

PASADENA

Master Street

Tree Plan

General Amendment

**Produced by the
Department of Public Works**



Adopted by City Council
(insert date)



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ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY & VISION

The City of Pasadena has a rich history of planting and preserving trees. Trees provide a wealth of environmental, economic and placemaking value for the City. The City's urban forest comprises of over 100 different species of hardwood and palm trees. Tree canopy coverage in Los Angeles County – conducted by TreePeople Los Angeles and Loyola Marymount University's Center for Urban Resilience – noted that Pasadena possesses an average of 30% canopy coverage throughout the City, whereas, Los Angeles County possesses an average 20% canopy coverage.

The Master Street Tree Plan (MSTP) guides what tree species are planted in public spaces throughout the City. It is not the intention to do away with the City's current designated tree species list, rather, this General Amendment will provide staff the flexibility to use alternative tree species for planting under certain conditions. **The MSTP and this General Amendment are limited in scope; these documents guide tree species selection. However, this is the Public Works Department's first step in an effort to adopt a broader Urban Forestry Master Plan that will guide the long-term management of the City's urban forest.**

Vision: build upon Pasadena's rich urban forestry history, that will guide tree species selection that promotes a resilient and sustainable urban forest for future generations.

Emerging research in urban forestry management and tree care science has led to a longstanding question – *what trees should we be planting?* **In the past, tree species may have been selected for their aesthetic value and to promote uniformity. Today, species criteria such as climate resilience and biodiversity are reshaping how we view and manage the urban forest.** This General Amendment will adopt the guiding principles that sets the criteria for an Alternative Tree Species List, as well as provide the decision-making process on when it would be appropriate to use these tree species.

HISTORY AND RELATIONSHIP WITH OTHER CITY PLANS



1. Coast Live Oak Tree at Orange Grove Blvd and Pasadena Blvd.

As of 2025, the City has been recognized by the Arbor Day Foundation as a Tree City USA designee for 35 years. But the City's horticultural and arboricultural history stems from long before.

Early history of Pasadena painted a landscape of oak trees littered among orchards of fruit trees that were the driving economic engine of the day. Estate gardens began to emerge around the turn of the century, and prominent residents like Jeanne Carr and Arthur Heinemen began to shape the City's horticultural and arboricultural history. Jeanne Carr planted and cultivated over 90 different tree species from around the world - some

plants cultivated from seeds collected by renown environmental preservationist John Muir. Carr planted some of the City's earliest Monterey Cypress and California Pepper trees along her estate, *Carmelita*, which is now where the Norton Simon Museum is located². Arthur Heineman was an architect who championed the benefits trees provide to communities leading to some of the earliest tree planting programs led by the City and more neighborhood tree-lined streets³.

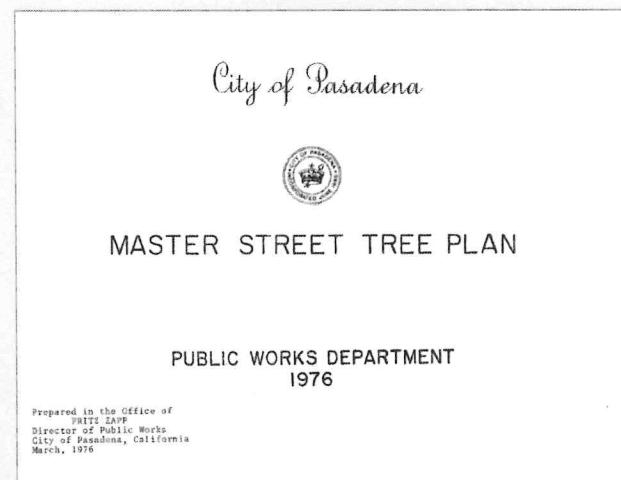
In 1940, the City's Park Department adopted the 'Official Street Tree List', which called for specific tree species to be planted on streets throughout the City.



