SANTA MONICA'S

URBAN FOREST MASTER PLAN

DRAFT

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VISION

20th Street at Georgina, looking north.

Santa Monica's coastal setting and physical beauty offer a desirable quality of life to those who live, work and visit here. Two hundred and fifty years ago the area was blanketed by grasslands and coastal sage scrub. As various cultures inhabited the land, they adjusted their lives to fit the landscape and adjusted the landscape to fit their needs, tastes, and sensibilities.

The urban forest of 2011 is the result of the decisions of those who managed the forest before us, and is greater than the sum of individual trees outside our homes, shops and offices. It is the environment in which we work and play and through which we travel daily. It is the aesthetic setting for our schools, businesses, cultural attractions, and places of recreation and renewal. It is our ecosystem, the habitat in which we thrive. It is our shared community resource. It creates the opportunity to view the entire City as an Arboretum as a way to broaden and diversify street tree species throughout Santa Monica.

We owe it to ourselves and future generations to secure and enhance the benefits of a thriving urban forest in Santa Monica. We can do this only if we understand its importance and utilize new knowledge of best environmental science and arboricultural technology in order to adapt nimbly to changes in the environment.

This Urban Forest Master Plan seeks to increase age and species diversity in the public tree population, augment biomass and canopy coverage citywide, enhance the character and aesthetics of our neighborhoods and achieve exemplary stewardship of the forest from all who live and work here. The Master Plan must be regarded as both a long range policy guide and a living document that will respond to changing conditions over its life. It requires a close partnership between policy makers, staff and the community.

Santa Monica has established an international reputation for enlightened environmental policies and the respectful conservation of natural resources. Adoption of this Master Plan is the next significant step in Santa Monica's continuum of sustainability policies.

EXECUTIVE SUMMARY

URBAN FOREST MASTER PLAN TASK FORCE MISSION STATEMENT

To ensure that all benefits of a healthy urban forest are available to Santa Monica residents and visitors for generations to come, The Urban Forest Master Plan Task Force was appointed by the City Council in 2009 and has worked with City staff, community members and professional experts to formulate the following Master Plan. This Master Plan will guide the perpetuation and enhancement of public tree canopy for the entire city. The Urban Forest Master Plan Task Force regards this Master Plan as a living document requiring periodic updates. It will be widely disseminated to inform the public of the importance of the urban forest and the best practices to follow to help sustain it.

The City of Santa Monica is committed to improving and enhancing its urban forest. Establishing, maintaining and enhancing a healthy urban forest is a complex and multi-layered endeavor. It affects and is affected by many factors. This document examines the context of Santa Monica's urban forest, develops guiding principles, goals, strategies and standards for its management to ensure its on-going improvement.

Urban Forestry, as defined by the Dictionary of Forestry, is the "art, science, and technology of managing tree and forest resources in and around community ecosystems for the physiological, sociological, economic, and aesthetic benefits trees provide society." In 2009, the American Planning Association expanded the Urban Forestry definition to include "a planned and programmatic approach to the development of the urban forest, including all elements of green infrastructure within the community, in an effort to optimize the resulting benefits in social, environmental, public health, economic, and aesthetic terms, especially when resulting from a community visioning and goal-setting process."

There are two important distinctions between these definitions. Although the first definition mentions resources and ecosystems, it does not directly emphasize the environmental benefits of the urban forest. The second definition places emphasis on the "planned and programmatic approach" resulting from a community process.

This shift in definition parallels the City's shift from the Community Forest Management Plan, approved by City Council in 2000, to a long range Urban Forest Master Plan (Master Plan). This Master Plan document updates and expands upon the Community Forest Management Plan 2000 and provides a living document containing measures for cultivating a successful urban forest and recommendations for ongoing improvements.

As expressed in the Urban Forest Master Plan Task Force Mission Statement, the Master Plan will serve as a guide for perpetuating and enhancing Santa Monica's urban forest. The Master Plan establishes guiding principles and associated goals that result in specific strategies for addressing the needs of the urban forest. These strategies take into consideration environmental and urban conditions that fluctuate over time, and are flexible enough to account for future changes that will affect the trees of the urban forest, such as insects, disease, climate shifts and other factors. The Master Plan sets guidelines for periodic tree species performance evaluations and adjustments in the use of individual species. By using an adaptive management approach, new research and technologies will be incorporated into the appendices of this Master Plan as they become available. As the City and other agencies revise and refine their methods for tree care and other City documents are updated, the Master Plan will also evolve.

The Master Plan describes the City's urban forest, analyzes its condition in 2011 and compares its growth to previous years. This snap shot in time provides the community and future managers of the urban forest with an historical account of the forest and a Street Tree Designations List to create neighborhood street tree environments. The analysis of the forest calculates the value of the environmental benefits it provides.

The value of these benefits justify the need for effective urban forest management goals supported by sound arboricultural strategies. The baseline data provided will help future managers of the urban forest make informed decisions, and promote a better understanding of the environmental and aesthetic benefits provided by public trees which will lead to increased community investment in the stewardship of its trees.

The appendices of this Master Plan establish standards of care for the urban forest, lay out specific street tree designations and include a glossary with references that will be updated routinely to incorporate new maintenance practices.

La Mesa Drive, lined with mature Moreton Bay Fig trees.

CHAPTER 1 - BACKGROUND OF THE URBAN FOREST

HISTORY OF SANTA MONICA'S URBAN FOREST

The cultural life in the area which is now Santa Monica shifted radically during the 125 years before the City was incorporated in 1886. This shift had a major effect on the land that now supports Santa Monica's urban forest.

Over many generations, the Tongva People inhabited this terrain of grassland and coastal sage scrub on the bluffs. Sycamores, cottonwood, and willow may have grown on the banks of streams, with grassland and oak woodland further inland[3].

During the 16th century, the Spanish explored and claimed the region. The colonization of Alta California by the Spanish began in 1769. Following Mexico's independence from Spain in 1821, local land grants were made and the land was used mostly for grazing cattle and sheep.

By 1875 Colonel R. S. Baker and Nevada Senator John P. Jones owned the land that is now Santa Monica and laid out the City, numbering the north/south streets from the Pacific Ocean to 26th Street, and naming the east/west streets, from Colorado Avenue on the south to Montana Avenue on the north, after states of the Union.[6] They sold residential lots, and by the time Santa Monica was incorporated into an 8.3 square mile city in 1886, trees were planted and the land that was once a bluff with few trees gave birth to what is now Santa Monica's emerging urban forest.

The estate of Senator John P. Jones became the current Fairmont Miramar Hotel. Its fig tree still exists, over 100 years later, and is one of the City's four current designated Landmark Trees.

Ocean Avenue circa 1900.

From 1893-1900 other areas of the City were developed. Smaller lots were allocated with the idea of making affordable neighborhoods near the beach. With the smaller lots, less space was allocated for street trees. The choices that early developers made regarding growspace for trees continue to affect today's urban forest.

THE SANTA MONICA URBAN FOREST TIMELINE

Prior to the 16th century	1542 -1821	1874-1875	1887	1890
The Tongva People, later called the Gabrielinos, lived in villages in what is currently known as "The Westside." These hunter gatherers coexisted with the native plants.	Spanish colonizers introduced exotic plants and animals, changing the ecology of the area.	Colonel Baker and Senator Jones laid out the City of Santa Monica, establishing an infrastructure for the future urban forest.	Abbot Kinney established the nation's first forestry station in Rustic Canyon for experimentation with eucalyptus propagation.	The Santa Monica Forestry Station distributed 76,000 eucalyptus seedlings to encourage use in nurseries.

During the 1880's, experimentation with trees originating in climates similar to Santa Monica was actively pursued. Abbot Kinney, known for his development of the Venice canals, had a profound impact on Santa Monica's urban forest. He served as the Chairman of the State Forestry Board (1886-1888) and as roadmaster of Santa Monica.

Abbot Kinney, a prominent land developer in the area, was an expert on eucalyptus trees and a friend of John Muir.

Abbot Kinney established the nation's first forestry station in Rustic Canyon in 1887 where he conducted studies on close to100 species of eucalyptus,[18] a very popular species at the time. He knew the work of Ellwood Cooper (of Santa Barbara) who lectured in 1875 that the planting of eucalyptus forests could mitigate wind and increase rain, and that eucalyptus was "needed for the planet's well-being"[18]. Several eucalyptus species identified in Abbot Kinney's book, *Eucalyptus (*1895), exist in Santa Monica today, including E. ficifolia, E. citriodora, E. globulous and E. leucoxylon[8].

Local nurseries were established to take advantage of the temperate climate. In 1899, a fifteen acre site in south Santa Monica was developed as a growing ground for flowers and became one of the City's best known industries.[19] In 1923, nurseryman Hugh Evans established a garden in Santa Monica and began importing plants from the South Pacific, Australia and South Africa.

One of the City's beloved parks, Palisades Park, was donated to the City as a park forever in 1892 by Senator Jones and Arcadia Bandini de Baker. In 1908, Santa Monica's Park Commissioner stipulated that his salary be spent on trees in the park. Palms are shown in a 1908 photo of the park and in 1976 in the book, *Trees of Santa Monica*, author Grace Heintz recognized five species of palms and six species of eucalyptus dominated the park.

Santa Monca aerial photo circa 1919. Canopy trees can be seen in the upper edge of this photo.

1890 - 1900	1892	1900	1923	1944	1953
The city was plotted and a grid of tree-lined streets was created.	Senator Jones and Arcadia Bandini de Baker donated 16 acres of oceanfront land, now known as Palisades Park, to the City for use as public space forever.	Community groups and residents participated in tree planting activities.	Nurseryman Hugh Evans established his garden in Santa Monica at 501 24th Street and began importing plants.	George Hastings published *Trees of Santa Monica*, acknowledging the City's significant trees.	The City of Santa Monica began a Master Street Tree Planting Program and adopted a Tree Code to be added to the Santa Monica Municipal Code.

The Western Chapter of the International Society of Arboriculture held it first Western Shade Tree Conference in Santa Monica in 1934.

Street tree planting has been part of the City of Santa Monica since the development of its first subdivisions. In the early 1900's, JW Scott, a prominent builder, donated funds for the planting of trees on Ocean Avenue. Other tree planting efforts included the use of eucalyptus as windbreaks to protect crops.

Many of the street trees that exist today were planted during the postwar urban redevelopment of Santa Monica. In 1953, the City of Santa Monica began a Master Street Tree Planting Program and later the same year a Tree Code was adopted "to regulate the planting, maintenance, and removal of street trees in Santa Monica." The Tree Code established 27 districts in the City and a list of approved trees for planting along streets throughout Santa Monica[10].

The majority of Santa Monica's current street trees were planted in the 1950's.

In 1956, the City of Santa Monica Master Plan included a five-year tree planting program that resulted in the planting of thousands of street trees. That program continued with a 1962 inventory of existing street trees and recommendations to develop streetscapes on streets without trees.

Since 1981, Santa Monica's comprehensive urban forestry program has been recognized each year by Tree City USA, based on standards set by the Arbor Day Foundation for cities that have a Tree Board or Department, a tree care ordinance, an annual urban forest budget of at least $2 per capita and an annual Arbor Day event.

30 years
TREE CITY USA®

In 2011, Santa Monica celebrated its 30th consecutive year of being recognized as a Tree City USA by the Arbor Day Foundation.

1961	1962	1982	1987	1999	2000
A beautification committee initiated by the Chamber of Commerce to addressed the need for street trees in the Central Business District.	Santa Monica conducted its first inventory of its trees.	Santa Monica received its first recognition as a Tree City USA by the Arbor Day Foundation.	The City's first electronic tree inventory revealed a total of 28,767 trees in Santa Monica.	The City Council adopted the Community Forest Management Plan 2000.	The Millennium Tree Planting Project added 2,000 trees to the urban forest.

In 1987, Santa Monica began keeping an electronic tree inventory to provide data on Santa Monica's trees and street segments that need replacement trees. The inventory helps to prioritize maintenance requirements and to establish a multi-year tree trimming schedule, both which help set long-term budget needs. The electronic inventory is an educational tool, providing information regarding tree species in any particular location. This inventory served as the foundation for the development of the Community Forest Management Plan 2000 which is in use as of the writing of this Master Plan. In Fiscal Year 1999-2000, the City Council commemorated the new millennium by providing funds to plant 2,000 public trees throughout the City.

In 2001, the US Forest Service' s Center for Urban Forest Research analyzed Santa Monica's urban forest and produced a "Benefit-Cost Analysis of Santa Monica's Municipal Forest." The report concluded that for every $1 Santa Monica spends on the care of its forest, the residents receive $1.62 in environmental benefits. The report also pointed out that "Santa Monica's urban forest is an aging forest that is in a period of transition." The analysis revealed the need for a long term plan that includes diversifying the number of species and ages of trees in the forest.

The assessment of Santa Monica's urban forest in this Master Plan is based on the 2010 inventory of the City's public trees. It provides base-line information necessary to define a plan to achieve the diversity and stability that was called for in the 2001 US Forest Service analysis and it identifies best practices for tree care that will sustain a healthy urban forest.

Today's forest is the outcome of the horticultural choices by all those who have planted trees in the City, maintained them, and studied their growth and success in the past. That knowledge is now augmented with the insights and practices of those more recently charged with the responsibility and care of the forest, including staff professionals along with input from community members.

This Master Plan is developed from an understanding of the historical context of Santa Monica's urban forest, existing forest conditions, and current best management practices that will serve as standard for tree care. The process to develop this Master Plan will serve as a model to be refined and improved on by future generations of managers of Santa Monica's urban forest.

2001	2009	2010	2010
A Benefit-Cost Analysis by the US Forest Service justified the budgeted allowance spent on the urban forest.	The City Council appointed the Urban Forest Master Plan Task Force.	An updated public tree inventory revealed a total of 33,318 trees in Santa Monica.	The City began a study with the US Forest Service to plant 1,000 trees and monitor their carbon sequestration for the next 100 years.

TO BE CONTINUED....

A HISTORY OF LOOKING TOWARD THE FUTURE

In the 1950's, the City of Santa Monica began its citywide planting program with a focus on benefiting future generations. Below the dramatic effects of the City's efforts from more than 50 years ago are apparent.

San Vicente Boulevard in the 1950's.

San Vicente Boulevard current day.

RELATIONSHIP TO OTHER CITY DOCUMENTS

The Urban Forest Master Plan is supported by and reinforces City policies outlined in the elements of Santa Monica's General Plan and in other planning documents that establish broad policies for the physical character of Santa Monica.

There are seperate elements of Santa Monica's General Plan, many of which establish policies supporting the need for a strong urban forest program. The City's Land Use and Circulation Element (LUCE) provides policy direction for physical development throughout the community.

The LUCE addresses the need to protect and systematically expand the forest through tree planting programs on city streets, in parks and other public spaces. The LUCE highlights the community's goals for protecting neighborhood character and it recognizes the importance of the streetscape by encouraging neighborhoods to function as gathering places that feature a landscaped environment with tree-lined sidewalks. It recommends new trees for proposed residential districts through the City's urban forest program.

The Open Space Element and Parks and Recreation Master Plan also contain policies that support the long term health and expansion of the urban forest. The urban design philosophy of the City's many specific plans and the implementation of actual projects reflect these specific policies that impact the Urban Forest. The Civic Center Specific Plan identifies public spaces including tree-lined streets with landscaped parks and plazas as key features in creating a vibrant and pedestrian-oriented urban village. The various projects to be built in and adjacent to the Civic Center include a six-acre park with groves of trees including specimen trees appropriate for this coastal climate and the Colorado Esplanade which includes a tree lined streetscape connecting the new EXPO light rail line terminus to downtown and the Santa Monica Pier. Additionally, through its goals, objectives and policies, the Historic Preservation Element recognizes that streetscapes can establish a context for historic buildings and districts, and encourages consideration of history including the protection of historic views and landscapes in designing public improvement projects.

As elements of the General Plan are updated and specific plans and other public landscape projects are implemented, they should be guided by the principles of this Master Plan. Periodic updates of this Master Plan will ensure the progression of a continuous improvement cycle.

RELATED CITY DOCUMENTS

2010 - Land Use and Circulation Element
2010 - Historic Resources Inventory
2006 - Downtown Urban Design Plan
2006 - Sustainable City Plan
2005 - Watershed Management Plan
2005 - Civic Center Specific Plan
2002 - Historic Preservation Element
1997 - Parks and Recreation Master Plan
1997 - Open Space Element

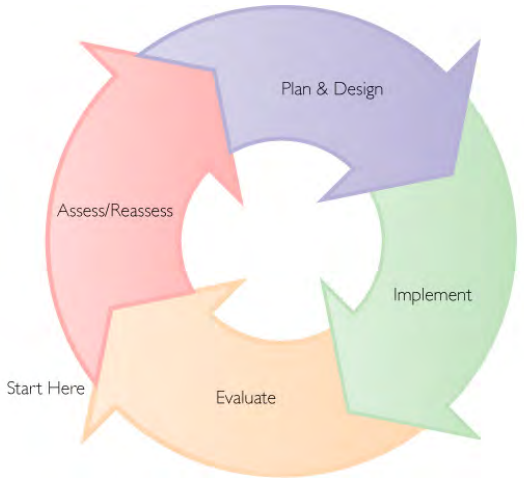


Fig. 1 - Continuous improvement cycle.

BASELINE ENVIRONMENTAL CONDITIONS

WATERSHED AND WATER QUALITY

When looking at Santa Monica's urban forest, it is important to look beyond the City limits and recognize the role that trees play within a regional context. The City is located within the Santa Monica Bay Watershed. Urban stormwater runoff is a major source of pollution entering local rivers and the Santa Monica Bay. Santa Monica's Urban Forest helps to reduce the amount of runoff and pollutant loading into receiving waters. The trees intercept and store rainfall on their leaves and branch surfaces, thereby reducing runoff volumes and delaying the onset of surface runoff. Urban forest canopy cover also reduces soil erosion as it diminishes the impact of rainfall on bare or landscaped surfaces.

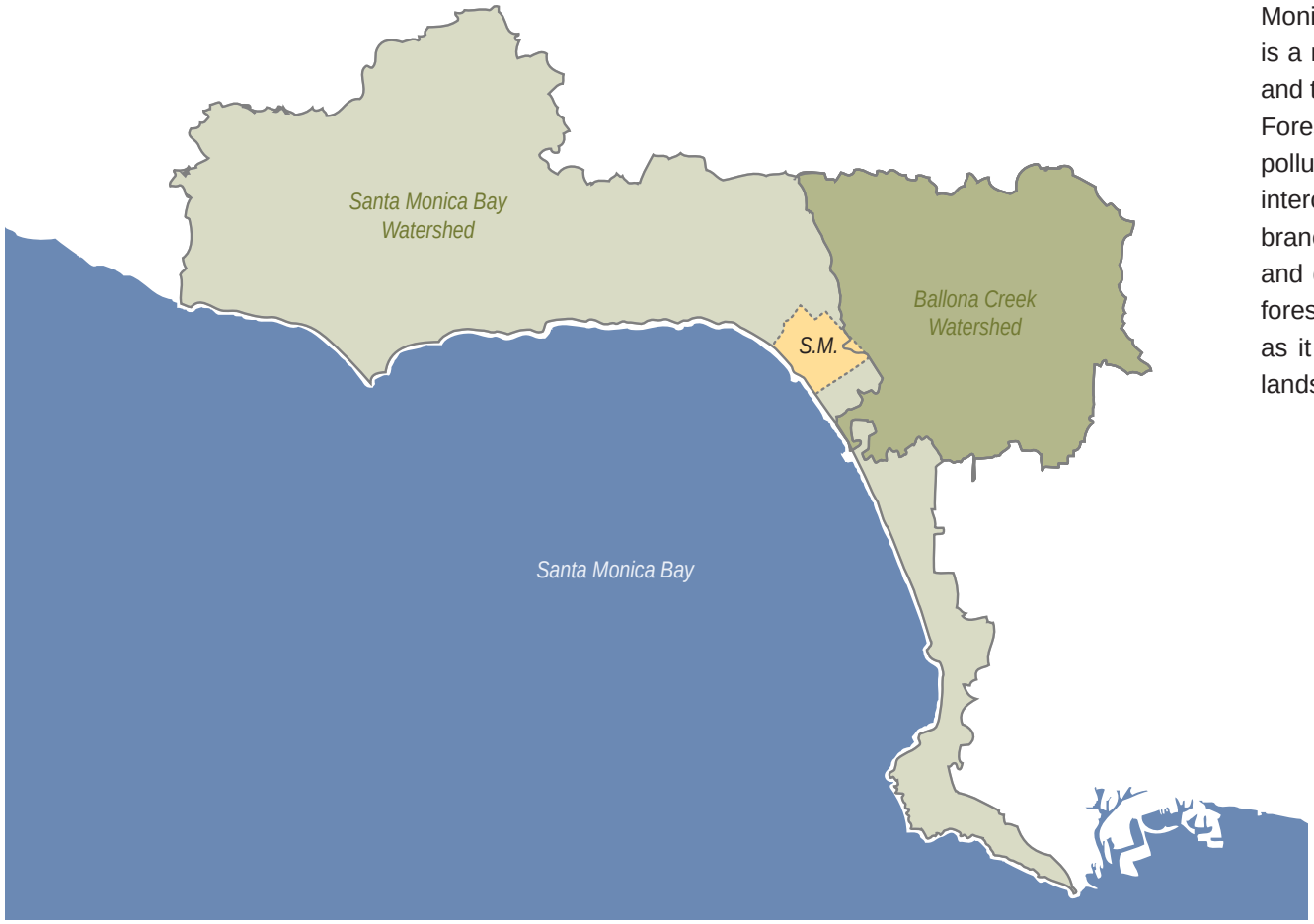


Fig 2 - Santa Monica Bay Watershed is formed by a natural divide, in this case the Santa Monica Mountains and surrounding topography, that separates one drainage area from another. A portion of the Ballona Creek Watershed is within the City of Santa Monica.

TOPOGRAPHY AND SOILS

The topography of Santa Monica is generally flat with the elevation of the City rising as it approaches its eastern boundary. The majority of Santa Monica's elevation is higher than 100 feet above sea level and is separated from Santa Monica State Beach by the Palisades bluffs. The southwest corner of the City slopes gently to sea level and allows unimpeded access to the beach. The slope is more pronounced on the northeast side of the City where homes sit high enough to have views of the ocean.

The California Department of Food and Agriculture has identified three major soil types in Santa Monica,[11] as illustrated in Figure 3:

1 Diablo Altamont Soils
Composed of clays that overlie soft, fractured shales. These soils are well drained and have a moderate erosion potential and a high expansion potential.

2 Hanford Soils
Tend to be sandy loams and loamy sands on alluvial fans and plains. These soils are well drained and have low potential for expansion and erosion.

3 Ramona Placentia Soils
Well drained with low potential for expansion and erosion. These soils are located on terraces and alluvial fans and vary from fine sandy loam to a fine sandy clay loam.

In coastal areas of low slope, street trees need to be able to withstand the sea winds and ocean influence that continuously batter them, especially when they are planted on streets perpendicular to the ocean.

City trees are planted in native soil with no additional amendments, so careful consideration of the compatibility of the tree type with the existing soil results in healthier long term tree growth.

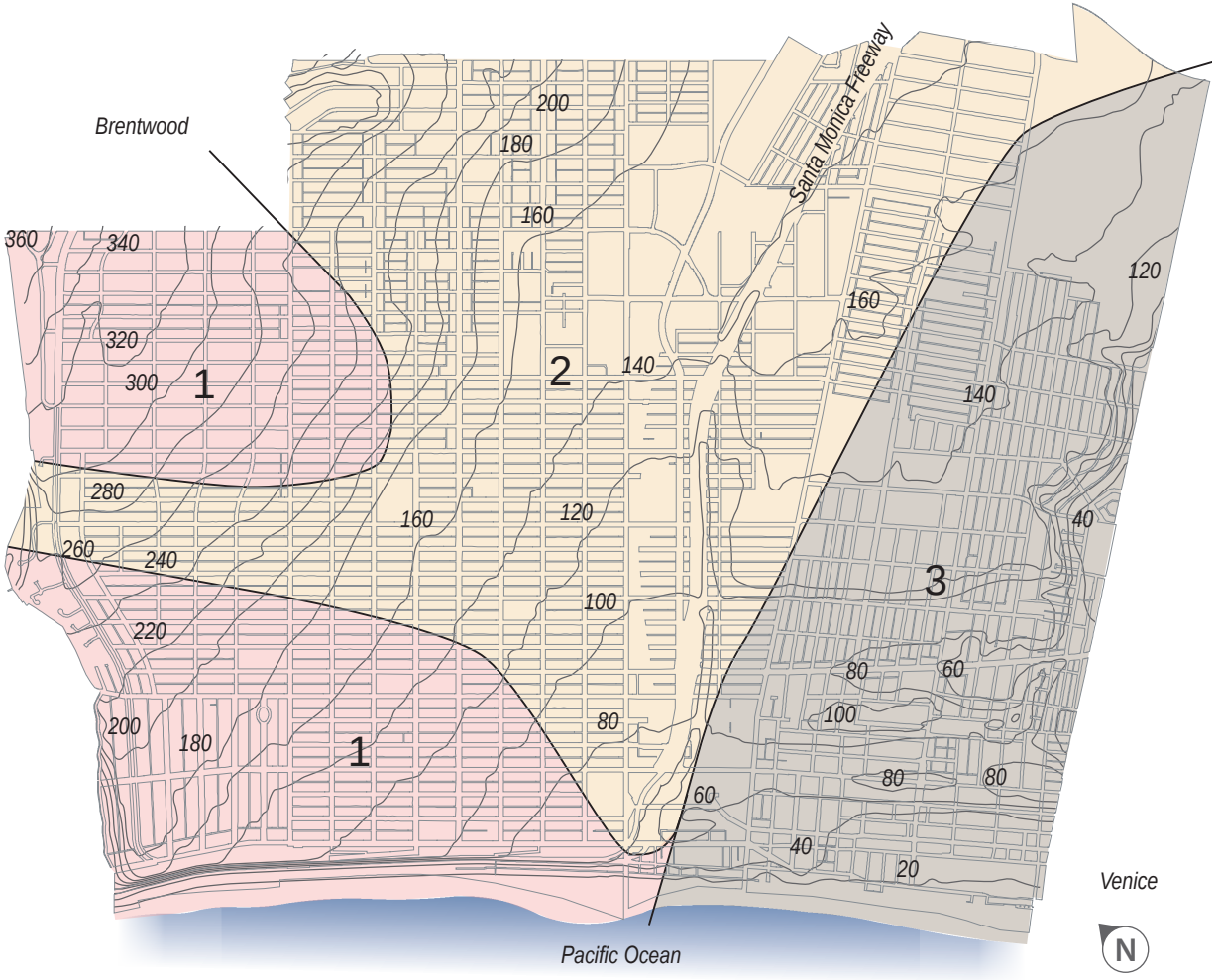


Fig 3 - The topography of Santa Monica is mostly flat, with a slope that angles down towards Ocean Avenue and towards the south. High bluffs separate the north side of the city from the beaches. Numbers show the elevations above sea level at the adjacent contour line.

CLIMATE AND MICRO-CLIMATES

Santa Monica enjoys a classic Mediterranean climate with cool ocean breezes and over 300 days of sunshine a year. Because of its location on the Santa Monica Bay, morning fog is a common phenomenon in May, June and early July. The sun usually burns the fog off in the afternoon, however it sometimes remains cloudy and cool all day, even as sunny skies and warmer temperatures are found further inland. At times, the sun shines east of 20th Street, while the beach experiences coastal fog. As a general rule, the beach temperature is 5 to 10 degrees cooler than it is inland. The highest temperatures are usually in late summer, although unseasonably warm weather can occur periodically through the winter when Santa Ana wind conditions bring the hot dry inland air to the coast.

Winter rains bring over 11" of rain annually with an average of 2" of rain during the months of November through March and less than 1/4" of rainfall the rest of the year. Winter storms usually approach from the northwest and pass quickly through the southland. Yearly rainfall can be unpredictable as rainy years and drought years are intermittent.

Most trees listed in the *Sunset Western Garden Book* as being suitable for coastal conditions grow well in the majority of the City. However, as seen in Figure 4, the southwestern most neighborhoods receive first ocean exposure and require trees that can withstand strong winds and salt spray.

In the northernmost and easternmost edges of Santa Monica the micro-climate transitions to a warmer zone and the City can introduce trees that require more summer heat and winter chill, including trees which exhibit showy foliage.

Fig. 4 - Micro-climates within the City are defined by the land's topography, elevation and proximity to the ocean. Five separate micro-climates have been identified, allowing for climate appropriate species designations. This is especially useful in designating species in "tricky areas" such as the First Ocean Exposure.

ECOLOGY, PLANT AND WILDLIFE COMMUNITIES

The City of Santa Monica is unique in that it is a coastal plain nestled between the Santa Monica Mountains to the north, the Ballona Wetlands to the south and the Pacific Ocean to the west. Because of the City's proximity to the ocean and the mountains, temperate climate and well-drained soils, a wide variety of plant communities would naturally thrive within the City limits. Figure 5 shows a topographical cross-section of the City and the related ecological communities that may have grown here in the past. Marine life, mammals, birds and insects coexisted with these plant communities creating a complex network of relationships that depended on each other for survival.

Today, the City of Santa Monica is fully developed and lacks the undisturbed native habitat to support a diverse native terrestrial animal population. Due to their mobility and range of travel, birds are more abundant than other wildlife in the City[12]. Resident birds that are common to the area include the northern mockingbird (Mimus polyglottos), Anna's hummingbird (Calypte anna), house finch (Carpodacus mexicanus), and the snowy plover (Charadrius alexandrinus).[20]

The City of Santa Monica is located on the Pacific Flyway and is also host to migratory birds. Birds that migrate to and from Santa Monica include the white-crowned sparrow (Zonotrichia leucophrys), yellow-rumped warbler (Dendroica coronata), and the ruby crowned kinglet (Regulus calendula) in winter, and swallows such as the barn swallow (Hirundo rustica) and northern rough-winged swallow (Stelgidopteryx serripennis), and the hooded oriole (Icterus cucullatus) in spring and summer[20].

