



URBAN FOREST MASTER PLAN



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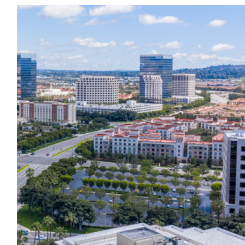
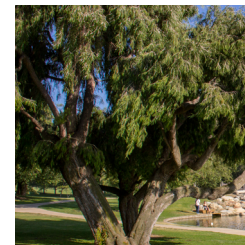
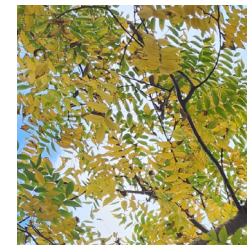
ACRONYMS AND ABBREVIATIONS

ACRONYM/ ABBREVIATION	DEFINITION
ANSI	American National Standards Institute
BMP	Best Management Practices
COI	City of Irvine
DSH	Diameter at Standard Height
FY	Fiscal Year
HOA	Homeowners Associations
IPM	Integrated Pest Management
IRWD	Irvine Ranch Water District
ISA	International Society of Arboriculture
PHC	Plant Health Care
PW	Public Works Department
RPI	Relative Performance Index
TA	Technical Assessment
UFMP	Urban Forest Master Plan
WUCOLS	Water Use Classification of Landscape Species
IUSD	Irvine Unified School District
NGSS	Next Generation Science Standards
GIS	Geographic Information System
ROW	Rights-of-way
CBO	Community Based Organizations
UCI	University of California, Irvine





EXECUTIVE SUMMARY



Irvine's urban forest is a diverse and sustainable community asset that enhances the city's character, supports community well-being, and enriches quality of life through abundant green spaces, shaded pathways, and extensive canopy coverage.

The City of Irvine’s Urban Forest Goal

The current city-wide canopy cover is 21.9%, an already high level for cities in Southern California. This is a testament to the City of Irvine’s (City or Irvine or COI) master planning efforts which designated space for large trees to grow and historical and consistent investment in the urban forest. The City has set a goal to achieve 30% canopy cover in 30 years. Achieving 30% canopy cover in 30 years will be a test of the City’s commitment to provide the financial and human resources needed to plant approximately 1,900 trees per year, provide 3-years of establishment care watering, enhance tree protection through policies and management practices, and foster urban forest advocacy among community members. The Urban Forest Master Plan (UFMP) guides the City toward achieving its 30-year vision for the urban forest with short- (1-year), medium- (2- to 5-year), and long-term (5- to 10-year) actions. The 30% canopy cover goal can only be realized by planting and preserving trees on both public land and private property, emphasizing the importance of collaborating on urban forest management with the community and large landowners.



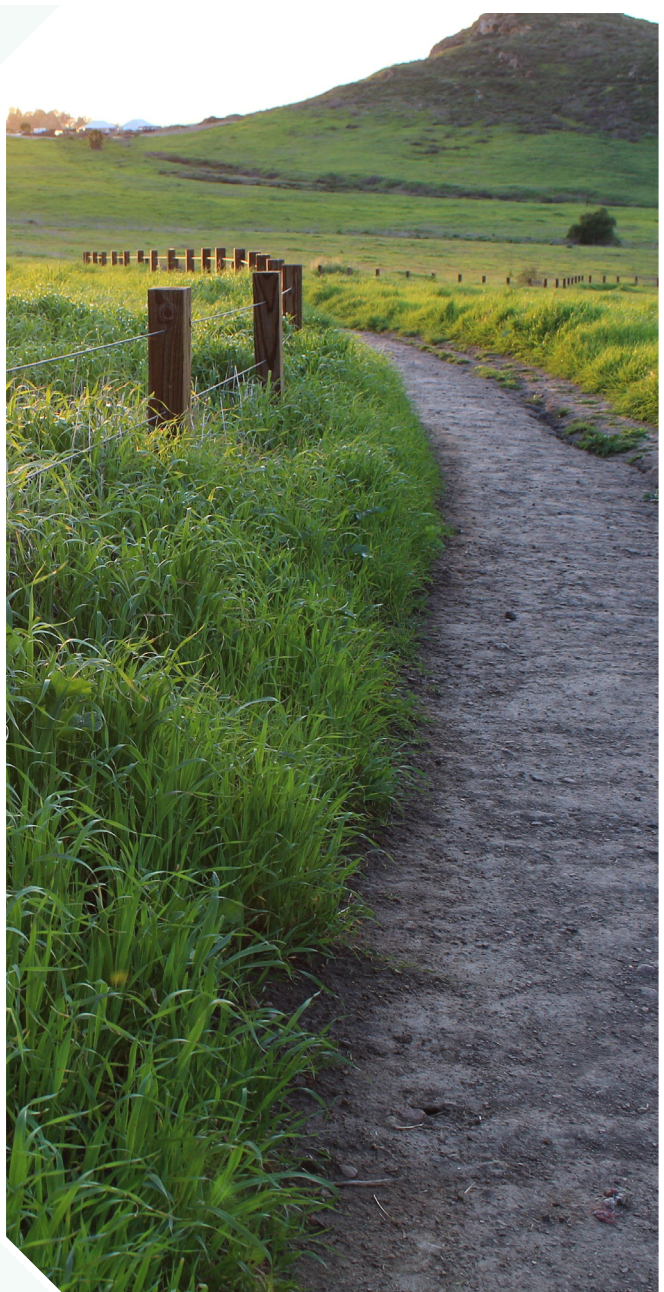
**The City of Irvine
set an ambitious yet
achievable goal to reach
30% city-wide canopy
cover in 30 years, or
by 2055.**



Approximately 67,500 new trees need to be planted on both public and private property to achieve a 30% canopy cover. In addition to annually replacing all trees removed in the inventory, COI will:

- **Plant 19,000 trees on streets and in parks**
- **Plant 20,000 trees as part of the Great Park development**
- **Plant along the Quail Hill entrance and in the Quail Hill open space area.**
- **Identify other public areas that may accommodate tree planting.**

The remaining 28,500 trees will likely be planted by large land owners and private property owners, combined with policy changes to enhance canopy cover on commercially and industrially zoned land.



Priorities for the Urban Forest

Three Guiding Principles were developed that reflect the main priorities of the vision statement for Irvine’s urban forest. Each Guiding Principle is a standalone chapter in the UFMP containing additional analysis and strategic plan actions. The chapters present major themes identified during the development of the UFMP. The major themes reflect areas of success in urban forest management, values of the City and community, and ways the City will need to improve to achieve its vision for the urban forest. Implementation of the UFMP’s strategic plan will help the City realize these urban forest priorities in the 30-year time frame.

1

Guiding Principle: City Urban Forest Management



Priority: *The City will provide the necessary resources and staff to optimize canopy cover from city managed trees and continually improve the urban forestry program.*

Proper funding is essential for the City’s urban forestry program to maintain tree health and safety, enhance environmental benefits, and ensure the sustainability of the City’s green infrastructure. From fiscal year 2018-2019 to 2022-2023 Irvine on average spent \$2.29 million per year on contracted services to plant, prune, and remove trees as well as other management actions related to emergency services, plant health care, and inventory work. The average spending is approximately 1% of the City’s total budget, which is almost twice the national average of 0.52% (Hauer and Petersen. 2014.) However, additional funding will be needed to plant and maintain trees, as the City will need to plant 1,900 trees a year, including those that are removed, to reach its canopy goal.

