City of Brisbane 2024 Tree Inventory

The City of Brisbane completed an inventory of City owned trees in the spring of 2024. The inventory of approximately 5000 trees and accompanying data was collected by PlanIT Geo. In addition, a separate citywide review of the tree canopy was performed by PlanIT Geo comparing satellite data from 2010 and 2022 of tree cover across the jurisdiction's boundaries.

PlanIT Geo delivered the inventory data as a GIS shapefile, as well as summary charts and statistics. Brisbane Public Works staff reviewed the data and presents it here in this Executive Summary as well as the Brisbane Tree HubSite which provides GIS maps, data and searchable content.

Quick Stats

4720	180	12.02	96	240
Total Trees Counted	Unique Species	Average Diameter at Breast Height (DBH) (inches)	Largest Diameter at Breast Height (DBH) (inches)	Potential Planting Sites Identified

Eco Benefits

Total Eco-Benefits	
Runoff Avoided:	1331.53 (ft^3)
Interception:	19,827.89 (ft^3)
Pollutants Removed:	5923.94 (lbs)
Carbon Storage:	9,607,535.00 (lbs)
CO_2 Storage:	35,227,636.00 (lbs)
CO_2 Sequestered:	903,467.50 (lbs)

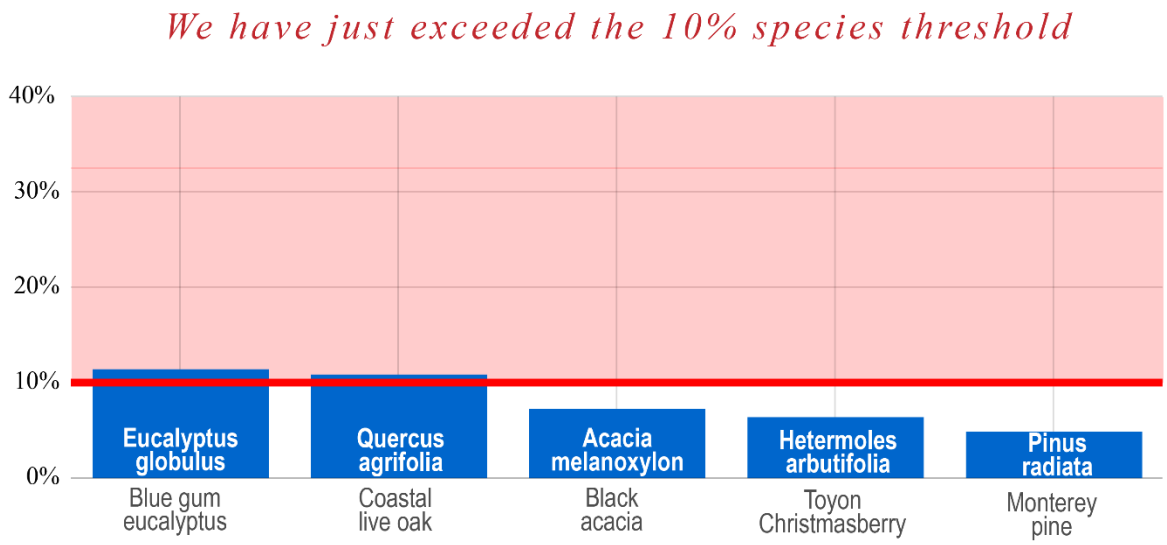
For details of the Eco Benefits, which are calculated by iTree, see planitgeo.com/library/the-new-i-tree-benefits-api-is-here/

Tree Diversity

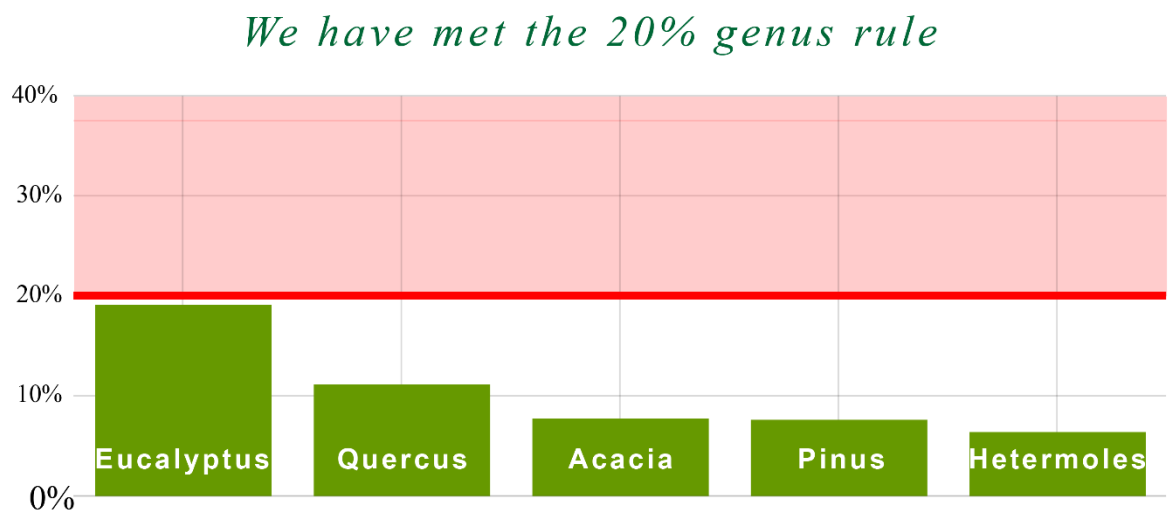
The Tree Diversity charts show the top five most common tree species, genera, and families within the inventory. The red horizontal lines demonstrate the 10-20-30 rule, which suggests an urban tree population should include no more than 10% of any one species, 20% of any one genus, or 30% of any family. Tree managers, researchers, and practitioners use these parameters first recommended by Santamour in 1990 as an industry standard to measure a tree population's resiliency to harmful tree pests and diseases and other factors. Consider establishing these thresholds on a community-wide scale and/or at smaller-scales such as by neighborhood, street corridor, block, or project.