Monarch butterfly (Danaus plexippus) winter roosting sites have been reported within open space and landscaped areas of the City, as the environmental conditions and the micro-climate in groves of trees suit the needs of the butterflies. Eucalyptus trees provide a nectar source and are most frequently used as wintering sites by monarchs.[13, 14, 15]

The continued observation of birds and insects, including the relationship of native plant material to beneficial insects and other wildlife, will ensure that the resources that supply the urban forest are used wisely. Observation of new tree introductions and their contributions to the ecology of the City should also be continued.

Understanding the balance of human, plant and wildlife associations is key to a healthy environment. The 150 miles of streets of the City constitute its largest open space making up 23% of the City's area.[22] Thoughtful selection of trees planted in environmentally friendly infrastructure can contribute to the health of the ocean by reducing urban stormwater runoff and while improving habitat for many species that can exist in the built environment.

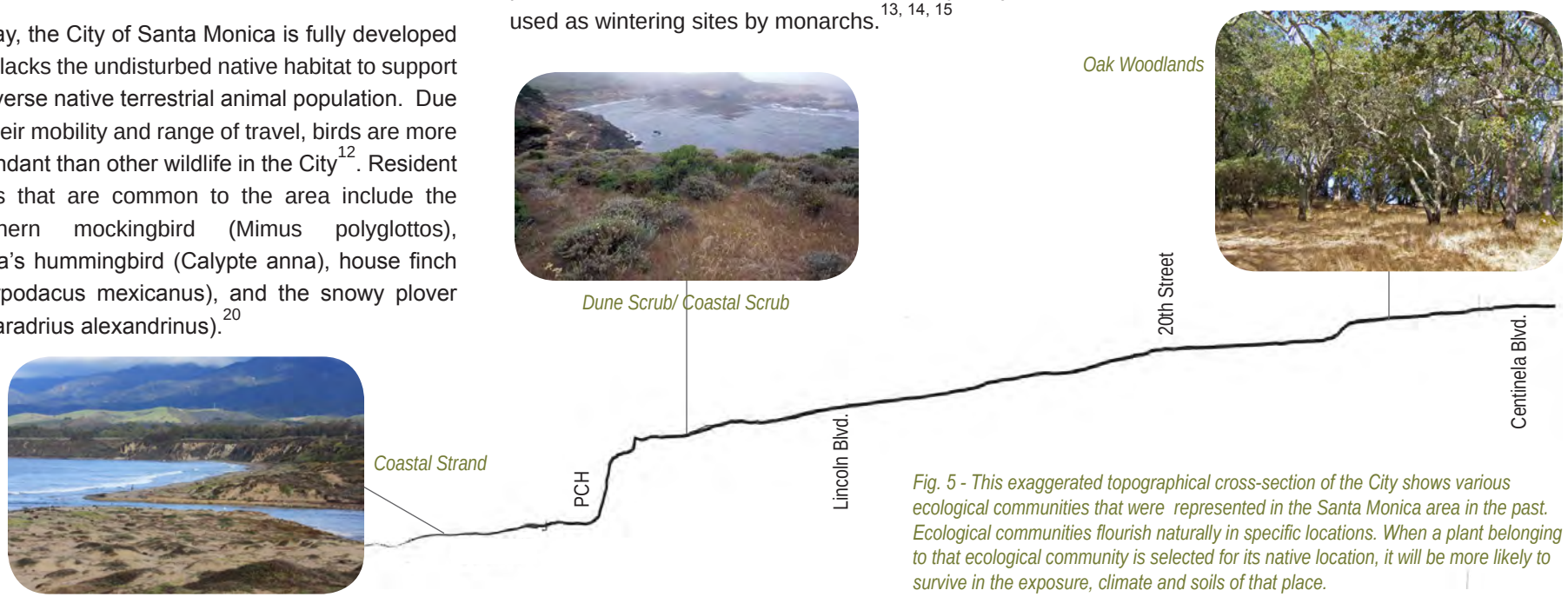


Fig. 5 - This exaggerated topographical cross-section of the City shows various ecological communities that were represented in the Santa Monica area in the past. Ecological communities flourish naturally in specific locations. When a plant belonging to that ecological community is selected for its native location, it will be more likely to survive in the exposure, climate and soils of that place.

THE SANTA MONICA FREEWAY

The Santa Monica Freeway cuts through the center of the City, creating both a literal and figurative divide between the northern and southern neighborhoods. Access to and from the neighborhoods directly adjacent to the freeway is difficult and the presence of the freeway results in elevated levels of noise and air pollution.

The freeway and its embankments are the property of Caltrans, and therefore tree planting does not fall under the purview of the City. However, a "mitigation corridor" supporting the planting of larger stature trees, faster growing trees, and using new technologies to install these trees in growspaces that would normally be too small for them will reduce the impacts of dirt and noise. The City's Open Space Element encourages the establishment of a freeway forest. A recent example of the ability to accomplish this is the recent relocation of six large Ficus trees to the City-owned embankment just north of City Hall.

Fig. 6 - A freeway "mitigation corridor" can address the unique impacts created by urban freeways, including dirt and noise.

DESCRIPTION OF SANTA MONICA'S URBAN FOREST

The initial phase of this Master Plan was the preparation of an inventory of approximately 33,800 public trees in 2010. Using a Geographic Information System (GIS), the locations of trees, size of growspace, canopy spread, overall health, proximity to objects, root pruning history and other characteristics were recorded.

TOP 15 SPECIES

Data from the 2010 tree inventory indicates that Santa Monica's urban forest is comprised of over 250 different species of trees, with the majority of the forest consisting of the 15 species identified numerically in Figure 7 and graphically in Figure 8. In Figure 8, the individual colored dots represent surveyed trees and the correlating colors represent the tree species shown in the legend.

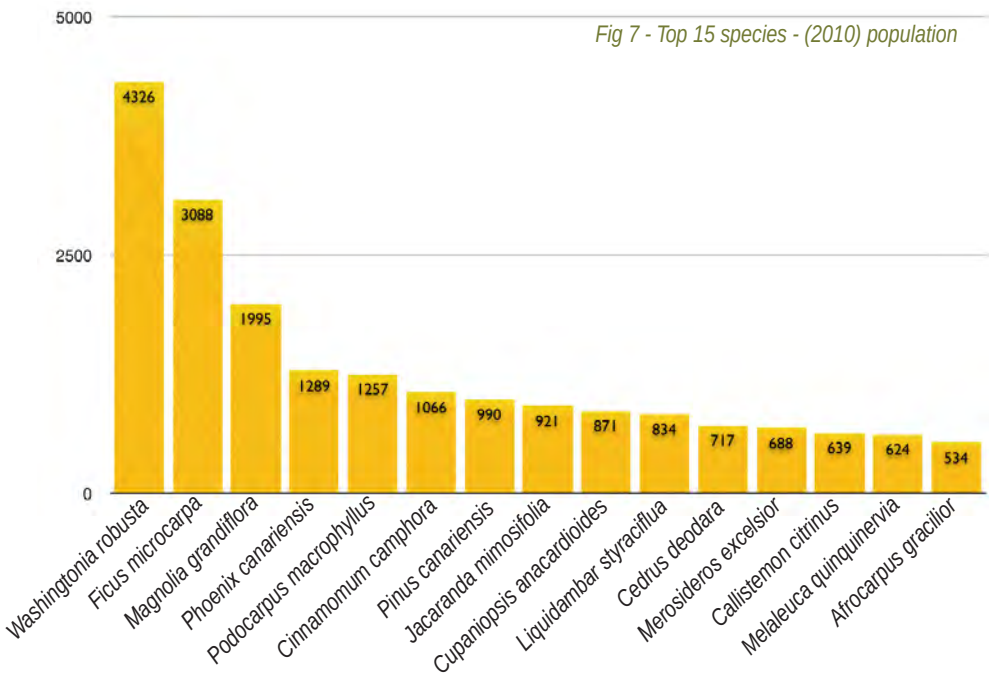


Fig 7 - Top 15 species - (2010) population

The Washingtonia robusta is currently the most common tree in the City. Planting within the coastal zone is restricted by the California Coastal Commission because of its tendency to reseed.

Washingtonia robusta (Mexican Fan Palm) is the most common species in Santa Monica's urban forest. This species lines major commercial thoroughfares like Wilshire Boulevard and is also planted throughout beach neighborhoods where it thrives under harsh coastal conditions. The palm species is long lived and can reach heights in excess of 100 feet but provides very few environmental benefits. Also, it reseeds readily, so planting this palm within the Coastal Zone is currently banned by the California Coastal Commission.

Another heavily used species is Ficus microcarpa 'Nitida' (Indian Laurel Fig). This evergreen species provides significant environmental benefits and produces year-round shade for many residential streets and the three main business districts. However, the trees drop leaves and berries and have invasive roots that tend to lift sidewalks when planted in too small of a growspace. The challenge for the City is to maximize the environmental benefits that the Ficus trees bring to the urban environment by planting them strategically and to minimize their nuisance potential by employing new technologies during the planting process which may help to control root growth in the future.

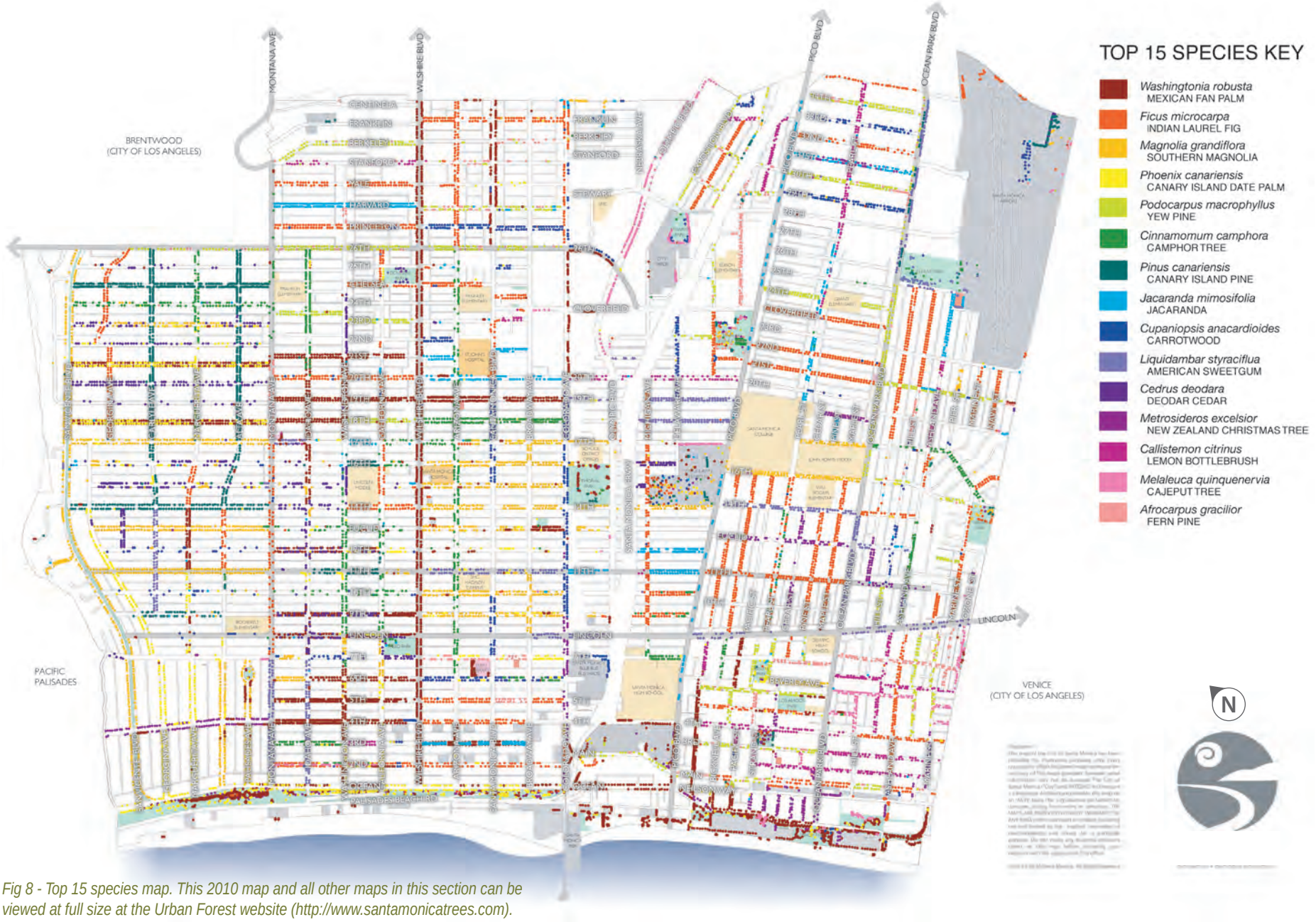


Fig 8 - Top 15 species map. This 2010 map and all other maps in this section can be viewed at full size at the Urban Forest website (http://www.santamonicatrees.com).

GROWSPACE

Growspace is defined as the ground level space that a tree is allotted to grow. As shown in Figure 9, growspaces range from small tree wells or narrow parkways to wide-open spaces. A key element in the success of a tree in an urban environment is its ability to expand its root mass to an appropriate size and dimension. Root conflicts with urban infrastructure are mostly due to trees being placed in a growspace that does not adequately accommodate that species as it matures.

During the 2010 tree inventory process, growspace was measured for each public tree. Figure 10 shows the range of current growspace and Figure 11 shows the distribution of growspace sizes throughout the City. The northern parts of the City were originally laid out with larger lots and larger parkways, which has allowed larger tree specimens to grow there.

As seen in Figure 10, a large number of the City's trees are planted in 3' and 4' growspaces. This presents a particular challenge for achieving diverse tree selection and robust canopy coverage because there are a limited number of tree species appropriate for a small growspace, which tend to be smaller statured trees.

New emerging technology in tree growth management will allow larger trees to grow in confined locations without disrupting and displacing sidewalks or streets. These specialized products will support pedestrian and traffic loads and provide uncompacted, engineered soil for large trees. The use of new technologies, planting methods and identifying areas available for infrastructure modification (e.g., widening parkways, adding curb extensions and medians when streets are redesigned) will bring much needed tree canopy to parts of the City historically lacking large trees.

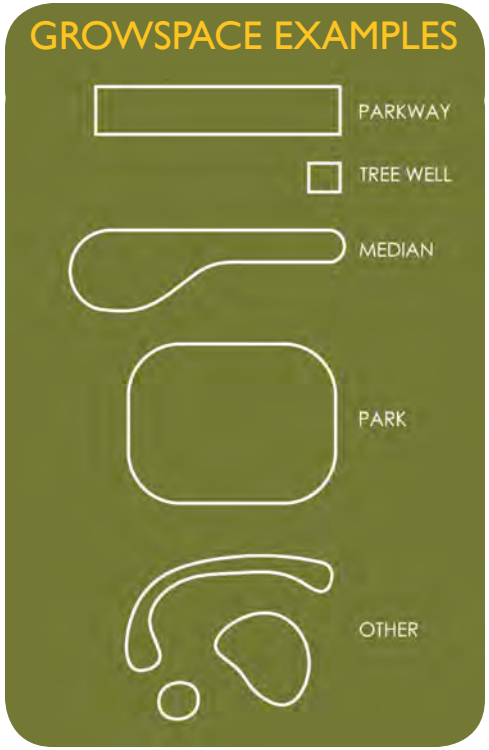


Fig 9 - Growspace examples.

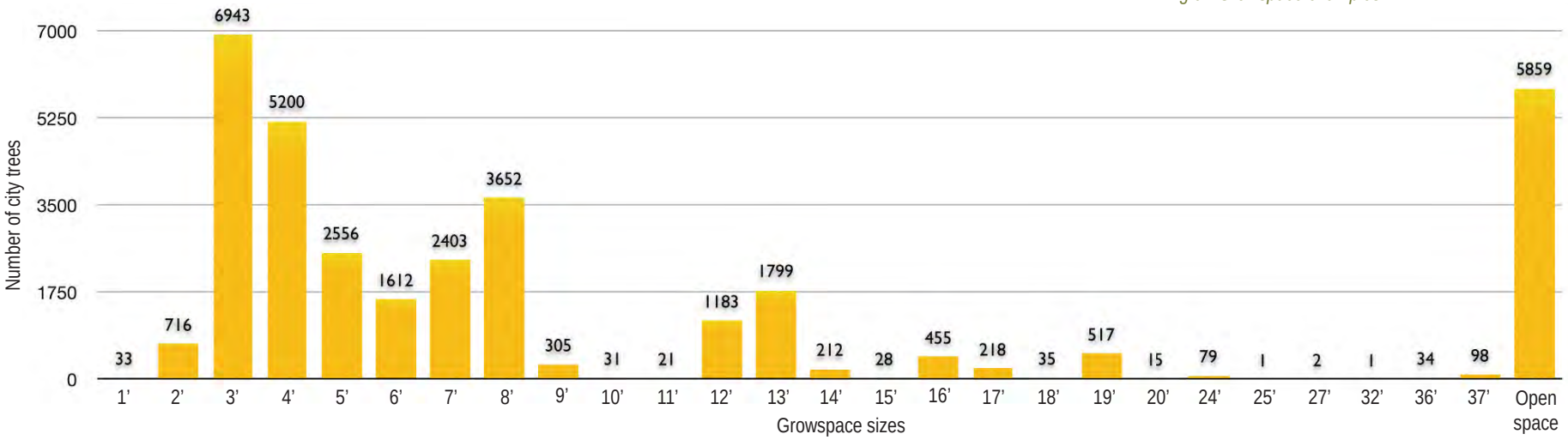


Fig 10 - Growspace inventory. The graph above shows the number of street trees planted in various growspace sizes and the number of "open space" trees. These trees are located at parks, beach, and cemeteries.

Fig 11 - Growspace sizes map. This 2010 map and all other maps in this section can be viewed at full size at the Urban Forest website (http://www.santamonicatrees.com).

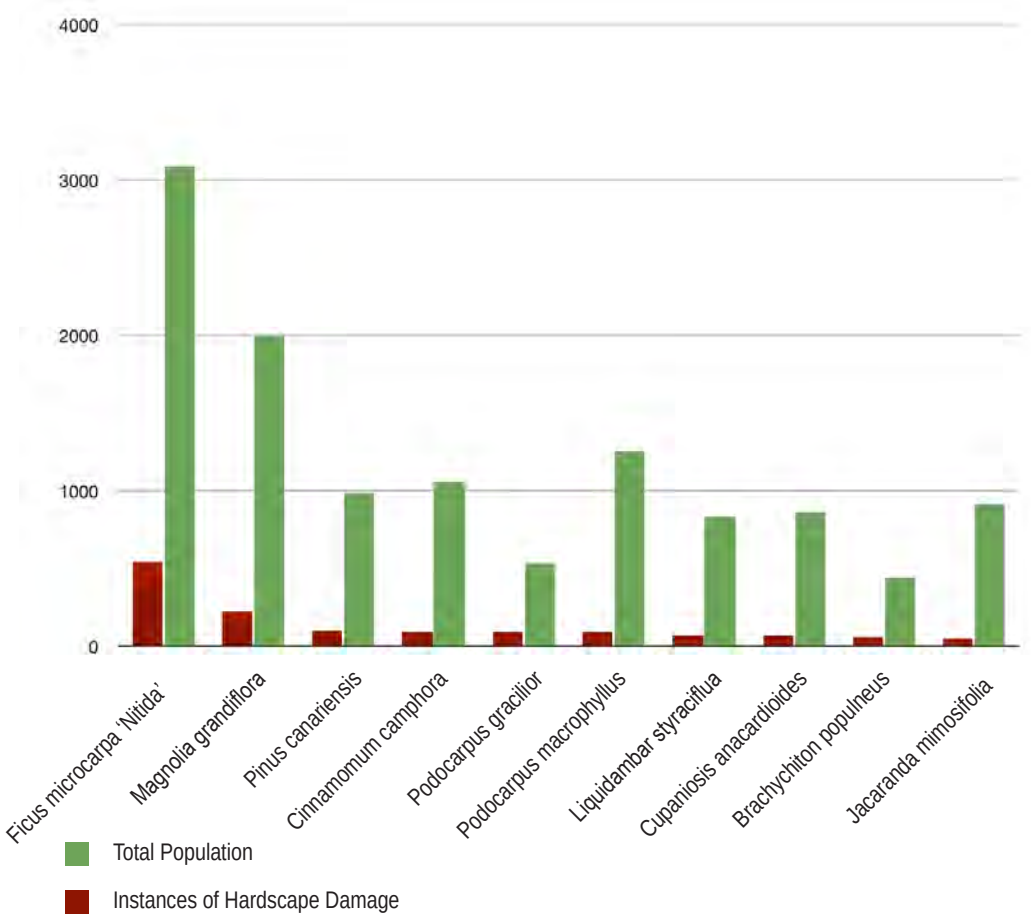
RIGHT TREE FOR THE RIGHT PLACE

"The right tree for the right place" is a term used in urban forestry for planting a species of tree that is appropriate for its location. The most important factor to consider when planting a tree is to make sure it has enough room to grow. Each tree species requires a certain amount of space to grow and thrive without causing damage to its surroundings.

While most of Santa Monica's trees are planted in a suitable location, many trees are growing in spaces that cannot accommodate their growing requirements. This usually results in damage to streets, sidewalks or utilities that ultimately increase maintenance costs.

Displaced sidewalk and driveway surfaces. When trees are planted in growspaces that are too small, their root mass will eventually outgrow the space which results in hardscape damage.

Fig 12 - Frequency of Infrastructure Damage Compared to Species Population.



Infrastructure damage was assessed as part of the 2010 tree inventory. Figure 12 above shows the species that have caused the most infrastructure damage, along with their population in the City for comparison.

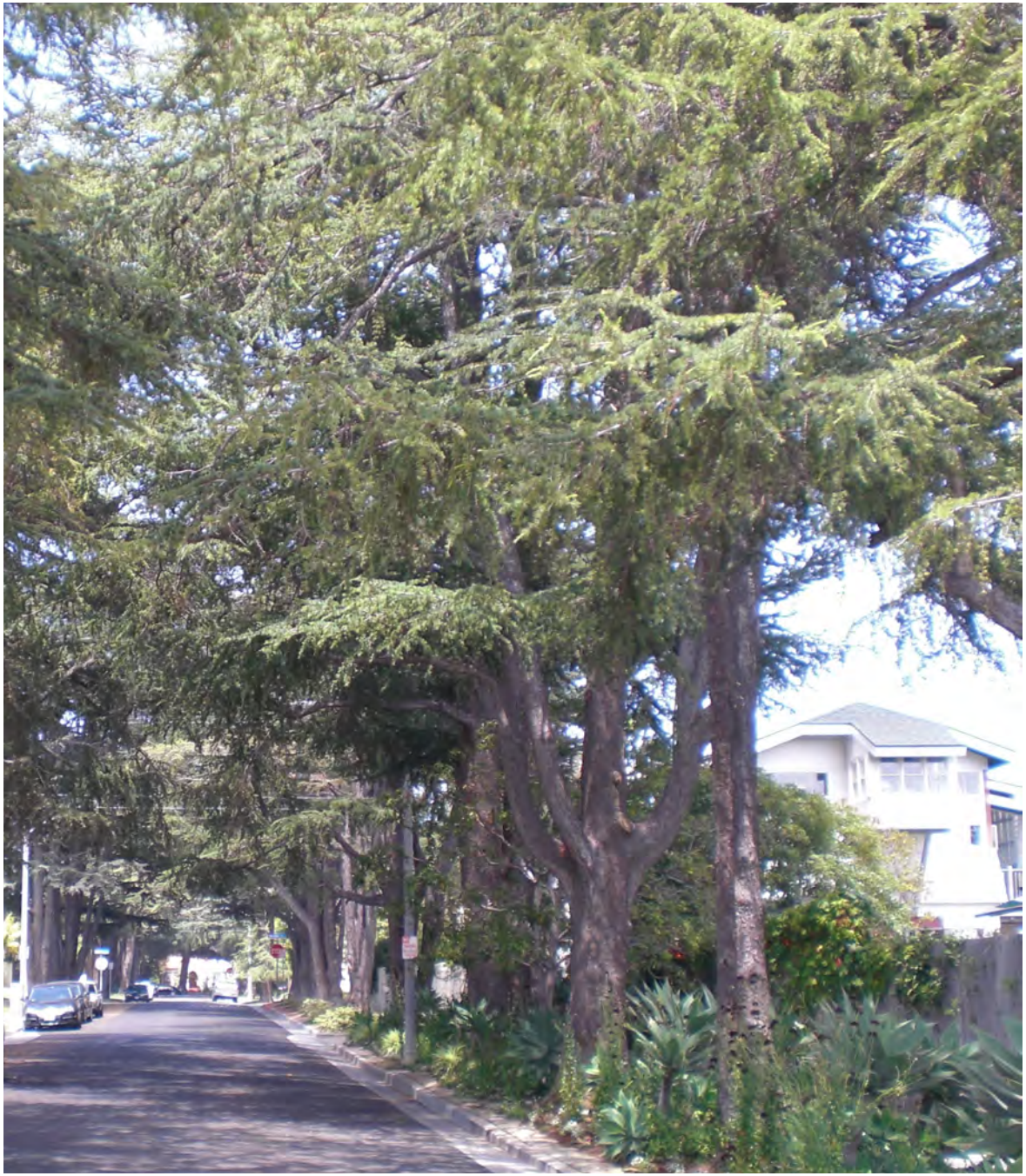
The individual colored dots shown in Figure 13 on page 25 represent each tree surveyed. The correlating red or green color on the map represent whether or not a particular tree is in a suitable site or if there is or will be, a potential need for future hardscape repair.

Fig 13 - Right tree for the right place map. This 2010 map and all other maps in this section can be viewed at full size at the Urban Forest website (http://www.santamonicatrees.com).

CANOPY COVERAGE

Tree canopy provides shade and oxygen, which cools the City's streets as well as homes and buildings. These contributions also create improved conditions for pedestrians. A full and healthy urban forest canopy can be an effective and efficient means of reducing pollution, the heat island effect and the need for air-conditioning. The benefits have always been tangible but with new analysis software they are now quantifiable.

During preparation of the City's 2010 tree inventory, the canopy spread of each public tree was measured. Figure 14 on the next page shows individual colored dots representing each tree surveyed. The correlating colors represent the range of canopy coverage shown in the key.



Cedars on Brentwood Terrace. Mature trees shade homes and cars, reducing the need for air-conditioning. They also reduce the heat island effect from roofs and asphalt and shade parked cars.

Fig 14 - Canopy coverage map. This 2010 map and all other maps in this section can be viewed at full size at the Urban Forest website (http://www.santamonicatrees.com).

ENVIRONMENTAL BENEFITS OF THE URBAN FOREST

Santa Monica's 2010 tree inventory establishes baseline data for a complete analysis of its street tree population by using new software developed by the US Forest Service called iTree. The analysis provides a dollar value indication of the environmental benefits provided by each tree. An analysis of the City's publicly owned trees and the proposed species that will eventually be in the top 15 shows how the individual species provide cumulative benefits to the community.

While iTree analysis provides information on the environmental performance of the entire forest, analyzing individual species provides detailed information on the performance of individual species. Figures 15 and 16 show the environmental benefits of the existing top 15 species and the environmental benefits of the proposed top 15 species.

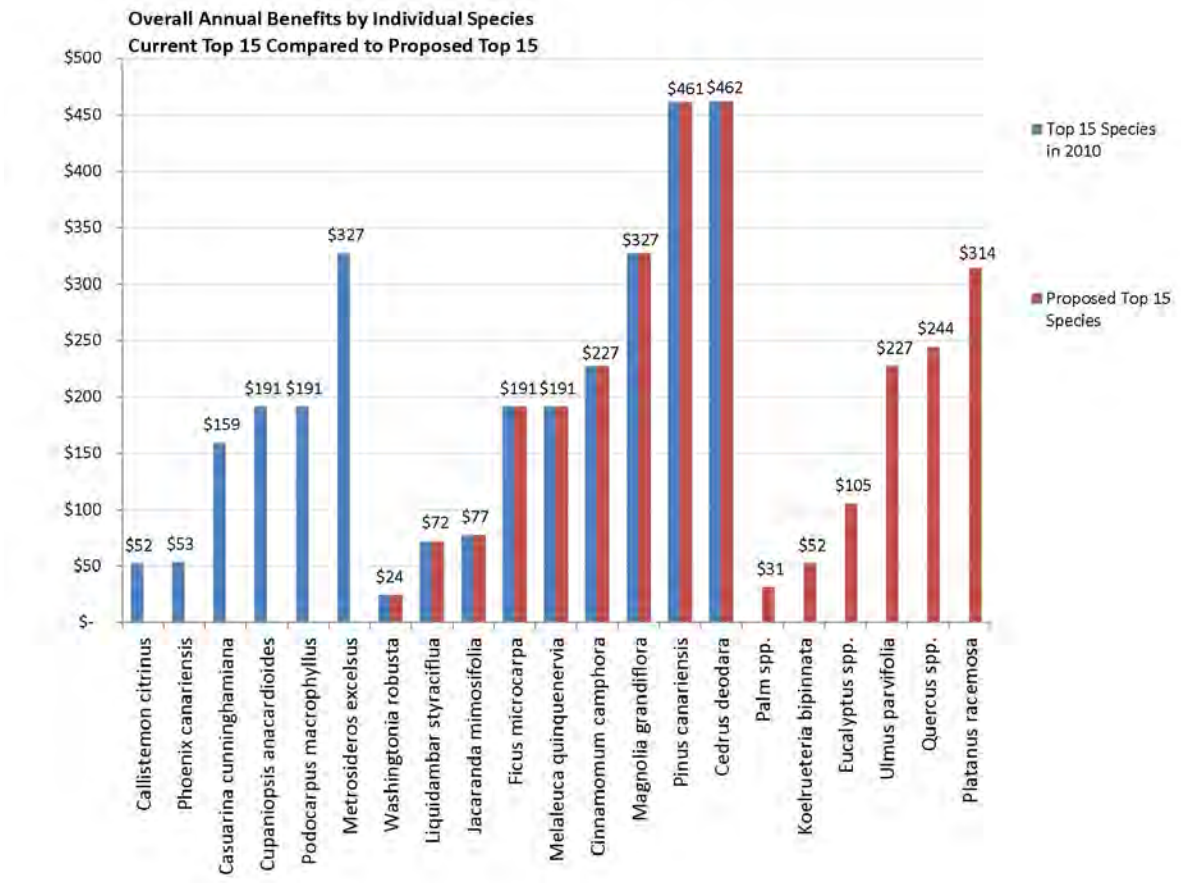


Figure 15 - Overall Annual Benefits by Individual Species. The table above measures the overall annual benefits from trees in regards to stormwater retention, property value increase, energy savings, air quality improvement and carbon sequestration.