IRVINE’S CITY TREES

- **61,000 City-managed trees**
- **94% of publicly managed trees are rated as being in a good or fair condition**
- **60% of trees are young and will gain canopy cover as they mature**
- **47% of City managed trees are rated as moderate water users**



2

Guiding Principle: Preserving The Urban Forest



Priority: *Urban forestry policies, ordinances, and planning efforts intentionally protect trees and enhance sustainability of the urban forest over time for current and future residents.*

The City of Irvine’s Municipal Code includes an Urban Forestry Ordinance (Section 5-7-400), tree removal permit process, and replacement requirements which are not widely known by the community and are not consistently enforced. As a result, trees are often removed without required permits and mandatory replacement trees are not planted, leading to a net loss in canopy cover. The current ordinance is ineffective due to a general lack of public awareness, confusion over tree ownership, lack of clarify on the ordinance’s jurisdiction, and penalties which are insufficient to discourage unauthorized removals.



3

Guiding Principle: Community Partnerships



Priority: *Community partners, businesses, and private property owners are knowledgeable on proper tree care, value the benefits of large mature trees growing on private properties, and understand what resources are available throughout their community.*

Overall participation in UFMP community engagement activities was low, indicating the City will need to further these efforts during the implementation of the UFMP. Specifically, community members will need to be further engaged on how they can support tree planting activities, proper tree maintenance, and permit processes. Below are some results from the engagement activities that highlight community member values around trees and city tree management.



- **95% of survey respondents view trees as a valuable community asset, believe trees increase their quality of life, and support having neighborhood street trees.**
- **Native trees and wildlife habitat was stated as the top priority for the UFMP.**
- **Participants want to see more street trees planted as a priority over parks or biking and walking paths.**
- **96% of survey respondents had some level of interest in planting trees on their property.**

The results depict a positive community perspective on trees but only reflects a small portion of residents. It will be important to also gather input from those who may have a negative view of trees to ensure community buy-in across all perspectives.

What is an Urban Forest Master Plan?

The City of Irvine's Urban Forest Master Plan is a 30-year strategy and planning tool which contains measurable goals and recommended actions to help the City realize its ideal urban forest by 2055. Urban forests are comprised of all trees growing in an urban area, including trees on both public and private property. Trees planted in Irvine's urban areas provide numerous benefits to community members such as shaded paths of travel, green spaces for recreation, and cleaner air and water as seen in **Exhibit 1**, on the following page. Urban forests also protect the community by cooling areas


and combating the urban heat island effect (**Exhibit 2**), helping to mitigate stormwater and flooding, and make Irvine more resilient to a changing climate.

The UFMP is a summary of the analysis, findings, and recommendations that tell the story of Irvine's urban forest and illustrating a pathway to reach the urban forest vision. A UFMP aims to provide the foundation for the City to continue enhancing the urban forest and its management, even as leadership and priorities may shift over time.




Exhibit 1: Benefit of Trees in an Urban Environment.


BENEFITS OF TREES IN AN URBAN ENVIRONMENT




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




CONNECTING WITH NEIGHBORS
Trees can encourage civic pride while tree plantings provide opportunities for community involvement.




RAINWATER CAPTURE
Trees capture rainfall, recharging groundwater supplies and help prevent stormwater from carrying pollutants to the ocean.




SHADE
Trees cool cities by up to 10°F and shaded areas can be 20-40°F cooler than peak temperatures.







SAVING ENERGY
Shade trees can lower air-conditioning costs 56% annually, burning fewer fossil fuels.




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



FRESH FOOD
Trees provide food in the form of fruits, nuts, leaves, bark, and roots.



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



HEALTHIER COMMUNITIES
Trees improve mental health and public health by decreasing respiratory illnesses and encouraging outdoor recreation.

Exhibit 2: Urban Heat Island Effect.

THE URBAN HEAT ISLAND EFFECT

CAUSE

- 1 Solar energy is emitted by the sun.
- 2 Heat is absorbed and retained by dark, urban surfaces.
- 3 Heat is slowly emitted throughout the day and evening, increasing temperatures.
- 4 Heat from sun penetrates roof, increasing temperatures.
- 5 Increased temperatures discourage pedestrian traffic, negatively impacting local economy.

SOLUTIONS

- 1 Solar energy emitted by the sun partially absorbed by trees.
- 2 Cool roofs help to reflect heat coming from the sun.
- 3 Permeable pavement allow heat and rain to be absorbed.
- 4 Shade Sails create shaded areas where trees cannot.
- 5 Auto emissions are partially absorbed by trees.
- 6 Shaded bus stops keep pedestrians from direct sunlight.
- 7 Green walls help absorb surrounding heat
- 8 Light surfaces absorb, retain less heat.
- 9 Cleaner air, cooler weather creates a pedestrian-friendly environment positively impacting local businesses.

UFMP Development Process

The UFMP development process takes a snapshot in time of the elements that comprise the urban forest, including trees growing on both private and public property. A UFMP analyzes various data sets to identify what aspects of City tree management are working well, and to develop recommendations for areas of improvement. To accomplish this, the Irvine UFMP includes an update of the City maintained tree inventory, analysis of inventory data measured against sustainability indicators, a review of City ordinances and planning documents, and an analysis of the urban forest program and budget. A UFMP also seeks to understand the factors that contribute to the growth and maintenance of privately managed trees. To gain a better understanding of trees growing on private property, the UFMP team used the city-wide canopy cover analysis, engaged with large property owners and community-based organizations (CBOs), and reviewed planning documents and ordinances to understand their impact to trees on private property. An online survey, collaboration with CBO representatives, and in-person engagement events helped inform how community members view trees and identified ways the City can encourage tree planting and proper maintenance on private property.

Historical and Environmental Context

Irvine is approximately 2 miles inland from the Pacific Ocean. Historically, Irvine’s landscape consisted primarily of dense shrublands and grasslands, with very few trees. This vegetation pattern was typical of coastal Southern California, shaped by a Mediterranean climate characterized by cool, wet winters and warm, dry summers. The Irvine Ranch was formed in 1864 from three large Spanish Mexican grants and devoted to sheep grazing in the early years. In 1893, ranch operations began shifting to field crops such as lima beans, wheat, olives, and citrus orchards. Much of this land was preserved as open space for recreational use through strategic land use planning with the goal to preserve Irvine’s natural beauty and open spaces while balancing urban development (City of Irvine. 2023).

In the 1960’s, Irvine began its evolution into the master-planned community it is today. The City’s development process included careful consideration of land use, resulting in a community that has been intentionally integrated with green spaces, parks, paths, and trails (City of Irvine. 2023). The master plan for development implemented the unique village concept, a distinct feature of the City, which creates villages that are designed to create a sense of community

and provide a range of amenities for residents including ample green space. The intentional master planning effort created space for large trees to grow which contributes to a relatively high canopy cover of 21.9% as seen in **Exhibit 3**, on the following page.



TREE CITY USA®

The City of Irvine has been designated as a Tree City USA for 35 consecutive years!

What does it take to be a Tree City USA?

