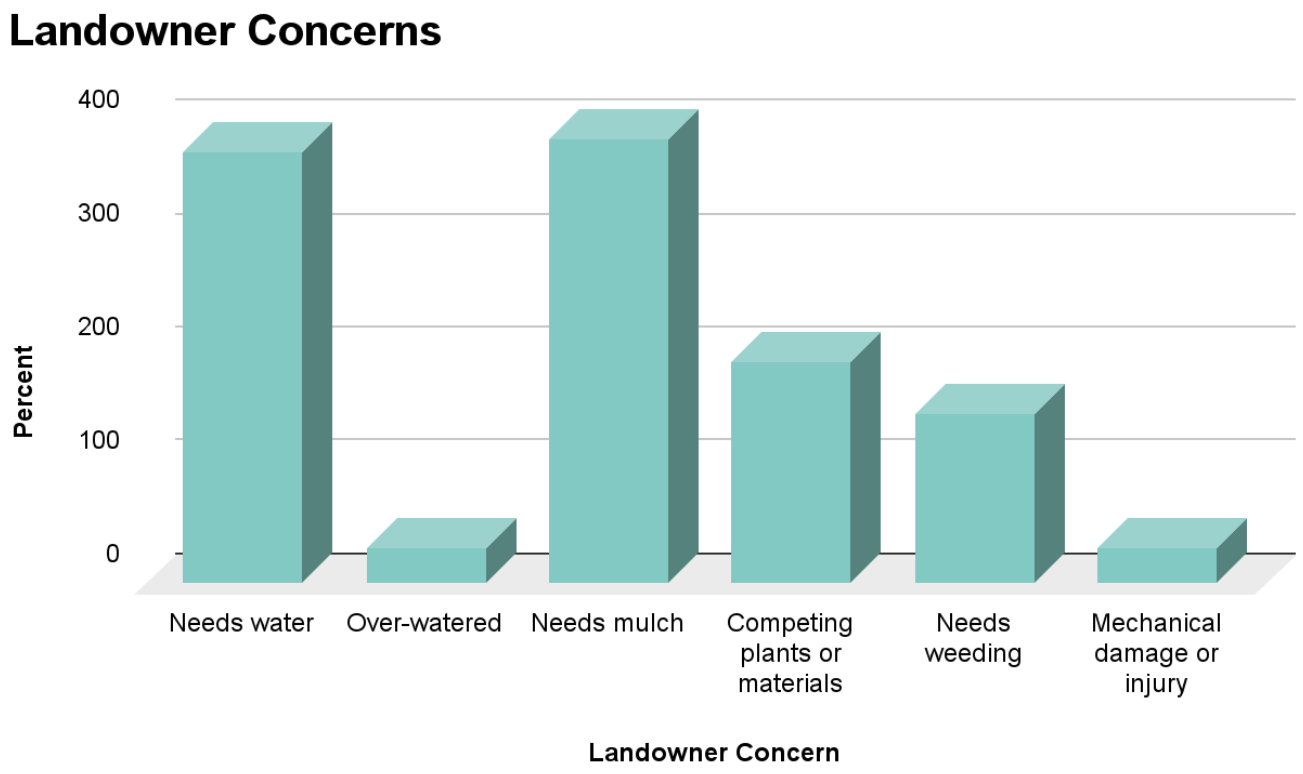


Figure 3: Number of trees with homeowner concerns recorded for 2024.