The Pinus canariensis (Canary Island Pine) shown in the photo above ranks as one of the highest overall performing trees in Santa Monica's urban forest. Large canopy trees like these alter their environment by reducing reflected heat from asphalt which in turn cools the street. This cooling effect reduces water consumption for irrigating front yard landscapes.

Carbon sequestration is the process where carbon dioxide (CO_2) is absorbed out of the atmosphere by trees through photosynthesis. The carbon is stored in tree trunks, branches, foliage and roots. Urban forests can act as a carbon sink when there are enough trees to store more carbon than is released over time. The Pinus canariensis (Canary Island Pine) seen in the photo below absorbs as much carbon as the Cedrus deodara, however it ranks higher in the tree population making it an important contributor to the environment.

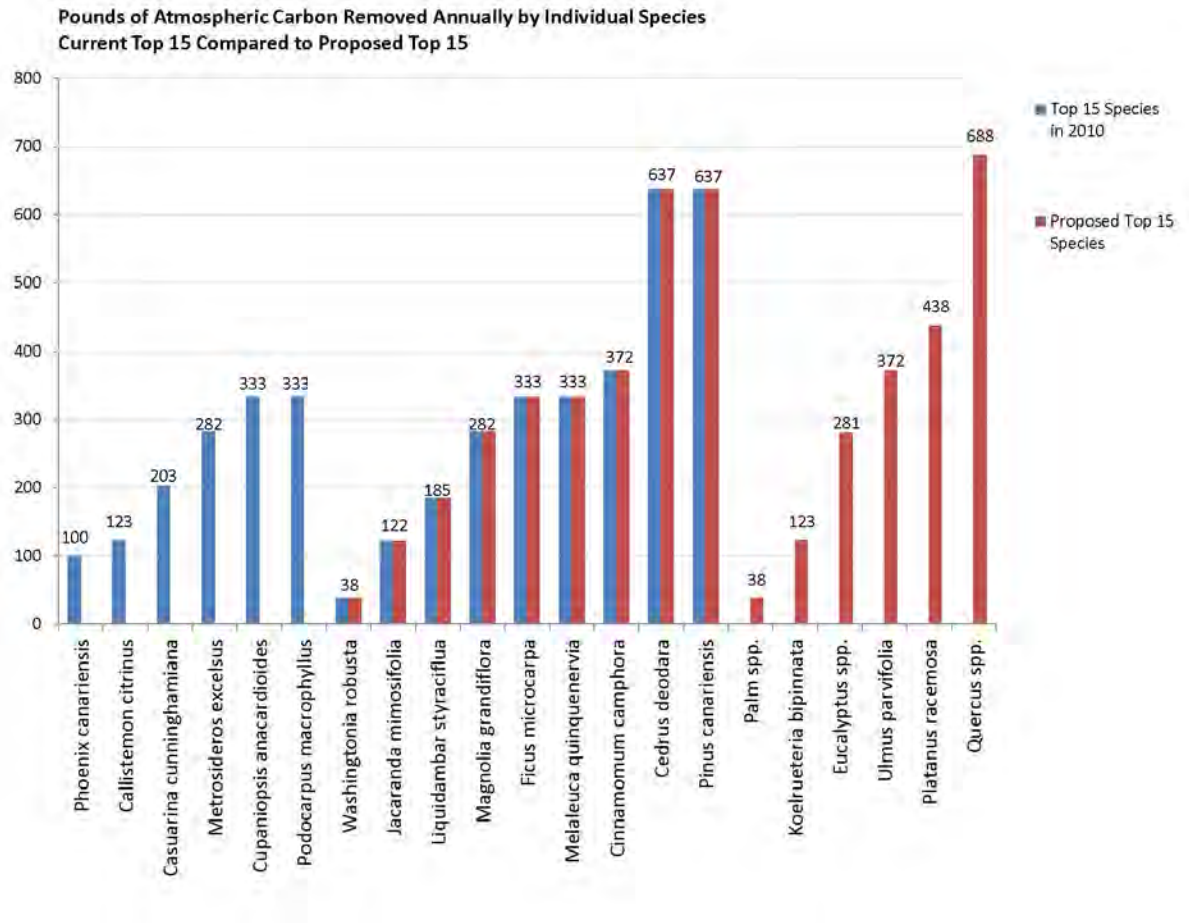


Fig 16 - Pounds of Atmospheric Carbon RemovedAnnually by Individual Species. Trees in Santa Monica reduce atmospheric CO_2 by directly sequestering CO_2 in their woody and foliar biomass. The energy needs of homes and commercial buildings for heating and air conditioning are reduced, which in turn reduces emissions associated with generating electricity. Of the top 15 species, the best performing trees are the large conifers and broadleaf evergreen trees.

Large evergreen trees like the Pinus canariensis (shown at left) and the Cedrus deodara sequester more carbon than other top 15 species.

The Liquidambar styraciflua (Liquidambar) is the highest ranking deciduous tree of the top 15 species in 2011 to reduce annual energy consumption.

Trees modify climate conditions and temperatures and conserve building energy use. The shade from tree canopies cools an area and reduces the amount of heat absorbed and stored by buildings. Evapotranspiration converts liquid water to water vapor which cools air that would otherwise result in heated air from the sun.

Tree canopies slow cold winter winds thereby reducing the amount of heat loss from a home, especially where conductivity is high such as windows or skylights. Deciduous trees play an important role in the winter when they drop their leaves and allow the sun's radiant energy to warm the surrounding area. The Liquidambar styraciflua (Liquidambar) is the highest ranking deciduous tree of the top 15 species in 2011 to reduce annual energy consumption.

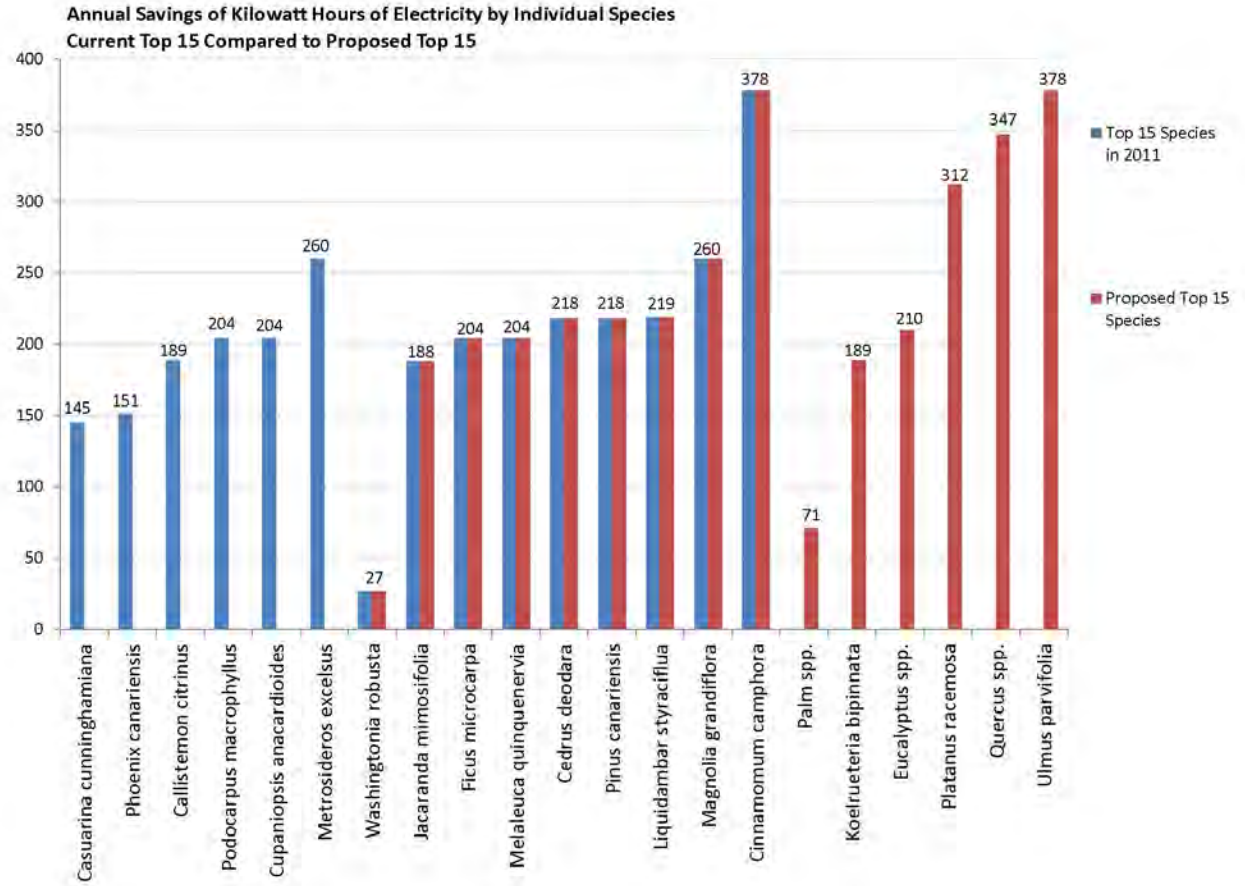


Fig 17 - Annual Savings of Kilowatt Hours of Electricity by Individual Species. The chart above shows how existing tree species will eventually no longer be among the top 15 species in the City's urban forest.

A mature Cinnamomum camphora (Camphor), like the one shown in the photo below, can retain over 8,000 gallons of rainfall a year and reduce energy consumption by as much as 378 kilowatt hours, as shown in Figure 17.

A mature Cinnamomum camphora (Camphor) saves 378 kilowatt hours per year.

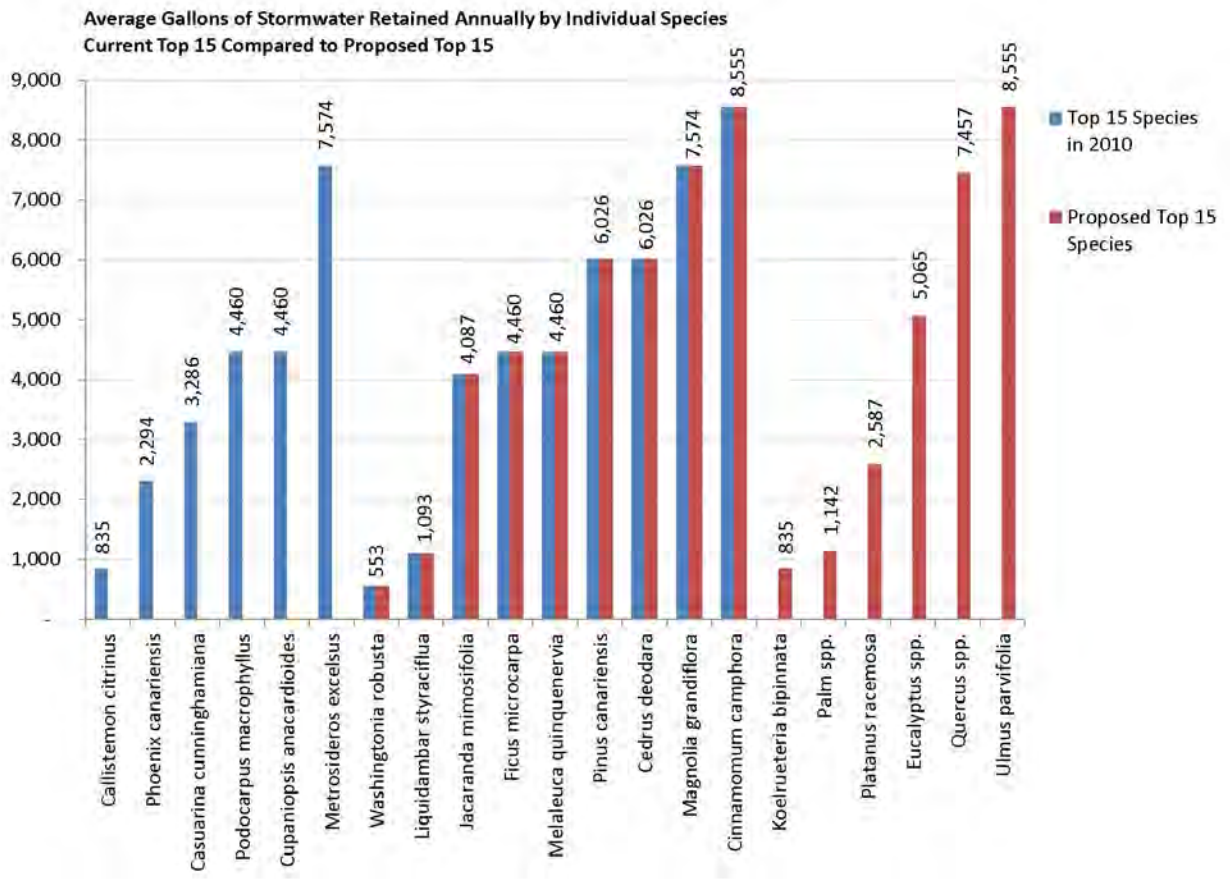


Fig 18 - Average Gallons of Stormwater Retained Annually by Individual Species. Urban stormwater runoff significantly impacts the Santa Monica Bay, and the urban forest plays an important role in reducing the amount of pollutants entering the Bay. Urban trees intercept and store rainfall on their leaves and branches thereby reducing the volume of stormwater and urban water runoff.

COMMUNITY VIEWS OF THE URBAN FOREST

Community outreach for the Urban Forest Master Plan was done in two stages. The first stage occurred in 2010 before any proposed street tree designations were made, and consisted of on-line and mailed-in surveys as well as resident input at community workshops. This first stage was used to understand the general feelings from the residents toward the current urban forest and to help them describe the qualities and characteristics that they liked and disliked in potential new tree species.

Survey results identified environmental benefits, aesthetics and neighborhood character as very important qualities of Santa Monica's urban forest. When it came to tree characteristics within the urban forest, large canopy, evergreen and flowering trees were preferred by residents. When asked specifically about the importance of street trees, environmental benefits and aesthetics were very important as well as shade and neighborhood character.

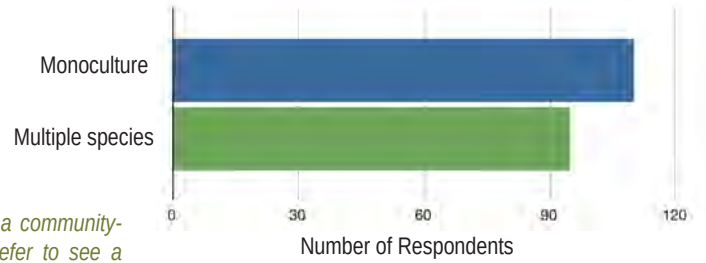


Fig 19 - Residents were asked via a community-wide mailer whether they would prefer to see a monoculture or multiple species planted on their street. A majority of people who responded to the survey said they would prefer a monoculture.

Broad-leaved Evergreen Monoculture. - This was the most popular choice at each community workshop. Participants liked the form, environmental benefits, and year round foliage of the broad-leaved evergreen monoculture.

Broad-leaved Evergreen & Deciduous. - Close behind the broad-leaved evergreen monoculture, the combination of broad-leaved evergreen and deciduous trees was second-most popular because of its seasonal variation.

Fig 20 - At the 2010 community workshops, the participants were asked to indicate their preference for tree patterns from a group of over 25 possibilities.

Narrow-leaved Evergreen & Deciduous. - Another combination offering seasonal variation as well as foliage contrast is the narrow-leaved evergreen and deciduous combination. This was the third most popular planting profile.

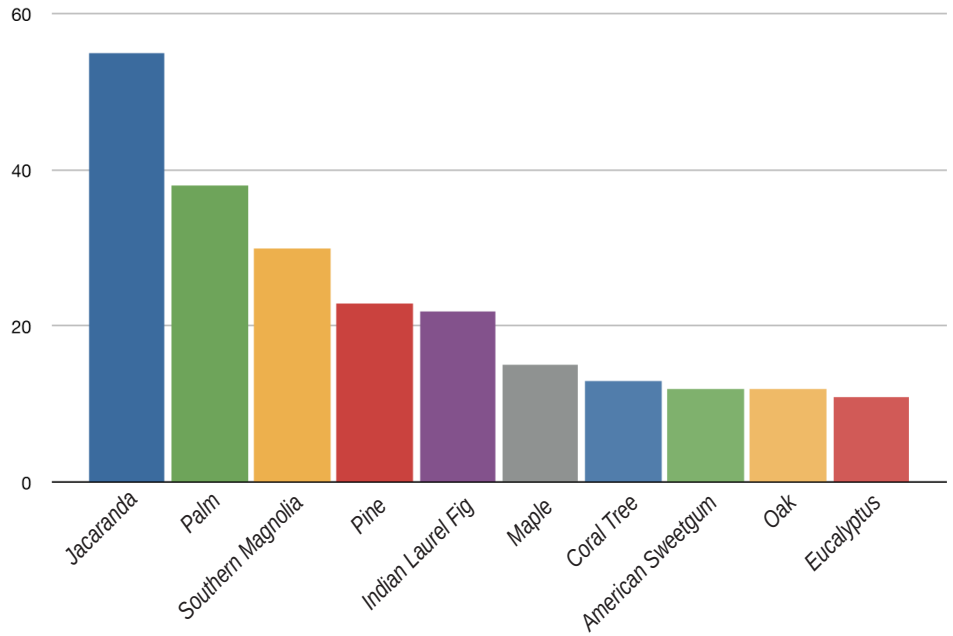


Fig 21 - Survey respondents were asked what their favorite street tree was.

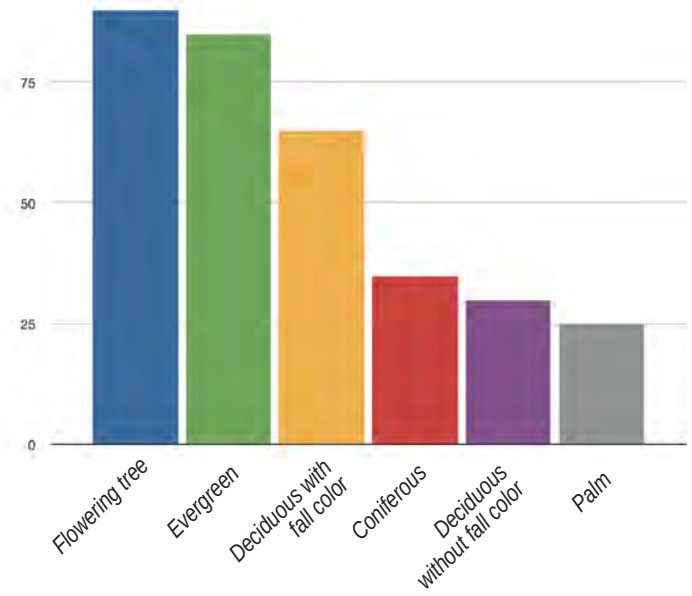


Fig 22 - Survey respondents were asked specifically what type of tree they would like to have in front of their house. Flowering trees (like the jacaranda and magnolia), evergreens and deciduous trees with fall color got high marks. In contrast, conifers, deciduous trees without fall color, and palms were preferred by fewer residents.

Fig 23 - Survey participants were asked how important the following tree benefits are to them.

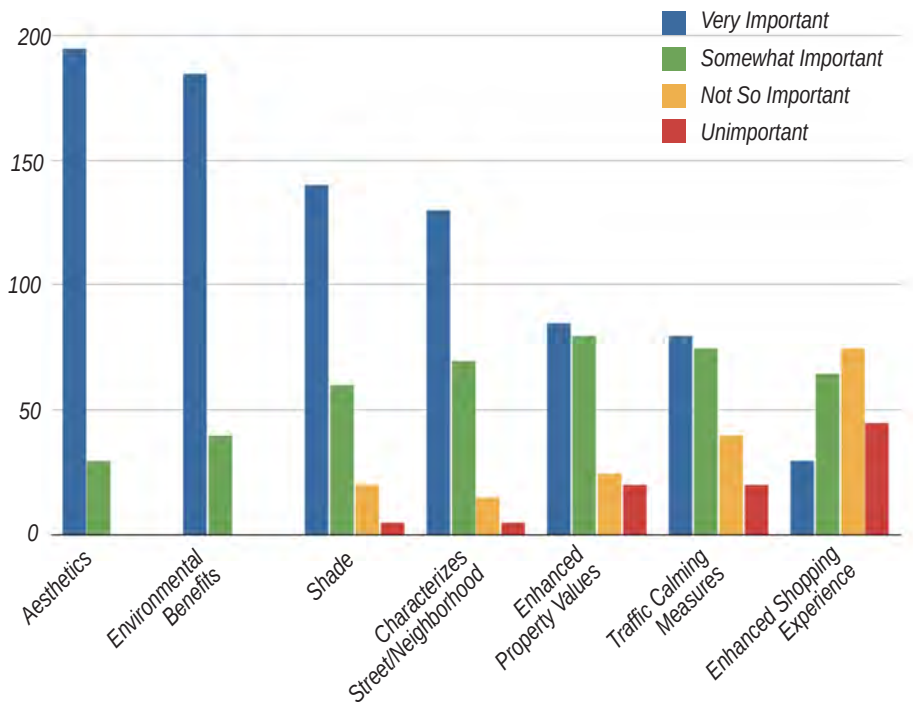


Fig 24 - Survey participants were asked what they liked about trees on their block.

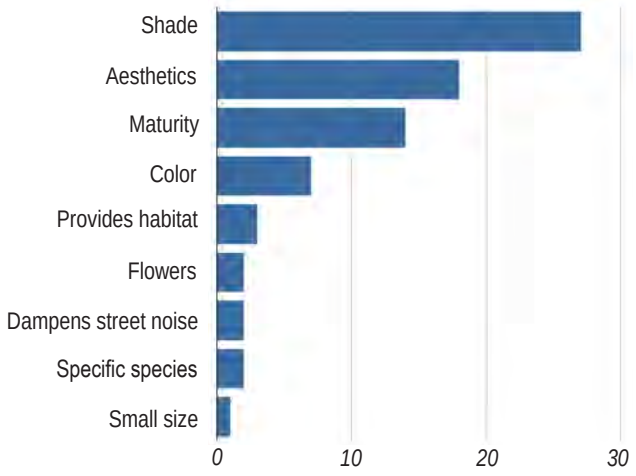
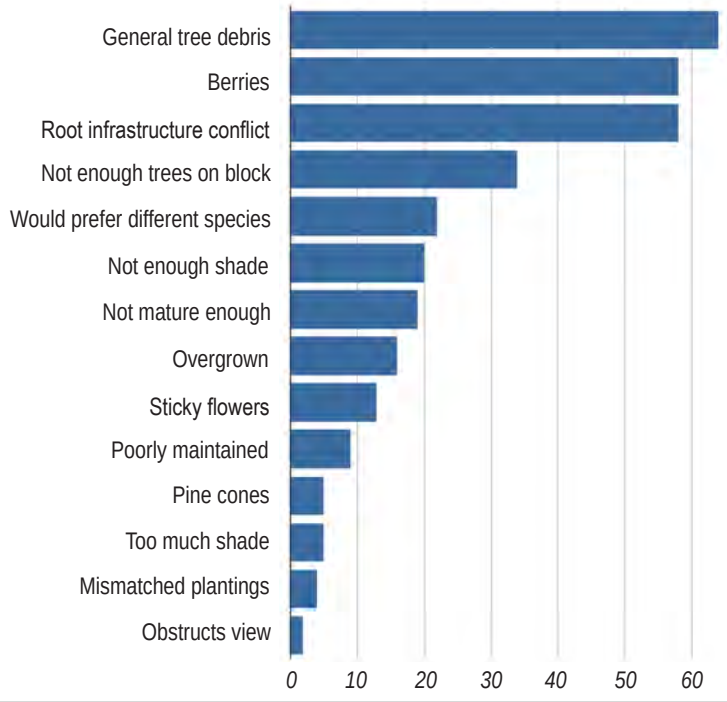


Fig 25 - Survey participants were asked what they disliked about trees on their block.



Figs 23-25 - Qualitative questions helped to weigh potential benefits and drawbacks of trees when the Master Plan process moved into specific street tree designations.

Figure 23 shows which potential tree benefits the respondents of Santa Monica value most. Survey respondents were asked to weigh positive and negative tree aspects. All potential trees have good and bad qualities, so it was important for the City to know if certain benefits were more important than others to residents (Figure 24), and whether they could live with some drawbacks more easily than others (Figure 25).

COMMON COMMUNITY CONCERNS

- Aesthetics
- Sustainability
- Water Conservation
- Promoting Organized Diversity
- Utilizing Native Species
- Enhancing a Walkable City
- Enhancing Public Transportation Stops
- Expanding Growspace & Parkways
- Size of Newly Planted Trees
- Pruning/Maintenance
- Fruit Trees/Public Orchards
- Creating an Urban Forest Advisory Body
- Public Outreach and Communication

Community input ranged from broad ideas to specific policies, which are expressed in the Master Plan. During the community workshops, residents were asked to share additional concerns they felt had not been brought up in the surveys. The topics that workshop participants brought up most often are listed above as common community concerns.

All data collected from the surveys and workshops was brought back to the Urban Forest Master Plan Task Force's Species Selection Subcommittee to aid in their decision making concerning the proposed species selection for each street segment in the City.

FAVORITE TREE LINED STREETS OF SANTA MONICA: THE COMMUNITY PARTICULARLY LIKED THESE STREETS BECAUSE OF THE TREES

Coral trees on San Vicente Boulevard.

Pines and Palms on Ocean Avenue.

Ficus on 4th Street.

Magnolias on 11th Street.

Moreton Bay Figs on La Mesa Drive.

Ficus on Montana Avenue.

The second stage of community outreach.

The second stage of community outreach occurred in 2011 after preliminary street tree designations were proposed. To ensure effective outreach, every Santa Monica household received a postcard directing them to the urban forest website, where the name and photo of all proposed street tree designations were listed and broken down into 394 street segments. Hard copies were also available upon request at the public libraries. Residents were then invited to comment via the internet or telephone about the individual tree designations, and to attend two community meetings scheduled to gather more feedback from the community.

Community interest in the designated trees was very high. The City staff received over 800 comments, positive and negative, and over 100 people attended the two community meetings to personally voice their desires and concerns.

After the community feedback period, the Species Selection Subcommittee met again to make revisions to the recommendations list based on the comments that the City received. Community feedback resulted in changes to 69 street segments. After the Urban Forest Master Plan Task Force discussion on October 5, 2011, changes were made to the proposed list in response to public input.

FOOTNOTES

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CHAPTER 2 - GUIDING PRINCIPLES

GUIDING PRINCIPLES

DEVELOPING POLICY AND STANDARDS FROM THE GUIDING PRINCIPLES

The vision for the urban forest is refined in Chapter 2 through Guiding Principles, Goals and Strategies. Standards and criteria appear in the appendices and serve as management tools to implement specific goals and strategies.

In order to construct policy that is in line with the Urban Forest Master Plan Task Force's Guiding Principles, corresponding goals were developed. The written goals express a desired result and establish a purpose but are not necessarily quantifiable and measurable. Goals provide opportunities for continuous improvement and flexibility in the future. Strategies identified from each goal are more specific and measurable and can be used to evaluate the implementation of goals in this Master Plan at any point in time. As the urban forest continues to evolve, new strategies that develop will be incoporated as part of this living Master Plan.

THE URBAN FOREST MASTER PLAN TASK FORCE CREATED GUIDING PRINCIPLES FOR THE 2011 MASTER PLAN TO ESTABLISH ITS OVERALL VISION. GROUPED TOGETHER, THESE PRINCIPLES PROVIDE THE FRAMEWORK FOR THE GOALS AND STRATEGIES OF THE MASTER PLAN.

THE URBAN FOREST AND ITS ENVIRONMENT

The urban forest heightens the quality of the City's environment.

UNDERSTANDING THE URBAN FOREST

Public awareness of the benefits that an urban forest provides is crucial to its vitality.

ECONOMICS OF THE URBAN FOREST

The urban forest needs equitable budget levels consistent with its value to the City.

COLLABORATING ON URBAN FOREST

Collaboration between and communication with the community and all City departments whose work affects the urban forest is critical.

STEWARDSHIP OF THE URBAN FOREST

The urban forest will thrive through persistent attention to its management and with the stewardship of the community.

ENHANCING THE URBAN FOREST

The future of the forest begins now. With conscientious foresight, it can evolve into an even greater treasure.

GUIDING PRINCIPLE → GOAL

1. THE URBAN FOREST AND ITS ENVIRONMENT

The Urban Forest is a living element of the City that contributes to the quality of life and surrounding environment. The City's public trees, found throughout the various neighborhoods and parks, offset the impact of the built environment and provide residents and visitors healthy and pleasant places for recreation and social interaction while providing habitat for urban wildlife.

To enhance the understanding that the green infrastructure provided by the City's urban forest treats stormwater runoff, shades and cools streets and buildings to reduce the urban heat island effect, reduces air pollution, controls erosion, stores and sequesters carbon, and provides human and wildlife habitat. To assess and report on the progress regarding environmental benefits gained from the urban forest.