- Active Tree Board or Department
- A Tree Care Ordinance
- Annual Arbor Day Celebration
- Annual budget of \$2 per capita for tree care



Exhibit 3: City of Irvine Land Cover Classification

City of Irvine Land Cover



- Land Cover (%)
- Tree Canopy (22%)
 - Vegetation (24%)
 - Bare Earth (6%)
 - Impervious (47%)
 - Water (1%)

— Analysis area

Source: Land cover classification derived from 2023 PNEO imagery.



The City manages just over 61,000 trees on public lands that provide shade for pedestrians, habitat for wildlife, and contribute to Irvine’s unique character. The City’s planned development also designated a large percentage of land as privately owned and managed. This means enhancing canopy cover throughout the City will require partnerships

with private property tree owners, an engaged community, and sustained resources. With continued investment from both private landowners and the City, future community members will experience even greater benefits provided by an urban forest that helps maintain a high quality of life in a changing climate.





1

CITY URBAN FOREST MANAGEMENT

1 Guiding Principle: City Urban Forest Management



The City will provide the necessary resources and staff to optimize canopy cover from city managed trees and continually improve the urban forestry program.

Public trees are an important community resource that need to be effectively managed by a municipal urban forest program. Public trees tend to receive a higher level of care and make up a smaller portion of the urban forest than trees growing on private property. Street trees might account for 10% of the total tree population but contribute 25% of the total leaf area of an urban forest (Miller et al. 2015).

The City of Irvine desires to lead by example and enhance an already robust urban forestry program to maximize canopy cover from trees growing on public land. The City has the responsibility of planting, maintaining, and taking other management actions for trees on streets, parks, and other City-owned locations. The Irvine tree inventory data shows that the City manages 61,000 trees, with an additional 19,000 identified potential planting sites. The City plans to fill all viable vacant sites in 30 years, and replace all trees which are removed, to achieve a 100% stocking rate of all planting sites. This chapter focuses on the City's urban forest program and the strategic actions the City will enact to improve tree management.

Irvine Tree Management Targets:



- ***Increase new tree planting to 1,900 trees a year for 30 years.***
- ***Increase establishment care to 3 years including watering, pruning, and other maintenance activities.***
- ***Increase structural pruning of young and immature trees.***
- ***Maintain a 4-year pruning cycle of mature trees.***
- ***Maintain annual tree removal rate of 1.95% or less of all City managed trees.***
- ***Replace all removals annually***
- ***Maintain emergency response program.***
- ***Enhance the Plant Health Care Program to include pest monitoring, integrated pest management, and soil management.***



1.1 The City of Irvine values the urban forest as a community asset.

Irvine demonstrates that it cares about trees by funding the urban forest program at a high level and seeking ways to improve the program. Some examples of this are consistently maintaining a 4-year pruning cycle, conducting advanced tree risk assessments, and periodically updating its tree inventory data. This active investment in trees is resulting in a low annual tree removal rate, healthy trees (**Exhibit 4**), and high canopy cover at 21.9%.

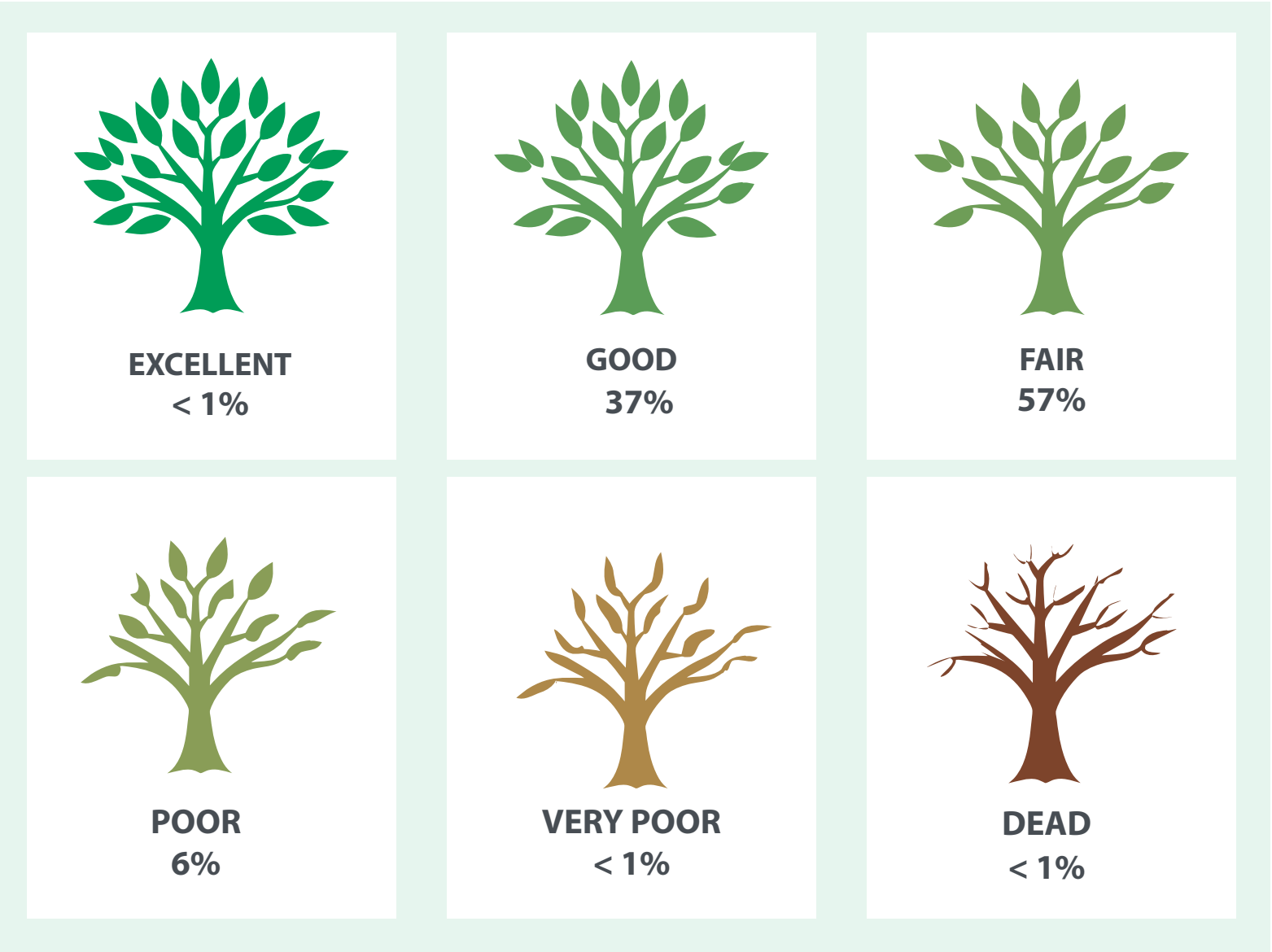
EXAMPLE OF PROACTIVE MANAGEMENT:

Irvine recognized that the eucalyptus blue gum trees that make up many of its historical windrows were in decline and needed to be evaluated to understand the risk they pose to the community. Irvine had International Society of Arboriculture (ISA) Tree Risk Assessment Qualified and Certified Arborists conduct level 2 tree risk assessments and level 3 sonic tomography evaluations of over 2,500 blue gum trees. The assessment determined the risk associated with each tree and mitigation measures to reduce the risk. The process and results provided data-driven answers for City tree management decisions. This level of care is possible due to the City’s investment in the urban forest.