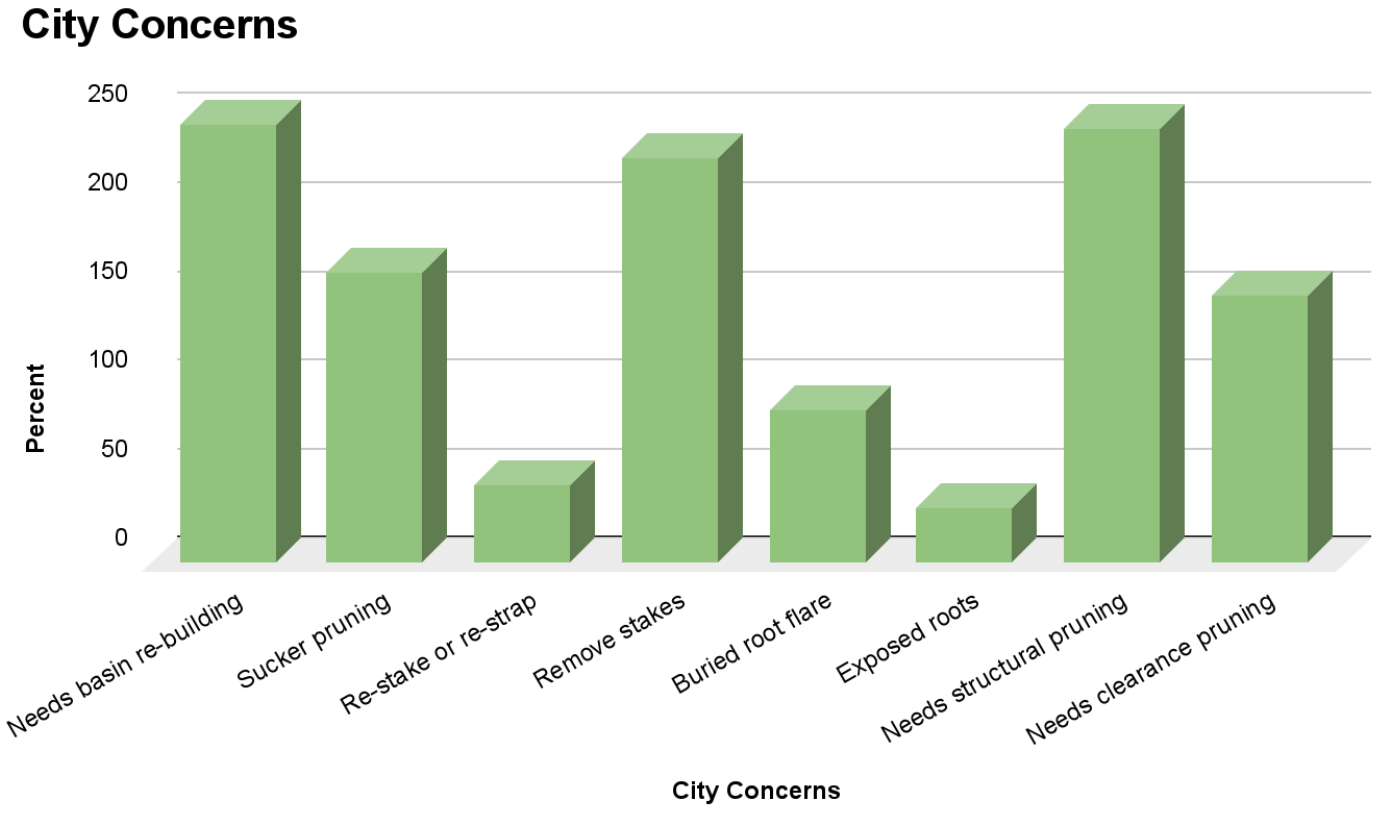


Figure 4: Number of trees with city concerns recorded for 2024.

IV. Evaluation and Discussion

Snapshot of the Data

Number of trees surveyed: 840
Most common condition rating: Good
Number of dead trees: 4
Number of trees not found: 40
Mortality rate (dead trees and trees not found): 5.2%
Number of Red Flag trees (need immediate attention): 37

Number of trees that need stakes removed or fixed: 271
Most common Homeowner Concern: Needs mulch
Most common City Concern: Basin needs rebuilding
Trees with competing lawn/plants and need weeding: 344

"Health Rating" (Figure 1) is evaluated for each tree on the scale "Excellent, Good, Fair, Poor, Critical, Dead," the way the City does. Clear, written definitions of each rating are distributed and reviewed at each survey training to reduce the inherent subjectiveness of this scale and variable tree knowledge of volunteer surveyors. The trees receiving a rating of "Excellent" increased by 10% this year, and "Good" and "Fair" decreased by nearly 7% and 4%. "Poor," "Critical" and "Dead" saw a change of less than 1%.

The TreePlotter data shows 40 trees with the **"Tree Not Found"** box checked. Missing trees are often due removals due to the high number of construction areas all around the city or dead trees that were removed. And in other cases trees that were previously removed and uploaded from the TreeKeeper inventory as Vacant or Proposed sites have yet to be planted.

A **mortality rate** above 5% should be considered a cause for concern. There could be many reasons for this, from construction and disease to homeowners replacing the trees without City knowledge. It indicates a greater need to educate contractors and homeowners on what public trees are and what the procedures and protections around them are.

37 trees (4.4%) were labeled as **"Red Alerts"** (Figure 2) by surveyors and staff. These are trees that need to be worked on as soon as possible for the sake of the young tree's health. As such, we ask surveyors to use this label sparingly so the trees most in need of care can be identified and given care.

Trees **needing water** increased by 16.7% from 2023 to 2024, which is a higher increase than previous years. This could indicate a need for more education surrounding tree watering or a need for more water accessibility.

Trees needing **basins rebuilt** increased by 5.7% from 2023 to 2024. Residents that we spoke to mentioned that the City's contracted watering truck has been doing more forceful watering, which for several years has been problematic as the water pressure damages and washes away the mulch and basin.