As parts of Los Angeles County were annexed into Pasadena and post-World War II subdivisions expanded, older public streets were rebuilt and new ones constructed, adding more street trees into the City's urban forest. By 1976, the City adopted the *Master Street Tree Plan*, aiming to bring greater consistency to the selection and placement of street trees. Around the same time, emerging arboricultural research began shedding light on how different species performed in urban environments. Publications like *Recommended Street Trees for Southern California* by Street Tree Seminar Inc. guided professionals in moving away from commonly planted species that were later found to have significant drawbacks - such as vulnerability to pests or weak wood prone to failure. The City inventoried all existing public trees and hired J. Harold Mitchell Company to assess the tree species the City was planting and begin making recommendations to improve the urban forest.

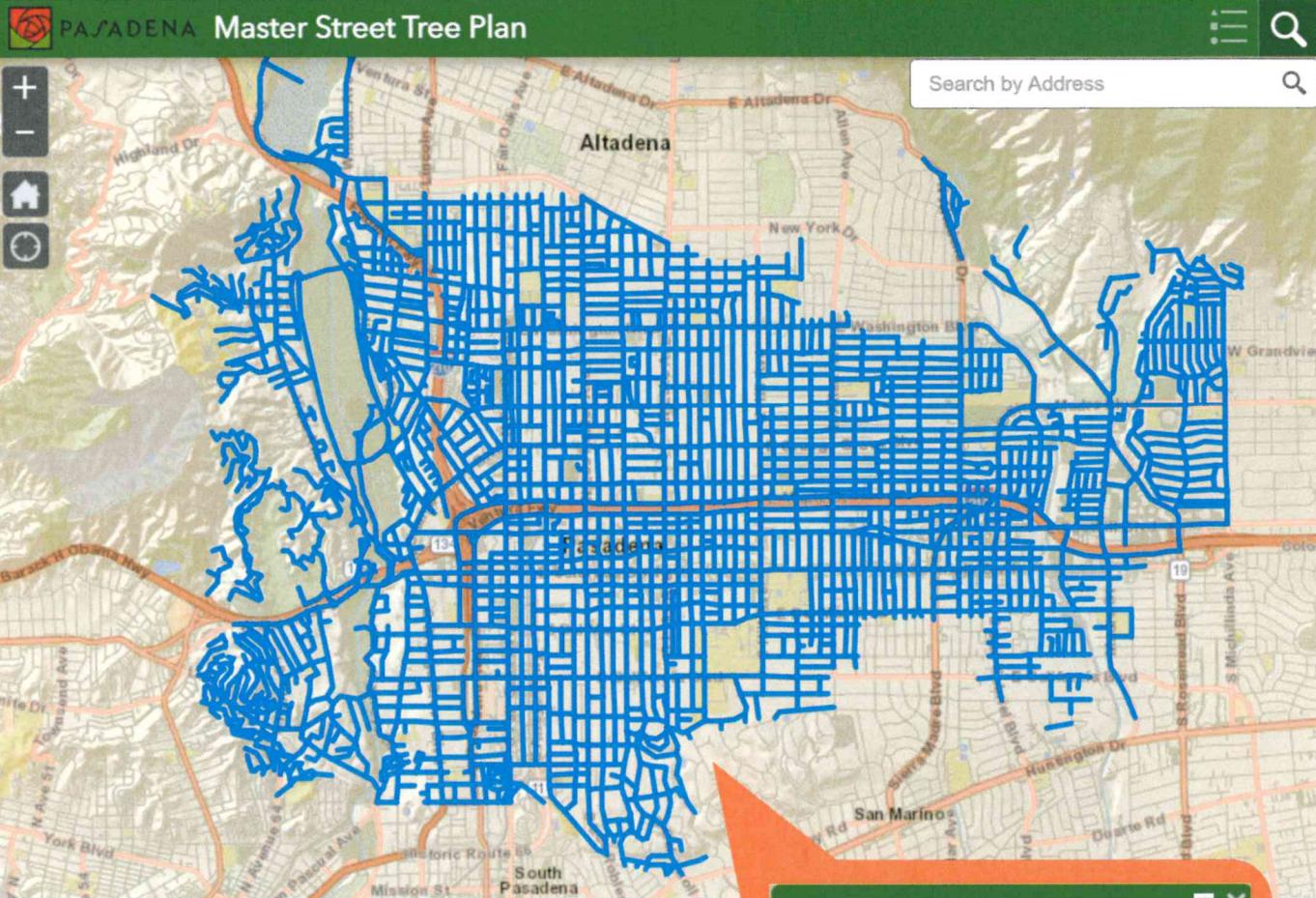
The Master Street Tree Plan has been amended over time based on staff's

