Exhibit 1

VOLUME 1

URBAN FOREST PLAN

CITY OF ALAMEDA

DRAFT JANUARY 21, 2025

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PREPARED BY:
The City of Alameda

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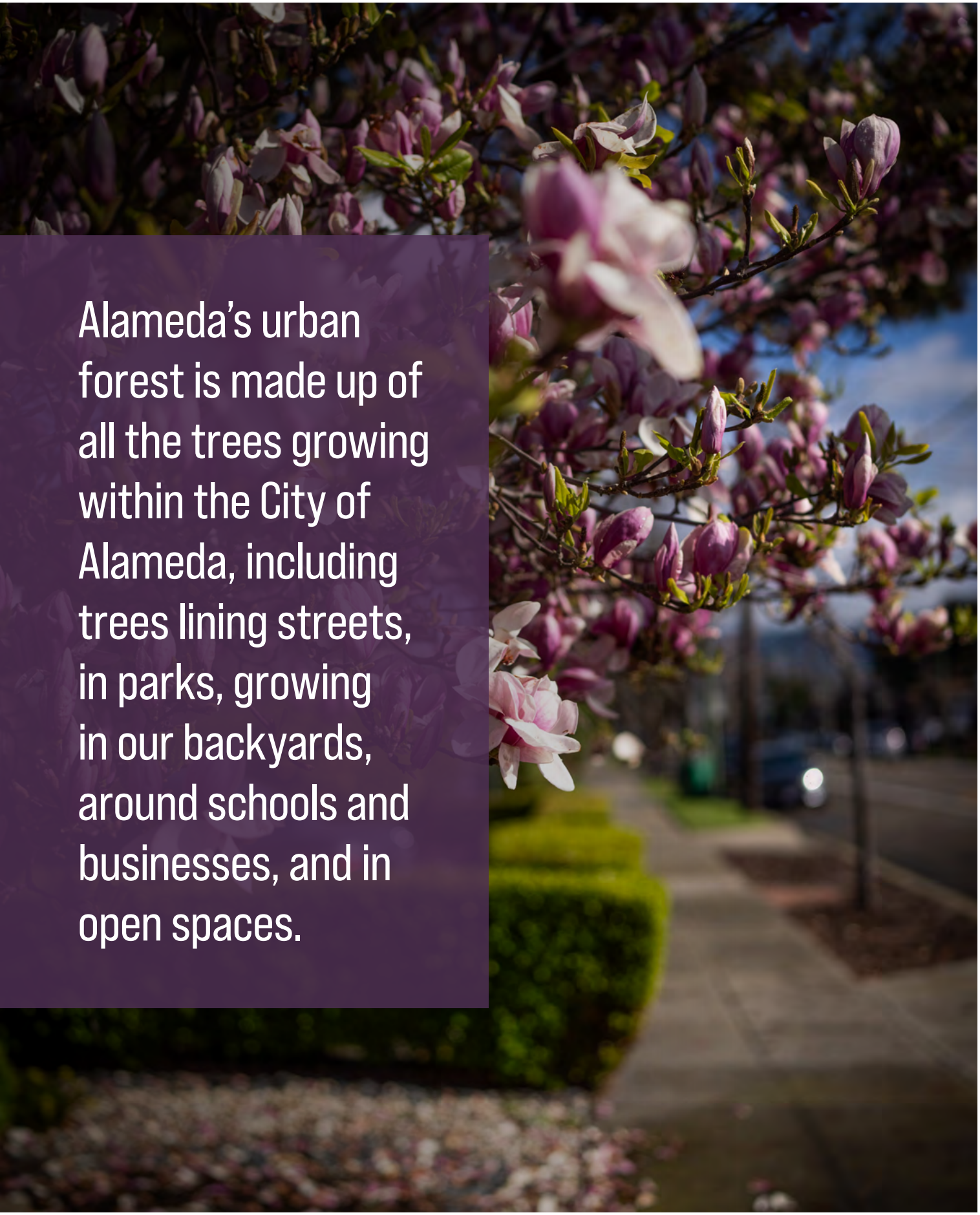
Welcome to the City of Alameda Urban Forest Plan Volume I

THE VISION

Alameda's urban forest is a collection of healthy, diverse, resilient trees supported by sustainable resources and management practices that enhance our quality of life, provide habitat for wildlife, and support adaptation to climate change for the benefit of all community members and generations to come.



Alameda's urban forest is made up of all the trees growing within the City of Alameda, including trees lining streets, in parks, growing in our backyards, around schools and businesses, and in open spaces.

SECTION 1.0

EXECUTIVE SUMMARY

Alameda's urban forest is an important community asset. Trees define the character of our neighborhoods and parks and enhance the environment.

Alameda is an island community in the San Francisco Bay that was historically characterized by its marshes and the grove of native coast live oaks that covered large portions of the area when the land was inhabited by the Lisjan Ohlone people. The name Alameda comes from the Spanish word for "grove of poplar trees" given to the town by the early European settlers.

Today, the City of Alameda manages 25,962 park and street trees, consisting of 353 different species. Many more trees are managed by private residents, businesses and other landowners. Citywide, the urban forest canopy (the layer of leaves, branches and stems that cover the ground when viewed from above) covers 11.2% of land across Alameda, ranging from 5.1% to 20.9% by census tract, with lower income census tracts generally having fewer trees. A robust tree canopy that is equitably distributed across neighborhoods helps to create a healthier, more resilient community, and the environmental benefits and services received from the urban forest increase as tree canopy increases (Clark et al. 1997).

CITY INVENTORY

The City inventory is comprised of **25,962 trees and 353 unique species.**

KEY FACTS

1. **The London Plane sycamore is the most common City tree comprising 15.8% of the inventory**
2. **Canopy cover by census tract ranges from a low of 5.1% to high of 20.9%**
3. **Alameda's urban forest sequesters 447 tons of carbon, avoids 4 million gallons of stormwater runoff and removes 8.8 tons of pollution from the air each year.**
4. **The City's current stocking rate (number of filled planting sites compared to all viable planting sites) for all public trees is 86%, with 85% for street sites and 92% for park sites.**

11.2%

CITY-WIDE CANOPY COVER IN ALAMEDA

Trees provide many benefits to Alameda

Trees enhance the mental and physical health of city residents and beautify and define neighborhood characteristics. Trees enhance the environment by removing pollution and cleaning the air. Trees reduce stormwater runoff, improve water quality and support wildlife. As temperatures increase due to climate change, trees sequester carbon, provide shade, and reduce the surrounding air temperature and building energy consumption. Exhibit 2-1. displays how trees can mitigate expected climate change impacts in Alameda.

BENEFITS OF TREES

SHADE

Trees cool cities by up to 10° F by shading homes, streets, and other surfaces. Shaded surfaces can even be 20-40° cooler than the peak temperatures of unshaded areas!

SAVING ENERGY

Strategically placed shade trees can help save up to 56% on annual air-conditioning costs for homes and businesses, which means burning fewer fossil fuels for generating electricity.

RAINWATER CAPTURE

Trees capture rainfall as water flows down the trunk and into the earth below and recharges groundwater supplies. Trees also help prevent stormwater from carrying large amounts of pollutants to the ocean.

FRESH FOOD

Trees provide food in the form of fruits, nuts, leaves, bark, and roots. Even dead trees provide food for many insects!

WILDLIFE HABITAT

Trees support the lives of many wildlife species and provide them with food, shelter, and nesting sites.

HEALTHIER COMMUNITIES

Trees improve mental health by reducing depression and stress levels in addition to improving public health by decreasing the risk of respiratory illnesses and encouraging outdoor recreation.

BEAUTY

Trees add natural character to city streets and residential areas as they radiate with colors, flowers, textures, and shapes!

CLEANER AIR

Trees absorb pollutants and filter particulates out of the air by trapping them on their leaves and bark.

CONNECTING WITH NEIGHBORS

Trees as landmarks within a neighborhood can encourage civic pride while tree plantings provide opportunities for community involvement and bring diverse groups of people together.

1.1

WHY DOES ALAMEDA NEED AN URBAN FOREST PLAN?

Alameda is vulnerable to increasingly frequent and severe droughts and heat events, and rising sea and groundwater levels.

These challenges, brought on by climate change, are exacerbated by threats to the City's water supply, such as increased demands for outdoor water use, decreased snowpack, and changes in timing of the Mokelumne River spring runoff which provides water supplies for drinking and irrigation. Sea level rise, groundwater rise, storm surge, and inland flooding are of particular concern to Alameda as a low-lying island in the San Francisco Bay. King tides already result in flooding along lower stretches of shoreline and can cause higher groundwater levels and damage to tree roots and infrastructure. The City is also vulnerable to flooding from severe precipitation events, which are likely to become more frequent and severe in the future.

A healthy and robust urban forest is one method the City has identified to mitigate the effects of climate change and promote community resilience. This is outlined in several City planning documents including the 2040 General Plan, Climate Action and Resiliency Plan, and Green Infrastructure Plan. A full description of how these plans intersect with the UFP can be found in Appendix A. A successful Urban Forest Plan will improve the management of the urban forest and expand the tree population and canopy cover on both public and private property. An increase in trees over time will increase the environmental services and benefits to community members.

The Urban Forest Plan must also prepare the City to effectively respond to other threats to the urban forest which are both environmental and human caused. Environmental threats include invasive pests and diseases, droughts, and increased heat. Human caused threats include excessive tree removals during development, and poor tree maintenance. The UFP gives Alameda the opportunity to prepare for these known threats to the urban forest by developing specific actions, policies, and management practices to guide management of the urban forest for the next 10 years.

The Urban Forest Plan must also prepare the City to effectively respond to other threats to the urban forest which are both environmental and human caused.

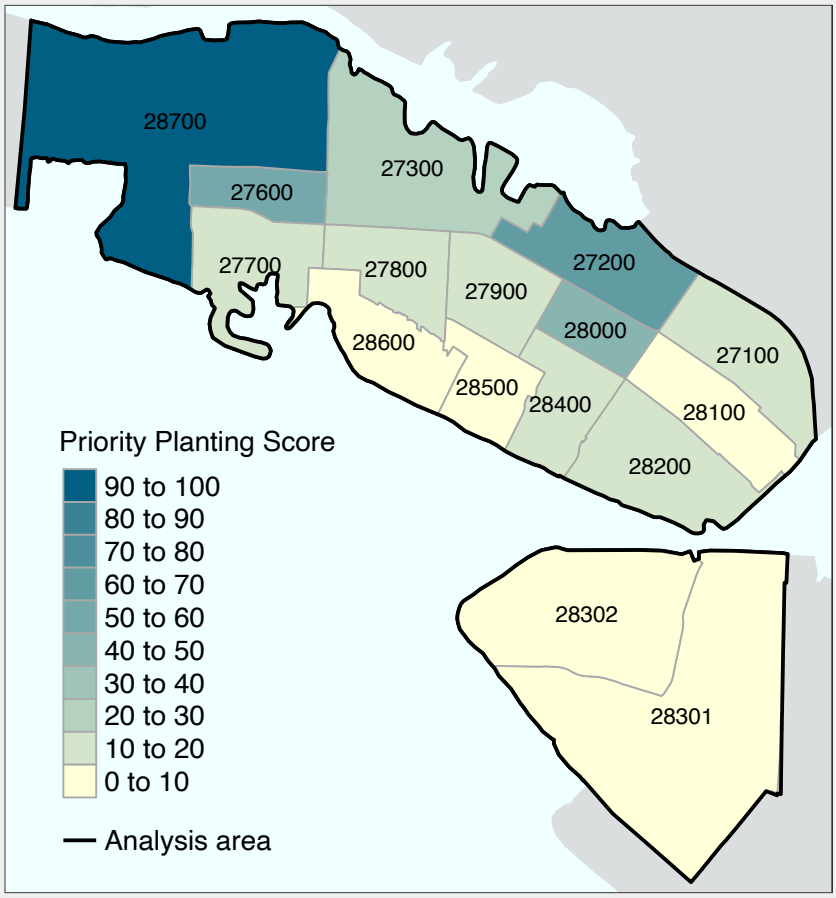


EXHIBIT 1-2. PRIORITY PLANTING SCORE BY CENSUS TRACT

SOURCE: USDA 2018; CALENVIROSCREEN 4.0 (OEHHA 2021).

1.2 PURPOSE OF THE URBAN FOREST PLAN

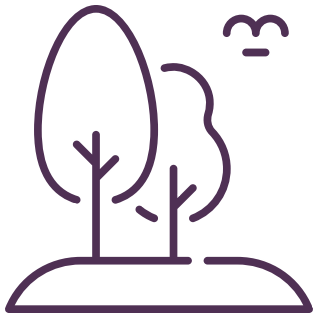
A healthy and robust urban forest requires long-term investment. The Urban Forest Plan is an update and expansion of the 2010 Master Street Tree Plan that will guide the City's operations and activities to expand and maintain the tree canopy for the next 10 years. The plan is strategic in advancing social equity and contributing to an improved quality of life by ensuring the urban tree canopy benefits all community members. The plan will promote equity by focusing tree planting in neighborhoods that have lower than citywide average tree canopy and include higher proportions of vulnerable communities, using a priority planting score as shown in Exhibit 1-2.

The community plays a vital role in the preservation and expansion of our urban forest.

Protecting and enhancing our urban forest will progress citywide goals outlined in the City's Climate Action

and Resiliency Plan (CARP) and the Alameda 2040 General Plan, Conservation and Climate Action Policy CC-26 which directs the City to, 'Take actions to maintain and expand the number of trees in Alameda on public and private property to improve public health, reduce pollution, and reduce heat island effects' (Alameda General Plan). The Urban Forest Plan is directed towards achieving these goals and other long-term goals for the urban forest.

The Urban Forest Plan improves management of the urban forest by planting climate adapted species, promoting greater species diversity, improving tree care and maintenance, and prioritizing equity of where trees are planted. With additional funding, the Urban Forest Plan seeks to plant more trees and develop stronger community partnerships to steward and grow the urban forest. Community members will play a vital role in the success of this plan by planting and caring for additional trees on private property.



The Urban Forest Plan is a living document. The plan should be reviewed and updated to meet the emerging priorities of the City and the challenges it faces like shifting environmental or economic conditions. Every two years staff will present progress reports on the implementation of the plan to the City Council and the plan should be updated within 10 years.

1.3 VISION, THEMES AND GOALS

Looking forward, the City of Alameda seeks to have an Urban Forest Plan that responds to current and future needs and benefits all residents of Alameda.

Key Themes of the Urban Forest Plan

The Urban Forest Plan guides the management of the urban forest across four major themes that reflect the values and priorities of the community to guide the long-term stewardship and growth of the urban forest.

01 EQUITY

Alameda's tree canopy is not equitably distributed across neighborhoods and the benefits of the urban forest are not evenly shared. The urban forest plan promotes practices and policies that provide for the equitable distribution of canopy cover across the city and provide the benefits of the urban forest evenly to all residents.

02 HEALTH AND RESILIENCE

The Urban Forest Plan promotes a healthy and diverse urban forest that is adapted to the adverse impacts of climate change. Alameda's urban forest is well managed following best practices for tree care.

03 ENGAGING COMMUNITIES

The community plays a vital role in the preservation and expansion of Alameda's urban forest. The Urban Forest Plan seeks to increase awareness in the Alameda community of the benefits of trees and proper management and promote participation in urban forest management.

04 GROWING THE TREE CANOPY

The Urban Forest Plan encourages the preservation of existing healthy trees and growing the tree canopy by planting new trees.

VISION

Alameda's urban forest is a collection of healthy, diverse, resilient trees that are supported by sustainable resources and management practices that enhance our quality of life, provide habitat for wildlife, and support adaptation to climate change for the benefit of all community members and generations to come.

The Urban Forest Plan seeks to plant more trees and develop stronger community partnerships to steward and grow the urban forest.

GOALS

The plan's goals identify the specific ways the plan's vision will be achieved. Specific actions to implement each of the goals are provided in Section 1.4.

Goals	City Commitment
GOAL 1: Maintain and grow a healthy and diverse urban forest to provide increase in tree canopy cover in each Census Tract and citywide by 2055.	The City of Alameda has a target to plant 350 trees a year which would increase canopy cover from 11.2% to 20% citywide across all neighborhoods over the next 30 years by planting more climate adapted trees to reduce heat impacts, capture rainwater, clean air, sequester carbon, provide habitat for wildlife, and increase biodiversity. The City desires to have an equal distribution of canopy cover and will prioritize tree planting and establishment care resources to communities that have higher social vulnerability, pollution burdens and low canopy.
GOAL 2: Develop the financial and human resources necessary to effectively manage the urban forest and implement the Urban Forest Plan.	The City of Alameda recognizes its role in ensuring funding and resources are available to support urban forest management activities as a key component to achieving the goals and actions of the Urban Forest Plan.
GOAL 3: Increase protection for public and private trees.	The City of Alameda will continue to promote a healthy urban forest through plans, policies, and ordinances to ensure trees are appropriately maintained, preserved, and protected.
GOAL 4: Partner with an engaged and informed community to effectively steward the urban forest.	The City of Alameda will continue to value and support all people who make a lasting impact on the growth and preservation of the urban forest.

TABLE 1-1. GOALS

1.2 URBAN FOREST PLAN ACTIONS

Turning goals into action requires additional funding and new staffing resources. Actions listed in the table below with Urban Forester as the Responsible Entity can only be implemented once this new staffing position is approved, funded, and hired. Actions with a department(s) listed as the Responsible Entity can be at least partially implemented with existing staffing resources; however additional funding may be necessary to fully implement the action. While the City will take the lead in managing and growing the urban forest, the community also plays an important role in this process.

The time frame for these actions is as follows: short – 1-2 years, medium- 3-6 years after plan implementation, long- 6-10 years after plan implementation.

COSTS: $ Low (0–$25,000); $$ Medium ($25,000–$50,000); $$$ High ($50,000–$100,000) $$$$ Very High (>$100,000)

GOAL 1:

Maintain and grow a healthy and diverse urban forest to provide increase in tree canopy cover in each Census Tract and citywide by 2055.

Strategy 1.A: Grow the urban forest.			
Action	**Responsible Entity**	**Time Frame**	**Cost, Ongoing or One-time**
1.A.1 Equitably increase citywide tree canopy cover on both City and privately-owned land, prioritizing neighborhoods with the highest tree priority planting index.	Urban Forester, ARPD, PBT	Long	$$$$, ongoing
1.A.2 Develop partnerships with other large landowners in the City l ike East Bay Regional Park District (EBRPD), schools, homeowners' associations, and businesses to expand and maintain canopy cover on their properties.	Urban Forester	Medium	$, ongoing
1.A.2 Identify sites owned by the City to target additional tree planting, including paved areas.	Urban Forester	Short	$, one-time
1.A.3 Expand the tree canopy through strategies that support traffic calming, active transportation and vision zero goals, such as planting trees in the parking zone, roundabouts, landscape medians, and along Neighborhood Greenways.	Urban Forester, PBT	Medium	$$$, ongoing
1.A.4 Develop tree planting guidelines for Green Infrastructure projects. Implement nature-based best practices such as suspended pavements, tree well systems, such as silva cells, and bioswales to reduce stormwater runoff and improve water quality.	Urban Forester, PW	Medium	$$$, ongoing

Strategy 1.B: Maintain the health and diversity of the urban forest.			
Action	**Responsible Entity**	**Time Frame**	**Cost**
1.B.1 Plant climate appropriate species with the goal of planting best species for each specified soil and groundwater zone, utilizing the City's Tree Matrix.	PW and ARPD	Medium	$, ongoing
1.B.2 Develop a long-term maintenance and monitoring plan to preserve the health of London Plane trees.	PW and ARPD	Short	$, one-time
1.B.3 Complete an analysis of the tree inventory to calculate GHG emissions reductions from the city's tree inventory in alignment with CARP updates every 5 years.	Urban Forester	Short	$, ongoing
1.B.4 Expand reuse options for wood from removed trees. Find funding opportunities for wood reuse programs.	Urban Forester	Short	$, one-time

GOAL 1 CON'T:

Maintain and grow a healthy and diverse urban forest to provide increased tree canopy cover in each Census Tract and citywide by 2055.

Strategy 1.C: Ensure existing and new trees are incorporated into new developments and City plans for both public and private property.

Action	Responsible Entity	Time Frame	Cost
1.C.1 Establish objective standards and streamlined procedures to review development plans for tree protection and planting, and mitigation measures/fees as necessary, to support a minimum of 20% canopy cover on developed areas.	Planning and Development Arborist	Short	$, one-time
1.C.2 Review and amend as necessary the off-street parking ordinance / design standards to ensure the number of trees required per parking space on a surface lot, in combination with other shading measures, achieves climate and beautification goals.	Planning and Development Arborist	Long	$$$, ongoing
1.C.3 Identify opportunities to increase canopy cover at Alameda Point, including consulting with the Veterans Administration and U.S. Fish and Wildlife Service.	BRED, Urban Forester, ARPD	Long	$$$, ongoing

GOAL 2:

Develop the financial and human resources necessary to effectively manage the urban forest and implement the Urban Forest Plan

Strategy 2.A: Define responsibilities and maintain adequate staffing and budget to successfully maintain the health of the urban forest and implement the Urban Forest Plan.

Action	Responsible Entity	Time Frame	Cost
2.A.1 Create a job classification for and hire an Urban Forest Manager to coordinate with all City departments in implementation of the Urban Forest Plan, urban forestry programming, and community engagement efforts.	Human Resources	Short	$$$$, ongoing
2.A.2 Increase the City's capacity to perform tree maintenance and arborist review for planning and development by either increased staff or contracted labor.	PBT, PW, ARPD, AMP	Medium	$$$, ongoing
2.A.3 Adequately fund the urban forest program over the next 10 years to achieve the plan goals.	City Council	Long	$$$$, ongoing
2.A.4 Maintain an updated inventory to reflect plantings, removals, pruning, and other maintenance.	PW, ARPD	Long	$, ongoing

GOAL 3:

Increase protection for public and private trees.

Strategy 3.A: Support improved protections for public and private trees.			
Action	**Responsible Entity**	**Time Frame**	**Cost**
3.A.1 Adopt and enforce a tree canopy preservation and replacement ordinance to preserve healthy mature trees and require replacement or mitigation for tree removals.	Planning and Development Arborist	Short	$, one-time
3.A.2 Coordinate with Alameda Municipal Power to protect and preserve trees in the public right of way when they conflict with infrastructure.	PW, AMP, and Urban Forester	Long	$, ongoing
3.A.4 Develop standard technical specifications to preserve and protect trees during construction administered by the City.	PW	Short	$, one-time

GOAL 4:

Partner with an engaged and informed community to effectively steward the urban forest.

Strategy 4.A: Engage residents and community organizations in the urban forest.			
Action	**Responsible Entity**	**Time frame**	**Cost**
4.A.1 Partner with community-based organizations to conduct community tree planting and care events. Support at least four community-led tree planting or care events a year.	Urban Forester	Long	$$, ongoing
4.A.2 Continue to maintain Tree City USA status.	PW	Short	$, one-time
4.A.3 Hire and train community members and provide green job training opportunities to plant, care for and water trees.	ARPD, BRED	Medium	$$, ongoing
4.A.4 Create and disseminate educational materials on tree best management practices targeted to different private property owner audiences and landscape professionals.	Urban Forester	Short	$, one-time
4.A.5 Conduct discounted or tree giveaway programs for residents.	Urban Forester	Medium	$, ongoing
4.A.6 Develop programs to aid residents in tree planting and maintenance.	Urban Forester	Medium	$$, ongoing
4.B.1 Facilitate an urban forest coalition of community-based organizations and interested parties. The goal of the coalition would be to improve communication between the city and partners, coordinate outreach and education opportunities, and urban forest related events.	Urban Forester	Medium	$, one-time
4.B.2 Explore grant funding opportunities in collaboration with community organizations that would support tree planting, care, and outreach activities.	Urban Forester	Long	$, one-time

Funding the Urban Forest Plan

The 2024/2025 Urban Forest budget is $3,213,800. Existing funding is provided from the City's Construction Improvement Tax, Gas Tax and General Fund. The Construction Improvement Tax is subject to economic conditions and to keep the existing program level in years with less Construction Improvement Tax, additional Gas Tax, other transportation related funds and/or General Funds is required. The existing program supports a safe and healthy urban forest and is expected to reach a citywide canopy cover of 14-15% by 2055. Over the past 5 years, the City has planted an average 324 street and park trees annually, while an average 189 trees have been removed due to storm and wind damage, disease, were in a poor health condition, or presented a safety risk.

To effectively implement the Urban Forest Plan and meet the canopy growth goals of the plan, additional funding and staffing positions are needed. These are detailed in the table below. Section 5.3 provides a range of funding scenarios for Council to consider. City Council may consider General Funds for the additional program costs and/or draw from the various transportation related funding, which currently are allocated to transportation safety operations and capital improvements.

TABLE 1.3 FUNDING AND IMPLEMENTATION SCENARIOS

Scenario	Description	Cost	Trees/Canopy
1. Enhanced Business as Usual	• Maintain existing 5-year pruning cycle for street trees and as needed for park trees • Maintain current tree planting, establishment care and tree removal services • Utilize enhanced management practices and updated tree species list laid out in this plan • Focus annual tree planting program on Census Tracts with high Priority Planting Score • Continue to implement requirements for removal of Protected Trees	No additional funding except increased maintenance cost as urban forest increases annually	• 135 net new park and street trees annually • Results in 14-15% canopy cover in 30 years
2. Increased Planting and Maintenance	• Increase tree planting and young tree care to plant additional net 115 trees/year • Provide additional maintenance assistance for establishment and care of new trees • Develop and enforce a Tree Canopy Protection ordinance	$450,000 in additional funding annually	• 250 net new park and street trees annually • Additional tree canopy protection • Results in approximately 18% canopy cover in 30 years
3. Urban Forester	Hire an Urban Forest Manager position to coordinate City tree program and partner with residents, community organizations and large landowners to coordinate planting 100 trees/year on non-City owned land.	$250,000 in additional funding annually	• 350 net new trees/ year • Results in approximately 20% canopy cover in 30 years

Structure of the Urban Forest Plan

The Urban Forest Plan is structured into two main sections as described below:

I

VOLUME I, URBAN FOREST PLAN:

This provides the context and background information for why the Urban Forest Plan is needed and how it relates to long-term goals. It provides the strategic vision, goals, objectives, and actions that will be used to guide the urban forest program over the next 10 years. The goals and objectives are supported with analysis of the current condition of the urban forest, management, city-managed trees and community perspectives.

Section 1.
Executive Summary provides a summary of the Urban Forest Plan vision, themes and goals and the strategies and actions to achieve the plan's goals.

Section 2.
Introduction and Purpose provides a history of Alameda and its trees, the threats and risks to Alameda's urban forest and the purpose of the urban forest plan.

Section 3:
Alameda's Urban Forest includes the results of a canopy cover analysis, analysis of Alameda's public tree inventory, tree equity and vulnerability assessment, and the unique tree issues in specific neighborhoods and corridors.

Section 4.
Managing Alameda's Urban Forest provides a description of the organizations, staffing and budget for managing Alameda's public trees.

Section 5.
Planning for the Future includes an analysis of what tree resources are needed to meet City canopy goals, and what areas of the City are in most need of trees.

Section 6.
Plan Development Process and Community Engagement describes the process and the community engagement work involved in development of the Urban Forest Plan and feedback and results from engagement events and the online survey.

Section 7.
Monitoring and Plan Updates is the approach the City will take to ensure the priorities reflected in the Urban Forest Plan are consistent with the current and future needs of the City.