Trees **needing structural pruning** increased by 13.4% since 2023. 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 life.

Trees **needing suckers pruned** decreased by 7.6% seeing a marked low since previous years. It is important to prune young trees for suckers so that energy is focused on growing tall, not near the base.

V. Action Items

Canopy has created individual interactive maps to view the tree data collected during the survey, which we recommend you review and consider taking actions to resolve. Click the words underlined in blue to view a saved map. When the map opens you will be able to see the tree points, but in order to interact with each tree you need to Log In.

NOTE: As noted in the section "Noteworthy Changes", YTCS 2025 trees had begun being surveyed at the same time as wrapping up YTCS 2024. The links below will also have trees overlapped from YTCS 2025 so the numbers will be higher than listed in this report. Similarly, dead and trees not found have been archived from TreePlotter so they are removed from view from this season's surveyors.

- Thirsty trees: Surveyors noted that 381 trees need more water. When displayed by land use, it shows that the majority of the trees that need water are at single family residentials. This could indicate a lack of education around watering trees or a lack of understanding between the City and residents that watering is part of the homeowner's responsibility.

- All the trees that need some kind of pruning: You can select for the map to display by DSH and toggle the size on and off to see larger or smaller DSH ranges. With this display, you may want to consider prioritizing the trees with a larger DSH range in case pruning needs are greater. Conversely, you could prioritize pruning for trees in the smaller DSH range category in order to tackle issues and establish good structure early. Below we have also included separate maps for individual pruning:

    - Structural pruning needs
    - Clearance pruning needs
    - Need suckers pruned

Note: The base map can be changed by going Tools→In the Map→Map→Base Tiles, and changing to Google Hybrid map to some other preferred map (we experienced that when you zoom all the way in the chosen base map, Google Roads, is does not show much imagery the way that Google Hybrid does).

VI. Conclusion

Canopy's annual Young Tree Care Survey is an important and vital program that engages the community of Palo Alto in caring for its young trees. Volunteers choose to spend their time checking on the trees around their community, saving the City of Palo Alto significant financial resources and hundreds of staff or contracted hours. The City of Palo Alto's continued prioritization of this program in partnership with Canopy is essential to ensure the health of the City's young public trees.

This program would not be possible without the help of our community members. Thanks to their dedicated efforts, by the end of the long and dry summer, hundreds of trees get the water and care they need from homeowners and City staff. With the information provided, both volunteers and homeowners now know exactly what to do to help our urban forest grow and thrive.

VII. Appendix

This section will include the trees that we have found to have inaccurate information; either mistakes in the address or incorrect tree species. It will also include trees not found and dead. We are including this to notify the City of Palo Alto in case any information needs to be updated in TreeKeeper. Canopy will correct the information in TreePlotter.

From this year's survey, 44 trees were not found or dead. Additionally, 9 trees were found to have incorrect information. The chart below is meant to serve as a reference for the City of Palo Alto to use to correct the information on their TreeKeeper database.

Common Name	Scientific Name	Address	Date Planted	Notes
Valley Oak	Quercus lobata	1755 Embarcadero Rd	11/9/19	Tree Not Found
Autumn Gold Ginkgo	Ginkgo biloba 'Autumn Gold'	1098 Amarillo Ave	4/15/21	Tree Not Found
Coast Live Oak	Quercus agrifolia	1098 Amarillo Ave	1/24/23	Tree Not Found
Elegant Water Gum	Tristaniopsis laurina 'Elegant'	3124 Genevieve Ct	10/5/19	Tree Not Found; replaced with Japanese Maple
Coast Live Oak	Quercus agrifolia	3427 Greer Rd	6/23/19	Tree Not Found
Autumn Gold Ginkgo	Ginkgo biloba 'Autumn Gold'	820 E Meadow Dr	12/24/19	Tree Not Found
Eastern Dogwood	Cornus florida	820 E Meadow Dr	2/23/20	Tree Not Found
Deodar Cedar	Cedrus deodara	655 St Claire Dr	11/24/19	Tree Not Found
Coast Live Oak	Quercus agrifolia	3800 Middlefield Rd	3/29/21	Tree Not Found
Incense Cedar	Calocedrus decurrens	4000 Middlefield Rd	2/29/20	Tree Not Found
Cashmere Cedar	Cupressus casmeriana	4000 Middlefield Rd	2/29/20	Tree Not Found
Cashmere Cedar	Cupressus casmeriana	4000 Middlefield Rd	2/29/20	Tree Not Found
Incense Cedar	Calocedrus decurrens	4000 Middlefield Rd	2/29/20	Tree Not Found
Island Oak	Quercus tomentella	279 Scripps Ct	2/29/20	Tree Not Found; Address for this dot's location is actually 4052 Scripps Ave
Silver Linden	Tilia tomentosa	303 Creekside Dr	4/26/22	Tree Not Found
Eastern Dogwood	Cornus florida	229 Edlee Ave	12/15/19	Dead
Shumard Oak	Quercus shumardii	341 California Ave	2/21/20	Tree Not Found
Shumard Oak	Quercus shumardii	410 California Ave	7/13/19	Tree Not Found; Has been replaced with Lagerstroemia 'Muskogee'