Santamour, F.S., 1990. Trees for urban planting: diversity, uniformity and common sense. Paper Presented at the Proceedings of the 7th Conference of the Metropolitan Tree Improvement Alliance.

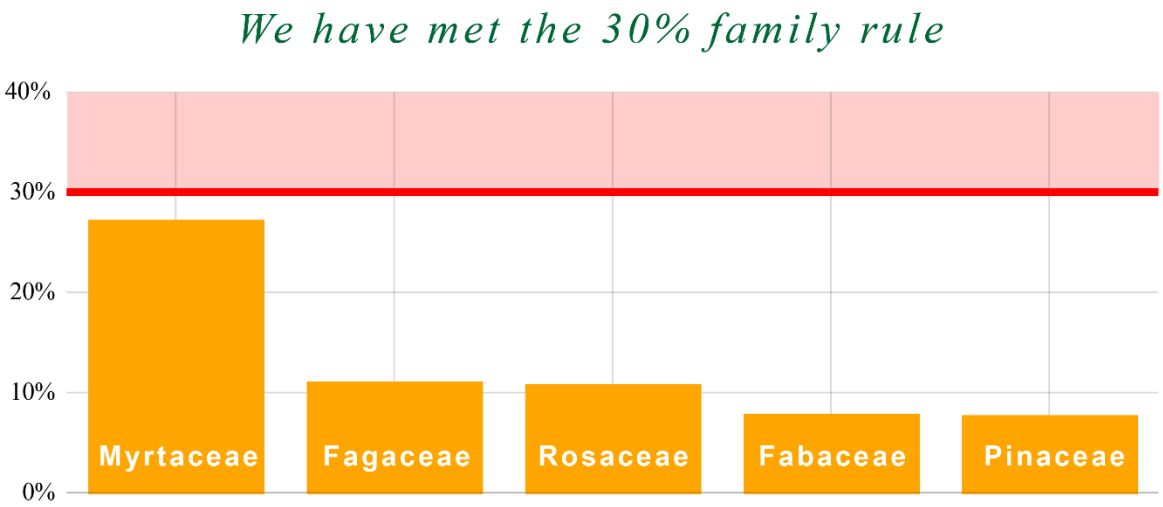
Top 5 Species



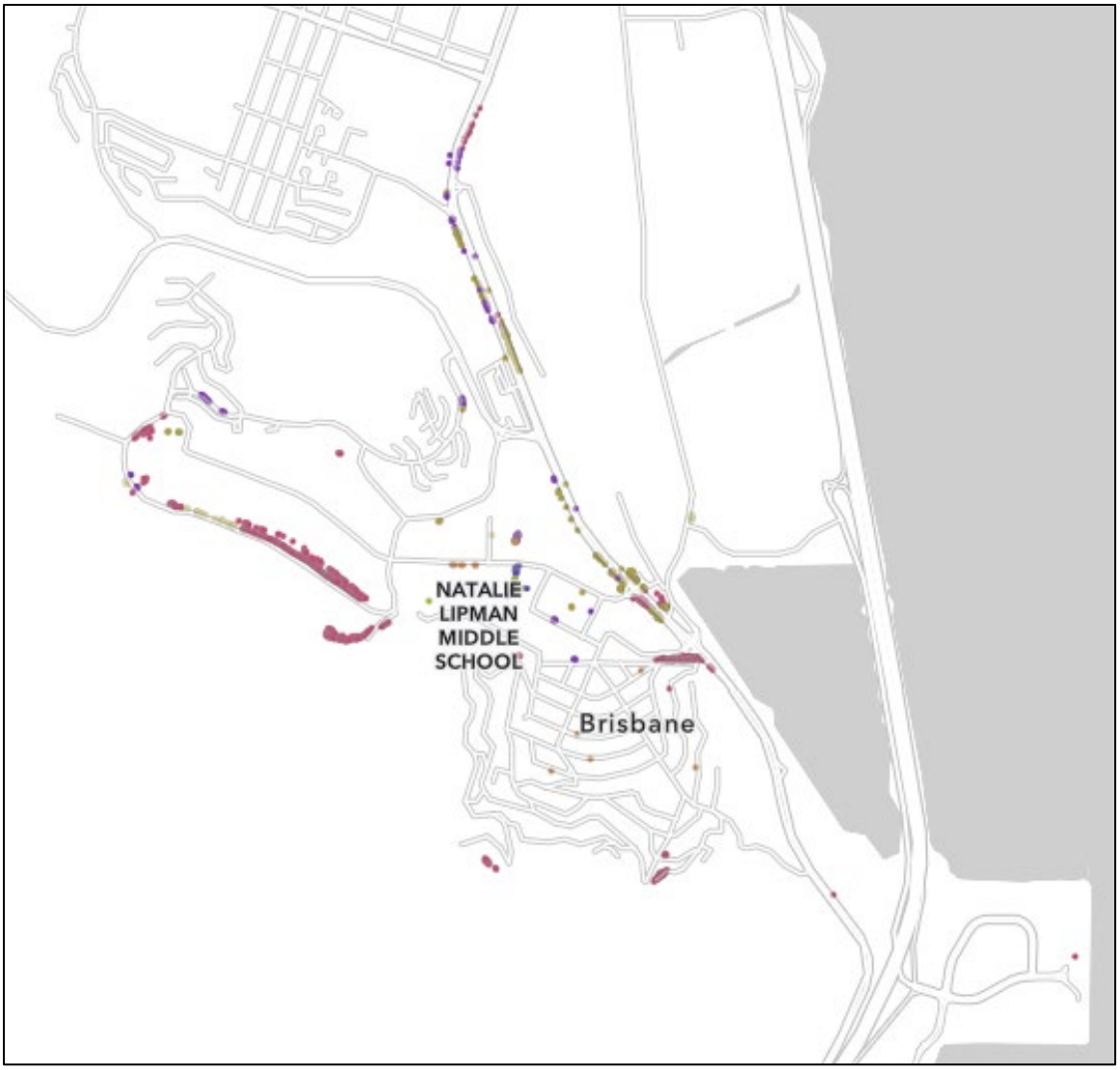
Top 5 Genera

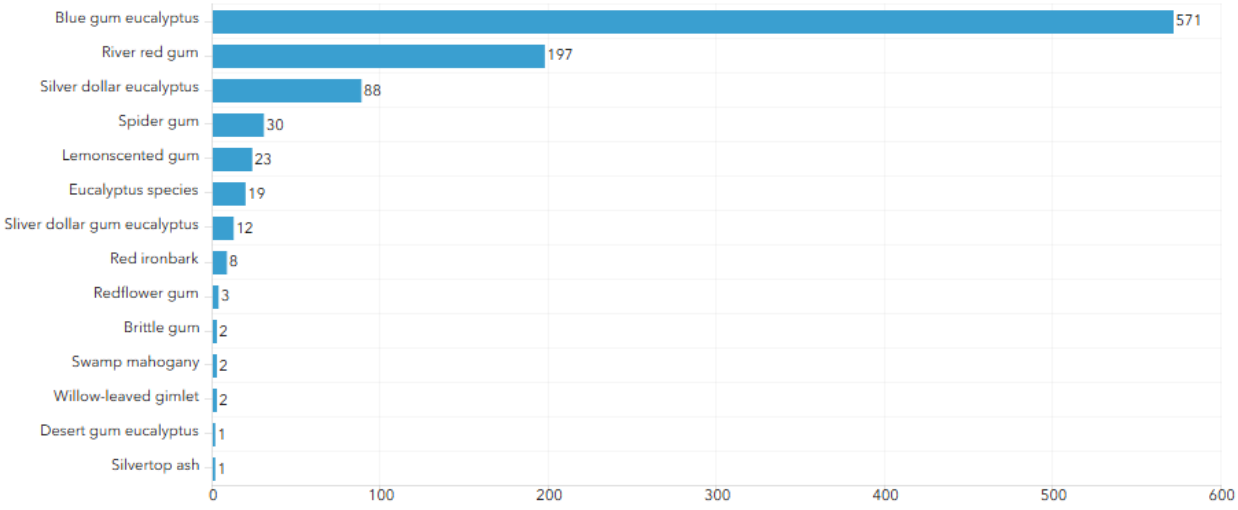


Top 5 Families



The Tree Diversity Dashboard on the Brisbane Tree HubSite includes charts showing the Top 20 Species and Top 20 Genus, and the counts of those trees in the inventory, including the ability to filter the map to identify the locations of those trees. For instance, there are 959 Eucalyptus (genus) on city-owned properties and rights of way within Brisbane:


NATALIE
LIPMAN
MIDDLE
SCHOOL
Brisbane

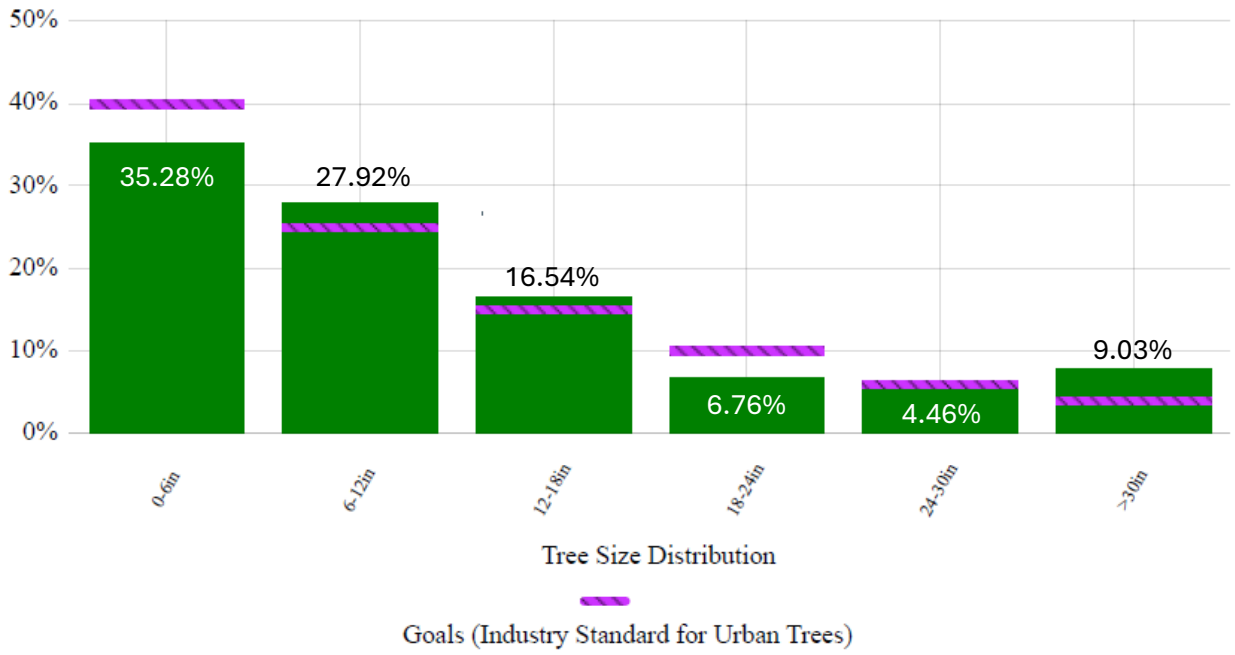

Blue gum eucalyptus
571
River red gum
197
Silver dollar eucalyptus
88
Spider gum
30
Lemonscented gum
23
Eucalyptus species
19
Sliver dollar gum eucalyptus
12
Red ironbark
8
Redflower gum
3
Brittle gum
2
Swamp mahogany
2
Willow-leaved gimlet
2
Desert gum eucalyptus
1
Silvertop ash
1
0
100
200
300
400
500
600

Tree Size Distribution

This chart displays the May 2024 recorded diameter (diameter at breast height or DBH, measured 4.5-feet above natural grade) values along with DBH goals (as defined by Richards et al. in 1983 and 1993). This information is often used to identify a tree population's structure, distribution of tree canopy cover and associated benefits, current maintenance needs, projecting potential surges in maintenance and removal needs, among other considerations in sustainably managing trees in communities. A distribution of tree size classes as indicated by the "Goal" uniformly distributes tree benefits and maintenance needs. Smaller, younger trees compared to large diameter trees aim to compensate for the loss of tree canopy cover and associated benefits that occur when large trees reach their full potential, mature, and begin to decline, requiring eventual removal (in most cases).

Richards, N. A. 1983. "Diversity and Stability in a Street Tree Population." Urban Ecology 7(2):159–171.

Richards, N.A. 1993. Reasonable guidelines for street tree diversity. Journal of Arboriculture 19:344–349.