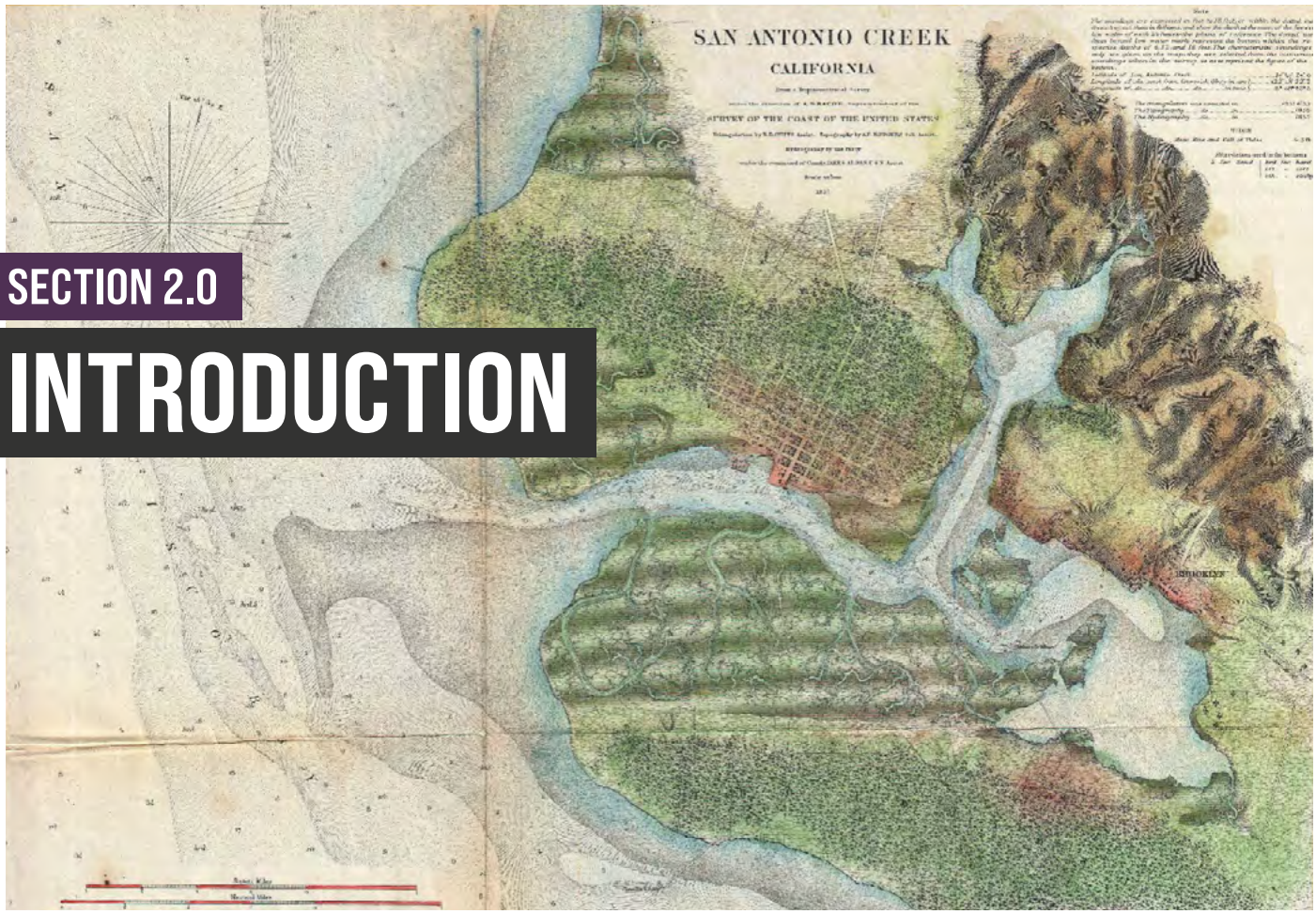
II

VOLUME II, BEST MANAGEMENT PRACTICES:

The Best Management Practices section contains the standards, details, guidelines, and policies of how the City will manage the tree inventory and urban forest. The section can be used by City staff, developers, and community members as reference guide to understand how to effectively work with trees in the City.

URBAN FOREST MANAGEMENT

Alameda's urban forest is well managed following best practices for tree care.



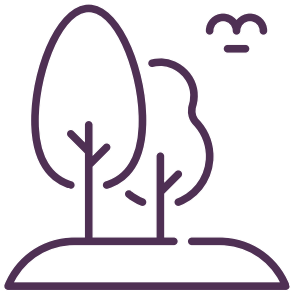
SECTION 2.0

INTRODUCTION

2.1 HISTORICAL AND ENVIRONMENTAL CONTEXT

The City of Alameda is an island city of approximately 80,000 people located seven miles east of San Francisco and just west of Oakland.

The City is made up of Alameda and Bay Farm Islands and includes 10.61 square miles of land. Alameda is a charter city founded in 1854 and incorporated in 1872. At the time of the arrival of the Spanish, Alameda was a peninsula of land covered by a dense forest of coastal live oak and inhabited by the Confederated Villages of Lisjan, an Ohlone people who spoke Chochenyo and sustained themselves through hunting, fishing and gathering.



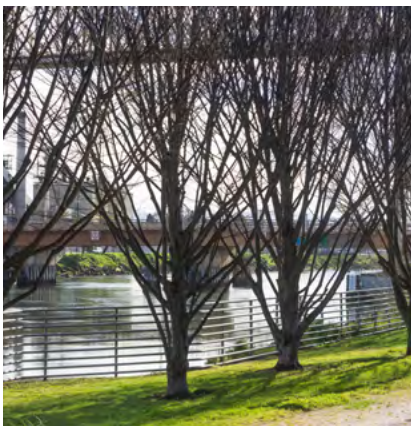
THE NAME ALAMEDA IS SPANISH FOR "GROVE OF POPLAR TREES"

People of European descent began arriving in the mid- to late-1700s, with the area eventually being settled by Spanish settlers in 1850. The area's name given by the Spanish arrivals, "The Encinal," was inspired by the native coast live oak trees (Alameda General Plan 11),

which was the dominant species throughout the area. The name was later changed by popular vote to Alameda, the Spanish word for "grove of poplar trees" (City of Alameda 2022a). Logging of the native oak trees began in 1850, eventually reducing the forest to "pockets" (Minor 2019). The completion of the Tidal Canal in 1902 "severed" Alameda from the mainland (Merlin 1977). Most of Alameda's mature trees today were planted in the early 1900s, which eventually led to Alameda becoming known as a "city of trees" (Master Street Tree Plan 17).

Ferry services to San Francisco, railroad bridges and terminals, and a municipal power plant all contributed to the early growth of Alameda. Originally a peninsula that made up part of Rancho San Antonio, the completion of the Tidal Canal in 1902 shifted the geography of the land and separated the peninsula, turning it into an island. After the completion of the Tidal Canal, the waterfront was dominated by shipbuilding, steel fabrication, and lumber milling (Editors of the Encyclopedia Britannica 2023).

The beginning of World War II and the founding of Alameda Naval Air Station led to a population high of 89,000 people, including an increase in the black population from 0.7% to 7.7%. Many black residents lived in Navy housing projects in West Alameda, and they were denied mortgage loans based on racialized zoning practices. One of these practices was "redlining," where Caucasian neighborhoods were deemed a safe investment and could receive loans, while neighborhoods of color were considered "hazardous" and denied loans, denying people of color opportunities for homeownership and subsequent generational wealth.



Redlining and other discriminatory housing practices continue to disadvantage these historically marginalized communities, which still have lower tree canopy coverage and higher pollution levels. The community on the west end of Alameda is considered an environmental justice community ("EJ Community"), defined by CalEPA as an area that is "disproportionately affected by pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation," (Alameda Housing Element D-26). The community on the north side of Alameda also has higher pollution levels than the East End.

The closure of the Alameda Naval Air Station in 1997 left one-third of Alameda's land underutilized. In 2013, 1,400 acres of this land, now known as Alameda Point was transferred to the City of Alameda. It is now being developed with mixed-use plans, including the development of neighborhoods, parks and businesses.

2.2 URBAN FOREST PLAN DEVELOPMENT PROCESS

Development of the Urban Forest Plan comprised analyzing data, reviewing existing programs, and community engagement to understand the current conditions of the urban forest, city management, and community values. The analysis was then used to develop the long-term goals and strategies presented in the urban forest actions.

THE ANALYSIS AND REVIEW INCLUDED:

URBAN FOREST DATA

Urban Forest Data, analyzed trees both managed by the City and on private property.

URBAN FOREST MANAGEMENT

Urban Forest Management, included a series of City staff interviews to gather feedback and opinions on current challenges, needs from a staff perspective, and goals and outcomes for the Urban Forest Plan. It also included an analysis of annual service data, budgets, and staffing.

CITY STAFF AND DOCUMENTS

City Staff and Documents, review of city planning documents and ordinance.

COMMUNITY ENGAGEMENT

Community Engagement, utilized a mix of in-person events, online survey, and a working group to understand the values and perceptions interested parties have for trees, and tree management in Alameda. In total, almost 900 community members participated in engagement activities.

The City of Alameda keeps a regularly updated tree inventory that includes all publicly owned trees and vacant planting sites to be used as a guide to prioritize tree planting resources.

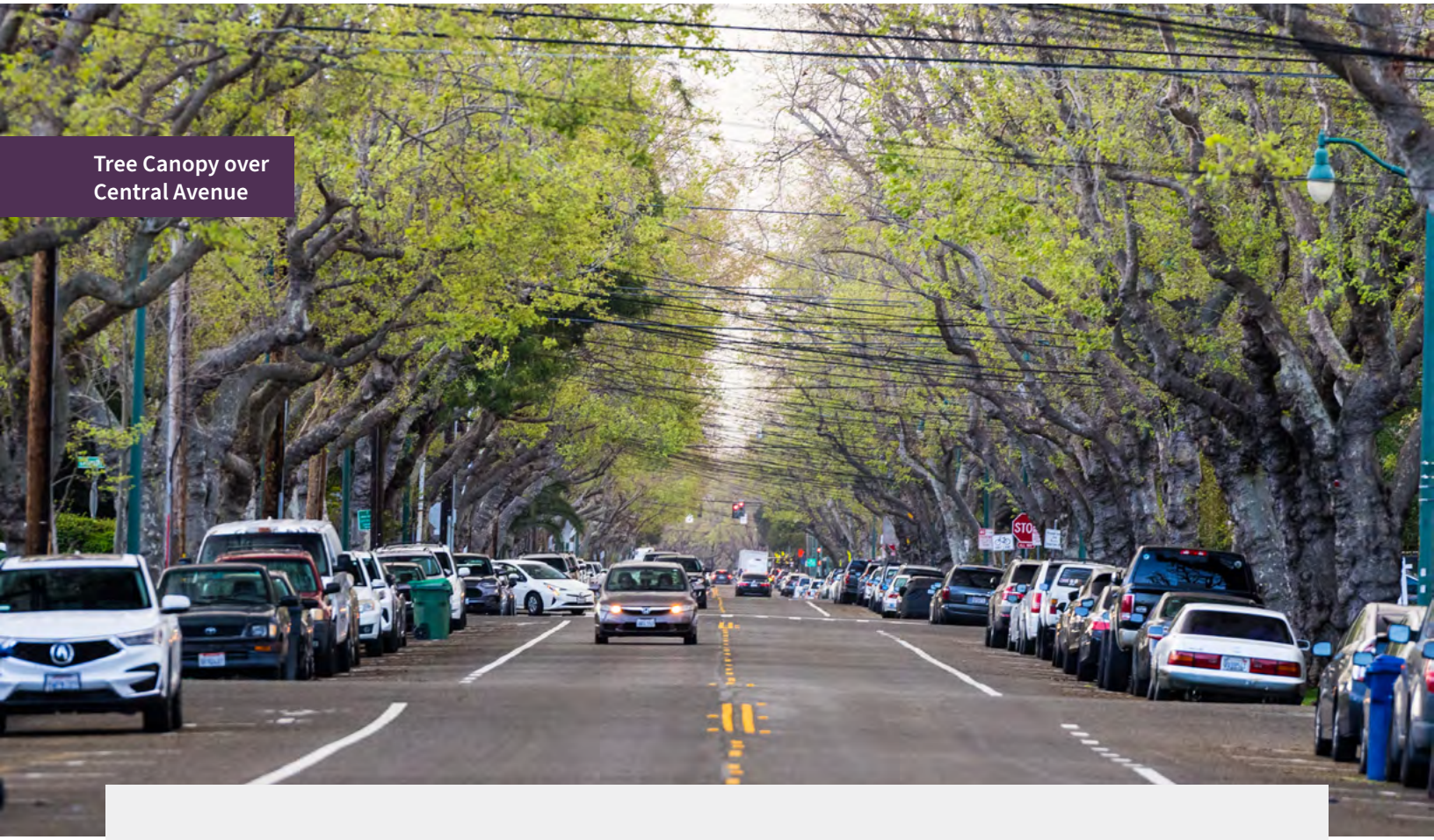
The tree canopy cover analysis includes all public and private trees within the City.

SECTION 3.0

ALAMEDA'S URBAN FOREST

This chapter includes analysis of the City's current canopy cover and the City-managed street and park tree inventories.

The tree canopy cover analysis includes all trees within the City, planted on both private and public property. The analysis uses aerial imagery to determine the extent of tree canopy. The City-managed tree inventories only includes trees planted on public property and is comprised of more specific data such as species, size, and health condition. The City of Alameda keeps a regularly updated tree inventory that includes all publicly owned trees and vacant planting sites to be used as a guide to prioritize tree planting resources.



Tree Canopy over Central Avenue

3.1 CITY OF ALAMEDA CANOPY COVER

Canopy cover refers to the layer of leaves, branches, and stems that provide coverage of the ground when viewed from above. The urban tree canopy provides multiple environmental benefits and economic value to the surrounding community.

Trees contribute to cleaner, healthier air in urban environments through direct pollution removal (e.g., uptake via leaf stomata or intercepting airborne particles), air temperature reductions (e.g., transpiration), and reduction of urban heat islands, building energy consumption and consequent energy emissions (e.g., temperature reductions provided by tree shade). Likewise, low canopy cover can result in increased vulnerability to pollution, extreme heat, and associated health issues (Wolf 2020).

A robust tree canopy that is equitably distributed helps to create a healthier, more resilient community, and the environmental benefits and services received from the urban forest increase as tree canopy increases (Clark et al. 1997).

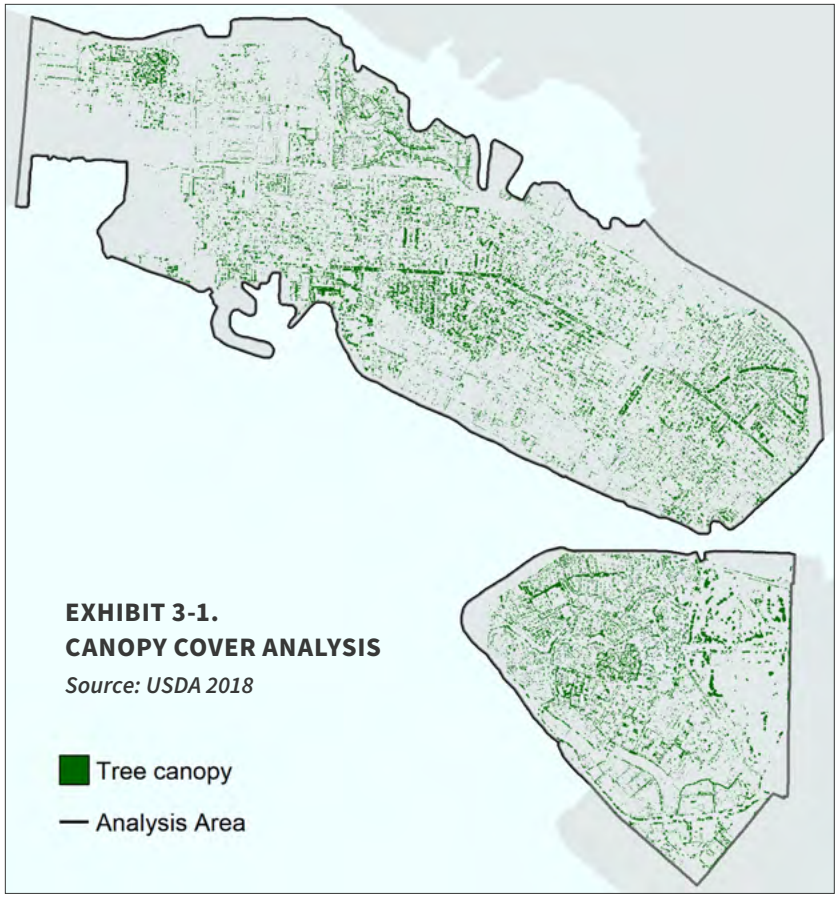


EXHIBIT 3-1.
CANOPY COVER ANALYSIS
Source: USDA 2018

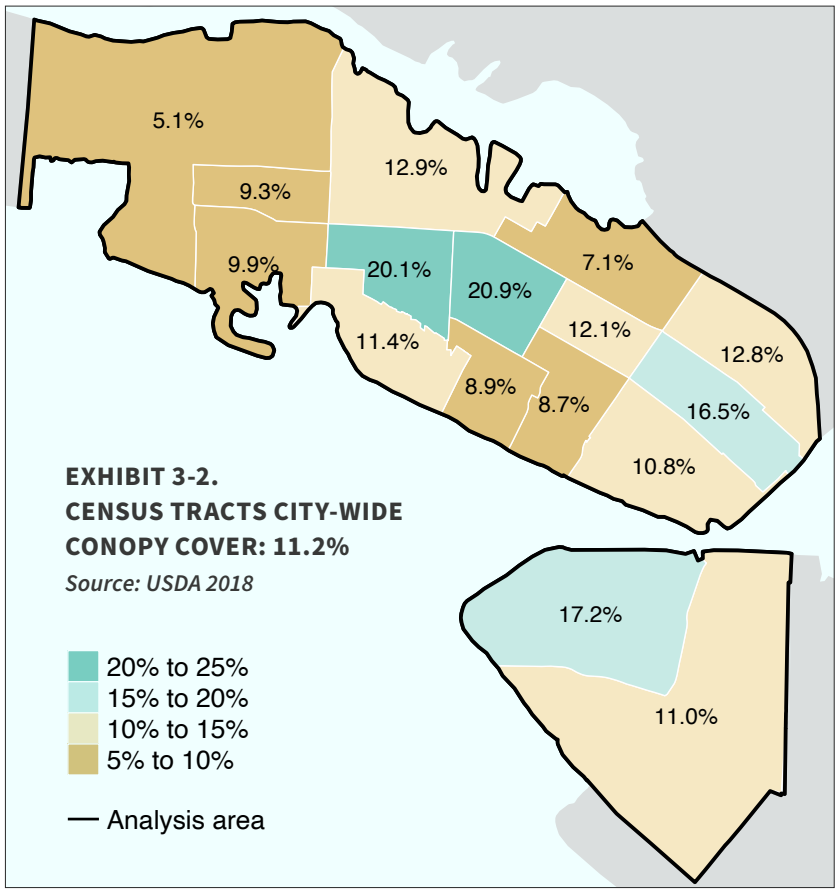


EXHIBIT 3-2.
CENSUS TRACTS CITY-WIDE CONOPY COVER: 11.2%
Source: USDA 2018

CANOPY COVER

Alameda's citywide tree canopy cover is 11.2%

A City-wide canopy cover (public and private land) assessment was conducted for Alameda using freely available U.S. Forest Service canopy data from 2018, the latest data available. Alameda has a canopy cover of 11.2%, which varies between census tracts as shown in **Exhibit 3-2** Tree Canopy Cover by Census Tract. The canopy cover analysis is not included for areas of Alameda Point west of Monarch Street because the area does not currently contain trees and is prohibited from future tree planting by a Biological Opinion issued by the U.S. Fish and Wildlife Service (USFWS) in 2012.

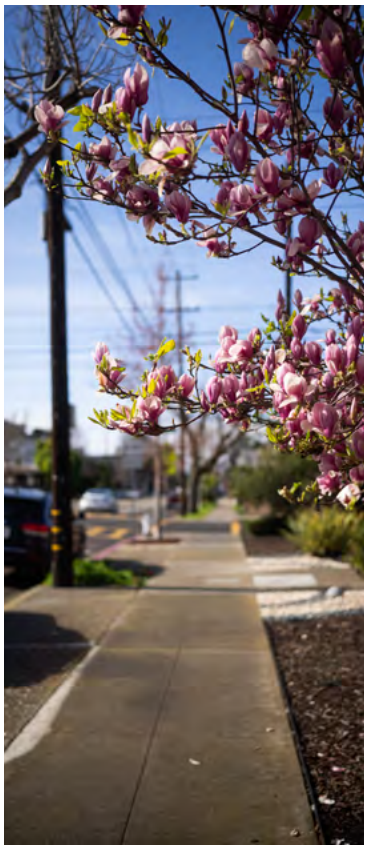
The City-wide canopy cover assessment was broken down by 16 census tract that are all or partially within the analysis area. **Exhibit 3-2** shows the canopy cover for each census tract, ranging from a low of 5.1% to a high of 20.9%.

3.2 CANOPY COVER BY LAND USE TYPE

LAND USE TYPES HAVE AN IMPACT ON THE AVAILABLE SPACE FOR TREES WITHIN AN URBAN ENVIRONMENT.

Additionally, programs and policies to preserve and plant trees will vary by land use type. Analyzing canopy cover by land use type will help assess the most efficient ways to preserve and increase canopy cover within the City. Exhibit 3-3 shows the tree canopy cover for each land use type classifications and Exhibit 3-4 shows the spatial distribution of the 12 classifications. Four land use types are above the city-wide canopy cover of 11.2%, commercial recreation (15.4%), medium-density residential (12.8%), low-density residential (12.7%), and business and employment (11.8%).

While medium- and low-density residential areas have some of the highest canopy cover of any land use type, they should still be considered for additional tree planting efforts as residential yards tend to have the highest potential space for new trees. Of the land use type classifications that fall below the city-wide average, public institution (8.1%) and mixed use (3.8%) areas may be good candidates for prioritization of canopy cover increase efforts. Increasing canopy in public institution areas, especially those that are currently low-canopied, will support efforts to increase the equitable distribution of canopy as these land use types are spread throughout the City and publicly accessible. Additionally, these are areas where the City or other public entities have decision-making power when it comes to additional tree planting opportunities. Within the City, mixed use areas display significantly less canopy cover compared to other land use types, except for commercial maritime, wildlife habitats, and general/ maritime industries. Mixed use areas represent large blocks of land on the western and northern parts of the City. Targeting tree planting in these areas would have a significant impact on the overall canopy in these parts of the City.



An analysis of canopy cover in public spaces such as parks, schools, bus stops and bike routes was also conducted and is provided in Appendix T. Focusing on canopy cover in these areas can be a way to increase canopy equity, as these spaces tend to be highly used by under-served community members.

Analyzing canopy cover by land use type will help assess the most efficient ways to preserve and increase canopy cover within the City.

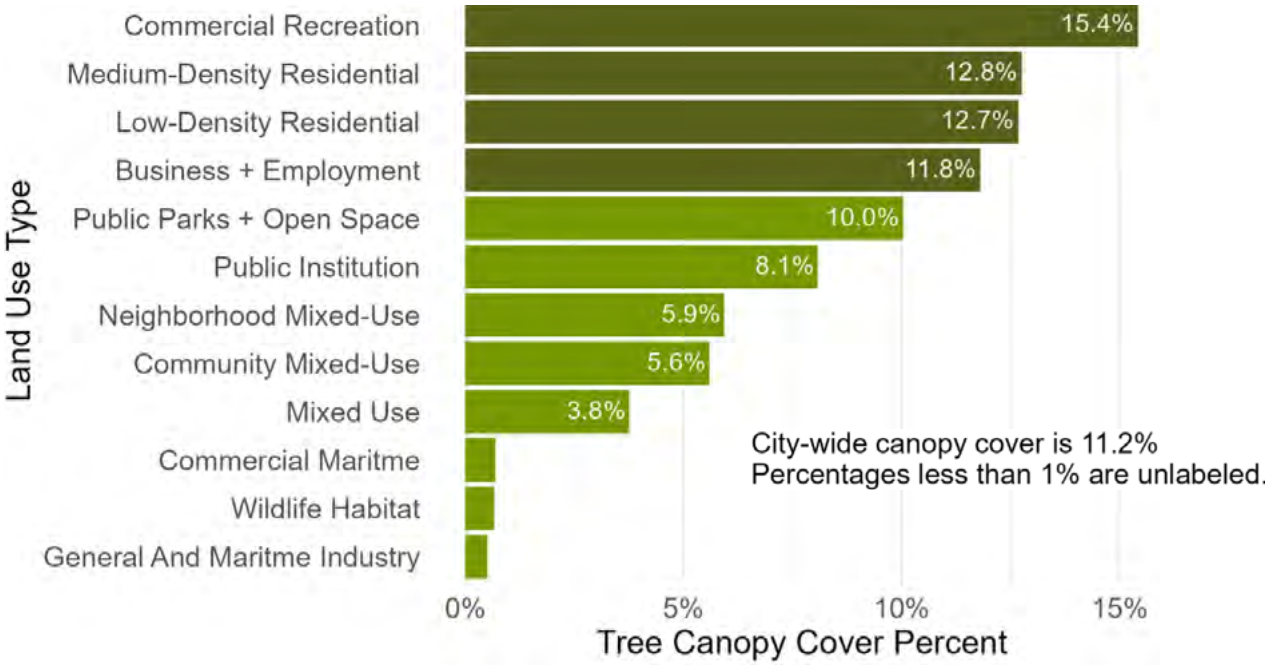
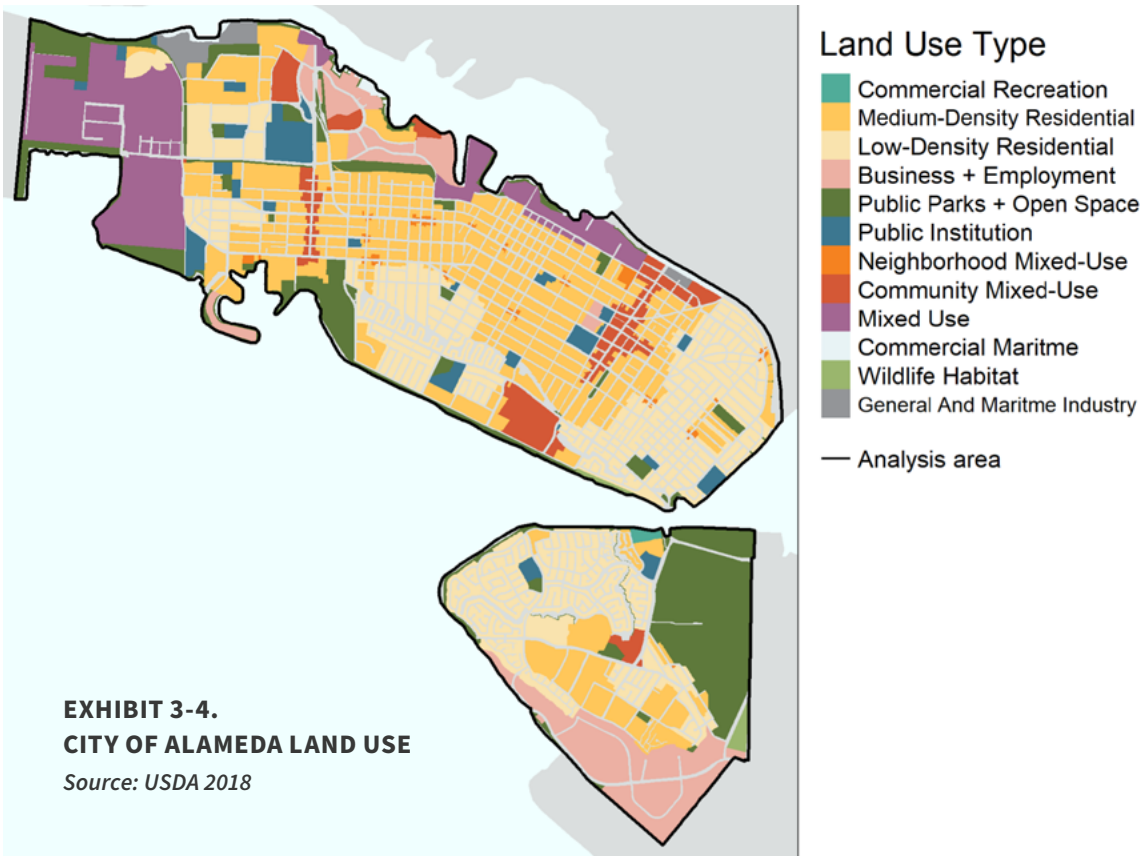


EXHIBIT 3-4. CITY OF ALAMEDA LAND USE: TREE CANOPY COVER BY LAND USE TYPE

Source: USDA 2018



3.3

ASSESSMENT OF THE CITY-MANAGED TREE INVENTORY

The City's most recent inventory of City-managed (public) tree sites was initially collected in 2012, with subsequent updates as work is performed on City trees and includes street and park trees as well as identified plantable and not plantable vacant sites. The inventory includes 25,962 trees and 4,234 plantable vacant sites as potential tree planting locations (see **Table 3-1**). Vacant sites were considered plantable if they are labeled as a vacant site or stump and are in a planting area at least 2 feet wide.

The inventory has been continuously updated since 2012 with newly planted or removed trees. This means vacant sites where a tree has been planted have been updated, but sites still listed as vacant in the inventory data have not been verified by the City. This also means that changes to a site that would render it no longer a viable vacant site (such as added cement or pavers) are not captured within this inventory. The inventory is not an exhaustive list of all viable vacant sites within the City. Potential planting sites that would require concrete removal in order to create a new planting site or potential planting sites within open spaces and parks are not included. As assessment could be completed to identify these potential locations.