observations of poor performing tree species, as well as resident-initiated requests to replace existing trees with preferred alternatives. Tree species, such as Carob (*Ceratonia siliqua*), Carrotwood (*Cupaniopsis anarcardoides*), Silver Maple (*Acer saccharinum*), Shamel Ash (*Fraxinus uhdei*), Tulip tree (*Liriodendron tulipifera*) etc., are no longer planted in the City due to susceptibility to tree failure, likelihood of causing significant hardscape damage, or other factors found to be of poor performance as a street tree.



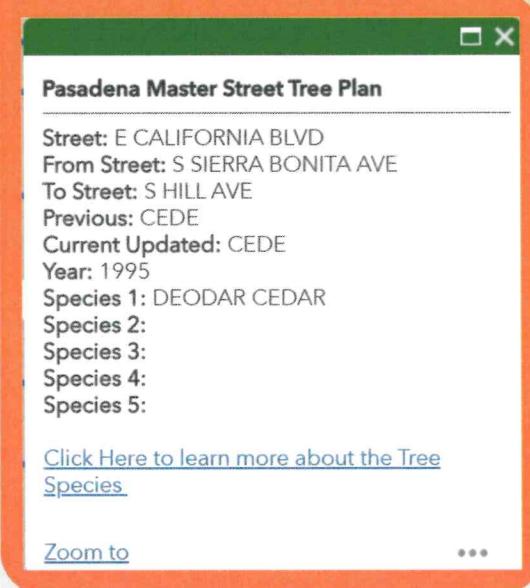
The current iteration of the Master Street Tree Plan is available on the City's Public Works' webpage, as a GIS map feature. Users can look up a specific address throughout the City, and open a pop up window that provides the current designated tree species and year the designation was last amended.

Tree planting supports every element of the City's General Plan, and is a cost effective tool to improve the environment and livability of the City. In 2018, the City launched *Our Pasadena*, an effort to update each of the City's eight community Specific Plans. Through public outreach,



Planning and Community Development staff found strong community interest in the City's urban forest. And while the ultimate decision for tree species selection resides with the Public Works Department, the Updated Specific Plans provides recommended tree species for future consideration within the Appendix section of each Specific Plan. Within the tree care industry, research related to climate resilient tree species, and tree species that better support ecological biodiversity continue to emerge.

All of this is to say: tree species selection in a changing, urban environment is an important, and at times, a complex endeavor.



Master Street Tree Plan Web Tool allows users to search for current tree species designations and provides year the respective street was last amended.

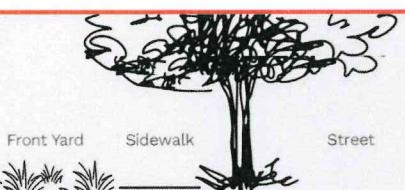
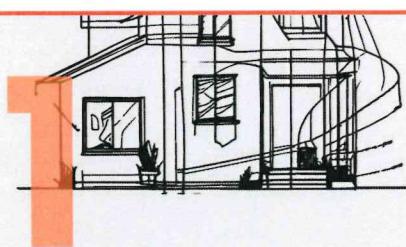
This General Amendment is intended to adopt the following guiding principles and a framework that provides staff flexibility to plant different tree species under certain conditions.