Exhibit 4: Tree Inventory Condition

CITY OF IRVINE INVENTORY - CONDITION DIVERSITY



Data source: 2024. City of Irvine.



1.2 Tree maintenance activities for young and immature trees need enhancement.

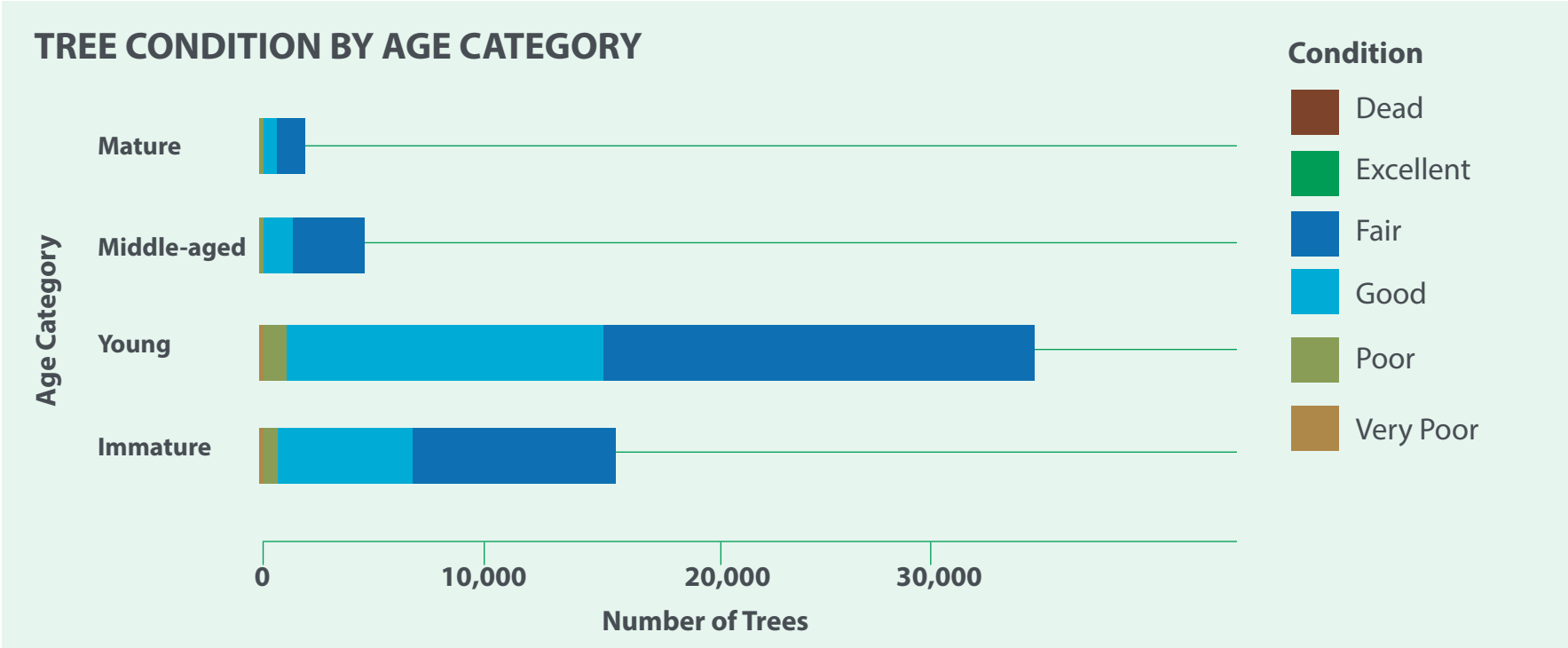
Table 1 and **Exhibit 5** represent the number of trees rated as poor or dead in the tree inventory and the distribution of those trees by age classification. 90% of poor or dead condition trees are either young or immature, which aligns with the fact that 86% of trees in the inventory are young or immature. The analysis also shows a drastic improvement in the overall health condition of trees when they reach middle-age. This suggests that better care and maintenance of trees after planting and through the first 10 – 15 years will increase tree health and survivability of young and immature trees.



Table 1: Tree Condition by Age Category

Age Classification	Number of Trees Rated Poor or Dead	Percent of Total Trees Rated Poor or Dead	Percent of Age Classification Rated Poor or Dead
Young	1,355	35.4%	8.8%
Immature	2,109	55.0%	6.1%
Middle-aged	191	5.0%	3.8%
Mature	177	4.6%	4.6%

Exhibit 5: Tree Condition by Age Category.



Date source: 2024. City of Irvine.

1.3 The urban forest program should be managed by a City Arborist.

The UFMP highlights areas where the City needs to improve tree management, educate community members, and better enforce permits, policies, and ordinances. These tasks require a dedicated staff member who is an International Society of Arboriculture (ISA) Certified Arborist, but also someone who can coordinate

departments, engage community members, and manage budgets. This set of skills and responsibilities is typically held by a city arborist, a job classification which the city currently does not have. Currently, the Public Works Director is the City Arborist by default and arborists from Landscape Maintenance provide support on most City Arborist duties. This is insufficient if the City plans to achieve the 30% canopy cover goal. A new staff

position of City Arborist (Administrator Class Specification) is recommended to develop a cohesive urban forest program and implement the strategic plan actions of the UFMP.

1.4 Strategic actions for city urban forest management.

The City will demonstrate its commitment to the urban forest by optimizing canopy cover on public land. The City is planning to invest in filling all identified vacant sites in the inventory (19,000 trees), replace trees removed annually (2% of total inventory), and require tree planting in new developments including at the Great Park (20,000 trees). In addition, there are two main management activities that can be enhanced to better support the survivability of young and immature trees. The first is to increase the establishment care program from 1-year to 3-years, with a consistent watering schedule, and basic maintenance like weeding, mulching, and fixing stakes and ties. Second, the City needs to create a formal young tree structural pruning program to minimize defects when trees are smaller and less costly to prune, which helps young trees develop a sound branching structure as they mature. These investments will be especially critical to achieve the City’s canopy cover goal, as more healthy trees reaching maturity will increase canopy cover in a shorter time frame.

Enhancing the City’s Plant Health Care (PHC) and Integrated Pest Management (IPM) programs will further protect the City’s investment in urban forestry. These enhancements will allow the City to identify a baseline of pest related data for their public trees. With an enhanced budget, COI can proactively monitor for pests to identify trends within their urban forest. Baseline data will allow for the City to base management decisions on advanced PHC data to evaluate, treat, and protect high value mature trees throughout Irvine. Enhancements to these programs will include monitoring for key pests such as the Invasive Shot Hole Borer (ISHB) and Ghost canker. These enhancements to an already robust urban forestry program are critical to protect the investment the City has made in its urban forest.

Table 2 details the recommended strategic actions to improve City Urban Forest Management. The Lead Departments are those who will be primarily responsible for implementing the strategic actions.