Type of Site	Total Sites
Planted Sites	
City-managed street tree inventory	22,620
City-managed park tree inventory	3,342
Total	**25,962**
Plantable Vacant Sites (planting area wider than 2 ft)	
Street vacant site	3,922
Park vacant site	269
Stump (street sites)	43
Total	**4,234**
Not Plantable Sites	
Asphalted well	1524
Unsuitable site	261
Street vacant site (planting area less than 2 ft)	238
Stump (planting area less than 2 ft)	34
Poor planting site	15
Park vacant site (planting area less than 2 ft)	4
Driveway within 6 ft	2
Brush	1
Resident refusal	1
Total	**2,084**

TABLE 3-1. PLANTED, VACANT, AND NOT PLANTABLE TREE SITES IN THE CITY-MANAGED INVENTORY

3.3.1 Environmental Services and Economic Benefits

I-Tree Eco (USFS 2020) was used to analyze tree inventory records to determine the value of the environmental services the City's street and park trees provide. I-Tree Eco uses data such as tree species, diameter at standard height (DSH), health condition, and height to determine the environmental benefits, both in terms of quantity and economic value. The City's inventory includes 25,962 total trees (City of Alameda 2012), with 25,936 data points containing all data needed for inclusion in the i-Tree model. Carbon sequestration is the amount of carbon annually removed from the air by the City's trees. Avoided runoff represents the annual quantity of rainwater that is diverted from the stormwater management system by the trees, and air pollution removal includes the amount of annual removal of ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, and particulate matter < 2.5 micrometers (µm) from the air. In addition to these environmental services, Alameda's tree inventory increases property values; provides shade, food and habitat for wildlife; reduces the urban heat island; and improves public health. These services contribute directly to community members' quality of life, and discussing their merits is one method to encourage residents and business owners to participate in urban forest programs.

Table 3-2 details the annual amount of carbon sequestered, stormwater diverted, and air pollution removed, and the estimated annual economic benefit values.

Service	Annual Environmental Service Quantity	Annual Environmental Impact	Annual Economic Benefit Value
Carbon Sequestration (carbon dioxide removed from air by trees)	447 tons	The carbon removed from the City's air by the urban forest is equivalent to the carbon emissions made by 300 cars in a year.	$76,200
Avoided Stormwater Runoff	4 million gallons	This benefit is equivalent to the average annual water usage of 36 American homes.	$35,700
Air Pollution Removal (ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, particulate matter < 2.5 µm)	8.8 tons	The pollution removed by the City's tree inventory is equivalent to the carbon dioxide emissions of 9,880 tons of burned coal.	$159,000

TABLE 3-2. ANNUAL ENVIRONMENTAL SERVICES AND BENEFITS PROVIDED BY CITY-MANAGED TREE INVENTORY

Sources: City of Alameda Tree Inventory (City of Alameda 2012) and i-Tree Analysis (USFS 2020).

The financial value of Alameda's tree inventory is presented in **Table 3-3**. Each tree in Alameda's inventory has an average City asset value of $3,971. The functional value represents the annual value of the environmental services that the trees provide ($10.44/year) and each tree delivers approximately $78.29 in ecosystem services based on the inventory's combined functional and carbon storage. The City's current urban forest budget is $2,895,522, approximately $111.53 per tree. The City can expect that, with proper maintenance and care of its inventory, the environmental benefits will continue to increase as the trees mature.

Value	Description	Asset Amount	Per-Tree Value
Carbon storage (10,330 tons)	Amount of carbon held in trees	$1,760,000	$67.85
Functional	Value based on the services trees perform	$270,900	$10.44
Structural	The costs associated with replacing all trees with a tree of a similar age and size.	$103,000,000	$3,971

TABLE 3-3. FINANCIAL VALUE OF CITY-MANAGED TREES

Sources: *City of Alameda Tree Inventory (City of Alameda 2012) and i-Tree Analysis (USFS 2020).*

3.3.2 Species Diversity

The genus and species diversity of a tree inventory is an indicator of overall resilience to threats.

Because biological diversity is often regarded as the basis for ecological stability (Tilman and Downing 1994), urban forests with uniform tree species are more likely to suffer from catastrophic loss when invasive pests and pathogens enter a landscape or when significant weather events impact a community.

Trees in Chochenyo Park, Alameda

Historical best practices for species diversity standards in public tree inventories include a representation of no more than 10% of any one species, 20% of any one genus, or 30% of any one family (Santamour 1990; Miller and Miller 1991; Richards 1993). With anticipated increased threats from invasive pests and pathogens, using a more stringent metric is critical in planning for a more resilient urban forest. For this analysis, limitations of 10% of any one genus and 5% of any one species are used to provide additional protection of the tree inventory (Ball et al. 2007).

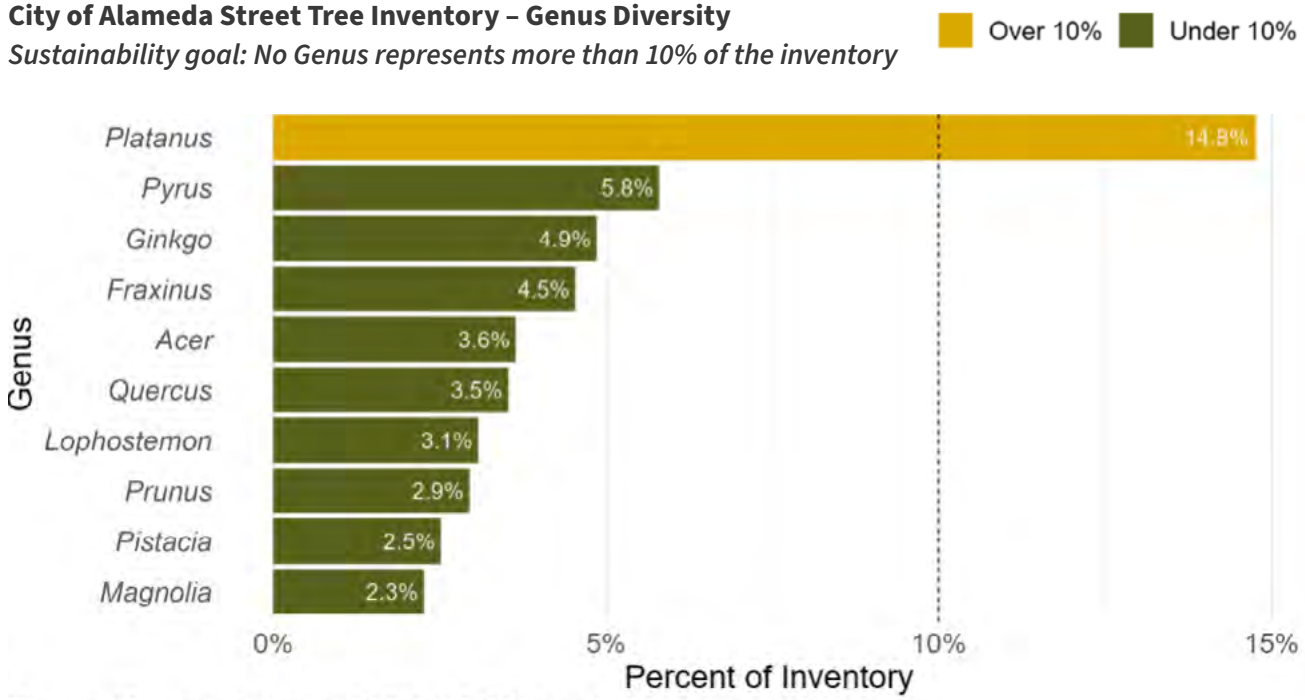
The City-managed street tree inventory contains 22,620 individual trees, comprised of 124 genera and 353 species. **Exhibits 3-5** and **3-6** show the top 10 genera and species for the City-managed street tree inventory. The top 10 genera make up 49% of the total street tree inventory, with nine genera within the 10% recommendation. *Platanus* exceed the recommended distribution percentage, representing 15% of the street tree inventory. The top 10 species make up 42% of the City-managed street tree inventory and the top two species (*Platanus ×hispanica and Pyrus calleryana*) exceed the 5% recommendation.

The City-managed park tree inventory contains 3,342 individual trees, comprised of 90 genera and 169 species. **Exhibits 3-7** and **3-8** show the top 10 genera and species for the City-managed park tree inventory. The top 10 genera make up 51% of the total park tree inventory, with nine genera within the 10% recommendation. The top 10 species make up 41% of the park tree inventory and the top three species (*Sequoia sempervirens*, *Quercus agrifolia*, and *Platanus ×hispanica*) exceed the 5% recommendation.

As the City continues to plan for street and park tree removals and replacements, it should prioritize tree species outside of the genera and species that are overrepresented in the City-managed street and park tree inventories. Section 3.3.4, Climate Preparedness, provides more information for the City to consider when selecting species.

City of Alameda Street Tree Inventory – Genus Diversity

Sustainability goal: No Genus represents more than 10% of the inventory

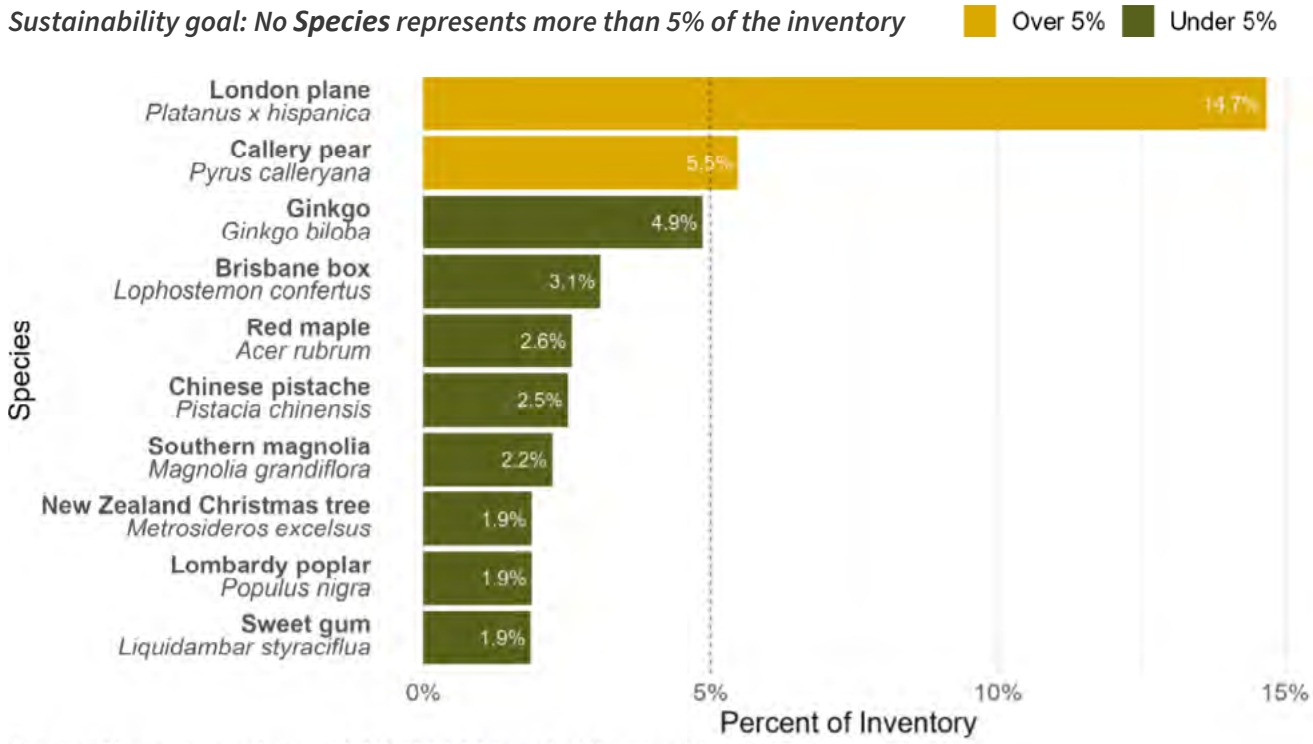


The top 10 genus make up 47.9% (12,747 trees) of the street tree inventory.

FIGURE 3-5. TOP 10 GENUS IN THE CITY-MANAGED STREET TREE INVENTORY

Source: City of Alameda Tree Inventory (West Coast Arborist 2022).

*Sustainability goal: No **Species** represents more than 5% of the inventory*

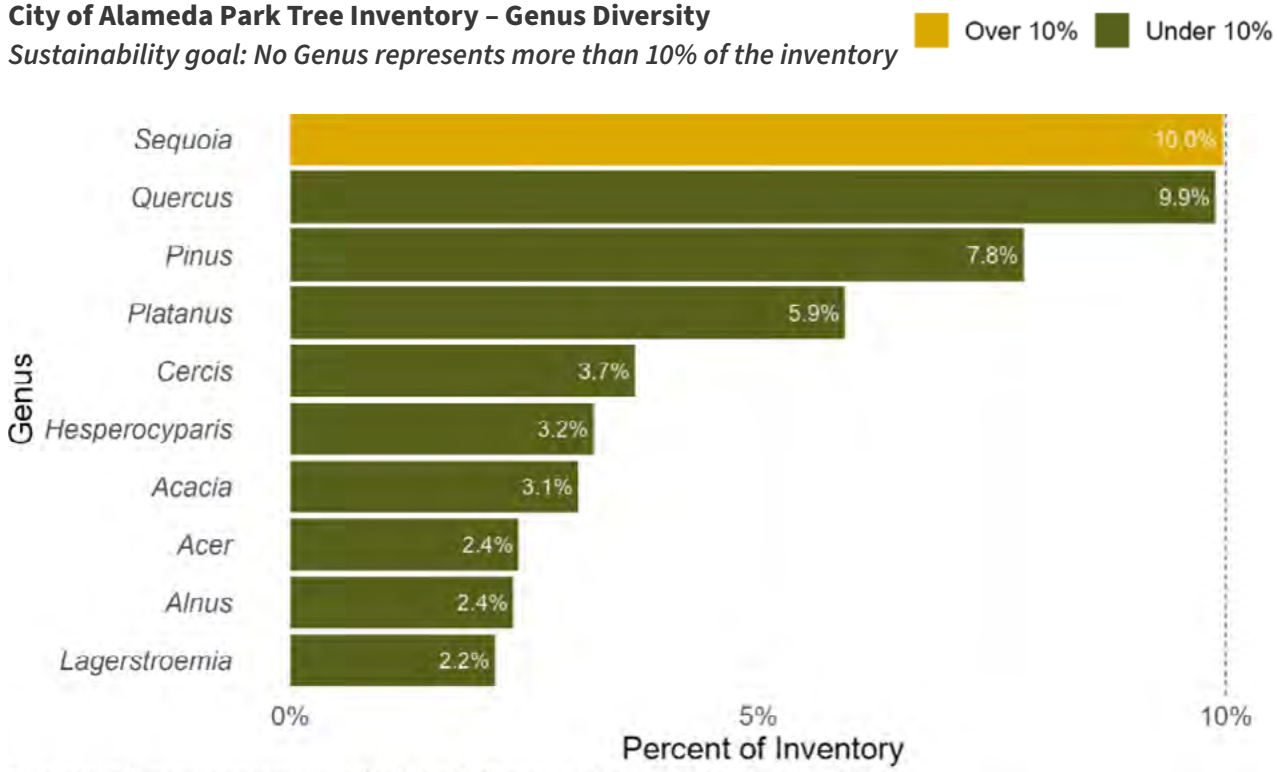


The top 10 species make up 41.1% (10,918 trees) of the street tree inventory.

EXHIBIT 3-6. TOP 10 SPECIES IN THE CITY-MANAGED STREET TREE INVENTORY

City of Alameda Park Tree Inventory – Genus Diversity

Sustainability goal: No Genus represents more than 10% of the inventory

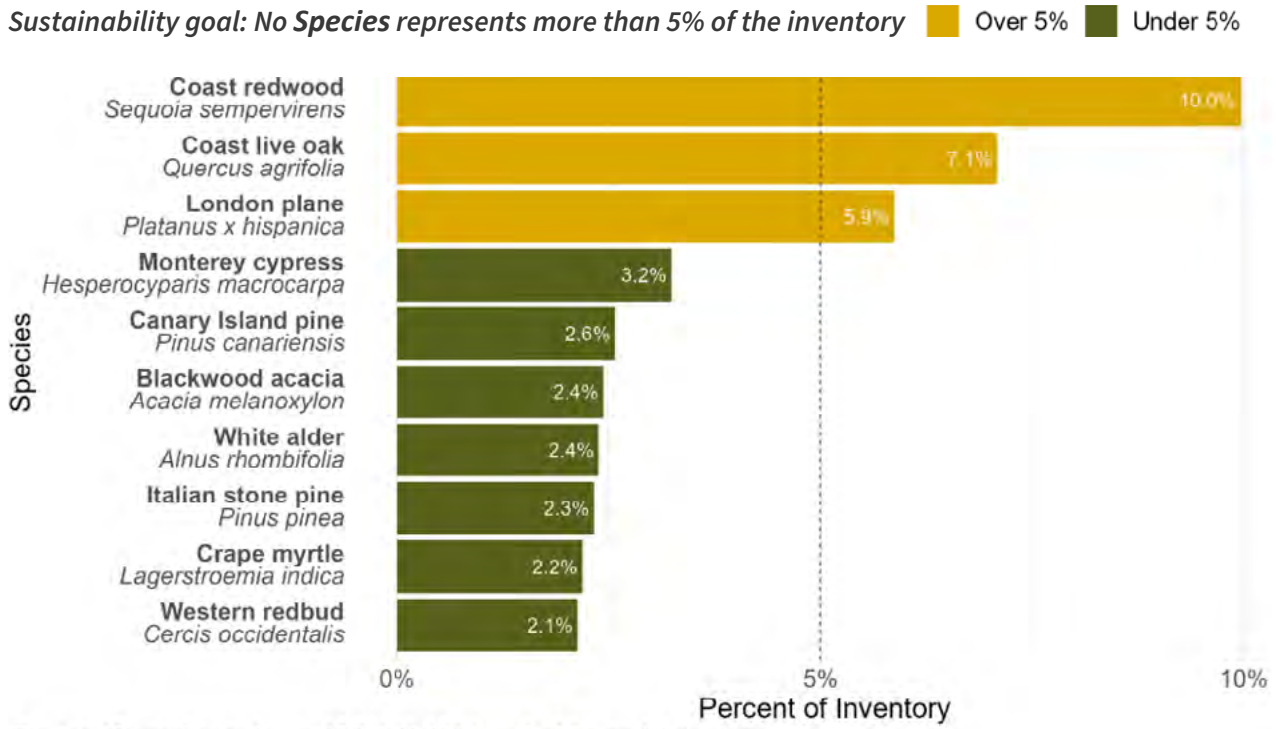


The top 10 genus make up 50.6% (1,828 trees) of the park tree inventory.

FIGURE 3-7. TOP 10 GENUS IN THE CITY-MANAGED STREET TREE INVENTORY

Source: City of Alameda Tree Inventory (West Coast Arborist 2022).

*Sustainability goal: No **Species** represents more than 5% of the inventory*



The top 10 species make up 40.2% (1,452 trees) of the park inventory.

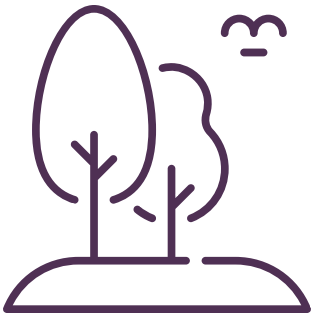
EXHIBIT 3-8. TOP 10 SPECIES IN THE CITY-MANAGED PARK TREE INVENTORY

Tree Canopy over Central Avenue

3.3.3 Age Distribution

The most common and least invasive method to approximate the age of a living tree is to measure the DSH (trunk diameter at standard height, or 4.5 feet above the ground). Because trees vary in maximum stature and growth patterns, using DSH to determine age can only be considered an estimate. General age recommendations suggest that inventories have a distribution of 40% immature trees to replace failing or aging ones, 30% young and 20% middle-aged trees to provide the bulk of economic and environmental benefits, and 10% mature trees that have most of their life behind them but still provide significant environmental benefits *(Morgenroth et al. 2020; Richards 1993).*

Exhibit 3-9 shows the DSH distribution for the City-managed street tree inventory. The City's street tree population of immature (30%) and middle-aged (8%) trees are below the recommendation, while the young population (52%) is significantly above the recommendation. The mature tree population meets the recommendation. **Exhibit 3-10** shows the DSH distribution for the City-managed park tree inventory. The City's park tree population of immature (44%) and young (37%) trees exceed the recommendation, while the middle-age population (8%) is below the recommendation. The population of mature trees nearly meets the recommendation.



Age trends reflect recent tree planting efforts in the last 20–30 years. If these age trends continue, and trees continue to be planted at or higher than existing rates, the City can expect the tree's environmental services and maintenance needs will increase as the population ages.

EXHIBIT 3-9. DSH DISTRIBUTION OF THE CITY-MANAGED STREET TREE INVENTORY *Source: City of Alameda Street Tree Inventory (West Coast Arborist 2022).*

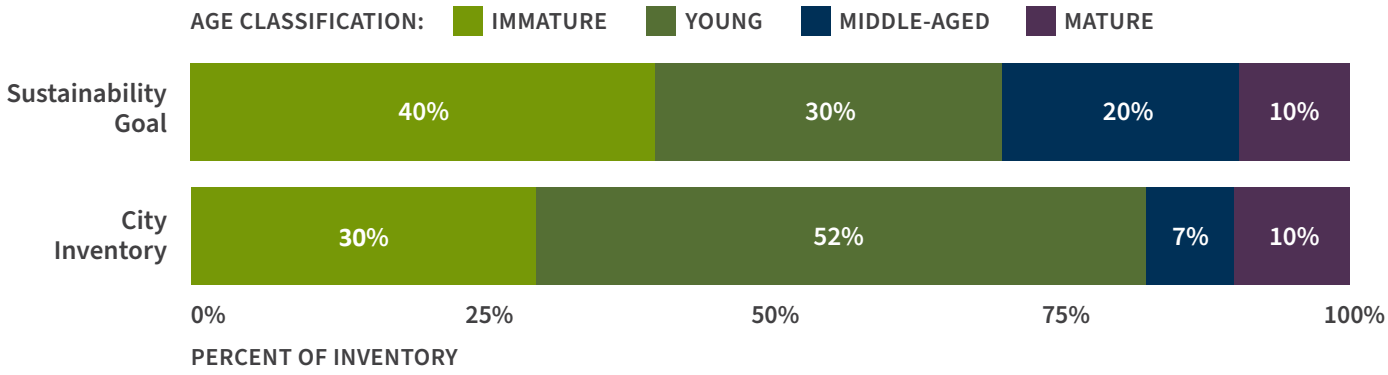
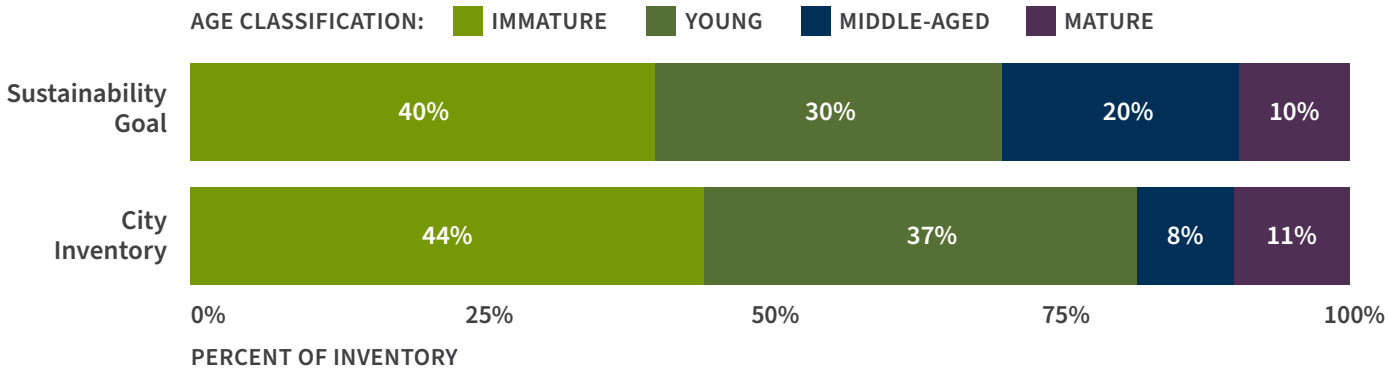


EXHIBIT 3-10. DSH DISTRIBUTION OF THE CITY-MANAGED PARK TREE INVENTORY

Source: City of Alameda Street Tree Inventory (West Coast Arborist 2022).



Immature: less than 6" DSH, Young: 6" - 18" DSH, Middle-aged: 18" - 24" DSH, Mature: greater than 24" DS
Percentages less than 1% are unlabeled

IMMATURE TREE (UNDER 6” DBH)

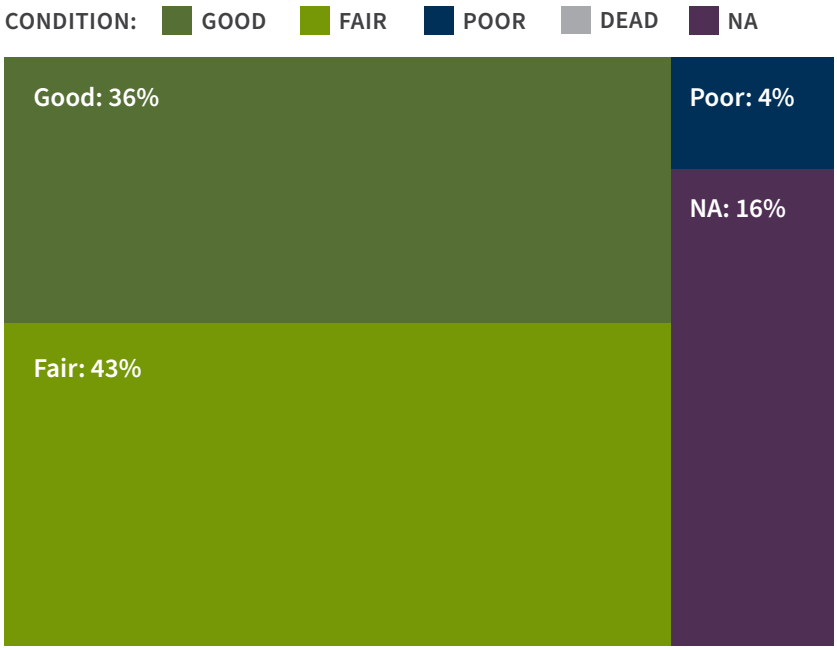
YOUNG TREE (6-18”)

MATURE TREE (>24”)

3.3.4
Health Composition

Trees that are healthy with good trunk and branch structure generally have a lower risk of failure and contribute to a safer City.

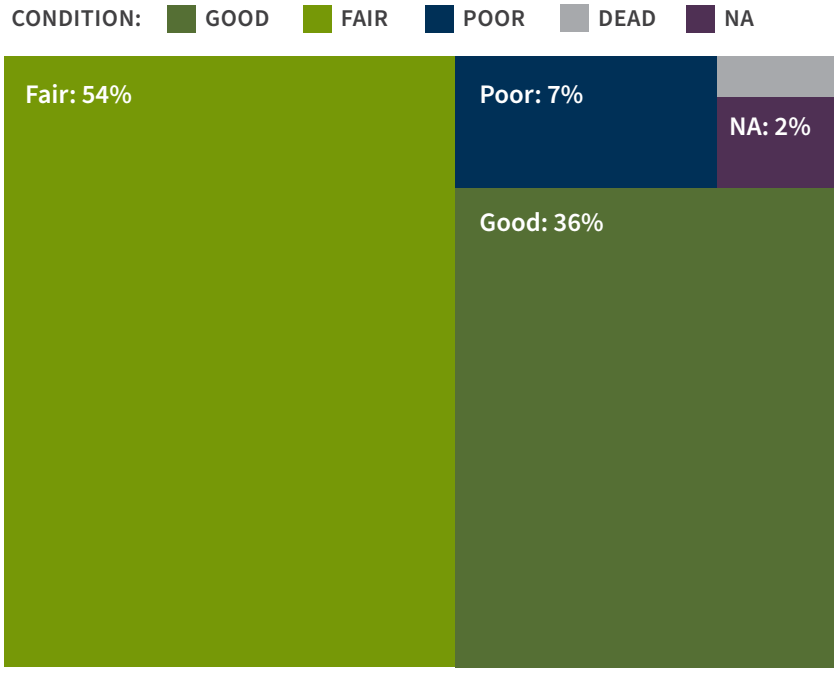
To determine tree condition, arborists conducting the City's tree inventory rated trees with respect to five distinct tree components: roots, trunk, scaffold branches, small branches, and foliage. Each component of a tree is assessed for health factors such as pest or pathogen damage; mechanical damage; presence of decay; presence of wilted or dead leaves; and wound closure. Components were graded as good, fair, poor, and dead. "Good" represents no apparent problems, and "dead" represents a dead tree. Tree conditions of the City's street tree inventory varied, with 36% rated as good, and 43% as fair. Four percent of the trees were rated poor, and 16% of trees did not have a condition rating (**Exhibit 3-11**). Tree conditions of the City's park tree inventory varied, with 36% rated as good, and 54% as fair. Four percent of the trees were rated poor, and 16% of trees did not have a condition rating (**Exhibit 3-12**).