GUIDING PRINCIPLES

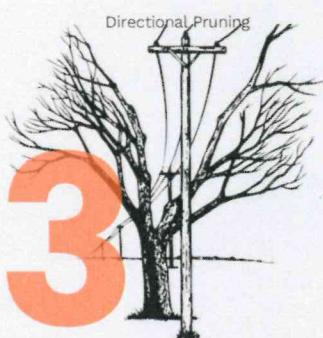
1. Right Tree, Right Place, Right Reason

Right tree, right place and right reason is a principle in urban forestry that emphasizes selecting the appropriate tree species - given it's anticipated growth -for a specific location and with a purpose that aligns with current best management practices. Will the tree's canopy be in conflict with the adjacent building? Will the tree's height be in conflict with utility lines? Is the tree species recommended to support climate resilience, biodiversity, and drought tolerance? ~~While maintenance such as trimming can help mitigate these conflicts, excessive maintenance is costly and can compromise the health of the tree in the longrun. Right tree, right place, right reason can help extend the life of urban trees.~~

Tree species that are appropriate for their planting site are pruned to meet the clearance needs for pedestrians, vehicles, and other conflicts, but should be maintained to provide the maximum level of functional shade to reduce the impacts of urban heat islands. When multiple tree species are determined to be appropriate for a particular site, preference will be given to species that provide greater expected canopy shade.



1. Front yard space, common in single family areas can accommodate larger-canopy trees.



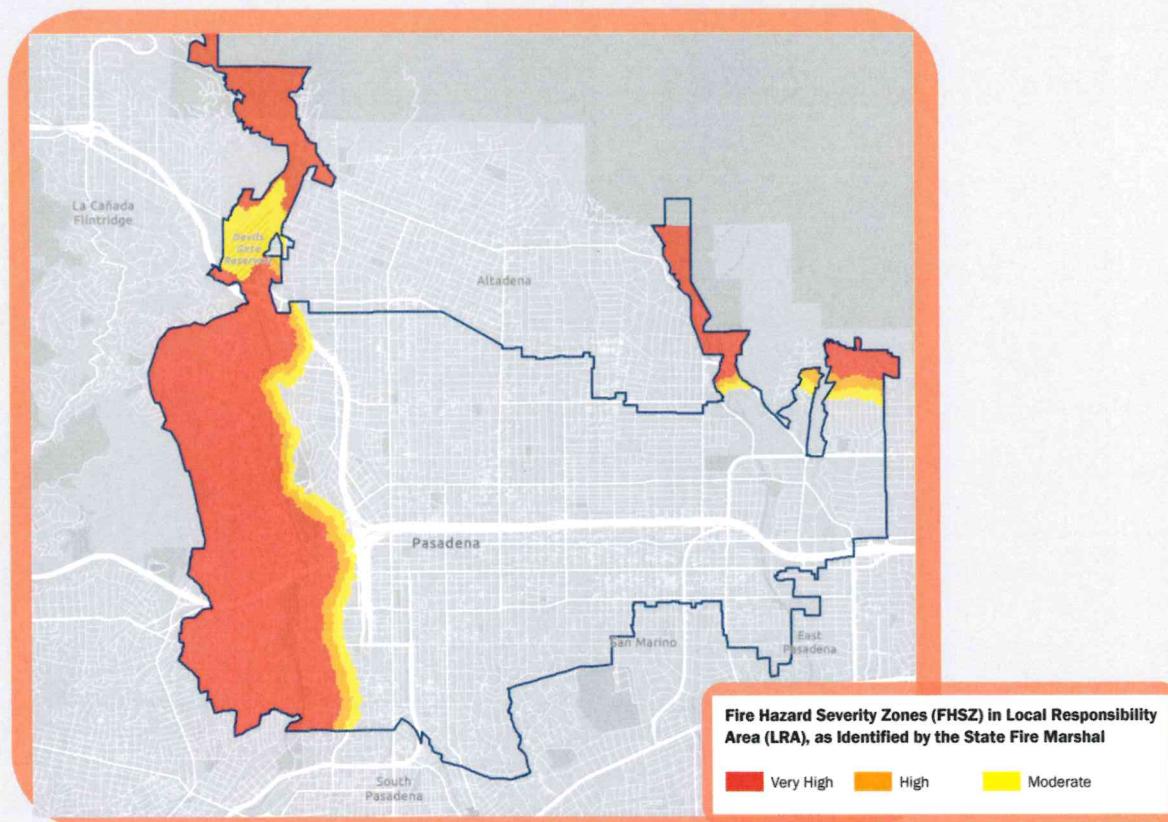
2. Areas of Old Town Pasadena, where buildings are zero setback (building comes up to property line/public right of way), and canopy space is restricted, smaller or more upright trees should be considered.