Table 2: Strategic Actions for City Urban Forest Management

LEAD DEPARTMENT: Public Works and Sustainability SUPPORT DEPARTMENTS: Community Development Department, City Manager’s Office	
TIME FRAME	RECOMMENDED ACTION
1st Year	Dedicate funding to annually plant 1,900 trees over 30 years to fill all vacant sites identified in the City inventory.
	Build partnerships with nurseries to establish growing contracts that ensure the quantity and species of trees are available to meet City planting goals.
	Develop a new City Arborist position to lead UFMP implementation, collaborate with internal departments, enhance plan check review processes, and oversee ordinance enforcement.
	Integrate the City Arborist into Capital Improvement Program (CIP) development and review process to optimize tree preservation, species selection, and planting opportunities in public projects.
Years 2 - 5	Utilize the updated Recommended Tree Species List (Appendix 14) in all City tree planting and planning efforts to ensure selected trees are climate appropriate, low water users, and provide maximum canopy cover for each space provided.
	Implement a young tree structural pruning program to minimize defects and establish proper branching structure to support new trees growing to maturity.
Years 2 - 5	Secure funding to increase establishment care for the 2nd and 3rd years after planting for all newly planted trees, including hand watering and supplemental watering before anticipated extreme heat events.

Table 2 Continued: Strategic Actions for City Urban Forest Management

TIME FRAME	RECOMMENDED ACTION
Years 2 - 5	Provide a consistent level of funding for Plant Health Care (PHC) activities in annual work plans.
	Conduct soil and plant tissue tests to determine how recycled water may be impacting tree health.
Years 6 - 10	Enhance the pest monitoring program and identify site conditions and trends that are impacting tree health of various species. Use this data to formulate sustainable solutions to invasive pest pressures.
	Limit the use of Pinus spp. and Eucalyptus spp. trees to increase overall species diversity.
	Invest potential savings from lower tree removal costs to enhance tree planting and establishment care programs.
	Conduct an updated inventory of City managed trees every 5 years to compare data against urban forest sustainability metrics identified in Appendix 16 Urban Forest Sustainability Analysis



2 | PRESERVING THE URBAN FOREST



2 Guiding Principle: Preserving The Urban Forest



Urban forestry policies, ordinances, and planning efforts intentionally protect trees and enhance sustainability of the urban forest over time for current and future residents.

City of Irvine managed tree ordinances, plans, and policies:



- *Urban Forestry Ordinance (Code 1976, Section V.G-400; Ord. No. 94-8, Section 2, 6-14-94) focuses on public tree preservation, protection, replacement, and discouraging removal before senescence.*
- *Urban Forestry Guidelines Manual establishes standards and practices for public tree management.*
- *Master Streetscape Plan sets design standards and recommended tree species to preserve the landscape and aesthetic value of Irvine.*
- *Tree Removal Permit and Replacement Policy is intended to ensure that trees removed on public land are replaced.*

Effective urban forest management requires ordinance, policies, and guidelines that influence the care, planting, protection, and replacement of trees throughout the City, among various landowners and land uses. This chapter focuses on the ways COI can effectively preserve the urban forest to reach the 30% canopy cover goal. Current planning tools are unclear, cumbersome, and outdated resulting in public trees being removed without replacement trees being planted.



2.1 Modifying policies and guidelines will help increase canopy cover.

One avenue the City will influence canopy cover within its limited jurisdiction is modifying developer guidelines and policies to encourage tree preservation and tree planting.

Zoning Requirements and Parking Lot Guidelines

The City should enhance zoning requirements and parking lot guidelines to effectively include trees in the development of commercial and industrial properties in a way that targets increased canopy coverage. These properties are owned and managed by private property owners and COI can only influence canopy cover during planning and development. Current policies and guidelines should be modified for developers to encourage preservation of existing trees and require replacement trees to be planted on-site to replace lost canopy cover. Guidelines for parking lot development should require larger growing spaces and appropriate soil volume to support the health and longevity of trees. Requiring tree planting and establishment care for development projects means the associated costs are paid for by the developer, and enhances canopy cover without the City incurring any additional costs.

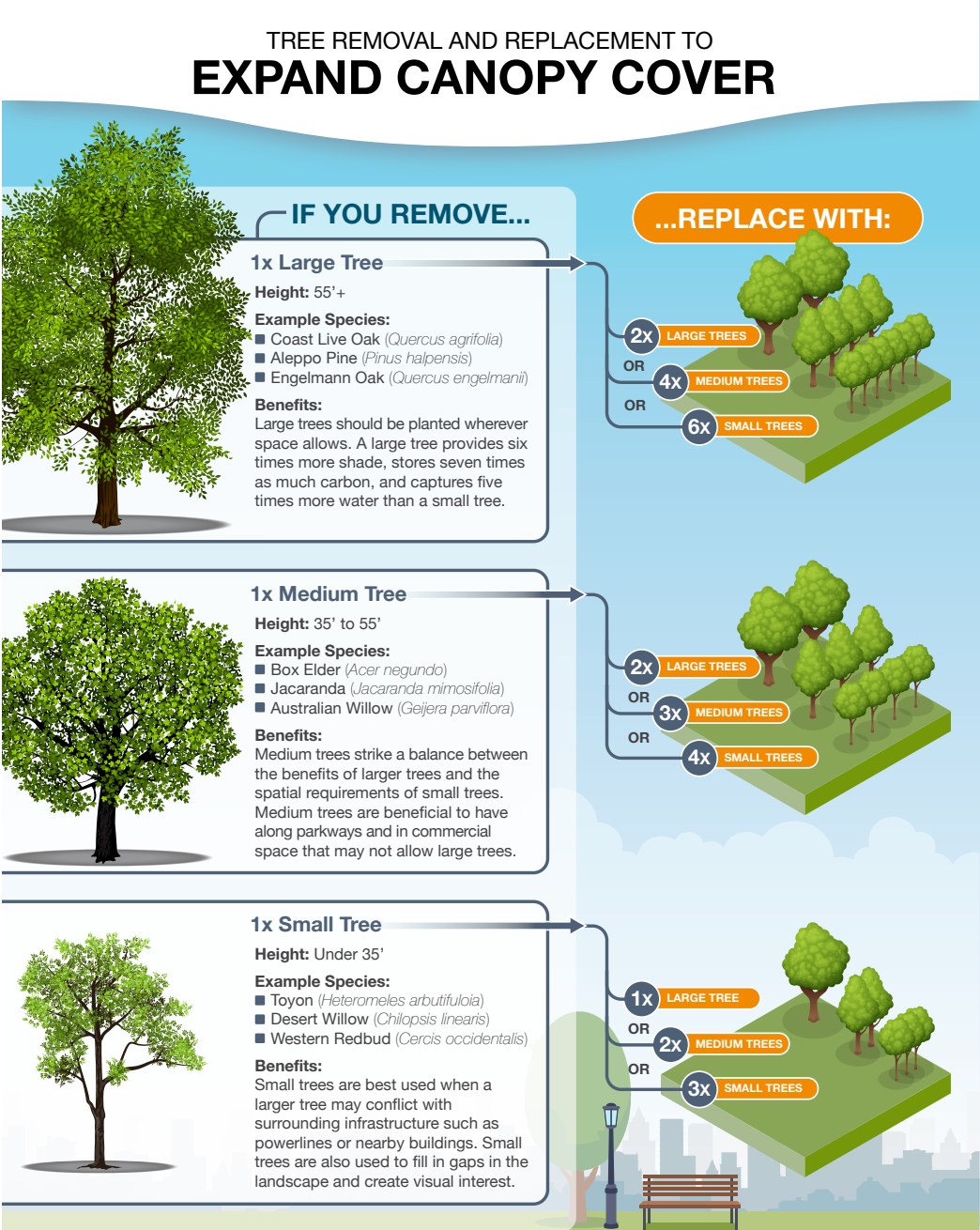
Canopy-Based Replacement Ratio

Zoning codes and developer guidelines should emphasize planting the largest stature tree that fits in each site. Large stature trees provide an exponential increase of environmental benefits and economic values in comparison to small stature trees. Planting new trees ensures that the urban forest will be sustained over time by replacing lost benefits when older trees are removed. However, it will take several years to replace the lost benefits and canopy cover. As such, preserving and protecting mature trees is equally as important to tree planting for Irvine to achieve its canopy cover goal.