16.5% of trees in the street inventory have no condition recorded.
Percentages less than 2% are unlabeled.

EXHIBIT 3-11. HEALTH COMPOSITION RATINGS OF THE STREET TREE INVENTORY

Source: City of Alameda Street Tree Inventory (West Coast Arborist 2022).



Percentages leess than 2% are unlabeled

EXHIBIT 3-12. DSH DISTRIBUTION OF THE CITY-MANAGED PARK TREE INVENTORY

Source: City of Alameda Street Tree Inventory (West Coast Arborist 2022).

3.3.4.1 RELATIVE PERFORMANCE INDEX

Tree condition ratings in the City inventory show how individual trees are performing, but do not aggregate performance by species. The relative performance index (RPI) is used to better understand how individual species are performing and species that may need further analysis to determine appropriate management actions to maintain vigor. Species RPI is calculated by taking the percentage of trees in a single species that are assessed in good or better condition and dividing it by the percentage of all trees in the inventory that are assessed as being in a good or better condition. Tree species with an RPI of 1.0 or higher are performing as well or better than the tree inventory average, and tree species with an RPI less than 1.0 are performing below the tree inventory average. A sustainability goal for the City is to have its top 6 species with RPIs greater than 1.0 (Vibrant Cities Lab n.d.a). RPIs for the top six street tree species are presented in Exhibit 3-13 and RPIs for the top six park tree species are presented in Exhibit 3-14.

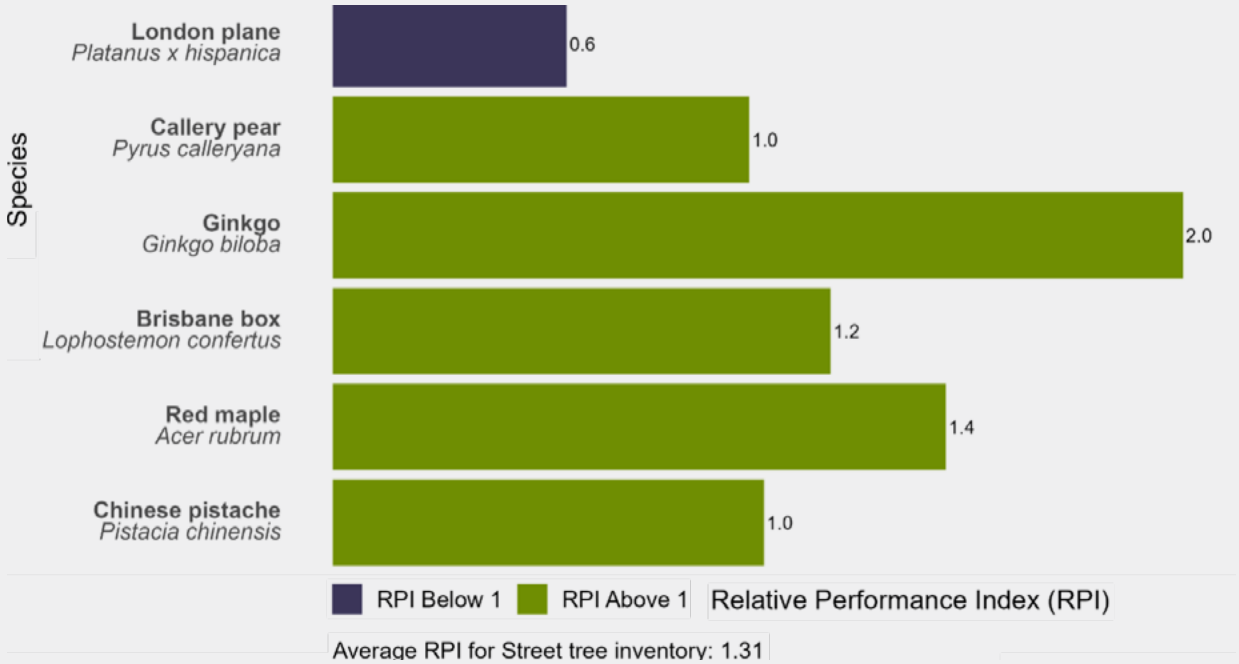


EXHIBIT 3-13. STREET TREES – RELATIVE PERFORMANCE INDEX

Source: City of Alameda Street Tree Inventory (West Coast Arborist 2022); i-Tree (USFS 2020).

Five of Alameda's top six street tree species have an RPI of greater than 1, indicating that the condition of those trees are performing better than the average City tree. Most notably the London plane is performing below the average of all City managed street trees and is the dominant tree species for the Central Avenue corridor and in the Bay Island Farm community. Further analysis should be conducted on the London plane trees in these areas to assess if management practices can improve the health condition of the trees. If not, the City should develop a long-term removal and replacement plan that will maintain a consistent level of canopy cover throughout the process.

Three of the top six park tree species have an RPI above 1, with the London plane and Canary-Island pine well below the overall average for park trees. Like the street trees, it will be important to gather more information on the conditions of these tree species and if they present an elevated level of risk in the park setting. For example, if declining trees are adjacent park facilities like playgrounds, benches/picnic tables, or parking lots that have targets with a higher occupancy rate, then options to mitigate the risk should be explored. This could include pruning, moving the targets if feasible (benches/picnic tables), restricting access underneath the tree, or finally removal if the risk cannot be mitigated to an acceptable level for the City.

Average RPI for Street tree inventory: 1.31

EXHIBIT 3-14. PARK TREES – RELATIVE PERFORMANCE INDEX

Source: City of Alameda Street Tree Inventory (West Coast Arborist 2022); i-Tree (USFS 2020).

3.3.5 Importance Value

The importance value of trees is calculated in i-Tree Eco by combining the percentage of the species in in the inventory and its corresponding percentage of leaf area. These two percentages are added together to determine the importance value (**Exhibit 3-15**). This metric is another way to measure a species' total value to the City's urban forest. The London plane is the most common tree in the inventory and as a large stature tree it would be expected to have a high importance value. As discussed above, London plane trees are not performing well in the City and an importance value that is almost 4 times the next tree species underscores the need for additional assessment of the species. The results also reinforce that large stature trees provide a higher value on a per tree basis than medium or small stature trees. For example, the large-stature ash tree species are 0.3% of the inventory and have a 5.9% importance value. Conversely, medium-stature New Zealand Christmas trees are 2.2% of the inventory and have a 4% importance value.

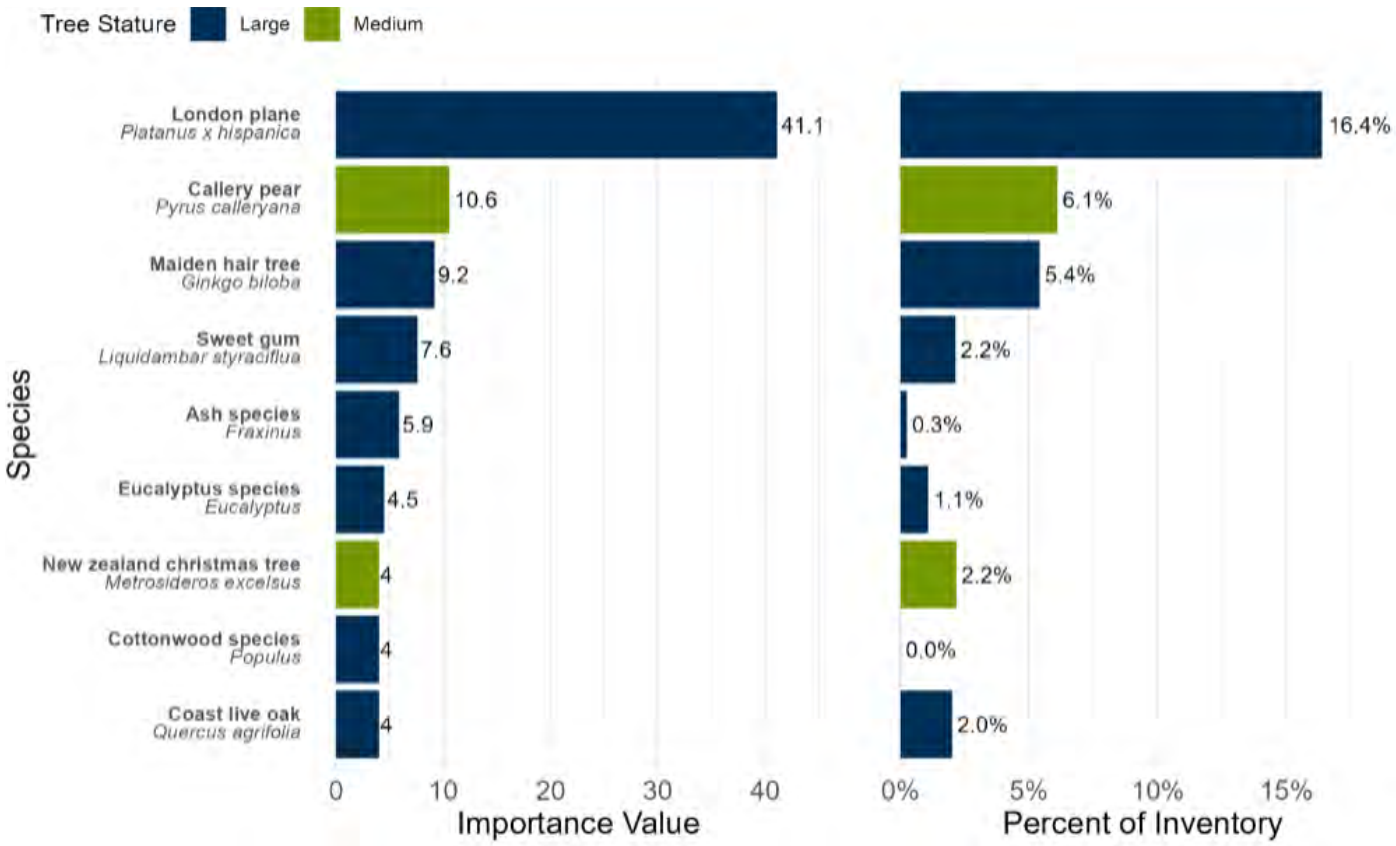


EXHIBIT 3-15. IMPORTANCE VALUES OF TOP TEN TREE SPECIES

3.4 TREE EQUITY AND VULNERABILITY ASSESSMENT

The Alameda General Plan's equity goal is to "promote equity, environmental justice, and a high quality of life for everyone irrespective of income, race, gender, sexual orientation, cultural background or ability by recognizing and changing local policies, programs, ordinances, and practices that serve to perpetuate injustices suffered by under-served and underrepresented populations and proactively engaging these populations in all City decision making." Trees contribute significantly to quality of life by providing significant environmental, health, and aesthetic benefits. Therefore, planting and maintaining more trees in historically disadvantaged communities is crucial for promoting equity between different neighborhoods. The following sections present an analysis of the existing canopy cover against demographic indicators, pollution burden and urban heat island.

3.4.1 Demographics

This section presents analysis of the demographic breakdown of the City by canopy cover ranges. Based on this analysis it is important that all urban forestry policies and programs focus on increasing canopy cover for low-canopied census tracts and mitigates pollution vulnerabilities without adding economic burdens.

3.4.1.1 RACIAL/ETHNIC BREAKDOWN

Exhibit 3-16 displays the racial/ethnic breakdown of census tracts based on their tree canopy range. Census tracts with canopy cover between 5% and 9.9% have much higher rates of Black residents (12%), slightly higher rates of Hispanic/Latinx residents (15%), and slightly lower rates of White residents (37%) as compared to the full City population (7% Black, 13% Hispanic/Latinx, and 43% White).

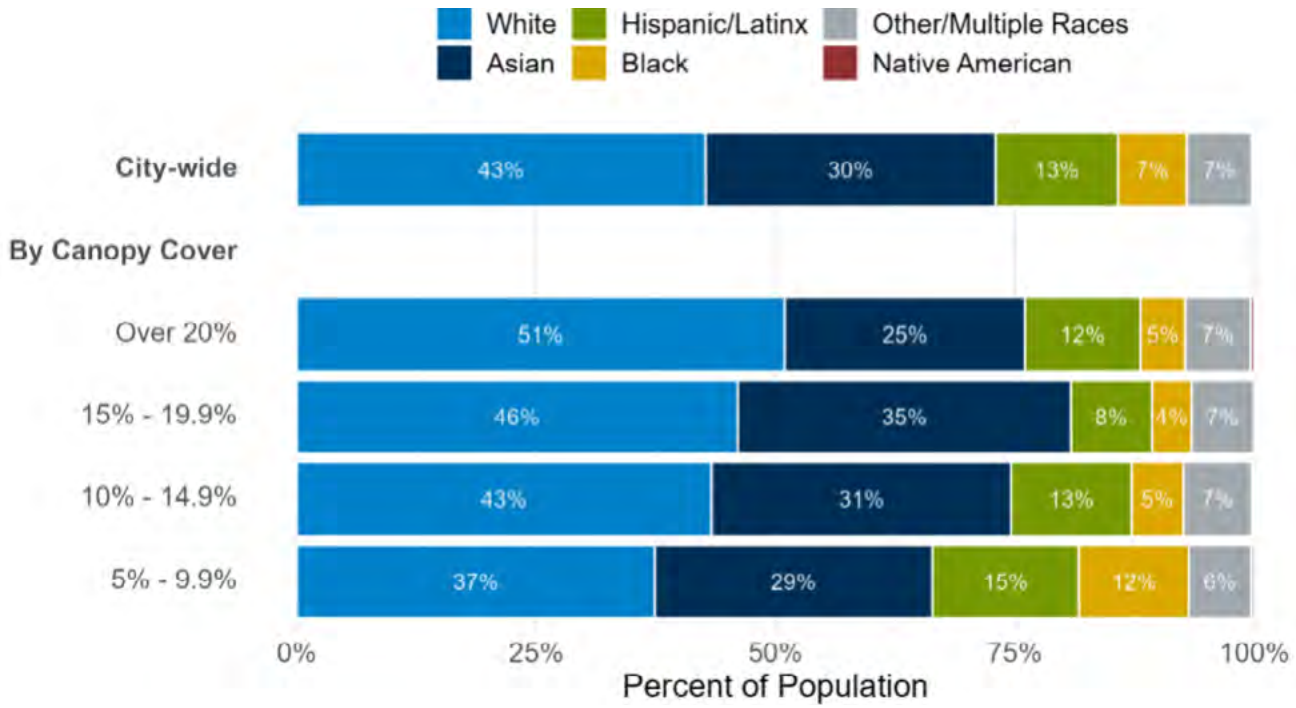


EXHIBIT 3-16. COMPARISON OF CENSUS TRACT'S TREE CANOPY COVER TO RACIAL/ETHNIC BREAKDOWN

Source: USDA 2018; CalEnviroScreen 4.0 (OEHHA 2021).

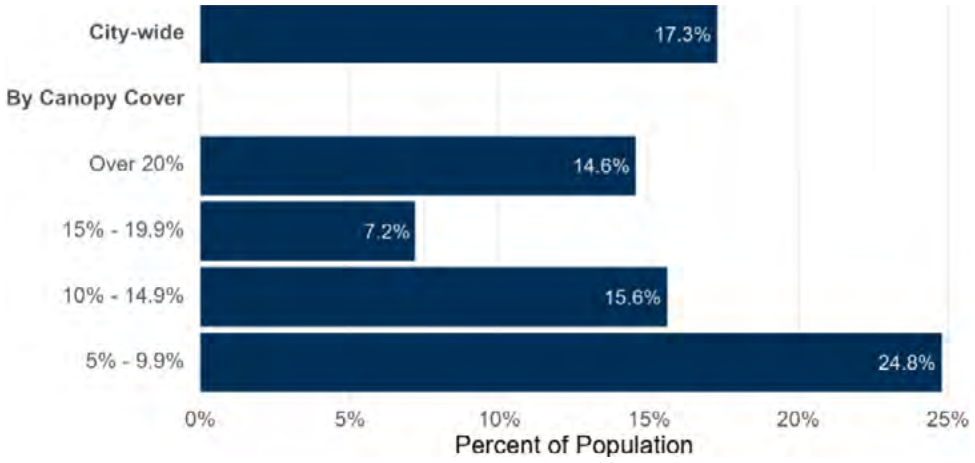


EXHIBIT 3-17. COMPARISON OF CENSUS TRACT'S TREE CANOPY COVER TO PERCENTAGE OF THE POPULATION LIVING AT OR BELOW TWO TIMES THE FEDERAL POVERTY LEVEL

Source: USDA 2018; CalEnviroScreen 4.0 (OEHHA 2021).

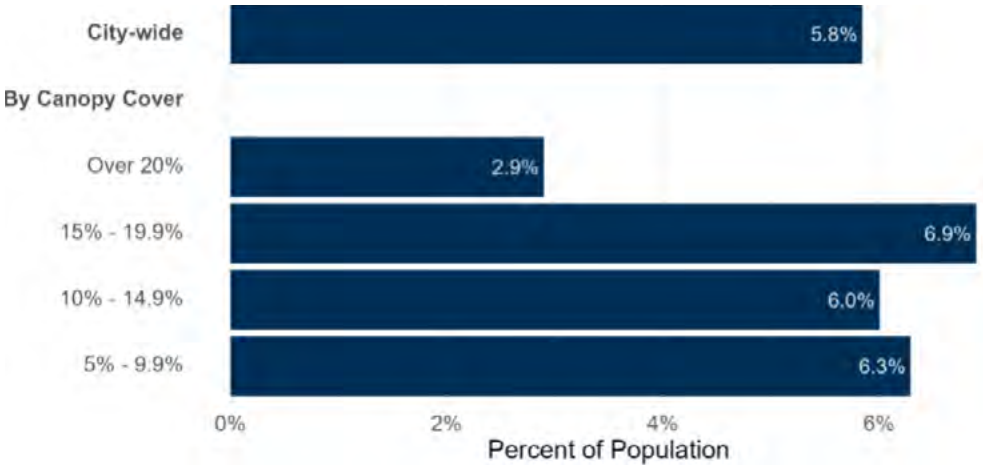


EXHIBIT 3-18. COMPARISON OF CENSUS TRACT'S TREE CANOPY COVER TO PERCENTAGE OF THE POPULATION WITH LIMITED ENGLISH PROFICIENCY

Source: USDA 2018; CalEnviroScreen 4.0 (OEHHA 2021).

3.4.1.2 POVERTY LEVEL

The federal poverty level is an income metric used by the government to determine an individual or family's eligibility for certain government assistance programs. Poverty census data can be coupled with urban forestry metrics to develop a social understanding of the correlations between income and urban forest resources. **Exhibit 3-17** shows the percent of the population living at or below two times the Federal Poverty Level (FPL) within census tracts based on tree canopy range. Almost a quarter of residents living in census tracts with canopy cover under 10% live at or below two times the FPL, which is higher than the percent of the City-wide population living at or below two times the FPL (17.3%).

3.4.1.3 LIMITED ENGLISH PROFICIENCY

In California, over 40% of the population speaks a language other than English at home and roughly 20% of the population has a Limited English Proficiency (LEP) level. Community members who primarily speak languages other than English may have trouble engaging in government programs. **Exhibit 3-18** shows the percent of the population with a LEP level within census tracts based on tree canopy range. Census tracts with more than 20% canopy cover have a much lower percent of the population with a LEP level (2.9%) as compared to City-wide (5.8%).

3.4.2 Pollution Burden

The California Environmental Protection Agency's (CalEPA) CalEnviroScreen 4.0 (CES) online tool identifies California communities that are disproportionately burdened by pollution and have a higher vulnerability to the health effects of pollution (OEHHA 2018). The tool uses indicators of exposure, environmental effects, sensitive population, and socioeconomic factors to assess the cumulative impact of pollution burden, health conditions, and socioeconomic stressors on California communities.

CES is a relative comparison of California pollution burden and vulnerability, with CES scores in the 1st–10th deciles indicating the least burdened and vulnerable communities and CES scores in the 90th–100th decile indicate the most vulnerable and burdened communities (OEHHA 2021). The City's census tracts range from a low CES of 15 to a high CES of 78 (**Exhibit 3-19**). **Exhibit 3-20** displays the tree canopy cover of census tracts that fall into different CES ranges.

Canopy cover is not a metric included in the CES tool, however census tracts in the City with higher pollution burden and vulnerability tend to also have low tree canopy cover. A focus on efforts to increase tree canopy in census tracts with low CES scores can help to lower air pollution impacts in these communities currently experiencing higher rates of pollution burden and vulnerability (see Section 5.1, Priority Equity Index, regarding further prioritizing tree planting by census tract).

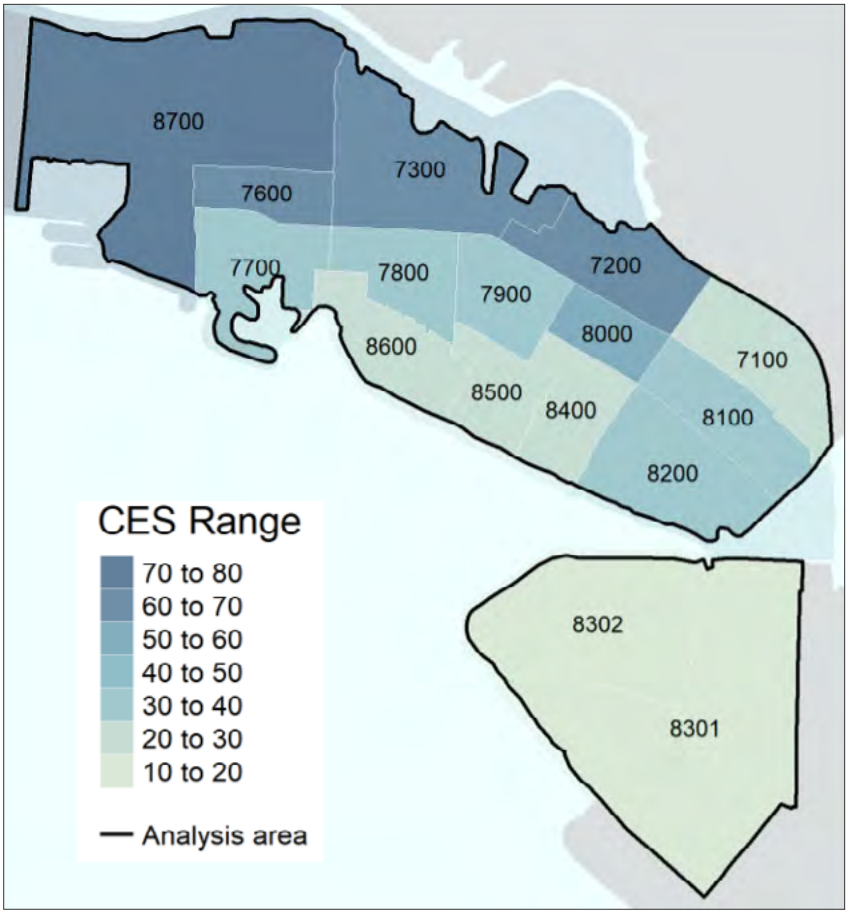


EXHIBIT 3-19. MAP OF CALENVIROSCREEN 4.0 SCORES

Source: CalEnviroScreen 4.0 (OEHHA 2021).

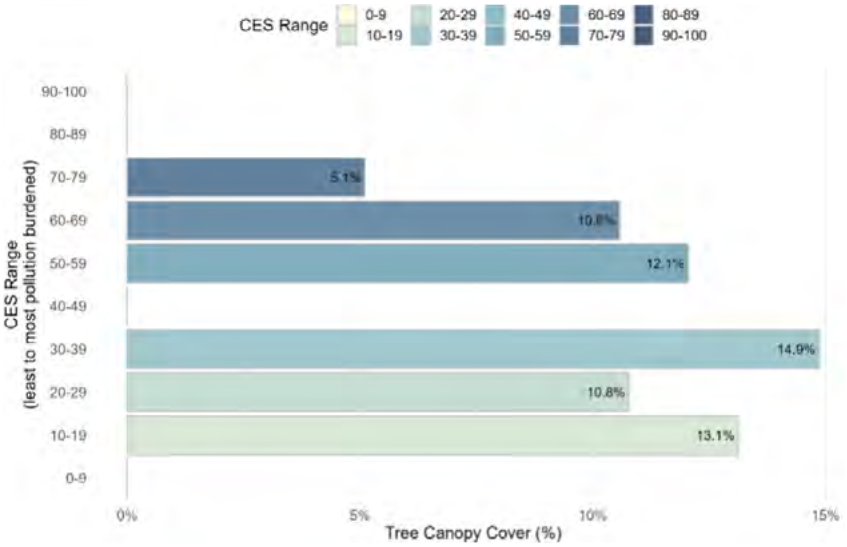


EXHIBIT 3-20. COMPARISON OF CENSUS TRACT'S TREE CANOPY COVER BY CALENVIROSCREEN RANGE

Source: CalEnviroScreen 4.0 (OEHHA 2021).

3.4.3 Urban Heat Islands

Heat from the sun is absorbed and re-emitted by buildings, roads, and other hardscape and infrastructure in the urban landscape, causing temperatures in the urbanized area to increase. This occurrence, known as the "urban heat island effect," results in urbanized areas experiencing higher temperatures relative to surrounding natural or rural areas (Armson et al. 2012). Elevated temperatures in urban areas contribute to compromised human health and comfort, which can result in heat-related illness and heat-related deaths (EPA 2020). Currently, extreme heat causes more deaths than any other weather-related hazard, with particularly vulnerable groups consisting of the elderly, unhoused populations, and those with preexisting health conditions (Sherman 2020).

Climate projections anticipate more extreme heat days, which will be accompanied by increased health risks, and an additional 9,300 heat-related deaths are expected nationwide by 2036 (Sherman 2020). Temperatures have already increased in the City by 1.7°F from 1950 to 2005 (Alameda CARP, 2019). On a sunny day, hardscape surfaces, such as asphalt, concrete, or roofs, can reach temperatures that are 50°F to 90°F hotter than the surrounding air temperature (EPA 2021). Tree canopies reduce the urban heat island effect by lowering surface and air temperatures through shade and evapotranspiration (Loughner et al. 2012). Surface temperatures may be 20°F to 45°F cooler under the shade of a tree compared to areas with no tree cover (EPA 2019). A recent study (Alonzo et. Al. 2021) revealed even individual street trees provide a cooling benefit; areas with a distributed tree canopy had lower predawn temperatures compared to areas with few or no trees. Evening temperatures were 2.2° F cooler in areas with 50% canopy cover compared to areas with few to no trees, and perceptibly cooler temperatures were found even with 20% canopy cover.

Exhibit 3-21 shows the tree canopy cover for each census tract compared to the percent of area that falls into five different severity levels for heat islands (Trust for Public Lands 2019). The City's census tracts with lower canopy cover tend to be more impacted by heat islands and with more severity.

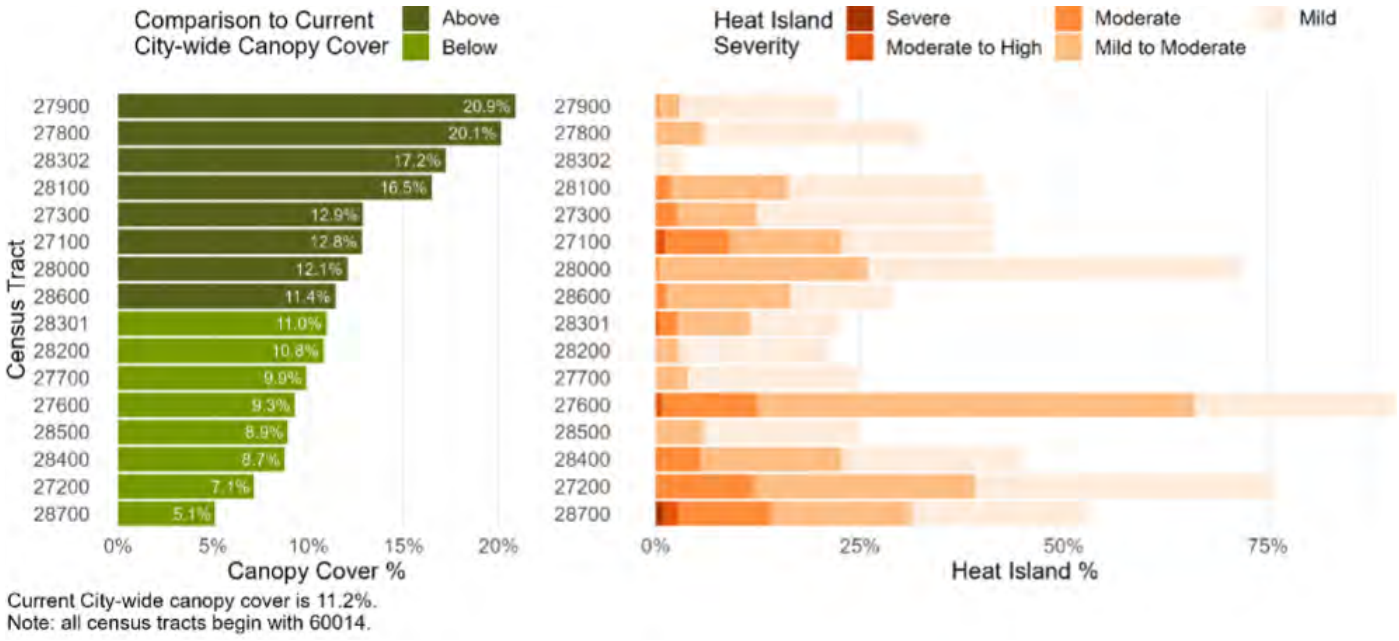


EXHIBIT 3-21. COMPARING CENSUS TRACT'S CANOPY COVER TO HEAT ISLAND SEVERITY

Source: USDA 2018; Trust for Public Lands 2019.

