

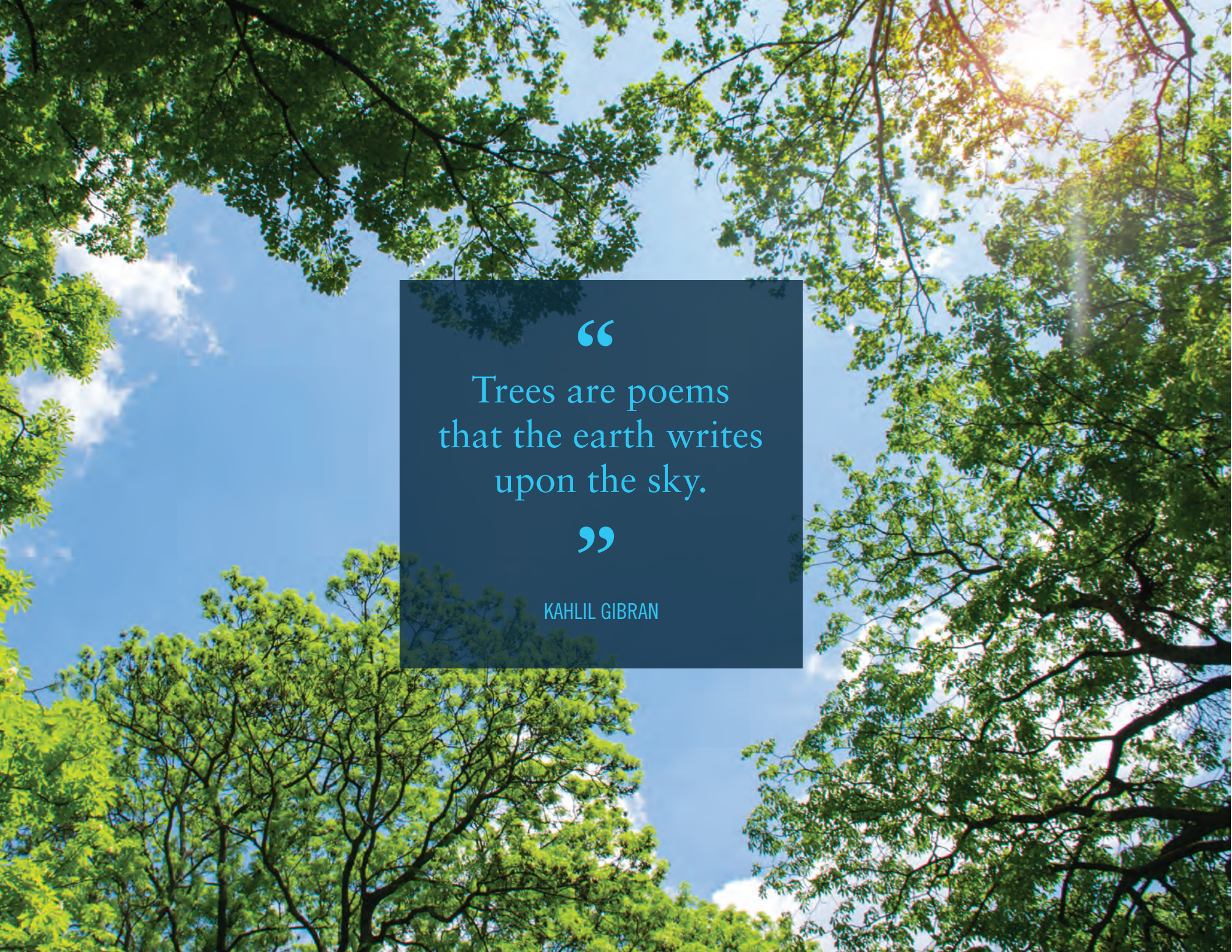


FIRST STEP

Developing an Urban Forest Management Plan
for the City of Los Angeles



Prepared for: City Plants | Prepared by: **DUDEK**



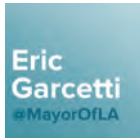
“
Trees are poems
that the earth writes
upon the sky.

”

KAHLIL GIBRAN

ACKNOWLEDGMENTS

The First Step Urban Forest Management Plan for the City of Los Angeles would not have been possible without the support of the following people and organizations.



First Step to Urban Forest Management Plan Champion: City Plants

Project Funding Provided by: CAL FIRE – Urban and Community Forestry and USDA Forest Service

Prepared by: Dudek – Urban Forestry + Fire Protection Planning

Technical Review by: Urban Forest Innovations Inc.

Any findings, opinions, or conclusions are those of the authors and do not necessarily reflect those of the City of Los Angeles.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	7
Key Findings	14
Priority Recommendations	15
1.0 INTRODUCTION/BACKGROUND	20
2.0 VISION STATEMENT	22
3.0 SUSTAINABLE URBAN FORESTS	24
4.0 COMPARISON CITY RESULTS	27
5.0 FINANCING LOS ANGELES' URBAN FOREST	31
6.0 FIRST STEP STUDY DISCUSSION	34
7.0 LOS ANGELES URBAN FOREST MANAGEMENT ACTIVITIES	36
8.0 LOS ANGELES URBAN FOREST POLICIES AND REGULATIONS	48
9.0 PLANNING DOCUMENTS	54
10.0 STRUCTURE OF GOVERNANCE	59
11.0 DEPARTMENTAL INTERVIEWS	63
12.0 WORKING GROUP MEETINGS	67
13.0 ONLINE PUBLIC SURVEY	71
14.0 FIRST STEPS TO A SUSTAINABLE URBAN FOREST	77
15.0 FIRST STEPS TO A UFMP	82
16.0 ROADMAP TO URBAN FOREST MANAGEMENT PLAN AND BEYOND	84
17.0 ADDITIONAL GOAL ACHIEVEMENT RECOMMENDATIONS	86
18.0 REFERENCES	88

TABLES

TABLE 1:	Comparison Sustainability Scores	25
TABLE 2:	Comparison City Results	28
TABLE 3:	Existing vs. Needed Urban Forestry Division Los Angeles Urban Forestry Funding	32
TABLE 4:	Existing vs. Needed Department of Recreation and Parks Urban Forestry Funding	33
TABLE 5:	Los Angeles UFMP Element Completion Level	34
TABLE 6:	Los Angeles Urban Forest Management Activities Ratings	37
TABLE 7:	Urban Forest Policies And Regulations – Los Angeles Ratings	49
TABLE 8:	Urban Forest Planning Documents and Guides – Los Angeles Ratings	55
TABLE 9:	Urban Forest Management Interview Dates and Organizations	63
TABLE 10:	Working Group Meeting Details	68
TABLE 11:	Current vs. Estimated Needed Urban Forestry Budgets	78
TABLE 12:	Actions that can be Accomplished Prior to the UFMP	83
TABLE 13:	Actions that can be Accomplished During UFMP Preparation	84
TABLE 14:	Actions that can be Accomplished After UFMP Preparation	85
TABLE 15:	Additional Recommendations Requiring Vetting During UFMP Analysis	86-87

APPENDICES

Consultant Department Interview Questions	
Cal Fire and Urban Forestry Tree Inventory Requirements	
Urban Forest Management Plan Toolkit Steps	
June and August Working Group Meeting, “Brainstorming Solutions for Growth”	
Council Files: Table of Urban Forestry Related Motion Topics and Actions Taken by the Los Angeles City Council	

ACRONYMS AND ABBREVIATIONS

ACE	Administrative Citation Enforcement
ANSI	American National Standards Institute
BOS	Bureau of Sanitation
BSS	Bureau of Street Services
CAL FIRE	California Department of Forestry and Fire Protection
City	City of Los Angeles
ISA	International Society of Arboriculture
LADWP	Los Angeles Department of Water and Power
RAP	Los Angeles Department of Recreation and Parks
UFD	Bureau of Street Services Urban Forestry Division
UFI	Urban Forest Innovations
UFMP	Urban Forest Management Plan



TREE-LINED STREETS IMPROVE NEIGHBORHOODS



2018 ARBOR DAY PARTICIPANTS



ICONIC PALMS TOWER OVER LA



TREE PLANTING IN PICO UNION

EXECUTIVE SUMMARY

Why was this First Step Urban Forest Management Plan prepared for the City of Los Angeles?

With the support of a grant from the California Department of Forestry and Fire Protection (CAL FIRE) Urban and Community Forestry Program and USDA Forest Service, the City of Los Angeles (City) is taking a progressive step towards developing a comprehensive Urban Forest Management Plan (UFMP). The purpose of this First Step toward a UFMP for Los Angeles (First Step UFMP) is to provide a clear understanding of the current urban forest and its management, to provide perspective by comparing Los Angeles with industry sustainability standards, and to outline the future UFMP framework.

This First Step UFMP provides a road map for preparation of a comprehensive UFMP. The tasks outlined within this document would typically be performed as part of an UFMP. The intent of this First Step effort is to have a third party review the City's urban forestry programs, governance structure, funding, and other components to determine the existing baseline and then compare that with best practices implemented by cities with recognized sound urban forestry programs.

This evaluation is not intended to single out departments or individuals for criticism or praise, but is focused on understanding urban forestry operations and management in Los Angeles and determining what would be necessary for the urban forest to function at a more sustainable level.

How was the First Step UFMP prepared?

The study and evaluation toward this First Step UFMP occurred over a 10-month period from January 2018 to November 2018. A Los Angeles First Step working group consisting of urban forestry managers, decision makers, sustainers, and advocates from across all City departments, non-profit organizations, and other stakeholders met monthly to review research and evaluate opportunities and constraints. In addition to the working group meetings, interviews were conducted with numerous departments and stakeholders to further understand the role that each member plays and to gather insights into the City's urban forestry programs. This First Step UFMP was developed through a systematic process that included extensive information gathering, review, evaluation, comparisons, and recommendation generation.

“

The City of Los Angeles has to plant more trees in the right places, and has to maintain them in the best possible way. To do this requires an overall, citywide vision and the coordination of the several agencies that deal with trees every day.

”

1993 URBAN FOREST TASK FORCE

This First Step UFMP is a multi-pronged evaluation by an independent team of urban forestry consultants. This evaluation was guided by the Urban Forest Management Plant Toolkit (Inland Urban Forest Council 2012), a step by step guide intended to help city managers and actors answer critical questions regarding urban forest management practices. It also included the consultants having direct interaction with key urban forestry stakeholders in various City departments, with the purpose of evaluating the status of the City's urban forest management structure, staffing, budgets, and coordination; the adequacy of existing urban forest policies and regulations; the availability of usable tree data; and primary threats and challenges facing Los Angeles' urban forest. The evaluation was then used to compare LA to other cities and to other sustainability metrics. This evaluation begins the UFMP process and provides a framework for its completion.

How does this First Step relate to an Urban Forest Management Plan?

This First Step UFMP provides a launching pad or “road map” for completion of a City of Los Angeles UFMP. UFMPs typically provide a long-term strategic framework to focus and expand a city's urban forestry program and ensure that the urban forest works toward providing optimal function and benefits/services while meeting safety and economic goals. UFMPs also evaluate the current status of the urban forest,

explore community concerns, evaluate management programs and policies, and provide a set of prioritized and strategic actions that the city can implement to assist the program's success. More recently, UFMPs aim to provide recommendations for the reduction of greenhouse gas impacts through urban forestry. The evaluations, discussion, and recommendations provided in this First Step UFMP are intended to inform the creation of a Los Angeles UMFP and to reduce the initial program evaluation time by providing guidance on some of the most notable issues currently facing the City's urban forest.

What are the major elements of this First Step UFMP?

This First Step UFMP reflects more than 1,000 hours of participation by many City urban forestry managers, decision makers, sustainers, and advocates who agreed to participate in a working group. The working group provided critical insight and participated in 10 workshops, each focusing on one or more aspects of the City's urban forestry program. This First Step UFMP also incorporates input from more than 2,600 concerned citizens who provided comments via a public survey.

The following key elements provided valuable insight:

Working Group Meetings. A working group of City urban forest stakeholders

Key Elements of the First Step UFMP Planning Process



- 1 Working Group Meetings.** A total of 10 meetings occurred with representatives from over 60 stakeholder groups.
- 2 City Department Interviews.** Key personnel from 20 urban forestry entities were interviewed.
- 3 Comparison City Evaluation.** New York City, San Francisco, and Melbourne, Australia were selected as comparison cities.
- 4 Public Survey.** Nearly 2,700 responses were received providing rich insights into public perception on the importance of trees.
- 5 Dudek/Urban Forest Innovations Evaluation.** An independent evaluation of the City's urban forestry program was completed, resulting in this report.

was assembled via targeted invitations. A total of 61 City, non-profit, and volunteer urban forestry representatives attended at least one working group meeting, with nearly 40 representatives attending most or all of the meetings. A total of 10 working group meetings occurred, held monthly from February through November. Working group meeting topics were strategically selected by City Plants and by consultants Dudek and Urban Forest Innovations (UFI) to encourage working group members to provide their opinions and knowledge on a variety of urban forestry topics, including issue identification, sustainability, existing budgets, and tree inventory and tree management applications. Additionally, the working group meetings provided a forum for urban forestry actors—those dealing with City urban forestry management on a daily basis—to engage in discussions; form breakout groups for focused activities and information sharing with colleagues to raise awareness of issues, opportunities, strengths, and weaknesses; promote coordination and cooperation; and inform Dudek/UFI.

City Department Interviews. Key personnel from 20 urban forestry entities, including City departments, non-profits, elected offices, and the Community Forest Advisory Committee, were interviewed. The interviews had a structured format along with time to freely discuss urban forestry topics relevant to the organizations and their respective missions. The interviews provided a setting where urban forestry stakeholders

could provide feedback to Dudek/UFI on their perception of what is working and what is not working, biggest issues and impediments, budget and staffing, views of other urban forest entities and actors, and recommendations. Interviewees often expressed frustration with budgets and staffing levels, which are typically less than half of their pre-recession (prior to 2007) totals. Interviewees indicated that they do what they can with available funding, but all recognized that they were unable to perform most urban forestry tasks at levels needed for a healthy, functioning urban forest. Concern was also expressed regarding the governance structure, where urban forestry personnel were scattered through numerous departments with little coordination.

Comparison City Evaluation. One of the identified tasks was to compare Los Angeles' urban forest and its management with three strategically selected cities. The three cities were selected by Dudek/UFI from a list of potential comparators generated by the working group. The selected cities include New York City; San Francisco; and Melbourne, Australia. Among the reasons that these cities were selected included their recognition as leading urban forestry cities and their similarities to Los Angeles in various urban forestry issues and opportunities. For example, New York City faced significant urban forestry funding challenges that resulted in unique approaches; San Francisco's urban forestry program was drastically reduced during the recession (2007–2009)

and has since made creative changes to recover; and Melbourne faces similar climatic challenges and is focused on building a resilient urban forest to counter the changing climate. Dudek/UFI performed in-depth data collection from each city to understand their current management, funding, planning, and sustainability approaches, and how they compare with and may be useful for improving Los Angeles' urban forestry program. The results of the comparison city study indicate that Los Angeles is considerably trailing these cities in achievement of a sustainable urban forest. The most notable deficiency is urban forest funding. On a per-capita basis, Los Angeles is ranked last, with only \$6.30 per person devoted to trees. New York City is close, but the amount is misleading due to the density of New York City's population, which is on 50% less land area than Los Angeles. Even more telling, Los Angeles' annual per-tree budget of approximately \$27 is less than half of New York City's and Melbourne's \$60 per tree, and one-third of the \$78 per tree per year that San Francisco invests in its urban forest.

Public Survey. A robust public survey was developed by Dudek/UFI, reviewed and revised by working group members, and reviewed for statistical viability. The final survey was made available to the public in English and Spanish and was disseminated through working group participants, City website, newspapers, events, and social media. Nearly 2,700 surveys were completed

and provided a rich data set that was statistically evaluated by specialists at the USDA Forest Service. The survey results indicate that respondents consider trees an important part of City infrastructure and place a high importance on tree protection during land development. Additionally, they feel the City poorly manages its trees, does not provide enough resources to urban forest management, and that there are not enough trees on streets and parks. The majority of respondents replied that they are willing to take steps to improve the urban forest on public and private land.

Dudek/UFI Evaluation. The First Step UFMP consultant team performed an independent evaluation of the City's urban forestry program. Using a combination of information obtained through the working group meetings, department interviews, and public survey, augmented by in-depth review of numerous City policies, regulations, initiatives, and related urban forestry efforts, Dudek/UFI evaluated the City's urban forestry program. The analysis focused on determining the level of completion of existing UFMP components. One primary task was to evaluate whether existing tree protection policies, tree inventory, funding, outreach, canopy cover equity, and governance structure meet the minimum requirements to be used to inform the development of a UFMP. This evaluation found that the City's urban forestry program does not include most of the required components of the Urban Forest Management Plan Toolkit (Inland Urban Forest Council 2012). However, it was also determined that

the observed deficiencies can be addressed in the UFMP with clear roadmaps for updating policies; re-evaluating the governance structure; and defining where the urban forest needs more attention, what that attention is, how it will be provided, who is responsible, and when it will be applied and completed. Focused efforts related to UFMP preparation will close the identified gap between Los Angeles and other cities that are considered leaders in urban forest management.

What is a Sustainable Urban Forest?

Some cities' urban forests include remnants from naturally forested areas, but Los Angeles' urban forest was, with a few exceptions, planted as the City developed and expanded. As an urban forest created by humans, sustaining it will require ongoing human intervention. The goal of this intervention is a sustainable urban forest, an urban forest that optimizes the benefits of trees while meeting established safety and economic goals. Achieving this requires robust and diverse funding, appropriate and effective policies, and management actions consistent with best practices. A sustainable urban forest can be defined as, "The naturally occurring and planted trees in cities which are managed to provide the inhabitants with a continuing level of economic, social, environmental and ecological benefits today and into the future" (Clark and Matheny et al. 1997). The First Step study uses this definition as a guide in its analysis of the sustainability of Los Angeles' urban forest management.

LA's URBAN FOREST



Plantings on Private Property.

Trees and plants on private property, including yards, rooftop gardens, and living walls around homes and apartment buildings, make up 90% of Los Angeles' urban forest, and offer many opportunities for greening the city.

An illustration of a city street scene. In the foreground, there are several tall palm trees in a median. To the left, a person is working on a tree with a lift. A cyclist is on the sidewalk. In the middle ground, there are cars on the road and a person walking a dog. To the right, there are more trees and a park area with a bench and people. The background shows a city skyline and a plane in the sky. Birds are flying throughout the scene.

Street Trees and Medians.

Trees planted in the public right-of-way such as sidewalks and medians offer opportunities for increasing the tree canopy in Los Angeles. Although the palms are iconic throughout the city, trees with fuller crowns and more leafy foliage, such as sycamores or jacarandas, actually provide more benefits with shade, and reductions in heat island effects and carbon emissions.

Native trees such as the coast live oak, black walnut, and sycamore support local wildlife and encourage biodiversity.

The City's Urban Forestry Division maintains 700,000 street trees across the City.

Understory: Shrubs, and Sidewalk Planters.

Low-lying plantings in the public right-of-way such as sidewalks and medians increase the vegetation and plantable space of the urban environment. These areas require regular maintenance to provide a healthy and vibrant understory of shrubs and planters.

Parks and Open Space.

Trees and landscaping in city parks and open space areas offer many benefits to people and wildlife alike. There are nearly 300,000 trees in Los Angeles city parks that require regular maintenance, but are vital green space and cooling centers in the community.

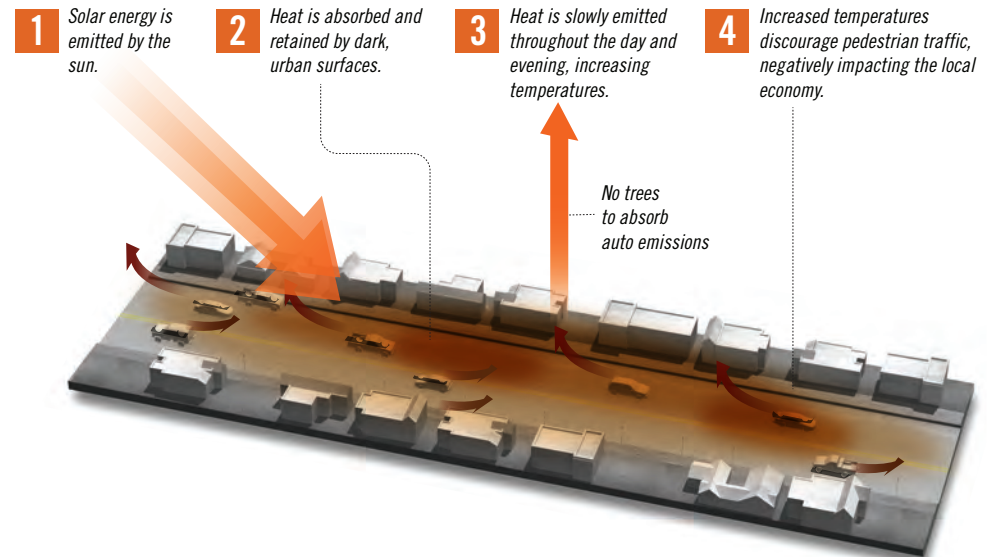
Why Los Angeles needs a Sustainable Urban Forest Now

Urban forests are increasingly important to urbanized areas and the people who live and work in these built landscapes. Trees offer many benefits, some of which are directly identifiable and quantifiable, and others that are experienced. Tree benefits are increasingly being regarded as services. Trees provide these services every day, similarly to other city infrastructure, like water mains, electrical transmission lines, streets, and sewers. Trees are City infrastructure that appreciate in value and services provided as they mature. It is estimated that there are in excess of 5.5 billion urban forest trees comprising 21 million acres of urban forest in American cities, with an environmental asset value of \$18.3 billion (Nowak et al. 2018). In California, every \$1 invested in a street tree returns \$5.82 in benefits (McPherson et al. 2016). The return on investment a city's trees provide are now starting to be categorized as an asset in a city budget, where other parts of infrastructure are only an expense.

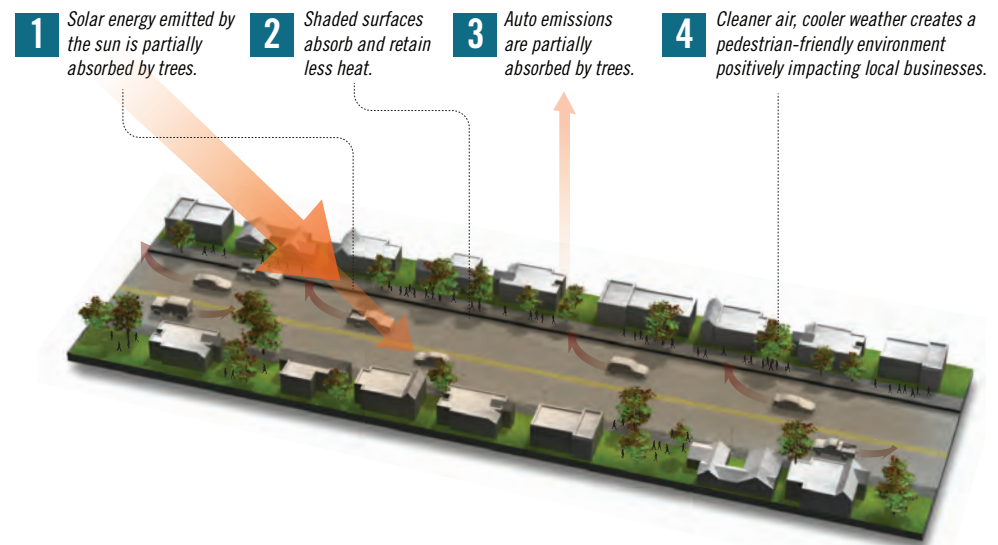
The environmental and economic services provided by trees are an essential component to support healthy residents and vibrant business corridors. Shoppers are willing to spend 9%-12% more on goods, more time shopping, and will travel greater distances to shop in districts with high quality trees (Wolf et al. 2010). Rising temperatures are amplified within a city through the urban heat island effect, which occurs as the buildings, roads, and other infrastructure absorb and reflect heat and can be up to 50-90° F hotter than the air. Shaded surfaces though can be 20-45° F cooler than unshaded areas (Environmental Protection Agency 2016). Strategically placed trees can save up to 56% on annual air-conditioning costs (U.S. Forest

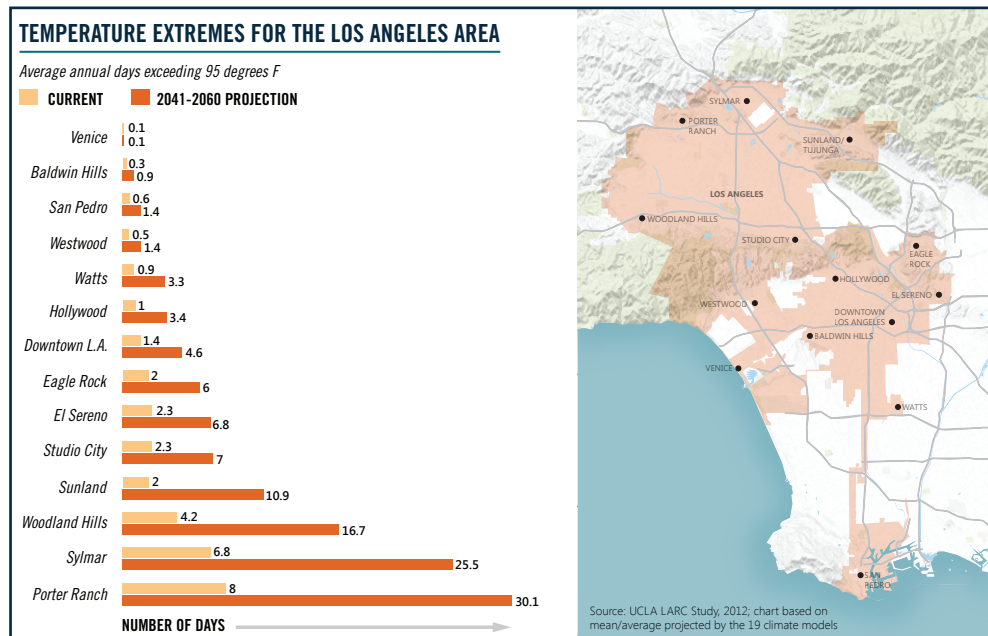
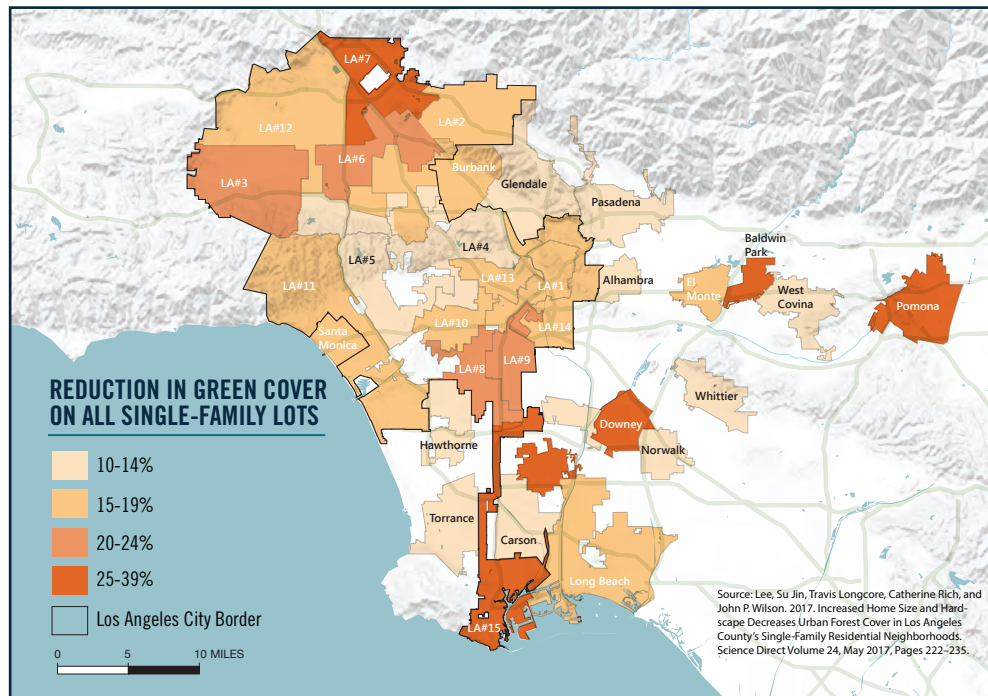
HOW TREES HELP NEGATE THE URBAN HEAT ISLAND EFFECT

NO TREES OR GREENERY



WITH TREES AND GREENERY

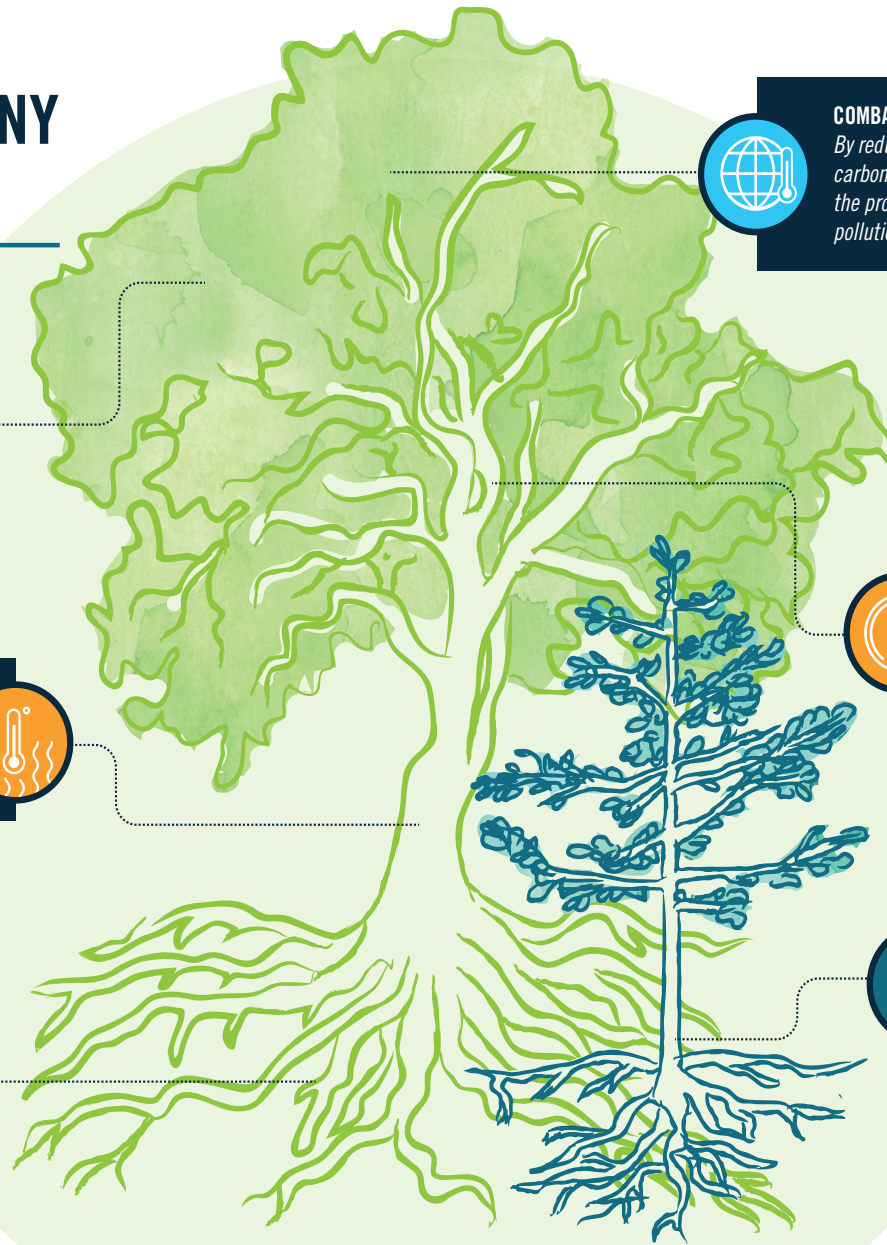




Service). Further, reducing energy use directly combats climate change by decreasing the production of associated air pollution and greenhouse gas emissions (Environmental Protection Agency 2016).