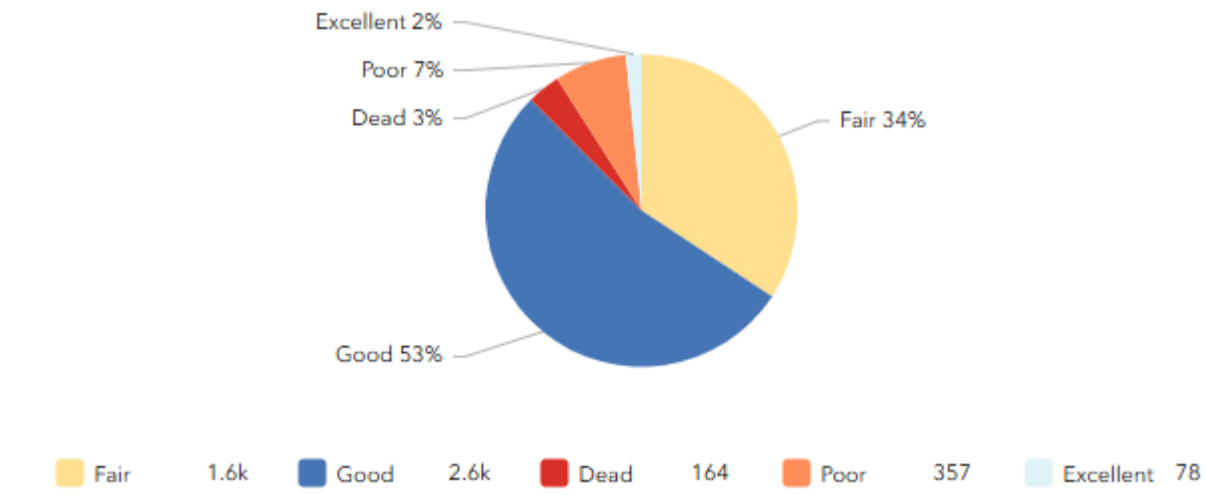


The Tree Diversity Dashboard on the Brisbane Tree HubSite includes a pie chart of the Brisbane tree size data, including the ability to filter the map to identify the locations of trees of that size.

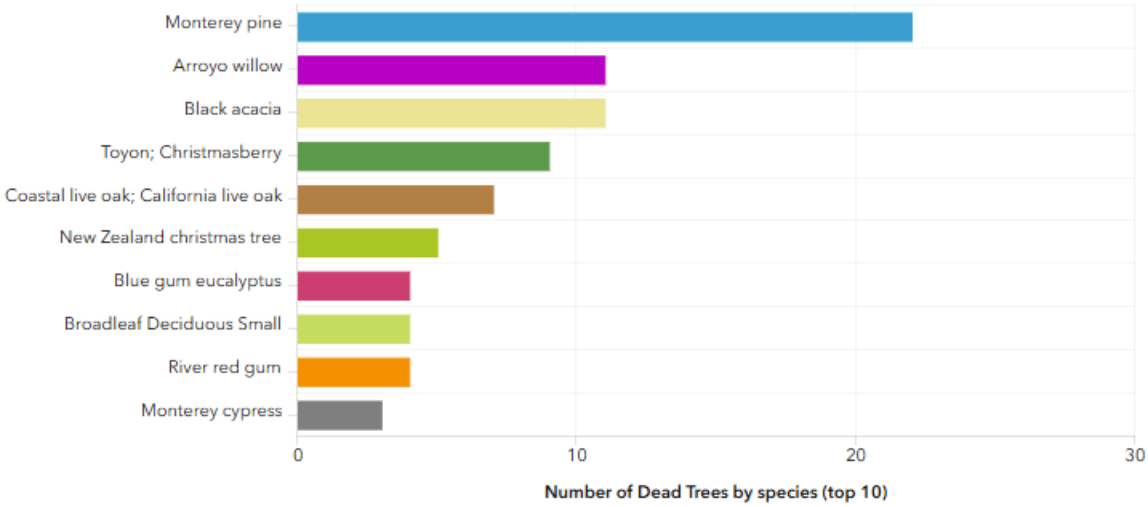
Tree Health

A key goal of inventorying city-owned trees is to understand the health of our trees and identify maintenance needs. To that end, two dashboards have been created: a Tree Health Dashboard, and a Maintenance and Risk Dashboard which identifies specific maintenance needs. Public Works Buildings and Grounds staff have reviewed and, as of mid-January 2025, have removed at least 8 trees, trimmed 17 and evaluated approximately 50 more. Where trees are dead but not posing a risk to the public, they have been left in place for ecologic and economic reasons.

Fortunately, 90% of inventoried public trees are in Excellent, Good or Fair Condition.



Unfortunately, that leaves 10% of trees in Poor Condition or Dead. Of the 164 trees PlanIT Geo identified as "Dead", the data indicates that 53 are in fact Stumps. The Top Ten Species of Dead Trees in the inventory are:



Both the charts shown on this page are included in the publicly accessible Tree Health Dashboard, including the ability to click on a condition or species and see those tree locations in the map.

PlanIT Geo's dataset includes additional data intended to support the City's maintenance of its trees, such as Tree Work, Risk Ratings, Conflicts with Wires, Trees observed with Vines, and more.