3.5 THREATS AND RISKS TO THE URBAN FOREST

Climate change will impact the health of the urban forest. Risks to the urban forest as a result of climate change include increasing periods of drought, increasing heat, rising groundwater, sea level rise, and increased risk of pests and disease.

According to the USDA, rising temperatures will affect insect populations and the incidence of pathogens. Tree species that may be suitable for Alameda's current climate may become unsuitable in the future due to the changing climate. For example, tree species that are suitable for drought conditions may do poorly if subjected to flood conditions.

Over the past century, average maximum temperatures in California have increased between 1.6°F to 2.5°F, and these temperatures are expected to continue to rise over the coming years (WRCC 2018). Alameda can expect longer, more intense periods of drought and more variable periods of precipitation with increased flooding (Swain et al. 2018), which may require adjustments to the frequency and duration newly planted trees receive supplemental irrigation. Groundwater rise is specific threat to trees in the Alameda urban forest as discussed in section 3.5.2. Understanding the impact of this threat will be monitored over the coming years through mapping and data analysis. The City can prepare for these expected changes by selecting and planting species that are predicted to perform well in future climate conditions, which will be further discussed in 3.5.1 Species & Climate Preparedness.

3.5.1 Species and Climate Preparedness

There are many considerations when looking at the climate appropriateness of urban tree species. This analysis considers tree species' water needs using Water Use Classification of Landscape Species (WUCOLS) and future climate suitability based on research conducted by McBride and Lacan (2018).

WUCOLS classifies plants as very low, low, moderate, or high-water users. WUCOLS water ratings are often part of the guidelines for selecting trees species palettes throughout California. Species that are rated as high or moderate water users will require more water resources than lower-rated species. This may be good for those trees in areas of high groundwater, but challenging for trees during drought conditions.

Exhibit 3-22 shows the WUCOLS ratings of the street tree inventory and **Exhibit 3-23** shows the ratings of the park tree inventory. Of the street trees, 2% are high water users, 64% are moderate water users, 24% are low water users, and 4% are very low water users. Approximately 7% of trees do not have a WUCOLS water use rating. Of the park trees, 14% of trees are high water users, 36% are moderate water users, 27% are low water users, and 17% are very low water users. Approximately 5% of trees do not have a WUCOLS water use rating.

In 2018, a climate suitability study was conducted for street trees in California. This research picked one California city to represent each of the 16 hardiness zones present in California. Common tree species in these representative cities were then compared to common tree species in cities with current temperatures equal to the predicted temperatures of the representative cities in 2099. A list of species that will be unsuitable for future climates was created based on their absence from warmer cities, professional opinions, and WUCOLS ratings of unsuitable or high.

Using results from McBride and Lacan's research to compare to the Alameda street and park tree inventories, there are 34 (street) and 35 (Parks) tree species in the inventories that are predicted to be heat and water sensitive in Alameda's future climate. These species make up 11,427 trees and 43% of the street tree inventory, and 1,365 and 37.8% of the park tree inventory.

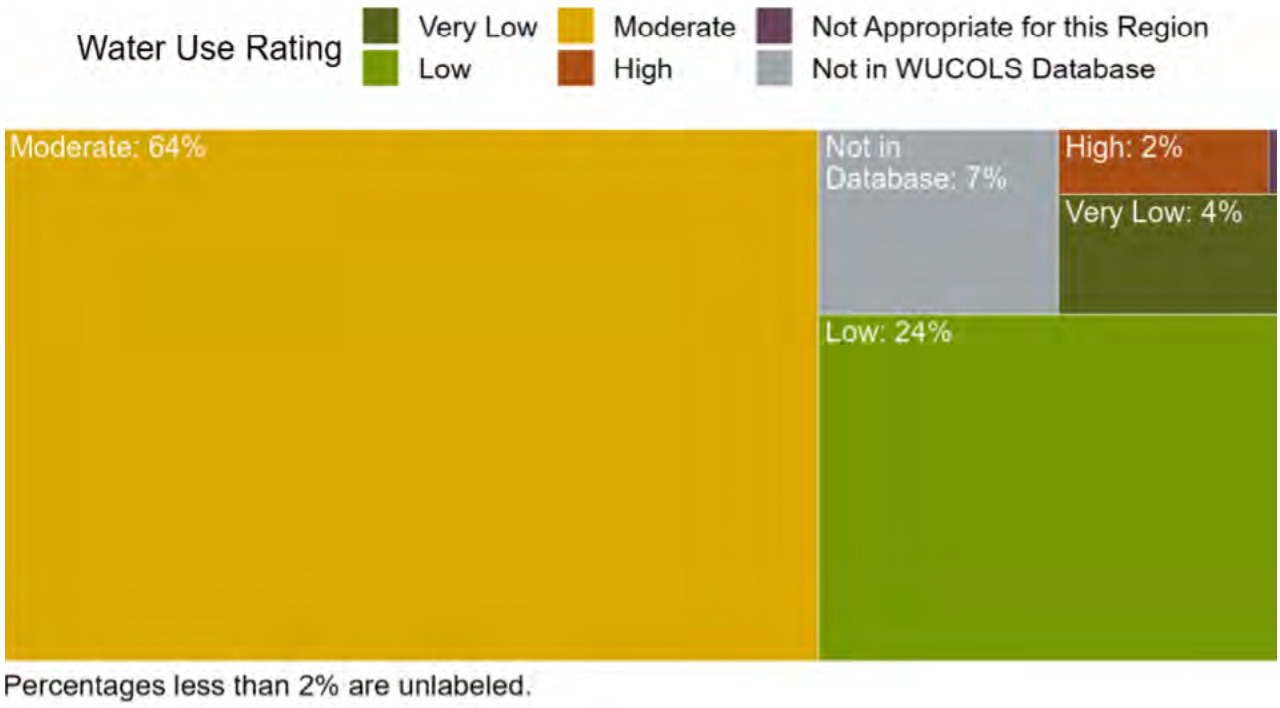


EXHIBIT 3-22. WATER USE RATING DISTRIBUTION OF THE CITY'S STREET TREE INVENTORY

Source: City of Alameda Street Tree Inventory (West Coast Arborist 2022); Water Use Classification of Landscape Species (2014).

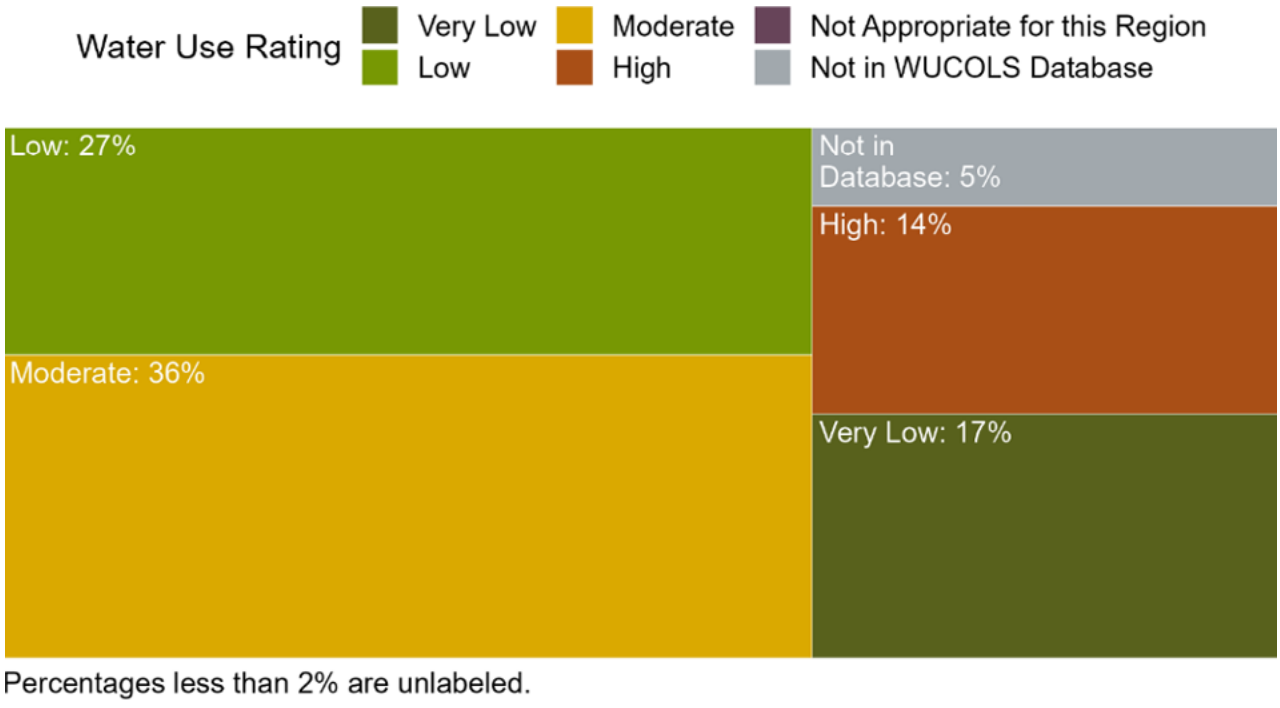
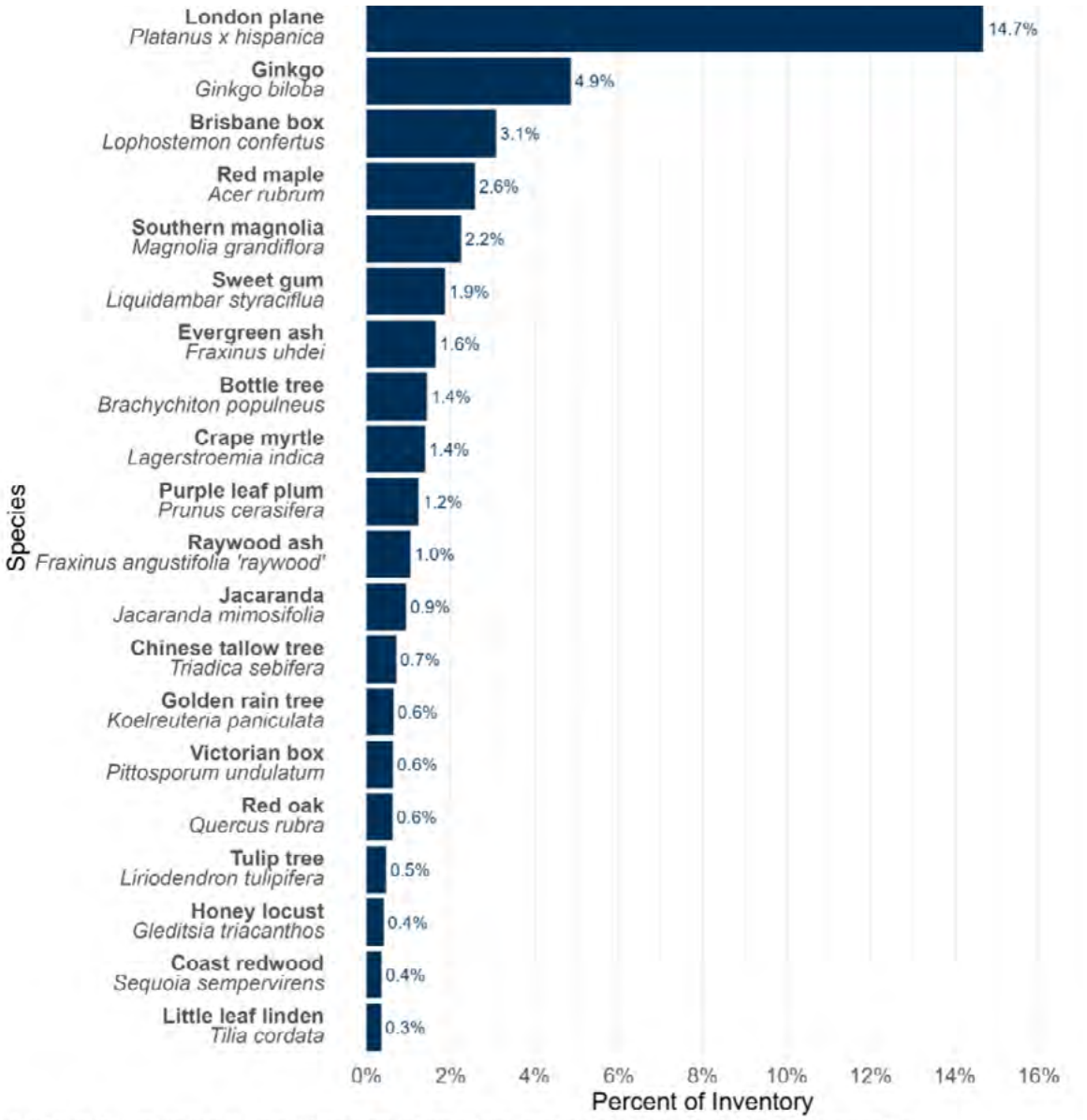


EXHIBIT 3-23. WATER USE RATING DISTRIBUTION OF THE CITY'S PARK TREE INVENTORY

Source: City of Alameda Street Tree Inventory (West Coast Arborist 2022); Water Use Classification of Landscape Species (2014).

EXHIBIT 3-24.
TOP 20 SPECIES IN THE STREET TREE INVENTORY PREDICTED TO BE UNSUITABLE FOR FUTURE CLIMATES

Reference: McBride and Lacan, 2018. The impact of climate-change induced temperature increases on the suitability of street tree species in California (USA) cities. Urban Forestry & Urban Greening 34 (2018) 348–356.



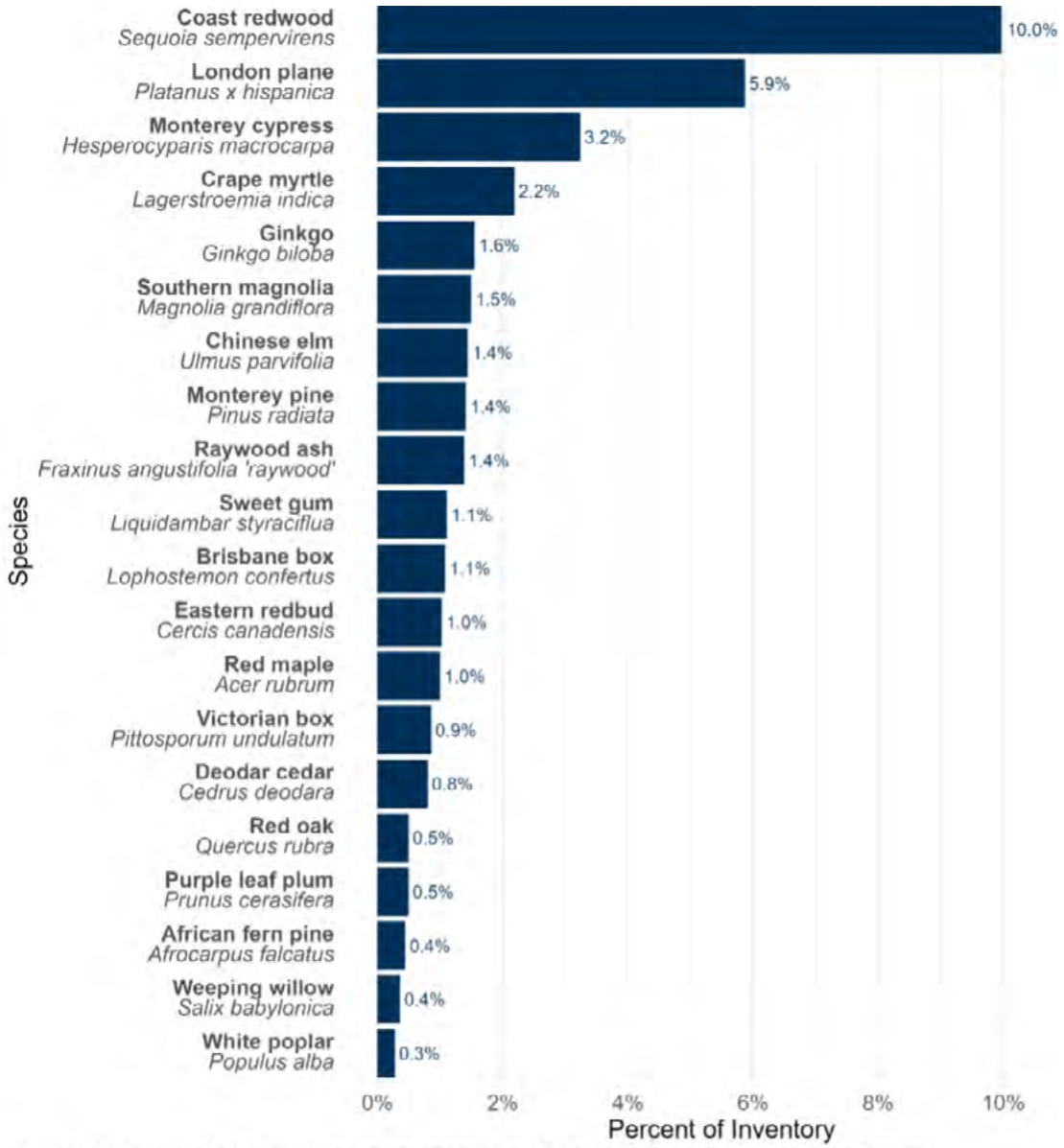
A total of 35 species in the street tree inventory are predicted to be unsuitable for future climates.
These species (11,427 trees) make up 43.0% of the street tree inventory.
Note: Research excluded palm species

Exhibits 3-24 and 3-25 present the top 20 most commonly occurring of these species; notably, many of these species repeat between the two inventories. These lists indicate the potential for a gradual decline of tree canopy cover over time. Based on these lists of species, the City will need to determine which species should remain on its palette and prioritize species that are drought tolerant and able to withstand hotter weather. Trees in areas with high groundwater may be able to better withstand drought conditions, but this is a new area of research that is not yet well understood.

EXHIBIT 3-25.

TOP 20 SPECIES IN THE PARK TREE INVENTORY PREDICTED TO BE UNSUITABLE FOR FUTURE CLIMATES

Reference: McBride and Lacan, 2018. The impact of climate-change induced temperature increases on the suitability of street tree species in California (USA) cities. Urban Forestry & Urban Greening 34 (2018) 348–356.



A total of 34 species in the park tree inventory are predicted to be unsuitable for future climates. These species (1,365 trees) make up 37.8% of the park tree inventory.
Note: Research excluded palm species

3.5.2 Groundwater Rise and Water Usage

One expected and growing threat is rising groundwater. Sea level has risen over 8 inches in the past 100 years (Thorne et al. 2008). By 2050, California is likely to observe 9 to 12 inches of sea level rise. By 2100, if current trends continue, up to 4 feet of sea level rise is possible (Sweet et al. 2022). As sea levels rise, groundwater in low-lying coastal communities will also rise (Plane et al. 2019; Befus et al. 2020; May et al. 2023). The Shallow Groundwater Layer and Contaminants to Sea Level Rise report developed from Alameda in 2020 (May et al. 2020) shows that the City's groundwater table is already within two feet of the surface in some locations and is projected to be above the ground surface in some locations during certain times with sea level rise.

Groundwater level plays a vital role in determining tree survival and success. During drought conditions, when the groundwater table is low, trees may struggle to access the water necessary for their survival. In such cases, supplemental irrigation may be required for tree survival. Conversely, high water tables, caused by prolonged rainfall or rising sea levels, may lead to tree site saturation. Tree site saturation occurs when all the pore spaces between soil particles, typically occupied by a combination of air and water in unsaturated soil, become filled with water molecules. Prolonged soil saturation can impede a tree's ability to effectively exchange gases with the atmosphere through its roots.

Different tree species respond differently to water levels (Nuss 2023). Alameda's native coast live oaks (Quercus agrifolia) are more susceptible to hydrophilic pathogens such as armillaria root rot and sudden oak death (Phytophthora ramorum) in areas with higher moisture levels. Other trees, such as the California Black Walnut (Juglans Californica) and the Western sycamore (Platanus racemosa) are generally healthier in consistently damp soils (Calscape n.d).

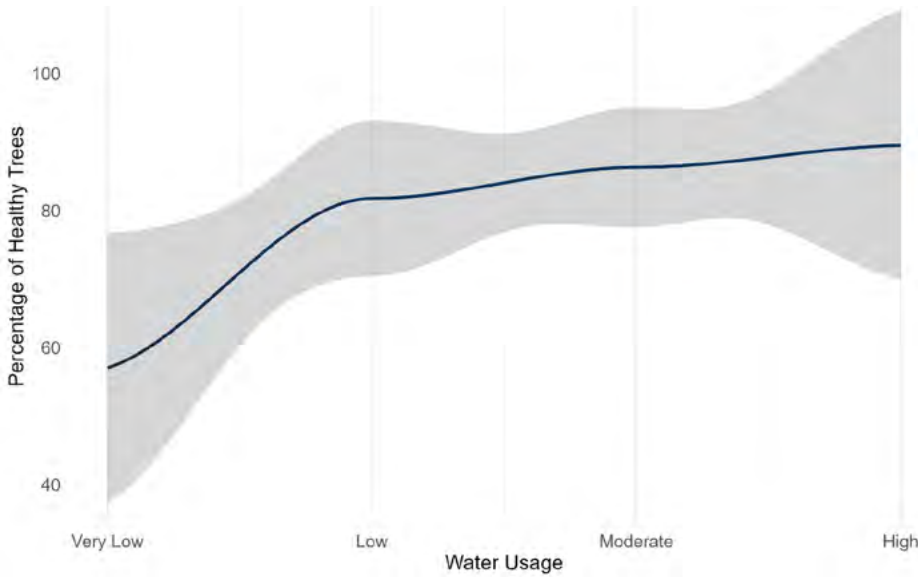
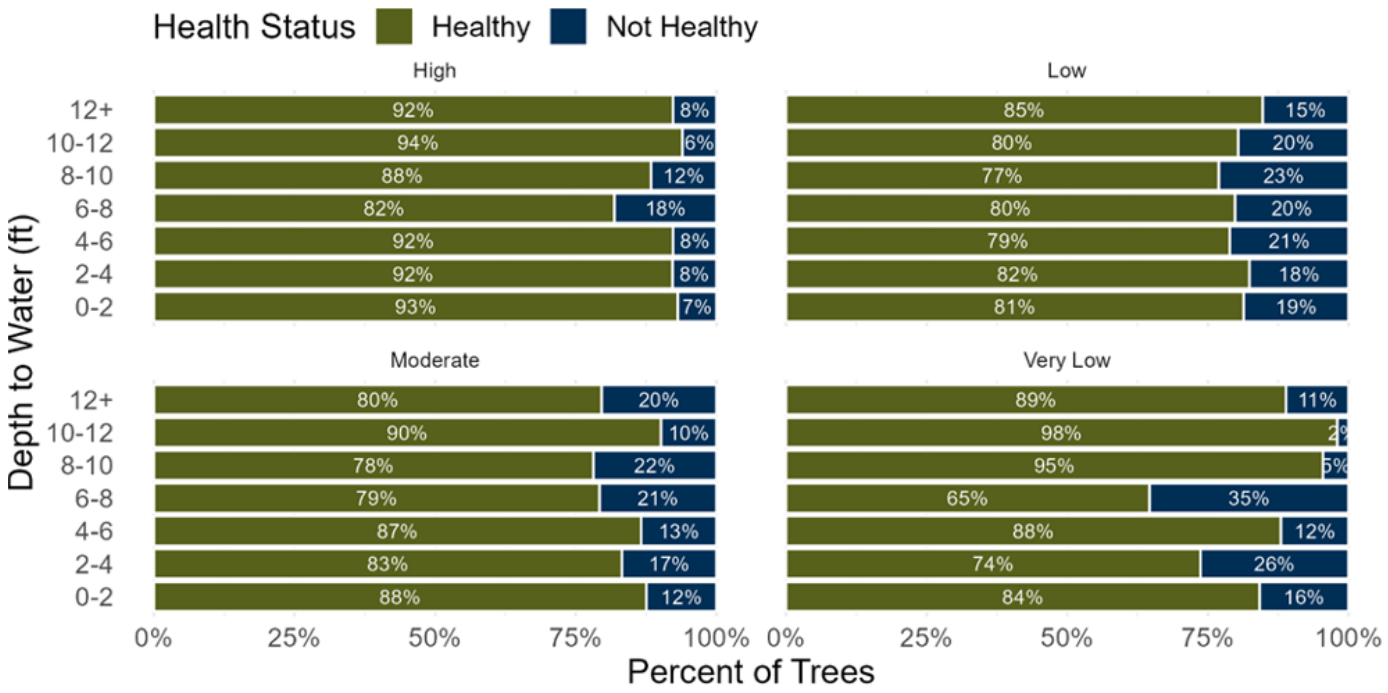


Exhibit 3-26. reflects the top 20 species in the City's tree inventory and their health condition relative to their WUCOLS water ratings, which evaluates the water needs of plant species. Exhibit 3-24 shows a slight correlation between trees with medium and high WUCOLS ratings (less drought resistant) performing better than trees with very low and low WUCOLS ratings (more drought resistant). This data set represents 56% of the Alameda city-managed tree inventory.

EXHIBIT 3-26. PERCENTAGE OF HEALTHY TREES RELATIVE TO THEIR WATER USAGE

Source: City of Alameda Tree Inventory (West Coast Arborist 2022); Water Use Classification of Landscape Species (2014).



Healthy includes 'Good' and 'Fair' health conditions.
Not Healthy includes 'Dead', 'Poor', and NA health conditions.

EXHIBIT 3-27. DISTRIBUTION OF HEALTH CONDITIONS BY GROUNDWATER DEPTH AND WATER USE

Source: City of Alameda Tree Inventory (West Coast Arborist 2022); Water Use Classification of Landscape Species (2014).

Groundwater modeling data in Appendix B Groundwater Map (SFEI 2018) is used to map areas susceptible to rising groundwater levels associated with several possible sea level rise scenarios (Groundwater Modeling Data). This data was used to compare tree health conditions by WUCOLS water ratings in the various groundwater levels presented in **Exhibit 3-27** above.

This analysis shows almost no direct correlation between groundwater depth and tree health by a species' WUCOLS water use rating, with again, only a slight correlation between high water use trees performing better in higher groundwater areas. Comparative analysis indicates that current groundwater levels have no discernible impact on tree health as the data presents no evident direct correlation between groundwater depth and tree health at this time. The City should continue to monitor these trends over time.

Other factors should be considered to determine groundwater impacts on tree health without a discernible correlation between groundwater level and tree health conditions. First is the variability of the arborists who conducted the original tree inventory and their determination of a tree's health condition. It is recommended to update the tree inventory by a third party who does not conduct contracted tree work with the city may result in different tree health condition assessments. Second, other factors are most likely contributing to trees health condition outside of groundwater levels. This may include soil volume for growing space, the species reaction to soil conditions, salt-spray and other factors found within Alameda.

It will be important to continue to monitor tree health conditions as groundwater levels continue to rise from changes caused by sea level rise. Subsequent changes in the water table can impact the suitability of certain species for specific sites. Appendix C: Alameda Tree Species Selection Matrix, includes a selection of species that are adapted to the consistently damp soils associated with rising water levels. This information can help guide the City in selecting species under future groundwater level conditions. Such species can be found by locating species with a check mark in the "Adapted to poor drainage" column.

Table 3-4 includes four potential soil moisture thresholds based on the groundwater map shown in Appendix B: Groundwater Map and the following assumptions:

- The majority of a tree's roots exist in the top 2 feet of soil (Gilman 2015; Elmendorf et al. 2005).
- Long-term soil saturation will have a detrimental effect on most trees (Lily 2010), the degree of which depends on the tree species (Nuss 2023).
- A tree is saturated when groundwater is within 2 feet of soil depth.
- Seasonal rainfall patterns have historically affected Alameda's groundwater level with a 2- to 4-foot annual fluctuation (May et al. 2020). Therefore, areas with a groundwater table between 2 and 6 feet deep may encounter prolonged periods of soil saturation in the first 2 feet of soil depth.