3. Vegetation management around utility lines is regulated by the California Public Utilities Commission, and administered by Pasadena Water & Power. In order to preserve larger trees around utility lines, directional pruning (v pruning) is sometimes performed, which can draw concern from the community. Therefore, smaller trees is generally recommended for planting around utility lines.

2. Public Safety

Public safety is paramount to the work in urban forestry. However, trees can at times pose complex challenges within a built environment that cannot always be mitigated from hazards. Fire resilience is one such challenge⁴. While all poorly maintained plants and vegetation can be fire-hazardous, certain tree species such as: *Eucalyptus*, *Pine*, *Cypress* and *Palm* possess characteristics (e.g., shedding bark; resinous foliage; and leaf litter production) that can be more prone to flammability under the right conditions⁵.

The California Department of Forestry and Fire Prevention (CAL FIRE) recently updated its fire hazard and severity zones map for the State. Much of the City west of the Arroyo, and the Upper Hastings Ranch neighborhood fall within defined 'Very High' fire hazard zones. The events of the 2025 Eaton Canyon Fire have understandably affected the entire community. And while weighing the ecological benefits of different tree species relative to their fire risk can be complex, out of an abundance of caution the City will amend planting any currently designated tree species **located anywhere in the City** that possess characteristics more prone to flammability with an alternative tree species.



3. Tree Species Diversity

Not all trees are created equal. The ecological services trees can provide – such as reducing heat island effect and sequestering carbon – vary by species. And conversely, the tolerances to environmental stressors – such resilience to climate change and drought tolerance – can also vary by tree species⁶

A widely accepted guideline in urban forestry management is the 10-20-30 rule. This rule states that no more than 30% of the trees in a city's forest should come from the same plant family, no more than 20% from the same genus, and no more than 10% from the same species. Planting a diverse group of different tree species helps spread the various ecological services each tree can provide, and help safeguard the urban forest from an unexpected spread of a pest or other biotic disorder⁷.



If the 30-20-10 rule sets the thresholds for the overall composition of the urban forest, the following criteria should be considered to guide species selection: tree species that have shown resilience to climate change; tree species that promote biodiversity; native tree species; and tree species that contribute to placemaking in Pasadena. The abovementioned criteria is evolving and can generate spirited debates in the tree care industry, so it's important for staff to stay informed of changes that can be flexibly implemented at a later time.

The following criteria and research was used to create the Alternative Tree Species List.

Climate Resilience

In 2015, the University of California, Davis (UC Davis) launched a long-term study on how different, underutilized tree species would perform against a changing climate. Horticultural advisors went through a rigorous process of nominating, scoring and ultimately selecting 12 different tree species to plant and observe in conditions illustrative of California's Central Valley, Inland Empire region, and California's southern coastal region. The trees received the same irrigation, pruning and other maintenance activities, and were observed for establishment rates and overall performance over a multi-year period^{8,9}. The results of this study are published by UC Davis' 'Climate Ready' trees program.

Biodiversity

Trees provide an invaluable habitat for the food web ecosystems, specifically, between insects and birds. Cal State LA is leading local research on this dynamic, and has gathered and published data collected on bird foraging observations among street trees throughout multiple residential neighborhoods in the greater Los Angeles area¹⁰. The Pasadena Audubon Society has provided a list of recommended tree species that better support biodiversity, incorporating research from Cal State LA and others experts in urban ecology.