TREE WORK	COUNT*
None Specified	3,147
Crown Cleaning	752
Prune-Clearance	452
Prune-Structural	283
Prune-Utility	267
Remove Hardware	207
Remove	198
Insects	43
Disease	26
Monitor	24
Remove-Hanger	19
Reduce	16
Prune-Restoration	13
Thin	13
Other	12
Remove-Girdling Root	7
Raise	4
Amend Mulch	1

MAINTENANCE PRIORITY	COUNT	PERCENTAGE
Low	4,546	96.3%
Medium	155	3.3%
High	19	0.4%

RISK RATING	COUNT	PERCENTAGE
None Specified	2,909	57.8%
Low	2,120	42.1%
Moderate	3	0.1%
High	1	0.0%
Extreme	0	0.0%

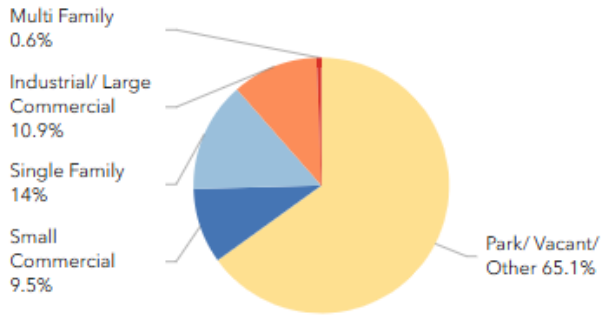
Maintenance Priorities and Risk Ratings were evaluated separately by PlanIT Geo arborists, and there are not clearly-defined overlaps between the categories. See the final page of this Executive Summary for definitions.

*Note that, aside from "None Specified," the same tree could be counted with multiple different Tree Work needs. Public Works staff will perform tree work according to Risk Rating first.

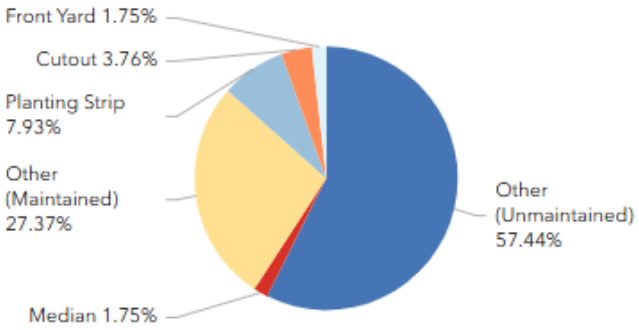
Tree and Potential Planting Site Locations

The surrounding land use of inventoried public trees was identified by PlanIT Geo, however the land use does not necessarily match the City's General Plan land use designations. The inventories also included a tree's growing space.

Land Use of City Trees

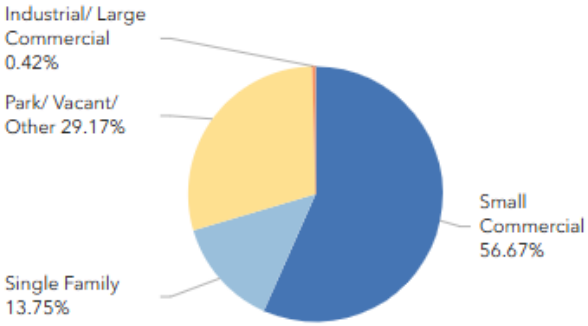


City Trees Growing Spaces

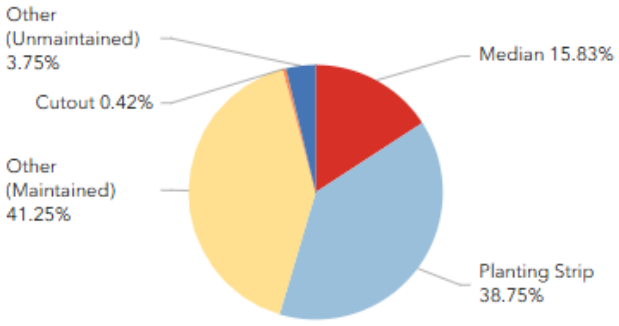


PlanIT Geo further identified 240 Potential Planting Sites, including their surrounding land use (again distinct from the City's designations) and the tree's growing space.

Potential Planting Sites Land Use



Potential Planting Sites Growing Space



These charts are available in the City Trees and Potential Planting Sites Dashboard on the Brisbane Tree HubSite, including the ability to filter the map by any given slice of the pie.

The Potential Planting Sites will need to be investigated for viability and those deemed promising could be considered for a citywide planting effort.