A UFMP will provide the foundation for the City to maintain and grow a sustainable urban forest at a time when drought, pests, disease, and development threaten to drastically reduce the tree population. One pest, the invasive shot hole borer (ISHB), has an estimated potential to kill 27 million trees in Los Angeles, Orange, Riverside, and San Bernardino Counties, or roughly 38% of the total tree population for these areas (Los Angeles Times 2017). The U.S. Forest Service estimates that since 2010, 129 million trees have died in California due to conditions caused by climate change, drought, and bark beetle (U.S. Forest Service 2018). Tree loss from environmental factors are exacerbated by those attributed to human interference. From 2000-2009 the 20 largest cities in the Los Angeles basin saw an annual decrease in tree canopy cover of 1.2% due to increasing home sizes (Lee et al. 2017). These factors suggest Los Angeles is at a critical period for potential catastrophic tree canopy cover loss. If estimates of tree loss from the ISHB are accurate, the cost to remove and replace the affected trees would be roughly \$36 billion (Los Angeles Times 2017). These worst-case scenarios suggest tumultuous times for urban forests. However, if the City is willing to invest now towards creating a more sustainable urban forest, the city's trees will be healthier, more diverse, and better cared for and the urban forest better equipped to respond to the various environmental threats.

TREES OFFER MANY BENEFITS...



COMBATS CLIMATE CHANGE

By reducing energy demand and absorbing carbon dioxide, trees and vegetation decrease the production and negative effects of air pollution and greenhouse gas emissions.

CLEANER AIR

100 trees remove 53 tons of carbon dioxide and 430 pounds of other air pollutants per year.

REDUCES URBAN HEAT ISLAND EFFECT

Shaded surfaces may be 20–45°F cooler than the peak temperatures of unshaded materials.

SAVES ENERGY

Strategically placed shade trees can help save up to 56% on annual air-conditioning costs.

CLEANER WATER

A medium-sized tree intercepts up to 2,300 gallons of stormwater runoff per year.

CAPTURES RAINWATER

One hundred mature trees can capture and store about 139,000 gallons of rainwater per year.

INCREASES BUSINESS

Shoppers will spend 9% to 12% more for goods and services in business districts having high quality tree canopy

GREEN ECONOMY

In 2009 urban forestry supported 60,067 jobs in California resulting in \$3.3 billion individual income.

IMPROVES PUBLIC HEALTH

People living in polluted urban areas are far less likely to be admitted to hospital with asthma when there are lots of trees in their neighborhood.

IMPROVES MENTAL HEALTH

People living in neighborhoods with less than 10 percent tree canopy are much more likely to report symptoms of depression, stress and anxiety.

KEY FINDINGS

The following summary provides brief descriptions of important findings from this First Step UFMP evaluation:

Trees are not valued in City Budget and Planning. The urban forest is not financially supported like other City infrastructure by City decision makers, despite published appraisals collectively valuing private and public trees at over \$12 billion (Nowak, et al. 2011). Further, providing best practice maintenance levels has not been a high priority, despite the upward-trending, City-settled tree damage payouts that reached nearly \$4 million in 2017.

Urban forest budgets are far below necessary levels. An estimated budget increase of \$40–\$50 million is needed to manage the urban forest at a sustainable level. The City’s annual per-tree urban forestry budget of approximately \$27 is 140% to 212% less than what comparator cities invest in their urban forest trees each year.

Dedicated staff lack direction from City leadership. The City lacks urban forestry vision and leadership, which would unite, coordinate, and support the dedicated and talented individuals and leaders who fill urban forestry management roles around shared goals, objectives and actions.

Historical and ongoing scattered approach with little follow through. The City’s leadership has attempted to enact resolutions toward urban forestry improvement, but this often occurs with no focused, targeted approach toward more holistically developed goals, and there has been a significant lack of implementation.

The City does not know enough about its trees. The City does not have reliable street tree information from a tree inventory, and consequently does not know what it has or what is needed, how to set and achieve short- and long-term goals, and what path toward an optimized urban forest is necessary.

The City’s technological urban forest management tools are incomplete. Only portions of the City currently use a tree management program with industry-standard features to manage the urban forest. Recreation and Parks (RAP) uses a tree management software program and recently was awarded grant funding to update its tree inventory, which can be used as a model for other City agencies managing public space trees.

The City’s urban forest has significant gaps to sustainability. A sustainability gap analysis completed by the Working Group documented Los Angeles’ current urban forest sustainability score compared

to the agreed upon sustainability goals Los Angeles should achieve. The current score of 2 against its goal score of 109 indicates a significant, but no insurmountable gap to a realization of maximum urban forest benefits/services and other sustainability metrics.

Achievable actions can close the gap. Closing the City’s urban forestry sustainability gap can happen quickly with defined, achievable steps, including completing a UFMP and tree inventory, investing in a tree management software program, committing to urban forestry funding, organizing public education campaigns, and selecting a qualified urban forestry coordinator to support goal achievement.

The City lacks comprehensive urban forest planning and management guides. The City has some components of a UFMP, but most UFMP criteria need to be developed/created as part of a comprehensive planning effort.

Band-Aid approach hinders more holistic planning. The City’s urban forestry successes, such as grant-funded tree planting, RAP maximizing tree care on a dwindling budget, Urban Forestry Division’s responsiveness to urban forest issues, and others, may actually be detracting from a more holistic and strategic approach to urban forest target-setting and goal achievement.

PRIORITY RECOMMENDATIONS: FIRST STEPS TO A SUSTAINABLE URBAN FOREST

Based on the First Step UFMP's key findings, the following are priority recommendations:

STEP

1

City Council and the Mayor must prioritize the urban forest.

City leadership must value the services its urban forest provides as infrastructure that delivers a measurable return on investment to the economy, environment, and public health. Until this is realized, management of the City's trees will continue to be low on the priority list for adequate funding, staffing, maintenance, and long-term goal setting and achievement. Prioritizing the urban forest in public spaces – both parks and streets – consists of:

- A Assess** its condition through a tree inventory and canopy cover analysis so planning decisions are fact-based.
- B Fund** a full urban forest management plan with a cohesive, unifying vision, so that short- and long-term planning and strategizing can be completed by knowledgeable urban foresters in coordination with all City departments that influence, or are influenced by, trees.
- C Sustain** throughout future budget cycles and administrations the necessary resources and leadership needed to implement best management practices within each department managing public trees.

STEP

2

Hire an urban forestry coordinator to make holistic changes to LA's urban forest management approach.

The City has funded an urban forestry coordinator position that is currently positioned to be located within the Board of Public Works. Dudek/UFM strongly recommend that the position be filled by a highly qualified, accomplished urban forester with extensive experience in city management and arboriculture/urban forestry. The urban forestry coordinator should be recognized and empowered as the City's urban forestry leader, with responsibility to oversee completion of the UFMP and tree inventory, and then for achieving, re-evaluating, and re-setting urban forestry goals over time. The term "leader," however, must not follow the typical top-down structure. The coordinator must be a "servant leader" who provides leadership by empowering those who are responsible for enacting day-to-day management, planning, maintenance, planting, outreach, and other urban forestry activities. The primary

responsibility of the urban forestry coordinator should be to ensure that urban forestry personnel have what they need to carry out their roles toward UFMP goal achievement. The coordinator must also be empowered to make changes to the urban forestry program, where necessary, to achieve goals, streamline work flow, facilitate coordination and cooperation, and maximize effectiveness. A thorough search for qualified candidates and interviews that involve participation from a subset of representatives from the working group described in this First Step UFMP, should assist in the selection process.



STEP**3A****Increase urban forestry funding to support sustainable management.**

Urban forestry funding has been drastically reduced since the 2007–2009 recession, and this has had significant impacts on the ability of the City’s Urban Forestry Division (UFD) and Recreation and Parks (RAP) to provide necessary tree maintenance. The UFD pre-recession budget was already insufficient, and with the cuts the trimming cycle decreased to 50–60 years, gradually increasing to its current 18 years, compared to 5- to 7-year cycles that are used by many cities. The budget cuts to UFD and RAP also resulted in many dead standing trees that were not removed in reasonable time frames, increasing hazardous conditions and resulting in upward trending tree-related settlements. Tree planting, an important component of urban forestry, is not funded by the City; instead, it is funded through non-guaranteed grants. Overall, the City’s financial commitment to urban forestry has not recovered since the recession and must be brought to levels that will enable effective tree management, risk reduction, equitable canopy enhancement, and a more sustainable urban forest.

STEP**3B****Complete an Urban Forestry Financing Plan.**

Funding urban forestry will require commitment from the City Council and the Mayor’s office, but may also require commitment from citizens. It is estimated that the current \$25.4 million urban forestry funding (RAP and UFD combined) will need to be increased to between \$70–\$80 million to elevate the City’s urban forestry program to a level more consistent with sound urban forest management (estimated from current LA funding and comparison city funding of New York and Melbourne). Funding increases are difficult to achieve and will likely require a diverse revenue stream. To that end, it is recommended that a municipal financing consultant be hired to work with urban foresters and City stakeholders to develop an Urban Forestry Financing Plan. This plan would evaluate what staffing levels are needed to manage the urban forest at a more sustainable level, reflecting this increase in the City budget, and the best available options for the City to fund its urban forest management. Funding is considered the most significant issue facing the City’s urban forest. The Urban Forestry Financing Plan must be accomplished as soon as possible and can proceed prior to initiation of a UFMP.

STEP**4A****Complete a comprehensive tree inventory as soon as possible.**

Knowing the details of an urban forest’s trees, including their species, sizes, ages, locations, and conditions, along with detailed vacant tree space information, is critical to the UFMP process. A tree inventory by professional arborists must be planned, funded, and completed in advance of the UFMP (although portions of a UFMP may be developed simultaneously). This is a critical component for UFMP completion, and will cost approximately \$3 per tree. RAP has already been awarded a grant to complete a current inventory of park trees. The 700,000 street trees not part of RAP can be inventoried for approximately \$3 million (estimate provided by professional inventory company and confirmed by Dudek). The inventory will require a year or more to complete and therefore, must be initiated as soon as possible, preferably prior to the development of the UFMP.

STEP**4B****Implement a tree management software program to facilitate tree and urban forest management.**

Tree inventory information is critical to urban forest planning, but without the aid of a tree management software application, the data can be cumbersome and ineffective. There are two possible types of tree management applications appropriate for Los Angeles: stand-alone tree management applications that are web-based, ESRI GIS compatible, include robust mobile access, are customizable, and are reliable; or enterprise-based asset management software that incorporates user-interfaces for each of a city's assets, including its trees. Each of these options has advantages, with the stand-alone software more off-the-shelf ready and costing considerably less, and the enterprise system integrating all City data into one database that is accessible by all departments for planning purposes. Stand-alone tree management software may cost \$35,000 or more initially, with ongoing, annual licensing fees. Enterprise systems may cost \$250,000 or more, with ongoing, annual licensing fees. The Urban Forestry Division is in the process of exploring tree management software and should coordinate with RAP so that they use the same system, or at least ensure system compatibility to facilitate future urban forestry planning and monitoring.

STEP**5****Implement public outreach to improve urban forest awareness and engagement.**

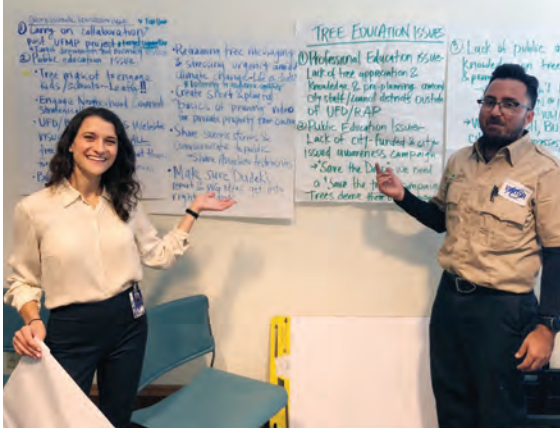
Allocating appropriate funding to the City's urban forestry program will require that City decision makers understand the current urban forest deficiencies and services, but also requires that the public prioritizes urban trees. Although the public survey conducted as part of this First Step UFMP resulted in more than 2,600 responses that provided valuable input, it is a very small percentage of the City's overall population. Although the responses showed great interest and value for the urban forest, the general assumption is that many Los Angeles residents do not value trees and their many benefits due to a lack of organized and strategic tree education and awareness. Public outreach has been successfully planned and executed in Los Angeles for a variety of

important subjects including, most recently, the One Water campaign for water conservation. The public may, at some point, be relied upon to help financially support increases in urban forestry funding. Providing fact-based information regarding the significant benefits trees return to each resident is critical to raising tree and urban forest awareness, acceptance, and appreciation. Providing a strategic, community based, and focused urban forest outreach campaign must include the same type of unified message and approach as other successful programs, with a variety of message formats in print, on television, across social media platforms, and at publicized events.



STEP 6

Develop and Implement an Urban Forest Management Plan.



A comprehensive UFMP is a roadmap toward a sustainable urban forest, and without it, the City's urban forest program lacks direction, vision, public support, goals, and defined responsibilities. This First Step UFMP has started the UFMP process, but these results must be leveraged into an actual UFMP, and this must happen as soon as possible to take advantage of the generated momentum. A comprehensive UFMP for the City will cost an estimated \$400,000, which is only \$0.40 per public tree and only \$0.04 per public and private tree. This cost is based off the estimated hours of professional urban foresters needed to complete a Los Angeles UFMP in comparison to the efforts needed to complete UFMP's in other cities.

This evaluation of the City's urban forestry program indicates that Los Angeles, at various times, has had focused efforts toward a sustainable urban forest, but the efforts could not be maintained because the City lacked consistent urban forestry leadership, vision, funding, and planning. The momentum generated from the adoption of the City's Urban Forestry Policy in 1993—sporadic initiatives to strengthen protection of native trees or plant more trees—shortly dissipated, with success thwarted due mainly to the absence of urban forestry systems and recognition that urban forests are essential to a vibrant Los Angeles. These failures have led to disparate tree canopy cover between affluent and disadvantaged communities; trees as an afterthought as the City develops; and an urban forest vulnerable to catastrophic losses in the face of climate change, pests, drought, and disease.

This can be the moment when Los Angeles takes the steps toward a sustainable world class urban forest, and follows through on its commitment to create one. It can be the beginning of an engaged public protecting and promoting trees, cleaner air to breathe, cooler homes with lower energy costs, more habitat for local wildlife, less pollution running off into the ocean, and reducing and offsetting greenhouse gas emissions that contribute to climate change. Now can be the moment that future generations celebrate because the city's actions saved Los Angeles' tree canopy that they enjoy as they walk down a tree-lined street. The opportunities are abundant and the tree benefits and services are numerous. Success is readily obtainable with a dedicated Los Angeles working toward a common goal.

This First Step UFMP presents a framework toward a more sustainable urban forest. It also indicates that a distinct opportunity exists now for elected officials, City staff, and urban forestry stakeholders.

1.0

INTRODUCTION/BACKGROUND

It has been 25 years since the last comprehensive City of Los Angeles (City) urban forest assessment. That assessment focused on the governance structural deficiencies that prohibited Los Angeles from having a world-class urban forest. The 1993 Urban Forest Task Force, much like the current Los Angeles First Step working group that supported the preparation of this First Step Urban Forest Management Plan (UFMP), performed the assessment, identified issues, and provided recommendations to improve urban forest management. The 1993 Task Force's two major recommendations were to create the Community Forest Advisory Committee, and to hire a director of community forestry to be housed in the Board of Public Works and provide technical expertise to all departments affecting trees. The 1993 Task Force based the recommendations on the following findings (LA City Council File 91-2372):

- *“There is no centralized urban forest planning. There is no information clearinghouse on the latest urban forestry methods. There is no coordination between departments and agencies on techniques for maintaining the urban forest or planning its growth.”*
- *“City budget cuts eliminated funding for any new street trees, and reduced the level of routine tree pruning to once every 17 years.”*
- *“Several City departments and agencies have oversight over trees on public property, and several additional agencies are affected by trees or affect trees. This results in wasteful duplication of effort and direct contradiction between City departments on policies governing tree selection and care.”*
- *“The multitude of agencies that oversee trees on public property makes it difficult for members of the public to contact the right City agency with concerns about their neighborhood trees. There is no effective public policy advocacy for the urban forest, and no avenue for public participation and support.”*
- *“Conflicting demands for space under, above, and on the sidewalk currently limit the number and variety of trees that are planted, and frequently harms a tree’s health and stunts its growth. Safety is jeopardized when a poorly selected or maintained tree obscures lights and signs and damages the sidewalk.”*

The First Step UFMP process found that most of these findings are as applicable today as they were in 1993.

Many of these overarching challenges are still present in the City’s governance, but some progress has been made. The reasons for the persistence of these issues are multi-faceted, but ultimately rest with elected officials and City departments not providing trees the same prioritization as they give other City infrastructure. However, recent increases to Urban Forestry Division (UFD) staffing, passing of the Guaranteed Tree Fee, updating of the Protected Tree Ordinance and City Council urban forestry resolutions could be indicators that the City is ready to make larger, systemic improvements to its urban forest management.

The following sections provide a summary of Dudek and Urban Forest Innovations’ evaluation of the City’s urban forestry program. Sections will address urban forestry concepts, evaluation methods, results and findings, and recommendations. The goal of this First Step UFMP is to identify the major issues facing the City’s urban forest and its management, and to provide a clear path forward that facilitates UFMP preparation.



OVERVIEW OF LOS ANGELES' PRIVATELY-OWNED URBAN FORESTS



SURVEY PARTICIPATION AD



WORKING GROUP MEETING



RESIDENTS LOVE TO GET INVOLVED

2.0 VISION STATEMENT

One of the first components of UFMP development will be to establish a vision for Los Angeles' urban forest. There are many possible options that vary by individual and their unique views, preferences, and priorities. On May 10, 2018, the Los Angeles First Step Working Group (working group) broke into subgroups to perform a visioning exercise to discuss and formalize initial ideas for a specific vision statement. Urban forestry visioning is a planning process through which a shared vision is created. Creating the shared vision facilitates the process of developing goals and objectives to achieve that vision, which is the next step in the UFMP development process.

At its core, a vision statement should ensure that developers and implementers of a UFMP have a common understanding about the desired outcome. That is, the vision statement should capture the community's priorities for its urban forest, its future condition, the care it receives, and how it is valued. A UFMP will be considered successful at the end of the planning horizon (typically 40 years) if the vision statement accurately reflects the then-current state of the urban forest.

The working group vision statements provided insight into expected outcomes for Los Angeles' urban forest. These vision statements were used to assemble options to be considered when the vision statement will be finalized. The primary concepts, priorities, and values will be consistent with the working group's vision, but may be re-worded during the initial stages of UFMP development based on additional public input.

These vision statements address the major components of modern urban forestry programs nationwide. The vision statement below was developed by Dudek as a synthesis of the working group vision statements for consideration in the UFMP:

Achievement of the stated vision will require critical changes in the City's urban forestry approach. To fulfill this vision, Los Angeles must be committed to providing tree management and maintenance at a strategic and high level. That must start with the development of a UFMP, but will also necessitate a commitment to adequately funding implementation of UFMP actions, urban forestry planning, protection, monitoring, and tree maintenance and planting programs. Sustainability is an important component of an urban forest vision statement. The next section defines sustainable urban forests and discusses how this First Step UFMP evaluates the City's urban forest in relation to sustainability.

First Step UFMP Vision Statement:

Los Angeles' urban forest is healthy, diverse, resilient, and expanding. It sustains vibrant, livable, and unique communities, and promotes health and well-being equitably for all of the city's residents and visitors.



The following preliminary working group vision statements were also developed:

Given that trees are vital for community well-being, the Los Angeles urban forest will be intentionally designed, funded and maintained to maximize the essential benefits trees provide, including shade canopy, pollution mitigation, and ecosystem function for ALL Los Angeles residents.

Support and celebrate the preservation and growth of Los Angeles' urban forest and natural areas for a healthy, vibrant city.

Los Angeles' urban trees are the lungs of our city. They are a verdant, climate-appropriate, proactively-managed urban forest growing in all neighborhoods equitably. They promote the health of our communities, watersheds, airshed, soil, and unique habitats, and are a beloved point of pride nurtured by all Angelenos.

By 2050 Los Angeles' urban forest is a sustainably funded, thriving, diverse, resilient and equitable sanctuary benefiting the environment and our communities cherished and valued by all.

The Los Angeles urban forest will be strategically planned, well-managed and sustainably funded. It will provide equitable benefits for communities and ecosystems and foster and inspire stewardship and appreciation.

3.0 SUSTAINABLE URBAN FORESTS

Sustainability as a goal can be a vague and unachievable endeavor without an agreed upon definition of the term or the parameters to measure whether progress is being made toward the goal. To help define what a sustainable urban forest means for Los Angeles, this report used the model of urban forest sustainability first established by Clark et al. (1997). This model establishes four principles of sustainability:

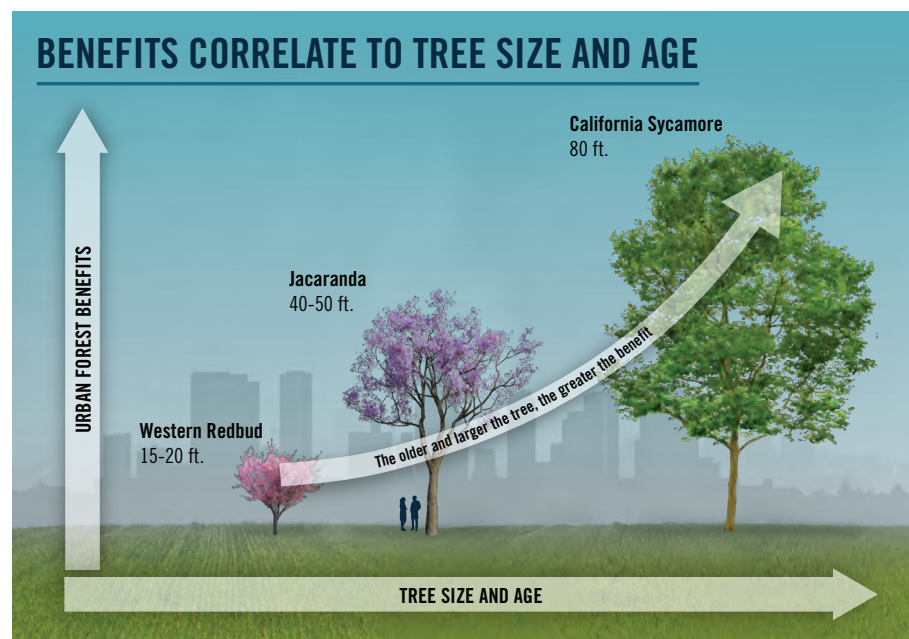
- 1 **Sustainability is a broad, general goal.**
- 2 **Urban forests primarily provide services rather than goods.**
- 3 **Sustainable urban forests require human intervention.**
- 4 **Trees growing on private land compose the majority of urban forests.**

Understanding these principles infers an understanding that sustainability of an urban forest is not an end point. There will not be a moment in the future when a city can stop actively managing its urban forest and expect the same level of services to continue. A sustainable urban forest requires continual management of the trees throughout planting, young tree care, maintenance, re-

moval, re-planting, and wood re-use.

There are limitations of confining the goal of urban forest sustainability to within the City's borders when other ecological boundaries, such as local watersheds, could be considered. However, sustainability is also a function of the resources available to maintain the system, and necessitates boundaries being defined by the city where the resources will be provided and services received.

These principles and understandings provide a definition for urban forest sustainability as, "The naturally occurring and planted trees in cities which are managed to provide the inhabitants with a continuing



level of economic, social, environmental and ecological benefits today and into the future" (Clark and Matheny et al. 1997). This definition should help guide all future UFMP discussions.

With a definition of urban forest sustainability, there must also be a metric to measure the performance level of the various components of urban forest management. This First Step UFMP recognizes Vibrant Cities Lab's "Community Assessment and Goal-Setting

Table 1
Comparison Sustainability Scores

City	Total Current Score	Total Goal Score	Current Gap
Melbourne, Australia	65	109	44
Irvine	62	111	49
Toronto, Canada	34	111	77
Los Angeles	2	109	107

Tool” as the best metric for the City to use as a standard for measuring its progress toward sustainability. Vibrant Cities Lab was created in partnership with the U.S. Forest Service, American Forests, and the National Association of Regional Councils to be an online resource providing the most current urban forest management industry standards (Vibrant Cities Lab 2018).

The Community Assessment and Goal-Setting Tool is based off the work of Clark et al. (1997) and subsequent updates and revisions by Kenney, van Wassenauer and Satel (2011) and Leff (2016), and establishes criteria and indicators to measure urban forest sustainability. Each section of the assessment has multiple questions that provide different descriptions to define the current state of a specific area of urban forest sustainability. The user is asked to decide what the current state is and what the goal should be. The low level score of -1 reflects actions that have a negative impact. The optimal level score of 4 reflects the best possible standard. The “Total Current Score” reflects the perceived state of how a

city is functioning, the “Total Goal Score” reflects where a city wants to be, and the “Gap Score” reflects how far a city is from its desired goal (Vibrant Cities Lab 2018).

Self-reported or consultant-developed Vibrant City Lab scores for Melbourne, Australia; Irvine, California; and Toronto, Canada are presented in Table 1. The Los Angeles score was the result of a working group activity to assess the City’s urban forestry program. Table 1 shows a comparison of each city’s current sustainability score, goal score, and current gap.

The cities of Melbourne and Irvine (scores of 65 and 62), and to a lesser extent, Toronto (score of 34), are known to have well-run and sustainably funded urban forestry programs. Even so, they continue to seek goal achievement that will reduce their current gap scores.

Despite Los Angeles having a seemingly insurmountable current gap, reducing the gap can happen quickly with the implementation of some basic urban forestry planning activities, including completion of a tree in-

ventory and an UFMP. Of the 28 baselines in the gap score analysis, the following six categories should be prioritized for immediate action as they reflect the six key steps and recommendations.

1 Trees Acknowledged as Vital Community Resource:

Stakeholders from all sectors and constituencies within municipality – private and public, commercial and nonprofit, entrepreneurs and elected officials, community groups and individual citizens – understand, appreciate, and advocate for the role and importance of the urban forest as a resource.

- Current rating Low (-1): General ambivalence or negative attitudes about trees, which are perceived as neutral at best or as the source of problems. Actions harmful to trees may be taken deliberately.
- Goal rating Optimal (4): Urban forest recognized as vital to the community’s environmental, social, and economic well-being.

2 Municipality-Wide Urban Forestry Funding:

Develop and maintain adequate funding to implement municipality-wide Urban Forest Management Plan.

- Current rating Low (-1): Little or no dedicated funding.

- Goal rating Optimal (4): Sustained, long-term funding from multiple municipal, regional, and/or state agencies, along with private sources to implement a comprehensive Urban Forest Management Plan and provide for maintenance and adaptive management as circumstances change.

3 Inventory: Current and comprehensive inventory of tree resources to guide management, including data such as age, distribution, species mix, tree condition, and risk assessment.

- Park Tree Inventory (being completed) – Current rating Low (-1): No inventory, to Fair (1) Complete or sample-based inventory of publicly owned trees.
- Street Tree Inventory - Current rating Low (-1): No inventory.
- Goal rating Optimal (4): Systemic comprehensive inventory system of entire urban forest with information tailored to users and supported by mapping in municipality-wide GIS system. Provides for change analysis.

4 Assessment of Publicly Owned Trees: Current and detailed understanding of the condition and risk potential of all publicly owned trees that are managed intensively (or individually).

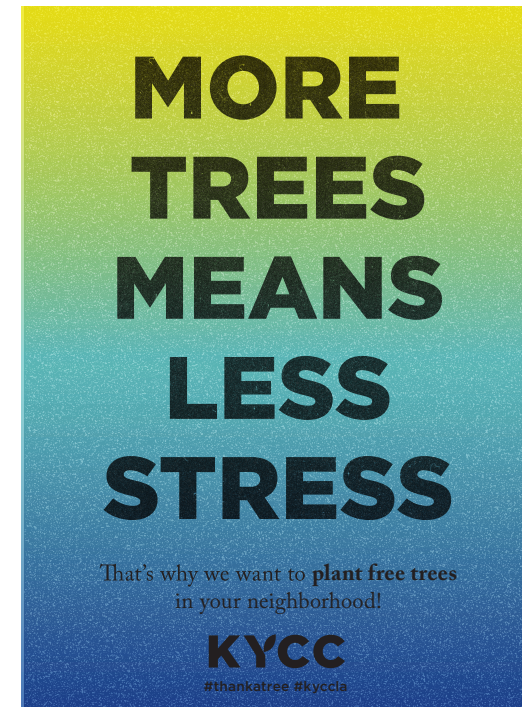
- Park Tree Assessment (assessment being completed) – Current rating between Low (-1): No information, and Good (2): Complete tree inventory that includes detailed tree condition ratings.
- Street Tree Assessment: Current rating Low (-1): No information. (The information that the City currently has is old, incomplete, and lacking industry standard attributes.)
- Goal rating Optimal (4): Complete GIS tree inventory that includes detailed tree condition and risk ratings.

5 Engage Residents in Planning and Implementation: Enable community stakeholders to participate in and help shape the planning process.

- Current rating Fair (1): Some neighborhood groups engaged across the community but no minimal outreach to assure underserved neighborhoods participate effectively.
- Goal rating Optimal (4): Proactive outreach and coordination efforts by municipality and NGO partners resulting in widespread citizen involvement and structure engagement among diverse neighborhood groups.

6 Develop Urban Forest Management Plan: Develop and implement a comprehensive Urban Forest Management Plan for public and private property.

- Current rating Low (-1): No urban forest management plan.
- Goal rating Optimal (4): New or recent urban forest and green infrastructure management plan that targets public and private tree planting and protection based on assessment of anticipated benefits and ensures these benefits are distributed equitably among neighborhoods.



4.0 COMPARISON CITY RESULTS

An important First Step UFMP task was to evaluate three cities known to have exceptional urban forestry programs and compare them with Los Angeles. In the March working group meeting, suggestions for the comparison cities were made by focused subgroups, which ultimately led the Dudek and Urban Forest Innovations consultants to select New York City, Melbourne, and San Francisco as the comparison cities. Urban forestry information gathered on the comparison cities was provided by city staff and garnered from publicly available resources.

The primary factor differentiating the urban forest programs of the comparison cities and Los Angeles is that all of the other cities take full responsibility for their trees throughout their entire life cycle, from planting, establishment care, and pruning to removal and replacement. They collectively recognize trees as a part of city infrastructure and fund the management of them as such. San Francisco was the only city with a complete UFMP for street trees, but all cities had planning documents or goals that aligned with urban forest sustainability standards. One of the important reasons these cities were able to create UFMPs or related planning documents is because they

completed tree inventories and they use tree management applications.

Despite Los Angeles trailing these cities in the management of its urban forest, the comparison cities provide clear examples of what Los Angeles can do to close the gap. The following list reflects the main take-aways from the comparison cities analysis:

- All comparison cities are responsible for the management of their public trees throughout their life cycle.
- Best management practices are consistently implemented for each comparison city (pruning cycles, establishment care, stocking rates, protection policies, etc.).
- They all created management and funding approaches unique to the societal, political, and economic landscape of their city.
- Each city funds urban forest management at sustainable levels.
- Melbourne's climate adaptation strategy can be adapted for Los Angeles as it mirrors the City's environmental issues.
- San Francisco's approach to creating a UFMP and sustainable funding stream is a model for Los Angeles.

Table 2 provides comparison city results for several key urban forest program indicators.

UFD = Urban Forestry Division; RAP = Los Angeles Department of Recreation and Parks; UFMP = Urban Forest Management Plan

New York City

New York City has demonstrated commitment to fund urban forest management, but lacks a clear vision derived from a UFMP to direct the decision-making process based on sustainability principles. This dichotomy was best shown by city leadership that released its sustainability planning document, PlaNYC, in 2007 that had only one goal for its urban forest: to reach 100% stocking rate of all available street tree locations by 2015. This goal was not based on a canopy cover assessment or other sustainability measurements, but achievement would result in canopy cover increases and improved city canopy cover equity. This became known as Million Trees NYC, and the City invested \$350 million (City of New York 2007) which allowed the tree stocking goal to be met and 1 million trees planted by 2015.