STRATEGIES

1. BIENNIAL REPORTING ON PERFORMANCE

The Public Landscape Division will adjust the methodology for establishing periodic evaluations of street trees to assess progress in achieving environmental performance goals. Based on records kept by the Public Landscape Division, the following reports will be submitted with the City's biennial budget:

- Number of trees in the urban forest
- Number of existing vacancies
- Number of trees removed
- Number of trees planted
- Number of trees trimmed
- Number of emergency tree responses
- Street tree performance and aesthetics

2. SEVEN-YEAR REPORTING ON PERFORMANCE

The Public Landscape Division will adjust the methodology for establishing additional periodic evaluations of street trees to assess progress in achieving environmental performance goals. Each time the opportunity presents itself, the City will work with the US Forest Service to conduct a benefit-cost analysis of the urban forest. If extended, the Task Force would also evaluate the effectiveness of the goals and strategies of the Master Plan including the Street Tree Designations List, the effectiveness of the street tree removal appeals process and the effectiveness of the public review process for tree relocations and removals in City public improvement projects. Based on regular tree inventory updates, at the seven-year reporting period the Public Landscape Division will prepare and make available to the public the following reports in an effort to measure and record the environmental benefits of the urban forest:

- Energy savings, reduction of stormwater runoff, air quality improvements, and carbon sequestration
- Canopy coverage
- Urban forest wildlife activity
- List of the top 15 species most frequently planted on City streets
- Ratio of deciduous to evergreen trees
- Ratio of native to exotic trees

3. PUBLIC ADVISORY BODY

To evaluate the implementation and effectiveness of the Master Plan during the first seven years of this Master Plan and at the discretion of the City Council, the Urban Forest Master Plan Task Force may remain in place for a seven-year period.

Task Force meetings will be held approximately every two months to discuss and advise staff on issues that may involve:

- Evaluation of biennial reports and the first seven-year report on achieving the stated environmental performance goals as specified in this section.
- Discussion of trees on private property.
- Refinement of the Heritage Tree program.
- Support for funding initiatives.
- Input on City public improvement projects.
- Providing suggestions to staff for tree planning on School District property.
- Providing input on tree species for landmarks and historic districts.
- Advising the Planning Commission on the implementation of the LUCE including drafting of the zoning code and defining community benefits and infrastructure requirements through the development agreement process.
- Providing input on greening of other public sites including but not limited to bus stops and parking lots.

Upon completion of the seven-year inventory, the Task Force may advise the Public Landscape Division on recommended changes to the goals and strategies of the Master Plan, including the appeals process, tree species designations and the public review process for tree removals and tree relocations as part of City public improvement projects.

GUIDING PRINCIPLE → GOAL

2. UNDERSTANDING THE URBAN FOREST

The public will become better aware of the urban forest if there is a general understanding of its value and the benefits it provides. To that end, an ongoing public education process appropriately tailored to different age levels is essential.

To ensure that residents, business owners and merchants are aware of the benefits trees offer the community and that residents, property owners, architects, engineers, planners, developers, and landscape and tree contractors are familiar with Best Management Practices in this plan for the planting and care of trees. To also ensure that residents are included as stakeholders in decision making.

STRATEGIES

1. PUBLIC EDUCATION

The City will develop an effective marketing campaign to raise awareness of the urban forest within a wide audience. Educational efforts will be targeted, informative and proactive. The City will do the following as part of this campaign:

- Conduct periodic public workshops on tree care.
- Provide residents with information that is specific to the newly planted street trees adjacent to their homes and their care.
- Produce a public information packet on Best Management Practices on street tree care and regulations governing street trees.
- Include information regarding Best Management Practices for the urban forest in the Homeowners Guide to Building Permits and other City publications related to private development.
- Develop tree care programming for CityTV and other current media outlets.
- Strategically utilize social media in disseminating information about the urban forest and its care.
- Periodically mount displays of tree care books and other publications at the Main Library and its branches.
- Make the street tree inventory available on-line and provide links to photographs and information about each street tree species.
- Initiate a periodic Seascape column focused on the urban forest and topics relating to tree care and benefits from trees. Highlight remarkable trees such as designated landmark trees, include photographs of trees exhibiting seasonal behavior and invite tree photographs from the community.
- Biennially evaluate outreach method efficacy and adjust methods as necessary.
- Create educational programs about the urban forest for youth.

2. OUTREACH TO RESIDENTS AND BUSINESSES IN SANTA MONICA

The City will make a targeted effort to educate residents, landscape contractors, tree care contractors, landscape architects, architects, developers, and real estate agents who work in Santa Monica on the City's urban forest policies, and the penalties for not adhering to them. The public education program will clarify the responsibilities of the City and adjacent residents and merchants on the care of newly planted street trees.

3. HERITAGE TREES

Within available resources, an educational Heritage Tree program will be implemented and overseen by the Public Landscape Division and, if extended, with input from the Urban Forest Master Plan Task Force. The program will define the process for the nomination and designation of public trees. It will also define the means by which they will be recognized and used to raise community awareness about their exceptional characteristics and contributions to Santa Monica's urban environment. This designation will not include regulatory restrictions and will not be governed by the Landmarks Ordinance but will emphasize educating the community through creative educational outreach strategies. The definition of, and the criteria for a public Heritage Tree may include but is not limited to:

- Trees that represent specimens that are particularly rare in the Los Angeles basin and are of considerable size and age.
- Trees that possess unique characteristics or special significance.
- Trees that are of a significant size and/or make a significant and outstanding aesthetic impact on the setting and are exceptional specimens in good condition and health.
- Trees that give special significance to a historic building or district because of their age.

4. COMMUNITY TREE PLANTING

The City will continue to celebrate Arbor Day each year and provide the opportunity for community participation in tree planting. By being involved in such activities, younger members of the community will gain an appreciation for the urban forest of tomorrow and take a role in creating the forest's green legacy. In addition to annual Arbor Day activities, the City will integrate community awareness activities into other City events as appropriate. The Public Landscape Division will coordinate these activities.

5. OTHER AGENCIES

The City will promote cooperative relationships with the Santa Monica-Malibu Unified School District, Santa Monica College and other agencies located in Santa Monica to promote urban forest awareness and the contribution it makes to the community. In addition, the City will share tree planting opportunities with these institutions that will include educational programs for youth.

GUIDING PRINCIPLE → GOAL

3. ECONOMICS OF THE URBAN FOREST

The urban forest is a capital asset of the City valued at well over $159 million dollars. It is the only element of the City's infrastructure that actually increases in value as it ages.

The value of each tree was calculated based on the 2010 tree inventory data, the total number of trees, average size, replacement value and an average rating value for species, condition, and location. These average numbers were entered into a formula to give the average tree value. The number was then multiplied by the total number of trees inventoried and gives an estimated value of the forest.

A healthy and aesthetically pleasing urban forest enhances tourism, business and property values. Stable City funding levels should be provided to sustain the maintenance and development of this important community asset. Contingent upon available funding, the City's budget should ensure consistent maintenance and annual renewal of the forest. Supplemental fundraising efforts could also be intensified to complement the City's efforts.

To achieve sufficient financial resources to enhance and conserve the urban forest and to raise awareness of its economic importance.

STRATEGIES

1. CITY FUNDING

As part of the City's ongoing budget process and contingent upon available funding, the City will approve adequate capital and operating funds to ensure a healthy and diverse urban forest. The funds will be sufficient to accomplish the following:

- Provide for adequate annual maintenance of existing trees.
- Support street tree planting in order to replace all vacancies within a five year period after the approval of this Master Plan, and subsequently sustain and enhance the urban forest to ensure there are no vacancies in the future.
- Support consultation with qualified independent Urban Foresters when major decisions regarding the urban forest are being considered.
- Provide ongoing marketing support to ensure there is widespread awareness and education about the urban forest and its care.

2. EXTERNAL FUNDING

The City will make all efforts to identify and obtain external sources of funding to support the goals and strategies of the Master Plan, including the following:

- Grants from county, state, and federal sources to extend tree planting and infrastructure improvements.
- The City's GIVE Santa Monica program, providing opportunities for members of the public to make donations for the planting and care of new public trees.
- Fundraising by interested residents or non-profit groups to supplement City funds.

4. COLLABORATING ON URBAN FOREST MANAGEMENT

GUIDING PRINCIPLE → GOAL

4. COLLABORATING ON URBAN FOREST MANAGEMENT

Given the extensive and varied responsibilities of City staff, the urban forest may be impacted by the work activities of several departments on any given day. There must be a collaborative process in place where urban forest staff communicate effectively with other departments and contractors on proposed work that will impact street trees. The collaborative process should involve staff at all levels of the organization.

When development plans for private projects are reviewed by the City, special attention must be provided to existing street trees impacted by the proposed project and the potential for adding new street trees. A collaborative process must be in place to protect existing trees that are to be retained, and to support the planting of new trees where appropriate.

On large private development projects, the process should include opportunities for community input during the design phase. To further support these efforts architects, developers and real estate companies should receive clear guidelines stating the City's requirements in regard to trees and tree care.

Develop an inter-departmental process to review development plans, to ensure continuous optimum street tree conservation, planting and care, and to ensure that City staff and contractors working in the City are familiar with and follow Best Management Practices in the selection, planting, and maintenance of public trees.

STRATEGIES

1. INTERNAL COLLABORATION

The Public Landscape Division will involve the staff of the Planning and Community Development and Public Works Departments in implementing the policies of the Master Plan adopted by the City Council, and in understanding the implications for their work to ensure that their responsibilities under the Master Plan are clearly understood. Ongoing interdepartmental communication will ensure a heightened focus on actions that enhance the urban forest. City departments will receive the following support from the Public Landscape Division:

- Best Management Practices training for other division managers to ensure adherence to tree standards, as appropriate.
- Receipt of the City's annual tree pruning and tree planting schedules in an effort to coordinate routine maintenance projects between departments and prevent conflicting schedules.
- Updates regarding Best Management Practices, including communication with the City's Department of Planning and Community Development, the Public Works Department and the Office of Sustainability and the Environment.

2. COORDINATION WITH PRIVATE ENTITIES

The City will include requirements for the development of adequate parkway infrastructure and the planting of new street trees as part of private development by implementing the following:

- Inclusion of the Public Landscape Division staff in the interdepartmental Pre-Submittal Review process for all public and private development projects.
- Inclusion of the Public Landscape Division staff in interdepartmental planning for projects seeking development agreements to ensure that "green streets" and enhanced parkway landscaping are considered for inclusion as a public benefit.
- Working with the Architectural Review Board to ensure that development projects under its purview do not negatively impact public trees, through collaboration with the Public Landscape Division.
- Exploration on the feasibility of the Public Landscape Division staff to review tree care contractor bid documents in advance of building permit issuance for consistency with Best Management Practices for tree care.

3. COMMUNITY AND NEIGHBORHOOD COLLABORATION

The Public Landscape Division will work collaboratively with specific neighborhood groups to develop street tree planting themes and replacement planting plans related to street segments as appropriate and consistent with the approved Street Tree Designations List.

4. SCHOOL DISTRICT COLLABORATION

The Public Landscape Division will initiate tree planting activities in the schools on Arbor Day each year. Additional educational activities should be conducted at other times throughout the year to promote the benefits of trees. By involving youth and the general public in Arbor Day activities and other community events, they will gain an appreciation for the urban forest.

GUIDING PRINCIPLE → GOAL

5. STEWARDSHIP OF THE URBAN FOREST

The urban forest includes all public trees, and they should be conserved for future generations. Conservation efforts should include maintenance standards for their ongoing management and clear criteria to allow for the selective removal of trees. The urban forest should be maintained with a standard of care that is consistent with and in some cases greater than other components of the City's infrastructure.

To take into account the entire life cycle of the City's public trees and encourage stewardship practices in order to reap the maximum benefits possible from the urban forest. The use of Best Management Practices will minimize the loss of trees with their associated environmental, social, economic, and other benefits.

STRATEGIES

1. TREE CARE
The Public Landscape Division is responsible for the care of the urban forest. Tree Care Guidelines are provided in Appendix 1.

2. TREE INVENTORY
The City will maintain a comprehensive electronic inventory of all City trees in the urban forest, which will be available for public review. Inventory data will be routinely collected by the Public Landscape Division as trees are pruned, removed or planted with a comprehensive update performed every seven years. Data will be made available to the public.

3. BEST MANAGEMENT PRACTICES
The City will follow Best Management Practices to reduce the likelihood of decline, infestation or infection of street trees.

4. ANNUAL TREE MAINTENANCE PROGRAM
Each year the Public Landscape Division will publish an annual maintenance schedule that includes pruning, removal and planting throughout the City. In preparation of the annual work plan, the Community Forester and staff will evaluate the health and condition of those trees scheduled for work in that current year. The evaluation of those trees will take into account the current condition and a determination will be made on the appropriate maintenance procedures.

5. NEW TECHNOLOGIES
The Public Landscape Division will keep abreast of and implement new technologies for the tree care industry that can benefit the urban forest.

6. MANDATORY TREE PROTECTION DURING CONSTRUCTION
In developing the necessary Ordinance changes to implement this Master Plan, the City will evaluate the viability of instituting fines for causing damage to street trees during the course of construction activities. Tree Protection Zone Standards are outlined in Appendix 1.4. This is necessary because the movement of building materials onto construction sites, the use of heavy building equipment, grading and/or trenching for underground utilities and the dirt and dust that is created by construction can cause irreparable damage to adjacent City street trees. The City mandates that, during the construction phase of a development project, a Tree Protection Zone (TPZ) be established around all street trees prior to the commencement of construction activities.

7. RISK ASSESSMENT
Risk assessment of City-owned trees will conform to the International Society of Arboriculture guidelines. Risk assessment references are provided in Appendix 1.8.

8. DECLINING TREES
The City will identify and monitor declining trees, evaluate them for possible treatment, and allow them to remain in place absent the likelihood of failure or risk of disease/pest transmission to other trees, while inter-planting replacement species where possible.

9. INTER-PLANTING IN LIEU OF REMOVAL
The City will consider inter-planting new or replacement species that may differ from the existing species of the street rather than removal of trees that are not thriving or to increase canopy coverage and biomass.

STRATEGIES

10. STREET TREE NOTICING AND REMOVAL

Street trees may be considered for removal only under the conditions outlined in Appendix 1.8.

The City will publish its annual street tree removal, planting and pruning schedules on-line. In addition, the City will provide notices to residences and businesses fourteen working days in advance of pruning trees on adjacent streets.

Except in situations involving imminent street tree failure with potential for harm to life and property, the City will publicize a notice of intended street tree removals by:

- Posting the tree
- Publishing the notice on-line
- Distributing the notice to the Public Landscape Division's urban forest contact list fourteen (14) working days in advance of the intended removal. The notice will include the reason for the intended removal and provide community members with an opportunity to provide comment or ask questions of the staff of the Public Landscape Division.

In cases of imminent street tree failure, removal will take place immediately without public noticing under the direction of the Public Landscape Manager.

The appeals process concerning tree removal is outlined in Appendix 1.8.

11. PUBLIC TREES AND CITY PUBLIC PROJECTS

The City will incorporate existing healthy trees in the design of City public improvement projects, wherever consistent with the project's design objectives and after a community design process where proposed tree relocations and removals are identified.

Where tree removal is included as part of the proposed design, the City will provide incentives for relocation of trees with good survival prospects. In addition to design illustrations, a proposed Tree Relocation and Removal Plan (the Plan) will be presented at project community design workshops and the information made available to the general public through the use of communication strategies such as project websites, project e-blasts, and press releases to the local media. The proposed Plan will be included in the project design submittals to the required advisory and regulatory review bodies and will also be included in project staff reports and design presentations to the City Council at the appropriate stages of the project. The Plan will clearly state the trees to be impacted and the reasons for the proposed removals or relocations. If, during the design process, there are proposed changes to the Plan as the overall design evolves and becomes more specific, these changes will be clearly noted in a revised Plan for review by the public and the required review bodies. The final Tree Relocation and Removal Plan will be approved by the City Council as part of their approval of the project's final project design and is not subject to the street tree appeal process outlined in Appendix 1.8.

12. DAMAGE TO PUBLIC TREES

The City will simplify and encourage reporting of illegal tree removals, vandalism and poor maintenance practices via cell phone applications and other convenient means, publicizing widely, and providing a feedback loop on outcomes.

13. PARKWAY PLANTING GUIDELINES

Santa Monica has voluntary guidelines to educate residents regarding planting and maintaining the parkway that include information on climate-appropriate plant materials, irrigation, mulch, grading, access, and visibility. The selection of plants with similar requirements to the tree in the parkway will contribute to the health of street trees. The City will review the guidelines periodically to ensure that the guidelines support the urban forest and will make the guidelines part of the education and marketing efforts. The Parkway Landscaping Guidelines are outlined in Appendix 1.5.

14. LANDMARKS AND HISTORIC DISTRICTS

In the case of street tree designations adjacent to currently designated landmarks or within currently designated historic districts City staff will confer with the Landmarks Commission in an advisory capacity to address contextual issues prior to selecting replacement species.

If approved Street Tree Designations need to be changed in areas adjacent to future designated historic landmarks or within future designated historic districts, City staff will confer with the Landmarks Commission in an advisory capacity to further staff's understanding of the historic context.

15. LANDMARK TREES

The Public Landscape Division will continue to evaluate trees for landmark status, working closely with the Landmarks Commission pursuant to the Landmarks Ordinance and its criteria for landmark trees. The landmarks process is outlined in Appendix 1.8.

GUIDING PRINCIPLE → GOAL

6. ENHANCING THE URBAN FOREST

The urban forest is in a constant state of change. This Master Plan considers the life cycle of the urban forest and recognizes that it is a dynamic, natural system. This Master Plan will retain flexibility for addressing the inevitable growth and decline of the City's trees. The enhancement of the urban forest enables the City to create significant street tree themes where there are currently declining species or vacancies, and to use one or more replacement species to create a unified, beautiful, and healthy urban forest over time.

Santa Monica's urban forest benefits the entire community by providing better air quality, water quality, and quality of life. As such, the Master Plan considers the urban forest as a whole, and not just a sum of different street sections. Species diversity is important to achieving overall forest health. This Master Plan seeks to increase this diversity so that the urban forest is not unduly affected should one or more individual species fail.

Optimizing and enhancing the City's total urban forest biomass is also of primary importance in achieving the City's sustainability goals. The Master Plan promotes creating a maximally functional urban forest, by increasing both current total canopy coverage and total biomass. Canopy coverage in Santa Monica neighborhoods varies greatly, depending on parkway size. The strategies of this plan ensure the maximum feasible urban forest biomass on every street, given the specific conditions and limitations of each site, and recommends increasing parkway size where feasible to improve canopy equity in the City.

Trees should be a primary consideration in the City's planning process. Future development in the City should require adequate space for public trees that will produce the desired canopy coverage. When urban forest enhancement is in conflict with other goals, conservation should be balanced with developing the forest of the future on a case by case basis. Factors that should be considered in this balancing act include: the site, economic constraints, how existing and replacement species fit into the streetscape and the neighborhood character, the life span and condition of existing trees, their historic context, and related environmental benefits.

To enhance the urban forest by expanding canopy coverage and species diversity throughout the City.

STRATEGIES

1. IMPLEMENTATION OF STREET TREE DESIGNATIONS LIST

The City will implement and adhere to the street tree designations contained in the Urban Forest Master Plan, Appendix 3, periodically assessing the success of newly introduced species. The City will evaluate the species designations list every seven years in conjunction with an updated tree inventory to adjust for species performance, changing conditions and public input.

2. DIVERSITY

Over time, any single species of street tree will not exceed 10% of the total tree population of the City's urban forest.

3. CITY ARBORETUM

The City Council should recognize the entire city as an Arboretum with the Palisades Garden Walk site serving as the centerpiece to display uncommon specimen trees. The City will also use parkways to plant specimen trees over time, and incorporate groves of trees and specimen trees in new park designs.

4. MODIFICATION OF INFRASTRUCTURE TO ACCOMMODATE LARGER CANOPY TREES

In addition to planting trees in existing parkways, the City will continue to identify opportunities to increase canopy coverage in the following ways:

- Incorporating landscaped medians and/or increasing the width of existing parkways where feasible.
- Exploring new techniques designed for greater soil volume as an opportunity to increase the balance of canopy coverage throughout the City.
- Giving priority to the redesign of parkways that are three feet wide or less.
- Making provisions for larger street tree growspaces in private development projects in conjunction with implementation of the City's Land Use and Circulation Element (LUCE) and through the development of the new zoning code, developing standards to provide for the inclusion of more trees in better growspaces with greater canopy potential on private properties.
- Collaborating with the Public Works Department to enhance street tree growspace during construction projects that involve sidewalks, curbs and gutters and other street-related work.

5. CANOPY PRIORITY

To increase the City's canopy and biomass, the City will prioritize areas with the least amount of canopy coverage and areas most impacted by pollution. The City's Open Space Element identified the percentage of tree canopy coverage in Santa Monica neighborhoods and found the Mid-City neighborhood most impacted by a deficiency in tree canopy coverage. As the Public Landscape Division develops its annual work plan, neighborhoods with the least amount of canopy coverage will generally have first priority for new trees.

6. VACANCY BACKLOG

Contingent upon continued availability of funding, the City works to eliminate the backlog of street tree vacancies identified in the 2010 tree inventory. The Public Landscape Division's annual work plan over the next five years outlines new street tree plantings.

7. FREEWAY MITIGATION

The City will pursue planting on freeway slopes with Caltrans, enlisting the support of elected representatives at the State level and regional non-profit tree planting organizations. To support this strategy, and contingent on available resources ,the City will encourage planting more trees on freeway-adjacent (within 500') private property by sponsoring tree donations and giveaways.

8. LARGER TREES

The City's policy is to plant a 24" box tree of the designated species in residential areas. The City will establish procedures for residents to have larger specimens of the designated tree when planting occurs in front of the resident's house by having the resident make up the cost difference between the installed cost of the standard tree and the installed cost of the larger tree, and the City will plant the larger tree.

9. TREE SUPPLY

To the extent feasible, the City will work with commercial growers to secure the required supply of designated species selected for street tree planting.

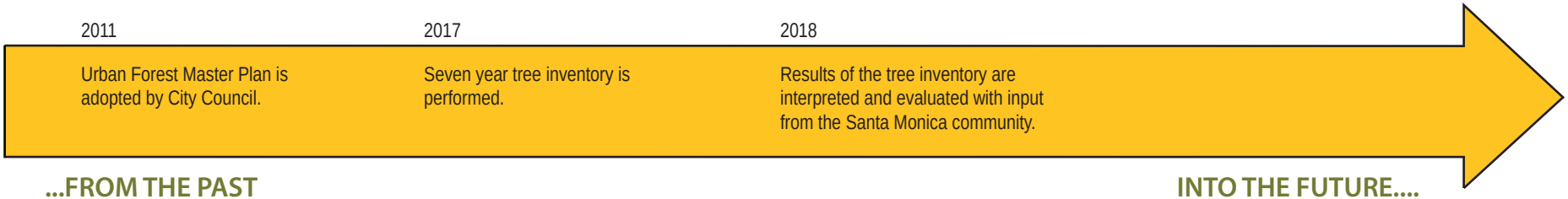
THE FUTURE OF THE URBAN FOREST

The future of Santa Monica's urban forest can be assured and its benefits realized by future generations if City policy makers, staff and the community are responsible stewards.

This Master Plan is a living document, designed to be updated periodically to accommodate changes in tree science, performance standards and technology, and to respond to changes that occur over time.

The urban forest is a dynamic natural system that is constantly changing. Future managers of the forest will periodically evaluate and update the Goals, Strategies and Standards in this Master Plan to meet the effects of future climate change, incorporate improvements in tree care industry standards, and to take public input on the changing needs of the community.

LONG RANGE URBAN FOREST TIMELINE



CHAPTER 3 - APPENDICES

APPENDIX 1 - TREE CARE GUIDELINES

Appendix 1 establishes technical standards and specifications for daily management of the urban forest. This appendix will be evaluated and updated periodically to incorporate new technology for Best Management Practices and the continued improvement of the urban forest.

1.1 CITY TREE INVENTORY

The City Tree Inventory includes, but is not limited to, all publicly owned trees on street right-of-way (ROW), parks, City facilities and open spaces such as medians, beaches and the bluff below Palisades Park.

A Global Positioning System (GPS) tree inventory will be maintained with a continuously updated database using the City's standardized addressing system for all streets, parks and open space areas. The inventory data shall be able to be formatted into an ESRI ArcView/ArcGIS compatible shape file for interaction with the City's Information System.

The tree inventory will be capable of showing the location of all existing tree sites and vacancies on the City's existing Geographic Information Systems (GIS) base maps for streets, parcels, addresses, ROW and hardscape, etc.

The tree inventory will be maintained by visiting each tree site or vacant planting site and plot the position on a seven-year inventory cycle. The data shall be compatible with the latest version of ArcView. Minimum accuracy shall be not more than three feet. The data shall include the canopy spread measured using either a laser range finder or a Roll-a-Tape, to the nearest foot. This data will be included in the inventory database in a format suitable for use in iTree.

Additional information to be collected includes, but may not be limited to:

Tree Condition

- General condition of individual trees
- An estimate on the remaining life span
- Pruning requirements (i.e., recommended pruning cycle)
- Condition of surrounding hardscape (i.e. displaced or recent repairs)
- Right tree for the right spot

Data shall include trees planted within the dripline of another tree, or in close proximity to other infrastructure elements that may include, but is not limited to:

- Street lights
- Traffic signals
- Power poles
- Utility meters
- Buildings

Root Pruning Information

All root pruning data shall be obtained from Street Maintenance and the Civil Engineering Division. Data will be incorporated into the tree inventory.

1.2 NURSERY STOCK AND PLANTING

SELECTING NURSERY STOCK

Container material is the most common type of nursery stock in California, and is preferable for use in Santa Monica.

Types of Nursery Stock

- Container
- Ball and Burlap

Selecting Quality Container Nursery Stock

Trees should meet the following minimum standards. Trees that do not meet these requirements will be rejected. The City retains the right to inspect the root mass from a sample tree of each species. Extra provisions may be necessary in project contracts to notify nurseries of this requirement.

Tree planting specifications for selection of quality tree stock shall be as follows:

- All trees shall be true to type or botanical name as ordered or shown on planting plans or contract orders.
- All trees shall have a single, relatively straight trunk with a good taper and branch distribution vertically, laterally and radially with a live crown ratio (distance from bottom of canopy to tree top/tree height) of at least sixty percent (60%). All branches in the canopy should be less than two-third (2/3) the trunk diameter and free of included bark. The trunk and main branches shall be free of wounds except for properly made pruning cuts, damaged areas, conks, bleeding, and signs of insects or disease.
- All trees shall be healthy, have a form typical for the species or cultivar, be well-rooted, and pruned as appropriate for the species.
- All trees shall have sufficient trunk diameter and taper so that it can remain vertical without the support of a nursery stake.
- The root ball of all trees shall be moist throughout and the crown shall show no sign of moisture stress.

- The tree shall be well rooted in the soil mix. The point where the topmost root in the root ball emerges from the trunk should be visible at the soil surface of the root ball. When the container is removed, the root ball shall remain intact. When the tree is lifted, the trunk and root system shall move as one.
- All trees shall comply with federal and state laws requiring inspection for plant diseases and pest infestations.
- No tree shall be accepted that has been severely topped, headed back or lion-tailed.
- No tree shall be accepted with co-dominant stems or excessive weak branch attachments that cannot be correctively pruned without jeopardizing the natural form of the species.
- No tree shall be accepted that is root bound, shows evidence of girdling or kinking roots, or has roots protruding above the soil (a.k.a. “knees”).
- No tree shall be accepted that has roots greater than one-fifth (1/5) the size of the trunk diameter growing out the bottom of the container.

Contract Growing Criteria

The City will continually make a concentrated effort to secure newly introduced species through contract growing. Contract growing will also be considered for large scale City public improvement projects and street tree planting involving newly introduced species. Tree species that may be difficult to obtain in the nursery trade can be grown on contract by an experienced nursery. Each species requires a different specification based on project requirements. Trees produced for a contract growing project must meet the tree planting specifications listed under Selecting Quality Nursery Stock.

PLANTING TREES

Percolation and Soil Fertility

Prior to planting the following procedures shall be followed:

- Test the soil for percolation to determine if it drains properly. If it does not drain at least .5 inches per hour, then recommendations should be made to improve drainage, if feasible.
- Check the soil fertility and structure. If the soil is compacted, then it should be physically cultivated and have organic material added. If soil fertility issues are suspected, soil should be tested and approved by the Community Forester. Soil remediation measures shall be reviewed and approved by the Community Forester. All recommendations shall be implemented prior to planting trees.

Sites for New Street Trees

Typically street trees will be planted where there is an existing vacancy that is unoccupied, as a replacement tree, or if there is a break in the established street tree pattern that should be filled.

Street Tree Spacing

The following guidelines shall be followed when planting new street trees. The standard street tree spacing is as follows:

- 30-35 feet on center
- 30 feet from the corner property line
- 20-25 feet on center for smaller statured trees
- 10 feet from driveway approaches
- 10 feet from light poles
- 5 feet from utility meter boxes

Street trees will not be approved for planting under the following conditions:

- The tree would interfere with the growth of other trees in the area.
- The vacant tree well site is overshadowed by other trees nearby creating an unsuitable growing condition for the proposed new tree.
- Utility meters are in the way.
- The tree could block scenic views or views of oncoming traffic.
- The tree is not on the Street Tree Designations List (Appendix 3).

Size of Street Trees

Trees shall be planted in the sizes as specified by the Community Forester. The minimum planting size is a 24" box unless the parkway will only accommodate a 15-gallon tree. A 15-gallon tree may also be used if a 24" box is not available.

Tree Planting by Residents

Residents will be allowed to plant the approved designated street tree in the parkway or tree well. Residents may plant any size tree they choose however the minimum size acceptable to the City will be in a 15-gallon container. Tree planting may only be done after obtaining a permit issued by the Public Landscape Division. The tree will then be incorporated into the City's tree inventory and become the City's responsibility to maintain.