The current Urban Forestry Ordinance uses a quantity-based replacement ratio to replace removed trees, which may result in COI planting more trees instead of fewer, larger trees. Exhibit 6 illustrates that fewer large stature trees can replace canopy cover at the same level as more small stature trees.

Each tree will require maintenance over its lifetime and modifying the ordinance to use a canopy cover replacement ratio will decrease costs necessary to maintain more small trees over time. Protecting mature trees through development design and requiring replacement planting on-site are the main avenues to preserve canopy cover. However, a newly developed site may lack the space to plant all required replacement trees. In these situations, an

Exhibit 6: Tree Removal and Replacement Ratio



in-lieu fee is one remedy to compensate the City and community members for tree loss. In-lieu fees are a set monetary amount that would pay for the costs to plant and establish a tree. Establishment care would include costs for watering and young tree structural tree pruning. In-lieu fees allow flexibility for a city to direct tree planting and maintenance activities to low canopy areas and design projects for specific corridors. It is important that all replacement trees are planted on-site when possible and that in-lieu fees are seen as a last resort instead of a first option. Otherwise, developers may choose to pay fees instead of replacing the lost tree resource.

2.2 Include ISA Certified Arborist review in the planning process.

The Public Works and Sustainability Department manages most Capital Improvement Projects (CIPs), while the Community Services Department oversees park development projects. Although

project plans undergo review and approval by multiple City of Irvine departments, the current process does not consistently involve an ISA Certified Arborist—even when trees are included in the project scope. Enhancing procedures to require Tree Protection Plans, establish Tree Protection Zones, and verify the planting of replacement trees will help ensure that all CIPs, development projects, and planning efforts incorporate appropriate tree species and contribute to expanding the City’s tree canopy.

Including a City Arborist in the development plan review process is necessary to promote design modifications to preserve trees, ensure the ‘right tree’ is planted ‘in the right place,’ and properly protect trees during construction.

‘Right tree, right place’ is an accepted urban forestry term that means that proper planning can minimize the potential for tree and infrastructure conflicts. A reduction in conflicts allows for trees to mature and provide the community with the benefits of mature trees.

2.3 Better mapping is needed to clarify the jurisdictions of the ordinance.

The City’s current Urban Forestry Ordinance does not clearly define which trees within a landscape are under the jurisdiction of the ordinance. Because of this, residents are not aware of current requirements for permits or replacement planting, which has resulted in residents not filing tree removal permits or planting replacement trees. Additionally, the City cannot effectively collect fines for illegally removed trees or enforce code violations. The lack of clear jurisdictional boundaries hinders the City’s ability to effectively track changes in tree canopy cover, make management decisions, and collect fines for illegally removed trees.

The current administrative and geospatial tools are not effective in clearly delineating the jurisdiction of trees. Without a clear understanding of jurisdiction, canopy cover percentages and measuring progress through zoning is not possible. Therefore, the canopy cover breakdowns shown in **Exhibit 7** shows an example of the various jurisdictions in the City of Irvine that need to be further clarified.

The City must internally refine the GIS layers as part of the UFMP implementation process. Once the jurisdictional boundaries have been clarified, the boundaries can be applied to the Urban Forestry Ordinance and tree permit

Exhibit 7. Canopy Cover Breakdown

Canopy Cover Breakdown by Area

City of Irvine

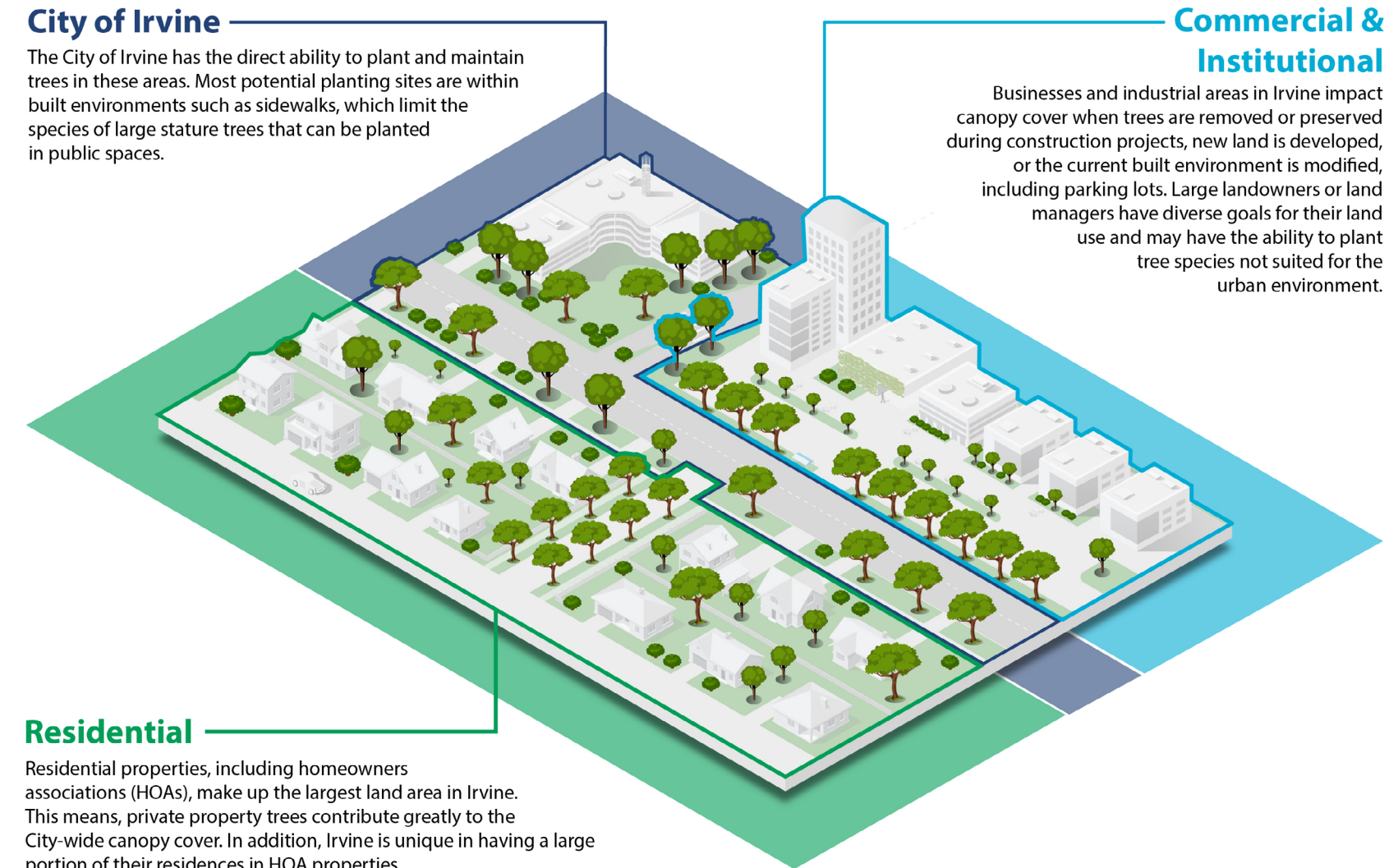
The City of Irvine has the direct ability to plant and maintain trees in these areas. Most potential planting sites are within built environments such as sidewalks, which limit the species of large stature trees that can be planted in public spaces.