Native Tree Species

The ecological value native tree species provide relative to non native species is unclear as research remains to be divided on this matter¹¹. However, there is historical, cultural and strong public support to continue planting native tree species. Native tree species that staff have found to perform well in Pasadena, and have been regularly available from local plant nurseries have been incorporated in the Alternative Tree Species List.

Placemaking

..... that Public Works staff can use for tree selection
in addition to Alternative Tree Species List.

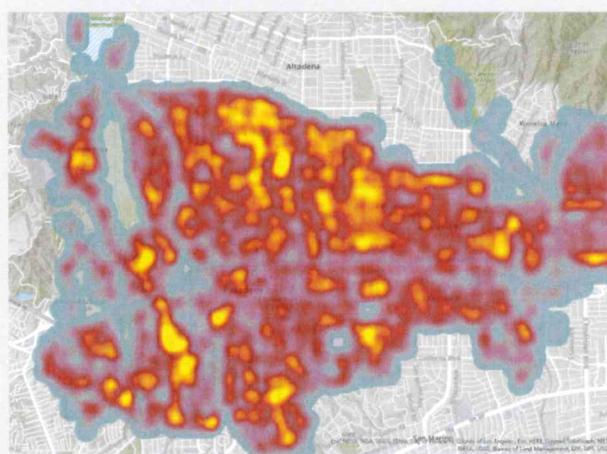
In 2018, the City's Planning and Community Development Department began the process of updating the City's eight different Specific Plans. Extensive public outreach was conducted in order to produce these plans. One of the sections in the Plans that generated strong public interest was tree species selection in the public realm. Each adopted Plan provides an appendix of recommended tree species ~~that added to Placemaking for the relative neighborhood of the corresponding Plan~~.

CURRENT TREE INVENTORY

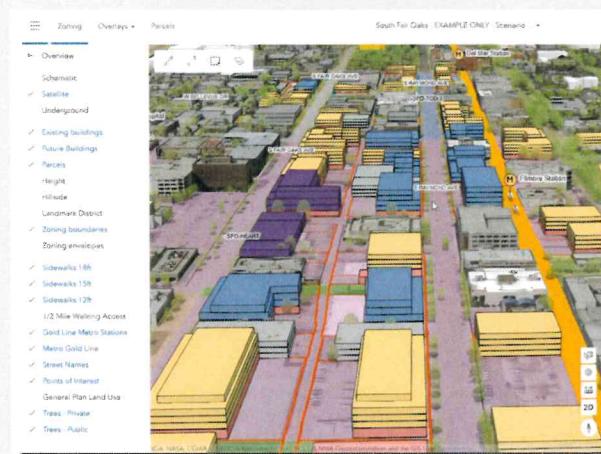
Understanding what trees currently make up the City's urban forest will allow for conformance to the 10-20-30 rule, and allow for appropriate species selection in the Alternative Tree Species List.

The *Quercus* (Oak) genus, and *Q. agrifolia* (Coast Live Oak) species are hovering close to the 20% and 10% thresholds, respectively. However, staff has observed *Q. ilex* (Holly Oak) species beginning to perform poorly in the City. Swapping *Q. ilex* with other *Quercus* species trees in the Alternative Tree Species List will help keep the genus below the 20% threshold.

Maintaining an accurate and up-to-date tree inventory can be challenging and resource-intensive. However, tree inventories store vital information including, maintenance history, which can help the City defend itself against tree-related claims and lawsuits, as well as specific tree attributes that can help visualize better planning for the City. The City's Information Technology Department and Geography Information Systems (GIS) section are a talented and invaluable resource in managing and leveraging the City's Tree data. Best management practices recommend a comprehensive inventory update or quality check every 10 years, and as such, the Public Works Department should plan to allocate the appropriate resources accordingly.