Public Tree Management Plan

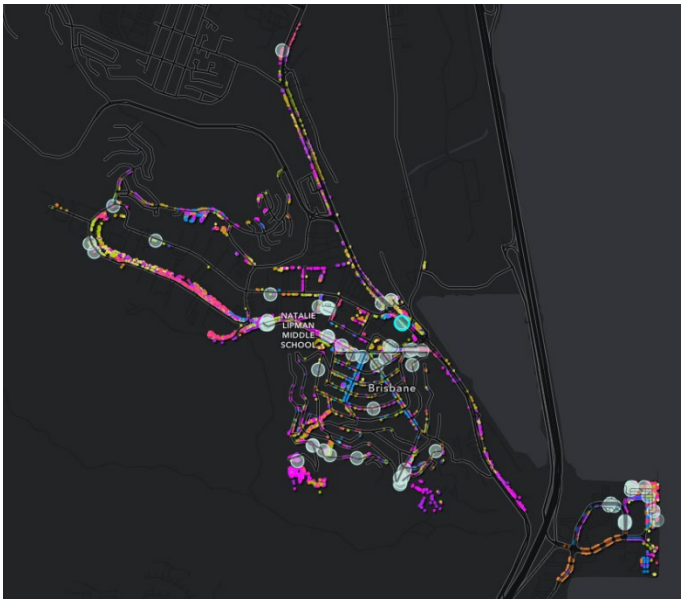
While the majority of the City's public trees are in good shape, there are maintenance needs that must be addressed to maintain public safety and the health of these important city assets. Public Works staff used the data provided by PlanIT Geo to develop and prioritize a management plan, which is outlined here and in the City Trees Management Planning App on the Tree HubSite.

Public Works staff recommend the Management Plan be considered for completion within 5 years and will make budgetary requests starting with the 2025-2026 Fiscal Year to implement the plan.

Phase 1	$129,200
Phase 2	$184,850
Phase 3	$195,700
Total cost for all phases	**$509,750**

These budget estimates do not include the cost to replant trees that are removed and currently vacant street tree locations. Planting these ~50 trees would require an additional $50,000-$100,000. These sites are in addition to the 240 potential planting sites identified by PlanIT Geo. The City has a "Tree Plant Fund" with a balance of approximately $14,200 collected from private property owners who are unable to plant a replacement tree on their property after a permitted removal which could be used to offset planting expenses.

Phase 1:



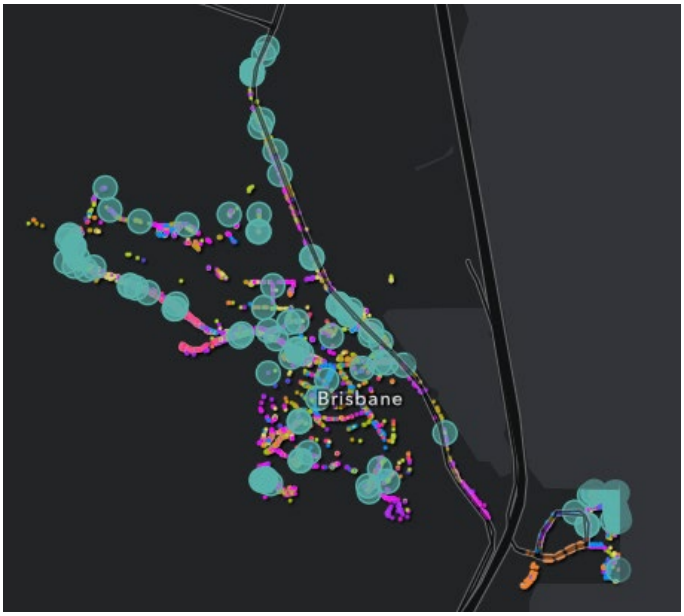
Total trees included in phase: 53

Primary work categories:

- 23 removals
- 23 crown cleaning
- 7 pruning

Estimated cost for phase: $129,200

Phase 2:



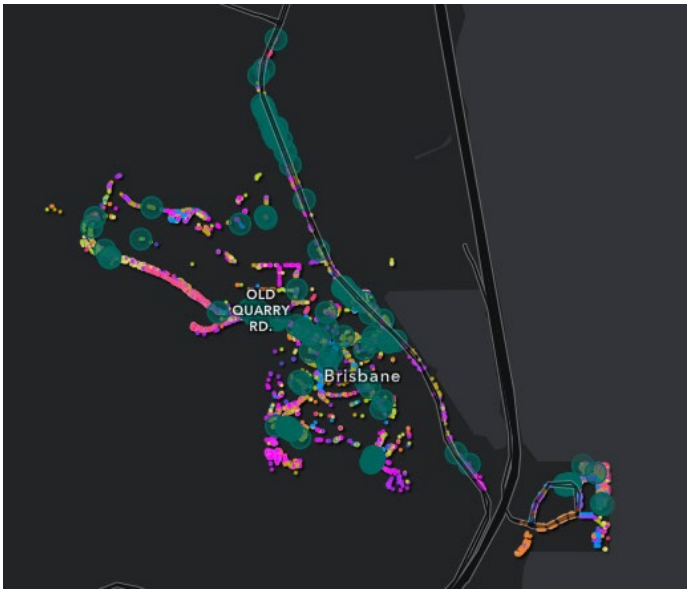
Total trees included in phase: 102

Primary work categories:

- 37 crown cleaning
- 34 removals
- 27 pruning

Estimated cost for phase: $184,850

Phase 3:



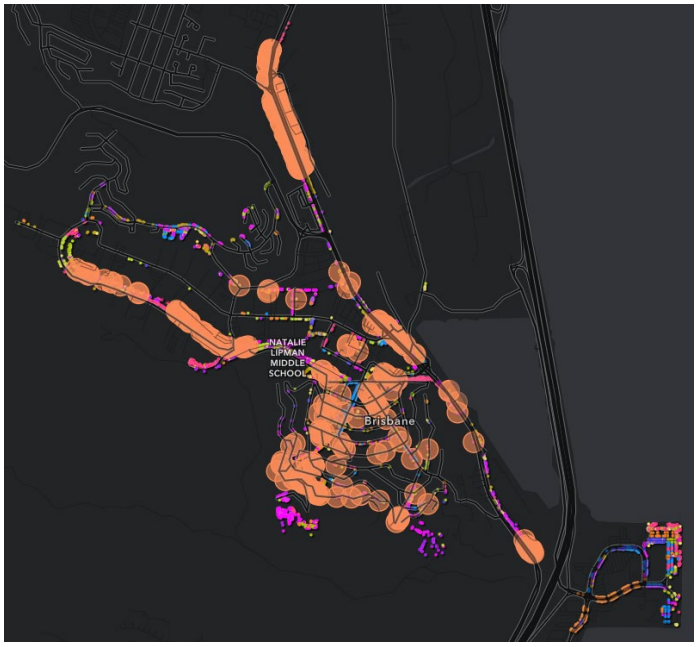
Total trees included in phase: 108

Primary work categories:

- 62 crown cleaning
- 37 pruning
- 9 removals

Estimated cost for phase: $195,700

Wires:



Approximately 267 public trees were identified as “present and conflicting with utility wires.” Public Works staff will share this dataset with PG&E to address accordingly. Some conflicts may also be addressed by pruning efforts captured in Phases 1-3.

Vines:

Approximately 318 public trees were identified with vines, which can negatively impact tree health. Removing, or cutting off at the ground to result in vines naturally dying off, is a straightforward task. The Open Space and Ecology Committee has previously called for volunteer events or efforts to address vines; staff recommends taking this approach and has developed the Vine Volunteer Management App in the Tree HubSite to facilitate this work, excluding areas within the San Bruno Mountain Habitat Conservation Plan Boundary (shown in red) where a permit and biologist supervision is required.

Next Steps

- ✓ Staff will request the City Council accept this report and approve the recommended City Tree Management Plan and Citywide Canopy 2040 Goal.
- ✓ Staff will request funds from the City Council through the budget process starting in FY25-26 to implement the City Tree Management Plan.
- ✓ Staff will share the data and map of trees conflicting with utility wires with PG&E.
- ✓ Staff and OSEC will evaluate the viability of Potential Planting Sites.
- ✓ Staff will work with the Open Space and Ecology Committee (OSEC) to implement volunteer efforts to address vines on trees.
- ✓ Staff and OSEC should use this report and Tree HubSite to recommend policies, incentives, or city-led tree planting efforts to protect and expand the canopy in support of the management plan and goals adopted by Council.
- ✓ Staff will maintain the data in the Tree HubSite on an ongoing basis as the Management Plan is implemented.
- ✓ Staff recommends evaluating the health of trees every 5-7 years, at minimum, and will make budgetary requests accordingly to support regular updates to this plan.

Definitions

For a complete list of terms used in the Tree Inventory, please refer to the PlanIT Geo Glossary.

CONDITION	**Overall condition of the tree**
Excellent	Trees in this category show no structural or biotic defects. They represent a tree that is 100% healthy
Good	Trees in this category show minor structural or biotic defects and represent a tree that is below 100% but above 80% healthy
Fair	Trees in this category show structural or biotic defects and represent a tree that is below 80% but above 50% healthy
Poor	Trees in this category show significant structural or biotic defects and represent a tree that is below 50% healthy often with serious decline
Dead	Trees in this category are dead and have no live growth on them

MAINTENANCE PRIORITY	**A scale to categorize tree maintenance tasks based on the urgency and potential risk involved.**
High	Tree work that must be addressed immediately to eliminate imminent danger to people or property
Medium	Tree work necessary to address potential safety hazards identified during a routine inspection
Low	Routine maintenance tasks and/or trees that do not require more immediate attention

RISK RATING	**Risk Rating is automatically calculated based on the values present in the Likelihood and Consequences of Failures fields.**
Low	Consequences are negligible and likelihood is unlikely, or consequences are minor and likelihood is somewhat likely
Moderate	Consequences are minor and likelihood is very likely or likely, or likelihood is somewhat likely and consequences are significant or severe
High	Consequences are significant and likelihood is very high or likely, or consequences are severe and likelihood is likely
Extreme	Failure is imminent with a high likelihood of impacting the target, and the consequences of the failure are severe