Knowing where the available tree locations existed required a tree inventory. Instead of funding a professional inventory with

Table 2
Comparison City Results

City	New York City	San Francisco	Melbourne	Los Angeles
Population	8,622,698	884,363	135,959	4,030,000
Street Tree Total	666,134	125,000	50,000	700,000
Park Tree Total	140,000	131,000	25,000	150,000–300,000
Urban Forest Budget	\$57 million	\$19 million	\$4.6 million	\$25,395,000 – Total \$21,595,000 – UFD \$3,800,000 – RAP
Per-Capita Spending	\$6.61	\$21.48	\$33.83	\$6.30
Per Tree Spending	\$70.71 (all public trees)	\$74.21 (all public trees)	\$61.33 (all public trees)	\$25.40 – \$29.87 (all public trees) \$30.85 (street Trees) \$13–\$25 (park trees)
UFMP	No	Yes for street trees	Urban Forest Strategy Plan	No
Tree Stocking Rate Goal	Estimated new street tree potential as of the 2015 Street Tree Census: 240,000	2,500 per year to 2034 to reach goal of 155,000 street trees	3,000 per year to increase canopy from 22% to 40% by 2040	None
Tree Establishment Care	2 years	3 years	2 years	None

robust data attribute collection, New York City used a volunteer-based approach to collect basic street tree inventory information, which they have updated every 10 years since 1995. The latest count in 2015–2016 engaged more than 2,000 volunteers who inventoried 663,134 trees using a combination of smart phone app-based tree locating and basic inventory tools, with a reported 96% accuracy of information (City of New York 2015). This accuracy

rating conflicts with recent studies that indicate volunteer/citizen based inventories have much lower accuracy, resulting in suspect data for planning purposes (Hamilton, et.al. 2018). This inventory is used to update the publicly available city tree map that shows species and location, and calculates tree benefits. It is also used in the “Tree Work Hub” portion of the New York City Parks website, which provides the city’s current tree planting, pruning, dead tree/stump

removal, and sidewalk repair status (City of New York 2018).

Before Los Angeles considers a volunteer model to update its inventory, an inventory must be completed by professional arborists experienced in assessing tree structure, health, size, and other essential tree characteristics. After that is completed the City could look to incorporate a similar City-wide volunteer effort to engage and educate residents as part of an ongoing inventory update model. Applying the transparency of New York City’s Tree Work Hub to Los Angeles would likely help encourage positive interactions between the public and urban forest managers.

Another distinguishing factor about New York City’s urban forest management is its approach to deter illegal tree pruning and removal by stating its policy and punishment for these actions on the New York City Parks’ website. No one is allowed to work on a tree unless employed by Parks or employed under a contract with Parks. Violating this policy is typically a misdemeanor punishable by up to a \$1,000 fine or 90 days in prison, but more serious cases can result in a fine up to \$15,000 or 1 year in prison. Clarity for what constitutes illegal tree pruning is not clear and can be confused by the public. Enforcement of illegal tree pruning and tree removal in Los Angeles is rare, fines are minimal, and no information on the City policy is available online. Further examination of the effective-

ness of this and other cities' policies during UFMP development would help Los Angeles determine an appropriate punishment and/or fine that considers the real value of trees and their provided services.

San Francisco

The urban forestry situation in San Francisco in 2012 was very similar to what currently exists in Los Angeles. That year, San Francisco began a process led by the Planning Department, Urban Forestry Council, and Friends of the Urban Forest to compile information for a UFMP through meetings, workshops, and public forums led by urban forestry specialists. This process continued with the completion of an independent analysis on available municipal funding mechanisms and the cost of financing San Francisco's urban forest (City of San Francisco 2013). This contributed to the 2014 completion of an Urban Forest Plan (City of San Francisco 2014). The shortcomings of the San Francisco urban forest were inadequate funding, property owners having responsibility for tree maintenance, and urban forest management struggling to compete in the city budget process. Although elected officials professed support for trees and proper urban forest management, they did not provide the needed funding. In response to these conditions, a 2016 ballot measure was created and passed that placed responsibility for all public space street trees with the city, and set aside \$19 million a year for their management (City of San Francisco 2016).

San Francisco provides a nearby template for Los Angeles as another California city. San Francisco's model should be explored during the City's UFMP process with customizations for the City's unique challenges and constraints. The authors of the Los Angeles UFMP would be well-advised to consider San Francisco's approach and successes when developing/finalizing the UFMP and its goals and objectives.

San Francisco has among the most thoroughly planned and researched approaches to managing a sustainable urban forest. The city completed its financial study, performed an inventory of its 125,000 street trees, and a performed neighborhood level tree canopy cover assessments. With a researched urban forest and sound tree information, future policy and planning decisions can be confidently made and implemented, leading toward a more sustainable urban forest.

San Francisco's Urban Forest Plan illustrates to residents the many benefits/services they receive from trees, how much their neighborhood benefits from trees, and what neighborhood urban forestry goals they should adopt. It allows targeted messages to be sent to communities that focus on the priority issues that, when addressed, support the larger urban forest vision and related goals. The Urban Forest Plan process also provides excellent opportunities for open dialogue with residents about their urban forest concerns and goals.

Melbourne

Melbourne was selected as a comparison city because it includes a similar climate to Los Angeles and faces similar challenges. Melbourne, like San Francisco, provides an opportunity to fast-track Los Angeles UFMP sections due to the well-planned, solid approaches being implemented toward urban forest sustainability. Melbourne has been proactive with planning and implementing urban forestry goals, and is now considered a global leader in urban forestry. Los Angeles can follow Melbourne's lead and reach this status, but only with City-leader commitment and funding.

Melbourne prepared its Urban Forest Strategy in 2012, establishing a 20-year timeline for creating a world-class urban forest. Melbourne's Urban Forest Strategy goal is to guide the transition of the landscape to one that is resilient, healthy, and diverse, and that meets the community's needs. This equates to a sustainable landscape with trees representing a significant component (City of Melbourne 2012).

The Urban Forest Strategy identified challenges that the city is currently facing: climate change, population growth, and urban heating. These factors are expected to place significant pressure on the city's built fabric, services, and people. The City recognized that a healthy urban forest will play a critical role in maintaining the city's health and livability (City of Melbourne 2012).

Melbourne's guiding principles toward a healthy, diverse, and resilient urban forest are so applicable to Los Angeles, they could almost be copied directly into Los Angeles' UFMP. These guiding principles are as follows (City of Melbourne 2012):

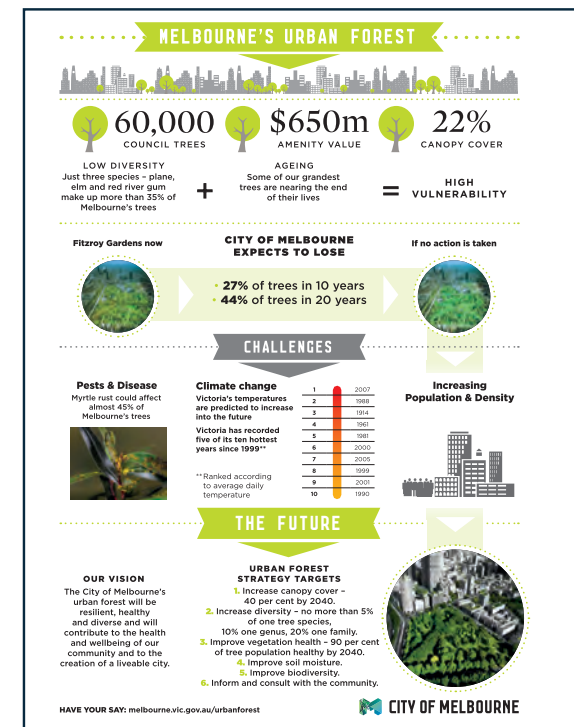
- **Mitigate and adapt to climate change**
- **Reduce the urban heat island effect**
- **Become a “water sensitive” city**
- **Design for health and wellbeing**
- **Design for livability and cultural integrity**
- **Create healthier ecosystems**
- **Position Melbourne as a leader in urban forestry**

The City of Melbourne is divided into 10 precincts based on each area's unique character and culture. The Urban Forest Strategy for Melbourne provides each of the 10 precincts with a prepared plan that guides how the guiding principles are implemented into local neighborhoods. Precinct plans were developed in collaboration with the community and provide information on the state of the urban forest in that area and future expected changes (City of Melbourne 2012). Los Angeles could benefit from a similar strategy by using its UFMP to inform the 35 community planning areas. Holding localized meetings would allow residents of those areas to help direct how portions of the UFMP are designed, planned, and implemented in a way that reflects that community's local values, needs,

challenges and opportunities. Providing more transparency to the community on the status of their local urban forest can alleviate potential community concerns when trees need to be removed, minimize questions regarding when trees will be pruned or sidewalks fixed, and inform the public on how to help protect and preserve trees. One possible format for Los Angeles' UFMP would be to include a master UFMP that provides commonly adopted approaches for sustainable forest management and urban forest-wide information, along with focused community plans for each Council District or other defined areas as appendices. This approach would be more resource-intensive, but would be customized for the City's diverse communities and therefore be more effective and inclusive.

Melbourne recognizes that 75% of the land within its municipality is private, and that the private sector has a large role to play in urban “greening.” Supporting the greening of these areas prompted Melbourne to create its Urban Forest Fund to support new greening projects that would otherwise go unfunded. The funds for this program are raised through private organizations and individual donations. Accepted green project applications are matched dollar-for-dollar by the city for planting trees, creating green spaces, installing vertical gardens, and providing other greening projects that are on private land but are publicly visible or accessible. This provides a positive incentive

for companies and private land owners to add greening elements where typically few, if any, exist (City of Melbourne 2012). A similar program in Los Angeles could incentivize those private entities that wish to physically demonstrate their green/environmental commitment while also providing a public benefit.



5.0 FINANCING LOS ANGELES' URBAN FOREST

Vibrant Cities Lab's Community Assessment and Goal-Setting Tool (Vibrant Cities Lab 2018) was applied to funding and financing for this section:

1 Municipality-Wide Urban Forestry Funding: Develop and maintain adequate funding to implement municipality-wide Urban Forest Management Plan.

- Current rating Low (-1): Little or no dedicated funding.
- Goal rating Optimal (4): Sustained, long-term funding from multiple municipal, regional, and/or state agencies, along with private sources to implement a comprehensive Urban Forest Management Plan and provide for maintenance and adaptive management as circumstances change.

Consistently across working group discussions and departmental interviews, funding was considered well below what is needed to manage the urban forest at best management practice levels. These anecdotal statements by City staff align with the results of the comparison cities study that indicates

that Los Angeles spends roughly \$27 per year on a public space tree compared to Melbourne's \$61.33 and New York City's \$70.71 per tree. Absent a tree inventory and short- and long-term urban forest goals outlined in a UFMP, it is difficult to determine exactly what management actions are needed to manage the Los Angeles urban forest at a sustainable level. Based on an estimated 1,000,000 City trees, and the per tree spending of Melbourne and New York, it is estimated that \$70–\$80 million would be needed to provide best practice tree pruning/maintenance and additional funding for planning, planting, public outreach, and related urban forestry practices. The appropriate funding levels should be analyzed either prior to or concurrently with UFMP development by a qualified third-party municipal financial consulting firm guided by experienced urban foresters. Identification of City-specific potential funding sources/avenues will need to occur so that the UFMP is not prepared without a viable way of being implemented. San Francisco used this model to outline a sustainable funding framework and identify ongoing funding mechanisms (City of San Francisco 2013).

Budget Comparisons

Based on implementing best management practices, current City budgets for UFD and RAP, and the level of service these departments are able to provide with these budgets, some basic assumptions can be made as to what would be needed to meet best practices and a more sustainable maintenance level. Tables 3 and 4 provide current versus estimated needed funding for UFD and RAP. The estimates are based off of departmental interviews with UFD and RAP staff, as well as best practices for urban forest sustainability. These assumptions should not be used to direct budget or policy decisions, but rather to provide an idea of what the City may require to support sustainable urban forest management. Another way to estimate these requirements is to extrapolate from the per-tree funding of Melbourne and New York City, which both manage all aspects of their public space trees. Using this estimate, Los Angeles would need to increase its annual budget to approximately \$70–\$80 million. It is estimated that UFD's budget will need to be between \$55 million and \$65 million per year to maintain trees, provide tree planting and watering, and provide for public improvement and

enforcement of tree policies on private property. It is estimated that RAP's budget will need to be between \$16 million and \$20 million per year to maintain trees and expand the urban forest canopy cover.

Urban Forestry Division

The most recent budget process for Los Angeles includes funding UFD tree planting and watering crews. It also increased the number of tree trimming and dead tree/stump removal crews. However, the Bureau of Street Services Financial Management Division reported the budget actually slightly declined, from a total of \$22,222,680 in FY 2017/2018 to \$21,595,000 in FY 2018/2019. The increase in staffing resulted from the transfer of existing funds for contracted tree trimming to in-house UFD crews (BSS Budget FY 18-19). It is a positive step for the City to recognize its role in planting and caring for the urban forest, and to build UFD staffing levels, which have been inadequate for executing its mission since the recession (post-2009). Though a positive move, UFD budgeting and staffing will need to exceed pre-recession levels to provide best management practices to street tree management, tree protection and planning, and growth of the canopy cover. It should also be further studied and revisited over time what the appropriate mix of work completed by contractors vs. City crews would be to maximize efficiency in delivering City services and minimize cost.

Table 3 Existing vs. Needed Urban Forestry Division Urban Forestry Funding		
Tree Planting	Funding	Trees Planted Per Year
UFD – FY 2018/2019	\$790,790	800
Replace all removed trees	\$3,459,706	3,500
Gap to sustainability	\$2,668,916	2,700
Tree Establishment Care	Budget	Trees with Establishment Care
UFD – FY 2018/2019	\$399,689	800–1,500
2- to 3-year establishment care	\$3,255,500	7,000–10,000
Gap to sustainability	\$2,855,811	6,200–8,500
Tree Trimming and Related Maintenance	Budget	Trees Trimmed Per Year
UFD – FY 2018/2019	\$4,180,138	27,000
To reach 5- to 7-year trimming cycle	\$18,578,391	120,000
Gap to sustainability	\$14,398,253	93,000
Dead Tree and Stump Removal	Budget	Dead Trees/Stumps Removed Per Year
UFD – FY 2018/2019	\$988,072	1,600
No dead trees left standing at end of year	\$2,161,500.00	3,500
Gap to sustainability	\$1,173,428.00	1,900
UFD Funding	Programs	Total Budget Per Year
FY 2018/2019	\$6,358,689	\$21,595,000
Sustainable level	\$27,455,097	\$65,000,000
Gap to sustainability	\$21,096,408	\$43,405,000

UFD = Urban Forestry Division; FY = fiscal year

Table 4
Existing vs. Needed Recreation and Parks Urban Forestry Funding

Tree Planting	Crews	Trees Planted Per Year
RAP FY 2018/2019	1	630
Planting Towards Filling All Vacant Sites	6	1,000
Gap to sustainability	5	370
Tree Establishment Care	Crews	Trees with Establishment Care
RAP FY 2018/2019	1	630
2- to 3-year establishment care	6	3,000
Gap to sustainability	5	2,370
Tree Trimming and Related Maintenance	Crews	Trees Trimmed Per Year
RAP FY 2018/2019	1	814
5- to 7-Year Trimming Cycle	6	5,000
Gap to sustainability	5	4,186
Dead Tree and Stump Removal	Crews	Dead Trees/Stumps Removed Per Year
RAP – FY 2018/2019	1	549
No dead trees left standing at end of year	6	2,500
Gap to sustainability	5	1,951
RAP Managed Golf Courses	Crews	Golf Courses Managed
RAP – FY 2018/2019	0	0
Manage All RAP Golf Course Trees	3	15
Gap to sustainability	3	15
RAP Funding	Programs	Total Budget Per Year
FY 2018/2019	\$1,900,000	\$3,800,000
Sustainable level	\$8,400,000	\$16,800,000
Gap to sustainability	\$6,500,000	\$13,000,000

RAP = Los Angeles Department of Recreation and Parks; FY = fiscal year

Department of Recreation and Parks

The Los Angeles Department of Recreation and Parks (RAP) is funded through a percentage of property taxes, which provides for a sustainable, albeit inadequate funding source. Additional revenue is derived from leases and event fees at various City parks and facilities. In 2010, the City began charging RAP for utilities, waste management, and for the water used to maintain green spaces and park trees (per departmental interview between RAP staff and Dudek/UFI in June 2018). The lost funding is not replaced by the City general fund, and annually reduces the available budget for park tree management. Additionally, RAP staffing was reduced during the 2007-2009 recession and has still not returned to pre-recession levels. As a result of increased costs, reduced funding, and limited staff, trees receive lower levels of care and maintenance. Coupled with drought stressed trees being attacked by pests and disease, park trees are prone to more frequent issues and increased risk, especially in high-use parks. The \$3.8 million RAP budget is insufficient to carry out sustainable management practices. It also does not support tree management activities in the open space areas of City parks like Griffith and Elysian that have experienced the loss of many trees, and require management strategies that are different than a typical park tree.

6.0 FIRST STEP STUDY DISCUSSION

The following section examines the City's current urban forest management program and its preparedness for a UFMP based on existing programs, policies, planning documents, and governance structure. Tables presented before each section briefly capture how close the elements are to being useful in a UFMP, and their alignment with sustainability metrics.

The element of the City's urban forest management closest to functioning at a sustainable level is the tree planting work coordinated with multiple non-profits, City Plants, UFD, RAP, and the Bureau of Sanitation. Despite minimal general fund dollars to these efforts, these organizations provide a concentrated tree planting effort in areas thought to be most needing tree canopy (although this is not directed by hard data). Collectively they leverage millions of dollars in grant funds to support tree planting and establishment care, whereas the City provides minimal funding. However, despite the successes of these planting programs, they still fall well short of reaching an optimal level within the sustainability metric and ensuring that tree losses are countered and tree canopy is expanded. Without an inventory or canopy cover analysis, it is un-

known what the stocking rate should be for Los Angeles to reach a determined canopy cover goal, where the trees are most needed, and would provide the biggest return on investment.

Other elements of the City's urban forest management program needing substantial improvement to be at a sustainable level are its lack of vision in planning documents, protection of trees on private property, and public education. These three elements contribute to the most overlooked part of the urban forest. While every effort should be made to improve the management of public space trees, the most rapid loss in canopy cover is coming from the development of private property. Los Angeles has approximately 10.8 million trees (McPherson. et al.

2011). Accounting for 700,000 street trees and 300,000 park trees, this approximates 90% of the City's urban forest existing on private property and open space. With a housing crisis and increased density, property development and redevelopment will continue at a rapid pace, and the UFMP should not prevent reasonable development. However, the UFMP must address the value of trees on private property and make recommendations to protect and preserve these trees, discourage tree removal, and provide a well-planned tree removal permit process with appropriate mitigation supported by a robust public education campaign.

Table 5 indicates the City's current urban forestry status in relation to the UFMP Toolkit (Inland Urban Forest Council 2012)

UFMP Toolkit Element Needed to Complete a UFMP*	Complete and Usable	Partially Complete/Usable with Completion	Not Usable/Not Existing
Vision Statement		X	
Strategic Plan			X
Implementation Plan			X
Monitoring Plan			X
Tree Inventory		X	

* Source: Inland Urban Forest Council 2012

elements and their respective completion level. As depicted in the table below, none of the core UFMP elements are complete and usable. Two of the elements are partially complete and could be usable with additional focus, and three of the elements either do not exist or are not usable due to deficiencies.

Tree Inventory

The most commonly recognized standard for what elements comprise a tree inventory come from the guidelines set by Cal Fire. This is largely due to the grant funding that is available to municipalities from Cal Fire to complete tree inventories and UFMP's. If Los Angeles anticipates seeking grant funds from Cal Fire for a street tree inventory or a UFMP, then it must plan to complete its inventory on the criteria set by Cal Fire. Even if the City determines that grant funding would not be pursued, utilizing the Cal Fire inventory elements list is a prudent approach to collecting meaningful tree information. While some of the basic information could be gathered through technology or volunteers, much of the data requires the understanding and experience of qualified arborists. Below is a condensed version of the requirements:

- **Mapping coordinate.** X and Y coordinate locations (latitude and longitude). Each tree and planting site will be located using GIS and/or GPS equipment.
- **Block side.** Located using a street name, side of lot, tree number, and block side information (on street, from street, and to street).
- **Location.** The tree's physical location in relation to public Right of Way and/or public space will be recorded.
- **Species.** Genus and species, and by common name.
- **Diameter.** Trunk diameter to the nearest 1-inch.
- **Stems.** Number of stems.
- **Condition.** The condition of each tree will be recorded in categories adapted from the rating system established by the International Society of Arboriculture.
- **Maintenance need.** Determines pruning needs, tree removal required, stump removal, planting location.
- **Clearance Required.** Identify trees causing or may cause visibility or clearance difficulties.
- **Hardscape Damage.** Damage to sidewalks and curbs by tree roots are noted. Notes on potential fixes for the problem are encouraged (redesign options etc...)
- **Overhead Utilities.** Overhead conductors or other utilities present that could result in conflicts with the tree.

- **Grow space.** Tree Lawn, well/pit, median, raised planter, open/unrestricted, island, unmaintained area.
- **Space Size.** The narrowest dimension of the Grow Space, in feet. (i.e., 3'x3' cut-out, 4' parkway strip, etc.)

GIS-BASED MOBILE APPLICATIONS *can make tree inventory surveys taken from the field fast, efficient, and highly accurate, with details about each individual tree captured.*



7.0 LOS ANGELES URBAN FOREST MANAGEMENT ACTIVITIES

The following Vibrant Cities Lab’s sustainability metrics were applied to this section (Vibrant Cities Lab 2018):

1 Trees Acknowledged as Vital Community Resource:

Stakeholders from all sectors and constituencies within the municipality—private and public, commercial and non-profit, entrepreneurs and elected officials, community groups and individual citizens—understand, appreciate, and advocate for the role and importance of the urban forest as a resource.

- Current, Low (-1): General ambivalence or negative attitudes about trees, which are perceived as neutral, at best, or as the source of problems. Actions harmful to tree may be taken deliberately.
- Optimal (4): Urban forest recognized as vital to the community’s environmental, social, and economic well-being.

2 Urban Forestry Program Capacity (Applies to In-House and Contracted Staff):

Maintain sufficient well-trained personnel and equipment—whether in-house or

through contracted or volunteer services—to implement municipality-wide urban forest management plan.

- Current, Low (-1): Lack of personnel and/or adequate equipment severely limits needed maintenance. Few resources, if any, available to achieve new goals.
- Optimal (4): Team has resources, and will in the future, to achieve all goals of the urban forest management plan, to maintain the resource over time, and to adapt management as circumstances change.

3 Tree Establishment and Maintenance:

Comprehensive and effective tree planting and establishment program is driven by canopy cover analysis and goals and other considerations according to plan.

- Current, Low (-1): Some tree planting and establishment occurs, but with limited overall municipality-wide planning and post care.
- Optimal (4): Comprehensive tree establishment plan provides con-

crete guidance on most of the following criteria: site selection, size, age, class, diversity of species, and native plant choice; planting protocols [e.g., minimum soil volumes, soil conditions]; and young tree care, including region appropriate irrigation requirements. Includes provisions and funding for maintenance.

Table 6 indicates important City urban forest management activities and their evaluated ratings. None of the elements are part of a strategic plan, even though the activities are carried out effectively, in some cases. Without a strategic plan, these activities occur as more of a reactive approach to urban forest management, which does not result in urban forest optimization or benefits maximization.

Tree Planting

Tree planting has been the City’s primary focus to improving the urban forest, as indicated by the department interviews and working group sessions. Since 1998, the City has had a free tree program first called Trees for a Green Los Angeles, then

Table 6
Los Angeles Urban Forest Management Activities Ratings

Programs	Effective	Functions but Needs Improvement	No Viable City Effort Currently Made	Collective Efforts Complement Each Other	Collective Efforts Cause Conflicts	Part of Strategic Plan	Best Practices are Consistently Applied
Tree Planting	X			X	X		X
Tree Establishment			X	X			X
Tree Pruning		X			X		
Tree Removal		X		X			X
Public Education			X	X			X
Sidewalk Repair		X			X		X

Million Trees Los Angeles, and now City Plants (City Plants 2018). Before that, several non-profit urban forestry organizations formed in the 1970s, 80s, and 90s and developed comprehensive community-based tree planting programs. The combination of the City free tree programs and outside grant funding brought in by non-profit organizations are the main contributors to sustaining new tree planting and the tree canopy in public space (per departmental interview between City Plants and Dudek/UFI in June 2018).

Los Angeles Department of Water and Power Tree Planting Initiative – City Plants Partnership

Today the City's tree planting initiative, City Plants, is largely funded by the Los Angeles Department of Water and Power (LADWP). California passed Assembly Bill no. 2021 in 2016 requiring every public

utility to invest in energy efficiency and reach achievable conservation goals. Since 1998 LADWP has funded tree planting through its energy efficiency programs, and City Plants is a component of LADWP's energy efficiency portfolio. Through its partnership with City Plants, LADWP is able to provide free shade trees for residents and property owners, along with information on where to plant those trees to maximize energy efficiency in homes or businesses. City Plants calculates and reports energy savings to LADWP at the end of each grant term, using state accepted metrics and computation methods for reporting.

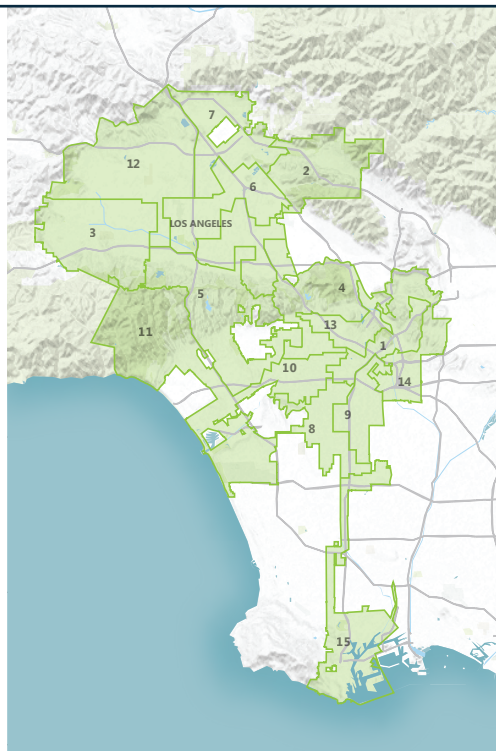
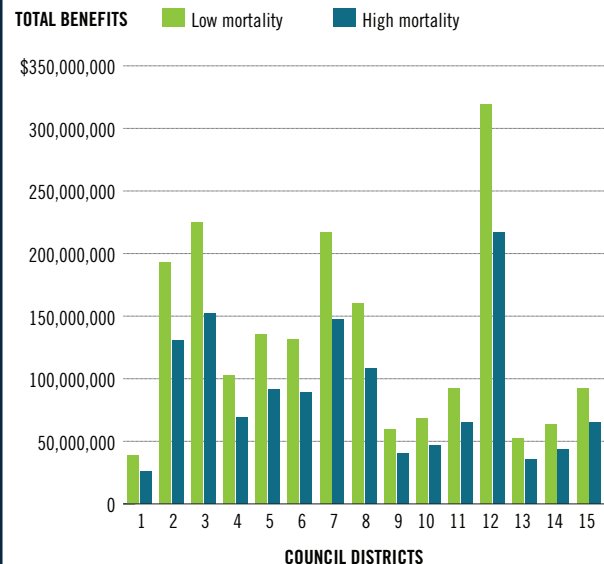
City Plants was established by the City of Los Angeles to oversee and coordinate the work of multiple planting partners, including A Cleaner Greener East Los Angeles, Koreatown Youth and Community Center, Los Angeles Beautification Team, Los Angeles Conservation Corps, North East Trees,

and TreePeople. They work collaboratively to plant street trees, distribute yard trees at community events, and supply trees to residential properties at no cost to residents. This collaboration helps plant 3,500 public space trees per year, and contributes another 18,300 trees to residential properties (City Plants 2018), far exceeding any tree planting effort supported by the City general fund. This partnership is also able to leverage matching funds provided by City Plants that, as reported by the non-profit partners, won approximately \$3 million in State and Federal grants in FY 16-17 and in FY 17-18. These leveraged grant funds support the additional work required to have a successful tree planting program by providing funds for establishment care, creation of new tree wells, and community engagement.

The tree planting programs comprise the largest overlap of City departments and

HOW BENEFICIAL ARE TREES?

This graphic represents the total benefits derived from each Council Districts trees 35 years after the completion of planting 1 million trees, according to the McPherson 2008 Los Angeles – 1 Million Tree Canopy Cover Assessment study.



non-profit organizations. Although UFD is the sole permitting agency for street tree planting, the marking of planting locations, species selection, nursery stock selection, and planting are undertaken by UFD and multiple other actors, including the Bureau of Sanitation, Bureau of Engineering, the six City Plants tree planting partners, and other non-profit organizations. This collaboration works because of the shared values and trust among the non-profit partners who have worked together for many years. This has led these organizations to partner on projects and grant applications, assisting each other in bringing more resources to

the disadvantaged communities where they focus their work. Despite the functionality of this collaboration, it should be further explored whether a system with this many overlapping efforts could be streamlined to provide more efficient services.

LADWP funds the City Plants partnership and tree planting initiative as an energy savings program and not as an urban forestry program. This distinct difference limits City Plants and the non-profit partners to planting trees within 60 feet of a building, and only then if planting a large-stature tree (City Plants 2018). This limitation on planting locations and tree types excludes many

vital planting opportunities, including parks and urban heat centers, such as asphalt playgrounds and parking lots.

Without any other City-funded tree planting options, school, park, and other open space plantings become largely dependent on the inconsistency of grant funding. This leaves competing interests in the management of one program, and dampens the ability of City Plants to function more broadly and successfully.

The program is well managed, but is also limited in its effectiveness through its structure. The thousands of trees planted through City Plants and LADWP funds are not part of a larger City-wide strategic planting plan, reducing the impact this program could make. The LADWP tree planting is also largely limited to streetscapes, and it should be further studied how many of the free trees given to the public are actually planted and survive to contribute to the urban forest. Distributing trees through events and delivering them to residents does not guarantee trees are planted correctly or in the location needed to maximize energy savings. To be able to accurately quantify the benefits of this part of the program, City Plants recently began to gather contact information from constituents receiving trees and electronically verify planting locations. Additional information is provided on establishment care to encourage watering and maintenance. City Plants also conducts a random sample of trees planted and distributed through the program every two years

to examine tree survival rates as a program improvement benchmark. While sampling is conducted to test program survival rates, the City Plants partnership could achieve greater success if it was funded to implement an establishment care program.

City Plants' Organizational Structure

The City Plants program exists as a hybrid organization under the fiscal sponsorships of Community Partners as a 501(c)3 non-profit that is housed under the Board of Public Works and falls under the supervision of the Mayor's Office of City Services. The structure of City Plants was created during the establishment of the Million Trees LA program (MTLA) which was adopted by the City Council in July of 2006 and placed under the care of the Board of Public Works (Council Motion 06-1617). Million Trees LA became City Plants under Mayor Eric Garcetti's administration with a new focus of quality over quantity and a particular emphasis on planting water efficient trees to increase their ecological benefit to city residents.

City Plants is considered the City's free tree program, with programs largely funded by LADWP energy efficiency funds. No general fund dollars support the program, including staff, daily operations, or constituent communications. City Plants serves as a bridge between the departmental "silos", connecting bureaus and departments that manage the urban forest to achieve the

common goal of planting LA's next generation of trees. In coordinating the City-wide tree planting program, City departments and elected officials frequently look to City Plants to provide data and reports on planting efforts in Los Angeles. Working within such a complex network of urban forestry actors, City Plants' role and place within the larger City of Los Angeles governance structure remains undefined and warrants closer analysis (City Plants, 2018).