Commercial & Institutional

Businesses and industrial areas in Irvine impact canopy cover when trees are removed or preserved during construction projects, new land is developed, or the current built environment is modified, including parking lots. Large landowners or land managers have diverse goals for their land use and may have the ability to plant tree species not suited for the urban environment.

Residential

Residential properties, including homeowners associations (HOAs), make up the largest land area in Irvine. This means, private property trees contribute greatly to the City-wide canopy cover. In addition, Irvine is unique in having a large portion of their residences in HOA properties.



process to enable residents to understand which trees require a permit. With refined GIS layers, the City can monitor canopy cover changes based on jurisdictional boundaries to help identify what efforts are influencing canopy cover effectively.

2.4 The Urban Forestry Ordinance is not widely known, resulting in canopy cover loss.

The City of Irvine can directly influence canopy cover on public land by protecting trees through an update to the Urban Forestry Ordinance. The current ordinance is not widely known resulting in tree removal permits not being filed, and replacement trees not being planted when trees are removed on public land. City staff need enforceable parameters for unpermitted tree removals. Without this, the ordinance will remain ineffective and the City will continue to lose trees without replacement trees being planted.

Revising the Urban Forestry Ordinance is a challenging task which requires a robust community engagement process. Ensuring that the ordinance, its jurisdiction, and permitting processes are well understood by the community are necessary for compliance in filing tree removal permits and planting replacement trees.

The first step the City must take is to provide clarity on which trees are guided by the ordinance and who has

maintenance responsibility as discussed in Section 2.3. Once the jurisdiction of the Ordinance is clarified, it will be necessary to communicate this effectively to residents, identify a streamlined tree removal permit process, enhance replacement requirements, and include language which allows enforcement.

2.5 Planning documents need flexibility on tree species as Irvine is impacted by a changing climate.

The current Master Streetscape Plan limits species diversity and its guidelines may discourage biodiversity of trees in COI's urban forest, which reduces its resilience to pests, disease, and climate change. Limiting the types of species to plant for each area may also limit the potential to reach canopy cover goals.

The Master Steetscape Plan should allow the City Arborist to diverge from the designated planting list and incorporate tree species that perform well in the City. This flexibility will allow for the City to plant site-appropriate trees and continuously adapt to changing conditions. This is a results-oriented approach to continuously enhance the urban forest without the additional burden of updating City planning documents, including Appendix 14 Recommended Species List.

2.6 Strategic Actions for Preserving the Urban Forest

Revising planning documents, policies, and ordinances, and allowing the City Arborist discretion in planting climate appropriate tree species will enhance the urban forest's resilience to pests and pathogens.

The City must encourage and incentivize tree ownership on land outside of their jurisdiction to achieve the goal of a 30% canopy cover. The City will approach these partners first through updates in zoning codes, ordinances, policies, developer incentives, and enhanced development plan processes.

Table 3, on the following page, details the steps needed to develop policies, programs, and guidelines that protect the urban forest.



Table 3: Strategic Actions for Preserving the Urban Forest

LEAD DEPARTMENT: Public Works and Sustainability SUPPORT DEPARTMENTS: Community Development	
TIME FRAME	RECOMMENDED ACTION
1st Year	Update the Urban Forestry Guideline Manual to be effective and enforceable.
	Update all contract specifications, City standard plans, and other tree-related planning tools to include nursery and arboriculture best managements practices including standards for tree spacing, tree protection zones, and root pruning.
	Revise the Master Streetscape Plan to allow for more flexibility with tree species selection to enhance biodiversity.
	Clarify the Urban Forestry Ordinance’s jurisdiction to define what constitutes a City-maintained tree to improve program efficiency and budget management.
	Begin the Urban Forestry Ordinance update process to clarify jurisdictions of the Ordinance.
	Conduct community engagement to inform the updating of the Urban Forestry Ordinance.
	Integrate City Arborist into Capital Improvement Program (CIP) development and review process to assist in public project planning.
	Ensure plan review process incorporates a city arborist review of tree-related components and a city arborist is contacted prior to root exposure for site improvement projects.

Table 3 Continued: Strategic Actions for Preserving the Urban Forest

TIME FRAME	RECOMMENDED ACTION
Years 2-5	Revise the Ordinance to focus on canopy coverage replacement and move away from quantity based replacement. Ensure replacement trees are the same, or larger, potential canopy size at maturity in relation to the tree that was removed.
	Integrate city arborist into development plan review process to ensure tree preservation and planting standards are consistently applied in private development projects.
	Create a Tree Fund (in-lieu fee bank) as a mechanism to offset canopy loss and plant trees on public land.
	Revise Ordinance to allow for Eucalyptus windbreaks to be replaced with tree species other than the blue gum eucalyptus.
	Revise the tree removal permit process for clarity and ease of implementation and enforcement.
	Work with COI GIS staff to redefine GIS Layers for City-Maintained trees, especially near homeowner association (HOA) areas.
	Assign City Arborist to oversee enforcement of the updated Urban Forestry Ordinance, including review of tree removal permits and replacement requirements.
	Begin educating the community and partners on the revised ordinance, permit processes, and mitigation requirements and request compliance.
Years 6 - 10	Develop a GIS mapping tool to enable residents to determine if a tree is under the jurisdiction of the Urban Forestry Ordinance. Ensure website capabilities to file a tree removal permit through the tool.
	Continue educating the community and partners on the revised ordinance, permit processes, and mitigation requirements and request compliance.
	Ensure all tree removal permits and replacement trees are confirmed by the City Arborist.

3 | COMMUNITY PARTNERSHIPS



3 Guiding Principle: Community Partnerships



Community partners, businesses, and private property owners are knowledgeable about proper tree care, value the benefits of large mature trees growing on private properties, and understand what resources are available throughout their community.

The City must engage community partners, residents, and other large landowners to encourage canopy cover expansion and private property tree ownership. Large landowners can be engaged in a variety of ways; they can provide sites to plant large species that require open spaces, enhance biodiversity and avoid infrastructure conflicts; grow tree stock locally for the City, and cross-market volunteer opportunities and programs. Partnering with educational institutions can provide opportunities for assemblies, presentations, and Arbor Day celebrations with students, which further encourages urban forest advocacy. This chapter discusses how large landowners, environmental groups, and community members can support urban forestry efforts.

3.1 Private property trees are a large contributor to Irvine's canopy cover.

Irvine is home to an estimated 500,000 trees within its city limits. Approximately 61,000 of these are City-owned and located along public streets, on municipal properties, and in open spaces. The remaining trees are privately owned and maintained. The Irvine Company alone owns and manages more than 200,000 trees, accounting for roughly 36.5% of trees in the City. This distribution underscores the need for coordinated management and planning efforts between public agencies and private landowners.