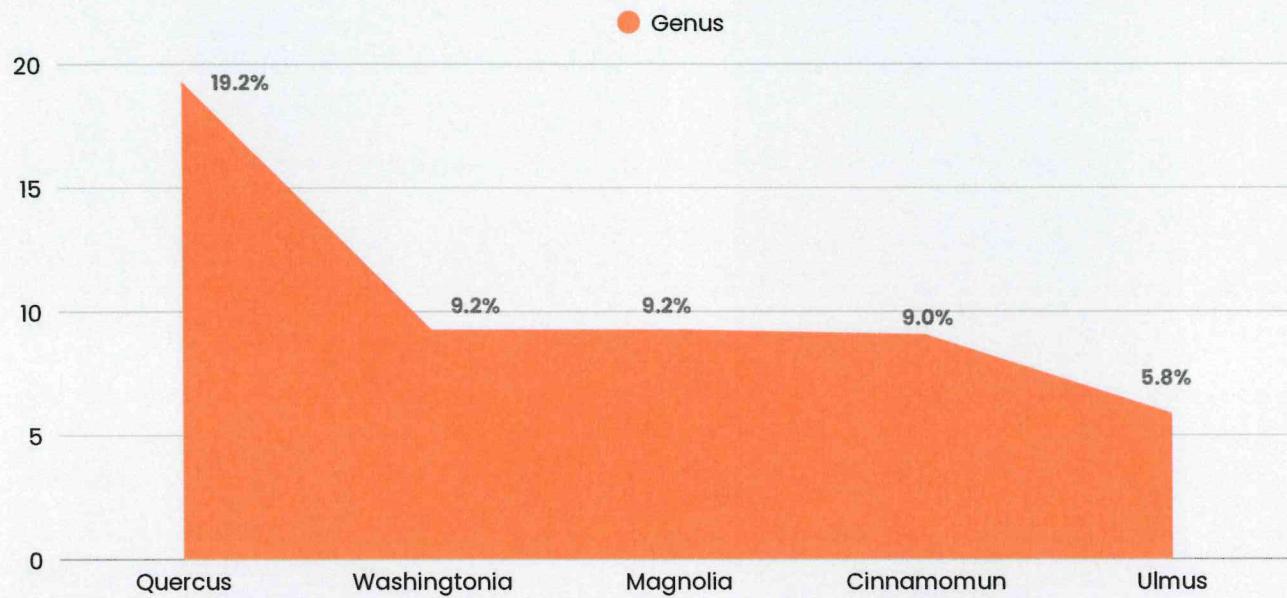


Map of tree canopy concentration exported from City's tree inventory data.