Bureau of Sanitation Tree Planting

The other significant contribution toward City-based tree planting is from the Bureau of Sanitation (BOS), which applies for and is regularly awarded state grants to fund its efforts. With minimal funding from BOS, the department is able to leverage matching funds from City Plants and UFD to win annual grant amounts of \$1–\$1.5 million, giving the City a return of \$2.50 for every \$1 matched. The grant projects have ranged from 2,000 to 2,700 trees planted within disadvantaged communities. The implementation of these grants is similar to the City Plants partnership in that BOS staff coordinate where trees will be planted, but the non-profit partners and UFD do the work of planting the trees and maintaining them (per departmental interview between BOS and Dudek/UFI). If this structure continues, the grant funding can be enhanced by designing the scope to fit within a larger City plan (toward UFMP goals) and coordinating with the non-profits.

Urban Forestry Division Tree Planting

Until the current budget cycle, UFD did not have a funded tree planting crew. For fiscal year 2018/2019, UFD is budgeted to plant 800 trees in parkways and median islands (Per FY18-19 Budget). Separately, trees are planted through the Sidewalk Repair Program as replacement trees at an estimated 200 to 300 per year. Other tree planting associated with development project landscaping or mitigation pale in comparison to the LADWP-funded work undertaken by City Plants, and are not included in a city-wide planting strategy. UFD also enforces the City's 2:1 street tree replacement ratio which requires two street trees be planted for every one street tree that is approved for removal. The majority of these trees are planted and established by private property owners.

Chapter 6 of the City of Los Angeles Administrative Code establishes the conditions by which City Council can create street tree planting and maintenance districts. These districts would establish boundaries where trees will be planted and maintained for a period of no longer than five years. The costs of this work are paid for by a combination of the general fund and assessed fees on the lots and parcels within the district receiving benefit from the project. This is one avenue for the City to fund its tree planting and establishment care programs. It will require public support from the district property owners who will be asked to pay for these improvements. These costs could

be drastically lowered by strategic partnerships with City Plants, BOS, and non-profit planting partners in leveraging City and grant funding.

Recreation and Parks Tree Planting

With current funding, RAP is unable to support a full-time crew for planting trees, but is able to put together a planting crew when needed from current staff. RAP does not have funding to purchase trees and planting materials and must find avenues to pay for them. Additionally, as previously discussed, City Plants is funded as an energy efficiency program through LADWP, which makes parks and open space largely not eligible to benefit from this program. These factors have made it incumbent upon RAP staff to find funding outside of the City to support park tree planting. Those methods have included RAP successfully receiving two Cal Fire grants funding the completion of a park tree inventory, and park tree planting. They also frequently partner with non-profit tree planting partners who have funding streams to pay for park tree planting and establishment care. RAP has full control over the process to plant trees in its parks, and as such, it is able to streamline the process for permitting, species selection, and tree placement. While RAP requires a minimum of two years of maintenance by any organization planting trees in its parks, they also strategically place trees within the irrigation footprint to help provide supplemental watering.

Discussion

Outside of energy efficiency tree planting funds provided by LADWP, implemented by non-profit organizations, BOS, and City Plants, the City general fund has not paid for street or park tree planting and replacement of trees lost every year. This makes the tree planting efforts of the City Plants partnership a critical component of the Los Angeles urban forestry program, and focused attention and support must be provided through guidance of a UFMP so these organizations are a coordinated part of the urban forestry system, and that their abilities to provide ongoing grant funding are protected, enhanced, and leveraged. Not able to utilize LADWP funds for tree planting, RAP is left without a City funding stream to support park planting. While RAP has provided creative solutions to fund tree planting, the City must also support the planting of park trees including funding planting crews and the purchase of trees, planting materials, and equipment.

The roles that City Plants and BOS currently perform and other potential formats for their work should be further explored in the UFMP. Each bring unique skills to a City-wide tree planting effort with BOS having demonstrated its ability to win large grant funding and City Plants to manage a City-wide tree planting effort. The programs complement each other in some ways, but they are also largely redundant, and may function better with all planting efforts con-

solidated into one department. The UFMP should also evaluate the role City Plants' plays within the City tree planting efforts. One initial option is allowing City Plants to operate as a completely separate, non-profit organization, with its own board of directors and ability to seek funding. Another option is completely merging City Plants within the City and providing an appropriate funding stream to support its operation. Both of these options have potential advantages and should be explored within the UFMP process and in coordination with the urban forestry coordinator.

Another area that should be clarified through the UFMP process is tree planting effectiveness. Currently, it is not possible to quantify with certainty if the number of trees planted every year is effectively replacing trees removed, if planting is occurring in vacant spaces, if canopy issues are mitigated equitably, or if at least a net positive return on investment is occurring. Without a tree inventory, canopy cover analysis, and related canopy cover goals, the City cannot confidently determine if planting 3,000 to 4,000 public space trees per year is adequate to achieve its goals (to be established through the UFMP). The City of San Francisco has a street tree population of 125,000 and a goal to increase the population to 155,000 in 2034 by planting 2,500 trees a year (City of San Francisco 2014). The City of Melbourne has a street tree population of 50,000 with a stocking rate



COMMUNITY ORGANIZATIONS PROVIDE PLENTY OF VOLUNTEER OPPORTUNITIES FOR TREE ESTABLISHMENT, BUT LITTLE FUNDING IS ALLOCATED TO CARE FOR AND MAINTAIN THESE NEWLY PLANTED TREES.

goal of 3,000 trees annually (City of Melbourne 2012). Based on these comparisons, it seems likely that Los Angeles will need to drastically increase its tree planting effort to meet its goals established through a future UFMP, and this will mean that a sustainable funding source will need to be identified.

Tree Establishment

As previously discussed, \$3–\$4 million dollars (combined between City Plants, UFD, BOS, RAP, and non-profit partners) is spent annually to plant new trees in Los Angeles, but almost no funding is committed to establish and care for the newly planted trees. Newly planted tree care is critical to successful establishment and for the development of appropriate tree structure. Healthy and cared for newly planted trees reflect a positive investment being made in a community, and demonstrates to residents the City's commitment to its urban forest.

Currently, street trees are typically provided establishment care when funding is in place from a grant or Council District office to maintain a tree on a commercial corridor. The standard schedule for establishment care of a street tree is 33 visits over three years. This provides for weekly watering during summer months, and less watering during the fall and winter.

With park trees, RAP designs new tree plantings to be within the irrigation footprint and requires that the organization that plants trees must maintain them for the first 2 years. RAP does not have the funding to support their own tree establishment crews (per phone conversation with RAP and Dudek/UFI). Another aspect of establishment care in City parks are the large areas of open space that will need to be planted as trees are lost to drought, pests, and disease. Establishing trees in these areas will require a different approach than the standard care provided to a street or park tree due to the difficulty in accessing these areas. It may require large scale capitol improvement projects to have irrigation lines deliver water to the trees, or dedicated natural area restoration crews.

Other than these limited establishment activities, newly planted tree care responsibility typically falls on the property owner requesting the tree. With the City Plants program, all residents who receive a tree sign a commitment to water the tree for the first 3 years, and are given care instructions after the tree is planted. The care instructions follow generally accepted standards for watering a new tree in Los Angeles, but it is not known if recipients follow them correctly. Establishment care by property owners varies widely, and anecdotal evidence suggests that a large percentage of residents do not water the trees following planting. This results in a high mortality rate for newly planted trees in Los Angeles due to insufficient water to cope with harsh soil and growing conditions, hot summers, and dry winters. Relying on residents to water new street trees limits the number and types of locations that can receive street trees. Often, it is difficult to secure commitment to water trees in neighborhoods with multifamily housing units, commercial corridors, and along school and industrial properties. The result is that these locations often go unplanted and their residents and users suffer the lack of tree benefits/services. A robust tree establishment program would open new planting areas to the City agencies and non-profit partners working with the City Plants program.

An improvement for the fiscal year 2018/2019 budget is that a UFD watering crew was funded with the purpose of taking

care of replacement trees planted as part of the Sidewalk Repair Program and the 800 trees planted as part of UFD operations (per an email communication between the Mayor's Office and Dudek/UFI).

Discussion

The comparison cities (Melbourne, New York City, and San Francisco) all recognize that the only way to have a “world class” urban forest is to maintain trees throughout their entire lifecycles. In these cities, tree establishment care is provided by the city for virtually all trees planted in public spaces. The Los Angeles UFMP process should include an urban forestry financial study to find out how many trees need to be planted each year to achieve goals and targets, expected costs to provide establishment care to those trees, and potential options/funding sources to fund this important urban forestry process. Until these determinations can be made, the City may benefit from a reduction in the number of trees that are planted and an increase in resources devoted to tree establishment to raise the successful establishment rate, reduce tree pruning costs over time, and maximize the return on investment associated with each newly planted tree.

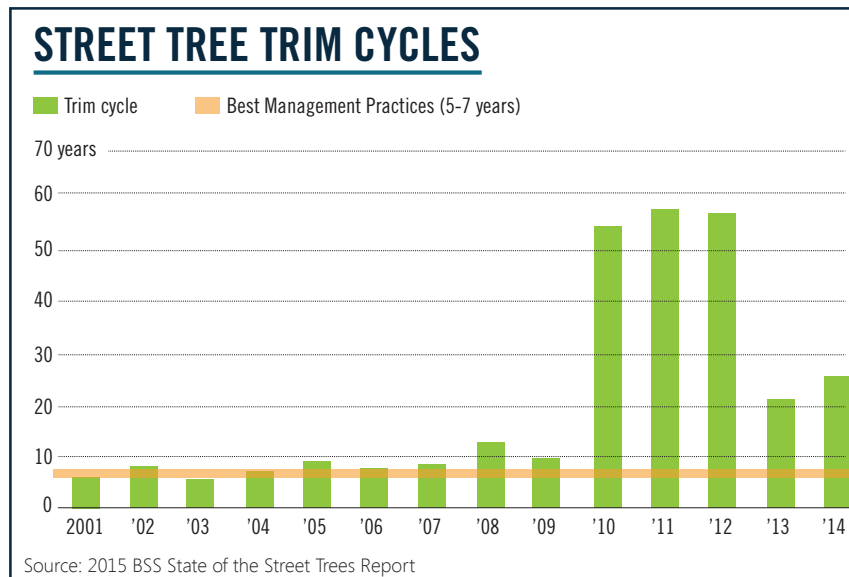
Tree Pruning

Recognized urban forestry best management practices suggest that a typical street tree pruning cycle is 5 to 7 years, on aver-

age, with exceptions for some species that require more frequent pruning (Miller and Sylvester, 1981). According to the Bureau of Street Services State of the Street Trees Report, UFD has only been funded for a 5-7 year pruning cycle for one year since 2001, and currently has a pruning cycle of 18 years (City of Los Angeles 2015a). This is improving from the recession (2007–2009) staffing cuts that placed the pruning cycle at 50 to 60 years, but is still far behind the commonly accepted best practices.

Because park trees are planted in open space with favorable growing conditions, they generally are able to grow larger, live longer, and develop a natural branch structure. They also don't have the same infrastructure conflicts of street trees that necessitates a 5 to 7 year pruning cycle to prevent conflicts. Because of this, park trees should still be examined on a 5 to 7 year cycle, but less frequent pruning may be required. They do share the same need though to be maintained free of dead and broken limbs to ensure safety for park users.

Prolonged pruning cycles may result in increased incidence of tree-related risk and associated property damage, personal injury, and adverse impacts upon tree health and condition. This is corroborated by the rising City settlements to tree-related claims and costly reactive tree pruning and removals related to emergencies and tree and tree part failures. Funding would need to increase substantially for the City to achieve



a 5- to 7-year pruning cycle. It would also require having the staff and equipment available to form the crews needed to carry out the work on a sustained basis. These could pose short-term challenges to UFD due to a limited pool of qualified applicants and City processes that delay approved truck and equipment purchases from timely delivery for staff use.

Discussion

The UFMP development process should explore whether it is appropriate for all street tree pruning to be completed by one City department. Currently UFD, LADWP, and the Los Angeles Fire Department all prune street trees, but operate with different pruning standards and goals. UFD prunes trees to maintain health and safety based on

International Society of Arboriculture (ISA) best management practices and American National Standards Institute (ANSI) standards. LADWP prunes to maintain minimum required electrical line clearance, and the Los Angeles Fire Department prunes for fire protection. It is worth noting that pruning for electrical line clearance and

fire protection may often not meet ISA/ANSI standards or promote tree health and appropriate structure. This situation is not unique to Los Angeles, but it is recommended that all entities performing tree pruning follow industry standards that promote tree health and appropriate structure.

Tree Removal

There are currently an estimated 4,000 known dead street trees and an estimated 4,000 unaccounted for dead street trees within the City's public tree inventory. RAP also has another 5,000 dead trees inventoried in City parks awaiting removal and another estimated 20,000 dead trees not inventoried (per departmental interviews between RAP and UFD with Dudek/

UFI). The City is short on crews and budget required to keep pace in removing the known dead trees, with additional dead trees occurring every year. The threats of pests, drought, and disease already cause a significant decline in magnolia, liquidambar, and sycamore trees, among others, it is reasonable to assume that the current rates of annual tree losses in Los Angeles will at least continue and likely increase in the near term.

Discussion

The inability to remove dead trees and their stumps each year prevents thousands of new trees from being planted. This necessitated deferral results in a declining canopy cover and delays canopy replacement. It also significantly hampers efforts to expand the urban tree canopy and may be affecting achievement of desired canopy cover equity in low-income areas, and residents' appreciation for trees. This loss of tree canopy and overall condition of the urban forest are unverified and unquantified because of the lack of supporting tree data. The deficiency in standard tree care practices also carries a liability risk for the City by not removing potentially hazardous dead trees. One important focus for the UFMP is to explore City funding for UFD such that it can carry out typical urban forest maintenance functions, including the removal of dead trees and replacement tree planting to offset typical tree loss/removals. The UFMP will

summarize (based on a comprehensive tree inventory) how many dead trees currently exist, and how many need to be removed on an annual basis, so that the total number of dead trees is gradually reduced until all dead trees can be removed within a reasonable timeframe.

Public Education

Public support, in addition to committed City leadership, is one of the key components of a sustainable urban forest. City efforts affect the public's views, and a strong City outreach program, backed by committed funding and realization of the return on investment, demonstrate to citizens that trees matter. Initial support and participation by the community may not be widespread, but as residents learn about the importance of urban forests to their daily lives the support and participation will certainly increase. Like any important campaign to garner public support and participation, urban forestry outreach must be strategic, planned, and coordinated, with one message to reach the largest audience. The Vibrant Cities Lab metric that was selected for Los Angeles as the desired outcome is the "Urban forest is recognized as vital to the community's environmental, social, and economic well-being" (Vibrant Cities Lab 2018). The current rating of public tree appreciation summarized by the Los Angeles First Step working group can be described as "general ambivalence."

The City is not without well-informed and supportive residents, as was evident in the online public survey. However, the relatively low survey response rate coupled with largely positive responses suggests that those who participated in the survey did so because they already care about trees. Public awareness is important for achieving UFMP goals, which will prioritize urban forestry funding and may require citizen participation in that regard. Raising public awareness about the benefits/services tree provide will help get more trees planted in the right spot, watered, pruned properly, and preserved on private property where they can grow, mature, and provide measurable services for their owners and all Angelenos for generations.

In Los Angeles, the Mayor's Office, City Plants, BOS, LADWP, tree planting partners, and others have tree and environmental education programs. However, sometimes messages on separate environmental issues can be confusing or contradictory. This was the case with the City's Save the Drop campaign, which was successful in educating residents on the need to reduce water use. Unfortunately, there were many reports of residents who stopped watering their trees altogether, prompting the City's follow up campaign promoting trees as an important part of a sustainable landscape (Save the Drop 2018). Other times, messaging is confusing; for example, community members have received contradictory

messages from different agencies about how to water a newly planted tree. Contradictory messages may undermine public confidence in and support for City programs and services, and must be avoided. Once a certain perception sets in, it can be difficult to reverse course, and in Los Angeles, negative or uninformed tree perceptions by the public are pervasive (per the Working Group discussions).

Discussion

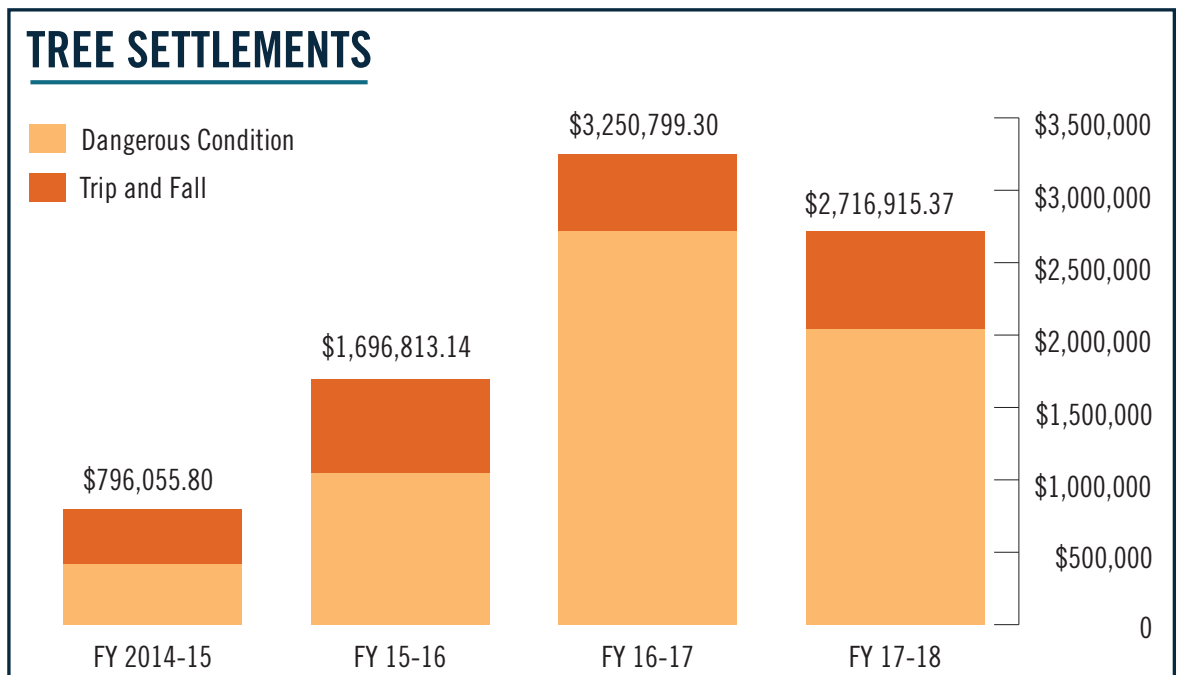
City urban forestry stakeholders should come to an agreement on the priority tree and urban forest messages for the public and aggressively promote those messages. A simple message like "Save the Shade," playing off the "Save the Drop" campaign, could encompass most of the priorities for the Los Angeles urban forest to grow, maintain, and preserve the canopy, if it is developed and rolled out in a strategic way. A high quality campaign should be developed by professionals, delivered with one voice by all Los Angeles urban forestry departments and organizations, and encompass priorities for the Los Angeles urban forest to grow, maintain, and preserve its canopy.

Sidewalk Repair Program

Background

In 2015, the City reached a settlement to commit \$1.4 billion over 30 years to make sidewalks compliant with the Americans

with Disabilities Act (Office of Mayor Eric Garcetti 2015). Los Angeles trees are linked with sidewalk damage due to many years of tree root uplifting. Since some trees may cause sidewalk damage, it is often necessary to mitigate the effects from the tree so that it does not occur again after a sidewalk is repaired. Occasionally, trees can be preserved during sidewalk repair, but tree removal is often undertaken to prevent recurring sidewalk damage or excessive root removal, which could destabilize trees. As reported during the July 2018 Sidewalk Repair Program Executive Steering Committee status update 460 trees have been removed, and 791 have been planted through the Safe Sidewalks Los Angeles program. An additional 1,636 trees have been root-pruned and retained (Bureau of Street Services 2018). When a tree has to be removed to fix a sidewalk, the tree is replaced with two smaller trees, usually a 24-inch box size. If one or both of the new trees cannot be planted at the location of the removed tree, they are planted as close to the location as possible. According to the sidewalk repair program policy, 3 years of tree establishment is budgeted for all replacement trees planted by the City. With the rebate portion of the program the property owner is expected to provide watering and maintenance for the replacement tree(s) planted in their parkway. (Bureau of Engineering 2018).



Discussion

Although UFD has been able to root prune and retain 80% of trees impacted by sidewalk repair, retaining street trees is sometimes not feasible given the space provided for the tree and the sidewalk, the tree species, and the requirement to repair sidewalks to be compliant with the Americans with Disabilities Act. Alternative methods to removal or root pruning, such as mending the sidewalk, creating curb bulbs, and enlarging tree wells, are available to UFD, but are rarely implemented due to site constraints. Currently the City is conducting a study of alternative materials (other than concrete) to repair sidewalks, but has

so far not approved any alternate materials. The reality of this program is that while attempts to preserve trees can be successful, problem trees will frequently require removal. It is recommended that the UFMP analysis includes additional documentation and analysis such as when each tree is evaluated that a short form (one page) report be prepared that summarizes what options were considered, what action was implemented, and why it was implemented, with photographic documentation. This would support implemented actions and provide those who would rather see trees preserved with documented reasons why a tree could not be preserved. Valid reasons to remove a tree include, among others, increased risk

SIDEWALK REPAIR REPRESENTS AN OPPORTUNITY TO EXPAND THE URBAN FOREST WHILE REDUCING POTENTIAL LIABILITY.



following root removal, readily-foreseeable decline, or tree preservation costs significantly exceeding tree benefits values.

Based on the current rate of tree removals, it is likely that 7,000 to 10,000 trees will need to be removed throughout the sidewalk repair program, but until the City's EIR is completed, the actual loss of trees is unknown. Assuming total tree loss at the higher end of 10,000 would equate to roughly 330 trees being removed each year. This may seem like an insignificant number of trees in

a public forest of some 700,000 trees, but this is a measurable loss of community benefits/services, since the majority of the trees removed are likely to be larger trees that contribute exponentially higher urban forest benefits. Each tree that can be preserved makes a difference, and it is worthwhile to expend efforts to creatively resolve issues so that trees are preserved. It is equally important to know when a tree cannot be preserved and to not expend limited financial or other resources attempting to save trees that will

be lost or otherwise are highly susceptible to near-term issues if preserved.

The 2:1 replacement of each of these trees, assuming they survive and grow for the next 30 to 50 years or more, will offset the lost benefits over time, but there will be a period of reduced benefits and landscape-level changes. The replacement of lost benefits is also hindered by parkway sizes that require smaller stature trees to be planted to replace the larger stature trees that were not appropriate for the space provided. Although the intent of this program is to repair sidewalks, if properly coordinated with a strategic tree planting goal, it can have a net positive impact on canopy cover. Factors that will contribute to this include an adequate replacement ratio and dedicated funding for tree establishment care after planting. The tree replacement approach must utilize methods that replace the lost canopy on a faster timeline than occurs now. This is unlikely to be achieved by planting two small trees for every large tree removed (as is current practice). Likewise, with guidance from a UFMP, policies should encourage replacement tree plantings in areas where tree canopy is low and the benefits would have an even higher net impact.

The optional sidewalk repair rebate program provides a partial rebate for the cost of the repair to the adjacent homeowner, who is responsible for the overall cost. In the case that the street tree cannot be retained, the program includes rebates for

removing street trees and requires replacement trees be planted and maintained by the property owner. In 2016, the City implemented a “Fix and Release Policy,” that requires property owners to be responsible for repairing damaged sidewalks on their property after a warranty period (20 years for residential properties, 5 years for commercial properties). To be a vibrant city with a sustainable urban forest, the City should be financially responsible for its trees, from planting through removal, including any damage they cause to public and private property. Without this City responsibility, budgeting urban forest management becomes a lower priority. With that responsibility, the City would be more motivated to implement the following strategies.

City Responsibilities for a Sustainable Urban Forest

- 1 Plant the right tree** in the right place.
- 2 Enlarge planting areas** where necessary to accommodate trees and their long, healthy lives.
- 3 Provide watering and young tree care** to enhance establishment and minimize future structural issues.
- 4 Provide ongoing tree maintenance** at industry-standard levels and use accepted practices that result in structurally sound trees and minimized tree-related claims.
- 5 Provide for a diverse urban forest** that meets equity goals.
- 6 Invest financially** in the urban forest at levels that nurture a robust urban forest, with managed, acceptable risk.



AN OFTEN OVERLOOKED ASPECT OF A SUCCESSFUL BUSINESS DISTRICT ARE ITS TREES. WELL MAINTAINED AND HEALTHY TREES ON COMMERCIAL CORRIDORS CREATE A WELCOMING SHOPPING EXPERIENCE AND HELP INCREASE ECONOMIC ACTIVITY TO LOCAL BUSINESSES.

8.0

LOS ANGELES URBAN FOREST POLICIES AND REGULATIONS

The following Vibrant Cities Lab’s sustainability metrics were applied to this section (Vibrant Cities Lab 2018):

1 Policies that Foster Good Urban Forestry on Private Lands:

Because private lands comprise the majority of canopy cover for most municipalities, plans and policies should address—through rules, fees, and incentives—how owners contribute to the overall health of the urban forest and the benefits it delivers.

- Current, Low (-1): No tree protection ordinance, or one that’s weak and rarely enforced.
- Optimal (4): All relevant municipal policies require or incentivize adherence by private owners to standards incorporated in the UFMP. Incentives and sanctions applied when appropriate.

2 Tree Protection Policy and Enforcement:

The benefits derived from trees on public and private lands are ensured by the enforcement of municipality-wide policies, including tree care best management practices.

- Current, Fair (1): Policies in place to protect public trees and employ industry best management practices, but rare or inconsistent enforcement.
- Optimal (4): Integrated municipality-wide policies and practices to protect public and private trees, consistently enforced and with penalties sufficient to deter violations.

Table 7 lists urban forest policies and planning guides and ratings. One strength of the City’s tree protection standards is that some of the elements of each policy/regulation are based on current best management practices. The major weakness is the inconsistent and inadequate policy enforcement, even though the policies are enforceable.

The following sections discuss the strengths and weaknesses of additional Los Angeles urban forest policy and regulation.

Protected Tree Ordinance – Ordinance No. 177404

Background

The Protected Tree Ordinance was established to protect five Los Angeles native trees species: coast live oak (*Quercus*

agrifolia), valley oak (*Quercus lobata*), southern California black walnut (*Juglans californica* var. *californica*), western sycamore (*Platanus racemosa*), and California bay (*Umbellularia californica*). These trees are protected when they have a cumulative trunk diameter at standard height of 4 inches, and are naturally occurring or planted to replace a protected tree. Application of this ordinance is largely limited to development projects on private residential properties. This ordinance is currently being updated to include Mexican elderberry (*Sambucus Mexicana*) and Toyon (*Heteromeles arbutifolia*), and is being reviewed for any additional changes that may be needed. This ordinance has some elements that move Los Angeles toward a sustainable urban forest, and many challenges in enforcement and application.

Although these trees are protected, the ordinance does not make them immune to legal or illegal removal. Prosecuting the illegal removal of a protected tree is extremely difficult. Unless the offender is caught in the act and that act is properly documented, UFD would have a hard time moving forward with a case against the offender. If an illegal removal occurs on a development

Table 7
Urban Forest Policies and Regulations – Los Angeles Ratings

Policy	All Elements Based on Current BMPs	Some Elements Based on Current BMPs	Not Based on Current BMPs	Dept. Cooperation Optimal in Enforcement	Dept. Cooperation Inconsistent in Enforcement	Dept. Cooperation Prohibits Enforcement	Policy Is Enforceable	Policy Is Difficult to Enforce
Urban Forest Policy		X				X	X	
RAP Tree Protection Specs	X				X		X	
Street Tree Protection		X				X		X
Guaranteed Tree Fee		X					X	
BSS Tree Planting Standards		X			X		X	
BSS Street Tree Selection Guide		X			X		X	
BSS Tree Spacing Guide	X			X			X	
Protected Tree Ordinance		X			X		X	

X = yes; BMP = best management practice; RAP = Department of Recreation and Parks; BSS = Bureau of Street Services

project and prosecution is successful, a developer can be prevented from any work on the site for up to 10 years. This was notably applied in the Sullivan Canyon project case where the developer removed three protected trees not permitted for removal. Although the developer did get severely punished for removing the three protected trees, the Protected Tree Ordinance did not prevent another 56 protected trees from being permitted for removal with mitigation (BSS 06-24-2016). The regulation should not prevent all tree removals, but it should

adequately mitigate lost trees in a meaningful way, whether that includes monetary fees, tree planting, and/or tree preservation. Tree protection ordinances and policies should provide guidance on how to preserve trees and have qualified arborists develop and help implement effective solutions for enabling development while preserving trees. This will not always be possible, so once tree preservation has been duly evaluated and deemed infeasible, the Protected Tree Ordinance must provide equitable mitigation measures that are based on real

values of lost canopy, lost benefit values, lost tree value, or other appropriate metrics. The UFMP should explore several options for valuing impacted native trees so that when they are removed, there is adequate funding available to replant and provide care for replacement trees and maintain protected trees.

The current Protected Tree Ordinance does not address the larger urban forest threat known as “mansionsization.” A study completed by the University of Southern

California's Spatial Sciences Institute examined the effects that increasingly larger home size is having on green cover, including tree cover. According to the study, from 2000–2009, the 20 largest cities in the Los Angeles basin saw an annual decrease in tree canopy cover of 1.2% due to increasing home sizes. According to the study, "The results suggest that protection of existing green cover in neighborhoods is necessary to meet urban forest goals, a factor that is overlooked in existing programs that focus solely on tree planting" (Lee et al. 2017). Most of the trees lost in these areas would not be covered by the City's Protected Tree Ordinance, but would account for a significant portion of canopy cover.

Discussion

Through its UFMP, the City should examine the overall definition of a protected tree and examine the ordinances of other cities, such as Pasadena, which protect both select native tree species and other trees with defined significant characteristics (e.g., size, heritage value, location, etc.) This may mean that there is a sliding scale for tree value based on species and size. In some cases, project planting within a landscape plan may be all that is needed to adequately address any canopy loss, but in other cases, project landscaping might not be adequate and off-site planting may be part of the mitigation program. The City's Guaranteed Tree Fee program can be the conduit for mitigation projects, but without a UFMP to guide where the mitigation

is applied, it is doubtful that tree planting would occur in priority areas. It should also be determined which department would have the responsibility to enforce tree protection ordinances so that tree preservation is automatically triggered at the beginning stages of a project and planning and design considerations will include properly preserving trees. Property owners must understand the value of protecting and preserving trees as an essential component of a vibrant neighborhood and city.

1993 Urban Forestry Policy

Background

In 1993, Los Angeles City Council adopted an Urban Forestry Policy that outlines the need for healthy trees and the multiple benefits/services that they provide to the City. The policy consists of three main resolutions:

- 1 Street Trees are recognized as an essential part of the City of Los Angeles urban forest infrastructure, an infrastructure system identified in the City's General Plan Framework, and as such will receive equal consideration with other City infrastructure systems.
- 2 The benefits derived from Street Trees will be optimized by establishing urban forest programs that ensure that the collective population of Street Trees and their management:

- Mitigate urban heat island effect and maximize ecosystem benefits.
- Ensure the survival of newly planted trees.
- Maintain a street tree inventory management system.
- Protect and care for existing street trees.
- Increase awareness of trees through a City-wide education effort.

- 3 The Street Trees of Los Angeles will be properly maintained and enhanced through policies and programs.