Columbia Sycamore	Platanus acerifolia 'Columbia'	360 Leland Ave	2/2/20	Tree Not Found
Oleander	Nerium oleander	1300 Alma St	2/29/20	Tree Not Found
Red Oak	Quercus rubra	201 El Camino Real	2/17/20	Tree Not Found
Red Oak	Quercus rubra	201 El Camino Real	2/17/20	Tree Not Found
Southern Magnolia	Magnolia grandiflora	800 University Ave	8/17/19	Dead
Eastern Redbud	Cercis canadensis	1111 Hamilton Ave	11/24/19	Dead
Fernleaf Ironwood	Lyonothamnus floribundus ssp. asplenifolius	2190 Barbara Dr	11/24/19	Tree Not Found; Has been replaced with a different species. Unknown.
Valley Oak	Quercus lobata	2517 Ramona St	2/15/20	Tree Not Found; has repeatedly failed at this location. Consider soil testing
Coast Live Oak	Quercus agrifolia	650 Addison Ave	4/7/21	Tree Not Found
Oklahoma Redbud	Cercis canadensis var. texensis 'Oklahoma'	519 Tennyson Ave	8/18/20	Tree Not Found
Shumard Oak	Quercus shumardii	2700 Ash St	3/25/21	Tree Not Found
Chinese Pistache	Pistacia chinensis	2172 Yale St	3/24/21	Tree Not Found
Arbutus Marina	Arbutus 'Marina'	311 Everett Ave	3/19/21	Tree Not Found
Autumn Gold Ginkgo	Ginkgo biloba 'Autumn Gold'	2241 Wellesley St	2/18/21	Tree Not Found
Red Maple	Acer rubrum	435 Acacia Ave	3/15/22	Tree Not Found
Autumn Gold Ginkgo	Ginkgo biloba 'Autumn Gold'	2862 Bryant St	1/26/22	Tree Not Found
Blue Oak	Quercus douglassii	2712 Byron St	4/7/22	Tree Not Found
Red Horse Chestnut	Aesculus carnea	474 Ferne Ave	11/29/22	Dead
Tupelo	Nyssa sylvatica	1010 Colorado Ave	3/8/22	Tree Not Found
Columbia Sycamore	Platanus acerifolia 'Columbia'	377 Diablo Ct	4/14/22	Tree Not Found; Replaced with lemon shrub
London Plane Tree	Platanus acerifolia	2515 El Camino Real	3/10/21	Tree Not Found
Southern Magnolia	Magnolia grandiflora	1056 University Ave	3/9/21	Tree Not Found
Columbia Sycamore	Platanus acerifolia 'Columbia'	4329 El Camino Real	6/7/22	Tree Not Found
Elegant Water Gum	Tristaniopsis laurina 'Elegant'	435 Seale Ave	1/27/23	Tree Not Found; replaced with 2 larger Vinegar trees (Queensland Box)
Eastern Dogwood	Cornus florida	670 Channing Ave	10/24/23	Tree Not Found
Eastern Dogwood	Cornus florida	670 Channing Ave	10/24/23	Tree Not Found

Chinese Pistache	Pistacia chinensis	1077 Loma Verde Ave	4/1/21	Wrong species listed: Coast live oak
Arbutus Marina	Arbutus 'Marina'	1098 Amarillo Ave	4/15/21	Wrong species listed: Coast live oak
Valley Oak	Quercus lobata	3800 Middlefield Rd	3/30/21	Wrong species listed: Coast live oak
Chinese Pistache	Pistacia chinensis	410 Monroe Dr	11/19/19	Wrong species listed: Coast live oak
Chinese Hackberry	Celtis sinensis	137 Park Ave	2/13/20	Wrong species listed: Chinese pistache
Coast Live Oak	Quercus agrifolia	2303 St. Francis Dr	11/20/19	Wrong species listed: Valley oak
Coast Live Oak	Quercus agrifolia	860 Newell Rd	12/13/22	Place on City watering route; no homeowners
Camphor Tree	Cinnamomum camphora	401 Waverley St	10/26/23	Wrong location listed: Lytton/Kipling Lot T
Valley Oak	Quercus lobata	972 Ilima Way	9/3/19	Wrong location listed: Bol Park Also, please double check the planting date. The tree is too small to be 5+ years old and in Excellent condition.