The City of Irvine does not regulate trees on private land after occupancy, which limits their ability to influence canopy cover. The City maintains trees in an easement, right-of-way, or parkway for residential properties not within a homeowners association (HOA). A large portion of trees are privately owned on residential properties located within HOAs, where the City does not have the right-of-way or utility easements that are commonly used to plant publicly managed trees. This limits the planting sites available to the City and requires engagement with HOAs. All private residential properties should



be engaged on urban forestry efforts either at the HOA Manager, neighborhood, or community block level. COI is committed to exploring investments in private property resources, rebates, and tree giveaways to encourage private tree ownership. Encouraging private property owners to plant trees on their property is a high-demand and long-term effort that requires community buy-in and private property tree ownership.

Designating a City Arborist to lead this robust engagement effort and implement the UFMP recommendations will be necessary for effective implementation of this effort.

3.2 Collaborative partnerships are necessary to achieve a 30% canopy cover.

The City will need to invest in collaborative partnerships and community engagement efforts to achieve a 30% canopy cover. The City will need to plant approximately 67,500 trees over the next 30 years to increase canopy cover to 30%. Approximately 39,000 of these trees will be planted on public land; 19,000 in the identified planting sites in the City's inventory and 20,000 as part of the Great Park development. The remaining 28,500 trees will likely need to be planted on private property like commercial, institutional, and residential areas where Irvine does not have jurisdiction

Want to know more about urban forestry? The UFMP appendices include the following resources:

- Recommended Tree Species list that includes climate appropriate, water-wise, drought tolerant trees.
- Residential Tree Spacing Guidelines
- Tree Planting and Watering Guidelines



How can you support Irvine's urban forest?

1. Plant a large stature tree on your private property
2. Volunteer at an Arbor Day or tree planting event
3. Support urban forestry through advocacy to leadership

to plant new trees. This necessitates an intentional effort and investment by the City to explore collaborative partnerships, develop community engagement campaigns, and provide resources and incentives to encourage urban forest advocacy and private property tree ownership. This also presents an opportunity to develop partnerships with large landowners like the University of California, Irvine, the Irvine Company, Irvine Unified School District, and the over 300 HOAs throughout Irvine to plant trees on private property and increase canopy cover city-wide.

Tree planting on private property can be encouraged by hosting tree giveaways, creating and funding a rebate program, and disseminating water and tree rebate information available to residents and community members. The City can leverage existing programs such as the Green Business or the One Irvine program to integrate urban forestry concepts.

3.3 Strategic Actions for Community Partnerships

Achieving a 30% canopy cover in 30 years requires collaboration from all partners within city limits. COI will first enhance canopy cover from public trees by optimizing



How community partners will be engaged in urban forestry:

- Share an experienced and committed volunteer pool
- Cross promotion of urban forestry events
- Plant tree species not in the City inventory to enhance biodiversity
- Plant native species to enhance wildlife habitat
- Educate community members on existing rebate and incentive programs and available resources for trees.

their urban forestry program as discussed in chapter 1. The City will then revise policies and guidelines to gain canopy cover from development projects as described in chapter 2. Next, the City must explore collaborative partnerships and invest in community engagement to encourage private tree ownership and enhance canopy cover.



Table 4 details the action items COI will take to develop community partnerships for the urban forest.

Table 4: Strategic Actions for Community Partnerships

LEAD DEPARTMENT: Public Works and Sustainability SUPPORT DEPARTMENTS: Community Development, City Manager’s Office	
TIME FRAME	RECOMMENDED ACTION
1st Year	Identify existing volunteer programs and explore how urban forestry can be integrated into programming.
	Work with IRWD to promote existing rebate programs available to residents and businesses.
	Encourage residents, commercial property owners, and developers to maintain healthy trees on their properties, participate in tree planting initiatives, and advocate for tree preservation.
	Engage existing partners such as IUSD and Irvine Valley College to identify opportunities to integrate urban forestry into curriculum.
	Engage HOA managers and residents to identify potential incentives that would encourage HOAs to enhance canopy cover.
	Engage CBO partners to cross promote the City's urban forestry efforts.
	Provide private property owners with spacing guidelines for planting residential yard trees.
	Identify which large landowners can plant species to enhance the overall biodiversity of the urban forest
	Explore volunteer sharing with CBO programs

Table 4 Continued: Strategic Actions for Community Partnerships

TIME FRAME	RECOMMENDED ACTION
Years 2-5	Integrate urban forestry components into the City of Irvine Green Business Program such as corporate sponsorship of tree planting events or an adopt-a-tree program for businesses.
	Explore existing nursery programs/partnerships to source locally grown tree stock
	Explore alignment or goals to discuss potential partnership, programming, or funding opportunities with partnership organizations. (i.e. workforce development, internship, etc.)
	Explore partnerships with teachers to incorporate urban forestry education in lesson plans.
Years 6 – 10	Create a ‘COI Urban Forestry Champion HOA’ program to foster community pride and encourage compliance.
	Create a program for businesses to sponsor/adopt their ROW street trees.
	Create a urban forestry sponsorship program for local corporations.
	Explore potential IRWD water credits or rebate programs for the City when new trees are planted on public land





IMPLEMENTATION PLAN

Implementation Plan

The City of Irvine will reach its canopy cover goal of 30% city-wide in 30 years by following the UFMP actions. The 30-year vision for the urban forest is captured in a vision statement, and the implementation plan illustrates how the City of Irvine will approach the urban forestry goal and how each theme will be addressed.

Each Guiding Principle ensures that completing the actions amounts to the overall vision for the urban forest. Optimizing canopy cover on public land, enhancing policies to foster a sustainable urban forest, and encouraging the community to plant trees on private property necessitates a long-term action to provide clarification of maintenance responsibilities

of trees existing in the landscape throughout Irvine. Understanding and communicating tree ownership and maintenance responsibilities is important for a more effective management program and for fostering advocacy for community members, partners, staff, and leadership alike.

The Urban Forest Master Plan is a living document and is intended to be flexible, to allow for application of unanticipated opportunities and challenges. Appendix 20 contains a Monitoring Plan through the Vibrant Cities Lab program, where COI can track their progress at the 1-year, 5-year, 10-year milestones.



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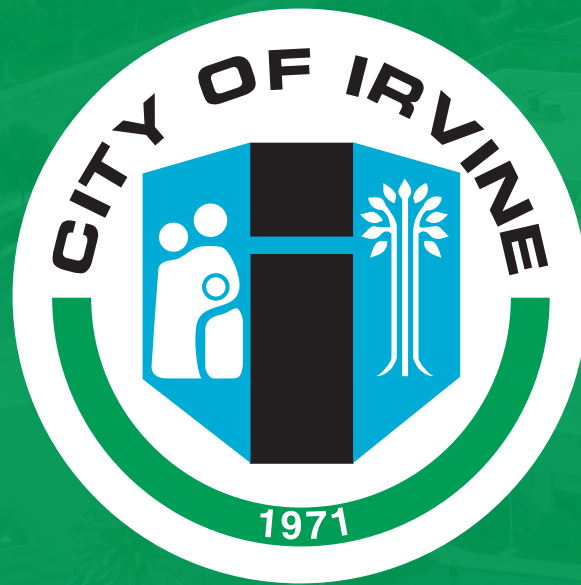
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