Threshold	Name	Groundwater Depth (Feet)
1	Flooded	<0
2	Saturated	0–2
3	Potential for seasonal saturation	2– 6
4	Not saturated	>6

TABLE 3-4. SOIL MOISTURE THRESHOLDS DEVELOPED BASED ON TREE HEALTH IMPLICATIONS

3.6 NEIGHBORHOOD AND CORRIDOR ASSESSMENT

Certain neighborhoods and corridors have been identified as having unique needs related to the urban forest. One of the main challenges is existing infrastructure (such as sidewalks, driveways, utility lines, and building foundations) that would conflict with the planting of trees, especially as the trees reach maturity.

Sidewalks and other hardscapes can preclude healthy tree growth and canopy development by limiting available soil volume, while tree roots often cause damage to sidewalks resulting in uplift and trip and fall hazards that can be costly to repair. This can lead to the removal of trees to mitigate these potential costs, or the decision to avoid planting trees altogether.

Mitigation efforts for infrastructure conflict include root pruning, flexible root-controlling materials, and design modification of infrastructure. Tree removal is considered a last resort after determining other mitigation efforts are insufficient for the particular tree or site. As trees mature in the urban landscape, infrastructure conflicts must be preemptively addressed to maintain community safety and preserve urban forest benefits. Another major challenge is current species performance. London plane (Platanus acerifolia) is the dominant species in certain areas, and it is performing well below the average of all City managed street trees. If these trees' health continues to decline, it will pose a long-term threat to the city's canopy as trees will have to be removed. Locations where London plane trees are heavily present may require more in-depth management practices, or removal and replacement.

3.6.1 Gibbons Drive

Gibbons Drive is a representative example of tree and infrastructure conflicts experienced in the City of Alameda. Trees planted as young trees have matured beyond the designated planting spaces. There are areas where the sidewalk or even roadway is damaged by tree roots. Past infrastructure conflict mitigation, such as root pruning for street or sidewalk repair, is evident here. Should additional infrastructure repair be necessary, and a combination of historical mitigation and necessary mitigation are beyond the industry best management practices in Section 8, Tree Preservation, trees shall be assessed for removal.

All mitigation efforts shall be considered prior to evaluating a tree for removal. Historical management practices, mitigation efforts, and current tree health are all factors to be considered if a tree will survive additional mitigation without an intolerable level of risk. There is a need for a corridor specific plan for trees on Gibbons Drive, as the sidewalk conflicts cause safety and ADA compliance issues (Exhibit 3-28).

EXHIBIT 3-28. SIDEWALK AND TREE CONFLICTS ON GIBBONS DRIVE

Trees on Webster St. Commercial Corridor

3.6.2 Park Street and Webster Street

Park Street and Webster Street are both commercial corridors. The average canopy cover in mixed-use areas such as these corridors is only 5.6%. These streets have similar challenges due to the prevalence of hardscaping and dense development. It will be necessary to find viable places to plant trees where they will not cause damage to existing infrastructure. This may require alternative site designs for the streetscape such as curb bulbs, bridging, or suspended pavement systems.

In 2011, 31 mature street trees were cut down on Park Street as part of the streetscape plan with the intention to plant 60 new trees of varying species and size. The trees were replaced to allow space for new, better lighting, and because many of the existing trees were not in good health. Due to this replacement, many of the street trees along Park Street are still young and don't provide much canopy compared to mature trees. There are some areas of sidewalk that have been raised by tree roots, causing tripping hazards. This will also need mitigation.

3.6.3 Central Avenue Corridor

The London plane species constitute the majority of trees on the Central Avenue corridor. Declining health of these trees will lead to a loss of canopy cover over time as they will likely need to be removed and replaced. Maintaining a consistent canopy cover despite tree removal will need to be a priority, as well as analyzing why these trees are not performing well. When longstanding trees are removed, they are replaced with trees with a much smaller canopy size. This will lead to a loss of canopy cover that will need to be mitigated.

3.6.4 Bay Farm Island

Bay Farm Island is a district of the City of Alameda that is separated by an estuary of San Leandro Bay. The area is mainly composed of Chuck Corica Golf Course, Harbor Bay Business Park, the Harbor Bay Isle residential planned community, and the original Bay Farm Island residential neighborhood. Bay Farm has a higher-than-average tree canopy cover.

The Community of Harbor Bay Isle Owners' Association, Inc. (CHBIOA), which is the homeowners' association for residents of Bay Farm Island, has its own urban forestry management plan adopted in 2013 for trees within the HOA that it manages separately from the City. Over 3,000 trees are maintained by this HOA. A digital tree inventory is used to track tree health, safety, and maintenance performed. Architectural applications are required to remove trees within the homeowners' association, and the current regulations do not require a one-to-one replacement of any removed trees.

London plane trees are the dominant species in Bay Farm Island and are generally in poor condition. According to the CHBIOA urban forestry management plan, other declining or problematic species include: Monterey pine, Lombardy poplar, sweetgum, Italian stone pine, white alder, beech, Monterey cypress, Babylonian willow, hybrid elm, and shore pine.

The CHBIOA plan recommends planting species such as Columbia and Liberty London plane, Chinese pistache, October glory maple, Victorian box, marina madrone, columnar red cedar, pindo palm, arroyo and red willow, Torrey pine, and coffeeberry.

The City will need to collaborate with the Community of Harbor Bay Isle Owners' Association to manage these trees long-term, maintain an inventory of the trees and their conditions, and provide species recommendations that align with the city's goals.

3.6.5 Alameda Point

Alameda Point is a 1,560-acre area on the west end of Alameda at the site of the former Naval Air Station. 624 acres of Alameda Point are Veterans Administration (VA) property, which the City does not control. The VA preserved 511 acres of this property as open space for the protection of the endangered California Least Terns and other wildlife. In the summer breeding and hatching season, the Least Terns often have over 300 nests on Alameda Point thanks to continued efforts to protect and improve its habitat. The remaining area of the VA property is planned for a Veteran's columbarium and health clinic. North of the VA property is a 147-acre site (Northwest Territories) that will be operated by East Bay Regional Park District (EBRPD) for a new regional shoreline park. There are currently no trees on the VA or EBRPD properties.

A Biological Opinion issued by the U.S. Fish and Wildlife Service (USFWS) in 2012 prohibits the planting of trees on the Nature Preserve, Veterans Health Clinic and Columbarium, and Northwest Territories shown on the map below It also prohibits trees behind the airline hangars on Monarch St (Spirits Alley). The City should consult with the VA and USFWS to identify opportunities to plant trees on at least some of these areas that will not impact the Least Tern Colony.

Much of the remaining area of Alameda Point is currently undergoing reuse and redevelopment by the City of Alameda, including multi-family housing, commercial, parks, and open space. Street trees and park trees are planned as part of the developments east of Monarch Street. The Alameda Point Conceptual Planning Guide (2013) recommends that "tree-lined streets that provide shade, sidewalks, and links to the community and greater Alameda are an important part of the overall open space system.

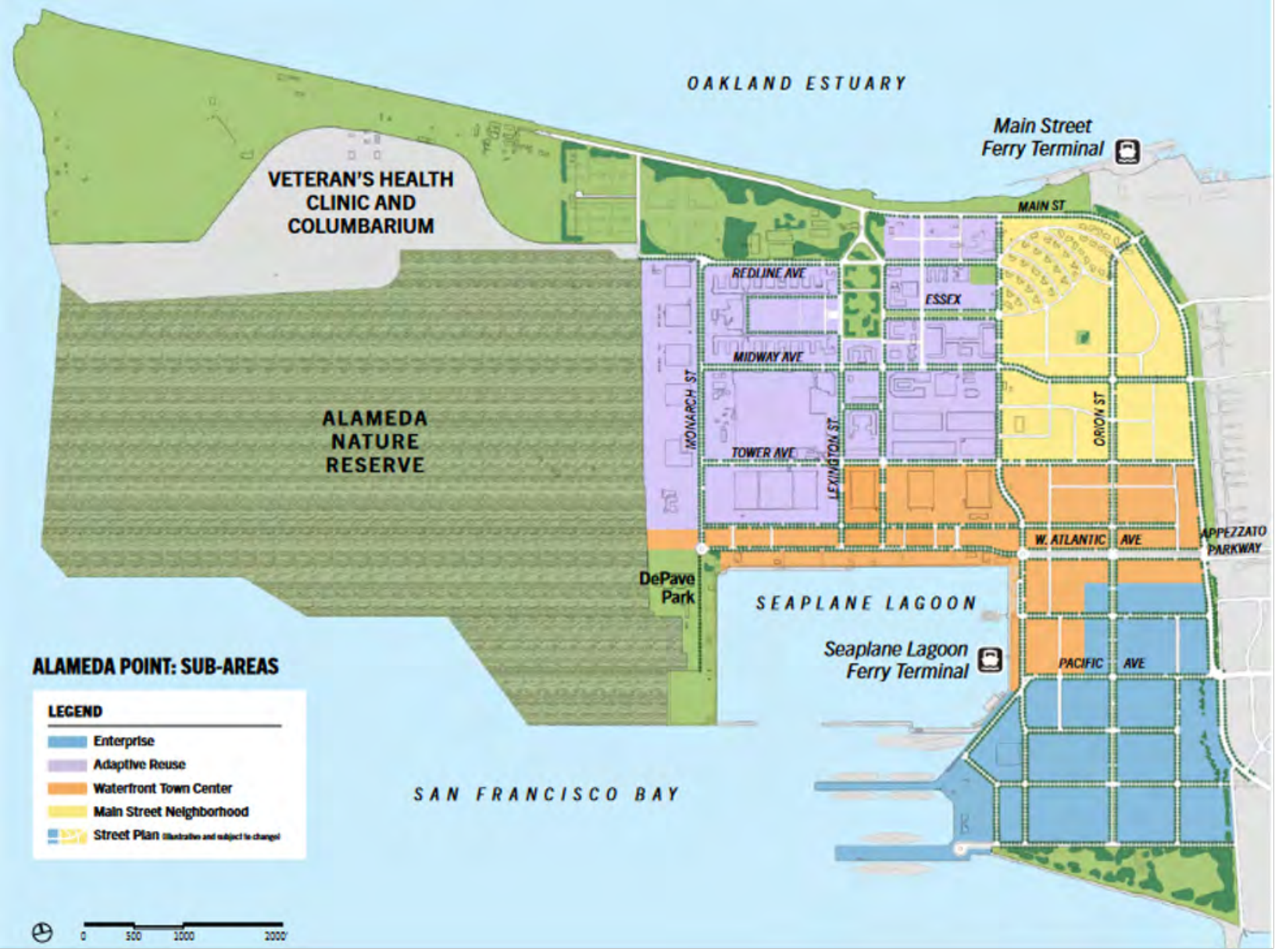


EXHIBIT 3-29. MAP OF ALAMEDA POINT

Street trees will be planted in strips and/or tree wells so that a dominant street tree environment is established which knits the proposed and existing Alameda neighborhoods together." The Alameda Point Zoning Ordinance requires street trees on all streets at Alameda Point and the City's off-street parking ordinance requires one tree for every four parking spaces across the City. **Exhibit 3 29** shows a land use map of Alameda Point.

Alameda Point also contains 1,139 acres of tidelands public land trust. Much of this land is submerged and the dry land area is a significantly smaller area. Tidelands are designated with specific land uses for commerce, harbor-related uses, hospitality uses, and ecological uses such as wetlands, wildlife preserves, parks, and open spaces. There are no restrictions on planting trees within the tidelands and streets within the tidelands can have trees. The City should identify opportunities to plant trees within the dry tidelands areas. **Exhibit 3-30** shows a map of the tidelands areas.

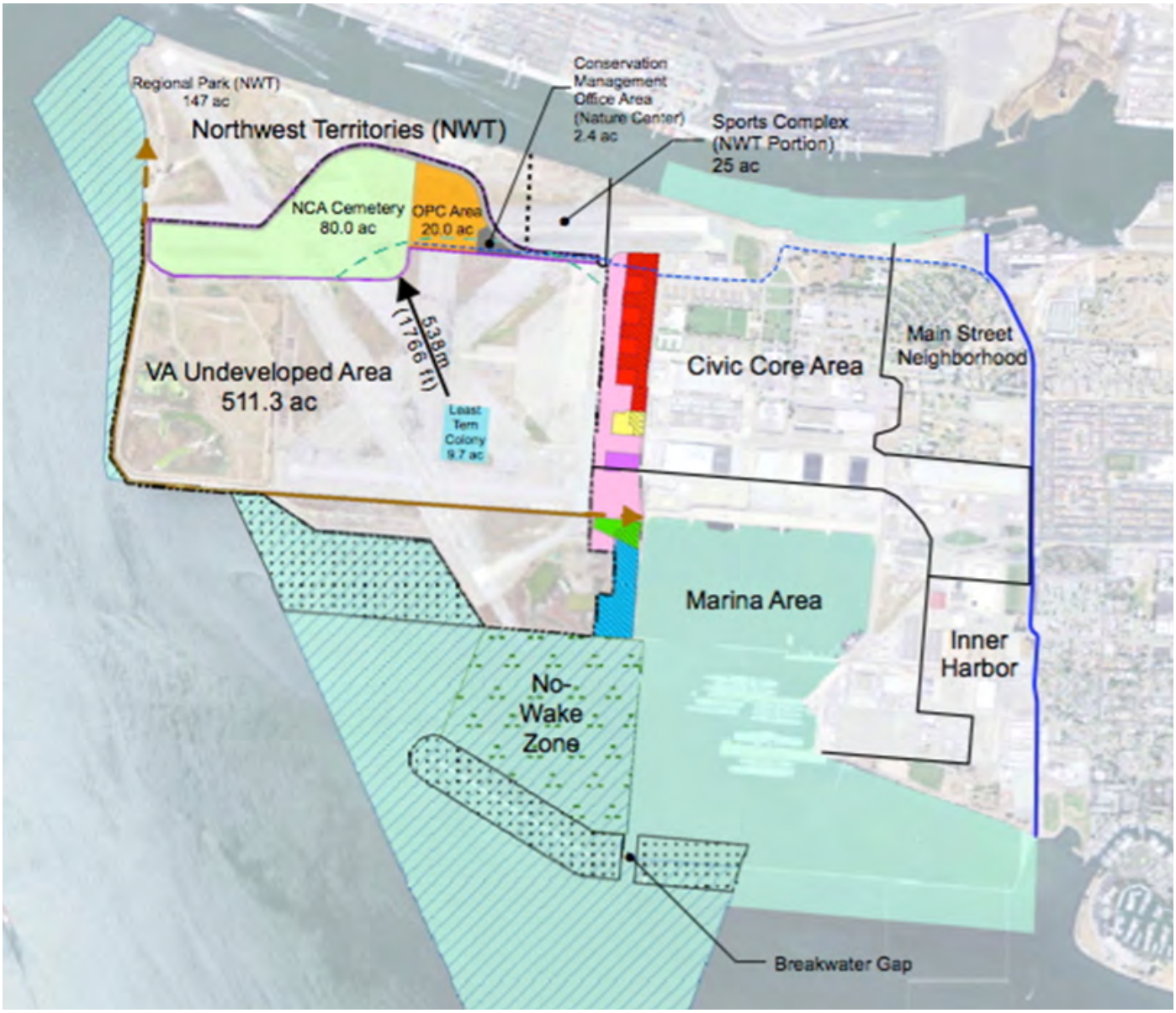


EXHIBIT 3-30. MAP OF TIDELANDS AREA.

Source: City of Alameda Tree Inventory (West Coast Arborist 2022); Water Use Classification of Landscape Species (2014).

Alameda Point also includes the Naval Air Station Historic District. The historical elements are generally located within the Adaptive Reuse, Waterfront Town Center and Main Street Neighborhood Sub-Districts (see **Exhibit 3-30**). The majority of the existing structures within the Adaptive Reuse Sub-District and the Big White houses within the Main Street Neighborhood Sub-District are currently anticipated to be preserved. The landscape areas within these areas, including street trees within the residential neighborhoods must also be preserved. The need to preserve and rehabilitate historical features of the Naval Air Station may affect where new trees can be planted and how dead and dying trees are replaced.

TREE CARE

Alameda's urban forest is well managed following best practices for tree care.

SECTION 4.0

MANAGING ALAMEDA'S URBAN FOREST

Urban forest management occurs across multiple departments that have different responsibilities that relate to management of trees in the Alameda urban forest.

Exhibit 4-1 reflects the various departments in the City that interact with trees in a direct way, like Public Works, Recreation and Parks and Alameda Municipal Power. Regardless of the level of interaction, all departments play a role in urban forest management and need to be aligned towards common goals.

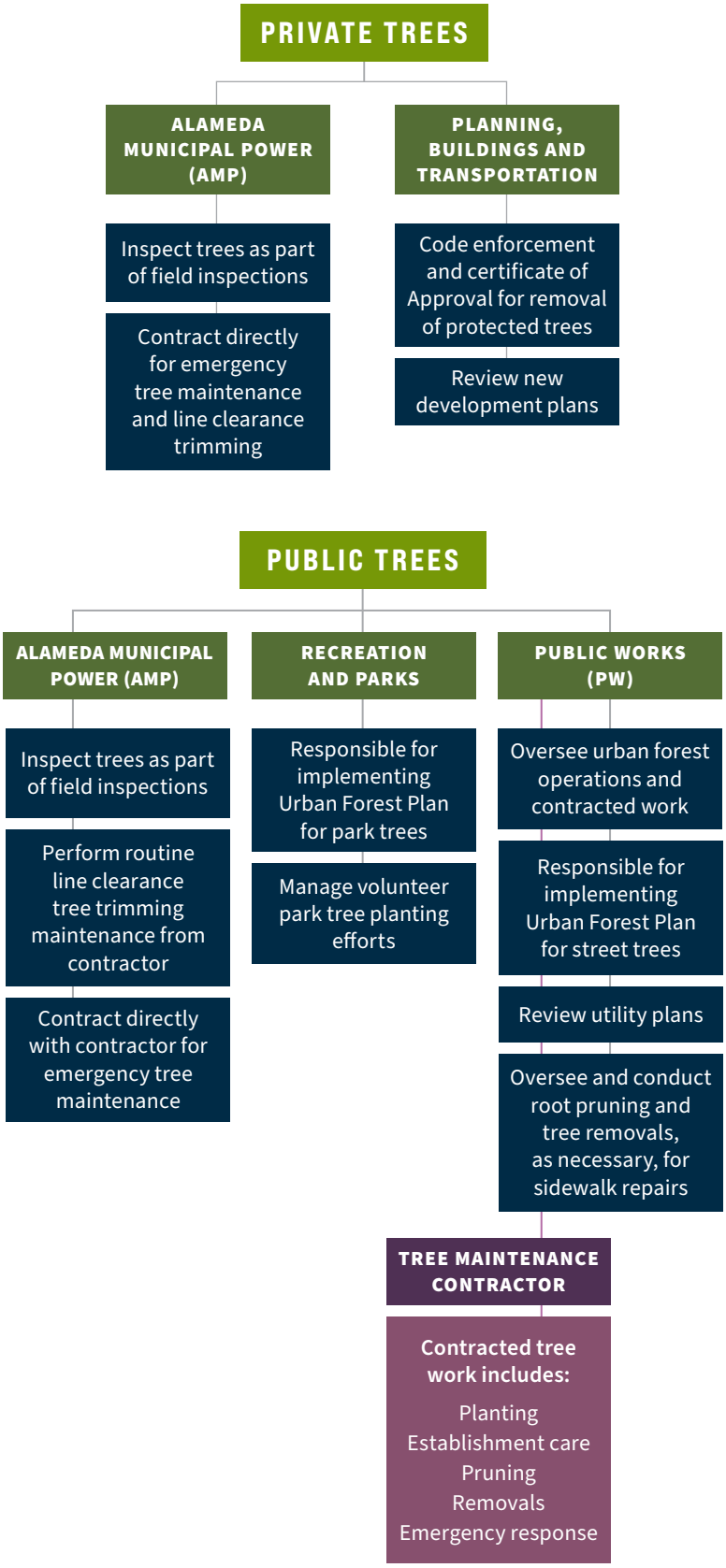


EXHIBIT 4-1.
GOVERNANCE STRUCTURE OF URBAN FOREST PROGRAM.

4.1 DEPARTMENT ROLES IN TREE MANAGEMENT

4.1.1 Public Works

Alameda Municipal Code Section 23-3 gives the Public Works Director responsibility for the supervision, control and management of street trees.

Best Management Practices Volume II of this document contains the standards, details, guidelines, and policies of how the City will manage the tree inventory and urban forest. The section can be used by City staff, developers, and community members as reference guide to understand how to effectively work with trees in the City.

Public Works is the lead responsible department for implementing the City's Urban Forest Program and ensuring the Urban Forest Plan is up to date. Some responsibility for performance of work under the Urban Forest program is managed by other City Departments with oversight from Public Works and is described below.

The portion of work related to the urban forest managed by Public Works is done by contractors with coordination by Public Works Project Manager. Public Works contracts with a city tree maintenance contractor to carry out the planting, establishment care, pruning and removal of public street trees. For street tree pruning, the city is divided into five zones and trims one zone per year. Zones have between 3,340 and 4,200 trees each. Trimming keeps the trees healthy, protects the public right of way, and decreases the conflict between trees, streets, and sidewalks. In addition, the Urban Forest Program includes maintenance of 60 acres of landscaped areas and medians in the public right of way (PROW). Public Works reviews utility and landscape plans in the PROW; working collaboratively with Planning Department and Public Works Engineering Division for both land development and City capital projects

Public Works manages the realities of competing for contractor labor when emergencies come up. This can result in resources from other City programs like the Streets and Sidewalks division or project manager during a storm event or emergency. Currently, these costs are being absorbed into existing program budgets.

4.1.2 Alameda Recreation and Parks Department

Alameda Recreation and Parks Department (ARPD) is responsible for maintaining 3,000 trees in City parks. ARPD also participates in the Public Works held contract with the city tree maintenance vendor to carry the planting, establishment care, pruning and removal of park trees. Park tree trimming happens through a zone system. The Parks Manager is responsible for daily maintenance of parks, trimming, pruning, organizing volunteer projects, interfacing with the public regarding trees and coordination with Public Works staff overseeing city tree maintenance contract.

4.1.3 Alameda Municipal Power

Alameda Municipal Power (AMP) partners with Public Works on tree trimming. Public Works is responsible for city trees, and AMP shares responsibility for trees that are under/adjacent to AMP's powerlines. AMP's priority is safety, so trimming thresholds are stricter on trees that are in direct path with lines. AMP adheres to federal and state standards and relies on joint arborist coordination to ensure the health and beauty of the trees. The trees under joint care are trimmed on a 5-year cycle. In late 2024, AMP began trimming select trees more aggressively to obtain the proper clearance from the lines. AMP anticipates in each of the next two this accelerated tree trimming will continue while it transitions all AMP tree trimming for powerline clearance to a 2.5-year cycle. It is expected this will lead to less intrusive tree trimming. In delivery of the powerline clearance trimming, AMP follows the same overall performance expectations and urban forestry standards outlined in the Public Works contract and Urban Forest Plan. AMP follows industry standards to balance safety, reliability, and tree health for trimming public tree and private trees that interfere with power lines, under Public Utilities Code Section 4292. Refer to AMP's Tree Trimming Guidelines document for regulations and power grid safety best practices.

4.1.4 Planning, Building and Transportation

The Planning, Building and Transportation department is responsible for approval and enforcement of landscape plans for new developments. The Planning Division issues Certificates of Approval for the removal of protected trees and the Code Enforcement Division enforces the removal of protected trees as defined by the City's Historic Preservation Ordinance.

4.2 PROTECTED TREES

Certain trees are protected in Alameda. Protected trees include: the palms in the public right of way on Burbank Street and Portola Avenue; any street tree on Thompson and Central Avenues; and any coastal live oak (Quercus agrifolia) with a ten inch or greater diameter measured 4.5 feet above the ground.

No protected tree within the Public Right of Way may be removed without a certificate of approval from the Historical Advisory Board. Applicants must submit an arborist's report in a case where the health of the tree is the reason for the requested removal of the tree, or a contractor's report in a case where damage to foundation or other structure is the reason for the requested removal. Any protected street tree shall be replaced, at the applicant's expense, except those shown to be unhealthy or causing damage to private structures, to the satisfaction of the Public Works Director. Any Oak tree shall be replaced with a minimum of two Oak trees at sites in accordance with Urban Forest Plan spacing criteria, 15 gallons or larger and to the satisfaction of the Planning and Building Director. (Alameda Municipal Code Sections 13 - 21.7).

To remove protected trees on private or public property, a Planning Permit Application and a five-step application procedure must be followed to obtain a Certificate of Approval as follows:

PERMIT

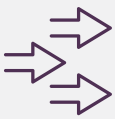
Completed a Planning Permit Application form.

DRAWING

Plot plan drawing identifying the location of the tree with respect to buildings and property lines.

ARBORIST REPORT

A report prepared by an ISA Certified Arborist where the health of the tree is the reason for removal, OR



CONTRACTOR REPORT

A report prepared by a Licensed Contractor where damage to foundation or structures is the reason for removal.

FEES

Application fees

If a tree removal is considered an emergency (where there is clear evidence demanding immediate action to prevent loss of life, health, or property), the City Building Official may grant immediate approval of the tree removal. Even if the Building Official approves of an emergency removal, the applicant is still required to submit an application for a Certificate of Approval and satisfy tree replacement requirements.

Section 13-21 of the AMC states the replacement requirements:

- Any oak tree shall be replaced with a minimum of two oak trees of 10-gallon size or larger to the satisfaction of the Planning and Building Director.
- Any street tree shall be replaced, at the applicant's expense, to the satisfaction of the Public Works Director.

AMC Section 13-21 requires a certificate of approval from the HAB for the removal of any protected tree. It also establishes certain application materials, including an arborist's report in a case where the health of the tree is the reason for the requested removal of the tree, and a contractor's report in a case where damage to foundation or other structures is the reason for the requested removal of the tree.

- Per HAB Resolution 12-21, the HAB delegated decisions on the removal of protected trees to the HAB Secretary, which is a Planning Division staff member.

4.3 CURRENT BUDGET

Table 4-2 depicts the allocation of the fiscal year 2024-2025 budget for tree management used to carry out the annual services of tree planting, establishment care, pruning, and removal mentioned in **Section 4.2** It also includes the staff costs to manage street trees.

Budget Item	Financial Year 2024-2025
Contracted Services	$2,667,910
Public Works Staff	$335,890
AMP Staff	$108,000
Parks and Recreation Staff	$102,000
Total	**$3,213,800**

TABLE 4-2. 2024-2025 TOTAL MUNICIPALITY-FUNDED TREE MANAGEMENT BUDGET

Funding for the Urban Forest is currently from the City's Construction Improvement Tax, Gas Tax and General Fund. Alameda Municipal Power uses rate revenue to support their operational costs related to the urban forest. The City Construction Improvement Tax is subject to economic conditions. To keep the existing level of service in years with less Construction Improvement Tax, additional Gas Tax, other transportation-related funds and/or General Funds are required. Reduction in existing revenue sources like the Construction Improvement Tax may result in the Urban Forest Plan competing with other (transportation) projects for funding.

Staffing costs include specific positions funded by the Urban Forest Plan in Public Works, Alameda Municipal Power and Parks and Recreation, as well as portions of other positions throughout the organization. Cost allocation is included in staffing costs as determined annually by the City's Cost Allocation Plan, these numbers are updated annually/subject to change in accordance with the plan and changes in labor costs.

4.2 ANNUAL SERVICE DATA

Table 4-4 reflects annual service data for trees planted and removed from years 2019 – 2023. On average the City is adding a net of 135 trees to the City managed inventory for both street and park locations. This is below the goal of 350 net trees outlined in the Urban Forest Plan that are needed to progress towards the canopy cover goal. This indicates that additional funding, either through the City or external grants, will be needed to achieve planting targets. Planting additional trees will also require an increase in the funds allocated to watering and establishment care.

TABLE 4-4. ANNUAL TREE CARE SERVICE DATA

	Planted			Removed			Annual Increase		
Year	Streets	Parks	Total	Streets	Parks	Total	Net Trees	Cumulative	Goal
2019	243	18	261	−212	0	−212	49	49	350
2020	227	175	402	−225	0	−225	177	226	700
2021	130	187	317	−122	−12	−134	183	409	1,050
2022	303	56	359	−183	−5	−188	171	580	1,400
2023	188	95	283	−163	−23	−186	97	677	1,750
Average	**218**	**106**	**324**	**−163**	**−8**	**−189**	**135**		

Table 4-5 displays the total number of trees pruned over the same four-year period broken into two-year contracted labor periods. The pruning cycle is based on the total number of trees in the inventory divided by the number of trees pruned on average per year. Mature trees are pruned in the City of Alameda to ensure that branches grow in a safe and stable manner.