Discussion

The City's 1993 Urban Forestry Policy captures many of the elements needed for a sustainable urban forest. Based on review for this First Step UFMP effort, it is apparent that the policy's resolutions have been largely marginalized, and most of the policy methods have not been implemented effectively. This policy should be comprehensively reviewed and updated through the UFMP process to ensure that it directs Los Angeles to a sustainable urban forest and is aligned with the UFMP's vision. The policy includes relevant resolutions and methods, and a revised and updated version of this policy would likely be effective if the City provided the necessary resources to support its implementation.

Recreation and Parks Tree Protection Specs

Background

In 2014, RAP updated its tree protection specifications to improve clarity and use specifications more closely aligned with current accepted practices. This policy applies to all trees that fall within a “work zone” and are not slated for removal. The City Native Protected Tree Ordinance (No. 177404) applies to the native trees defined in the ordinance. The replacement ratio calls for each one-inch of diameter at breast height of an existing tree that is removed to be replaced at a minimum, with a one-inch caliper tree. This applies to all tree species in City Parks, and is not exclusive to native protected trees. Replacement trees must have a minimum of one quarter inch caliper. Since RAP has responsibility for all park trees its ability to enforce these policies consistently is significantly enhanced.

Discussion

The RAP tree protection specifications are progressive for the City in that they protect all trees, and have a replacement ratio that better approaches replacement of the total lost tree benefits/services. Although RAP manages all park trees, it is still subject to other City department’s projects that may impact park trees. This often results in tree impacts through poor coordination when those who oversee trees are not included in

a project design process. Such projects are occasionally planned to be placed within parks yet have little regard for existing trees (per departmental interview between RAP and Dudek/UFI in June 2018). These tree impacts and losses could be avoided if better communication and coordination existed throughout the City and within RAP.

Street Tree Protection

Background

On October 10, 2018, a report was submitted by the City Administrative Officer to Council File 15-0448 providing a recommendation from a working group consisting of the City Administrative Officer’s office, Chief Legislative Analyst, Bureau of Street Services (BSS), Bureau of Engineering, Los Angeles Department of Building and Safety, and the Planning Department to require clearance from BSS prior to issuance of a building or land use permit. This change is intended to prioritize street tree protection at the beginning of the planning process and to avoid unnecessary tree removals or lengthy changes to site plans. The report cited that from July 31, 2018 to September 11, 2018, BSS received 45 requests for site inspections in building and land use permit requests that totaled 27 trees (18 locations had no trees). Of those instances, UFD permitted the removal of eight trees, but also enacted plan design changes to preserve 10 trees and root pruned another five instead of permitting their removal (Council File

15-0448). This new policy is an important step in the right direction for the City to protect its existing tree canopy and enable UFD to provide creative tree preservation solutions before the only remaining option is tree removal. However, further review is needed to establish enforceable penalties for illegal tree removal that compensate for the value of the lost trees.

In 2009, City Council adopted a motion (Council File 09-1664) to allow the Investigation and Enforcement Division of BSS to issue monetary citations for violations of UFD policies regarding tree planting, pruning, removal, maintenance, and protected trees. In 2016, City Council again adopted a motion (Council File 15-0467-S4) to improve enforcement standards by instructing:

- 1 The City Attorney to draft an ordinance to incorporate all tree pruning and removal violations into the Administrative Citation Enforcement (ACE) program.
- 2 The City Attorney to draft an ordinance with a fine structure for illegal tree pruning and illegal tree removals under the ACE program that would be the maximum amount allowed under law.
- 3 BSS to work with the City Attorney to pursue criminal charges and restitution for violations resulting in a tree not being salvageable.

- 4 BSS and City Attorney to report within 60 days to the Public Works Gang Reduction Committee on ways to improve collaboration and communication between the two agencies when pursuing criminal charges.

The ACE system was designed to take certain nuisance violations out of the court system and convert them to offenses that can be handled with a ticket serviced by a City staff member. Through ACE, the City is able to keep all the funds generated. In addition, issues are handled out of the court system and the offense is not registered on the offender's criminal record. Current violations listed on the ACE website include drinking alcohol in public, dogs on a beach, and bicycle riding on sidewalks. None of the 42 violations include destruction of public infrastructure (Los Angeles City Attorney Mike Feuer 2018). The malicious destruction or damage of trees owned by the City would align more closely with the California State definition of vandalism (California Penal Code 594). Although the ACE system helps to improve efficiency in prosecuting illegal tree removal and illegal pruning, it might not be a strong enough deterrent to prevent this from occurring, which is an important metric in a sustainable urban forest.

The City Attorney's office determined that the maximum penalty that can be levied is \$1,000 for illegal tree removal and illegal

pruning. Additionally, the UFD may ask for the offender to replace the removed or damaged trees, but cannot enforce this citation. With potentially tens of thousands of dollars of monetary value and environmental, economic and social services mature trees deliver, the current fine does not align with potential lost value when trees are illegally removed. Through the UFMP process, Los Angeles should look at the penalties of Pasadena and Santa Monica, which include a provision allowing the courts to require restitution for the lost value of the tree in addition to a \$1,000 fine and replacement of the tree.

Discussion

No matter what the strength of the policy is or the amount of the fine, the ability to protect trees is partly based on the City being able and willing to enforce the penalty. The main difficulty in enforcing tree protection laws in Los Angeles is related to observing and properly documenting offenses, which often occur outside of regular working hours. Without this, the City Attorney's office is unable to prosecute these reported instances. However, as stated above for the adopted motion (Council File 15-0467-S4), item #4 clearly indicates that more can be done by the City Attorney and the BSS to enforce these penalties. It is unclear how much effort is currently put forth to prosecute offenders, even when the proper information is documented.

Guaranteed Tree Fee—Ordinance No. 185573

Background

Like many other Cities, Los Angeles created an in-lieu fee to cover the cost to procure, plant, and provide water for 3 years for each replacement tree required pursuant to a development tree planting requirement or a public works tree planting requirement, when the required tree cannot be planted on site. The creation of this fee was controversial, with some arguing it provides a path for developers to buy their way out of planting trees. Others saw it as a method to ensure that trees that would not be sustainable on a site are part of a planned tree planting project that would include establishment and maintenance and are planted nearby or elsewhere in the City.

Discussion

The effectiveness of this ordinance should be measured against the sustainability metrics standards for tree preservation, and, as a new ordinance, established in July 2018, it should be studied within 6 months of implementation to determine if any amendments are needed. One of the items that should be reviewed is if the fee for replacing a removed tree accurately captures the lost benefit/service value, and what evaluation method the City will use to determine the value of the tree. Without this understanding it is not known if the fee amount may

be undervaluing each tree and updates may be warranted. Public attention and interest in this new ordinance is high, and as such, the City should be transparent regarding when and how the fee is applied. Public notifications, a timeline, and a publicly accessible map or database would be helpful tools in conveying how the ordinance is functioning.

Bureau of Street Services Standards for Tree Planting, Tree Selection, Spacing Guidelines

Background

The Bureau of Street Services standards for tree planting, tree selection, and tree spacing have been developed over the years to reflect the current best management practices and anecdotal UFD staff experience. The current Street Tree Selection Guide (Bureau of Street Services, Urban Forest Division; City of Los Angeles n.d.) has been reviewed in meetings by UFD, non-profit partners, and other urban forestry stakeholders, and is waiting to be finalized as a task of the urban forestry coordinator.

Discussion

Tree selection is a critical aspect of growing the canopy and mitigating conflicts between trees and other infrastructure. The next iteration of the BSS tree selection guide should be undertaken as part of the UFMP evaluation and based on trees that will be appropriate for the City's changing climate, increased pest activity, reflect biodiversity and sustainability goals, and detailed neighborhood assessments. The Melbourne model can be replicated for this effort. It should also consider that disadvantaged communi-

ties generally have spacing limitations that require smaller stature trees. Because of this, smaller species need to be examined so a variety of options exist compared to what is currently available for 3- to 4-foot-wide parkways. The standard details for tree planting, staking, and root control barriers (S-465-2 and S-663-1) were last updated in 2013 and should go through a similar review process on a regular basis to ensure they reflect the current industry standards.

ONE STRENGTH OF THE CITY'S GUARANTEED TREE FEE IS BEING ABLE TO FOCUS TREE PLANTING EFFORTS ON LOW-CANOPY AREAS AND PROVIDING ESTABLISHMENT CARE TO ENSURE TREES ARE PROPERLY MAINTAINED AFTER PLANTING.



9.0 PLANNING DOCUMENTS

The following Vibrant Cities Lab’s sustainability metrics were applied to this section (Vibrant Cities Lab 2018):

1 Develop Urban Forest Management Plan:

Develop and implement a comprehensive urban forest management plan for public and private property.

- Current, Low (-1): No urban forest management plan.
- Optimal (4): New or recent urban forest and green infrastructure management plan that targets public and private tree planting and protection based on assessment, and ensures these benefits are distributed equitably among neighborhoods.

1 Forestry plan integrated into other municipal plans:

Forestry plan designed to reinforce and be reinforced through comprehensive plans, sustainability plans, park development, storm water and watershed plans, neighborhood revitalization, and climate mitigation plans, etc.

- Current, Low (-1): No plan.

- Optimal (4): All agencies whose goals are served by urban forestry practices, participate in creation of forestry plan and commit to designated roles and responsibilities.

Table 8, on the following page, provides a summary of the urban forest planning documents and guides commonly created to help cities plan for a healthy urban forest, protect existing trees, and aim for vibrant, sustainable tree populations. As Table 8 demonstrates, none of the City’s existing planning documents sets a vision, goals, or objectives for an urban forest based on sustainability models. This is partly the reason this First Step UFMP places a high priority on funding the preparation and implementation of the UFMP.

Street Tree Master Plan

Background/Discussion

A Los Angeles Street Tree Master Plan has not been created to date. The UFMP should address this with a separate chapter or a comprehensive Street Tree Master Plan framework. Creating a Street Tree Master Plan will rely on a comprehensive tree in-

ventory so that street-level tree information can guide the master plan’s content, guidelines, recommendations, and requirements. The Street Tree Master Plan must be integrated with the rest of the UFMP, so that shared goals, objectives, targets and actions are reflected.

City of Los Angeles General Plan

Background/Discussion

The City’s General Plan contains many elements that influence the City’s urban forest. Chapter 9, Infrastructure and Public Services, of the Citywide General Plan Framework Element addresses the urban forest with standards that are consistent with the City’s 1993 Urban Forestry Policy (City of Los Angeles 1995). Some of the more relevant policies found in the General Plan are:

- 9.41, Ensure that the elements of urban forestry are included in planning and programming of infrastructure projects which involve modification of dedicated parkway, sidewalk and/or raised median islands.
- 9.41.2, Encourage the use of permeable paving wherever possible.

Table 8
Urban Forest Planning Documents and Guides – Los Angeles Ratings

Planning Documents	Sets a Vision, Goals, Objectives for the Urban Forest Based on Sustainability Models	Recommendations are Based on Sustainability Models	Has Elements of Sustainability Model in Recommendations	Makes Recommendations to Improve Urban Forest	Updated within Last 5 Years	Can be Used to Inform Policy Makers on Changing Current Policy/Ordinance
General Plan			X	X		X
Sustainability Plan				X	X	
Biodiversity Plan			X	X	X	
Resilient Los Angeles				X	X	
Bureau of Street Services State of the Trees Report			X	X	X	X
RAP Urban Forest Plan			X	X		X
Street Tree Master Plan						

X = yes

- 9.43, Improve City tree selection, placement and maintenance.
- 9.43.2, Adopt planting standards which provide for sufficient quantity and quality of soil to help trees reach their optimum size.

The OurLA2040 initiative led by the City Planning Department is currently seeking public input and determining all of the elements and chapters that will comprise an updated General Plan (City of Los Angeles 2018a). Inclusion of urban forest-related topics should be directly derived from a UFMP to ensure a cohesive plan for City tree management. Urban forestry topics should be interspersed throughout the Gen-

eral Plan, where appropriate, but should also be included in a specific section with the guiding policies and goals identified through the UFMP process. With OurLA2040 expected to be developed over a 2- to 5-year period, it should be possible to make significant UFMP progress such that it can inform and guide the General Plan update if the UFMP development process begins in the near term.

Sustainable City pLAN

Background

Created in 2015, the Sustainable City pLAN is a roadmap used to provide the vision of Mayor Eric Garcetti for operating a sustain-

able city and the metrics that will be used to determine if Los Angeles is progressing toward the “sustainable city” goal. The Sustainable City pLAN provides methods for achieving the Mayor’s sustainable city priority. This plan has 14 chapters: Local Water, Local Solar, Energy-Efficient Buildings, Carbon & Climate Leadership, Waste & Landfills, Housing & Development, Mobility & Transit, Prosperity & Green Jobs, Preparedness & Resiliency, Air Quality, Environmental Justice, Urban Ecosystem, Livable Neighborhoods, and Lead by Example. These topics are broken down into long-term outcomes, near-term outcomes, strategies, and priority initiatives that provide the goals, vision, and methods

of implementing each topic (City of Los Angeles 2015b).

Discussion

Even though trees directly impact numerous aspects of the Sustainable City pLAN, the urban forest is noticeably absent. The Sustainable City pLAN demonstrates the City's low urban forestry priority and value perception. Trees or urban forests are mentioned in the report the following number of times (City of Los Angeles 2015b):

- **0 of the 36 long-term outcomes**
- **1 of the 62 short-term outcomes**
- **0 of the 71 strategies**
- **5 of the 200+ priority initiatives**

Specifically, three of the five priority initiatives reference planting more trees, engaging residents through tree planting events, and creating a tree canopy registry (City of Los Angeles 2015b).

According to the Sustainable City pLAN 3rd Annual Report, the tree and tree-canopy registry was considered complete based on a combination of a GIS-based location inventory merged with UFD's 1996 street tree inventory (City of Los Angeles 2018b). While the 22-year-old tree inventory contains some accurate information about the City's street trees, it falls short of a comprehensive inventory that would provide information on the current conditions of the City's tree

population and its diversity, condition, and sustainability. Further, it does not provide information on the urban forest canopy, and is not useful in being able to direct tree planting to neighborhoods most in need.

Resilient Los Angeles

Background

The Resilient Los Angeles strategy was released in March 2018 as a framework to address current and future challenges facing Los Angeles. The strategy sets goals to grow a more equitable tree canopy by 2028 and develop a strategy to sustain the region's biodiversity and tree health. However, apart from these two actions, urban forestry is still only briefly mentioned in the document (City of Los Angeles 2018c):

- **0 of the 15 goals**
- **2 of the 96 actions**

Discussion

This strategy has innovative approaches to many of the problems Los Angeles faces, but the lack of meaningful inclusion of the urban forest as an important component of urban sustainability and resilience seems to echo the status quo response the City has long offered for improving the urban forest: plant more trees. While planting trees is important, it overlooks the larger threats to the City's trees/urban forest such as pests, diseases, climate change, and development

intensification. It also fails to take into account that a tree must be cared for and maintained throughout its life in order to achieve the benefits sought. Any updated goals set in the Sustainable City pLAN and Resilient Los Angeles plan should be derived from a UFMP that is based on a complete street tree inventory and canopy cover analysis. A complete inventory and canopy cover analysis will help guide decisions so they are made using the best available information to create factually based goals and strategic objectives.

2018 Biodiversity Report

Background

The 2018 Biodiversity Report was initiated with a City Council motion in April 2015 in response to Mayor Garcetti's Sustainable City pLAN goal of having a "no-net-loss" biodiversity strategy. A team of City departments and stakeholders, led by the Bureau of Sanitation, conducted an analysis of Los Angeles using the internationally recognized Singapore Index. The Singapore Index is a tool to quantify biodiversity and create goals, and develop strategies and policies to meet those goals. One of the 28 indicators for the Singapore Index is "Urban Forest Canopy," for which Los Angeles scored a 1 out of 4, with 19% tree canopy cover (City of Los Angeles 2018d).

Discussion

The 2018 Biodiversity Report resulted in seven recommendations that should be considered for the management of Los Angeles' trees. Four of these recommendations focus on the tree species that should be planted, with native species, ability to sequester carbon, future climate adaptability, and bird habitat as priorities (City of Los Angeles 2018d). These recommendations are generally consistent with conventional ideas on species selection, but are too narrow in regards to native species, since there are not enough native trees that are tolerant of Los Angeles' difficult growing conditions to provide for adequate urban forest species diversity levels.

The UFMP should address how to incorporate biodiversity goals using best urban forest management practices, including species and age diversity and canopy cover and distribution. Further conversations and evaluation of important biodiversity-related topics include the following:

- 1 **Identifying** native species and appropriate naturalized species or other non-natives that will function similarly.
- 2 **Determining** the appropriate percentage of native and non-native species resulting in urban forest pest and disease resiliency.
- 3 **Achieving and maintaining** biodiversity and species diversity goals.

4 **Researching** trees appropriate for Los Angeles' future climate.

5 **Developing** a diverse palette of native and non-native species that can be planted in disadvantaged communities with limited space in public rights-of-way.

2015 Bureau of Street Services State of the Street Trees Report

Background

The 2015 Bureau of Street Services State of the Street Trees report examined five aspects of urban forest work in Los Angeles and assigned a letter grade. The report gave the following grades (City of Los Angeles 2015a):

- **Species Diversification: A**
- **Age Diversification: D**
- **Tree Stocking Rate: B+**
- **Tree Health: D**
- **Tree Maintenance: F**

The result was an overall assessment grade of C- for the City's street trees, with the following recommendations (City of Los Angeles 2015a):

- **Create** a street tree removal and replacement program in order to minimize the impact of dying trees, create a more sustainable age distribution, and

increase tree canopy along the public right-of-way.

- **Increase** the number of tree plantings in order to improve the street tree stocking rate.
- **Conduct** a street tree inventory in order to more adequately assess and manage street tree health.
- **Establish** a regular maintenance program in order to sustain a healthy street tree population by funding tree pruning and removal crews.
- **Rebuild** the City's Urban Forestry Division with high level leadership that incorporates street tree management into the City's larger sustainability objectives.

Discussion

Using UFD's outdated tree inventory from 1996 severely limits understanding the current status of the City's urban forest. The accuracy of the grades assigned are suspect without a complete inventory and accompanying tree assessment. The tree stocking rate grade of B+ is determined based off an estimated 700,000 existing street trees and a potential for 800,000 street trees, or 88% of available spots planted. This grade doesn't account for how many trees have been removed since 1996, provide a number of trees that must be planted to replace all removed trees, and how many must be

planted to reach a canopy cover goal. The State of the Street Trees report determined, similarly with this First Step UFMP, that performing a professional tree inventory and having high level leadership working toward the City's sustainability goals should be the top priorities. It is not readily observable how the State of the Street Trees report was used to inform policy makers, and what changes, if any, were made based on its recommendations.

2003 Recreation and Parks Urban Forest Program

In 2003 Recreation and Parks developed an Urban Forest Program (UFP) document that outlines all the standards for management and preservation of park trees. It establishes a mission statement for RAP Forestry Division (RAP Urban Forest Program):

“To provide an attractive, safe, and beneficial urban forest through high quality tree management and maintenance practices that respect the ecosystem, while serving the needs of the Department of Recreation and Parks, the community, and all park visitors.”

PARKS AND RECREATIONAL AREAS GENERALLY FOLLOW BEST PRACTICES FOR TREE MAINTENANCE AND CARE.



The UFP recognizes that the natural landscape of Los Angeles has been disrupted to accommodate a developing City, and having a sustainable urban forest will require ongoing human intervention. The UFP detailed standards were developed out of the best arboricultural practices at the time for tree protection during construction, pruning, replacement ratios, and other maintenance activities. The UFP clearly explains what is expected from City staff and any contractor that may perform work on or around a park tree.

Discussion

The RAP Urban Forest Program is successful in creating a standard of maintenance, care, preservation, and protection that would support a sustainable urban forest. Most standards of

the UFP are still relevant today, but should be reviewed and updated to reflect current arboricultural best practices. While the UFP does define a mission statement for the RAP Forestry Division, it does not provide a vision, plan, or goals toward sustaining a healthy urban forest in City parks. The management activities of the UFP ensure the work is done to best practices, but it does not guide that work in a holistic manner. The “Tree Care Manual” portion of the UFP, when updated to reflect current best practices, could be included in a City UFMP to direct management activities of park trees. However, the vision and goals for the City's urban forest created during the UFMP process should be incorporated into the RAP UFP so all urban forestry work in Los Angeles is directed toward a unified vision.

10.0 STRUCTURE OF GOVERNANCE

The following Vibrant Cities Lab's sustainability metrics were applied to this section (Vibrant Cities Lab 2018):

- 1 **Align Municipal Departments:** Align affected municipal departments, county and regional authorities, and state agencies behind common agendas.
 - Current, Fair (1): Municipal departments/agencies recognize potential conflicts and reach out to urban forest managers on an ad hoc basis, and vice versa.
 - Optimal (4): Municipal policy implemented by formal interdepartmental/interagency working teams on all municipal projects.

Background

The City has a decentralized structure of urban forestry governance, with many departments, non-profit organizations, and other stakeholders supporting various and frequently overlapping urban forest management functions. A positive outcome of this is that the urban forest is being considered in various departments that

are otherwise not directly related to urban forest management. The downside has been dysfunction within the City in its ability to protect and preserve trees and prioritize the allocation of resources, and this structure has fostered competition and distrust among some departments. These issues underscore the importance of hiring an urban forestry coordinator to be the key player in ensuring that the City works cohesively toward building a world-class urban forestry program.

Identified Issues

This analysis identified the following major areas of City urban forestry overlap and dysfunction:

- **Urban forestry personnel** include talented individuals who are passionate about urban forestry and are doing their best to improve Los Angeles' urban forest. However, the decentralized urban forestry governance structure means that there is a significant lack of communication and cooperation. Departments tend to work in silos, completing their daily tasks and

achieving some successes, but are not strategically working toward City-wide urban forestry goals. This is applicable in all departments that are involved with urban forestry.

- **City Plants** is a public/private partnership that exists as a non-profit organization in the City Board of Public Works. This hybrid nature means City Plants is responsible to raise its own funding in carrying out a City function, often competing with UFD to win tree planting and tree care contracts.
- **UFD and RAP** both manage significant portions of Los Angeles' urban forest, but the focus of urban forestry in Los Angeles has been centered on street trees. This, along with charging RAP for water and waste management services, isolates RAP staff and encourages them to take steps to fund improvements to the RAP urban forest program through grants. This proactive approach has resulted in a soon-to-be completed park tree inventory and additional funding for tree planting and maintenance. This success, and a widely recognized opinion by City staff

that RAP is providing sound urban forestry management on a severely limited budget, has also led to the further isolation of RAP staff who are willing to improve management practices based on arboriculture industry standards but feel no obligation to change or improve practices based on City initiatives or directives, including the establishment of an urban forestry coordinator.

- **The City Council** has passed motions requesting reports from City departments, mainly UFD, to improve standards for urban forest management, but has not received those reports in a timely manner or at all. UFD's lack of response to these requests by City Council members hinders efforts to return to pre-recession (pre-2009) budget and staffing levels. In turn, it fosters City Council members' lack of confidence in UFD's ability to manage the City's urban forest. Recent change toward a more pro-active BSS/UFD may be early signs that tree management is becoming a higher priority for the City.
- **UFD** is responsible for managing all the trees in the public right-of-way, but Council Districts may independently remove, prune, and plant trees without UFD's knowledge. Without UFD's project review, they are unable to ensure that ISA standards are met, that the work was even necessary, or that other

trees in the Council District weren't considered a higher priority. Such uncoordinated urban forest management actions by individual Council Districts are largely unprecedented among other municipalities, and may significantly undermine efforts towards coordinated and sustainable urban forest management. The UFMP should closely review tree management by individual Council Districts and, barring strong evidence to suggest otherwise, should recommend that such activity cease.

Discussion

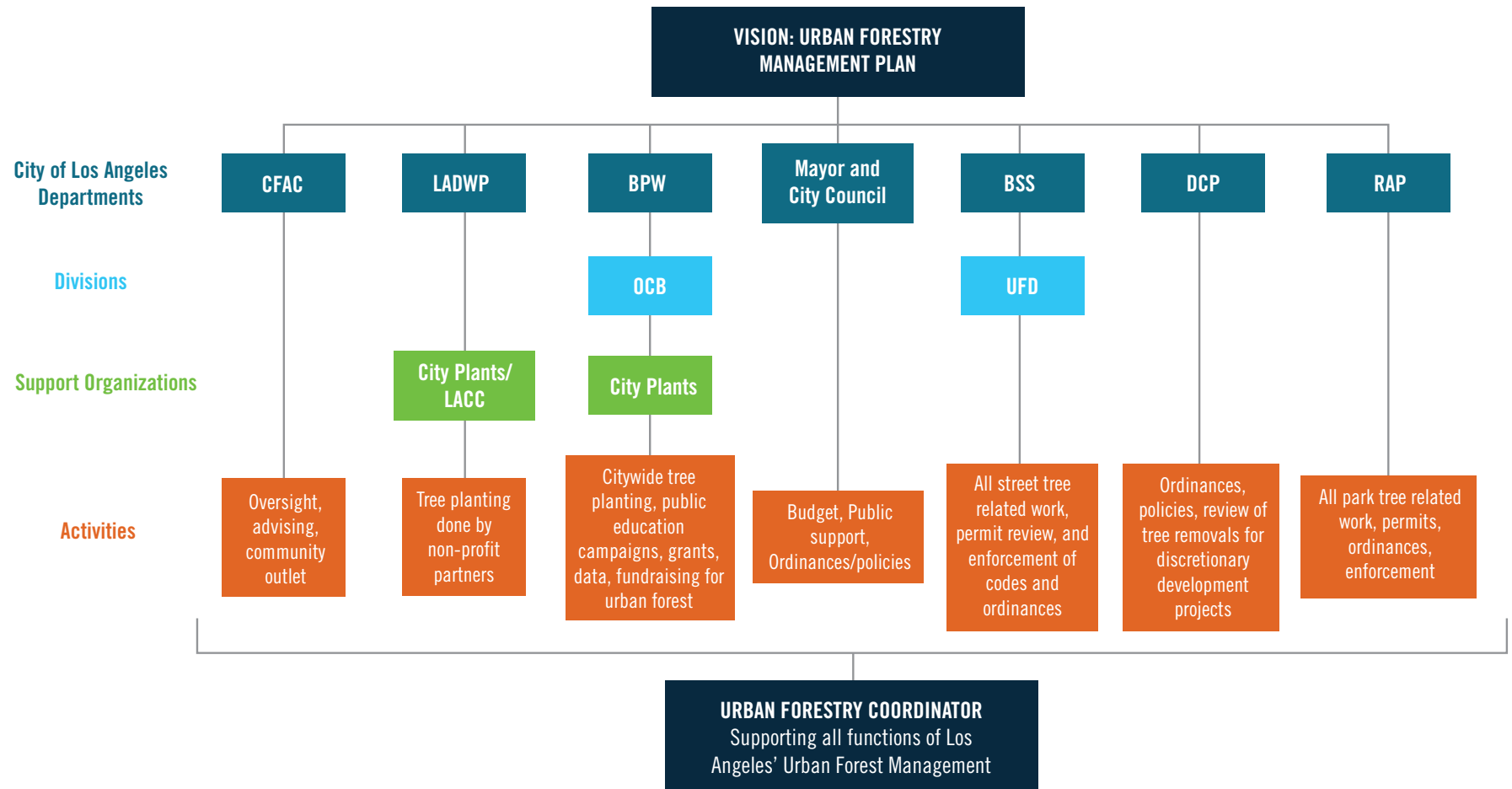
The organizational chart on the following page depicts one possible scenario for the City of Los Angeles to revise its current structure to clarify urban forest management roles and responsibilities. The vision created through the UFMP is placed at the top of the chart as this is the guiding principle for all the decisions and actions of the actors who influence urban forest management. All of the overarching actors are placed on the same level as they each play an equally important role in Los Angeles having a sustainable urban forest.

- **Urban Forest Coordinator:** This position is placed at the bottom of the chart to represent the strategic role they will play in supporting and directing all of the urban forest activities and actors toward the vision created in a UFMP.

The ability to lead the City towards a collective vision is the main responsibility of this position. It will require the skillful unraveling of the conflicts of the current governance structure so all staff and departments are aligned in one direction.

- **Mayor and City Council:** The main responsibilities of elected officials are similar to the current expectations. These responsibilities include budgeting urban forest management at sustainable levels, updating and writing policies and ordinances, and promoting the urban forest to Los Angeles residents to raise public support and awareness. However, with a completed UFMP and Urban Forest Coordinator, elected officials will have the resources needed to continually make decisions that will lead Los Angeles toward a sustainable urban forest.
- **Department of Planning (DCP):** Is responsible for reviewing projects requiring discretionary approvals from DCP. In this scenario, Planning would be responsible for coordinating with UFD on reviewing proposed tree removals and replanting's for proposed development projects. On an as needed basis, the Planning department will also consult and coordinate with Urban Forestry in reviewing and assessing tree reports as part of the environmental review on a project by project basis.

PROPOSED UFMP GOVERNANCE STRUCTURE



- **Bureau of Street Services Urban Forest Division (UFD):** In this scenario UFD would be responsible for all inspections, permits, and enforcement for street trees and private trees. Reviews proposed tree removal, replacement, and new plantings for proposed projects in coordination with DCP. This would require additional staffing being placed in UFD to assess trees for health and risk issues, protection and preservation vs. removal, making determinations on available planting locations, and ensure City standards for pruning, planting, and establishment care. To best review tree reports related to proposed projects, additional staffing for Urban Forestry dedicated to consulting and coordinating with the Planning department would be mutually beneficial.
- **Recreation and Parks:** Since RAP has full authority and control over all aspects of City park management, it could continue to function in its current capacity with RAP staff handling both the administrative and field component of managing park trees.
- **City Plants:** In this scenario City Plants is placed within the Board of Public Works Office of Community Beautification (OCB) as official City staff. OCB currently oversees the City graffiti removal program, with multiple organizations contracted to do this work. This model is similar to the role City Plants currently plays and could be incorporated as another aspect of ‘community beautification’. City Plants would continue to serve in its current role of overseeing the LADWP contract that is managed by the Los Angeles Conservation Corps, and implemented by the planting partners, and coordinating the City-wide tree planting effort. They would also lead the City’s public education campaign effort, grant writing, and collect urban forest data.
- **Community Forest Advisory Committee (CFAC):** CFAC would continue in its current role as an advisory committee to the Board of Public Works and elected officials. CFAC plays the important role of providing a platform for community members to bring local tree issues to the City. Additionally CFAC reviews the current standards, practices, and decisions of the City to ensure best practices are being followed.



CITY PLANTS DISTRIBUTES FREE TREES TO RESIDENTS WHO WANT TO HELP REFOREST LOS ANGELES BY PLANTING TREES ON THEIR PROPERTY.

11.0 DEPARTMENTAL INTERVIEWS

This First Step UFMP included interviews with Los Angeles urban forestry departments and organizations. The goal of the interviews was to gain an understanding of how urban forestry works in Los Angeles from those who carry out the day-to-day operations, planning, and management. The interviews were intended to supplement the consultant team's analysis of the City's urban forest management issues, successes, structure, funding, and coordination.

Interviews were scheduled with City departments and other entities for four consecutive days during the week of June 4, 2018, as depicted in Table 9.

Interviews followed a similar format, and questions were provided to interviewees two weeks prior to the scheduled interview. Interview questions are detailed in the Appendices. Questions were broken into five broad categories and are discussed below.

1 Operations

Six operations-related questions were asked of interviewees to provide an understanding of the types of activities each department/organization performs and whether there may be ways to improve coordination in-

Table 9 Urban Forest Management Interview Dates and Organizations	
Date	Department/Organization
June 4, 2018	Bureau of Engineering – Sidewalks Council Member Huizar's Office Planning Department
June 5, 2018	Department of Recreation and Parks Bureau of Street Services – Urban Forestry Division Board of Public Works – Commissioner Los Angeles Department of Water and Power Department of Public Works – Office of Community Beautification
June 6, 2018	Mayor's Office Bureau of Sanitation Council Member Blumenfield's Office Board of Public Works – Commissioner Council Member Bonin's Office
June 7, 2018	Planting Partner Organizations – Non-Government Organizations Community Forestry Advisory Committee

ternally and with other Los Angeles departments/organizations. Questions centered on evaluating existing roles, whether efficiencies could be gained internally or externally, and whether changes to the overall urban forest governance structure may help with the urban forestry's prominence and sustainability.