Planting Procedures

- All planting locations within the public right of way shall be checked for underground conflicts. It is mandatory that Dig Alert is notified to detect all underground utilities prior to any digging.
- Dig planting holes 2-3 times as wide as the container. The depth of the planting pit shall be equal to the size of the rootball. Place the tree in the planting pit so the trunk flare or the top of the rootball is at least 1/2"-1" above finish grade. In grass covered parkways the top of the rootball shall be higher than the surrounding soil by one half inch to one inch (1/2 - 1"). In a concrete tree well, the rootball shall be one inch (1") above the level of the finished surface of the surrounding concrete.
- When obtaining a tree from a nursery, always carry the tree by its container or rootball, never by the trunk.
- After removing the tree from the container, cut circling roots and matted roots off the bottom. Check for any circling roots missed during initial inspection. Any roots less than one-third (1/3) the size of the trunk shall be removed with a sharp pruning tool.
- Before placing the tree in the planting pit, examine the root ball for injured roots and the canopy for broken branches. Damaged roots shall be cleanly cut off at a point just in front of the break. Broken branches shall be cut out of the canopy making sure that the branch collar is not damaged.
- Backfill with soil removed from the planting hole. Only add fertilizer or compost if soil analysis indicates it is required. Build a temporary four to six inch (4 - 6") water retention berm around the root ball to allow for establishment watering. Immediately after planting the tree, water it thoroughly by filling the water retention basin twice.
- Eliminate all air pockets while backfilling the planting pit by watering the soil as it is put into the hole. Do not compact the backfill by tamping it down.
- All trees shall be staked with two wooden lodge poles and two ties per pole. The minimum diameter of lodge poles is two inches (2") but may be larger for 36" and 48" box trees. Place the tree ties at 1/3 and 2/3 of the trunk height. Drive the stake into the ground approximately 24" – 30" below grade making sure not to penetrate the root ball.
- Mulch with a two to four inch (2-4") layer of nitrolized mulch where appropriate to conserve soil moisture, provide protection from extreme temperatures and prevent damage from weed eaters. Mulch shall be kept three to four inches (3-4") away from the tree trunk and shall extend at minimum to the boundary of the water retention basin. It may extend further if desired.
- The soil around the new tree shall be kept moist, but not saturated, by watering at least once a week during the cooler winter months and twice a week during the hot summer months.
- Linear root barriers may be required as specified by the Community Forester. The length of the barriers will depend on the species of tree to be planted. As a rule the length of barrier will extend the length of the mature size of the canopy. Barriers shall be placed against the hardscape with the top of the barrier kept above finish grade no more than one quarter inch (1/4").
- Residents will be provided with information on newly planted trees that will include the species, growth characteristics, water and maintenance requirements.

1.3 PRUNING TREATMENTS

PRUNING CYCLES

Time of Year

Tree pruning activities should optimally be timed to minimize stress to the trees and from subjecting them to infestation and disease. Local weather affects the time when wood boring insects are flying. The times to prune some species may vary in a given year depending on weather and other conditions. It is important to avoid pruning pine and eucalyptus during summer when wood boring insects are active.

The following general guidelines shall be followed:

- Hazardous trees will be pruned at any time to mitigate risks.
- Trees with thin bark may not be pruned in the summer.
- If the tree has known root damage or disturbance, pruning may be delayed until the deadwood is apparent within one to three (1-3) years after injury. Crown cleaning is the recommended pruning treatment.
- Neglected trees may need specific limbs removed or reduced in length, crown thinning or crown restoration.

Resident Notification

Residents will be notified by a door hanger of any pruning or maintenance project affecting a City tree located in front of their home at least five (5) working days prior to the beginning of work.

Annual Trim

Trees in the commercial zones shall be inspected and pruned annually. Pruning shall provide for vehicular, pedestrian and sign clearance. Trees in residential zones or areas with high levels of use by the public may also be pruned annually.

High Maintenance

Trees that require inspection and pruning on a one to three (1- 3) year schedule are considered high maintenance trees. The list shall include:

- Fast growing palms that need dead fronds and fruiting stalks removed as necessary to reduce the amount of litter during windstorm events.
- Trees along major arterial streets, highways and bus routes.
- Trees near schools.

Medium Maintenance

Trees with moderate growth habits are scheduled to be pruned every three to five (3 - 5) years.

Low Maintenance

Trees with slow growth habits that require pruning every six to eight (6 - 8) years are considered slow growth trees.

Young Tree Pruning

Trees shall be pruned during the second year to eliminate competing leaders, crossing branches and shorten large low branches. The pruning shall continue for a period of three to seven (3-7) years.

PRUNING TREATMENTS FOR STREET TREES

All pruning of City street trees shall follow at minimum the latest version of the ANSI A300 Part 1: Tree Shrub and other Woody Plant Maintenance – Standard Practices, Pruning and the International Society of Arboriculture Best Management Practices.

Trees located in the public right of way require pruning both to maintain their health and form and for public safety. The objective of pruning shall be to improve health and structural stability for the tree.

Reasons to prune a tree include, but are not limited to:

- Structural pruning for young trees to avoid future problems for the tree.
- Clearance pruning for vehicles, bicycles, public transportation.
- Removal of dead and dying branches from palm, broadleaf or conifer trees (crown cleaning).
- Pruning to restore the form of a tree after improper pruning, storm damage or limb failure (crown restoration).
- Selective removal of branches and foliage to reduce “wind-sail” (crown thinning).
- Reducing the size of trees to limit size or reduce end-weight on heavy branches (crown reduction).
- Pruning after a natural disaster or storm event to restore tree structure.
- Utility line clearance.

Trees with known pathogens that can be spread with pruning tools shall be pruned using additional caution.

The following measures shall be followed when working on City trees:

- Avoid pruning on windy days in order to reduce the transmission of spores
  - Sterilize tools in between cuts on diseased trees that can be transmitted on pruning tools. Acceptable sterilization methods include 50% bleach solution for ten (10) minutes, handheld butane torch heating for fifteen-seconds (15 seconds) per side.
  - Wood with known wood boring insect infestations shall be chipped into pieces smaller than four inches (4") and spread.
  - Wood that is infected with disease shall be handled and disposed of in a manner that minimizes the possibility of transmission of disease. This may include:
    - Not working on windy days to reduce transmission of spores.
    - Transporting greenwaste in covered containers.

Palm Pruning

Palms shall be pruned using the following measures to avoid disease and decay:

- Sterilized handsaws shall be used to prune all palms of the Phoenix genus.
- Trunks may not be skinned unless directed by the Community Forester.
- Chain saws shall not be used on any palms in the Phoenix genus.
- Chain saws shall not be used on any palm species susceptible to pathogens that can be spread by chain saw use.
- Only dead fronds shall be removed. Leaves shall be pruned to 180 degrees.
- Trunk balls shall not be shaped to avoid creating large wounds.

Clearance Pruning

Canopy clearance should consist of selective shortening or removal of limbs to provide vertical clearance for bicycles, pedestrians, vehicles and structures. Selected branches may be subordinated by shortening them so that they can be removed later. The ratio of live crown to clear trunk remaining after the pruning should be no less than 50% to preserve the health of the tree.

Only those branches that must be removed to achieve the established height clearance standard shall be pruned. All pruning cuts shall be taken to the nearest lateral found above the set minimum height standard.

Whenever possible, young or developing trees should be pruned so that at least one-half (1/2) of the foliage is on branches that originate in the lower two-thirds (2/3) of the tree. Branches should have even distribution of foliage along their lengths for a well-formed, tapered structure and even weight distribution throughout the tree.

All street trees shall be maintained to the height specifications established below:

- Sidewalk and park pathways shall have limbs and branches raised to a minimum of eight feet (8') above finish grade. Limbs may be retained below this minimum elevation as long as they do not interfere with pedestrian or maintenance vehicle traffic and conform to the natural shape of the species.
- Residential streets shall have branches and limbs raised gradually from eight feet (8') at the curb to fourteen feet six inches (14'-6") over travel lanes. The branch structure should create an arch over the street when completed.
- Arterial streets shall have branches and limbs raised to fourteen feet six inches (14'-6"). Major arterial streets may have a higher maximum over central traffic lanes for existing mature canopy-forming limbs.
- Visibility clearance for streetlights or signage shall be achieved by removing selected limbs to create an open canopy that will allow increased light and visibility. Only those branches that need to be removed to attain visibility clearance desired shall be pruned. All pruning cuts shall be made at the nearest lateral found away from the structure that is to be cleared. Severe pruning treatments shall not be allowed.

Crown Cleaning

This pruning treatment consists of the removal of dead, dying, crossed or hanging branches. Crowded, weakly attached branches are also removed during this process. Up to 25% of the live foliage may be removed.

Crown Restoration

Restoration pruning is remedial pruning for a tree that has been topped, vandalized, over pruned, or broken in a storm. Restoration pruning shall involve several pruning treatments over a period of many years.

Crown Thinning

Thinning is utilizing conservative pruning techniques to minimize the necessary amount of foliage removed. It is generally used to reduce the density of canopy by as much as 25% to increase air movement through the crown and increased light under the canopy. It must be performed carefully, leaving interior foliage and concentrating on the outer two-thirds of the canopy. An even distribution of foliage shall be maintained throughout the canopy. Removal of all sucker growth may not be necessary.

Crown Reduction

Crown reduction is the selective removal of branches to reduce the height or spread of a tree. The work is accomplished using reduction cuts and not heading cuts that result in stubbed limbs. Crown reduction may be used to reduce end-weight on trees that are unbalanced, utility line clearance and other types of clearance pruning. Older, stressed mature trees may require careful evaluation by the Community Forester prior to this pruning treatment.

Restoring Damaged Trees

Pruning after a storm requires an evaluation by the City Forester to determine the best course of action. Trees that experience storm damage may require restoration pruning under the following guidelines:

- Trees that can be restored that are free from cracks or large wounds on the main trunk or structural roots.
- Clean broken and cracked branches. Trees need to access stored energy in the limbs to recover. Leaving the tree unbalanced is acceptable to avoid removing too much live canopy.
- Heading cuts, or cuts that leave a stub, may be necessary to preserve canopy after a storm event. These cuts should not be used on healthy, undamaged trees.
- Storm damaged trees may require pruning over several years to recover.

Pruning Young Trees

Properly pruned young trees can grow to have strong structure and greater longevity. They are also more cost-effective to maintain because they will require less corrective pruning as they mature.

Cultivating the branching structure is an ongoing process during the first three to seven (3-7) years for most tree species.

The following measures shall be used for cultivating the branching structure of young trees:

- Prune newly planted trees to one central leader by shortening competing stems. All branches and stems should be shorter than the central leader after pruning.
- Retain and shorten temporary lower branches.
- Select the lowest branch that will become the first permanent branch. These branches should have a wide angle of attachment and be smaller in diameter than the trunk.
- Shorten branches that are below the permanent crown.
- Space main branches along the central stem.
- Reduce upright stems and branches back to lateral branches.

Utility Clearance Pruning

Utility line clearance is regulated by the California Public Utilities Commission and standards are based on the type of hardware affixed to the lines. Regulations include General Order 95 Rule 35: Tree Pruning.

Additionally, the following should be considered when pruning street trees:

- Each species of tree has a slightly different branch collar where a proper cut can be made. Utility line clearance contractors are required to know the species and understand where to cut to encourage the formation of callus tissue.
- Flush cuts and stub cuts are not allowed.
- The amount of wood taken in a season shall not exceed 25%. This percentage may be adjusted based on the age, health and tree species. Older, stressed trees may perform better if pruning occurs over several years rather than all in one year.
- Pruning shall not expose the bark tissue of the trunk and branches to avoid damage from sunburn injury.

Line-clearance tree workers shall be trained to work around high voltage conductors. The United States Occupational Safety and Health Act (OSHA) and the American National Standards Institute (ANSI) have established minimum distances to be maintained by tree workers from electrical conductors. All line-clearance work involving City trees shall adhere to these standards as well as the utility pruning standards established by the International Society of Arboriculture (ISA) and the Utility Arborists Association (UAA).

The following guidelines are designed to maintain required clearance of City trees from high voltage distribution and transmission lines with a minimum of resprouting and fewer pruning cycles. These guidelines are based on the biological response of trees to pruning techniques. They are meant to be used as guidelines only and should only be used when combined with safe work practices.

- Tree growth adjacent to utility lines shall be managed with lateral or directional pruning (thinning cuts). Directional pruning removes a branch from the trunk or large lateral branch growing away from the conductor.
- Heading cuts are prohibited.
- Pruning cuts should be determined by structure and branching habit of the species. Branches should not be arbitrarily cut to a pre-established clearance limit.
- All trees should be examined for hazards prior to line clearance work. Hangers and dead wood should be removed first.
- Climbing spikes on live trees is prohibited. Only dead trees may be climbed with spikes.
- Whenever possible, trees should be allowed to attain normal height, with the crown developing away from high voltage conductors to develop a V-shaped canopy structure.
- When foliage loss on a branch exceeds one-half (1/2), it should be removed from the parent stem.
- Final drop-crotch cuts should be made outside of the branch bark ridge on the main stem or lateral branch. The remaining branch shall be no smaller than one-third (1/3) the size of the branch being removed. The removed portion should be pruned out to direct the remaining growth away from the conductors.
- The use of multiple small diameter cuts to create an artificially uniform crown form, commonly known as “rounding over” is not an acceptable pruning practice for utility line clearance.

WILDLIFE PROTECTION

These protection policies are designed to minimize and avoid impacts from tree maintenance activities on nesting birds and other wildlife. Wildlife is protected through California Fish and Game Code 3503 and 3513, the Migratory Bird Treat Act - US Code, Title 16 703 and US Code of Federal Regulations, Title 50 21.27.

Wildlife Avoidance/Migratory Bird Treaty Compliance

The Migratory Bird Treaty Act, the Endangered Species Act and local laws protect birds and wildlife located in trees. Trees can be inspected by an arborist that is a Certified Wildlife Protector. To minimize conflicts with nests, trees should be inspected carefully for nests and cavities using binoculars prior to pruning.

The recommended criteria shall apply to tree pruning or removal activities to protect wildlife:

- As feasible, trees should be scheduled for removal during non-breeding/non-nesting season.
- Trees scheduled for pruning or removal during the breeding/nesting seasons shall be visually inspected at ground-level.
- If wildlife is located in the tree, the tree shall not be pruned and the Community Forester shall be notified.

SAFETY STANDARDS

All work performed on public trees shall be performed in accordance with the latest issue of the ANSI Z133.1 Safety Requirements.

If the flow of traffic is to be disrupted on streets and highways, workers shall establish a safe work zone with proper traffic control measures following the current California Manual on Uniform Traffic Control Devices (MUTCD) and the Work Area Traffic Control Handbook (WATCH) from the American Public Works Association (APWA).

1.4 ROOT PROTECTION AND ROOT PRUNING

Protecting tree roots from damage during construction or other maintenance activities is important to the long-term health of public trees. The majority of a tree's roots are found in the top two feet (2') of soil. Street trees have a very small ratio of root mass to canopy. Roots within approximately five to ten feet (5 - 10') of the trunk are anchor or stabilizing roots. As the roots extend towards the edge of the canopy, larger roots taper down to smaller roots that are one to two inches (1-2") in diameter. These roots are important to the overall health of the tree and act as both stabilizers and conduits for water and nutrients collected by feeder roots.

TREE PROTECTION ZONES

Construction activities can cause irreparable damage to adjacent street trees and it is important that they be protected to ensure the longevity of Santa Monica's trees. This is why architects must consider how a proposed project will impact existing street trees, and trees on the site of the proposed project or the adjacent properties when designing a project.

This Master Plan mandates that measures be implemented for the protection of existing City trees during construction activities. During construction projects, Tree Protection Zones (TPZ) must be established around all City trees prior to the commencement of construction activities.

Construction impacts to existing trees can be minimized by including the tree as an element of the City's infrastructure that must be protected during construction. Inadequate protection can lead to irreversible tree decline.

When designing plans for construction projects it is important to consider the impact a proposed project might have on the adjacent City street tree. Projects should be designed so they blend into and/or accentuate the existing conditions on the street right-of-way. Contractors should also have a clear understanding of how to access the site during construction, where to locate construction trailers, install utility meters, how building materials should be delivered or stored and eventually how to make repairs to sidewalks, curbs and gutters.

A TPZ is the designated area that encompasses an entire tree plus an additional radial distance of ten feet (10') beyond the edge of the canopy. However, for practical purposes the City of Santa Monica requires that the parkway be delineated with chain link fencing and posted to alert contractors on the site and others that no equipment, materials, debris, supplies or fill soil shall be located within the TPZ.

Determining the Boundaries of the Tree Protection Zone

When designing a new project it is important to determine how the structure will be built and how contractors can access the site without harming any existing trees. This is done by calculating the Critical Root Zone (CRZ). This measurement is often consistent with the "dripline" of the tree which is the greatest extent of the tree's branches, as shown in Figure A1.

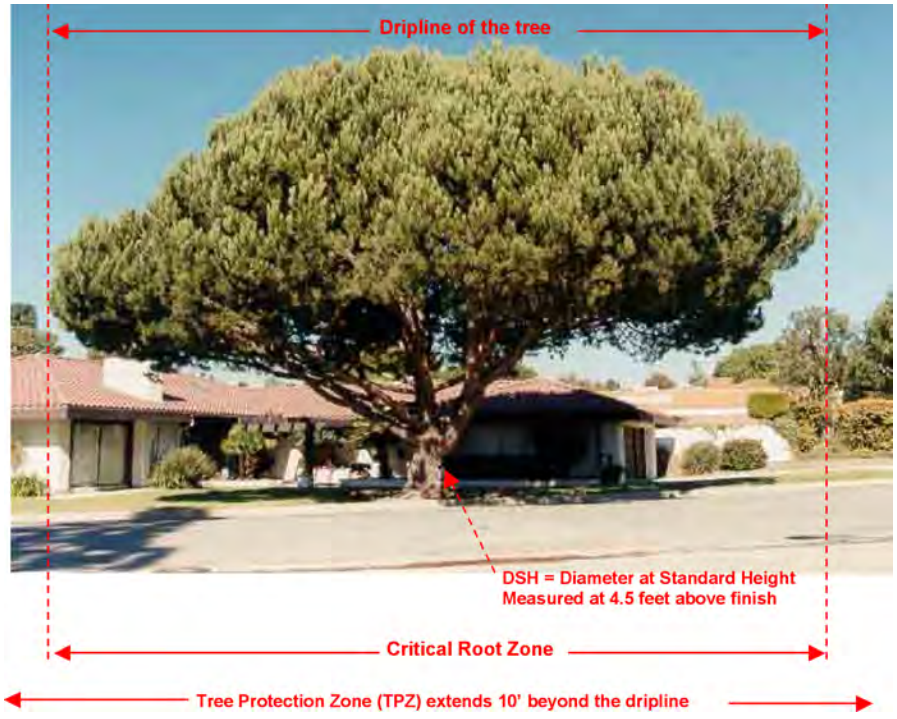


Fig A1- Tree protection zone boundaries for a wide canopy tree.

For some trees with narrow crowns, such as the tree shown in Figure A2, this distance is not enough to ensure that the CRZ will be protected.

To accurately determine the CRZ of a narrow crowned tree, measure its trunk diameter at 4.5 feet above the ground with a diameter tape. Then multiply that number by 1.5 and express the results in feet. For example, if the tree in the photo below has a trunk diameter of 24 inches (24") then the critical root zone has a radial distance of 36 feet (36'), or a total diameter of 72 feet (72') across.

Once the CRZ has been determined the boundary of the TPZ can then be established to determine, underground utilities, drainage lines, location of driveway approaches and the ultimate size of the proposed structure.

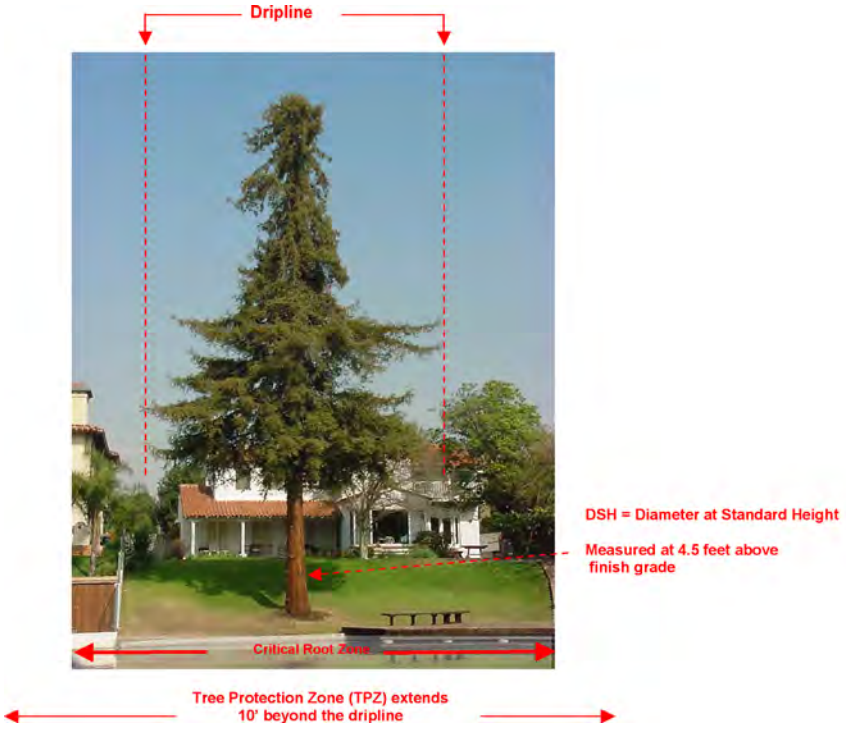


Fig A2- Tree protection zone boundaries for a narrow canopy tree.

Establishing a Tree Protection Zone

Construction equipment can injure the above ground portion of a tree by breaking branches, tearing the bark, and wounding the trunk. These injuries are permanent and, if extensive, can be fatal to the tree.

Parkways must be fenced off to protect street trees during construction. The location of the fence must be shown on the plans and the following notes regarding the TPZ fencing are typically added:

- Obtain TPZ requirements from Community Forester's office and post the tree as required by the City of Santa Monica.
- Fence the TPZ (field example shown in Figure A3 below) with a six foot (6') unscreened chain link fence to prevent wounds to the tree and soil compaction within the root zone.

Fig A3 - Proper tree protection fence and notice.

Showing Trees on Construction Plans

Whether a project consists of constructing a new building, or renovating an old one, it is important to know what fixed features in the public right-of-way need to be worked around. Street trees are part of Santa Monica's infrastructure and probably one of its largest elements. The easiest way to understand the impact of having to work around a fixed object is to know its actual size.

Plans must accurately show the actual sizes of the street tree canopies to scale on all pages that show the street right-of-way or any portion of the street right-of-way, as shown in Figure A4.

Elevation sheets should also show a silhouette of the actual size of all existing street trees, as shown in Figure A5.

Showing a Tree Protection Zone on Construction Plans

The plans must show a Tree Protection Zone (TPZ) around existing street tree(s). The TPZ needs to encompass the canopy plus an additional radial distance of ten feet (10') beyond the dripline. An example is shown in Figure A6.

The TPZ should be clearly shown on all pages that show the street right-of-way or any portion of the street right-of-way. This includes, but is not limited to the site plan, demolition plan, grading and drainage, utility site plan, shoring plan, elevation sheets and landscape plan.

The TPZ should be labeled on the plans with the following notes:

- Coordinate all off site improvements within the TPZ with the Community Forester's office.
- No construction materials or activities allowed in this area.
- Pruning of City trees to provide clearance for construction activities shall only be done by City of Santa Monica Public Landscape Division.

Fig A4 - Trees shown in plan view.

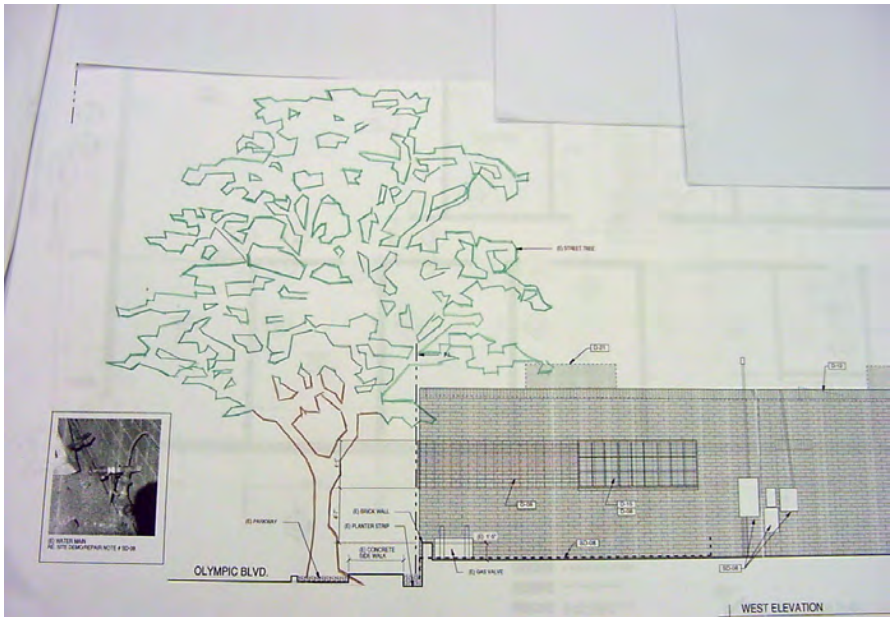


Fig A5 - Trees shown in elevation view.

Construction Access

Should access be necessary within the TPZ, existing grade shall be covered with double, overlapping sheets of one inch (1") thick plywood, or eight inches (8") of wood mulch to help distribute the weight of smaller equipment and to minimize soil compaction and rutting. Plywood and/or mulch shall not be used as bridging material for driving over exposed tree roots. The Community Forester shall review and approve access and driving surface prior to use.

If the project requires bridging over a parkway to allow access for equipment and vehicles, it shall be bridged with a steel plate that extends from the top of the curb to the top of the concrete sidewalk on the opposite side of the parkway. The Community Forester shall review and approve access and driving surface prior to use. Existing driveways and alleys are the preferred means of access for construction equipment.

All motorized equipment and trailers are limited to access on the existing paved street only. Access is not allowed behind the curb within tree protection areas.

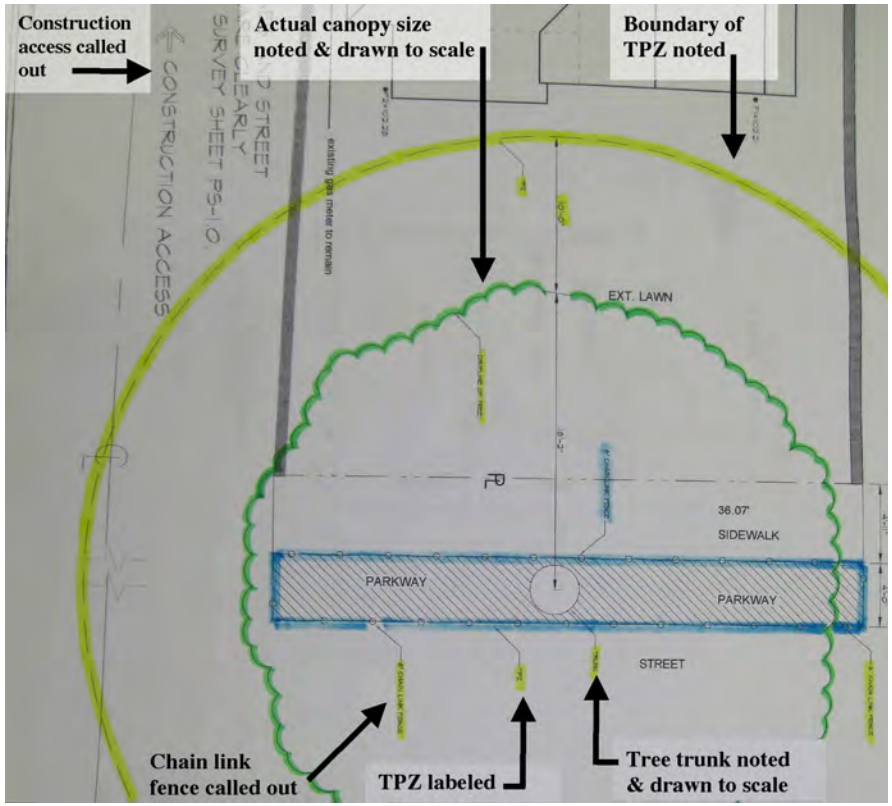


Fig A6 - A construction plan showing the Tree Protection Zone (TPZ) in yellow and the actual canopy dimension in green.

Fig A7 - When bridging over a parkway, the steel plate should rest on top of the curb and the top of the concrete sidewalk on the opposite side of the parkway.

New Permanent Driveways

On projects when a new driveway is planned, it is important to remember the critical root zone of existing trees when deciding on where exactly to locate the driveway. Keep in mind that the trunk of an existing street tree as well as its root system will increase in size. To avoid future conflicts between a driveway approach and the surface roots of an existing street tree the edge of new driveways must be located at least ten feet (10') away from the outside edge of the trunk of the street tree. An example is shown in Figure A8.

Utilities and Excavation Within a Tree Protection Zone

Excavation necessary to install underground utilities will likely have a negative impact on sections of the street tree's roots adjacent to a project. During the design phase of a project, the Community Forester will help determine where roots may exist.

The roots of street trees are found mostly in the upper six to twelve inches (6 to 12") of the soil yet the roots of mature tree can extend far beyond the edge of the canopy.

Fig A8 - New driveways must be ten feet (10') minimum fro the existing street tree.

Roots can be found growing a distance of one to three times the height of the tree. The amount of damage a tree can suffer from root loss depends, in part, on how close to the tree the cut is made. Severing one major root can cause the loss of a significant portion of the root system, affecting its health and its stability. This is why it is important to show the locations of proposed utilities and their proximity to existing street trees.

Figure A9 shows the underground utilities and how they are being proposed to be installed. Since they are within the boundary of the TPZ, and could have an adverse impact on the CRZ, design alternatives should be presented to the City. A workable solution must be determined during the design phase and well before construction commences.

Conflicts between Utilities and Tree Roots

In cases where proposed utility lines are in conflict with existing tree roots trenchless methods are recommended. This is a much more advantageous method because excavation is not necessary between access points and construction activity is concentrated at the access sites, rather than along the entire length of the proposed trench.