Street trees and park trees in the City are managed separately in Alameda and pruned by the tree maintenance contractor. Street trees are on a 5-year pruning cycle. When park trees are added to the pruning cycle calculation, the overall pruning cycle increases to 6.5 years. This distinction is made to emphasize that Public Works is able to meet its stated goal of pruning street trees on a 5-year cycle. It also highlights that pruning for park trees does not occur on an established pruning and inspection cycle, as pruning typically occurs on an emergency or as-needed basis. It is generally accepted that a 5 -7-year pruning cycle maximizes urban forest benefits and tree safety while minimizing municipal city funding and resources (Miller et. al 1981).

TABLE 4-5. PRUNING CYCLE ANALYSIS OF ALL CITY MANAGED TREES

Years	Total	Average Per Year	Trees in Inventory	Pruning Cycle (Years)	Goal (Years)
2019–2021	7,550	3,775	24,878	6.6	5 – 7
2021–2023	7,359	3,680	24,878	6.76	5 – 7
Four-Year Average	**7,455**	**3,727**	**24,878**	**6.7**	**5 – 7**

350 TREES

The City has a target to plant 350 trees a year which would achieve a canopy cover of **20%** citywide by **2055**

SECTION 5.0

PLANNING FOR THE FUTURE

As set forth in the CARP, the City has a target to plant 350 trees a year which would achieve a canopy cover of 20% citywide and will provide numerous environmental, economic, and health benefits.

Expanding the urban forest will impact all residents, and implementation efforts will require support from both public and private sectors including landowners and community organizations. Alameda will prioritize planting trees in the areas that need it the most. Some potential planting sites, in addition to park and street trees, will include residential land, public, institutional, and school areas, and mixed-use land. Below we will describe our goals and strategies needed to get there.

City Council will set a canopy goal for Alameda by providing direction on the funding scenarios presented in this draft UFP. The canopy goal (and associated funding scenario) will be formally adopted in the final UFP.

5.1 PRIORITY PLANTING SCORE

The Priority Planting Score (PPS), presented in Exhibit 5-1, indicates where the City should focus tree planting efforts by census tract for a more equitably distributed canopy cover.

The study area for developing the PPS was limited to the canopy analysis study area. A higher PPS indicates a higher priority for focused tree planting efforts. PPS considers current canopy cover, distribution of land use type, total recorded City-managed vacant planting sites, pollution burden and equity, and relative population and acreage.

The PPS multiplies a canopy gap index by a priority equity index for each census tract to calculate the relative tree planting needs within the study area. A canopy goal is calculated for each census tract based on the current canopy cover as well as distribution of land use types and vacant planting sites relative to other census tracts. The canopy gap index is then calculated based on the difference between the current canopy and the goal for each census tract. The canopy gap index is a number between 0 and 100, with a higher number indicating a greater gap between the current canopy cover and the goal. A priority equity index is calculated for each census tract based on CalEnviroScreen, an equity-focused metric of pollution vulnerability and burden, and relative population and acreage sizes. The priority equity index is a number between 0 and 1, with a higher number indicating a higher need for trees based on equity metrics.

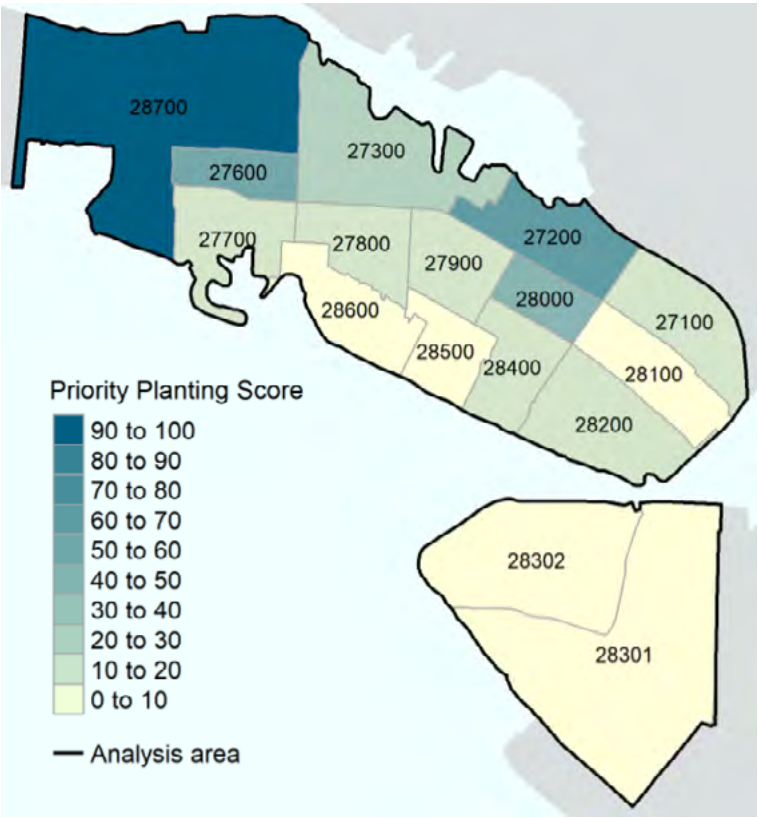


EXHIBIT 5-1. PRIORITY PLANTING SCORE BY CENSUS TRACT
Source: USDA 2018; CalEnviroScreen 4.0 (OEHHA 2021).

5.2 INCREASING CANOPY COVER

As set forth in the CARP, the City has a target to plant 350 trees a year which would achieve a canopy cover of 20% citywide across all neighborhoods by 2055.

Once 20% canopy cover is achieved, the City can determine the feasibility and actions needed to achieve a higher canopy cover goal across the City to further expand the benefits community members receive from trees. The analysis in Appendix D, Canopy Increase Analysis Methodology explores total and annual tree planting needed to meet the canopy cover goal and estimated canopy increase from existing canopy growth, planting vacant inventory sites, and planting on residential, park, public space, and retail and commercial spaces. Using private land use as a method to expand canopy, while necessary to meet our goals, is challenging as the City cannot control or monitor the health and success of those trees.

5.2.1 Vacant Site Planting Estimate

The City-managed tree inventory was used to estimated additional canopy cover from planting trees in all plantable vacant sites. Vacant sites were considered plantable if they were labeled as a vacant site or stump and were in a planting area at least 2 feet wide. **Table 5-1** details the calculations used to estimate canopy at maturity from inventoried plantable vacant sites.

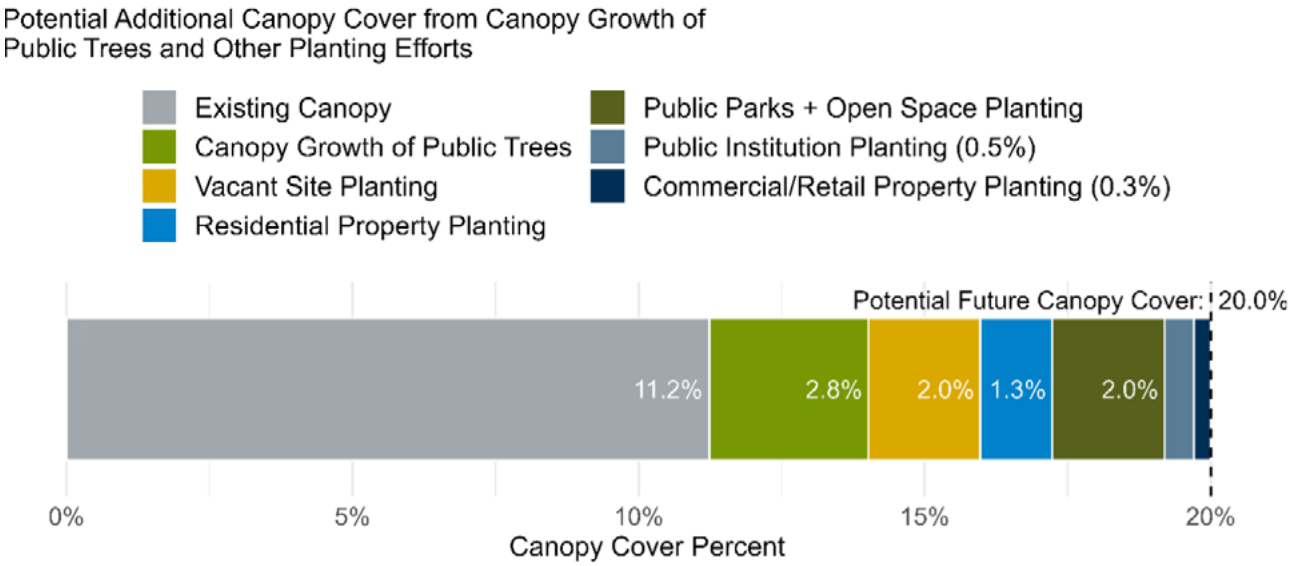
TABLE 5-1. ESTIMATED CANOPY AT MATURITY FROM PLANTABLE VACANT SITES

Parkway Size (ft)	Total Trees	Estimated Mature Canopy Width per Tree (ft)	Estimated Cumulative Canopy (acre)
2–5	3,459	30	56.1
5.1–7	240	45	8.8
7.1–10	112	60	7.3
10.1+	423	75	42.9
Total	**4,234**	**210**	**115.1**

5.2.2 Increase Analysis

Full implementation of the Urban Forest plan would achieve 20% canopy cover citywide and within each Census tract by 2055. Reaching this goal will require adding approximately 9,600 trees to the City's urban forest over 30 years by planting roughly 350 trees annually, replacing any trees that are removed, and preserving existing canopy cover on both public and private property. This aligns with the City's Climate Action and Resiliency Plan (CARP) goal to plant an annual net of 350 trees. Exhibit 5-2 reflects how the City can accomplish this goal through growth of the City managed tree inventory and planting new trees in various City managed and non-City managed locations. It is important to note that this does not include canopy decrease over time from tree removals.

EXHIBIT 5-2. ESTIMATED CANOPY COVER INCREASE



Percentages less than 1% are unlabeled.

Table 5-2 provides an estimate of how many trees will need to be added within each location over 30 years to increase canopy cover to 20%. 2.8% canopy growth will be achieved by growth of existing public trees over the next 30 years. Approximately 4.0% of additional canopy cover can be added by planting trees on City managed street, park, and open space locations. Achieving the remaining 2.1% will require partnerships with community members, schools, and other private property and large landowners in the City.

TABLE 5-2. ESTIMATED TREE PLANTING TOTALS BY LOCATION

Location	Total Trees	% Canopy Added
City Managed Vacant Site Planting	4,200	2.0%
Public Parks & Open Space	2,600	2.0%
Residential Private Property	1,700	1.3%
Public Institutions (Schools)	700	.5%
Commercial/Retail Property	400	.3%
Total	**9,600**	**6.1%**

As set forth in the CARP, the City has a target to plant 350 trees a year which would achieve a canopy cover of 20% citywide (78% total increase) across all neighborhoods by 2055. The following is a summary of the data points and analysis used to determine the canopy cover goal.

- **Increasing canopy cover to 20% will require adding approximately 9,600 new trees based on the size of tree planted.**
- **The City inventory reflects 4,234 vacant tree planting sites. It may be possible to add additional planting sites by cutting new tree wells, removing asphalt, and other depaving practices.**
- **An estimated 5,170 residential parcels have no tree cover and may be suitable candidates for new trees.**
- **Canopy growth of the existing city managed trees may only account for an additional 2.8% canopy increase.**
- **The city averages approximately 189 tree removals per year. While these trees will be replaced when they are removed, it will likely take the 30-year timeframe of the Urban Forest Plan to recover the lost canopy.**

The spacing limitations within the city make 20% canopy cover a realistic goal to achieve over the next 30 years with sufficient funding. The City can reassess if a higher canopy goal is achievable if the original goal is achieved on a faster timeline. The Plan will prioritize tree planting in priority census tracts utilizing a priority planting score developed for the Plan that combines Census tracts with low canopy cover and an equity focused metric of pollution vulnerability and burden using CalEnviroScreen 4.0, a screening tool that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution.

5.2.3 Alameda Tree Species Selection Matrix

The City updated its preferred tree species list to further assist in the long-term effort to increase canopy cover city-wide. The Alameda Tree Species Selection Matrix (Matrix) presented in Appendix C is a comprehensive table of tree species that are appropriate for the current and anticipated future climate of Alameda. The tree species list is also available to view online at SelecTree https://selectree.calpoly.edu/list/108. Development of the Matrix included consultation with City staff, local City arborists, and other local experts to understand how current species are performing in the landscape, maintenance challenges, and whether the tree species provides a desirable aesthetic. The list was also vetted through various research papers and studies to understand what species are predicted to be suitable for changing environmental conditions. A specific focus was placed on understanding how raising groundwater would impact tree health and what species would be best adapted to a higher groundwater table and salinity.

The next step after the tree species were selected was to provide detailed information on each individual species to assist the City in selecting the right tree for the right place. This includes information on species characteristics like height and width at maturity, type of fruit or flowers, or evergreen or deciduous. Additional information is provided to help determine what locations the species should be planted like minimum planting space, best for street or park, and tolerance to site conditions like sun exposure, preferred soil type, and water use.

Finally, an important consideration for each species is whether they are appropriate to be planted under utility lines to ensure that trees can reach a mature size without coming into conflict with overhead wires. Tree species with a maximum potential height of 25 feet are considered appropriate to plant under utility lines. Planting trees appropriate for these locations will also help to reduce long-term maintenance costs associated with frequently pruning trees to maintain clearance from electric lines.

5.3 FUNDING AND STAFFING OPTIONS

Current City funding allows the City to meet some current performance metrics of the urban forest program including planting two trees for each one removed, watering newly planted trees for three years, young tree pruning, removing trees on a timely basis, and maintaining a 5-year street tree pruning cycle. As the urban forest grows, additional staffing resources will be necessary to maintain the current level of service with more trees. This goal could be achieved by either adding capacity through additional maintenance staff or by increasing the level of contracted services.

Based on current funding, Staff identified three scenarios that Alameda can take to manage the urban forest moving forward. Each scenario in this analysis projects Alameda's tree inventory 30 years into the future based on different management actions, starting with "enhanced business as usual" and ending with reaching the goal of achieve 20% tree canopy cover. The purpose of these recommended scenarios is to provide options where sufficient funding and staffing can be achieved. Those two key factors (funding and staff/contractors) are paramount to achieving a proactive urban forest management program, which will reduce the amount of reactive management occurs (emergencies, incidents, or inquiries from tree failures). Without staff/contractors coordinating tree planting and management efforts, urban forestry goals identified in this Urban Forest Plan cannot be fully implemented or achieved. Providing sufficient staffing and funding for the possible pathways allows the City to foster a more resilient, more sustainable, and more equitable urban forest.

5.3.1 Scenario One: Enhanced Business as Usual

DESCRIPTION

- **Maintain existing 5-year pruning cycle for street trees and as needed for park trees**
- **Maintain current tree planting, establishment care and tree removal services**
- **Utilize enhanced management practices and updated tree species list laid out in this plan**
- **Focus annual tree planting program on Census Tracts with high Priority Planting Score**
- **Continue to implement requirements for removal of Protected Trees**

STAFFING AND COST

- No new staff or contract positions
- No additional funding

TREES AND CANOPY COVER

- 135 net new park and street trees annually
- Results in 14-15% canopy cover in 30 years

Funding Assumption Notes: *In FY 2024-25, AMP has budgeted an additional investment of $600,000 to address deferred wire clearance trimming. All costs are subject to annual increases as part of routine budget approvals by City Council.*

Scenario One			
30 Yr Canopy 14-15%	Staff, Cost Allocation	Contractual	Totals
Public Works	$ 335,890	$ 2,112,910	$ 2,448,800
Recreation and Parks	$ 102,000	$ 100,000	$ 202,000
Alameda Municipal Power	$ 108,000	$ 455,000	$ 563,000
Totals	$ 545,890	$ 2,667,910	$ 3,213,800

TABLE 5-3. SCENARIO ONE ANNUAL FUNDING SCENARIO

5.3.2 Scenario Two: Increased Planting and Maintenance

DESCRIPTION

- **Same as Scenario 1 with additional funds to:**
  - » ***Increase tree planting and young tree care to plant an additional net 115 trees/year***
  - » ***Provide additional maintenance assistance for establishment and care of new trees***
  - » ***Develop and enforce a Tree Canopy Protection ordinance***

STAFFING AND COST

- Additional maintenance staff for increased tree planting and care (staff) ($250,000)
- Enforce tree canopy protection ordinance (staff or contractual) (up to $200,000 per year, depending on scope)
- $450,000 in additional funding annually
- Trees and Canopy Cover
- 250 net new park and street trees annually
- Additional tree canopy protection
- Approximately 18% canopy cover in 30 years

Scenario Two			
30 Yr Canopy 18%	**Staff, Cost Allocation**	**Contractual**	**Totals**
Public Works	$ 585,890	$ 2,112,910	$ 2,698,800
Recreation and Parks	$ 102,000	$ 100,000	$ 202,000
Alameda Municipal Power	$ 108,000	$ 455,000	$ 563,000
Planning, Building and Transportation	$ 200,000		$ 200,000
Totals	$ 995,890	$ 2,667,910	$ 3,663,800

TABLE 5-4. SCENARIO TWO ANNUAL FUNDING SCENARIO

Funding Assumption Notes: *In FY 2024-25, AMP has budgeted an additional investment of $600,000 to address deferred wire clearance trimming. All costs are subject to annual increases as part of routine budget approvals by City Council. Addition of staff positions may result in one-time provisioning costs (e.g. vehicles/equipment) which would be included in any annual budget proposals for the program.*

5.3.3 Scenario Three: Urban Forester

DESCRIPTION

- **In addition to Scenario 2, Hire an Urban Forest Manager position to coordinate city tree program and partner with residents, community organizations and large landowners to coordinate planting 100 trees/ year on non-City owned land.**

STAFFING AND COST

- $250,000 in additional funding annually for Urban Forest Manager
- Trees and Canopy
- 350 net new trees annually
- Tree protection ordinance
- 20% canopy cover in 30 years

Scenario Three			
30 Yr Canopy 20%	Staff, Cost Allocation	Contractual	Totals
Public Works	$ 835,890	$ 2,112,910	$ 2,948,800
Recreation and Parks	$ 102,000	$ 100,000	$ 202,000
Alameda Municipal Power	$ 108,000	$ 455,000	$ 563,000
Planning, Building and Transportation	$ 200,000		$ 200,000
Totals	$ 1,245,890	$ 2,667,910	$ 3,913,800

TABLE 5-5. SCENARIO THREE ANNUAL FUNDING SCENARIO

Funding Assumption Notes: *In FY 2024-25, AMP has budgeted an additional investment of $600,000 to address deferred wire clearance trimming. All costs are subject to annual increases as part of routine budget approvals by City Council. Addition of staff positions may result in one-time provisioning costs (e.g. vehicles/equipment) which would be included in any annual budget proposals for the program.*

5.3.4 Staff Position Descriptions

Additional staff will be needed to fully implement the Urban Forest plan. The staffing goals could be achieved by hiring staff or by outside contractors or consultants. Hiring outside contractors and consultants reduces the overhead costs of having full-time staff members and can potentially save funds if the contracting needs of the city are lower than what was originally budgeted. Alternatively, full-time employees could be hired to meet the management needs. This has the benefit of ensuring staff are dedicated to a task and can see it through to completion. Full-time employees require annual budgets to dedicate funds to maintain the positions which could limit the spending flexibility of the City.

One challenge with the current urban forest governance structure is the lack of a centralized staff member to coordinate and align all departments around implementation of the Urban Forest Plan. The creation of an Urban Forest Manager position will ensure progress towards the vision and goals of the Urban Forest Plan, including increased public engagement, seeking grants and other funding, and developing ongoing partnerships with stakeholders like non-profit organizations, school districts, and large landowners for larger urban forest efforts. This position should be placed in Public Works, which currently manages the Urban Forest operating budget, tree maintenance contract and the project manager responsible for street trees.

Table 5-6 describes the staffing resources identified as necessary to implement the urban forest plan and the estimated cost for the function provided.

Staff Position	Description of Position	Estimated Cost (2024)
1.0 FTE Urban Forest Manager	**The Urban Forest Manager is an arborist who will coordinate with all City departments to implement the Urban Forest Plan, urban forestry program, and community engagement efforts.** **The Urban Forest Manager will:** • ensure progress towards the vision and goals of the Urban Forest Plan, • be responsible for internal City coordination and external engagement with the community on tree management activities, • increase public engagement in the urban forest, • seek grant and other funding, • develop partnerships with non-profit organizations, the school district, and large landowners to support tree planting efforts on non-City owned properties. This position should ideally be placed in Public Works, which currently manages the Urban Forest operating budget, tree maintenance contract, and the project manager responsible for street trees.	$250,000 per year
2.0 FTE Maintenance assistance for street and park trees (staff or contractual)	**Tree maintenance staff or contractor will:** • supplement contract services, • respond to tree emergencies, • plant trees, • perform establishment care activities like weeding, mulching, and young tree pruning, • assist with other maintenance tasks not performed by the maintenance contractor, and • provide supplemental watering during extreme heat events.	$250,000 per year
Up to 1.0 FTE Permit and Planning Review Arborist (staff or contractual)	**With the adoption of a Tree Canopy Preservation Ordinance, the City will have a need for additional capacity to review permit applications and enforce the ordinance. The staffing need will depend on the scope of the ordinance that is adopted, and the process required to remove private trees.** **A planning and development arborist will:** • assist with planning and permitting actions that relate to trees • reviewing development and landscaping plans and permits • ensure that projects align with the City's urban forest goals, including canopy cover growth and tree protection during construction. • Conduct a hearing process for the public to protest the removal of a heritage tree on private property This new position could work on both public and private space development reviews allowing Public Works staff to focus on management of street trees.	Up to $125,000 per year depending on scope of ordinance
Up to 0.5 FTE Code Enforcement	**Depending on the scope of the tree canopy preservation ordinance, additional code enforcement staff will be needed to enforce the ordinance.** **Code enforcement will:** • Respond to calls for unpermitted tree removals • Investigate tree removals and issue citations	Up to $75,000 per year depending on scope of ordinance

TREE CARE

Alameda's urban forest is well managed following best practices for tree care.

SECTION 6.0

DEVELOPMENT PROCESS & COMMUNITY ENGAGEMENT

6.1 DEVELOPMENT OF THE URBAN FOREST PLAN

The consultant team analyzed the City of Alameda's current urban forest program utilizing the following areas to develop a comprehensive Urban Forest Plan that addresses the existing urban forest and City policies, emerging threats to trees in Alameda, and community feedback.

URBAN FOREST DATA:

The City's tree inventory was analyzed against sustainability metrics like species and age diversity, health condition, and adaptability to future climate conditions. This baseline data was critical in shaping an updated tree species palette, identifying species likely to decline, and appropriate management recommendations to maintain tree health. A canopy cover analysis was completed using United States Forest Service data to determine the extent of canopy cover, priority areas to increase canopy, and tree planting targets to meet canopy goals. The urban forest data was used to develop realistic and feasible goals for the 10-year timeframe of the Urban Forest Plan.

COMMUNITY PERSPECTIVES:

Community engagement efforts including pop up events and surveys, staff interviews, and Working Group meetings were held to understand various perceptions of the urban forest from several different backgrounds. Pop up events coincided with other well-attended community events to obtain feedback from residents regarding what they enjoy about the urban forest and areas of improvement. Residents were also encouraged to leave feedback through an online survey which was distributed through the City's social media, newsletters, flyers, and other channels.

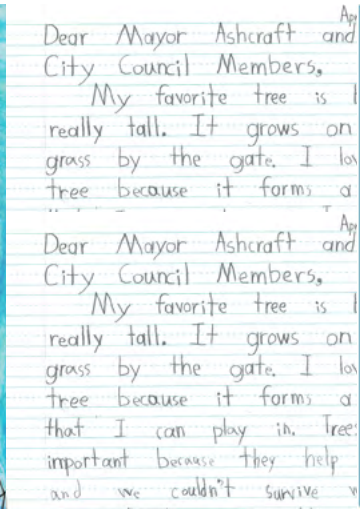
A Working Group was established to have deeper, exploratory conversations with interested parties about the priorities, values, needs, and opportunities for the urban forest. During the project, four Working Group meetings were held, in which City staff, individuals from the environmental field, and community advocates were brought together to each bring perspectives from their unique background. The resulting Urban Forest Plan addresses a comprehensive and extensive set of challenges, priorities, and goals for the City of Alameda's urban forest.

URBAN FOREST MANAGEMENT:

Urban Forest Plan development included a series of City staff interviews to gather feedback and opinions on current challenges, needs from a staff perspective, and goals and outcomes for the Urban Forest Plan. A total of nine interviews were conducted with staff representatives from Public Works, Recreation and Parks, Planning, Alameda Municipal Power, City Attorney's office, and the City tree maintenance contractor. These interviews helped to inform an understanding of current management practices, funding and staffing levels, and the priority needs of staff to better manage trees.

CITY STAFF AND DOCUMENTS:

Various city planning documents including the Alameda Climate Action and Resiliency Plan (CARP), Alameda General Plan 2040, Alameda Green Infrastructure Plan, and the Alameda Groundwater Report were reviewed for their relationship to the urban forest and shared goals with the Urban Forest Plan. The Historic Preservation Ordinance was also reviewed to understand its effectiveness, whether additional species should be considered for protection, and if a sufficient structure exists to enforce penalties to deter violation.


Dear Mayor Ashcraft and City Council Members,
My favorite tree is really tall. It grows on grass by the gate. I lov tree because it forms a
Dear Mayor Ashcraft and City Council Members,
My favorite tree is really tall. It grows on grass by the gate. I lov tree because it forms a that I can play in. Tree important because they help and we couldn't survive

URBAN FOREST SUMMIT FLYER, STUDENT EARTH DAY LETTERS

6.2 ROLE OF INTERESTED PARTIES IN URBAN FOREST PLAN DEVELOPMENT AND IMPLEMENTATION

Meaningful community engagement is essential in developing a Urban Forest Plan that fosters community buy-in by reflecting the goals, needs, and priorities of Alameda's residents, business owners, and community members.

During the Urban Forest Plan development process, the City and the consultant team conducted engagement activities to better understand community perceptions of trees in Alameda and how these views impact the priorities for the City's urban forest. The City of Alameda's Urban Forest Plan community engagement process entailed multiple methods of engaging interested parties and community members. **The engagement strategy included the following activities:**

- Student Earth Day letter writing activity to encourage urban forest advocacy in children and teenagers.
- Public tree survey that was circulated online and in-person (839 responses).
- Three (3) public outreach events aimed at gauging community opinions of the current state of the urban forest.
- A Listening Session with approximately 40 attendees to survey community members on where they think more trees should be planted within the City, brainstorming how to improve the urban forest, and discussing how to overcome threats to the urban forest.
- Four (4) Working Group meetings consisting of 17 engaged community leaders to understand interested parties' priorities and concerns about the urban forest.
- City staff interviews to discuss current challenges, needs from a staff perspective, and goals and outcomes for the Urban Forest Plan.

6.3 SUMMARY OF INTERESTED PARTIES INPUT

6.3.1 Online Survey

An online survey was created and administered to identify the public's perception and understanding of the City's urban forest, and to solicit public feedback as the City develops the Urban Forest Plan. The 21-question survey was open during March 2023, and was distributed through the City's Instagram, flyers, and communications through associations such as Alameda Point Collaborative, Food Bank, Alameda Housing Authority, Alameda Backyard Growers, CASA, Alameda Renter's Coalition, environmental clubs at Alameda High, and Boards & Commissions. Major themes of the survey questions included the following:

01 →
Attitudes and feelings respondents have towards trees as a valued city asset.

02 →
Willingness of respondents in supporting the City's tree planting efforts and policies to protect trees.

03 →
Opportunities for respondents to express interest in planting and maintaining private trees.

Outreach was specifically targeted to increase response rates from 'hard to reach' and minority populations. These efforts increased response rates at Alameda Point, West End, and Southshore, increased renter response from 16% to 22%, increased under 18-year-old response from 1% to 5%, and increased responses from lower income categories and non-white ethnicities by two and seven percent respectively. In total, 839 survey responses were recorded. Continuing to reach out to interested parties during the implementation phase of the Urban Forest Plan will encourage diverse perspectives to be heard.

6.3.1.1 ONLINE SURVEY RESULTS

Table 6-1 summarizes the top community priorities and inputs regarding the urban forest and its future. Mental health benefits, aesthetics and beauty of trees, and the environmental services provided by trees to the community were noted as the top benefits and priorities to maintain from survey respondents.

Nearly 90% of residents rate the health of the trees in their neighborhood as good or fair, with the appearance of trees in commercial areas and schools receiving the highest proportion of "poor" or "very poor" scores.