Interview Response Summary

Important outcomes of the operations questions revealed that departments responsible for providing physical tree maintenance (UFD and RAP) feel they are understaffed. These departments understand that they are not able to provide maintenance at industry

standards, and creatively stretch available funding to perform mostly reactive maintenance tasks. Departments and organizations that perform planning and tree planting roles indicate that staffing is not a large issue, but that they see many inefficiencies and ways that the governance structure could be improved. All interviewees indicated that available budget was the primary issue with their operation's effectiveness.

2 Budget

Ten questions were designed to ascertain departmental/organization budgets, their adequacy, and overall sustainability. The questions explored whether tree-related budgets are reliant on one source and whether decision makers have identified other sources of potential revenues. The process for requesting budget increases was assessed, and ways to leverage budgets, such as relying on non-profits or other means, were discussed.

Interview Response Summary

Interview responses indicated that the primary urban forestry City departments feel that they are significantly underfunded and that the lack of funding prohibits their effectiveness. The two largest City departments managing trees expressed significant budgetary impacts. Lack of funding significantly affects UFD and RAP in terms of staffing, equipment, and contracting for basic urban forestry maintenance tasks. Departments that focus on urban forestry

planning and grant funding indicated that budget inadequacy is an issue, but that they were providing alternative methods of meeting expectations, including relying on grant funding, not providing early project plan checks for tree impacts, and using non-urban forestry specialists to perform day-to-day functions.

Non-profit organizations indicate that their work is entirely funded by grants, donations, and other sources, and that their budgets vary year to year but provide adequate funding for planned projects. There was substantial focus on how many trees are planted each year, with acknowledgment that there is only minimal tracking of whether the trees establish or not. Interviewees all indicated that inadequate budgets continue to plague Los Angeles urban forestry sustainability and is a serious problem that will need to be addressed.

Council Districts and the Mayor's Office indicated an understanding that budgets are not at levels needed, but they also did not indicate that significant urban forestry budget increases were the focus of near-term priorities. Other important social issues, including homelessness and graffiti removal, along with planning for the 2028 Olympics, seemed to be higher priorities.

3 Staffing

Three staffing questions were presented to interviewees with a goal of determining the quantity, quality, and effectiveness of

each department/organization's staff. The questions were targeted at learning whether urban forest-related staffing was sufficient, whether there were staff with necessary tree and urban forestry expertise, and the level of ongoing tree/urban forest training/continuing education.

Interview Response Summary

Staffing was indicated by most interviewees to be an issue, with UFD and RAP indicating significant reductions in staffing from their peaks and slow recovery, with staffing at levels nearly half of what would be needed to provide maintenance at industry-standard levels. Staffing within the planning and management departments was less of a concern to interviewees, who indicated that their departments were adequately staffed or could be augmented by minimal staffing with urban forestry expertise. Staff experience and qualifications within each interviewee's organization was considered appropriate for current functions, but there were comments about other City departments and organizations, which indicated a lack of confidence. Ongoing training and incentivizing tree worker and supervisor continuing education has been offered for several years with mixed success and participation.

4 Policies

Seven questions in this category probed whether interviewees understood and could define what urban forest policies governed

their daily operations. The questions further explore whether the policies are relevant, result in a sustainable system, are consistently applied, are effective, and are enforceable. Specific questions included whether fines for illegal tree damage are adequate and if there were changes to the tree protection policies that they would support.

Interview Response Summary

The City's policies and regulations were understood by most interviewees, who expressed doubt that the policies were appropriate, included adequate penalties to reduce tree impacts or incentives to preserve trees, or were applied and enforced consistently. Adequate staffing was indicated as one issue related to application and enforcement of tree-related policies. Interviewees differed by department or organization regarding whether changes to the tree protection policies were needed. Departments charged with project review indicated that additional staffing would enable them to better apply existing policies. Planning-related departments and organizations indicated that enforcement of the existing policies was seriously lacking, citing examples of tree removals that resulted in little or no fines or other ramifications.

5 Long-Term Urban Forest Management Planning

Five questions within this category focused on understanding the recognition by interviewees that the City's urban forest and its

management are considered to be far below industry standards. The questions revolved around whether interviewees think that Los Angeles' urban forest should be managed to achieve "world class" status—that is, an urban forest that is sustainable, provides maximum benefits, and is protected and maintained at levels at least consistent with industry averages. One of the important questions in this category was related to the timing for Los Angeles' urban forest to achieve world-class status.

Interview Response Summary

All interviewees responded that Los Angeles should strive to create a world-class urban forest. Most of the interviewees suggested that it was not a feasible goal without significant changes in the available urban forest funding, staffing, tree protection policies, and public education. Interviewee opinions on the timing for achievement of a world-class urban forest varied from 20 years to 50 years.

Interview Response Conclusions

These interviews were an important process for the consulting team's overall understanding of the current Los Angeles urban forest management structure. The interview process provided a first-hand view of the governance structure and of the individuals involved in urban forestry protection; planting, pruning, and removal; policy making; and funding.

Interview feedback revolved around common themes, including lack of funding and staffing, successes in tree planting and tree pruning (stretching available dollars), lack of strategic planning, and a desire to obtain a world-class urban forest. Lack of vision, strategy, and cohesive urban forest leadership emerged as major areas for improvement. In many ways, the various entities that are influenced by or influence the urban forest work in silos with infrequent communication and coordination. There also appears to be a level of duplication and redundancy in urban forest roles, particularly for tree planting services. This may be a result of, or necessitated by, current budget constraints.

Los Angeles' urban forest system follows a decentralized approach to urban forest management. It is doubtful that this structure is by design, given that urban forestry strategic planning has not been an integral component of the City's tree management approach, which appears to be more reactive than strategic. Sometimes, dispersing urban forestry tasks among multiple departments can raise the prominence of urban forestry and result in urban forest management efficiency. With few exceptions, however, a decentralized system does not achieve these outcomes within Los Angeles, and urban forestry appears to be an afterthought at most levels of City government. City executives have not shown an appreciation for the value of urban trees and the urban forest services, as evidenced by the

requests for sustainable funding, that to date, have been largely ignored.

Trees should be part of the initial consideration during project planning so trees are avoided in design and preserved. As relayed by the interviewees, trees are considered late in the project planning process, if at all, when tree protection is no longer an option and mitigation is the only path forward. Tree protection is a vital component of a sustainable urban forestry program, but was not consistently addressed by interviewees, who primarily focused on the lack of tree maintenance and the self-described robust tree planting programs.

All interviewees agree that a sustainable urban forest is desired and that achievement will require major changes to the current governance structure, its funding, and its processes for planning and managing the urban forest. The consulting team concludes that following the most common urban forestry sustainability models provides an opportunity to evaluate the various aspects of the City's urban forest and compare it with industry standards. This comparison will shed light on the areas where Los Angeles will need to provide focused attention to improve the urban forest and its management structure to at least an industry average level, with an ultimate goal of achieving a world-class urban forestry program.

There are numerous areas that are not functioning sustainably, and as a result, are



hindering the City's urban forestry achievement and management, but starting the UFMP process is shedding light on these gaps. Funding, preparing, and beginning to implement urban forestry goal achievement will rapidly improve the City's sustainability scores, resulting in a healthier urban forest

and substantial increases in real tree benefits for every Los Angeles citizen.

12.0 WORKING GROUP MEETINGS

An urban forestry Los Angeles First Step Working Group was established to bring together the urban forest leaders, decision makers, advocates, funders, and community representatives. The working group members included representatives from the following City departments, non-government organizations, and other entities:

Federal and State Agencies

CAL FIRE

U.S. Forest Service

City of Los Angeles Government

Board of Public Works

Bureau of Engineering – Sidewalk Division

Bureau of Sanitation

Bureau of Street Services – Urban Forestry Division

City Plants

Community Forestry Advisory Committee

Council Districts 3, 5, 11, 13, 14, and 15

Department of Building and Safety

Department of City Planning

Department of Recreation and Parks

Los Angeles Department of Water and Power

Office of Mayor Eric Garcetti

Non-Government Organizations

A Cleaner Greener East Los Angeles

Climate Resolve

Koreatown Youth and Community Center

LA Conservation Corps

Los Angeles Beautification Team

Natural History Museum

Neighborhood Council Sustainability Alliance – Trees Committee

North East Trees

Studio MLA/Grown in LA

Theodore Payne Foundation

TreePeople

Project Consultants

Dudek – Urban Forestry Division

Urban Forest Innovations, Inc.

Working group meetings occurred once per month from February through November 2018. Meetings were well-attended and participation was facilitated through breakout sessions and smaller group discussions that were integrated into the larger group setting toward the end of each meeting.

Working group meetings were invaluable for many reasons. The meetings brought

together the City's leading urban forestry constituents for lively discussion on focused study areas concerning the City's urban forest. In addition, the working group members' collective institutional knowledge was shared with the consulting team as part of the information transfer process. The meetings also resulted in working group member communication and relationship building that would not likely have occurred absent these focused, monthly urban forestry gatherings.

Table 10 provides a summary of the working group meeting dates and the topics discussed.

Working Group Meeting Topic Summaries

Meeting 1 (February 2018): The kickoff meeting included relationship-building exercises and a discussion about whether Los Angeles needs a UFMP. The discussion focused on numerous reasons why Los Angeles needs a UFMP, including the lack of defining goals and objectives, lack of strong urban forest leadership, and serious funding challenges. The conclusion was

Table 10
Working Group Meeting Details

Date	Meeting Topic
February 8, 2018	Kickoff – Discuss Why Los Angeles Needs an Urban Forest Management Plan
March 8, 2018	Public Survey Design and Selection of Comparison City Analysis
April 12, 2018	Mapping Urban Forest Actors in Los Angeles
May 10, 2018	Developing a Vision Statement
June 14, 2018	Most Pressing Issues Facing Los Angeles' Urban Forest
July 12, 2018	Dudek Presents Findings on Task 1
August 9, 2018	Expanding and Maintaining Los Angeles' Urban Forest – Brainstorming Key Growth Strategies
September 13, 2018	Tree Inventory – Status and Needs
October 11, 2018	Financing the Urban Forest – Examining Funding Sources and Structures
November 8, 2018	Looking Ahead – Maintaining Momentum for a Full UFMP

that the City needs a comprehensive UFMP due to the lack of an overall urban forest management strategy, a declining urban forest canopy, governance structural issues, budgetary and staffing deficiencies, and lack of urban forestry prioritization.

Meeting 2 (March 2018): At March's meeting, Dudek presented an urban forestry public survey to be used to gain public input. The draft survey of 18 questions was provided to the working group, and members were asked to break into subgroups to review the survey and provide comments. Comments included ways to more clearly ask questions, additional questions to obtain more specific information, removal of questions, provisions for ranking responses, and ways to make the survey meet scientific/statistical standards. The finalized survey

incorporated most of the comments and edits, and was expanded to 22 questions. A stronger urban forest public survey was developed based on the Los Angeles-specific insight of working group members.

The second portion of this meeting was aimed at developing a list of cities that could be used to select three comparison cities for closer evaluation. It is useful to compare Los Angeles to other cities that are considered to have strong or developing urban forestry programs. The working group developed a list of 13 candidate cities. From the list of candidate cities, Melbourne, Australia; San Francisco; and New York City were selected for direct comparisons based on a variety of factors, including similarity of climate (Melbourne), issues faced (Melbourne, San Francisco, New York City), budgetary cuts

and financing strategies (San Francisco and New York City), size (New York City), proximity (San Francisco), good example of path forward (Melbourne and San Francisco), and industry reputation as a leading urban forestry city (Melbourne, San Francisco, and New York City).

Meeting 3 (April 2018): At the third meeting, focus was placed on determining who is responsible for various urban forestry activities. The conclusion was that there are many actors dispersed throughout City departments and non-government organization partners who have a role in urban forestry management.

Meeting 4 (May 2018): The fourth meeting focused on developing a vision statement for the City of Los Angeles' UFMP. The working group brainstormed two-word descriptions of ideal urban forests as a lead-in to vision statement development. The working group broke into subgroups and each subgroup developed a Los Angeles-specific vision statement and presented it to the other subgroups. Common themes were apparent in the five vision statements, and the working group voting indicated that one of the vision statements was considered superior and can be used as the starting point for UFMP vision statement development. More information on the potential Los Angeles UFMP vision statement is provided in Chapter 13, Recommendations.

Meeting 5 (June 2018): Discussion at the fifth meeting centered on identifying the most pressing issues Los Angeles' urban forest faces. Subgroups were established (Policy, Management, Holistic, Public Engagement, and Equity) that developed specific issues, probed why the issue exists, and in some cases ranked the issues in order of importance. The conclusion reached was that there are many issues facing Los Angeles' urban forest that will need to be resolved if the City desires a sustainable urban forest and the benefits that it provides. These issues are discussed throughout this First Step UFMP.

Meeting 6 (July 2018): Dudek provided a presentation summarizing preliminary findings from the department interviews. The presentation provided a refresher on urban forest sustainability, then included a working group activity to take the Vibrant Cities Lab's Urban Forest Sustainability Gap assessment. The presentation provided a comparison of urban forestry components that are working versus those that are not, and evaluated them in terms of their sustainability. Included in the presentation was a summary of the online public survey results to that point, a brief overview of comparison city data, and initial recommendations. The conclusion was that the initial evaluations revealed that the City's urban forestry program is extremely unsustainable, is vastly underfunded, and



WORKING GROUP MEMBERS ENGAGE IN A TEAM BUILDING ACTIVITY TO ENCOURAGE OPEN COMMUNICATION AND COLLABORATION DURING THE FIRST STEP PLANNING SESSIONS.

manages to accomplish basic urban forestry functions through a diverse assemblage of partnerships, funding sources and techniques, but compares unfavorably to even average urban forestry programs.

Meeting 7 (August 2018): This meeting included a brainstorming of key urban forestry growth issues. The subgroups established during the June working group meeting were reconvened to address the specific issues identified during that meeting. Each group discussed the issues and developed a list of potential solutions. This brainstorming session resulted in many feasible, implementable solutions to Los Angeles' urban forestry issues. The issues and their poten-

tial solutions are provided in detail in the Appendices. These results should be carefully examined during UFMP preparation and goal establishment exercises, and those found to represent high-priority solutions that can be achieved within a reasonable timeframe should be integrated into the UFMP for implementation.

Meeting 8 (September 2018): The topic of an urban forest tree inventory was discussed in detail, with each City entity that currently has or at one point had tree inventory data presenting the status. There is no comprehensive tree inventory or tree management software system available in Los Angeles. There are at least five partial

inventories with varying tree characteristic details, varying tree information relevancy (date, age), varying mapping accuracy, and limited use for planning and goal generation purposes. The City would benefit greatly from understanding its urban forestry assets. Basic urban forestry information, including species diversity, tree conditions, maintenance needs, calculated values and return on investment, and vacant planting spaces, are not known with usable accuracy. Portions of a UFMP can be completed without the inventory, but it is impossible to support and justify long-term goals and achievement of the urban forest vision without a solid understanding of the trees that make up Los Angeles' urban forest. Further, Cal Fire UFMP grants typically require an inventory to be completed prior to or simultaneously as the UFMP.

Meeting 9 (October 2018): The October meeting concerned financing urban forest management and examining funding sources and structures in Los Angeles. The discussion sought clarity on how urban forestry is funded in Los Angeles, and provided a report on the budgets of the comparison cities of Melbourne, San Francisco, and New York City. Current funding levels for RAP and UFD, and additional funding to Los Angeles urban forestry efforts were provided. Funding comes from a variety of sources, with UFD being funded by the General Fund; RAP funded by tax allocations, facility revenues and grants, City Plants being funding through LADWP, grants, and donations; and BOS funding largely from grants. The conclusion was that the City's funding is inadequate for a sustainable urban forest and is not at levels needed for meeting minimum industry

standards. Funding should be from a variety of sources, but a significant, stable revenue sources must be identified and may include a special tax, establishment of a special district, or a general obligation bond, amongst others.

Meeting 10 (November 2018): The last working group meeting was a recap of what was learned and a discussion of what role members can take as the UFMP process begins. Working group members discussed what they had learned through the First Step process and comments generally fell into broader categories of deficient funding for urban forestry, the complexity of how many City departments interact with trees, and that a dedicated group of urban forest stakeholders and City staff exist that want to work collectively to improve urban forest management in Los Angeles. In reviewing the 10 month process, working group members were asked to identify any issues that had not been addressed in the meetings. The main identified issue was having immediate actions that can be taken to improve the urban forest while a tree inventory and UFMP are completed. This lead into a discussion on what actions individuals would be willing to take to continue the momentum of the working group. Overwhelmingly the group responded that sharing the information found in the First Step report with elected officials, neighborhood councils, social media, and community members was the most important action to take.



WORKING GROUP MEMBERS CONTEMPLATE URBAN FORESTRY ISSUES.

13.0 ONLINE PUBLIC SURVEY

A total of 2,641 online urban forest public surveys were completed. These surveys provide valuable input regarding the public's understanding of Los Angeles urban forestry. The intent of the questions was to gauge the public's priorities for urban forestry, understanding of how the City manages its urban forest, and the value the public places on trees and the urban forest. The results of the survey are illustrated on pages 74-76, with graphs 1 through 8, 13 and 14, and 16 through 20. The figure at right indicates where survey responders reported their residence zip code. More of the data is being assessed currently by USFS researchers and will be shared appropriately.

Method of recruitment and response representative nature.

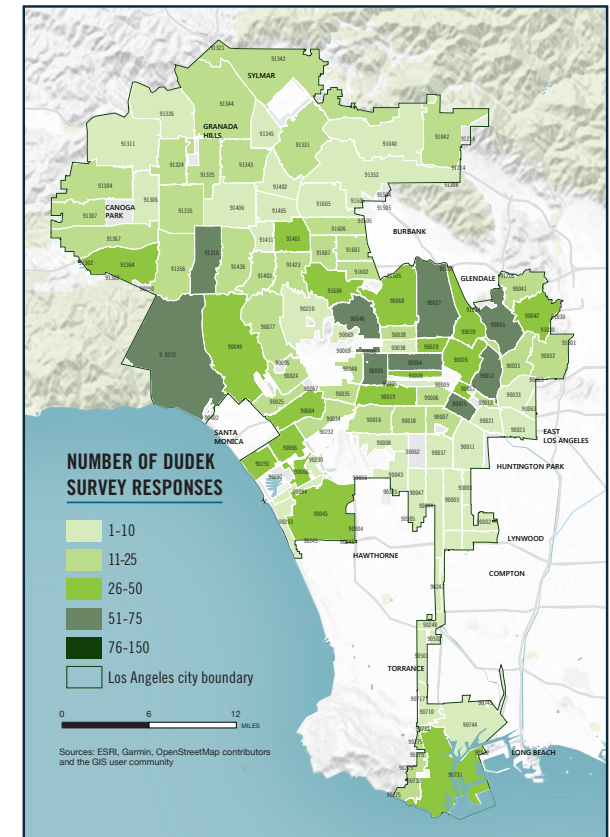
Potential respondents were invited to participate in the survey through a variety of outlets, including prominently City Plants listserve and social media posts, including via Facebook, Instagram, Twitter, Constant Contact, Mail Chimp, and general emails. More, several local and regional municipal and nonprofit offices invited participation through their email lists and social media.

In particular, several city council member offices emailed the survey to constituents in the City of Los Angeles, enhancing its representative nature. See the image below for the number of survey responses obtained from different areas.

Survey results.

The questions of the survey can be reduced to five categories – (1) knowledge and importance of trees, (2) aware of city tree management (3) perceptions of how well the city is managing trees (4) interest in engaging and supporting trees and (5) the top ranked benefits of trees, threats to trees, and perceived problems with trees in a resident's neighborhood.

- 1 In terms of knowledge and importance of trees,** residents rated their knowledge of trees as about average and felt that trees were equally as important as other forms of infrastructure and that it was very important for them to be protected or replaced during construction activities.
- 2 In terms of awareness of city management,** residents were far more aware of that the



city 'manages its trees' generally and have staff dedicated towards this goal (~80%; 85%) than they were of specific tree policies and ordinances (~60).

- 3 In terms of how well the city manages its trees,** respondents indicated that

trees are currently being managed quite poorly and that there is not enough resources spent on trees. Many respondents felt there were not enough trees on the streets and in the neighborhoods of their neighborhoods.

4 In terms of respondents interest in future engagement, most expressed interest in assisting in initiatives and activities to improve the urban forest on city or private property with a slight preference for the latter.

5 In terms of the questions asking respondents to rank the top benefits of trees, threats to trees, and perceived problems in a resident's neighborhood, it is difficult to make any determinations from the survey results. The highest ranked responses tended to follow what was presented first on the list, which is methodologically problematic. The respondents ranked health as the most important benefit, disease the most important threat to trees, sidewalks and pavement cracking as the most important problem in their neighborhood, and low canopy cover and funding as the most important issues to be addressed in an UFMP.

In a linear regression exploring what factors (of all those provided in the survey) might predict interest in engaging in urban forestry initiatives on private property in the future, several factors were roughly equally

significant in their predictive power, including urban forestry knowledge, seeing trees as equally important as other infrastructure, feeling there are not enough trees on your own streets and in parks nearby and rating trees as important to protect, sustain and/or replace before, during, and post development and construction activities. Urban forestry knowledge was the strongest predictor among these. Awareness that the city manages its trees and city policies, as well as perceptions of how well the trees are being managed were not significant predictors. Interest in supporting similar activities on city owned property showed similar results except that those who were more aware of city policies and ordinances expressed greater interest in engaging in activities with this land-type in the future. Statistical models can be made available upon request.

Activities and budget for outreach and education.

Inquiries to New York City and San Francisco determined that outreach and education funds were not always directly displayed in an urban forestry management budget. For San Francisco, a nonprofit working closely with the city established a campaign to support the initiative, using unique fear-inducing imagery (trees falling on the street), and repeated announcements at public events providing the key messag-

Survey Participant Comments:

“

I would LOVE to see this city truly value its trees, especially mature trees, over permits for builders, litigious sidewalk issues, tree root issues and other issues that can be solved with some thoughtful compromises, new technologies, or by just saying no. We need our urban forest now more than ever and I feel the City's current policies very poorly reflect that need. Educating residents to the tremendous value of trees will surely be important as well.

Thank you!!

”

es. In New York City, initial and ongoing outreach and educational efforts revolve around a staff person organizing volunteer citizen science activities across the city to measure tree canopy.

Highlighted survey results include:

- **Graph 1** – 98% of respondents are Los Angeles residents.
- **Graph 2** – Most respondents rate themselves as having some (69%) or substantial (21%) tree knowledge.
- **Graph 3** – 80% of respondents consider trees equally as important as other infrastructure.
- **Graph 4** – 90% of respondents consider it very important to protect trees during construction.
- **Graph 5** – 81% of respondents are aware that the City manages its trees with a 19% unaware.
- **Graph 6** – 60% of respondents are aware the City has urban forest ordinances, leaving 40% who are unaware.
- **Graph 7** – 86% of respondents know that the City maintains trees.
- **Graph 8** – 50% of respondents consider the City's tree management as poor with 46% considering tree management as acceptable.
- **Graph 13** – 72% of respondents expressed that their street did not include enough trees.
- **Graph 14** – 71% of respondents expressed that their parks did not include enough trees.
- **Graph 16** – the most urgent tree activity identified was maintenance (38%), with tree planting (29%), and tree protection (16%) rounding out the top three.
- **Graph 17** – 49% of respondents stated that they would be willing to participate in initiatives to improve the City's urban forest with another 43% indicating "maybe."
- **Graph 18** – 62% of respondents indicated they would be willing to participate in activities to improve private urban forest with another 31% indicating "maybe."
- **Graph 19** – support for tree maintenance and protection was as follows: new policies would be supported by 33% of responders, 16% would support development of a UFMP, and 15% would support being able to plant trees in the public right of way. Only 2% indicated they supported new fines, fees, or taxes to fund tree management.
- **Graph 20** – in contrast to Graph 19, 80% of responders indicated that the

City spends too few resources on tree maintenance.

The final survey question provided an opportunity for specific write-in comments. The majority of these public comments related to the following topics:

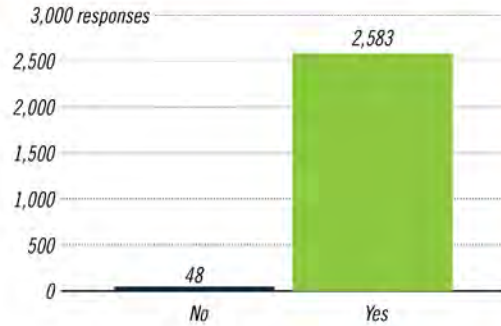
- **Planting native trees**
- **Conflicts between trees and development**
- **Young tree care**
- **Climate change**
- **Urban forestry funding**

In some instances, public comments astutely analyzed an issue, while in other cases, the public did not know about basic City urban forestry features, like the free tree program. Although some themes did emerge, it is evident by the wide range of written responses that residents are not receiving a clear message on Los Angeles urban forestry issues. Survey responders do have a strong desire to see more trees planted, cared for, maintained, pruned, preserved, and protected, and a willingness to help support the City in achieving these goals.

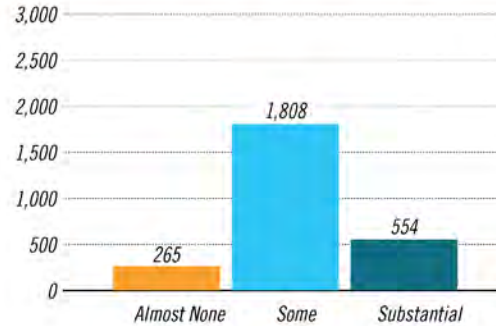
Public understanding of Los Angeles' urban forest and its management policies varied widely. Some informed citizens provided written comments that seem to reflect the general consensus of the urban forestry stakeholders, as indicated by the survey participant comments on the previous page and at the end of section 14.

HIGHLIGHTED SURVEY RESULTS

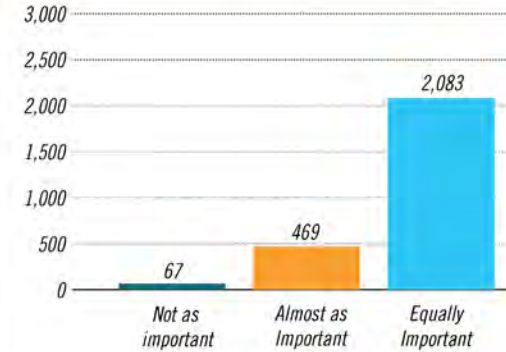
1 Do you live/work in L.A.?



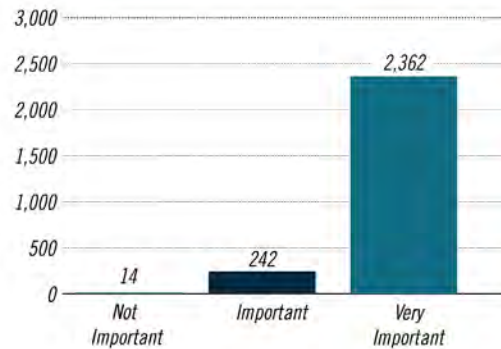
2 Rate your knowledge about trees/urban forest



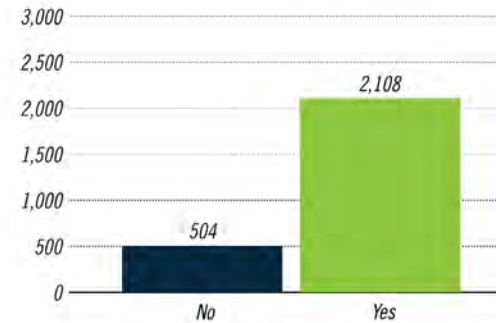
3 How important are trees to other infrastructure?



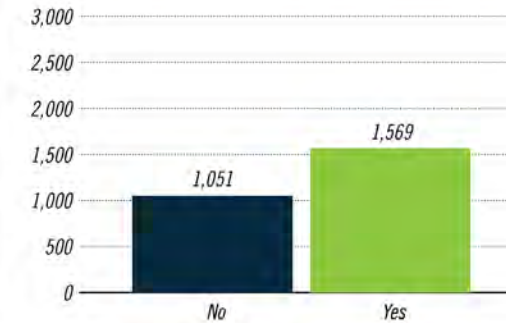
4 How important is it to protect trees during development?



5 Are you aware the City manages its trees?

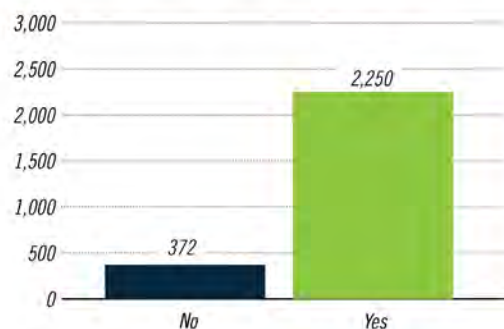


6 Are you aware the City has urban forest ordinances?

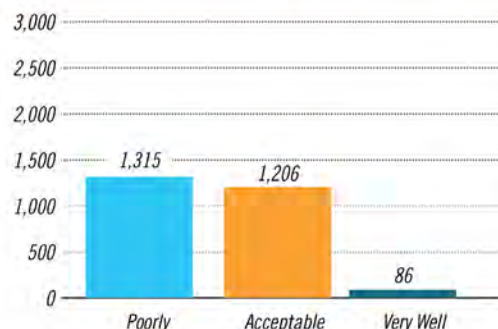


HIGHLIGHTED SURVEY RESULTS

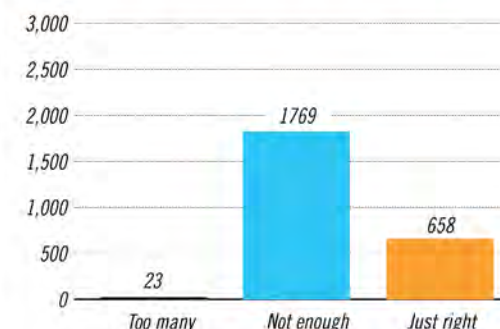
7 Do you know the City maintains trees?



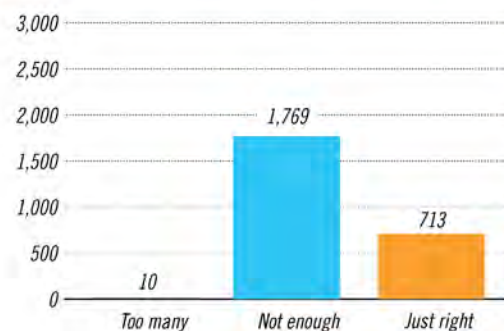
8 How well are the City's trees being managed?



13 Do your streets have enough trees?



14 Do your parks have enough trees?

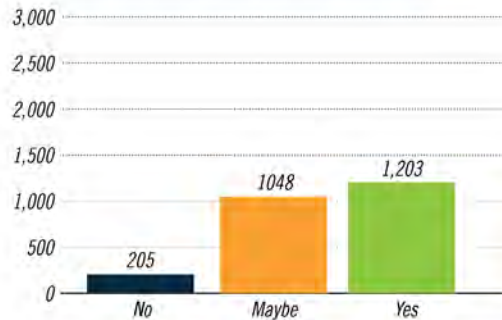


16 What is the most urgent tree related activity in your neighborhood?

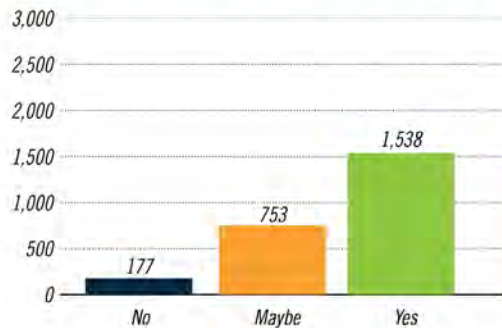


HIGHLIGHTED SURVEY RESULTS

17 Would you be willing to engage in initiatives to improve the urban forest on City owned lands?



18 Would you be willing to engage in activities to improve the urban forest on private land?



19 What are you willing to support to ensure the City's trees are maintained and protected?



20 Which best reflects your view for publicly-owned tree protection, planting and maintenance programs?



14.0 FIRST STEPS TO A SUSTAINABLE URBAN FOREST

The current Los Angeles urban forestry program was analyzed using Vibrant Cities Lab's Community Assessment and Goal-Setting Tool (Vibrant Cities Lab 2018). Analysis of sustainability metrics; information provided during working group meetings and department interviews; and analysis of policies, budgets, and programs resulted in the recommendations provided below. These recommendations encompass the larger, systemic issues since they represent priority urban forestry weaknesses. The themes of these recommendations are leadership, funding, vision, and public education. Additional recommendations are briefly described following this section. These additional recommendations are considered important, but are deferred to the UFMP analysis for additional vetting and development.