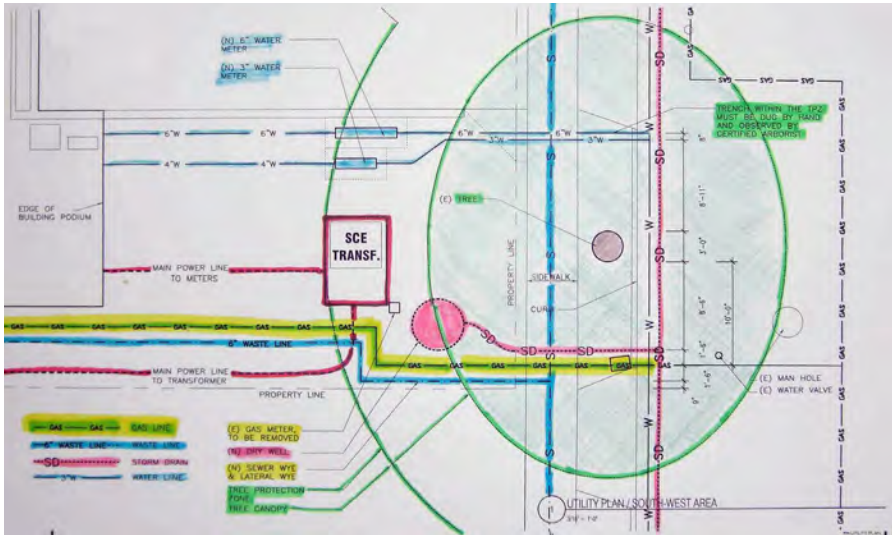


Fig A9 - A Utility plan in relation to the TPZ, demonstrating that a workable solution is needed because the utilities affect the tree's CRZ.

Trenchless methods offer several potential advantages besides root preservation. They can reduce noise, dust, construction vibration, and other environmental impacts. These methods have minimal impact on the public near a construction site, traffic is not interrupted, and other utilities are minimally affected. Also, trenchless technologies are generally safer both for the construction workers and the general public.

Conducting Off Site Repairs and Improvements

When conducting offsite work, such as sidewalk or driveway repairs, it is important to consider the impact of that work on the CRZ and individual roots.

When removing hardscape materials the use of mechanical equipment is acceptable. However, to avoid damaging the surface roots and allow for proper root pruning to take place, remove the broken up material manually as shown in Figure A10.

Fig A10 - Workers must take extra care when working in the critical root zones of trees and removing hardscapes such as sidewalks.

All excavation within the TPZ shall be done either manually or with an air spade. This will help to preserve the root structure and allow a more precise determination to be made on root pruning requirements. More importantly, it will avoid unnecessary damage to roots which should be preserved. This helps to prolong a tree's life and ensure its stability after construction completion.

Standard Tree Protection Zone Guidelines for Construction Projects

- Trees within the public right-of-way may not be removed for any reason and are to be protected from injury or damage during construction. This tree is a significant tree in the City of Santa Monica. Pruning shall only be done by Public Landscape Division staff to provide clearance for construction activities. Questions regarding street trees may be directed to the Community Forester at (310) 458 - 8974.
- The typical TPZ should encompass the canopy plus an additional radial width of ten feet (10'). However, since these conditions are unique, the application should be evaluated with the final limits of the TPZ being established by the Community Forester.
- Mulch the entire area of the TPZ to improve the growing environment for the roots. During construction phase, maintain a four to six inch (4-6") layer of chip mulch over the soil surface to reduce soil compaction, improve aeration, enhance moisture retention and reduce temperature extremes. Mulch generally consists of shredded leaves or bark, pine straw, peat moss, wood chips or composted greenwaste.
- Fence the TPZ with a six foot (6') high chain link fence to prevent wounds to the tree and soil compaction within the root zone. Post the fence with a sign stating: "TREE PROTECTION ZONE – KEEP OUT."
- Should it be necessary to trench within the TPZ all trenches shall be hand dug. No roots larger than two inches (2") shall be cut unless no other alternative is feasible. All smaller roots that require cutting shall be cut with pruning saws. Cuts shall be made flush with the side of the trench. If at any time twenty-five percent (25%) of the area within the TPZ is being separated from the tree by a trench, then the line shall be either relocated or installed by boring.
- Removal of hardscape and/or excavation within the TPZ shall be done manually.
- The minimum distance between an open trench and any tree shall be between six inches (6") to one foot (1') for every inch of trunk diameter measured at four and a half feet (4.5') above existing grade, depending on the species of tree. Minimum clearance shall be ten feet (10') from the trunk of the tree.
- In the event root pruning is required to accommodate grade changes or the installation of hardscape features, the root pruning procedures shall be directed by Public Landscape Division staff.
- At no time shall any equipment, materials, supplies or fill soil be allowed in the TPZ unless necessary.
- Prune and fertilize trees after the completion of all exterior work on the building and at the beginning of the landscape phase.
- Prior to the commencement of projects, contact the City's Community Forester to determine the precise requirements of the TPZ.

Watering Trees During Construction

Construction activities can disrupt irrigation and the natural movement of water into the soil. Therefore soil in the TPZ shall be checked for moisture until project completion.

The following criteria shall used to ensure adequate soil moisture for trees during construction:

- Water should be applied deeply and infrequently (usually once a week).
- A four to six inch (4-6") berm shall be created at the edge of the TPZ, if feasible, to allow for soaking. Irrigation should wet the top two to three feet (2-3') of soil. Soil should be moist but not saturated. Moisture levels can be monitored with a soil core sampler or other device to determine the depth and extent of moisture in the soil.
- Water should be kept away from the trunks of mature trees such as oaks and carobs that are sensitive to moisture loving pathogens. A dry zone shall be maintained at least three feet (3') from the trunk of these trees.

Retaining Soil Moisture with Mulches

Where feasible, large bark mulch that is three to four inches (3-4") in diameter and four to six inches (4-6") deep shall be added to the TPZ to reduce stress on the tree by contributing essential microorganisms to the root zone and maintaining a consistent moisture level in the surrounding soil. Mulch shall be kept six inches (6") away from the trunk of the tree.

ROOT PROTECTION

Physical Protection and Preservaion of Soil Structure and Fertility

The availability of air and water in the soil can limit the extent and health of roots. If the soil is saturated with water or compacted with limited pore space, trees will not grow. Soils that form through the decomposition of leaves and other tree parts decompose into humus that helps enrich the soil and conserve moisture. Construction and maintenance activities can remove or destroy fine roots and compact porous soil. These impacts are significant and can stress or kill a tree even without the removal of large roots. Therefore, the standards presented herein define the area of the root zone to be protected and provide guidelines to allow trees the root and air space they require to provide maximum benefits to the community. Violations to these standards will require a mitigation plan to be submitted and approved by the Community Forester.

The area within the Tree Protection Zone (TPZ) shall be protected from the following during all construction activities:

- Spilling of materials while mixing, placing or storing construction materials.
- Damage from dewatering operations including ponding, eroding or excessive wetting.
- Soil compaction from foot traffic, equipment use or vehicular traffic.
- Soil compaction from excess fill or storage of materials.
- Weeds and trash.
- Fires.

Contractors shall be responsible for the following:

- Installation of protective fencing with access for maintenance and watering.
- Installation of large bark mulch to a depth of four to six inches (4"– 6") if plant material has been removed for the construction project. Mulch product to be approved by the Community Forester.
- Establishment of a watering schedule if irrigation systems or normal watering methods are to be disrupted during construction. This watering schedule shall be submitted to the Community Forester for review and approval.
- Concrete or chemicals spilled within TPZ should be completely removed. Contamination soil shall be completely removed at the time of the spill and removed by hand without disturbance to root systems. Appropriate soil should be added as necessary to restore the grade. Soil shall be collected and tested by a soils laboratory as approved by the Community Forester to ensure that all contamination has been removed. Results of the soil test shall be submitted to the Community Forester who shall oversee the implementation of any mitigation or remediation, if necessary.

During demolition of existing hardscape or utilities the following procedures shall be used:

- Concrete, asphalt and other hard surfaces may be mechanically removed within the TPZ using methods that minimize compaction damage. Once the material is broken in pieces, it shall be removed manually.
- Mechanical injury to trunk, roots and root flares shall be avoided. If work is to occur directly next to trunk, wrap the trunk temporarily to protect from damage.
- If trunk or root tissue has grown over a curb or sidewalk, that portion of the concrete shall remain. Removal of this concrete may increase failure potential. Wood or bark tissue shall not be damaged in order to make concrete repairs.

Excavation

The Community Forester shall approve all excavation work within the TPZ. A Tree Protection Plan prepared by a qualified consulting arborist may be required for larger projects.

- Work shall be accomplished carefully with hand tools, an air spade or washing soil with hose or water truck to minimize breakage or injury to roots and branches.
- Exposed roots shall be protected from drying by using a temporary earth cover or peat moss wrapped with burlap. Either one should be watered and kept moist.
- Excavated soil shall be deposited in trucks to be hauled off site or temporarily stored on 1 inch (1") plywood outside the TPZ. No soil shall be stored, even temporarily on unprotected natural grade
- The minimum distance between the trunk and any open trench or excavation shall be one foot (1') or six inches (6") for every six inches (6") of trunk diameter measured at four and a half feet (4-1/2') above existing grade whichever is greater.

Alternatives to Minimize Root Damage

- Use trenchless technologies or boring underneath roots in the CRZ. This may include tunneling or directional drilling.
- Where possible, sidewalks shall be raised, narrowed, curbed, or relocated to prevent cutting and removing major roots (e.g. roots greater than three inches (3") in diameter).
- Construct new sidewalks on, or above, the existing grade instead of excavating into root zones. The new grade shall not interfere with sheet-flow drainage.
- Root redirection for sidewalk, curb and gutter repair
  - Redirect roots in backfill areas where possible. Large lateral roots can be exposed beyond excavation limits as required to bend and redirect them as long as it can be accomplished without damaging them.
  - If root redirection is not possible, then follow root pruning standards.
  - Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

INFRASTRUCTURE CONSTRUCTION

Sidewalks, Curbs, Gutters, Drains, Asphalt Paving and Other Improvements

- Hardscape repair should consider replacing concrete sidewalks with alternative sidewalk materials which can have secondary benefits through the reduction of urban runoff.
- Use of alternative sidewalk materials.
- Protect exposed roots from contamination by construction materials or concrete.
- Locate concrete washout areas away from roots and tree protection areas.
- After root pruning using the approved standards, cover exposed roots within thirty (30) minutes to minimize desiccation. Roots may be covered with soil, mulch, or moistened burlap (7 ounces or equivalent), and shall be kept moist during the period until the final grade is established.
- Place a sheet of six (6) mil or thicker plastic over the grade within affected portions of tree protection areas prior to pouring concrete sidewalks, curbs, inlets, ramps, and driveway approaches. The plastic will assist in providing a non-leaching barrier between the concrete, soil and roots.
- Limit grading to a maximum of two inches (2”) of fill over natural grade within critical root zones. Fill should consist of sandy loam topsoil. Clay soils shall not be used as fill. When using fill soil, the existing surface to receive fill should be scarified or roughened prior to filling. Any filling operation should not occur during water saturated soil conditions.
- Alternative base course materials may be used upon approval from the City of Santa Monica engineers. Engineered structural soil mix is an alternative for hardscape near trees.
- Masonite type forms are preferred for curb and gutter construction because they minimize excavation. This method should be used in the Critical Root Zone (CRZ). Where appropriate, use curbs with discontinuous footings to maintain natural grade near the base of trees adjacent to the curbing, and to minimize injury to roots and root flares.
- Typar BioBarrier may be used between the curb and tree roots to help inhibit root growth that may exploit small cracks in the curb.
- Provide for easy concrete removal and replacement where roots may cause sidewalk cracking in the future. This is accomplished by installing an expansion joint on both sides of the root or by etching the concrete on either side of the root to allow that particular section to be broken out and replaced.
- Compaction rating for the replacement walkway should not exceed 80% Proctor density. Tree roots will continue to slowly add girth every year; therefore, the base material needs to be malleable (e.g. suitable subgrade aggregates, crushed granite, or compacted sand) to prevent a fulcrum or pressure point that can crack or heave the walkway.
- Where appropriate, and under the direction of the Community Forester, root-restricting barriers can be installed with a minimal amount of disturbance. These should be linear barriers, not circling barriers. Each situation should be analyzed individually and soil compaction, root space and species should be considered. Landscape related materials may be used as barriers to root growth.

ROOT PRUNING

The purpose of root pruning is to control the size of root mass, or direction of surface roots. Root pruning has the potential to cause significant damage and/or the decline of a tree’s health. Moreover, extensive root loss can lead to the tree’s instability thus increasing its potential for failure. The level of impact depends on several factors. Removal of large roots also removes a large area of the root mass including lateral and feeder roots. The closer the cuts are to the trunk, and the older or less vigorous the condition of the tree, the greater the potential for the tree’s decline and possible complete structural failure.

- Tree roots shall not be pruned or impacted unless justification can be made that all other alternatives have been explored and are not feasible. The Community Forester shall be notified prior to any operation known or suspected to involve cutting or impacts of more than:
  - Twenty-five percent (25%) of the roots located in the TPZ or any roots over two inches (2”) located in the CRZ.
  - The Community Forester shall be notified in advance of roots larger than two inches (2”) being cut, torn, ripped, or otherwise injured.

- Root pruning shall be done under supervision of the Community Forester. The quality of pruning shall follow the standards herein and good arboreal practice appropriate for the tree species receiving the treatment.
- Roots shall be pruned at the branch bark ridge whenever possible. Other roots may be pruned at the edge of the excavated area.
- All roots to be pruned or removed shall be cut cleanly with sharp pruning tools.
- Wound dressings shall not be used on cut roots.
- The damaged hardscape area plus an additional distance to the adjacent score line beyond the limits of the damaged area shall define the root removal boundaries. Targeted tree roots and other roots within these boundaries shall be removed to a maximum depth of four inches (4") below the finished sidewalk grade and a maximum of four inches (4") below the gutter plate.
- Pruning and removal of roots greater than two inches (2") in diameter or parts of roots that are injured or diseased shall be performed as follows:
  - The root bark ridge (similar in structure and function to a branch bark ridge) shall be preserved. With directional root pruning, objectionable and severely injured roots are properly cut to a lateral root, if possible, that is growing downward or in a favorable direction.
  - Directional root pruning shall be used to help minimize root decay and encourage root growth away from hardscape. Shorten roots back to another fork at least one-third the size of the root to be removed. Roots are cut to a large lateral, if possible, that is growing downward or in a more favorable direction. The pruned root ends will be less likely to resprout, since a large lateral can assume the new terminal role of the root.
- Root pruning tools may include pruning saws, pruning shears and chain saws with carbide tipped blades. Mechanical root pruners may only be used at selected sites with the prior approval of the Community Forester.
- Additional recommended root pruning tools may include:
  - Scissor-type lopper or bypass lopper
  - Scissor-type pruner or bypass pruner
  - Large and small handsaws
  - Wound scriber
- All pruning tools shall be sterilized either between trees or between cuts as recommended in the hygiene specifications with either a ten percent (10%) bleach solution or blowtorch.

Root Pruning For Sidewalk Repairs

Root pruning shall be supervised by the Community Forester. All work on roots shall be done carefully, by hand, to achieve the objective of reducing future sidewalk problems as well as preserving the trees. Removing or damaging anchoring roots and root flares is not allowed and shall be avoided. Indiscriminate pruning of vigorous roots that causes re-growth from the end of the cut is not allowed.

Procedures for Root Pruning Directly Next to Sidewalks

- Small root bundles, the source of future sidewalk problems, should also be removed at this time.
- The Community Forester should examine all roots larger than two inches (2") in diameter for their role in anchoring the tree.
- All roots that contribute significantly to anchorage should be preserved. Remove roots approved for removal to sound, downward growing lateral roots that are at least one third (1/3) the size of the root being removed.
- All roots larger than two inches (2") in diameter are to be preserved unless their removal is absolutely necessary. Pruning or removal of roots two inches (2") or larger should only be done under the supervision of the Community Forester.
- Preservation of large roots may require reducing the sidewalk width near the root flare. Sidewalks may require bridging or ramping to preserve roots and allow for root growth.
- Root shaving is allowed under limited conditions and with the supervision of the Community Forester. The objective is to reduce the thickness of roots without severing the root completely. Root shaving may be accomplished with the use of a sharp pruning tool or with carbide tipped blades. At no time shall root shaving be done with an axe or "chopping" tool.
- Pruning treatments to reduce canopy size shall be determined by the Community Forester, and comply with the latest version of Pruning Best Management Practices as established by the International Society of Arboriculture.

1.5 PARKWAY LANDSCAPING GUIDELINES

Parkways, the area between the outside edge of the sidewalk and the inside edge of the curb, are a component of the public right-of-way. These City approved guidelines allow property owners to create attractive, useful frontages adjacent to their property. Parkway landscapes are generally overseen by the City's Office of Sustainability and the Environment, the Public Landscape Division and the Public Works Department.

Parkway landscaping shall take into consideration personal safety, vehicle safety, efficient access for pedestrians and vehicles, and resource conservation. Adjacent property owners are required to maintain parkways in good order according to the Santa Monica Municipal Code and other City policies. In addition, sprinkler irrigation in the parkway is a significant source of urban runoff and contributor to Santa Monica Bay pollution.

These guidelines on landscaping within parkways also take into consideration competing interests that impact the public right-of-way. The City is responsible for all activities that impact the public right-of-way such as overhead or underground utilities, street trees, street lighting, bus stops and parking meters. The City may request for due reason, the removal of pedestrian obstructions, traffic dangers, as well as landscaping or irrigation that damages street trees, degrades roads and curbs or impedes storm drainage systems.

Applicability

These guidelines apply to all parkways of the City of Santa Monica where any kind of retrofitting, modifications or improvement of landscaping and/or irrigation takes place.

All landscaping in a parkway must conform to state and local laws regarding the parkway. Modifications to the parkway must not violate any of these laws.

Basic Recommended Approach

Parkways can be landscaped using a mixture of permeable paving and climate-appropriate plants that provides vehicle operators safe access to and from off-street parking and pedestrians safe use of the sidewalk as well as access to and from vehicles parked at the curb. Parkway landscapes should require little or no irrigation and produce no runoff.

Safety

Parkway landscaping must not create visual obstructions for pedestrians or drivers of vehicles. Plants within five (5') feet of a driveway or apron shall not exceed two (2') feet in height when fully mature.

Step-Out Strips

A step-out strip is a uniform, firm walking surface from the curb edge inward and is provided for passengers to enter and exit vehicles parked at the curb. Step-out strips shall be at least 18 inches (18") in width and at least thirty six inches (36") long and line up with the existing adjacent parking spaces. Step-out strips may extend the full length of the parkway. The step-out strip material must provide a firm, uniform walking surface in all weather conditions.

The layout of step-out strips must be constructed in a manner that avoids all damage to the trunk flare or roots of street trees. Step-out strips are not permitted adjacent to red curbs or where roots of existing street trees make construction of a step-out strip with the required dimensions impossible or impractical.

Additional step-out strips may be provided adjacent to driveway aprons as desired.

Fig A11 - Step out strip would not interfere with tree.

Fig A12 - Exposed surface roots growing against the perimeter of a parkway do not allow for the addition of a step-out strip.

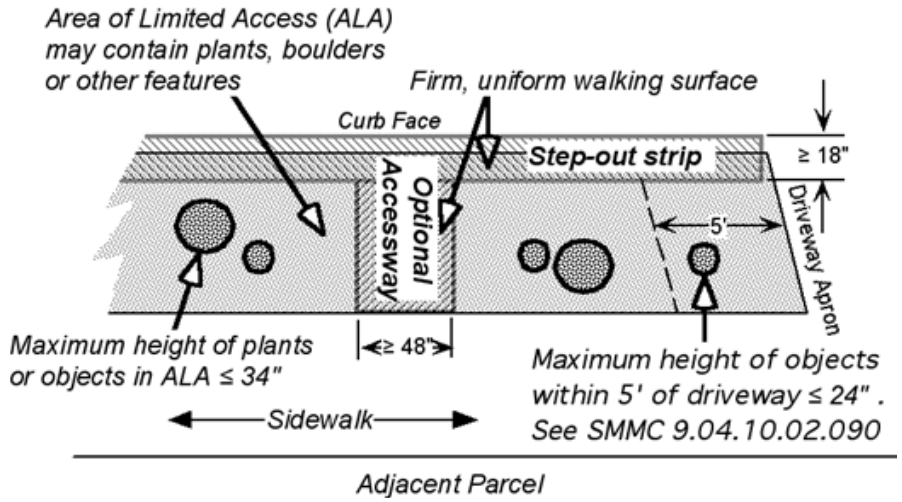


Fig A13 - Parkway layout plan.

Step-out strips may be constructed of permeable paving, decomposed granite (DG), pavement, or plant material. Impermeable hardscape materials are not recommended for step-out strips. Any form of DG, if used, shall be constructed according to specifications in the Appendix of this Master Plan. Pavers shall be set in compacted sand, topsoil, or DG.

Access Ways (Carriage Walks)

If desired, the landscape design of a parkway may include an access way for the purpose of pedestrian access to vehicles parked at the curb. If included, access ways shall be at least three feet in width and at most five feet in width, and provide a firm, uniform walking surface in all weather conditions from the curb to the sidewalk.

Access ways shall be constructed of at least 50-80% permeable hardscape material, and may be constructed of permeable paving, DG, pavement or plant material. Any impermeable hardscape material, if used, shall be set in a non-contiguous pattern. Any form of DG, if used, shall be constructed according to the specifications in the Appendix of this Master Plan. Pavers shall be set in compacted sand, topsoil or DG.

The layout of access ways must be constructed in a manner that avoids all damage to the trunk flare or roots of street trees.

The irregular root systems found above the soil surface in some parkways are crucial to tree stability and provide limited areas for step-out strips. An access way would not be allowed in a parkway with this kind of configuration.

Areas of Limited Access

All portions of the parkway other than step-out-strips and access ways are considered Areas of Limited Access (ALA). Landscaping in ALAs may be composed of plant material, mulch or other features except where installation of such features would damage or negatively impact the roots of existing street trees.

Impermeable hardscape, such as concrete, is strongly discouraged in the parkway as it only contributes to urban runoff.

Banners, signs, playground equipment, benches, statuary, or water features are not allowed in the ALA.

Grading and Drainage

There shall be no grade difference between the finish grade of the parkway and adjacent hardscape surfaces such as the curb top, sidewalk or driveway apron. Grade changes on step-out strips and access ways shall meet ADA requirements.

If impermeable surfaces are used within parkways, they shall be constructed to drain to permeable areas.

Plant Material

All landscaping in parkways is subject to Santa Monica Municipal Code (SMMC).

ALAs can include trees and plants. Trees in Santa Monica's parkways are under the supervision of the Public Landscape Division. Before adding or modifying trees in the parkway, contact the Community Forester.

Native and/or Mediterranean plants with mulch requiring little or no irrigation are preferred.

Plant material shall not exceed 34 inches (34") in height at maturity to create open visibility to the street for vehicles and pedestrians.

Parkway landscaping must not create visual obstructions for pedestrians or drivers of vehicles. Plants must not grow taller than twenty four inches (24") anywhere within five feet (5') of a driveway, alley, or apron.

Plant material shall not present a danger to public egress. Plants with sharp, pointy protrusions such as needles or thorns are not allowed. Vines and other plant material that grow onto a street tree or presents a tripping hazard are not allowed.

Planting must be designed in a manner that does not endanger the health or stability of existing street trees. Particular attention must be paid to landscaping within the Critical Root Zone (CRZ) of the tree.

When removing plant material like turf grass from a parkway, there shall be no damage to the street tree roots. Replace the turf grass with mulch, DG or replant the area immediately so the tree roots are not exposed to undo harm. Trees that need ample or regular water can be adversely affected by a sudden lack of water.

No street tree roots larger than two inches (2") shall be pruned under any circumstances.

Do not plant shrubs and flowers or any other plant material within 24 inches of the base of a tree trunk.

Parkways must be kept free of weeds and are subject to SMMC Chapter 7.44.

Do not plant shrubs and flowers around the base of trees. They rob newly planted trees of nutrients and moisture. Plants that surround the trunk flare of mature trees create conditions for crown rot which can ultimately lead to the decline and failure of the tree.

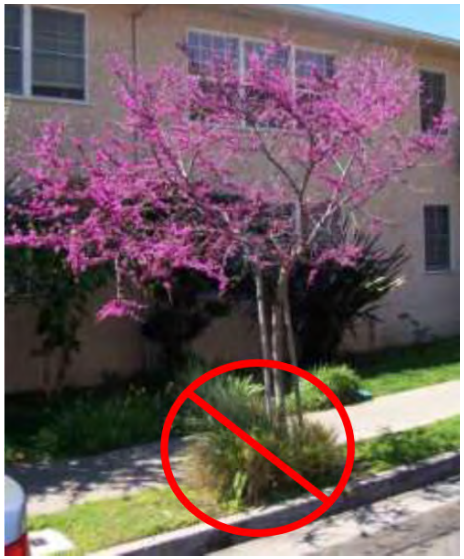
Suggested Plant Material for Parkways

Use of the plants on this list is not required. Irrigation restrictions and/or the street trees in your parkway may influence your plant choices.

- 'UC Verde' Buffalo Grass (Buchloe dactyloides)
- Evergreen Current (Ribes viburnifolium)
- California Sedge Grass (Carex spp.)
- African Daisy (Arctotis acaulis)
- Silver Carpet (Dymonida margaretae)
- Seaside Daisy (Erigeron glaucus)
- Yarrow (Achillea millefolium)
- Jade Plant (Crassula ovata)
- Thyme (Thymus praecox)
- Hen and Chicks (Echeveria imbricate)
- Woolly Grevillea (Grevillea lanigera 'Coastal Gem')
- Stonecrop (Sedum spp.)
- Bearberry (Arctostaphylos 'Pacific Mist')
- California Lilac (Ceanothus spp.)
- Creeping Sage (Salvia 'Bee's Bliss')
- California Fescue (Festuca californica)

Examples of Plants that are Prohibited for Parkway Plantings

- Prickly Pear Cactus (Opuntia spp.)
- Barrel Cactus (Echinocactus spp.)
- Agave Century Plant (Agave spp.)
- Aloe (Aloe spp.)
- Ivy (Hedera spp.)
- Roses (Rosa spp.)
- Ice Plant (Lampranthus spp.)
- Barberry (Berberis spp.)



It is prohibited to plant and mulch within a twenty four (24") inch diameter from the base of the tree.

Mulch Material

A two to four inch (2 -4") layer of organic mulch is recommended in planting beds and under trees. More than four inches may inhibit the growth of plants and street trees. To avoid harm to street trees, do not place mulch within twenty four (24") of tree trunks.

Gravel or stone mulches, with the exception of decomposed granite, can cause damage to the road surface during street cleaning and are strongly discouraged. If using stone mulches, make sure the stone is not less than six inches (6") wide or greater than eight inches (8") inches wide. Boulders or any other rock material greater than eight inches (8") in vertical clearance from the finished grade shall not be installed.

A minimum two inch (2") layer of mulch shall be applied on all exposed soil surfaces, except in areas within twenty four (24") inches from the base of the tree trunk or areas covered by groundcovers.

Mulch shall not run off into the street.

The installation of new artificial turf or the replacement of existing artificial turf with new artificial turf in any portion of the parkway is strongly discouraged.

Irrigation Systems for Parkways

Design irrigation systems in parkways according to all local, state, and federal laws and regulations.

Permanently installed irrigation of plant material in parkways is not required nor encouraged. Low-volume, non-spray irrigation systems or hand-watering is preferred where irrigation is needed.

Irrigation systems must be designed and installed in such a manner that a precipitation rate of 0.75 inches/hour is not exceeded in any portion of the landscape. Drip irrigation or low flow rotary nozzles can meet this requirement.

No spray irrigation device of any type may be installed within twenty four (24”) of any impermeable surface or street trees.

Installing new irrigation systems with overhead irrigation sprinklers is strongly discouraged in parkways. Existing systems with spray irrigation heads may be retrofitted with acceptable low flow rotary nozzles or drip irrigation.

Installation of any new irrigation system in the parkway shall be on a separate valve or circuit and shall include a gate valve or shut off valve that is installed below grade in the parkway in an irrigation valve box.

Newly planted trees or existing trees with ample or regular water needs may require supplemental irrigation. Hand watering is preferred.

Irrigation systems in parkways must be designed and constructed in a manner that will eliminate all overspray and surface runoff onto any impermeable surface, public or private, under any condition, regardless of wind conditions.

All irrigation equipment in parkways including heads, valves, piping, tubing and control wire must be installed in accordance with the Santa Monica Municipal Code.

When installing an irrigation system, it is important not to damage the roots of any existing street trees. In some cases the roots of a street tree may occupy all or a large portion of the parkway making installation of an irrigation system impractical.

Drip irrigation that emits two (2) gallons or less per hour must be used for plants that are 1 gallon in size or larger.

The planned coverage area of spray irrigation systems in parkways shall not include any area within twenty four (24”) of any impermeable surface or trees.

Strategies for Compliance with the 24 Inch Setback

A buffer strip of permeable, non-living groundcover such as decomposed granite is required between the plant material and the hardscape. Sprinkler heads must be inside the edge of the planting bed by at least 24 inches (see Figure A14). Because of the possibility of wind and improper adjustment, this solution is not fool-proof and may still cause runoff.

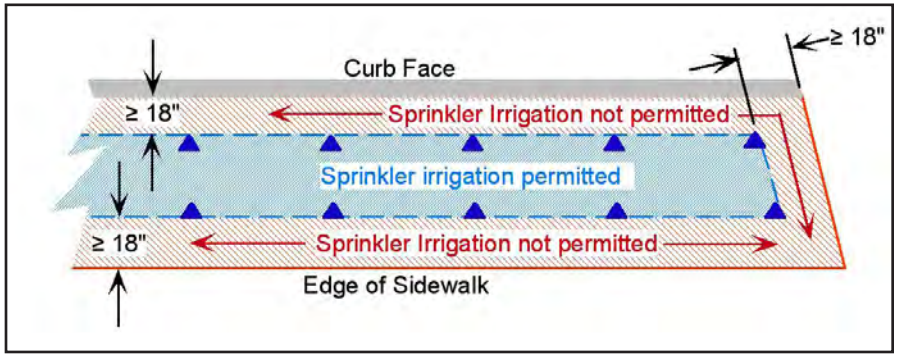


Fig A14 - Areas where spray irrigation is permitted.