Increasing the number of trees planted, removing dangerous or dead trees, and ensuring trees will continue to survive in inclement conditions such as droughts, rising groundwater, etc., are the top three goals respondents would like the City to prioritize in the next 10 years

Respondents are interested in more trees being planted in parks, biking/walking paths, commercial areas, and schools. 56% of respondents felt that the current tree protection measures should be updated to include other species. 57% of respondents would support including the urban forest in a ballot revenue measure compared to 9% who would not support the measure.

Sidewalks and streets were the most cited infrastructure damaged by trees in Alameda neighborhoods, identifying a challenge with current urban forest management practices and unforeseen consequences of prior planting. Drought, conflicts with city infrastructure, and pests and disease were identified as the top threats facing trees in Alameda according to respondents.

Theme	Survey Input
Current Urban Forest	Top three benefits of Alameda's urban forest: mental health benefits, aesthetics and beauty of trees, and environmental services provided.
	Nearly 90% of residents rate the health of the trees in their neighborhood as "good" or "fair".
	Trees in commercial areas and schools received the highest proportion of "poor" or "very poor" scores.
Future Urban Forest Goals	Top 3 public tree priorities in the next 10 years: increase number of trees planted, remove dangerous or dead trees, ensure trees will continue to survive in droughts, rising groundwater, etc.
	Top areas seen as needing trees: parks, biking/walking paths, commercial areas, and schools.
	56% of respondents believe an updated protected tree list to include other species is necessary.
	57% of respondents support including the urban forest in a ballot revenue measure compared to 9% who would not support the measure.
Challenges	Sidewalks and streets were the most cited infrastructure damaged by trees in neighborhoods.
	Top threats facing trees in Alameda according to respondents: drought, conflicts with city infrastructure, and pests and disease.
Community Engagement	Top ways respondents are interested in supporting the urban forest: volunteering at a tree planting event, planting and maintaining a tree on the sidewalk in front of their house, and by attending educational workshops about trees.
	Preferred future communication method: email and social media; least preferred: calls and text messages
Private Trees in Alameda	How to increase canopy cover on private property: Assistance with tree maintenance and discounted/ free tree programs; Least common answer: expanded tree ordinance protection
	Nearly 40% of respondents did not have concerns about planting trees on their property. Most selected concerns: cost of maintenance and damage to property.
	When asked how the City can best help care for trees on private property, about two-thirds of respondents listed physical and financial support.

TABLE 6-1. URBAN FOREST PLAN SURVEY TAKEAWAYS

Residents of Alameda showed the most support for volunteering at tree planting events, planting and maintaining a tree on the sidewalk in front of their house, and by attending educational workshops about trees. Email and social media were cited as the best ways to reach respondents about future updates about the Urban Forest Plan, whereas phone calls and text message were the least preferred methods.

Assistance with tree maintenance and discounted or free tree programs were the most common methods community members were open to when discussing the potential to plant trees on private property. Physical support and financial support were both listed by about two-thirds of respondents on how the City can best help care for trees on private property. Meanwhile, expanded tree ordinance protection for public and private trees was the least common answer. Approximately 40% of respondents were open to planting a tree on their private property and did not express any concerns. Respondents who had reservations about planting a tree on private property, listed cost of tree maintenance and damage to property as main concerns. Partnership with private property owners will aid in increasing Alameda's overall geographic canopy cover when public land is saturated with trees.

6.3.2 Public Outreach Events

The City of Alameda conducted a series of Pop-Up events throughout the development of the Urban Forest Plan. Community members learned about urban forest benefits, maintenance, and opportunities for community involvement, and shared their perspectives on current urban forest management practices and areas for improvement.

JANUARY 12, 2003

POP-UP EVENT: BOHOL CIRCLE IMMIGRATION PARK OPENING

On January 21, 2023, from 2 PM to 4 PM, the City of Alameda Urban Forest team and the consulting team hosted a Pop-Up event at the Bohol Circle Immigration Park Opening. Community members utilized workshop comment cards and brainstormed how to improve the urban forest. Planting appropriate tree species for their locations, more infrastructure such as community gardens and walking/biking paths, greater tree planting efforts, and a stronger tree protection ordinance were listed as ideas. Graphic boards with various categories acted as a voting system for where more trees are needed and what benefits of trees are the most valued. Biking and walking paths, sidewalks, schools, and parks were voted as the locations with the highest demand for trees. Shade, cleaner air, and wildlife habitat were the most valued benefits. Additionally, 24 email sign ups were recorded on January 23, 2023.

FEBRUARY 4, 2003

POP-UP EVENT: STORYTELLING AND DRUMMING FESTIVAL

On February 4, 2023, from 1 PM to 4 PM, the City of Alameda Urban Forest team and the consulting team hosted a Pop-Up workshop at the Storytelling and Drumming Festival. Community members were given comment cards and colored dot stickers to vote on questions about trees. Wildlife habitat, shade, and cleaner air were once again voted as the most valued tree benefits. Furthermore, members had similar sentiments to those at the first event, in that more trees are most needed in parks, schools, and streets. The similar results across both events indicate the priorities of the residents in their perceptions of tree benefits and priority planting locations. One comment card was submitted in which a member suggested more trees should be planted for climbing and fruit.

APRIL 15, 2003

POP-UP EVENT: SPRING SHINDIG

On April 15, 2023 the City of Alameda Urban Forest team and the consulting team conducted a Pop-up workshop at the Spring Shindig. The pop-up workshop consisted of a table with educational handouts about the Urban Forest Plan, a sign-up sheet for project updates, giveaways, comment cards, and flyers promoting the City of Alameda's survey. The table also had large boards prompting participants to provide their feedback on several questions: What do you love most about trees? and, Where do we need more trees? The booth was shared with the Alameda Rotary Club who gave away over 100 saplings (young trees) to community members who wished to plant them on their property. Approximately 85 community members participated in the pop-up workshop.

6.3.3 Student Letter Writing

Staff partnered with CASA to develop a student Earth Day letter writing activity. Students and teachers from Alameda schools were invited to show their appreciation for their local trees and all the benefits they bring by writing a letter to the Alameda Mayor and City Council about their favorite tree and creating an art piece as a way to hear from local youth on the importance of community trees and help imagine how more trees in the future will help improve the quality of life for Alameda residents. Students were provided grade specific letter templates and potential topic areas. Educational resources and activity ideas were also provided to teachers to help them educate their students about trees. 135 letters we received and shared with the City Council and Mayor. The Mayor wrote a thank you letter which was delivered to each of the teachers whose class participated. Some of the letters and drawings are displayed throughout this plan.

6.3.4 Listening Session

A Listening Session was held on May 20, 2023, from 9 AM to 11:30 AM with approximately 40 attendees at the Upper Washington Recreation Center and engaged participants in two activities. “Where do we need more trees?” was a map of Alameda with pushpins on where community members think that more trees should be planted. Comments from this engagement exercise include the following:

- Plant more climate adaptable tree species City wide
- Lawn areas around “Big Whites.” Street side in industrial zones
- Disadvantaged communities: give away trees for yards; ask them what kind of tree they would like
- Woodstock homes need more trees
- Front of Centre Court: Sycamore trees removed and have not been replaced
- Back of Centre Court: bare circle left from removing 4 pines 8 years ago and 1 dying poplar last October

The second engagement exercise was an “Idea-Generating Activity.” This activity involved brainstorming answers to questions that were organized by different principles for urban forest management:

What other opportunities to improve the urban forest can you identify?

What challenges face/threaten the urban forest?

Participants documented ideas on a post-it and added them to a poster board. The feedback received from the idea-generating activity was incorporated during the development of the UFMP. The results received are shown in **Table 6-2**.

Opportunities to Improve the Urban Forest
Work with Peralta Community College District and community organizations in East Bay (Oakland groups, Urban Recreation Center) to create a tree team; commit City resources to help Peralta CC maintain trees.
Plans need to address succession-plant new trees proactively to replace aging trees before they die and so all don’t need replacing at the same time, spreads costs so not all is spent at once.
Require tree replacement for development (Ex: Harbor Bay Master Association).
Tree planting and tree maintenance volunteer days; contracts/perks to local organizations and incentives to volunteers.
Hire and train young people to care and water trees to a green job career.
Replace London plane with Western Sycamore as standard street tree to enhance ecological function and habitat value.
Arborist employed by AMP to assist with homeowner/AMP tree conflicts.
Rip up concrete at schools to build learning and cooling forests.
Case study highlighting what Alameda has been doing well (ex: bioswales at Target parking lots).
Mandate a certain number of trees per street, work with private government owned land to require a minimum canopy % (i.e. shopping areas and schools).
Accountability to City population that City is taking advantage of State and Federal Funds.
Continue to use all media outlets in Alameda to bring public attention and comments.

TABLE 6-2. LISTENING SESSION – IDEA-GENERATING ACTIVITY

Opportunities to Improve the Urban Forest
Work with local native plant nurseries to grow native urban tree stock and to increase wildlife habitat.
“Mt. Trashmore” (former bayside landfill) should have more trees.
Post i-tree ROI data on urban trees to inspire pedestrians.
Plant trees at the dog park near the Ferry and hospital.
Plant larger trees that will live longer and provide full sidewalk shade and help with dust.
Provide educational lectures about how trees benefit communities and public health.
Planting large trees (redwoods, oaks) wherever possible, more heritage oak trees, restore presence of coast Live oaks.
Free trees for residents and easier access to info about best tree choices.
Need pocket parks with heritage trees and ground cover.
Strategic tree plantings, prioritize planting in schools.
Incorporate tree plan into General Plan.
Partner with AUSD, College of Alameda.
Climate change, small planting spaces, sidewalks lifting, pruning practice ignorance, high voltage powerlines, rising sea levels, leaf litter, bird droppings.
Loss of mature trees due to extreme weather.
Developers should contribute to urban forest plantings.
Homeowners are responsible for watering and maintaining their trees.
Neighbor put in several street trees and the City team planted unexpected varieties.
People being disappointed/uninspired by the choices of street trees the City offers.
Selecting and maintaining trees that are well-suited for future climate conditions.
New buildings on Alameda Navel area do not have enough trees.
Perception that trees are dangerous.
Smaller property sizes- currently smaller or no trees on private property.
Soil structure and stability.
Ability of City to maintain trees.
Utilities cutting down trees.
Grants/funding for testing rain gardens in residential yards.

TABLE 6-2. LISTENING SESSION – IDEA-GENERATING ACTIVITY

6.3.5 Working Group

The City's Urban Forest Plan Working Group was formed to bring together City staff, stakeholder organizations, individuals from the environmental field, and community organizations and advocates to create a comprehensive Urban Forest Plan that addresses unique priorities, issues, and goals of the community members of Alameda. A list of the Working Group's members is included in Table 6-3. Four working group meetings were held between August 2022 and October 2023.

Name	Affiliation
Ruth Abbe	Community Action for a Sustainable Alameda (CASA)
Dr. Diana Bajrami	College of Alameda
Christopher Buckley	Alameda Architectural Preservation Society
Susan Davis	AUSD
Jonathan DeLong	REAP Climate Center
Birgitt Evans	Alameda Backyard Growers
Anthony Garza	University of California (UC) Berkeley Botanical Garden and Alameda Resident
Drake Herbert	East Bay Regional Park District (EBRPD)
Dawn Jeager	Community of Harbor Bay Isle Owners' Association, Inc.
Marla Koss	Alameda Backyard Growers
Joe Landaeta	Community of Harbor Bay Isle Owners' Association, Inc.
Alan Leventhal	Muwekma Ohlone Tribe of the SF Bay Area, Community Member
Joyce Mercado	Rotary Club
Aundi Mevoli	SF Baykeeper
Tobey Theiding	Alameda Unified School District (AUSD) Youth Climate Committee
Igor Tregub	Community Member
Amos White	100K Trees for Humanity

TABLE 6-3. ALAMEDA URBAN FOREST PLAN WORKING GROUP MEMBERS

During the Working Group meetings, members voiced individual values, priorities, and concerns to ensure the Urban Forest Plan addresses and incorporates a variety of perspectives. Individual objectives for each meeting included creating a vision statement for the Urban Forest Plan, identifying priority concerns related to trees, developing guiding principles, developing priority needs to address through public education, developing a strategy for public education, and reviewing the 80% complete version of the final Urban Forest Plan. By including Working Group members of different backgrounds, the Urban Forest Plan addresses a variety of perspectives, challenges, and priorities of community members who are already engaged in the urban forest and can be counted on to provide advocacy throughout the project's implementation. Major themes and details of the Working Group meetings are presented in Table 6-4.

TABLE 6-4. MAJOR THEMES OF WORKING GROUP MEETINGS

Theme	Working Group Resources
Ideal Urban Forest	• Safe and well-maintained with no falling trees. • Noticeable and inspirational. • Foster a connection to nature and engage communities. • Include as many mature trees and large tree wells as possible. • Biodiverse and able to provide wildlife habitat. Oaks should be prioritized. • Adapted to the local climate, environmental factors, and pests/pathogens. • Should contribute to climate resilience and carbon sequestration and provide ecosystem services such as cooling, shade, and water capture. • Accessible to all communities regardless of income, race, gender, sexual orientation, cultural background, or ability. • Right tree, right place. The appropriate species and size trees should be planted for their respective locations. • Appropriately funded. • Good maintenance practices should be used to promote tree health and growth. Trees should be healthy, diverse, and well-pruned. Risks should be managed appropriately. • Protected from development. • Contribute to Alameda's unique sense of identity.
Important Benefits	• Trees improve the surrounding air quality, lower urban heat island effect, sequester carbon, capture and manage stormwater, contribute to green stormwater infrastructure, and provide biodiversity and wildlife habitat. • Reduce stress, improve mental and physical health, and inspire a connection to nature. • Trees increase property values and provide shade, screening, views, windbreaks, and noise insulation. • Trees beautify spaces, provide views, contribute to a sense of community identity.
Important Traits of Alameda	• The Bay Area has a significant number of opportunities and access to public transportation. • The small-town identity encourages community pride, human connections, a sense of community, and more easy-going attitudes. • Alameda has beautiful scenery, surrounded by water and providing many recreational opportunities. The urban forest is higher quality than neighboring communities. • Historical architecture provides an attractive urban design landscape. • There are diverse groups of people of different ethnicities, ages, incomes, etc. • The urban wildlife interface is good for activities such as birdwatching. • Gardeners frequently share their crops. • Alameda is at the forefront of innovative climate adaptation.
Aspects of Alameda's Character to Preserve/ Enhance	• Root guards in small spaces. • Trees that grow well in sandy soils. • Connected canopy. • Large trees that can provide food and shelter for wildlife. • Equitable tree coverage. • Cohesive yet diverse tree palette that compliments existing urban landscape. • Alameda needs to improve the quality of current tree maintenance and pruning. • Leadership in climate change adaptation and mitigation. • Sense of peace and beauty. • Strong community leaders in organizations.

Theme	Working Group Resources
Players and Resources Needed to Achieve Guiding Principles	• Homeowners and tenants should share responsibilities with the City for street tree maintenance in a "curb strip partnership." This includes irrigation, identification, and pruning of hazard trees. Property owners should be encouraged to plant private trees. • CASA. • Environmental commission. • Public Works • Students.
Specific Steps Toward Goal	• Find potential new planting sites. Identify sites that are paved over and develop a program for creating tree well space. • Development of a mobile application to empower the community. • Provide a single call to action. • Provide tree resources to community members. Potentially send flyers along with utility bills. Publicize the resident tree planting program more. Introduce a coupon program for people to get trees to their property. • Develop education materials. • Adjust water fees as an incentive for tree plantings. • Provide free trees for private landowners. • Maintain existing trees. • Target school campuses. • Coordinate with 811.
Which Steps to Prioritize	• Inventory, goals, then engagement. • Outreach through the incorporation of flyers in AMP bills, tree giveaway programs, and working with local CBOs for free/discounted trees. • Increasing tree planting on non-City property. • Concrete removal. • Improving existing tree maintenance. • The City needs to prioritize that it wants trees, then act to remove barriers.
How to Encourage More Tree Plantings on Non-City-Owned Property	• Engage community members. • Assist property owners. • Update tree ordinance to be stricter with new development.

A fourth and fifth Working Group meeting will be scheduled through the remainder of the Urban Forest Plan project and major themes will be gathered in a table.

6.3.6 Interviews

Through the information gathering phase of Urban Forest Plan development, City staff who take part in tree management were interviewed to discuss current challenges, needs from a staff perspective, and goals and outcomes for the Urban Forest Plan. Participants in these interviews are presented in **Table 6-5**, and a summary of interview takeaways are presented in **Table 6-6**.

TABLE 6-5. STAFF INTERVIEW PARTICIPANTS

Interviewee	Position
Liz Accord	Public Works Coordinator
Jesse Barajas	Public Works Program Manager, Arborist
Andre Basler	Assistant General Manager of Engineering and Operations, Alameda Municipal Power
Steve Gee	Electrical Superintendent, Alameda Municipal Power
Elizabeth Mackenzie	Deputy City Attorney (no longer with City of Alameda)
Matt Nowlen	Park Manager
Mike Nunes	Supervisor, West Coast Arborists
Pat Papalagi	Maintenance Supervisor
Erin Smith	Public Works Director
Allen Tai	Planning Building and Transportation Director
John Tallitsch	Construction Inspection Supervisor
Amy Wooldridge	Assistant City Manager, former Recreation and Parks Director

Management Practices	• Most city tree management is done in coordination with tree work contractors. • When emergencies arise, Public works is competing with contractors' other clients for contractor labor. • Contractor is unable to meet the level of service desired from the Parks Department. A city urban • Forest crew can help reduce reliance on contractors for tree work. • Tree risk assessment guidelines should be consistent with Public Works tree assessments. • Tree species list should be updated to include a wide variety of species. This tree list should include a selection of trees that are appropriate for community members to plant below overhead utilities. • Alameda Municipal Power has many competing priorities that make it difficult to adhere to a 3-year cycle. • The city has very narrow sidewalks and planting strips. Sidewalks do not meet the current standards to allow trees to be planted in areas near mature trees. • City is having difficulties dealing with mature, overgrown trees with invasive tree roots • An ongoing removal and replacement plan may be necessary to address the overgrown trees in the City.
Staffing and Resources	• A city forester position would be helpful to manage street and park trees and implement the recommendations made in the Urban Forest Plan. • Staffing and budget for the urban forest should align with recommendations from the Climate Action Plan. • City would benefit from having a staff member or contractor identify all hazardous overgrown trees throughout the city and implement a replacement plan.
Policy	• General fund could further support the Urban Forest. • Code enforcement does engage in any tree-related enforcement. • Nesting bird protections should be put in place.
Community Outreach	• Community would benefit from tree-planting workshops. • More volunteer training and management is needed for community tree planting events. • Residents have a mixed response to tree removals related to infrastructure conflicts.

TABLE 6-6. KEY TAKEAWAYS FROM STAFF INTERVIEWS:

6.4 COMMUNITY PARTNERSHIPS

Alameda benefits from multiple community-based organizations that are dedicated to improving environmental justice, sustainability, and community engagement.

These organizations have played a significant role in developing the Urban Forest Plan, engaging community members, and will be key partners to implement the Urban Forest Plan strategic plan. The following section outlines potential avenues for organizations to partner with Alameda towards meeting Urban Forest Plan goals.

6.4.1 Input from Community-Based Organizations

Several local organizations participated in the Working Group that helped develop the Urban Forest Plan. Working Group members were given an online survey to provide feedback on the opportunities they see for partnership with the City, potential resources that are needed to implement programs, and the focus areas of their organizations. The main themes of the survey responses are presented in Table 6-7:

TABLE 6-7: SURVEY RESPONSES FROM COMMUNITY-BASED ORGANIZATIONS

Focus areas of organizations	Community organizing, community outreach, environmental justice, education and advocacy.
Organization programs and expertise	Outreach events, educational workshops, tree donations and giveaways, tree planting, volunteer events and volunteer management
Partnership opportunities with City	Co-hosting volunteer events that include tree planting and educational workshops. Tree giveaway programs directed towards private property owners. Collaborative outreach and engagement efforts into the community. Developing projects that can lead to grant funding for CBOs and the City.

Several community-based organizations in Alameda are focused on environmental justice, sustainability, and urban forestry including organizations such as Alameda Backyard Growers, Community Action for a Sustainable Alameda (CASA), REAP Climate Center, 100K Trees for Humanity, Alameda Point Collaborative Ploughshares Nursery, Sierra Club, and Audubon Society. By building partnerships with organizations like these and others, the City can expand its community outreach and engagement efforts beyond its current capacity, as these organizations have existing relationships with community members, programs, and can work in areas (like private property) where the City typically cannot. Partnership opportunities could include education and training programs, tree giveaways, community tree planting and care events, and adopt-a-tree programs.

6.4.2 Partnerships with of Large Landowners

Acknowledging that the goals of the Urban Forest Plan cannot be met on City property alone, large non-city landowners in the City offer another strong opportunity for partnerships to meet goals of the plan. Some of these include schools such as Alameda Unified School District, College of Alameda, as well as East Bay Regional Parks, homeowners' associations, and businesses. Several of these organizations have participated in the development of the plan through the working group.

6.4.3 Recommendations for Community Partnerships

The following represents potential avenues for the City to increase engage with local nonprofit and community-based organizations towards the advancement of Urban Forest Plan goals. This list is based on input received during the community engagement process, working group survey, and provided case studies.

01 **FACILITATE**

Facilitate an urban forest coalition of community-based organizations (CBO's) and interested parties. The goal of the coalition would be to improve communication between the city and partners, coordinate outreach and education opportunities, and urban forest related events.

02 **COORDINATE**

Coordinate with the community organizations in developing a tree giveaway and education program. Free trees can be distributed to interested parties to take home and plant on their private property. Volunteers from the Alameda Backyard Growers or others can educate the interested parties on how to plant and care for the trees. These events could be organized in conjunction with other existing city events, or as part of a community tree planting event in a city park or tree giveaways

03 **DEVELOPMENT**

Develop a tree planting coalition based on the City Plants model as described below where organizations could be become official tree planting partners with the City. This would require education and training of CBO's on the tree planting permit process, knowledge of tree species, and site selection. Vacant sites would be verified by city staff, permit the planting, and select the tree species to be planted. The tree can be planted by the CBO or through volunteer tree planting events hosted by the community-based organization. Follow-up establishment care would be determined by city.

04 **PRESERVATION**

The Urban Forest Plan encourages the preservation of existing healthy trees and growing the tree canopy by planting new trees.

05 **COLLABORATE**

Collaborate with community organizations on developing and distributing outreach and education materials targeted towards private property homeowners.

06 **EXPLORE**

Explore the possibility of funding a free tree giveaway program for private properties as a method to cool homes and reduce energy use.

07 **DEVELOP**

Develop a database to record trees planted on private property to track progress towards tree planting targets.

6.4.4 Case Studies of Engagement Programming

The following section provides a discussion of three different non-profit organizations working in California and programs they provide. These case studies are intended to help guide Alameda in creating its own unique programs in partnership with local nonprofit and community-based organizations.

6.4.4.1 SACRAMENTO TREE FOUNDATION

The Sacramento Tree Foundation is a non-profit organization founded in 1982 that has engaged with community members to plant over 1.5 million trees in the Sacramento region to date (Sacramento Tree Foundation 2021). Planting efforts are focused in under-canopied and under-served communities to prioritize urban forest equity. The Sacramento Tree Foundation is involved in the local urban forest's entire life cycle, from acorn propagation to salvaging fallen trees from landfills to use as lumber.

Part of the Sacramento Tree Foundation includes the Sacramento Shade initiative, funded by the Sacramento Municipal Utility District (SMUD). The Sacramento Shade program provides free private property landscape assessments for homes and businesses, and up to ten free shade trees to be delivered to the property along with stakes, ties, and helpful planting and maintenance guidelines. All SMUD customers are eligible to receive these free assessments and trees. Over 600,000 trees have been planted through this program.

6.4.4.2 OUR CITY FOREST

Our City Forest is a non-profit organization founded in 1994 in San José that focuses on urban forestry efforts and community education throughout the Silicon Valley (Our City Forest, 2023). Their Cool & Green communities initiative provides free trees to residents in eligible parts of Alviso, Central & East San José. Our City Forest also provides resources for other residents to determine if they qualify for a free tree through the City of San José Street Tree Rebate Program.

A unique aspect of Our City Forest that allows it to ensure quality of tree and shrubs while best following the concept of "right tree, right place" is their Community Nursery & Training Center. Our City Forest's nursery is home to thousands of native and non-native tree, shrub, and grass species. The nursery provides drought-tolerant and disease-resistant trees to urban foresters, City arborists, restoration agencies, and other landscape professionals while providing a sustainable sourcing option for local urban forestry efforts.

6.4.4.3 CITY PLANTS

City Plants is a Los Angeles-based non-profit organization that helps to plant and distribute 20,000 street and yard trees annually throughout the City (City Plants 2023). City Plants runs a public-private partnership program between the City of Los Angeles and seven other non-profit organizations to coordinate tree planting and care throughout Los Angeles. In this model, City Plants is the lead organization to provide funding and coordination amongst the tree planting partners. Funding is provided by the Los Angeles Department of Water and Power to reduce energy use and energy generation. Working as a collaborative partnership allows the partnering organizations to focus tree planting efforts in the communities and neighborhoods that they serve. It also helps to support collaborative grant funding opportunities where both City Plants and non-profit organizations can leverage their resources.

SECTION 7.0

REPORTING & PLAN UPDATES

7.1 PERFORMANCE METRICS

The City will conduct an internal review of the strategic plan with City staff and present a progress report for public review every two years.

This review will examine which actions are completed, in progress and not yet started. The biannual review will include reporting on the following key performance metrics where feasible. Some performance metrics require data or analysis that cannot be conducted by staff. Those metrics will be provided when data is available.

- **Number of trees planted and removed annually on city-owned land and right of way.**
  - » *Goal: Plant 250 trees annually in addition to any removals.*
  - » *Source: Public Works and ARPD*
- **Number of trees planted and removed annually on private and non-city owned land. Note: tree removals may not be possible to track for non-city owned trees.**
  - » *Goal: Plant 100 trees annually in addition to any removals.*
  - » *Source: Urban Forest Manager position would be responsible for implementing a procedure to track tree plantings on private property.*
- **Percent canopy cover.**
  - » *Goal: 20% overall and in each Census Tract by 2055. Canopy cover numbers will be updated each time new USFS data is released.*
  - » *Source: U.S. Forest Service. Canopy cover numbers will be updated each time new USFS data is released.*
- **Relative Performance Index (RPI) of the top 10 most common species in tree inventory.**
  - » *Goal: all species in top 10 achieve RPI of 1 or greater.*
  - » *City of Alameda Street Tree Inventory; i-Tree (USFS).*
- **Achieve urban forest sustainability indicators of age, distribution, health condition, and relative performance index (RPI).**
  - » *Goal: Age – 40% immature, 30% young, 20% middle-aged, 10% mature.*
  - » *Source: City of Alameda Street Tree Inventory; i-Tree (USFS).*
- **Tons of carbon dioxide removed from air by trees in the City of Alameda inventory.**
  - » *Goal: No goal identified.*
  - » *Source: City of Alameda Street Tree Inventory; i-Tree (USFS).*

The biannual annual review with public input will provide accountability for the City to effectively implement the Urban Forest Plan and provide transparency to interested parties.

7.2 PLAN MONITORING

Every two years, staff will also retake the Community Assessment and Goal-Setting tool developed by the Vibrant Cities Lab every two years. The initial evaluation (Exhibit 7-1) was completed by City staff and the consultant team in March 2023. The assessment tool includes 28 questions related to various aspects of urban forest sustainability and asks the user to select the current state and goal state. The current and goal state each have a numerical value and the difference between them is referred to as the 'Gap' to sustainability. This tool gives the City a quantifiable method to track progress and reflect improvements in urban forest program efforts.

FINAL SCORECARD

COMMUNITY ASSESSMENT AND GOAL SETTING

TOTAL CURRENT	TOTAL GOAL	SCORE GAP
20	107	87

Section	Current	Goal
Measure Your Current Tree Canopy and Set Goals	1	4
Urban Forest Inventory and Assesment	4	8
Know What's Happening to Trees in Your Community	3	12
Urban Forest Characteristics	3	6
Engaging Peers and Residents in Process	5	16
Creating Essential, Effective Public/Private Partnerships	-3	11
Resource Management: Planning	-1	12
Resource Management: Implementation	4	24
Resource Management: Monitoring and Maintenance	4	14

EXHIBIT 7-1. RESULTS FROM VIBRANT CITIES LAB COMMUNITY ASSESSMENT AND GOALSETTING TOOL

7.3 PLAN UPDATES

An Urban Forest Plan is intended to be a living document, that is continually reviewed and updated to meet the emerging priorities of the City and challenges it faces like shifting environmental or economic conditions. Revisions to the strategies and priorities may be conducted as part of the biannual reporting, however a comprehensive plan update should be undertaken within 10 years.

VOLUME 1

URBAN FOREST PLAN