Leadership

Recommendation: Hire an urban forestry coordinator who is experienced, funded, and empowered to achieve important Los Angeles urban forestry goals.

With Los Angeles' governance structure, the urban forestry coordinator must play a key role in unifying and coordinating the

key urban forestry departments and staff. Among the most important and over-arching responsibilities is ensuring that the various departments, policies, programs, and elected officials work in unison toward reaching the City's vision and goals, which are currently not developed, but must be detailed through the UFMP process. This key coordinator position should function as a "servant leader" who is recognized as the director of the City's urban forestry program, but who achieves success by ensuring that all City urban forestry departments and staff have the resources they need to reach their urban forestry goals. This requires a bottom-up approach, as opposed to the traditional top-down approach. The urban forestry coordinator should also lead development of the City's UFMP and implementation of UFMP strategies throughout all City departments. The urban forestry coordinator should be a permanently funded position that is a part of the City's annual budget without requiring annual justification.

Analysis of Current Condition:

City departments, nonprofit organizations, and elected officials all manage different City urban forest functions, either in-

dependently or through interconnected responsibilities. Sometimes this leads to effective partnerships, and other times redundancies, competition, and mistrust. Lack of centralized leadership has the positive affect of trees being a consideration in various departments that may not otherwise be directly related to urban forest management. The challenge is achieving continuity in urban forestry standards, expertise, and decision making with the many urban forestry departments and staff who are not all centered on, and guided toward, a shared vision. The current system functions at a level that fails to achieve even basic sustainability tenets. The opportunities available to change this situation are significant, but implementation of the urban forestry coordinator position, the UFMP and associated tree inventory, ongoing funding at industry-standard levels, and other important urban forest opportunities must be carefully designed and executed with a vision for a vibrant, sustainable urban forest as the end goal. Because there are large, complex urban forestry tasks that need to be accomplished, and there is no single coordinator who can work across departments and organizations toward achievement of these tasks, there is an identified need for this

role. The City has funded this position and will be seeking candidates, but it is recommended that a subset of existing City urban forestry staff, preferably representation from the First Step UFMP Working Group, are included in the position’s search, interviews, and selection process.

Funding

Recommendation: Provide urban forestry funding that is steadily increased to comparison city levels, which will significantly close the sustainability gap.

The current City urban forestry budget of \$25.4 million represents only 30% to 40% of the estimated \$60 million to \$70 million needed to manage the City’s trees at a sustainable level. This is a significant increase in funding, but is necessary for many reasons, including reducing risk and maximizing benefits and return on investment. Trees are important components of the City’s infrastructure and require ongoing management beyond current levels. Continued deferral of the needed management, planning, and actions risks significant future costs related to urban forest rehabilitation from widespread tree mortality and replacement.

The recommended urban forestry budget increase is needed for improving currently funded City actions, including pruning and tree planting, but also implementing new programs like young tree care and public education. It is recommended that a munic-

ipal financing consultant conduct a detailed analysis, guided by experienced urban foresters, to determine what additional Los Angeles urban forestry funding sources are available. This process can be initiated immediately, and is considered the highest priority in terms of urban forest sustainability achievement.

Table 11 provides the current funding for major tree-related tasks, and the estimated financial need.

Analysis of Current Condition:

Urban Forestry Division

After the 2007–2009 recession, funding for the City’s UFD was drastically reduced, but the department’s basic functions were expected to continue at pre-recession levels. Staffing was reduced by two-thirds, and has only recently recovered to roughly half of pre-recession levels. This reduction in labor

immediately resulted in a significant tree maintenance frequency impact (per departmental interview between UFD and Dudek/UFI in June 2018).

Department of Recreation and Parks

As with UFD, RAP staffing levels were reduced in the 2007-2009 recession and have not been restored to pre-recession levels. RAP is provided a designated funding stream established by City charter, but this does not guarantee that funding is directed toward RAP’s urban forest management programs. Additional financial stress was placed on RAP when City policy was revised to require RAP to pay for water it receives from LADWP, which has reduced its park tree management ability. (per departmental interview between RAP and Dudek/UFI in June 2018).

Tree Planting

The City makes a minimal tree planting

Table 11 Current vs. Estimated Needed Urban Forestry Budgets				
	UFD Fiscal Year 2018/2019 Funding (Millions)	UFD Estimated Need (Millions)	RAP Fiscal Year 2018/2019 Funding	RAP Estimated Need
Total Budget	\$21.6	\$55–\$65	\$3.8 million	\$16–\$20 million
Tree Planting	\$0.8	\$3.5	1 Crew	6 Crews
Establishment Care 1 Crew 6 Crews	\$0.4	\$3.3	1 Crew	6 Crews
Tree Trimming	\$4.2	\$18.6	1 Crew	6 Crews
Dead Tree/Stump Removal	\$0.5	\$2.2	1 Crew	6 Crews

investment by allocating roughly \$800,000 from the general fund for this purpose. The majority of City-related tree planting is dependent on LADWP funding the City Plants program. Almost all young tree care is supported by grants from non-profit organizations and BOS. Minimal funding is provided to City Plants for marketing the City's free tree program and educating residents on proper tree selection, planting, and maintenance practices. The tree planting budget will need to be considerably increased to support the anticipated UFMP's goals for canopy cover and benefit optimization. Reliance on LADWP and grants will continue to be a part of the tree planting funding, but additional funding from these or other sources will be necessary for replacing lost trees and expanding the urban forest. Comparison cities spend considerably more on tree planting than Los Angeles. Using them as a baseline, the City tree planting funding will need to be an estimated \$3.5 million, with the additional LADWP funding through City Plants and leveraged non-profit grants for a sustainable tree planting program.

Vision

Recommendation: Create an Urban Forest Management Plan.

The City of Los Angeles must have a clear vision, plan, and measurable goals for its urban forest. The tool that has been specifically designed for this purpose is

the UFMP. This First Step to a UFMP process has benefited from commitments and energy invested by Los Angeles urban forest stakeholders. This First Step UFMP has taken the first step toward preparing a UFMP. This First Step UFMP's preparation included strategic UFMP component discussion, analyses, and documentation. Much of this information can be directly placed within a UFMP or repackaged for inclusion. This First Step UFMP required more than 10 months of effort by more than 60 urban forestry stakeholders, and will facilitate UFMP preparation by identifying the top urban forest issues and challenges, providing guidance where additional analysis is necessary, and focusing efforts on building a sustainable urban forest and closing the gap between Los Angeles' current scores and its goal sustainability scores.

Analysis of Current Condition:

No current City planning document outlines a vision, goals, and objectives for the City's urban forest. In addition, no previous or current elected official has presented a vision for Los Angeles' urban forest or an implementable plan. The Los Angeles City Council adopted a motion on November 30, 2016, to create an urban forest management plan (Council File 15-0467-S6), but there has been no measurable movement toward a UFMP until this First Step UFMP was championed by City Plants.

The advocacy efforts of non-profit organizations, along with dedicated urban forestry

professionals and stakeholders, has led to improvements in Los Angeles' urban forestry management practices, but has failed to address the City's larger systemic urban forestry issues. Despite these challenges, through dedicated staff and stakeholders, urban forestry work has successfully moved forward and the City has maintained a basic level of functionality, albeit far short of industry standards. The urban forestry stakeholders, guided by a somewhat loosely defined goal to help disadvantaged communities, has moved forward with efforts to enhance canopy cover where needed most, and has been successful in obtaining significant tree planting grant funding. These successes have been critically important for the City's urban forestry program, but appear to have detracted from a more strategic approach to urban forest target setting and goal achievement. It has allowed decision makers to defer addressing urban forestry deficiencies to a later date, accumulating deficiencies year after year.

Recommendation: Complete a street tree inventory and invest in a tree management software application.

Tree Inventory

Although it is not mandatory that a tree inventory be completed prior to initiating a UFMP, there are critically important analysis and UFMP sections that, in the absence of accurate inventory data, cannot be completed. Looking into the urban forest's future requires an understanding of

the existing urban forest. Without a solid understating of the current status, it is almost impossible to envision what changes are needed, what the roadmap to an optimal condition looks like, and what actions will be needed to get there. A comprehensive street and public facility tree inventory is essential for understanding the urban forests' current status, including ecological benefit values, appraised value, health and structural condition, species and relative age diversity, distribution, maintenance needs, hazards, and hardscape and infrastructure issues. The inventory must meet industry standards in terms of data type and quality, and is most reliably collected by trained field arborists using a consistent tree attribute collection format.

Tree Management Software Application

In addition to tree inventory data collection, urban forest management requires the assistance of a tree/urban forest management application/software. This is particularly true for a city like Los Angeles, which manages approximately 1 million trees. The ability to quickly and easily query the urban forest database for specific tree information and mapping is a powerful tool. The importance of tracking and easily recalling work histories for every tree cannot be understated in terms of risk management. Day-to-day activities are easily managed and tracked with these programs. Short- and long-range planning relies heavily on these tools, as they enable urban foresters/planners to

understand tree-related issues, where they are occurring, and where there are trends, and from that information, to develop fact-based planning. UFMP goals are more easily developed and achieved with the use of a tree management software application.

Analysis of Current Condition:

Currently, Los Angeles has several tree inventory databases, none of which are considered complete, current, or inclusive of industry standards. Of these tree datasets, RAP's is considered the most useful. Further, RAP was recently awarded a grant to complete an inventory update, which will be a comprehensive tree inventory with industry-standard data fields. This same type of inventory must be provided for the City's street trees.

For tree management applications, there is no City-wide, uniform application in use except Navigate LA. Navigate LA was often referred to during interviews by City department staff as their tree inventory. Navigate LA is not considered a tree management application, but is a reasonable tool for viewing 1996 tree locations with very little in terms of tree attributes and no current tree information. Navigate LA would not enable meaningful urban forest tree analysis, querying, valuing, or the related UFMP goal setting activities. UFD has not used a tree management application since having abandoned its previous system over a decade ago. RAP has successfully used its

tree management application (TreeKeeper), recently updating to Version 8. This tree management application enables RAP basic urban forestry planning and management functions that are useful for carrying out daily tree-related tasks.

Urban Forestry Coordinator Role

Managing the completion of a tree inventory and preparation of a UFMP requires a primary coordinator and cooperation by virtually all Los Angeles urban forestry stakeholders. To ensure progress is made toward completing an inventory and UFMP, the urban forestry coordinator position should be filled as envisioned by this First Step UFMP, and a stakeholder working group should continue to meet on at least a quarterly basis.

Public Education

Recommendation: Provide a uniquely tree-based public education campaign.

An estimated 90% of the urban forest, or some 10 million of Los Angeles' trees, are located on private property (analysis of McPherson. et al. 2011). Clearly, Los Angeles residents have taken advantage of the City's favorable growing weather and the large variety of tree species it supports. This vast quantity of trees suggests that a majority of citizens place some value on them, most likely related to landscaping aesthetics. Whatever the reason, there are many opportunities to leverage the privately

owned urban forest and its many benefits with Los Angeles' citizens. It is recommended that public valuation of trees and the urban forest is explored at greater depth during the UFMP process. It is also recommended that the 10 million tree estimate is validated, which may occur as part of the non-profit Los Angeles urban forestry group Tree People's canopy cover analysis, expected to be completed in early 2019. The results of that analysis must be integrated into the UFMP and used to establish canopy cover goals at the City and more focused levels, with priority given to equitable canopy distribution.

Garnering the attention and shaping the views of residents about their urban forest, both public and private, will require a funded outreach effort. The City must implement a large-scale, ongoing marketing and education campaign to help residents understand the true benefits of trees, introduce them to tree industry vernacular and basics, and provide reasons for them to value trees and the urban forest as a necessary, but beautiful component of the City's vibrancy and livability. A City-wide education effort should be distinctly tree based and on a similar scale to the "Save the Drop" water conservation campaign to begin changing the public attitude toward trees and lack of tree knowledge and appreciation. The campaign's message should be crafted by Los Angeles urban forestry and marketing experts for high impact, user-friendliness,

resonating concepts, and delivery approach and methods. Initial ideas include "Save the Shade," "One Canopy," or adoption of other nationally marketed tree outreach messages.

Analysis of Current Condition:

A consistent quantity of tree and urban forestry information is shared with the Los Angeles public through various non-profit organizations, City Plants, and other tree-related entities. While most of the basic information on how to plant, water, and prune trees is the same, the messages lack a unifying theme that resonates with the average resident. This has led to a public advocating for different priorities for Los Angeles' trees and elected officials following suit, without being focused toward goals generated by scientific evaluation of the urban forest and moving toward a sustainable condition. The existing approach does not help mitigate the misconceptions and negative connotations associated with trees in Los Angeles, which include that trees are too expensive, are disruptive, are maintenance nuisances, or are not valued by the City. For example, some actions by UFD have resulted in residents receiving an unintended message that trees are not valued and are easily removed to accommodate development. UFMP goals must address changes in the tree removal application process so that, ideally, developments are designed to avoid trees, where possible,

and options to preserve trees are thoroughly explored prior to approving a tree removal permit.

Survey Participant Comments:

“
For such a green thinking city we lack severely in the actual “green” department. Let's change the nation's view of Los Angeles as a concrete jungle to something we can all be proud of.

”

15.0 FIRST STEPS TO A UFMP

This First Step to a UFMP is only the first step. Additional steps to be completed prior to or concurrently with the formal UFMP preparation are listed below. Table 12 lists tasks that can be completed prior to completion of the UFMP.

Step 1: Fill coordinator position.

- Define the position as a coordinator who is empowered to make change within urban forestry.
- Include a committee of cross-department representatives in interview and selection process.
- Recognize that the person hired will need to have extensive experience working in a large city with complex urban forestry issues, actors, and policies.

Step 2: Budget for an Urban Forest Financing Study to be completed by a qualified financial analyst working with the UFMP consultant.

- Professional analysis of funding sources
- Focus group effort for support

- Comprehensive study is estimated to cost up to \$200,000 (based on San Francisco financing study costs)

Step 3: Conduct a tree inventory prior to or coinciding with the UFMP; will require budgeting up to approximately \$2.8 million to \$3.0 million (estimate provided by professional tree inventory company).

- Professional inventory with consistent data

Step 4: Fund the purchase of a reliable, proven tree management software application.

- Reputable and stable company
- Proven product in multiple cities with large tree inventories
- Customizable for City's preferences
- Cloud-based, robust mobile capability so City crews can update tree data when maintained
- Work tracking
- ESRI GIS compatible

- Estimated cost is between \$25,000 and \$300,000 (or more, depending on type) plus annual licensing fees
- Must include comprehensive training and adequate hardware to ensure ongoing utilization

Step 5: Budget for a comprehensive UFMP and provide a near-term timeline for its completion.

- Estimated cost: \$400,000 (estimated hours of professional urban foresters needed to complete a Los Angeles UFMP in comparison to the efforts needed to complete UFMP's in other cities).

Table 12
Actions that Can Be Accomplished Prior to the UFMP

Priority	Goal	Vibrant Cities Lab Metric
1	Assessment of Publicly Owned Trees—Inventory	Complete GIS tree inventory that includes detailed tree condition and risk ratings.
2	Inventory Management System	Systemic comprehensive inventory system of entire urban forest with information tailored to users and supported by mapping in citywide GIS system. Provides for change analysis.
3	Tree Canopy Cover Assessment	Complete, detailed, and spatially explicit, high-resolution Urban Tree Canopy (UTC) assessment based on enhanced data (such as LIDAR)—accompanied by comprehensive set of goals by land use and other parameters. As described for “Better” rating and all used effectively to drive urban forest and green infrastructure policy and practice municipality-wide and at neighborhood or smaller management level.
4	Assessment of Trees on Private Property	Bottom-up sample based assessment, as well as detailed UTC analysis of entire urban forest, including private property, integrated into municipality-wide [multi-agency] GIS system. LIDAR and hyper-spectral imaging most helpful.
5	Trees Acknowledged as Vital Community Resource	Urban forest recognized as vital to the community’s environmental, social, and economic well-being.



16.0 ROADMAP TO UFMP AND BEYOND

The information in Tables 13 and 14 provides additional UFMP roadmap steps toward a sustainable urban forestry program that can begin immediately if appropriate resources are allocated to these efforts. The action items listed are in various states of initiation and completion in the City, with the majority of the actions requiring significant work efforts to achieve their successful completion.

Table 13 Actions that Can Be Accomplished during UFMP Preparation		
Priority	Goal	Vibrant Cities Lab Metric
1	Develop Urban Forest Management Plan	New or recent urban forest and green infrastructure management plan that targets public and private tree planting and protection based on assessment of anticipated benefits and ensures these benefits are distributed equitable among neighborhoods.
2	Forestry Plan Integrated into Other Municipal Plans	All agencies whose goals are served by urban forestry practices, participate in creation of forestry plan, and commit to designated roles and responsibilities.
3	Engage Residents in Planning and Implementation	Proactive outreach and coordination efforts by municipality and non-government organization partners resulting in widespread citizen involvement and structured engagement among diverse neighborhood groups.
3	Engage Large Private Landowners and Institutions	Tree management plans developed with input from community, and public access to the property's forest resource.
3	Green Industry Embraces Goals, High Standards	Shared vision and goals and extensive committed partnerships in place. Solid adherence to high professional standards, and commitment to credentialing and continuing education.
4	Tree Establishment and Maintenance	Comprehensive tree establishment plan provides concrete guidance on most of the following criteria: site selection, age class, diversity of species, native plant choice; planting protocols [e.g. minimum soil volumes, soil conditions]; young tree care, including region appropriate irrigation requirements. Includes provisions and funding for maintenance.
5	Assessment of Publicly Owned Natural Areas	Management plan focused on sustaining and, where possible, improving overall ecological structure and function while facilitating appropriate public use. Plan should consider impacts on contiguous natural areas [open space corridors] outside the community's borders.
6	Management of Publicly Owned Natural Areas	Management plan for each publicly owned natural area focused on sustaining and, where possible, improving overall ecological integrity (i.e., structure and function) – while facilitating appropriate public use.
7	Urban Wood and Green Waste Utilization	Comprehensive plan and processes in place to utilize all green waste one way or another, to the fullest extent possible.

Table 14
Actions that can be Accomplished After UFMP Preparation

Timeframe	Goal	Vibrant Cities Lab Metric
Short	Tree Protection Policy and Enforcement	Integrated municipality-wide policies and practices to protect public and private trees, consistently enforced and with penalties sufficient to deter violations.
Short	Align Municipal Departments	Municipal policy implemented by formal interdepartmental/interagency working teams on all municipal projects.
Short	Policies that Foster Good Urban Forestry on Private Lands	All relevant municipal policies require or incentivize adherence by private owners to standards incorporated in the plan. Incentives and sanctions applied when appropriate.
Short	Tree Risk Management	Policies and ordinances in place to minimize tree damage and removal on commercial developments and public capital. Protection measures conform to ANSI A300 standards and ISA best management practices. Includes “better” but with TRAQ-qualified contractors on City projects. Educate tree care companies and public about importance of TRAQ qualifications.
Medium	Environmental Equity	Equitable planting and outreach at the neighborhood level is guided by strong resident involvement in low canopy/high need areas. Residents participate actively in identifying needs for their neighborhoods, planning, implementation and monitoring.
Medium	Use of Native Vegetation	Native species are widely used on a project-appropriate basis in all areas; invasive species are proactively managed for eradication to the full extent possible (subject to species diversity limits based on Los Angeles’ low native tree species numbers).
Medium	Urban Forestry Program Capacity [Applies to in-house and contracted staff]	Team has and will in the future achieve all goals of the urban forest management plan, to maintain the resource over time, and adapt management as circumstances change.
Medium	Municipality-Wide Urban Forestry Funding	Sustained, long-term funding from multiple municipal, regional and/or state agencies, along with private sources to implement a comprehensive urban forest management plan, and provide for maintenance and adaptive management as circumstances change.
Long	Canopy Cover	The existing canopy is >75%–100% of desired – at individual neighborhood level as well as overall municipality.
Long	Relative Performance Index by Species	Six most common species have higher RPI scores than the average of all species in community.
Long	Monitoring	Monitoring adheres to the standards and protocols established by the Urban Tree Growth and Longevity network.
Long	Growing Site Suitability	All trees planted on sites with adequate soil quality and quantity, and with sufficient growing space and overall site conditions to achieve their genetic potential and thus provide maximum ecosystem services. Where growing conditions are poor, guidance provided on how to improve soil volume, quality, other factors.
Long	All Utilities Work within Municipality Employ Best Management Practices	Utilities are included in informal municipal teams that communicate regularly and collaborate on a project-specific basis.
Long	Cooperative Planning with Other Municipalities	Widespread regional cooperation resulting in development of regional urban forestry strategy.

17.0 ADDITIONAL GOAL ACHIEVEMENT RECOMMENDATIONS

The additional recommendations in Table 15 were developed as part of the First Step UFMP, but could not be thoroughly vetted within the constraints of the First Step UFMP's scope. Many of these recommendations will become objectives or action items within the UFMP. They should be thoroughly analyzed and incorporated into the UFMP.

Table 15 Additional Recommendations Requiring Vetting During UFMP Analysis	
Topic	Areas of Further Exploration During UFMP Process
Bureau of Street Services Standard Planting Details	Review existing details to ensure they are consistent with current industry standards.
City Plants	Determine where City Plants can be most effective within the urban forestry governance structure.
City Plants and Bureau of Sanitation	Explore the roles City Plants and Bureau of Sanitation should fulfill in City tree planting, and whether they may function better as one unit within one department.
Equitable Tree Canopy Coverage	Use canopy cover study results to develop a strategy to raise the canopy cover in the most vulnerable communities.
Guaranteed Tree Fee	Measure the effectiveness of this ordinance against the sustainability metrics standards for tree preservation to determine if any amendments are needed.
Guaranteed Tree Fee	Determine if the fee adequately reflects the lost environmental and economic value of the tree using industry-standard methods for tree evaluation.
Guaranteed Tree Fee	Provide transparency in the application of the fee through public notifications, a timeline, and a publicly accessible map or database.
LADWP Residential Shade Trees	Options for further verification and oversight of this portion of the program is needed to determine its effectiveness.
Protected Tree Ordinance	Revise the protected tree ordinance to include a wider variety of trees based on species, size, location, and/or other metrics.
Protected Tree Ordinance	Adopt a methodology for tree valuation that meaningfully captures the lost benefits/services of the native and other trees to determine mitigation measures.
Protected Tree Ordinance	Evaluate the current replacement ratio with a methodology that would inform appropriate tree replacement values.
Recreation and Parks Open Space Tree Management	Explore how to properly manage the trees that exist outside of the irrigated footprint within City parks.
Recreation and Parks Urban Forest Program	Review the program to ensure it reflects current best management practices and is aligned with the UFMP vision.
Sidewalk Repair Program	Determine the number of possible future tree removals to understand potential impact on canopy cover and loss of environmental benefits.
Sidewalk Repair Program	Expand efforts to preserve trees that provide high levels of environmental, economic, and social benefit.
Sidewalk Repair Program	Evaluate the 2:1 replacement ratio to ensure a net positive impact on canopy cover following a methodology that replaces canopy cover on a faster timeline.

Table 15
Additional Recommendations Requiring Vetting During UFMP Analysis

Topic	Areas of Further Exploration During UFMP Process
Sidewalk Repair Program	Determine feasibility to plant trees where canopy is low and benefits would have a higher net impact.
Sidewalk Repair Program	Transfer the financial responsibility for planted trees throughout their lives, including any damage they cause to public or private property, to the City.
Street Tree Master Plan	Develop a Street Tree Master Plan.
Street Tree Protection	Ensure the penalties for illegal tree removal and illegal pruning are strong enough to act as a deterrent.
Street Tree Protection	Create an enforcement policy and provide additional enforcement resources that makes it feasible for the prosecution of offenders.
Tree Establishment	Determine the appropriate mix of UFD, RAP, and contractors/non-profits to provide establishment care in the most cost effective manner.
Tree Planting	Determine what the stocking rate should be to meet an established canopy cover goal.
Tree Pruning	Evaluate if all City street tree pruning should be accomplished by UFD, and potentially remove the Los Angeles Fire Department and LADWP from street tree pruning (except in emergencies).
Tree Pruning	Evaluate the appropriate mix of contracted and City staff tree pruning to maximize efficiency in services and cost effectiveness.
Tree Removal	Create a tree removal strategy to remove all current standing dead trees that will lead to annually removing all dead trees.
Tree Species Selection Guide	Ensure the species selection guide is based on trees that will be appropriate for Los Angeles' changing climate and increased pest activity, reflect biodiversity and sustainability goals, and accounts for the spacing limitations for tree planting in disadvantaged communities. Adopt guide as single standard for all City programs.
Urban Forest Policy	Review the policy to ensure it reflects current industry standards and is aligned with the UFMP vision.
Adaptive Management Strategy	Implement an adaptive management strategy for urban forestry to ensure a continual process of improving management practices and policies by learning from the results of previous policies and practices.
Biodiversity Report	Determine how to best incorporate biodiversity goals with best urban forest management practices.
City Urban Forestry Web Sites	Consolidate urban forestry web pages such that they provide consistent messaging, valuable urban forestry policy information, tree facts, and an easy to use interface.
General Plan	Inclusion of urban forest related topics should be directly derived from the UFMP, interspersed throughout the General Plan, and also include a specific section guiding policies and goals.
Sidewalk Repair Program	Generate a one-page report on each tree removal documenting with photos the need for removal and why preservation was not an option.
Sustainable City pLAN Resilient Los Angeles	Goals set in these plans are derived from a UFMP based on a complete street tree inventory and canopy cover analysis to ensure factually based goals and strategic objectives.
Tree Establishment	In the near-term, decrease tree planting numbers and direct those funds to tree establishment. Long term, ensure resources are available to provide establishment care to increase success toward UFMP goals.

18.0 REFERENCES

City of Los Angeles. n.d. *Street Tree Selection Guide*.

<https://bss.lacity.org/urbanforestry/StreetTreeSelectionGuide.htm>.

City of Los Angeles. 1993. *Urban Forest Task Force Report to the Public Works Committee*. May 26, 1993. http://clkrep.lacity.org/onlinedocs/1991/91-2372_MISC_06-92-1993.pdf.

City of Los Angeles. 1995. *The Citywide General Plan Framework, an Element of the City of Los Angeles General Plan*; Chapter 9, Infrastructure and Public Services. July 27, 1995; originally adopted December 11, 1996; readopted August 8, 2001. <https://planning.lacity.org/cwd/framwk/chapters/09/09.htm>.

City of Los Angeles. 2003. *City of Los Angeles Recreation and Parks Department, Urban Forest Program*. April 2003. <https://www.laparks.org/sites/default/files/forest/pdf/UrbanForestProgram.pdf>.

City of Los Angeles. 2015a. *Bureau of Street Services 2015 State of the Street Trees Report*. Department of Public Works. https://bss.lacity.org/PDFs/SOTS_TREES_2015.pdf.

City of Los Angeles. 2015b. *Sustainable City pLAN*. April 8, 2015. <http://plan.lamayor.org/wp-content/uploads/2017/03/the-plan.pdf>.

City of Los Angeles. 2018a. *OurLA2040 General Plan Update*. Accessed October 2018. <https://www.ourla2040.org/>.

City of Los Angeles. 2018b. *Sustainable City pLAN 3rd Annual Report 2017–2018*. <http://plan.lamayor.org/wp-content/uploads/2018/04/2018-pLAN-3rd-annual-report.pdf>.

City of Los Angeles. 2018c. *Resilient Los Angeles*. March 2018. <https://www.lamayor.org/sites/g/files/wph446/f/page/file/Resilient%20Los%20Angeles.pdf>.

City of Los Angeles. 2018d. *2018 Biodiversity Report, City of Los Angeles*. Los Angeles Department of Sanitation. <https://www.lacitysan.org/cs/groups/public/documents/document/y250/mdi0/~edisp/cnt024743.pdf>.

City of Los Angeles. 2018e. *Save the Drop*. Accessed October 2018. <http://savethedropla.com>.

City of Melbourne. 2012. *Urban Forest Strategy: Making a Great City Greener, 2012–2032*. August 2012. <https://www.melbourne.vic.gov.au/SiteCollectionDocuments/urban-forest-strategy.pdf>.

City of New York. 2007. *PlaNYC: A Greener, Greater New York*. Updated April 2011. http://www.nyc.gov/html/planyc/downloads/pdf/publications/planyc_2011_planyc_full_report.pdf.

City of New York. 2015. “Street Tree Inventory.” Accessed October 2018. <https://www.nycgovparks.org/trees/treescount>.

City of New York. 2018. “Tree Work Hub.” Accessed October 2018. <https://www.nycgovparks.org/services/forestry/tree-work>.

City of San Francisco. 2013. *Financing San Francisco's Urban Forest: The Benefits + Costs of a Comprehensive Municipal Street Tree Program*. December 2013. http://default.sfplanning.org/plans-and-programs/planning-for-the-city/urban-forest-plan/UFP_Street_Tree_Report_FINAL_Dec_2013.pdf.

City of San Francisco. 2014. *San Francisco Urban Forest Plan*. Fall 2014. http://default.sfplanning.org/plans-and-programs/planning-for-the-city/urban-forest-plan/Urban_Forest_Plan_Final-092314WEB.pdf.

City of San Francisco. 2016. Proposition E passes in November 2016. <http://sfplanning.org/urban-forest-plan>.

City Plants. 2018. City Plants. <http://www.cityplants.org/>.