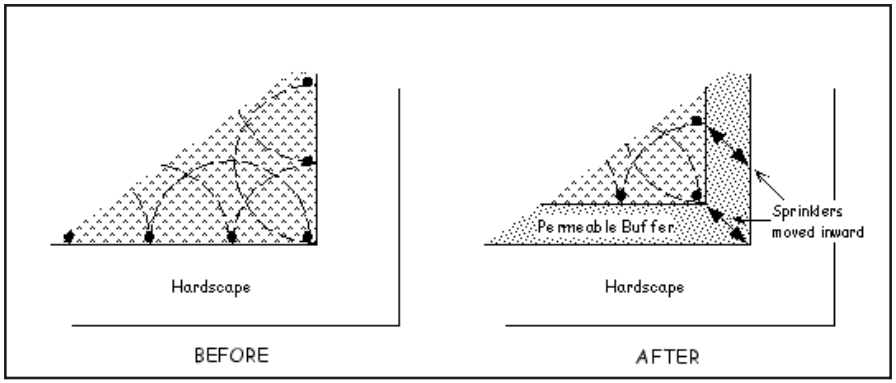


Fig A15 - Permeable buffer within the setback.

Plant material within the twenty four inch (24”) buffer area, may be irrigated with a subsurface drip irrigation system to water that perimeter planting area. Figure A16 shows a properly laid out drip system.

In some cases mature tree roots may make the installation of these systems impractical.

For information on proper street tree care and the watering needs of trees, visit www.santamonicatrees.com.

In some cases the roots of a street tree may occupy the entire parkway precluding the installation of an irrigation system. Landscaping or irrigation in the parkway shown in Figure A17 would be detrimental to the tree.

In cases where surface roots of street trees may make landscaping, access ways, step-out strips and/or the installation of an irrigation system impractical or impossible, as determined by the Community Forester, installation is not permitted.

Permits

A permit is generally not required for landscaping the parkway. However, a Tree Trimming Permit is required for any pruning to the City street trees performed by non-City staff. Tree trimming permits are issued by the Community Forester.

A Street Permit from the Public Works Department is required for the installation of a concrete access way in the parkway.

- Street permits for access ways in parkways:
  Contact Public Works Administrative Services at (310) 458-8737 or public.works@smgov.net
- Landscaping and irrigation in parkways:
  Contact the Office of Sustainability and the Environment at (310) 458-2213 or environment@smgov.net
- Trees in parkways:
  Contact the Community Forester at (310) 458-8974 or community.forester@smgov.net

Fig A16 - Drip irrigation installation layout.

Fig A17 - Landscaping cannot be installed when tree roots take up the entire parkway.

Installing Decomposed Granite (DG) Paving

Materials

Base Course Aggregate:
ASTM C33, crushed stone or crushed gravel

Decomposed Granite (DG):

- Clean, hard, durable particles or fragments of ” minus fines, select brown/ gray crushed granite, river rock or basalt. Fines shall be evenly mixed throughout the aggregate. When produced from gravel, 50 percent, by weight, of the material retained on a No. 4 sieve shall have one fractured face. Color to be California Gold, Brimstone or Architect approved equal.
- The portion retained on the No. 4 sieve shall have a maximum percentage of wear of 50 at 500 revolutions as determined by AASHTO T96-77.
- The portion passing a No. 4 sieve shall have a maximum liquid limit of 25 and a maximum plasticity index of 7, as determined by AASHTO T89-81, and AASHTO T90-81, respectively.
- The crushed aggregate screenings shall be free from clay lumps, vegetable matter, and deleterious material.

Preparation for Installation

Surface Preparation:

- All excavation within the dripline of street trees shall be done with hand tools. Mechanical excavations are not allowed.
- Excavation within the dripline shall not exceed three and a half inches (3-1/2”).
- All roots two inches (2”) and larger shall be left intact. Roots two inches (2”)and smaller may be pruned in accordance with the root pruning standards in this Appendix.
- Establish subgrade by hand and compact with tamper. Building up of subgrade under forms after they are in place will not be permitted. Set forms in place, test sub grade with template, reduce high spots to grade and raise low spots to grade with materials compacted in place by tamping.

Decomposed Granite (DG):

- Sub grade preparation - Prior to placing the DG, shape, fill, grade, and compact the sub grade (crushed aggregate base).
- Forms - Install adjacent paving in lieu of forms, the full depth of decomposed granite area, curving as required, and secure in place to hold firmly to and grade required.
- If stabilizer is to be used, modify these instructions according to the manufacturer’s specifications. If stabilizer is used, decomposed granite paving will be considered an impermeable surface in parkways governed by this policy.

Installation

Base Course:

- Construct a base course layer to a depth of two inches (2”) compacted. Deposit aggregate directly on prepared subgrade or preceding layer of compacted aggregate. Keep placed material free from segregation. Compact each layer of material with tamping roller, with pneumatic tired roller, with vibration machine, or with combination of the three.
- If sub grade material is worked into base course material during compacting or finishing operations, remove base course material within affected area and replace with new aggregate. Restrict hauling over completed or partially completed work when sub grade is soft or there is tendency for sub grade material to work into base course material.
- Compact each layer with aid of water. Provide sufficient moisture to prevent segregation into pockets of fine and coarse material.

Decomposed Granite (DG):

- Place the DG on the prepared sub grade, in one layer of two inches (2") minimum thickness and rake smooth using a steel tine rake to desired grade and cross section. Do not apply DG deeper than three inches (3").
- Water to achieve full depth moisture penetration. Watering is best accomplished using a garden hose with spray nozzle set to a coarse spray; pressure should not disturb leveled surface. It is essential that the full depth of water penetration is achieved by random inspection of cores. After inspection, fill core holes with material removed, smooth and hand tamp to match adjoining trail surface grade. Let watered mix stand six to twenty four (6 to 24) hours until surface water is no longer present; the mix should then be moist but not wet.
- While the mix is still thoroughly moist, roll with a heavy lawn roller (minimum 225 pounds and maximum thirty inch (30") width, to achieve finish grade and initial compaction. Hand tamp edges around poles, and other objects. Use a heavy (1 ton minimum) small rider, after having initially used the lawn roller, to obtain the desired final dense, smooth, uniform texture. Do not use whackers or vibratory rollers; the mix will not harden for weeks after vibration.
- Landscape header or curb is to remain in place, secured to hold firmly to approved line and grade. After finished compacted surface has been achieved, finish adjacent shoulders by backfilling required grade and cross section.

Inspection

- Finished surface shall be smooth and uniform with no evidence of chipping or cracking. Dried, compacted material shall be firm all the way through with no spongy areas.
- Significant irregularities shall be smoothed out prior to final acceptance of work. Smoothing shall be accomplished by rewetting/saturating rough areas thoroughly, and then rolling the surface again with a heavy roller (1,000 to 1,500 lbs. powered walk-behind or small rider). Whackers are not recommended.
- Final thickness of completed area shall not vary more than 1/4 inch from dimension indicated. Measurements may be taken by means of test holes taken at random in the finished surface. Correct any variations in the thickness beyond the allowable 1/4 inch by repeating the procedures listed above.

Maintenance Responsibility

Maintenance of parkways is the responsibility of the adjacent property owner.

The City may request the removal of any existing pedestrian obstructions, traffic dangers, landscaping, or irrigation system.

The City has the right to remove any offending improvements and restore the parkway using City staff. The abutting property owner shall be responsible for the reimbursement of all costs incurred by the City to properly restore parkway areas fronting his/her property.

Parkway Grass Removal Guidelines

Removing turf from underneath a City's street tree can cause irreparable damage if it is not done properly. It is imperative that the following guidelines be adhered to in order to protect the health and stability of street trees.

Removing turf from under a tree will be a major change in a tree's growing environment, as will the reduction of irrigation. Trees growing in an irrigated turf setting are accustomed to the consistent moisture in the top four to six inches (4–6") of topsoil, which is also where much of the trees roots will be found.

Also consider the significant loss of organic material, which greatly contributes to the health of plants. It must be restored as compost, aged manure, or in some other form. Usually, topsoil must also be replaced after turf is removed. Some of it may be shaken out of the sod that was removed, however more will be needed, especially when raising the level of the subgrade.

Starving the lawn of water prior to removing turf can actually have a negative effect on certain species of trees.

Excavation Within the Parkway

Where excavation for turf removal is required within a tree protection zone or the critical root zone care shall be taken to avoid disturbing the roots. All excavation under the dripline of any tree shall be done by manually with hand tools, an Air Spade® or by washing the soil away with a hose or water truck. The objective of these methods is to prevent breakage or other injury to branches and roots. Excavated turf and soil shall be deposited in trucks and hauled off or deposited temporarily on one inch (1") thick plywood outside the critical root zone. Excavated turf and soil shall not be deposited, even temporarily, on unprotected natural grade.

No roots larger than two inches (2") shall be cut during excavation. Smaller roots that require cutting shall be cut flush at the edge of the excavated area with pruning saws or pruning shears.

The minimum distance between an excavated area or an open trench and any tree shall be one foot (1') or six inches (6") for every six inches (6") of trunk diameter measured at four and a half feet (4-1/2') above existing grade if this method defines a greater distance.

Redirect roots in backfill areas where possible. When encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and/or redirect them without breaking. When encountering roots that cannot be redirected and redirection is not practical, consult with the Community Forester on pruning requirements and techniques.

Do not allow exposed roots to dry out before replacing soil and mulch. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

Turf Removal Process

Water the area three days prior to removing the turf to make the soil easier to work with. The soil shall be moist but not soggy.

Use a sod cutting machine or a flat edge spade to slice just under the grass, then pull the turf back while severing the roots of the grass just below the soil line.

Cut the turf into parallel strips using an edger or sharp spade (with square edge). Be sure to keep strip sizes small (approximately 1 foot (1') wide by 2 feet (2') long), otherwise they will be difficult to move. Shake off excess topsoil during this process.

1.6 GUIDELINES FOR WATERING STREET TREES

WATERING NEW TREES

Newly planted trees need consistent moisture to promote root and shoot growth. Trees should have moisture beyond the original planting hole to encourage roots to grow into the native soil. Site conditions influence watering needs. Trees planted in planting cutouts have more reflected heat and may require more water than the guideline suggested below.

Young trees shall have the following:

- A watering basin or berm outside the finished planting hole to allow for soaking the root ball of the tree.
- Adequate soil moisture to promote root growth in the top two feet of soil for a diameter at least one foot (1') beyond the planting area. Moisture can be measured in the soil using a core sampler or Tensiometer.

As a general guideline, trees should be watered:

- 1 to 3 months after planting: 4 times per month or as necessary
- 4 to 6 months after planting: 2 times per month or as necessary
- 7 to 12 months after planting: 1 time per month or as necessary

Any watering of newly planted trees shall be accomplished according to the Santa Monica Municipal Code - Water Conservation Requirements (Article 7 Public Works, Chapter 7.16 Water Conservation). Design of any new irrigation system shall meet the requirements of the Water Efficient Landscape and Irrigation Standards on the City website.

WATERING ESTABLISHED TREES

Fluctuations in watering regimens can cause established trees to go into decline. It is important to provide moisture in the entire root zone if possible. Roots are generally located in the top three feet (3') of soil out at least fifteen feet (15') beyond the edge of the canopy. Mature trees have anchor or stabilizing roots near the trunk that should remain dry.

Mature trees can be watered with existing irrigation systems following the Santa Monica Municipal Code - Water Conservation Requirements. If an irrigation system does not exist, trees can be watered by hand using a soaker hose or root feeder (metal tube with holes in it attached to a hose). Water should penetrate at least twelve inches (12").

Water shall not spray onto the trunks of trees. This can encourage moisture loving disease pathogens that can cause the tree to go into decline.

RESIDENT GUIDELINES FOR WATERING STREET TREES

Key Factors to Remember When Watering Street Trees

- There are over 250 different species of trees in Santa Monica and many require different amounts of water at different times of the year. Santa Monica's forest is primarily made up of trees that flourish in a moderate climate with naturally dry conditions. Many species found in Santa Monica do not require regular water and actually thrive when they receive minimal amounts. Other species require no irrigation during the summer months as it is detrimental to their health. Mature or established trees usually can get by with infrequent watering depending on the species of tree.
- Most of Santa Monica's street trees require a climate with long, hot summers and mild winters with a moderate amount of rainfall. They do best in sandy loam soil but can tolerate other types of soils.
- The most important area to water for deciduous trees is within the dripline (from the trunk to the outer edges of the trees branches).
- For evergreens, water three to five feet (3-5') beyond the dripline on all sides of the tree.

Current Age and Size

- Older trees are sensitive to increased amounts of water. Trees that have been thriving on a certain level of soil moisture, and then subjected to increased amounts, can respond in different ways.
- Increased shoot growth adds new foliage and weight to the limbs in the canopy and increases pruning requirements. In order to reduce the potential for limb failures, pruning cycles need to be increased.
- Too much water can also kill roots from lack of oxygen in the soil. Mature trees that suffer from too much water in the soil will respond with dead tips, dieback throughout the canopy and excessive leaf drop. In extreme cases, trees with dead roots can fall over.

Fig A18 Turf should always be kept away from tree trunks.

Figure A18 shows a trunk base clear of turf. This prevents damage to the trunk from water, lawn mowers or line trimmers and maintains a strong healthy trunk base.

Figure A19 is a mature drought tolerant tree that has a sparse canopy and chlorotic foliage because of overwatering.

Fig A19 - Street tree stress from overwatering.

Water on the trunk can lead to decay if there are wounds at the base of the tree. This eventually weakens the trunk and creates a potential for total tree failure.

There are several fungal diseases known to afflict trees that thrive in southern California's climate. The diseases that infect these trees can cause considerable damage and even the demise of a street tree. These problems mainly arise due to conditions that are different from their native habitat. Conditions such as summer watering or excessive watering in the winter result in fungi, bacteria and viruses in the soil that trees cannot withstand. This condition can ultimately lead to the failure of a mature tree in spite of a healthy appearing canopy.

Figures A20 and A21 show the fruiting bodies of two fungi that are commonly associated with trees that have been wounded and suffer from internal decay. Improper or excessive watering at the base of a tree creates conditions for these fungi to grow and accelerate the decay process. When trees display these fruiting bodies it is an indication of extensive internal decay.

Report a tree with fruiting bodies of fungi to:
community.forester@smgov.net

Fig A20 - Fungi on a tree trunk.

Fig A21 - Fungi at the tree roots.

The main thing new trees need in order to become established is a source of moisture. Regular moisture allows new trees to grow quickly by developing a consistent amount of foliage and shoot growth, while irregular watering forces trees to only produce foliage that can sustain on minimal or infrequent amounts of moisture.

Young trees that have been recently planted in the ground need approximately ten (10) gallons of water every two weeks.

A simple method to follow is to fill up the swale (shown in Figure A22) around the trunk base with water and let it percolate down into the root ball. After it has all drained into the soil, fill the swale up once more and allow it to drain.

Follow this method twice a week during the warm months of May through October, and once a week during the cool months of November through April.

When watering trees, it helps to understand these facts about roots:

- A tree's root mass is its foundation and provides the structural support it needs to remain standing upright. Over watering leads to damage to that foundation and can affect the stability of a street tree.
- Most, if not all, of a tree's roots are found in the upper two feet (2') of soil.
- Most, if not all, roots are found where water, nutrients and oxygen are readily absorbed.
- The distances that roots can spread horizontally, and the spot where most of the moisture is absorbed, are directly related.
- Trees need oxygen for their roots. Too much water in the soil interferes with the roots ability to exchange oxygen, leads to root rot and the eventual decline or failure of a tree.
- The roots of a street tree can extend up to four times the diameter of its canopy which places much of the root mass in a front yard landscape. Watering a front yard landscape forces the tree to develop its network of roots under the sidewalk and in a front yard.
- Deep and/or infrequent watering forces a tree to develop a root system that is far reaching and/or deep.
- Regular water for a front yard landscape allows street trees to develop a shallow root system that does not extend any farther than it has to in order to reach a source of moisture.

LEVELS OF WATERING

None

Trees that do not need water will thrive in dry soil, are healthier, and have a stronger root base.

Minimal

Water applied by drip either through a designed drip system or a temporary watering bag to establish young trees.

The amount of water a tree needs depends on the season:

May - October

A short water cycle in the morning once or twice a week is the best.

November - April

No need for supplemental water during the winter season.

Fig A22 - Newly planted city trees will have a watering basin, or swale, around the trunk.

Occasional Flooding

Trees that need moderate amounts of moisture but are growing in poor draining soils perform better when the soil is flooded periodically. Allowing a long period in between each water cycle allows moisture to drain through the soil. However, they would not grow well if the trunk base was watered every day.

Regular

Street trees that need regular water can thrive on what is usually applied to the average landscape. This develops shallow roots that have the potential to disrupt surrounding hardscapes that are within a tree's normal growth zone. Regular water can also be applied through a drip system or manually.

Moderate

Street trees that need a moderate amount of water need regular water in larger quantities. Trees that need this much moisture are faster growing or develop large canopies.

Ample

Street trees that need an ample amount of water will show signs of stress if they do not get the water they require. Trees that need ample amounts of water can have large canopies or come from a riparian habitat, the tropics or northern California.

For a list of water requirements by species, visit:
http://www.santamonicatrees.com

1.7 CONTRACTOR STANDARDS FOR TREE WORK

The City shall oversee all contractor operations with the objective of ensuring contract adherance and to identify and correct problems throughout the length of each individual project. Contractors who are hired to work for the City or obtain permits to prune City trees shall be required to comply with the City's contract requirements throughout the term of the contract or until the work has been completed.

REQUIREMENTS FOR WORKING ON CITY TREE CONTRACTS

Contractor must be in the business of providing full service urban forest maintenance programs to governmental agencies and/or municipalities that include, but is not limited to the pruning, removal and replacement of trees for at least five (5) years. Experience should include the prevention of disease transmission between trees, protection of wildlife, and current industry standards for pruning. In addition, prospective contractors must provide five (5) references with contact information for the main agency manager.

Contractor must show, through documentation by records of past performance and references, a capability that includes the ability to perform the following work, both consistently and concurrent with other required services:

- Annually trim as many as ten thousand five hundred (10,500) trees, with trees ranging in size from three (3) to more than forty (40) inches in diameter, with work occurring during regular business hours, at night or during weekends. Inclusive in this tree count are more than three thousand (3,000) palm trees which shall be trimmed from the safety of a certified aerial boom truck.
- Annually remove and grind the stumps of as many as two hundred fifty (250) trees ranging in size from three (3) inches to over forty (40) inches in diameter, with work occurring during regular business hours. Contractors must have documented experience in the safe removal of mature trees using methods of rigging, including the use of cranes.
- Annually supply and plant as many as one thousand (1,000) trees ranging in size from twenty four (24) inch to sixty (60) inch boxed nursery stock.
- Annually water and maintain as many as one thousand (1,000) young trees with a regularly scheduled work plan.
- Contractor must hold valid State of California Contractor's Licenses C61/D49 and C27 at the time of proposal submittal.
- Contractor must meet all specified City insurance requirements and endorsements.
- Contractors shall maintain at their own cost and expense for the duration of all contracts, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work or services hereunder by the Contractor, their agents, representatives, employees, or subcontractors. The cost of such insurance shall be borne by the Contractor.
- Contractor shall exhibit, by portfolio and references, the capability to respond to emergency tree incidents, ranging from limb failures on single trees to storm related damages affecting many trees, in a manner that meets the requirements of the City of Santa Monica.
- Contractor must have the capability to process notifications to the community on all work activities and to operate and maintain, at no additional cost to the City, an internet based computerized tree inventory system that has the capacity to integrate existing tree inventory data and work histories and to update site specific tree data and work records as described herein.
- Contractor must have a sufficient inventory of equipment to perform their scope of work for the City.
- Contractor must possess the capability of processing the quantities of green waste and refuse that are generated from performing the work described herein in a manner compliant with the requirements of the California Integrated Waste Management Act (AB939).
- Contractor must have on staff an adequate number of full-time permanently employed personnel that are fully trained in urban forestry Best Management Practices, and are able to speak and understand English in order to successfully complete all work.

Without in any way affecting the indemnity provided, the Contractor shall secure before commencement of any work and be maintained throughout the contract, the following types and amounts of insurance:

- City Insurance requirements will be verified at the time of contract.
- Contractor shall maintain Commercial General Liability (CGL) with a limit of not less than $3,000,000 each occurrence/$3,000,000 annual aggregate.
- CGL insurance shall be written on Insurance Services Office form CG 00 01 (or a substitute form providing equivalent coverage) and shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal injury and advertising injury liability assumed under an insured contract (including the tort liability of another assumed in a business contract), and explosion, collapse and underground hazards.
- The City of Santa Monica, its officers, officials, employees, and volunteers are to be covered as additional insureds with respect to liability arising out of automobiles owned, leased, hired, or borrowed by or on behalf of the Consultant; and with respect to liability arising out of work or operations performed by or on behalf of the Consultant including materials, parts or equipment furnished in connection with such work or operations. Under the CGL policy, using the Insurance Services Office additional insured endorsement form CG 20 26 or a substitute providing equivalent coverage. City and other additional insureds mentioned in this paragraph shall not, by reason of their inclusion as additional insureds, become liable for any payment of premiums to carriers for such coverage. (Applies to CGL and Business Auto Liability)
- Workers' Compensation and Employer's Liability Insurance: Contractor shall maintain workers' compensation insurance as required by the State of California and Employer's Liability Insurance in the amount of $1,000,000 per accident for bodily injury or disease.
- Contractor's insurer shall agree to waive all rights of subrogation against the City of Santa Monica, its officers, officials, employees, and volunteers for losses arising from activities and operations of Contractor in the performance of services under the contract.
- Business Automobile Liability Insurance: Contractor shall maintain business auto liability with a limit of not less than $1,000,000 each accident.
- Business Automobile Liability Insurance shall cover liability arising out of any auto (including owned, hired, and non-owned autos). If necessary, the policy shall be endorsed to provide contractual liability coverage equivalent to that provided in the 1990 and later editions of CA 00 01.
- For any claims related to their projects, the Contractor's insurance coverage shall be primary as respects to the City of Santa Monica, its officers, officials, employees, and volunteers. Any insurance or self-insurance maintained by the City of Santa Monica, its officers, officials, employees, or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.
- Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under subdivision (b) of Section 2782 of the Civil Code.

REQUIREMENTS FOR STREET TREE PERMITS

The City shall oversee all contractor operations with the objective of ensuring contract adherance and to identify and correct problems throughout the length of each individual project. Contractors who are hired to work for the City shall be required to comply with the City's contract requirements throughout the term of the contract.

Qualified contractors can prune City street trees to augment or complement City maintenance activities. A permit can be obtained by completing an application submitted to the City of Santa Monica. Permits are issued directly to qualified tree care contractors through the Community Forester. Contractor is responsible for notifying adjacent neighbors of any work as part of the permit process. Contractors shall meet the following minimum requirements:

- C-27 or C61/D49 Contractors license in good standing with the California State Contractor's License Board.
- Arborist that is Certified by the International Society of Arboriculture.
- Workers' Compensation & Employer's Liability Insurance.
- Commercial General Liability Insurance.
- Business Automobile Liability Insurance.

- Contractor must be familiar with and have a clear understanding of the City's Pruning Guidelines and the most current Pruning Standards, as adopted by the International Society of Arboriculture.
- Contractors must follow all guidelines as detailed in the most current ANSI A300 Standards for Tree Care Operations.
  - ANSI A300 Part-1 (2008)
  - ANSI Standard Z133.1 (2006) Safety Requirements
- Contractor must use the current California Manual on Uniform Traffic Control Devices (MUTCD) and the Work Area Traffic Control Handbook (WATCH) from the American Public Works Association (APWA) if the flow of traffic is to be disrupted on streets and highways.

Property owner must sign a release and hold harmless agreement from the City for the work to proceed.

Permit applications may be denied for the following reasons:

- Contractor does not meet minimum requirements or has demonstrated poor understanding of the required standards.
- Pruning is requested for aesthetic pruning and does not serve to improve the health of the tree.
- Pruning is requested to allow for the growth of grass or other plants under the tree canopy.
- The requested pruning might compromise the health of the tree.
- The tree has been recently pruned and does not require pruning at this time.
- Pruning is requested to create a view that does not currently exist and would have a detrimental effect on the health, stability or future condition of the street tree.

1.8 INSPECTION AND REMOVAL

Resident Requests

Requests for pruning or maintenance outside the pruning cycle shall be considered on an individual basis. The Community Forester will inspect the tree for hazardous conditions and general health. All treatments will be approved by the Community Forester and follow the specifications in this Appendix.

Service Requests

Special circumstances may require a City tree to receive a pruning treatment on an "as-needed" basis. Specific examples where requests are authorized are:

- Utility line clearance.
- Pruning to clear a sign, storefront, traffic signal or streetlight.
- Pruning to clear a structure or roadway or to provide line-of-sight.
- Pruning to remove a hazard such as a hanging or broken branch.
- Removal of vining plant material (such as ivy) growing up the trunk that may be threating the health of a City tree.

INSPECTION CRITERIA

The Community Forester will conduct individual tree inspections. The purpose of this activity is to determine a change in the tree's health and/or diagnose a condition before a problem develops or becomes serious.

Inspections can be conducted upon request for individual trees, or stands of trees, to evaluate their health, condition and vitality. Inspections should first be ground level visual assessments performed in adequate light to assess the health of the tree. The Community Forester may require further tests or investigation to diagnose problems in trees including but not limited to:

- Root crown excavations.
- Aerial inspection.
- Samples sent to a diagnostic laboratory for insect or disease pathogens.
- Air spade to reveal root structure.
- Resistograph, tomograph or other decay measurement tool to determine extent of decay and/or sound wood in a tree.

As a standard practice, the following criteria is used when inspecting trees:

- Evaluate growing conditions
  - Root space
  - Air space
  - Soil fertility and compaction
  - Pollution/Salt spray
  - Mulch
  - Moisture content of soil
- Research history
  - Root pruning events
  - Tree pruning events
  - History of failures
  - History of damage/vandalism
- Evaluate tree structure
  - Lean
  - Trunk and branch taper
  - Branching structure
  - End-weight issues
  - Decay in trunk or branches (compounding factors)
- Evaluate leaves and canopy
  - Dieback in leaves, twigs or branches
  - Small or yellowing leaves
  - Premature fall color
  - New shoot growth (in the correct season for each species)
- Evaluate root condition
  - Root decay
  - Crossed or girdling roots
  - Limited root area
  - Root pruning or construction damage
- Inspect for insect, disease or damage
  - Insect infestation
    - *Borer holes
    - *Sapping and oozing
    - *Physical damage to leaves, trunk or branches
  - Disease (virus, bacteria, fungus)
    - *Butt and heart rots
    - *Bulges, depressions and poor taper
    - *Conks, mushrooms and other fungus
    - *Streaking or staining in the cambium or wood
    - *Sapping and oozing
    - *Leaf discoloration
  - Mechanical or other damage
    - *Damage from stakes and ties
    - *Damage from construction soil compaction
    - *Equipment damage to bark, trunk or branches
    - *Fire damage

RISK ASSESSMENT

Trees should be assessed for risk using the Inspection Criteria written in Appendix 1 of the Master Plan. In addition, the assessment should be conducted using the most current industry standard. The two accepted methods include the Tree Risk Assessment in Urban Areas and the Urban/Rural Interface, 2009 (TRACE) or the Evaluation of Hazard Trees in Urban Areas (Matheny and Clark), and equivalent guidelines as approved by the Community Forester.

Tree risk assessment is the systematic process of evaluating the potential for a tree or one of its parts to fail. The degree of risk will vary with the size of the tree, type and location of the defect, tree species, maintenance history and the nature of the impact or the failure.

Assessing tree risk involves:

- Evaluating the tree's health and structural condition.
- Consideration of environmental factors affecting the site, i.e. past weather conditions and/or maintenance history of a tree that could contribute to the tree's failure.
- Assessing the likelihood that a person would be harmed or property could be damaged should a tree failure occur.

Risk Rating	Risk Category	Interpretation and implications
3	Low 1	Insignificant – no concern at all.
4	Low 2	Insignificant – very minor issue.
5	Low 3	Insignificant – minor issues not of concern for many years yet.
6	Moderate 1	Some issues but nothing that is likely to cause any problems for another 10 years or more.
7	Moderate 2	Well defined issues – retain and monitor. Not expected to be a problem for at least another 5 - 10 years.
8	Moderate 3	Well defined issues – retain and monitor. Not expected to be a problem for at least another 1 - 5 years.
9	High 1	The assessed issues have now become very clear. The tree can still reasonably be retained as it is not likely to fail, but it must now be monitored annually. At this stage it may be reasonable for the Community Forester to issue a removal notice to inform the public that the tree has to be removed.
10	High 2	The assessed issues have now become very clear. The probability of failure is now getting serious, or the target rating and/or site context have changed such that mitigation measures should now be on a schedule with a clearly defined time line for action. There may still be time to inform the public of the work being planned, depending on conditions, but there is no time for protracted discussion about whether alternative options are available.
11	High 3	The tree, or a part of it has reached a stage where it could fail at any time. Action to mitigate the risk is required within weeks rather than months. By this stage there is no time to hold public meetings to discuss the issue or post the tree for removal. Risk reduction is clearly defined and the Public Landscape Manager will order the tree to be removed.
12	Extreme	This tree, or a part of it, is in the process of failing. Immediate action is required. All other, less significant tree work will be of lower priority until the until the risk issues have been mitigated. This might be as simple as removing the critical part, drastically reducing overall tree height, or removal. The immediate action required is to ensure that the clearly identified risk of harm is eliminated. For areas hit by severe storms, where many extreme risk trees can occur, the Public Landscape Manager may require drastic pruning and/or partial tree removals, followed by restricting traffic under a tree as first stage of risk reduction. Clearly defined safety issues preclude further discussion.

Fig A23- The table above outlines typical risk abatement recommendations and implications of the ratings when tree risk assessment reports are made on public trees.