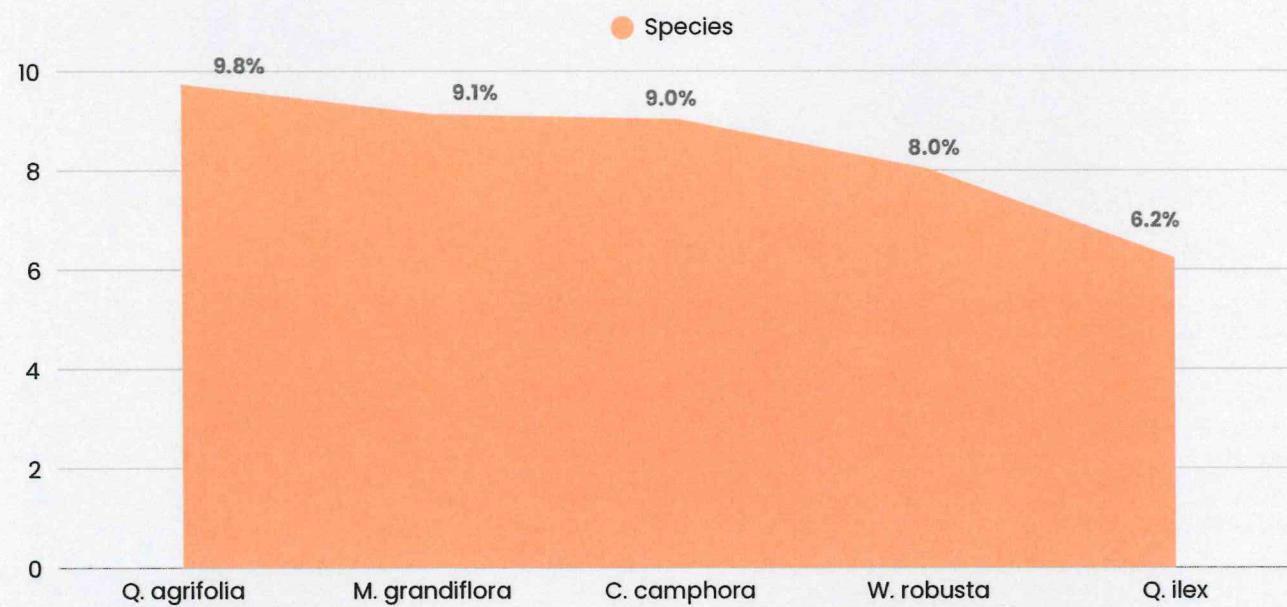


Rendering of building and street tree spaces using ArcGIS software.

Top 5 Genus Diversity



Top 5 Species Diversity



ALTERNATIVE TREE SPECIES LIST

The Alternative Tree Species List was aggregated from the criteria and research referenced previously in Section 3.

Common Name	Botanical Name	General Size
Mulga	<i>Acacia aneura</i>	S
Desert Willow	<i>Chilopsis linearis</i>	S
Chitalpa	<i>Chitalpa x tashkentensis</i>	S
Ray Hartman Ceanothus	<i>Ceanothus 'Ray Hartman'</i>	S
Red Push Pistache	<i>Pistacia 'Red Push'</i>	M
Maverick Mesquite	<i>Prosopis glandulosa 'Maverick'</i>	M
Santa Cruz Ironwood	<i>Lyonothamnus floribundus</i>	M
Noble Laurel	<i>Laurus nobilis</i>	M
Marina Madrone	<i>Arbutus 'Marina'</i>	M
New Zealand Christmas Tree	<i>Metrosideros excelsa</i>	M
Water Gum	African Sumac <i>Searsia lancea</i>	M
Chest Gum	<i>Corymbia papuana</i>	L
Indian Rosewood	<i>Dalbergia sisso</i>	L
Island Oak	<i>Quercus tomentella</i>	L
Deodar Cedar	<i>Cedrus deodara</i>	L
Southern Live Oak	<i>Quercus virginiana</i>	L
Fern Pine	<i>Afrocarpus falcatus</i>	L
Tipu Tree	<i>Tipuana Tipu</i>	L

Evergreen Deciduous	Climate Resilient	Supports Biodiversity	Drought Friendly	California Native	Performs Well
E					
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AMENDMENT TO IMPLEMENTATION

1.

Right Tree
Right Place



2.

Public Safety

~~If the planting work is within a designated fire hazard zone as defined by the latest CalFire map, and the current designated tree species has characteristics that are more prone to flammability (Eucalyptus, Pine, Cypress and Palm species), staff should utilize a species from the Alternative Tree Species List.~~

If any current designated species anywhere in the City....

3.

Tree Species
Diversity

If the planting work will use an existing tree species that is of concern due to the 10-20-30 rule (*Q. agrifolia*, *M. grandiflora*, *C. camphora*), staff should utilize a species from the Alternative Tree Species List.



4.

Placemaking

If the planting work is within a Specific Plan area, and the current designated species is concerned to be poor performing, staff may utilize the tree species recommended in the Appendix section of each respective Specific Plan.

Tree species selection is critical to urban forestry management, but is only one piece of the puzzle. This General Plan Amendment allows staff to continue planting new street trees based on current best management practices. However, the City should allocate additional resources to meet community goals for long-term urban forest management. Assessing maintenance and operations practices, canopy coverage and future needs will be explored through a broader urban forest management plan.



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