- Clark, James R., Nelda P Matheny, Genni Cross, and Victoria Wake. 1997.** A Model of Urban Forest Sustainability. *Journal of Arboriculture* 23(1): January 1997. Pp 17–30. http://www.academia.edu/15062867/A_MODEL_OF_URBAN_FOREST_SUSTAINABILITY.
- Environmental Protection Agency. 2016.** “Using Trees and Vegetation to Reduce Heat Islands.” August 2016. <https://www.epa.gov/heat-islands/using-trees-and-vegetation-reduce-heat-islands>.
- Hamilton, Keir, Andrew K. Koeser, Shawn M. Landry. 2018.** Accuracy of Volunteer-Derived Data from a Single-Day Inventory Event Built around a Crowdsourced Tree Mapping Application. *Arboriculture and Urban Forestry* 2018, 44(6): 248-254.
- Inland Urban Forest Council. 2012.** “Urban Forest Management Plan Toolkit.” December 2012. <https://ufmptoolkit.net/>.
- Investing in Place. 2018.** *We’re not Throwing Shade but Neither is LA #GotShade*. August 2018. <https://investinginplace.org/2018/08/30/were-not-throwing-shade-but-neither-is-la-gotshade/>.
- LAist. 2016.** *Brentwood Developer Banned From Building Mansions Over Illegally Removed Trees*. June 2016. http://www.laist.com/2016/06/25/rich_nimbys_v_rich_developer.php.
- Lee, Su Jin, Travis Longcore, Catherine Rich, and John P. Wilson. 2017.** Increased Home Size and Hardscape Decreases Urban Forest Cover in Los Angeles County’s Single-Family Residential Neighborhoods. *Science Direct* Volume 24, May 2017, Pages 222–235. <https://www.sciencedirect.com/science/article/pii/S1618866716303296>.
- Los Angeles City Attorney Mike Feuer. 2018.** “Community Justice.” Accessed October 2018. <https://www.lacityattorney.org/community-justice>.
- Los Angeles Times. 2017.** “The trees that make Southern California shady and green are dying. Fast.” April 2017. <http://www.latimes.com/local/california/la-me-dying-urban-trees-20170403-story.html>.
- McPherson, E.G., Simpson, R.J., Xiao Q., Wu, C. 2011.** “Million trees Los Angeles canopy cover and benefit assessment.” *Landscape and Urban Planning* Volume 99, 2011, paged 40-50. https://www.fs.fed.us/psw/publications/mcpherson/psw_2011_mcpherson001.pdf.
- McPherson, E. Gregory, Natalie van Doorn, and John de Goede. 2016.** Structure, Function, and Values of Street Trees in California, USA. *Urban Forestry & Urban* 17: April 2016. Pp 104–115. https://www.fs.fed.us/psw/publications/mcpherson/psw_2016_mcpherson004.pdf.
- McDowell, Jennifer. 2018.** Personal communication on June, 26, 2018 with Jennifer McDowell via email.
- Nowak, David J., Robert Hoehn, Daniel Crane, Lorraine Weller, Antonio Davila. 2011.** Assessing urban forest effects and values, Los Angeles’ urban forest, USDA Forest Service, Northern Research Station, Resource Bulletin (RB), Volume 47, 30 pp.
- Nowak, David J., and Eric J. Greenfield. 2018.** US Urban Forest Statistics, Values, and Projections. *Journal of Forestry*. 116(2): 164–177. <https://doi.org/10.1093/jofore/fvx004>.
- Office of Mayor Eric Garcetti. 2015.** *Willits V City Of LA Sidewalk Settlement Announced*. Accessed October 2018. <https://www.lamayor.org/willits-v-city-la-sidewalk-settlement-announced>.
- Tyson, Tim. 2018.** Personal communication on October, 10, 2018, with Tim Tyson via email.
- U.S. Forest Service. 2018.** “Tree Mortality in California.” April 2018. https://www.fs.fed.us/psw/topics/tree_mortality/california/index.shtml
- Wolf, K.L. 2010.** Community Economics - A Literature Review. In: *Green Cities: Good Health* (www.greenhealth.washington.edu). College of the Environment, University of Washington.
- Vibrant Cities Lab. 2018.** “Community Assessment and Goal-Setting Tool.” Accessed October 2018. <https://www.vibrantcitieslab.com/assessment-tool/>.

APPENDICES

Departmental Interview Questions

The six universal questions and themes department interviewees will be asked are as follows:

VISION

- 1 How do you envision Los Angeles' urban forest in 20 years?
- 2 What steps are needed to get there?

CHALLENGES TO THE URBAN FOREST

- 3 What are the greatest challenges facing Los Angeles' urban forest?

OPPORTUNITIES FOR THE URBAN FOREST

- 4 What opportunities do you think exist to better sustain and enhance Los Angeles' urban forest?

PARTNERSHIPS

- 5 How might the City's management help you (or your organization) sustain and enhance Los Angeles' urban forest?
- 6 What contributions might you (or

your organization) be able to make to sustain or enhance Los Angeles' urban forest?

In addition to the 6 general questions for each stakeholder, the following Specific Questions will be asked:

OPERATIONS

- What are the various tree and urban forest related functions of your Department/Office?
- How does your Department/Office interface with other Departments that manage trees? Is there frequent communication or is it only occasional?
- Are there aspects of your tree-related duties that are inefficient, cumbersome, or overkill or could otherwise be improved?
- Do you have suggestions for improving your/the Department's/Office's role in tree management?
- In your opinion, would an alternative tree management governance structure be desirable to improve the focus, effort, and priority of the urban forest?

BUDGET

- What is your annual tree management related budget?
- Does your budget rely fully on general fund allocations?
- Have you identified any alternative sources of tree management related funding? Do you need additional staffing or other resources to pursue additional funding?
- In your opinion, is your annual tree related budget sufficient? If not, approximately how much additional budget is considered necessary to carry out existing responsibilities? What estimated additional budget would be necessary to achieve "world class" urban forestry management levels for your department/office?
- What is the process for requesting additional funding? When was the last time a budget increase was requested? What was the result?
- Do you rely on non-profits or other organizations to complete all or a portion of your Department's responsibilities? Does this system work effectively and can/should it be expanded?

STAFFING

- In your opinion, is your department's/office's tree related staffing sufficient? If not, approximately how many more staff members are considered necessary?
- Do you have the necessary tree expertise in your department/office to effectively execute required tasks?
- Is urban forest/arboriculture training provided to all tree-related staff positions?

POLICIES

- What procedures/policies define your urban forestry/tree related work?
- In your opinion, are existing policies considered appropriate for efficient and sustainable tree management?
- Are the existing policies appropriate for achieving your department's/office's goals?

Cal Fire Urban & Community Forestry 18/19 California Climate Investment Grant Guidelines

Page 65 of 72 - APPENDIX J

Minimum Data Collection Attributes for CAL FIRE Grant-Funded Urban Tree Inventories

Mapping coordinate.

- X and Y coordinate locations (latitude and longitude). Each tree and planting site will be located using GIS and/or GPS equipment.

Block side.

- The location of each street tree and planting site so that they can easily be identified for future work. Street trees and planting sites will be located using a street name, side of lot, tree number, and block side information (on street, from street, and to street).

Location.

- The tree's physical location in relation to public Right of Way and/or public space will be recorded.

Species.

- Trees will be identified by genus and species, and by common name.

Diameter.

- Tree trunk diameter will be recorded. This should be to the nearest 1-inch.

Stems.

- The number of stems a tree has will be recorded.

Condition.

- In general, the condition of each tree will be recorded in one of the following categories adapted from the rating system established by the International Society of Arboriculture:
 - Excellent 100%
 - Very Good 90%
 - Good 80%
 - Fair 60%
 - Poor 40%
 - Critical 20%
 - Dead 0%

Maintenance need.

The following maintenance categories (or similar approved by CAL FIRE prior to collection) will be collected:

1. Priority 1 Removal. Trees designated for removal have defects that cannot be cost-effectively or practically treated. The majority of the trees in this category will have a large percentage of dead crown, and pose an elevated level of risk for failure. Any hazards that could be seen as potential dangers to persons or property and seen as potential liabilities CAL FIRE Urban & Community Forestry 18/19 California Climate Investment Grant Guidelines Page 66 of 72 would be in this category. Large dead and dying trees that

are high liability risks are included in this category. These trees are the first ones that should be removed.

2. Priority 2 Removal. Trees that should be removed but do not pose a liability as great as the first priority will be identified here. This category would need attention as soon as “Priority One” trees are removed.

3. Priority 3 Removal. Trees that should be removed, but that pose minimal liability to persons or property, will be identified in this category.

4. Priority 1 Prune. Trees that require priority one pruning are recommended for trimming to remove hazardous deadwood, hangers, or broken branches. These trees have broken or hanging limbs, hazardous deadwood, and dead, dying, or diseased limbs or leaders greater than four inches in diameter.

5. Priority 2 Prune. These trees have dead, dying, diseased, or weakened branches between two and four inches in diameter and are potential safety hazards.

6. Large Tree Routine Prune. These trees require routine horticultural pruning to correct structural problems or growth patterns, which would eventually obstruct traffic or interfere with utility wires or buildings. Trees in this category are large enough to require bucket truck access or manual climbing.

7. Small Tree Routine Prune. These trees require routine horticultural pruning to correct structural problems or growth patterns, which would eventually obstruct traffic or interfere with utility wires or buildings. These trees are small growing, mature trees that can be evaluated and pruned from the ground.

8. Training Prune. Young, large-growing trees that are still small must be pruned to correct or eliminate weak, interfering, or objectionable branches in order to minimize future maintenance requirements. These trees, up to 20 feet in height, can be worked with a pole-pruner by a person standing on the ground.

9. Stump Removal. This category indicates a stump that should be removed.

10. Plant Tree. During the inventory, vacant planting sites will be identified by street and address. The size of the site is designated as small, medium, or large (indicating the ultimate size that the tree will attain), depending on the growing space available and the presence of overhead wires.

Clearance Required.

Trees, which are causing or may cause visibility or clearance difficulties for pedestrians or vehicles, will be identified, as well as those trees blocking clear visibility of signs or traffic signals.

Hardscape Damage.

Damage to sidewalks and curbs by tree roots are noted. Notes on potential fixes for the problem are encouraged (redesign options etc...)

Overhead Utilities.

The inventory indicates whether overhead conductors or other utilities are present at the tree site that could result in conflicts with the tree. CAL FIRE Urban & Community Forestry 18/19 California Climate Investment Grant Guidelines Page 67 of 72

Grow space.

The area within the growing space is categorized as:

- T-Tree Lawn
- W-Well/Pit
- M-Median
- P -Raised Planter
- O-Open/Unrestricted
- I -Island
- U-Unmaintained Area

Space Size.

The narrowest dimension of the Grow Space, in feet. (I.e., 3'x3' cut-out, 4' parkway strip, open parkland, etc...)

Notes.

Additional information regarding disease, insect, mechanical damage, etc., can be included in this field.

Urban Forest Management Plan Toolkit Steps

Pre-planning

WORK PLAN

The work plan information that you gather will be included in the "Introduction" part of the UFMP. See sample **Table of Contents** of UFMP

Why do you need to develop a plan?

Who are the people whose support you will need?

Where will the geographical limits be?

What areas/trees will be addressed?

When will the plan be developed, and how long will the plan cover?

How is the plan going to be developed? (e.g. personnel - funding)

Plan Development

URBAN FOREST MANAGEMENT PLAN

Vision

What do you want?

Inventory and Assess

What do you have?

Collect data to understand the current state of the urban forest and its management.

Strategic Plan

How do you get what you want?

Analyze data and identify issues and trends over time.

Prioritize needs and opportunities.

Goals, objectives, actions based on your vision and analysis.

Implementation (Action) Plan

Who will take action and when?

Monitoring Plan

How will you know when you're achieving your goals?

Compile the documents for public review, revise as needed, and obtain approval.
See sample **Table of Contents** of UFMP.

Post-planning

ADAPTIVE MANAGEMENT

Monitor, evaluate progress, and revise as needed. *Are you getting what you want?*

June and August Working Group Meeting, “Brainstorming Solutions for Growth”

The June working group meeting had the members join a different urban forest management related topic sub-working group to identify issues and the root cause of those issues for each topic. The sub-working groups came together again in August to provide solutions for the identified issues. The tables below are the findings recorded by each of the sub-working groups.

Policy Issues Group

Potential Topics to Address: Policies, ordinances, or incentives addressing and influencing LA’s urban forest can include the Protected Tree Ordinance, the recently established In-Lieu Fee, the current standard specifications for tree planting in the City of LA, tree mitigation policies for developers, sections of the City Charter that pertain to trees. Are policies enforced sufficiently?

POLICY ISSUES		
Issue What is the problem?	Root Cause Why does this issue exist?	Solutions
Lack of dedicated funding for planting & maintenance	<ul style="list-style-type: none"> • Council / mayor inaction • Lack of public advocacy • Lack of internal advocacy • Lack of understanding of multiple benefits • Lack of data (UFMP) to help guide strategic spending 	<ul style="list-style-type: none"> • Special Tax (sales tax, property tax), increase in-lieu fee for residential. • Create budget tree preservation that can be used by multiple departments, including BSS, BOE, LADOT • Create property tax revenue allocation formula for trees similar to Rec & Parks and Library department. • Tree maintenance fee applied to new developers, higher fee in where tree canopy is most in danger • Increase permit fees
Insufficient Public Education	<ul style="list-style-type: none"> • UFD Website confusing & Needs Updating • Lack of Enthusiasm & Appreciation 	<ul style="list-style-type: none"> • Updated UFD website • Coordinated public education campaign • Youth education programs about value & benefit of trees • Better utilize local media
Insufficient Enforcement	<ul style="list-style-type: none"> • Council/mayor inaction • Lack of public advocacy • Lack of internal advocacy 	<ul style="list-style-type: none"> • Create accurate inventory on navigate LA of street trees & projected trees
Out-of-date ordinances, policies and guidelines	<ul style="list-style-type: none"> • Lack of Council/mayor action • Lack of Board of Public Works Action • Lack of internal department/management action 	<ul style="list-style-type: none"> • Establish special Council Committee for Trees • Strengthen the role of CFAC and create methods for policy ideas to be presented to BPW & City Council
Insufficient coordination between multiple departments involved in trees	<ul style="list-style-type: none"> • Lack of Council / Mayor action • Lack of City Planning Commission action • Lack of Internal department / management action • UFD involved too late in the development process for protected tree removal permits 	<ul style="list-style-type: none"> • Planning require analysis of impact of project on street trees as part of required CEQA review • Add Native Tree zones to Navigate LA • Require tree report in protected tree zones • Require LDBS grading permit for less than 12” • Add accurate tree inventory on NavigateLA
Developers are not required to produce a protected tree report	<ul style="list-style-type: none"> • Lack of Council / Mayor action • Lack of City Planning Commission action • Lack of Internal department / management action 	<ul style="list-style-type: none"> • Pass ordinance

POLICY ISSUES		
Issue What is the problem?	Root Cause Why does this issue exist?	Solutions
Lack of Biodiversity Policies	<ul style="list-style-type: none"> • Lack of Council / Mayor Action • Lack of BPW Action • Lack of RAP Commission Action • Lack of scientific input • Conflicting policies 	
Lack of Preservation-First Policy	<ul style="list-style-type: none"> • Lack of Council / Mayor Action 	<ul style="list-style-type: none"> • -Ramping • Root Pruning • Meandering Sidewalks

Management Issues Group

Potential Topics to Address: How does a lack of a full inventory impact management? The responsibility to care for street trees falls on homeowner mostly - How does this impact management of our street trees? Is there sufficient funding for the planting, maintenance, structural pruning of LA's street trees? How likely is one to be caught and punished for illegally removing, pruning, topping trees? Are newly planted trees sufficiently cared for?

MANAGEMENT ISSUES		
Issue What is the problem?	Root Cause Why does this issue exist?	Solutions
City of LA does not currently have a street tree inventory	<ul style="list-style-type: none"> • Funding not prioritized due to lack of council office/ public awareness. • Apparent confusion about whether we actually have an inventory or not, confusion about what constitutes a complete inventory. • Data management is not centralized for effective monitoring, management, updating. • Resources may not be enough to continuously monitor and update. • Missing updates and forestry management system. 	<ul style="list-style-type: none"> • Purchase/ create a platform to build an inventory of public trees • Identify funding to buy platform and populate • Platform should be able to be used as a forestry management system (FMS) • Integrate existing census info into inventory to maximize efficiency
Lack of enforcement of existing policies, regulations, laws, ordinances.	<ul style="list-style-type: none"> • Developers may budget for fines as a matter of business practice. • Lack of management of private contractors. • Communication of current policies. • Lack of education for best management of trees. 	

MANAGEMENT ISSUES		
Issue What is the problem?	Root Cause Why does this issue exist?	Solutions
Park trees dying	<ul style="list-style-type: none"> • Vandalism, watering (reclaimed water not healthy for trees), lack of rain. 2008 budget crisis decided rec and parks needs to pay for own watering. During drought, watering restrictions were implemented for rec and parks, regardless of park use / soil type. Not much resistance due to lack of budget to use more water; other essential functions critical to safety were prioritized. • 464 parks and 17000 acres of parkland with 25 staff for tree maintenance. • Capital improvement projects are not well governed. 2014 standard tree specifications not consistently being included in contract documents for projects; designs may need more involvement at early stages to mitigate tree impacts. • Funding for park trees. Lack of attention. Similar budget request denied for 30 years. • Communication between BOE and Rec & Parks. 	
Not a clear communication for responsibility of street tree maintenance between City and private property owner.	<ul style="list-style-type: none"> • Lack of funding, staffing, education, attention. Public tends to have narrow focus for trees in front of their property. 	
Lack of funding for maintenance and pruning of street trees.	<ul style="list-style-type: none"> • Diffusion of responsibility between different departments. Planting may be funded, but maintenance lacks funding due to attention on maintenance. • Not clear responsibility for structural pruning. • Dissolving of street tree care team. • If cared for in early years, future maintenance may be reduced. • Lack of education and understanding of care requirements for newly planted trees. 	<ul style="list-style-type: none"> • A full inventory would demonstrate the need to increase funding • Distinguish between actions related to establishment and long term maintenance to increase survival and help prioritize actions (survival pruning) • System for public input to report tree issues may help identify issue, and increase maintenance efficiency • Reports that show maintenance cost bolster the need for more funding
City governmental structure for tree related work	<ul style="list-style-type: none"> • Various departments have certain roles, but they function from their own scope. 	

MANAGEMENT ISSUES		
Issue What is the problem?	Root Cause Why does this issue exist?	Solutions
Planting standards	<ul style="list-style-type: none"> Current City design standards for street tree planting may not be in accordance with ANSI A300 or ISA BMPs. 	
Tree removals	<ul style="list-style-type: none"> Policies for 1 or 2 tree removal approvals different than 3 or more tree removals. Notification system of why and when trees may be removed. Resources and funding. Requirements for private tree removals for discretionary design. Tree removals may not be top priority when considering design alternatives in early stages of design for projects. 	<ul style="list-style-type: none"> Impose misdemeanor penalties for the contractor who actually cuts the tree Adjust policies and procedures to prioritize the health/ survival/retention of healthy trees (upgrade trees in assessment process) Design of capital improvement and projects. To prioritize retention of trees. Designers need to be educated/ taught to value trees/ canopy. Teach government officials (mayor, boards, etc) to prioritize trees in design and share trees value with constituents Allowance of alternative materials Ensure notification window is 30 days and that all aspects of notifying affected public are completed. Clarity current process.
Watering	<ul style="list-style-type: none"> Lack of funding to pay for water. Misunderstanding for use of water for trees due to drought restrictions. Water quality issues. 	
Funding	<ul style="list-style-type: none"> Lack of funding and resources for all tree related work. 	<ul style="list-style-type: none"> Tree coordinator to determine what current city funding is citywide for trees and establishing an amount that could be requested to adequately manage urban forestry Ability of city to provide match so that grant opportunities can fully be maximized Parcel taxes or set asides out of general fund for trees

Holistic Issues Group

Potential Topics to Address: Small growing spaces, compacted soil, drought, Integrated pest management, biodiversity, cohesive and complete green streets with storm water management, links to City of LA's Biodiversity Plan, Resilience Plan, and City of LA Sustainability PLAN.

HOLISTIC ISSUES		
Issue What is the problem?	Root Cause Why does this issue exist?	Solutions
Tree establishment: resources to plant but not maintain tree, need grants/resources, structural soundness, not growing fast enough. Low survival of newly established trees, lack of long term stewardship.	<ul style="list-style-type: none"> Lack of funding for stewardship. Cultural awareness – lack of interest from community to push for resources Need for public education on stewardship. Resources to maintain tree for at least 5 years Holistic stewardship model 	<ul style="list-style-type: none"> Defining minimum establishment period for newly planted trees Non – profit partners working with the city Employment for at –risk youth >> funded Long term (2050) Shared responsibilities >> defining planting goals for the next 30 years Provide resources for city agencies (RAP/UFD) to have arborist and manager for implement

HOLISTIC ISSUES		
Issue What is the problem?	Root Cause Why does this issue exist?	Solutions
Limited provision of growing space for trees (small growing space)	<ul style="list-style-type: none"> Especially in low income neighborhoods – limits to small trees Adequate space not provided for in Zoning, especially in high density and industrial areas with high pollution sources. Neighborhood design practices/guidelines do not adequately provide for trees. Neighborhoods value parking, other uses more than trees. Trees are low priority, not considered “infrastructure” by engineers. Eg, Parkways in Boyle Heights Overhead power lines Different agencies have different responsibilities – difficult to coordinate things like expanding parkways, etc. Can we plant small tree species closer to each other City of Pasadena does bump outs to save large trees – need to value trees Conflicts between trees and parking space 	<ul style="list-style-type: none"> Looking at existing large greenspace for increasing canopy Rehabilitation browns field into parks Recode <ul style="list-style-type: none"> Having UFD present 6’ in Industrial Zoned (currently only 2’ required by zoning) All – Private/ Parking lot Tree planter requirement Sustainability checklist Incorporating Holistic ecosystem All street improvement projects looking at forest potential Create BMP manual for LA Trees Encourage interdepartmental coordination to facilitate more bump outs Designate/ save more heritage
Too much emphasis on street trees in the UFMP process. Park and private trees maybe more valuable relative to benefits/ cost.	<ul style="list-style-type: none"> Budget for street trees is higher, more departments/# voices advocating for street trees in City governance is higher. Difficult to water park and open space trees. Hard to regulate private trees. Park trees, park space in general – urban heat island, etc. Citywide urban forest plan Arbitrary water policies, esp for parks <ul style="list-style-type: none"> City budget hit parks esp hard during recession because of charges on water and other utilities/services Larger parks couldn’t be watered during time restrictions Working group needs to clearly call out park trees as a different issue – parks are low-hanging fruit for increasing urban canopy and increasing biodiversity 	<ul style="list-style-type: none"> Incentive as opposed to punitive approach for ecosystem service Expanding on turf removal City plants Tree planting Explore CAP N Trade Master plan for park forest & biodiversity Restoring water budget from Eliminate cost for recycled H2O Recycled water in parks

HOLISTIC ISSUES		
Issue What is the problem?	Root Cause Why does this issue exist?	Solutions
Trend toward reduction in urban forest biodiversity. Potential reduction in habitat value of urban forest.	<ul style="list-style-type: none"> • Need definition of biodiversity, where does native fit in? • Water usage as main driver of what trees are planted – silos can contribute to this – better water management could allow for more species • Native tree supply is limited at required sizes. • List of approved native trees is small. • Lack of agreement on best management practices for habitat value enhancement. • Pests require a coordinated regional response. Lack thereof is driver of limited species list, unclear BMPs. No money for coordinated response. No consensus on what to do about it. 	<ul style="list-style-type: none"> • Create native & regionally app species list • Expand to regions outside of LA • Broken down by: Mesa Oak, Mesquite • Land use type: Canyon Oak • Work with nurseries to contract grow hard to find species (may mean we are planting smaller trees) & look at native shrubs trained as standard • Climate Change Research • Climate Change adaptation
Lack of coordination/leadership on urban forest issues, green infrastructure, and parks/open space. Effective integration of multiple initiatives/department that impact urban forest is needed to achieve future goals.	<ul style="list-style-type: none"> • Need for overarching vision for urban forest • Lack of physical masterplan for urban forest • Need for coordination among departments – breaking down silos, lack of effective governance • Lack of influence/effective communication by people doing urban forest work. • Trees are afterthought in planning process. Lack of perceived value of trees. • Needs to be a physical master plan for trees • Parks and private trees should be included in UFMP • Trees should be looked at as infrastructure 	<ul style="list-style-type: none"> • Implement tree coordinator <ul style="list-style-type: none"> • Goal is for person to look at our UF as an ecosystem, not just infrastructure • Actively looks at climate adaptation data – recommends strategies/ BMP's • Looking/ revising development & trees • Public outreach • Need a master plan with annual criteria (30 years) & indicators (fully funded)

Public Engagement & Tree Education Issues Group

Potential Topics to Address: What barriers currently exist to prevent Angelinos from being passionate about LA's trees and engaged in LA's urban forest? What bad urban forestry behaviors do we want to address? In what ways are the city's tree systems (access to proper permits, resources, systems, etc.) unclear to the public, and why? Perhaps try thinking of tree topping, illegal tree planting, illegal pruning, or illegal removal in this exercise.

PUBLIC ENGAGEMENT & TREE EDUCATION ISSUES		
Issue What is the problem?	Root Cause Why does this issue exist?	Solutions
Public education issue. Lack of public awareness about the importance of trees and their many benefits that would lead to action.	<ul style="list-style-type: none"> Hard to perceive non-visible benefits of trees, esp. in face of 'issues'. Resources not directed across City to educate public. 	<ul style="list-style-type: none"> More videos Reframing issue as life or death School campaign Partner with LAUSD Tours of LA's Urban Forest Tree mascot to engage kids Share before and after pictures with Briefing council offices as a collective group Press release at the end of this project
Professional education issue. Lack of tree appreciation, knowledge and 'charrette-like' preplanning within City of LA staff and council districts.	<ul style="list-style-type: none"> Departments not encouraged to or given \$ to have arborists on staffs. Trees considered last in projects; need to be considered up front alongside 	
Public education issue. Public doesn't know that they can, how to and what to report.	<ul style="list-style-type: none"> Need more user friendly reporting systems for 'bad behavior' or for 'good behavior.' No information on what bad behavior looks like, esp. in relation to laws. 	<ul style="list-style-type: none"> Engage Neighborhood councils PSAs? UFD website >> provide visual chart on permits and issues and contact info and step by step process for Angelinos
Good information out there but it's not being transferred to stewardship behaviors.	<ul style="list-style-type: none"> Not enough experiential education. Pruning not as easy as other behaviors. Lack of coordination across communication groups. 	<ul style="list-style-type: none"> Videos on easy & fun structural pruning City plants ad campaign & strategic targeting of low-canopy communities
Hard to define a message that would resonate across all Los Angeles residents and neighborhoods.	<ul style="list-style-type: none"> Complexity of different contextual, and cultural backgrounds no one message of course, but we ALSO need a key message across nonprofits, cities "trees give us oxygen." 	
Arborists education: Aren't able to educate public on a level that non-arborists can relate too, and pressures homeowner to do bad behavior	<ul style="list-style-type: none"> Speak too technically, accessible, not trained to speak with public. Arborists can be expensive. 	

Equity Issues Group

Potential Topics to Address: What are the barriers to LA's tree canopy being evenly distributed, accessible, and available to all? Why is LA's canopy unevenly distributed throughout the City?

EQUITY ISSUES		
Issue What is the problem?	Root Cause Why does this issue exist?	Solutions
Planting area - public row and apartment space	<ul style="list-style-type: none"> Historical, city planning (past), limited infrastructure – limited ROW. 	Space <ul style="list-style-type: none"> Analysis of alternative design/ neighborhood configuration Metro (Measure M)
Advocacy – ability for the community to advocate for itself	<ul style="list-style-type: none"> Not enough attention or resources given to low canopy areas 	City Approach <ul style="list-style-type: none"> Funding prioritization Messaging about trees: watering (behavior change/ youth employment), long term maintenance, and protecting vulnerable populations
Reluctance to receive trees Residents have larger burden	<ul style="list-style-type: none"> Lack of resource for city pruning Liability for sidewalk in the future 	Support/ resources for low canopy <ul style="list-style-type: none"> Watering Stipends for private property tree maintenance (utilities) (Sacramento)
No proactive tree planting/ maintenance program <ul style="list-style-type: none"> Planting is dependent on residents Structure of funds 	<ul style="list-style-type: none"> No funding for establishment care – we need PTPs approval & participation 	<ul style="list-style-type: none"> Videos on easy & fun structural pruning City plants ad campaign & strategic targeting of low-canopy communities
More trees go back in affluent areas	<ul style="list-style-type: none"> 2:1 tree replacement when removed 	

Council Files: Table of Urban Forestry Related Motion Topics and Actions Taken by the Los Angeles City Council

COUNCIL FILES						
Date	Council File	Councilmembers	Motion Topic	Report Filed	Action Taken	Enacted
5/21/18	18-0600-S139		UFD budget recommendation/increase	8/1/18	Amended motion and passed, approved by Mayor - Enacted	Yes
5/21/18	18-0600-S65	Council	Instruct BSS to report to PWGR committee on improvements made since the State of the Street Trees Report	No report	None to date.	
11/22/17	03-1459-S3	Koretz/Bonin	Strengthening protected tree ordinance	No report	None to date.	
8/5/16	15-0467-S6	Krekorian	Request to UFD for removal/replacement policies, net loss and increase of tree canopy as a result, create UFMP	No UFD/BSS report	None to date.	
4/26/16	14-0461	Mayor Garcetti	Creation of in-lieu fee ordinance	Multiple reports	7/05/18 - ordinance adopted	Yes
1/26/16	15-0467-S4	O'Farrell	Increase penalty and enforcement of illegal tree pruning and removal.	3/3/16 -City Attorney 4/7/16 - BSS 6/27/16-PWGR	6/30/16 - Council adopted PWGR report recommendations - No action taken since to enact.	
10/16/15	15-0467-S3	Buscaino	Review of issues related to city and contractor tree trimming, and updating list of approved trees.	10/21/16	12/5/16 Council adopted recommendations of report. - Enacted	Yes
10/13/15	03-1459-S2	Bonin	Ordinance requiring a minimum 30-day public notice and a public hearing for the removal of three or more protected trees on private property.	3/2/16 - BSS 4/19/16 PWGR	4/22/16 - Council adopted PWGR report recommendations. -Enacted	Yes
5/22/15	15-0467-S2	Huizar	UFD, CFAC, and other experts update the City's approved street tree selection list.	No report	No action, file closed	
5/22/15	15-0467-S1	Huizar	UFD, CFAC, and other experts report on guidelines for tree removal, tree wells, and accommodation of trees in sidewalk repair.	No report	No action, file closed	
4/14/15	15-0448	Krekorian	New policy that existing trees in parkway should be reviewed before plans approved, review tree replacement policy for trees removed for driveway cuts, recommendations to increase fines for street trees removed without permits.	9/22/15 - PWGR 10/10/18 CAO	None to date.	
12/2/14	14-1634	Bonin	"30 -day public notice and a public hearing for the removal of three or more trees on private property. BSS, UFD, and other departments, with City Attorney create better system to ensure review of environmental impacts occur prior to completion of CEQA for a project.	4/22/15 - PWGR	5/13/15 - Council adopted PWGR recommendations. Enacted 30 day notice, but no further report given from UFD and City Attorney.	
7/3/14	14-1055	Labonge	Exempt BSS from Managed Hiring Committee process	No report	No action, file closed	

COUNCIL FILES						
Date	Council File	Councilmembers	Motion Topic	Report Filed	Action Taken	Enacted
5/21/14	14-0600-S184	Council	Instruct BSS to report to PWGR committee on consolidating all the tree trimming functions of the Fire Dept., LADWP, RAP, BSS and Street Lighting.	No report	No action, file closed	
2/9/14	14-0224	Labonge	DPW to report on improving street tree policy, CAO to report on funding sources to pay for tree trimming	No report	No action, file closed	
1/7/14	14-0019	Bonin	UFD report on procedure for issuing tree trimming contracts and work done to City standards, City Attorney to report on fines/prohibition of contractors who don't comply.	No report	No action, file closed	
10/8/13	13-1339	O'Farrell	Addition of toyon and Mexican elderberry to protected trees ordinance	Multiple reports	Council approved 1/27/2015 not enacted to date	
12/12/12	12-1931_	Labonge	CAO requested to identify funding for tree trimming, BSS report on status of urban forest and tree trimming	No report	No action, file closed	
7/2/09	09-1664	Mayor	Authorizing Investigation and Enforcement Division of BSS to issue administrative citations for violating tree policy	6/1/09 -BPW 9/8/09 PW committee	9/22/09 Council adopted BPW recommendations. Enacted	Yes
8/15/07	07-2654_	Rosendahl	Authorize BPW to submit a grant application to Cal-Fire for funds to acquire and implement a tree inventory system.		Approve by council - Did we get the grant?	
1/24/07	07-0179	Greuel	Urban Forestry Division and the Department of Building and Safety report back to the Planning and Land Use Management Committee within 30 days regarding their recommendations for 1) assuring that the protections of the ordinance will apply to all protected trees, regardless of who planted them and 2) assuring that protected trees will not be harmed by construction activities on properties for which grading or building permits have been issued	No report	No action, file closed	
10/11/06		Perry	"Department of Public Works be directed to report on a revision of the City's street tree policy in order have that policy more closely conform to the City's changing street tree needs and challenges, as further described in text of this motion "	2/14/07 - BSS report	No action, file closed	



LOS FELIZ BOULEVARD, THEN



LOS FELIZ BOULEVARD, TODAY





“

A man doesn't plant
a tree for himself.
He plants it for
posterity.

”

ALEXANDER SMITH