STREET TREE REMOVAL

In some instances there are situations where removing public trees cannot be avoided. The removal of a single tree or groups of trees may be necessary as a result of the following situations:

Removal Criteria

- A tree is dead.
- A tree in a state of declining health that will result in its ultimate demise within one (1) year. Declining trees are defined as having a permanent and progressive reduction in health, vigor and/or structural stability that can eventually lead to its death or structural failure. Declining trees may typically be over mature, suffering from old wounds or other impacts that has interrupted the living system resulting in impeded growth and followed by the depletion of energy reserves that are normally stored in the root mass resulting in the reduction of health, condition and stability. Declining trees with chronic, irreversible symptoms shall be removed.
- A tree infected with a disease that cannot be treated successfully and/or there is a strong indication that the pathogen could spread to other trees in the immediate vicinity that poses a threat to the health of other trees nearby, and/or a wider population of the urban forest.
- A tree has been determined through a Risk Assessment Report to be a hazard because of its high potential for failure due to considerable dead or dying foliage, branches, roots or trunk.
- A tree requires extensive root pruning because of excessive hardscape damage resulting in the severe reduction of its capacity to support itself thereby creating a potential safety hazard.
- A tree that is not a good candidate for relocation.
- A tree is not a good candidate for relocation and has been approved for removal as part of a City Council approved public improvement project that has already gone through the established public process.
- A tree planted by a private party in the public right-of-way after City Council approval of this Plan may be subject to removal of the tree by the City.

Prior to the removal of any public tree, it should be the City's responsibility to evaluate the condition of the tree, it's remaining life span, health and condition, structural stability, root mass, trunk, branching system, canopy and foliage.

Trees should not be approved for removal for reasons such as leaves or berries dropping from the tree, too much shade, urban wildlife nesting in the tree, obstructing street lights.

The evaluation should begin with an inspection of the tree by two certified arborists from the Public Landscape Division staff. The findings of this evaluation should be put in writing for review by the Public Landscape Manager. Based upon the evaluation, the Community Forester in consultation with the Public Landscape Manager will make a determination of whether a tree should be removed. In rendering a determination, the City reserves the right to engage the services of an independent arborist to conduct an independent evaluation.

Removal Appeals

If, during the notification period, a member of the public questions the removal of a posted tree, the removal may be appealed on a form to be provided by the Community and Cultural Services Department (Administrative and Planning Services Division) to the Director of Community and Cultural Services or designee. This tree removal appeal process does not apply to trees that have been identified for removal as part of a City initiated Public Improvement Project as described on Page 52.

The Director or designee will consider all information, including the evaluations made by the Public Landscape Division and any written information submitted by the member of the public. Prior to making a decision, the Director or designee may, at her/his discretion, request additional information by an outside consulting arborist before rendering a decision. The Director's or designee's decision shall be final.

In cases where, following the evaluation, a tree is posing an immediate hazard and is considered to be a threat to public safety, the Public Landscape Manager shall have administrative authority to approve the immediate removal of the tree in the interest of public safety.

Notification Process for Tree Removals

Once it has been determined that a tree is to be removed, a removal notification will be prepared by the Community Forester and issued for public review. The tree removal notification shall provide details on:

- Tree location.
- Reason for removal.
- Identify the tree replacement species.

The City will publicize a notice of intended street tree removals using the following methods:

- Posting the Removal Notice on the tree with red tape.
- Door-to-door noticing to all residents on the impacted block.
- Publishing the notice on the City's web site and distributing the notice to the Urban Forest contact list of community members requesting notices on a regular basis.

The notice shall be posted on the tree fourteen (14) working days in advance of the intended removal. The notice will include the reason for the intended removal and provide community members with an opportunity to provide fedback or ask questions of the Public Landscape Division staff.

Trees that pose an imminent threat of failure with the potential to cause personal injury or property damage will be removed as soon as possible with the approval of the Public Landscape Manager or their designee, with no public notification.

TREE RELOCATION CRITERIA

City Public Improvement Projects

The best option for existing trees is for them to remain in their existing location. However, relocation of public trees may be considered as a part of new City public improvement projects. All tree relocations will be subject to review and approval by the City Council upon completion of the project's community design and commission review processes.

The City will incorporate existing healthy trees in the design of City public improvement projects wherever consistent with the project's design objectives and after a community design process where proposed tree relocations and removals are identified. Where tree removal is included as part of the proposed design, the City will provide incentives for relocation of trees that have good survival prospects.

In addition to design illustrations, a proposed Tree Relocation and Removal Plan will be presented at project community design workshops. This information will be made available to the general public through the notification process and press releases to the local media.

The proposed Plan will be included in the project design submittals to the required review advisory and regulatory bodies. This Plan will also be included in project reports and project design presentations to the City Council at the appropriate stages of the project. The Plan will clearly state the trees to be impacted and the reasons for the proposed removals or relocations. If, during the design process, there are proposed changes to the Tree Relocation and Removal Plan as the overall design evolves and becomes more specific, these changes will be clearly noted in a revised Plan for review by the public and the required review bodies. The final Tree Relocation and Removal Plan will be approved by the City Council as part of their approval of the final project design and is not subject to the street tree appeal process outlined in Appendix 1.8.

Not all trees are good candidates for relocation. Relocation should only be considered for those trees that have enough vigor to thrive in the proposed new location. Trees that are struggling or have poor vigor, structural or root defects that cannot be corrected with pruning or treatments, should not be considered candidates for relocation. When relocation is not feasible and removal is required, a process involving community review will be followed as detailed in Chapter 2, page 52 of this Master Plan.

This policy on tree relocation is for the benefit of public improvement projects only and it should not be construed that private development projects can incorporate the relocation of public trees to benefit private development projects.

Tree Relocation Reports should contain the following information:

- The appraised value of the tree in relation to its relocation cost.
- Existing utilities and other elements of the City's infrastructure.
- The suitability of the tree for relocation, i.e. tree age, health, root and canopy structure.
- The mature size of the tree.
- Impact the relocated tree will have on the new site.
- Long term and short term maintenance and irrigation requirements.
- Chances of surviving relocation.
- Public input obtained as part of the project's community design process.
- Environmental benefits of the tree.
- Aesthetic and/or cultural value.

LANDMARK TREES

The Landmarks Ordinance permits the Landmarks Commission to designate a landmark tree if it meets one or more of the following criteria:

- It exemplifies, symbolizes, or manifests elements of the cultural, social, economic, political, or architectural history of the City.
- It has aesthetic or artistic interest or value, or other noteworthy interest or value.
- It is identified with historic personages or with important events in local, state or national history.
- It embodies distinguishing architectural characteristics valuable to a study of a period, style, method of construction, or the use of indigenous materials or craftsmanship, or is a unique or rare example of an architectural design, detail, or historical type to such a study.
- It is a significant or a representative example of the work or product of a notable builder, designer, or architect.
- It has a unique location, a singular physical characteristic, or is an established and familiar visual feature of a neighborhood, community or the City.

The Landmarks Commission must determine whether the nominated tree merits formal consideration as a landmark and, if so, a designation hearing would be scheduled. The Landmarks Ordinance requires the Landmarks Commission to review the tree's eligibility as a landmark based on the Landmark Tree Criteria. If designated, the Commission may include conditions for the tree's protection and to specify the limits of allowable general maintenance that would not require Landmarks approval. A Certificate of Appropriateness would generally be required for any alterations to the tree.

HERITAGE TREES

As fully described in this Master Plan, the Public Landscape Division, with the Urban Forest Master Plan Task Force if extended by City Council, will develop an educational program to identify public trees of exceptional merit that do not qualify for regulation under the Landmarks Ordinance. This program will teach the community about the value of these designated trees and raise public awareness of their contributions to the urban landscape. This program will be educational and not regulatory in nature.

APPENDIX 2 - STREET TREE DESIGNATIONS CRITERIA

STREET TREE DESIGNATIONS CRITERIA

In order to designate future replacement trees as they succumb to disease, become hazardous, or die, street tree designation criteria are followed. The Designated Street Tree List appears at the end of this document.

All streets in the city are divided into segments based on tree populations, grow space size, and neighborhoods. Blocks with streets which exhibit similar characteristics are grouped into a segment. Some segments span the entire city while some are only a block long.

Each street segment, and its existing trees, take into account quantity, size, health, and aesthetic appropriateness. If the dominant tree on the segment is determined to be the right tree for the right place, it will remain as the designated tree. If not, the following criteria will be considered when selecting a different species.

SPECIES DIVERSITY

The top 15 species should only be designated in existing healthy stands of trees that are considered to be the right trees for the right place. New species, which thrive in similar climates, should be regularly introduced to increase diversity of the urban forest. When filling vacancies to complete existing monocultures, combinations of two tree types with similar characteristics may be used.

AESTHETICS AND NEIGHBORHOOD CHARACTER

If a new species is considered for a street segment, its appearance alongside existing trees must be considered. Since this plan will be implemented over time, new trees will be phased in one at a time, so they must blend aesthetically with existing trees and consider the neighborhood character during the replacement process.

TREE SITE AND GROWSPACE

The growspace available at the tree site is the most significant factor in tree selection. The soil volume is limited in small cut-outs and parkways and the list of trees that will thrive in those conditions is short. Root pruning may be necessary for trees planted in small growspaces, so a tree planted in such a space must be able to tolerate root pruning. Large growspaces offer an opportunity to increase canopy cover and environmental benefits for the City and a large range of trees can be planted in area with plenty of soil volume.

CANOPY SIZE

The mature size of the canopy is also a factor in tree selection. Adjacent building size and setback should be evaluated to determine whether a tree should have an upright, vase shaped, or spreading canopy.

Both vertical and horizontal shapes are considered. Increasing the canopy cover over the City is the objective, so the largest possible tree for the grow space should be considered.

LAND USE AND TRAFFIC CONSIDERATIONS

Commercial districts with boulevards will be considered differently than residential streets. Palms may be the preferred choice for major boulevards for way-finding purposes. Tree debris should always be considered on streets, which are used for parking.

Trees that line streets that have truck traffic need to be tolerant of being limbed up when young. Trees that are tolerant of pollution and help mitigate pollution should be used for high traffic streets and areas in close proximity to the freeway. Shade and comfort of pedestrians will always be considered.

MICRO-CLIMATE AND GROWING CONDITIONS

Some trees are adapted to grow in salt air and wind and others need some heat and protection from wind to thrive. Growing conditions for each street will be considered. Because the majority of trees will not be irrigated, the trees need to be able to survive on water when young, tapering off to little water when established.

AVAILABILITY

Research should continually be done for all new species introductions regarding the possibility of having them grown locally. Uncommon species may need to be contract grown to create availability for this species.

SPECIAL CASES: PALM ALLEES

The process of street tree selection for the Urban Forest Master Plan is motivated in large part, by recognition of the long-term environmental benefits of achieving a healthy, diverse urban forest with significantly enhanced canopy coverage citywide. This would seem to argue against preserving intact existing palm allees, or initiating the designation of new palm allees due to their marginal canopy and pollutant absorption potential.

Nevertheless, significant palm allees play a limited but important role in Santa Monica's urban forest. In this much-visited beach community, palms indicate that the ocean is near when they line the principal entry corridors. On these major corridors as well as in some residential areas, existing palm allees ideally frame ocean or mountain views. In Palisades Park, palm allees mark pedestrian progress along Ocean Avenue and grace postcard views of the beaches and bluffs. In selected cases, palm allees are an integral part of the neighborhood's identity.

In cases where there are allees of towering, slender palms, inter planting with a more pedestrian-scaled deciduous or evergreen species will add diversity, canopy, and increased environmental benefits without impact on the aesthetic and community benefits.

There are a limited range of circumstances where the inter planting of broadleaf trees is not preferred and continuance of the existing palm monoculture is appropriate. They include (in some combination) the following:

- Where 80% or more of the trees on a street are of the same or closely-related species, providing an attractive, unified appearance.
- Where the placement and form of the mature trees in the allee do, or in the case of like-species replacements, will, frame and preserve an existing or exceptional view.
- Where historic photographs and records show that the existing trees date from the earliest period of development of the neighborhood or are like-species replacements of original trees, and that the historic allee has not been significantly altered over time.
- Where the mature scale of the species comprising the allee is well suited to the street width, parkway size and prevailing setback of adjacent structures.
- Where replacement trees of the same species or a species closely resembling the scale and character of the original species is both available in nurseries and falls at a price point within the norm for replacement street trees.*

*In situations where City purchase of replacement of street trees to preserve a significant allee would be so costly that it would reduce the replacement budget for other areas of the city, residents or businesses located along the significant allee may be given the opportunity to form an assessment district under the City of Santa Monica's procedures, to create a fund that could augment the replacement budget. Failing that, the City will designate an alternate replacement species which will achieve the goals of the Master Plan, but may not preserve the monoculture.

Palm species may be recommended as a street tree in areas where the grow space for trees is severely limited and impinges on required sidewalk clearances. Unless and until significant infrastructure changes in those areas occur, designation of a palm species is the sole alternative to a treeless streetscape.

SPECIAL CASES: FICUS STREETS

The Ficus tree is the environmental workhorse of Santa Monica's urban forest. It absorbs more pollutants per unit of biomass than most of the other trees in the urban forest. It also shades homes and cars, reducing reliance on artificial climate control. Its wide canopy is loved by many residents. However, it is currently planted in many growspaces that are too small, encouraging the tree to lift sidewalks and disrupt infrastructure.

According to the current tree selection guideline, Ficus microcarpa would not be a suitable designation in many of the places it is currently planted, but the environmental benefits that the tree provides outweigh its potential downsides and it has been designated for streets that were known as "ficus streets." A "ficus street" segment has Ficus microcarpa making up 80% or more of the current street tree population.

Only in cases where a majority of the residents request that an alternate tree be chosen will a different tree be designated for the segment.

APPENDIX 3 - STREET TREE DESIGNATIONS LIST

City of Santa Monica Street Tree Designations List
Long Range Urban Forest Master Plan

Urban Forest Master Plan Task Force
Species Selection Subcommittee

STREET SEGMENT #	STREET SEGMENT	FROM	TO	EXISTING SPECIES	RECOMMENDED REPLACEMENT SPECIES[1]	ALTERNATE SPECIES[2]	COMMENTS
1.	**2nd St**	Montana Ave	California Ave	Ficus microcarpa	Ficus microcarpa	No alternate species at this time	No comment
2.	**2nd St Median**	Montana Ave	California Ave	Melaleuca quinquenervia	Corymbia citriodora	Lophostemon confertus	No comment
3.	**2nd St**	California Ave	Wilshire Blvd	Ficus microcarpa	Ficus microcarpa	No alternate species at this time	Designated City Landmark on this street segment [3]
4.	**2nd St**	Wilshire Blvd	Colorado Ave	Ficus microcarpa	Gingko biloba	No alternate species at this time	Species was selected per downtown streetscape plan. Designated City Landmark on this street segment [3]
5.	**2nd St**	Strand St	South City Limit	Callistemon citrinus, Ficus macrocarpa Tristaniopsis laurina	Myrica californica	Tristaniopsis laurina	Historic District extends from Ocean Park Bl. to Hill St. Designated City Landmark on this street segment [3]
6.	**3rd St**	Montana Ave	Washington Ave	Cinnamomum camphora	Cinnamomum camphora	No alternate species at this time	No comment
7.	**3rd St**	Washington Ave	California Ave	Callistemon Citrinus	Handroanthus chrysotricha	Stenocarpus sinuatus Brahea edulis	Widen parkway
8.	**3rd St**	California Ave	Wilshire Blvd	Pyrus kawakamii, Cupaniopsis anacardioides	Pyrus kawakamii	No alternate species at this time	Designated City Landmark on this street segment [3]

1. RECOMMENDED REPLACEMENT SPECIES:
Trees that will be the designated species for individual street segments

2. ALTERNATE SPECIES:
Trees that will be planted at the discretion of the City only in cases where the recommended species is not thriving, poses a threat of disease transfer to other trees or is unavailable in nurseries.

3. DESIGNATED CITY LANDMARK ON THIS STREET SEGMENT:
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STREET SEGMENT #	STREET SEGMENT	FROM	TO	EXISTING SPECIES	RECOMMENDED REPLACEMENT SPECIES[1]	ALTERNATE SPECIES[2]	COMMENTS
9.	**3rd St**	Wilshire Blvd	Broadway Ave	Jacaranda mimosifolia, Washingtonia robusta	Washingtonia robusta Jacaranda mimosifolia	No alternate species at this time	Designated City Landmark on this street segment [3]
10.	**3rd St**	Pico Blvd	South City Limit	Tristaniopsis laurina	Quillaja saponaria	Melaleuca armillaris	Historic District extends from Ocean Park Bl. to Hill St. Designated City Landmark on this street segment [3]
11.	**4th St Median**	Adelaide Dr	Montana Ave	Syagrus romanzoffianum	Woodyetia bifurcata Eucalyptus delgupta	No alternate species at this time	No comment
12.	**4th St**	Adelaide Dr	Montana Ave	Metrosideros excelsus	Woodyetia bifurcata Eucalyptus delgupta	No alternate species at this time	Plant in groups of 3
13.	**4th St**	Montana Ave	Wilshire Blvd	Washingtonia robusta, Pittosporum undulatum, Cupaniopsis anacardioides	Angophora costata	Eucalyuptus maculata	Designated City Landmark on this street segment [3]
14.	**4th St**	Wilshire Blvd	Colorado Ave	Ficus microcarpa	Gingko biloba	No alternate species at this time	Species was selected per downtown streetscape plan. Designated City Landmark on this street segment [3]
15.	**4th St**	Olympic Dr	Pico Blvd	Washingtonia robusta	W/S of st = Hymenosporum flavum E/S of st = Howea forsteriana	Hymenosporum flavum planted along east side adjacent to SAMOHI.	When Civic Center developed, recommended wider parkway
16.	**4th St**	Pico Blvd	Ocean Park Blvd.	Callistemon citrinus	Chionanthus retusus	No alternate species at this time	Designated City Landmark on this street segment [3]

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17.	4th St Median	Pico Blvd	Ocean Park Blvd.	Syagrus romanzoffianum	Handroanthus avellanedae	No alternate species at this time	Handroanthus planted in median & traffic circle. Designated City Landmark on this street segment [3]
18.	4th St	Ocean Park Blvd.	South City Limit	Ficus microcarpa	Koelreuteria paniculata	No alternate species at this time	No comment
19.	5th St	Montana Ave	Wilshire Blvd	Washingtonia robusta, Prunus cerasifera	Brahea edulis Prunus blireiana	No alternate species at this time	Prunus planted in between Palm
20.	5th St	Wilshire Blvd	Colorado Ave	Ficus macrocarpa, Afrocarpus falcatus	Corymbia citriodora Albizia julibrissin	No alternate species	Planted in an alternating pattern. Designated City Landmark on this street segment [3].
21.	5th St	Colorado Ave	Dead End	Tristaniopsis laurina	Hymenosporum flavum	No alternate species at this time	No comment
22.	5th St Median	Colorado Ave	Dead End	Corymbia citriodora	Corymbia citriodora	No alternate species at this time	No comment
23.	5th St	Bay St	Ocean Park Blvd	Ficus microcarpa Cercis canadensis	Magnolia grandiflora 'Samuel Sommer'	Ficus microcarpa	Ficus are to be used on the west side of the sports field at Los Amigos Park. Designated City Landmark on this street segment [3]
24.	5th St	Ocean Park Blvd	Hill St	Melaleuca quinqenervia	Melaleuca quinquenervia	No alternate species at this time	No comment

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25.	**5th St**	Marine St	Dewey St	Melaleuca quinqenervia	Melaleuca quinquenervia	No alternate species at this time	No comment
26.	**6th St**	Montana Ave	Idaho Ave	Magnolia grandiflora	Magnolia grandiflora 'Samuel Sommer'	No alternate species at this time	No comment
27.	**6th St**	Idaho Ave	Wilshire Blvd	Washingtonia robusta Prunus bleriana	Melaleuca stypheloides	No alternate species at this time	Melaleuca replaces Washingtonia Prunus replaces Prunus
28.	**6th St**	Wilshire Blvd	Colorado Ave	Washingtonia robusta, Cinnamomum camphora, Cupaniopsis anacardioides	Cinnamomum camphora	Koelreuteria bipinnata	No comment
29.	**6th St**	Pico Blvd	Dead End	Washingtonia robusta, Cercis canadensis	Cercis canadensis	Tristaniopsis laurina	Recommended turning segment to "living street"/green belt
30.	**6th St**	Bay St	Ocean Park Blvd	Podocarpus macrophyllus, Washingtonia robusta, Cupressus sempervirens	Stenocarpus sinuatus	Chionanthus retusus	No comment
31.	**6th St**	Marine St	Dewey St	Melaleuca quinquenervia	Melaleuca quinquenervia	No alternate species at this time	Increase parkway size
32.	**6th St**	Ocean Park Blvd	Pier Ave	Malaleuca quinquervia, Tristaniopsis laurina, Koelreuteria bipinnata	Melaleuca quinquenervia	Quillaja saponaria	No comment

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33.	**7th St**	Adelaide Dr	San Vicente Blvd	Cedrus deodara	Cedrus deodara	No alternate species at this time	No comment
34.	**7th St**	San Vicente Blvd	Washington Ave	Magnolia grandiflora, Eucalyptus spp., Losphostemon confertus.	Eucalyptus cladocalyx for 7' parkway	Corymbia citriodora for 5' parkways	Designated City Landmark on this street segment [3]
35.	**7th St**	Washington Ave	California Ave	Eucalyptus spp.	Corymbia citriodora	Lophostemon confertus Eucalyptus cladocalyx	Organic planting for Eucalyptus
36.	**7th St**	California Ave	Wilshire Blvd	Cedrus deodra, Magnolia grandiflora	Cedrus deodara	No alternate species at this time	No comment
37.	**7th St**	Wilshire Blvd	Colorado Ave	Phoenix canariensis, Podocarpus macrophyllus	Afrocarpus falcatus	No alternate species at this time	No comment
38.	**7th St**	Santa Monica Blvd	Colorado Ave	Phoenix canariensis Podocarpus gracilior	Fraxinus oxycarpa 'Raywood'	No alternate species at this time	No comment
39.	**7th St**	Colorado Ave	BBB Main Campus	Cupaniopsis anacardioides	W/S of st. = Arbutus 'Marina' E/S of st. = Angophora costata	No alternate species at this time	No comment
40.	**7th St**	Michigan Ave	Pico Blvd	Cinnamomum camphora Phoenix canariensis, Schinus terebinthifolius	W/S of st. = Jacaranda mimosifolia E/S of st. = Cinnamomum camphora	No alternate species at this time	No comment

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41.	**7th St**	Grant St	South City Limit	Washingtonia robusta, Afrocarpus falcatus	Hymenosporum flavum Tristaniopsis laurina	No alternate species at this time	No comment
42.	**9th St**	San Vicente Blvd	Alta Ave	Syagrus romanzoffianum, Losphostemon confertus, Eucalyptus spp.	Pinus torreyana	No alternate species at this time	No comment
43.	**9th St**	Alta Ave	Montana Ave	Eucalyptus ficafolia	Eucalyptus ficafolia	No alternate species at this time	No comment
44.	**9th St**	Montana Ave	Wilshire Blvd	Washingtonia robusta Cedrus deodra	Pinus torreyana	No alternate species at this time	GHG Segment Replace Cedar with the Pinus torreyana
45.	**9th St**	Wilshire Blvd	Colorado Ave	Magnolia grandifolia, Washingtona robusta	Ulmus parvifolia	No alternate species at this time	Designated City Landmark on this street segment [3]
46.	**9th St**	Dead End	Olympic Blvd	Magnolia grandiflora Ficus microcarpa	Robinsonella cordata	Ulmus parvifolia	No comment
47.	**9th St**	Dead End	Pico Blvd	Ficus microcarpa	Cinnamomum camphora	No alternate species at this time	No comment
48.	**10th St**	San Vicente Blvd	Montana Ave	Quercus virginiana, Cupaniopsis anacardioides, Eucalyptus erythrocorys	Quercus agrifolia	Quercus tomentella	Designated City Landmark on this street segment [3]

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49.	**10th St**	Montana Ave	Wilshire Blvd	Ceratonia siliqua, Cinnamomum camphor, Cedrus spp.	Quercus agrifolia	Quercus tomentella	No comment
50.	**10th St**	Wilshire Blvd	Colorado Ave	Magnolia grandiflora, Washingtonia robusta, Jacaranda mimosifolia	Lophostemon confertus 'Variegata'	No alternate species at this time	No comment
51.	**10th St**	Dead End	Olympic Blvd	Ulmus parvifolia	Ulmus parvifolia	No alternate species at this time	No comment
52.	**10th St**	Dead End North of Michigan	Pico Blvd	Ficus microcarpa	Ficus microcarpa	No alternate species at this time	No comment
53.	**10th St**	Pico Blvd	Ocean Park Blvd	Allocasuarina verticiliata	Allocasuarina verticiliata	No alternate species at this time	No comment
54.	**11th St**	San Vicente Blvd	Montana Ave	Magnolia grandiflora	Magnolia grandiflora	No alternate species at this time	No comment
55.	**11th St**	Montana Ave	Idaho Ave	Pinus spp, Cedrus spp, Washingtonia spp Eucalyptus spp.	Angophora costata	Eucalyptus amplifolia Euclayptus maculata	Species choice depends on avaliability
56.	**11th St**	Idaho Ave	California Ave	Eucalyptus spp., Pinus spp, Cinnamomum camphor	Pinus canariensis	Pinus elderica	No comment

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57.	**11th St**	California Ave	Wilshire Blvd	Magnolia grandiflora, Eucalyptus spp.	Angophora costata	Eucalyptus amplifolia Euclayptus maculata	Designated City Landmark on this street segment [3]
58.	**11th St**	Wilshire Blvd	Colorado Ave	Liquidambar styraciflua	Cedrela fissilis	Liquidamber styraciflua	No comment
59.	**11th St**	Colorado Ave	Pico Blvd	Jacaranda mimosifolia, Brachychiton populneus	Jacaranda mimosifolia	No alternate species at this time	No comment
60.	**11th St**	Pico Blvd	Ocean Park Blvd	Ficus microcarpa	Quercus agrifolia	Quercus ilex	No comment
61.	**11th St**	Ocean Park Blvd	South City Limit	Prunus caroliniana, Pyrus kawakamii, Metrosideros excelsus	Metrosideros excelsus	Schinus molle Heteromeles arbutifolia	Metrosideros & Schinus in 5' parkways Heteromeles in 1' parkways
62.	**12th St**	Georgina Ave	Montana Ave	Ceratonia siliqua	Quercus agrifolia	Quercus suber	No comment
63.	**12th St**	Montana Ave	California Ave	Ceratonia siliqua, Cedrus deodara Washingtonia robusta	Cedrus deodara	Cedrus atlantica	Similar Cedrus species may be used
64.	**12th St**	California Ave	Wilshire Blvd	Phoenix canariensis, Syagrus romanzoffianum	Schinus molle	No alternate species at this time	No comment

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65.	**12th St**	Wilshire Blvd	Colorado Ave	Lophostemon confertus, Washingtonia robusta, Phoenix canariensis	Schinus molle	Quillaja saponaria	Use Quillaja if Schinus does not thrive on this street segment
66.	**12th St**	Dead End	Dead End @ Freeway	Lagerstroemia indica, Phoenix canariensis	Tipuana tipu	No alternate species at this time	No comment
67.	**12th St**	Dead End @ Freeway	Pico Blvd	Jacaranda mimosifolia	Jacaranda mimosifolia	No alternate species at this time	No comment
68.	**14th St**	San Vicente Blvd	Montana Ave	Pinus canariensis, Washingtonia spp.	Pinus canariensis	Pinus elderica	No comment
69.	**14th St**	Montana Ave	Washington Ave	Cedrus deodara, Ceratonia siliqua, Magnolia grandiflora, Washingtonia robusta	Cedrus deodara	No alternate species at this time	No comment
70.	**14th St**	Washington Ave	Wilshire Blvd	Ficus microcarpa	Melaleuca linariifolia	Melaleuca styphelioides	No comment
71.	**14th St**	Wilshire Blvd	Santa Monica Blvd	Magnolia grandiflora	Melaleuca linariifolia	Melaleuca styphelioides	No comment
72.	**14th St**	Santa Monica Blvd	Freeway	Magnolia grandiflora, Cupaniopsis anacardioides	Melaleuca linariifolia	Melaleuca styphelioides	No comment

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73.	**14th St**	Freeway	Pico Blvd	Magnolia grandiflora, Ficus microcarpa	Pinus pinea	No alternate species at this time	Pines are way finder trees for the Cemetery
74.	**14th St**	Pico Blvd	Ocean Park Blvd	Acacia melanoxylon, Liquidambar styraciflua	Liquidamber styraciflua	Liquidambar styraciflua 'Rotundiloba'	Seek Grant Funds to eliminate monolithic curb
75.	**14th St**	Ocean Park Blvd	Ashland Ave	Ficus microcarpa	Ficus microcarpa in 8' parkways Ulmus parvifolia in 3' parkways	No alternate species at this time	No comment
76.	**15th St**	Georgina Ave	Washington Ave	Cedrus deodara Cedrus atlantica Ceratonia siliqua Magnolia spp.	Cedrus deodara Cedrus atlantica Magnolia grandiflora	No alternate species at this time	Cedrus replaces Cedrus Magnolia replaces all non-Cedrus
77.	**15th St**	California Ave	Colorado Ave	Cedrus deodara, Magnolia grandiflora, Washingtonia robusta	Angophora costata	No alternate species at this time	No comment
78.	**15th St**	Olympic Blvd	Dead End @ Freeway	Magnolia grandiflora, Cedrus deodora, Ficus microcarpa	Cedrus deodara-(S. side of frwy) Platanus racemosa-(N. side of frwy)	No alternate species at this time	GHG Segment
79.	**16th St**	San Vicente Blvd	Montana Ave	Cedrus spp., Ceratonia siliqua, Washingtonia srobusta	Platanus racemosa	Quercus agrifolia	No comment
80.	**16th St**	Montana Ave	Washington Ave	Pinus canariensis, Lophostemon confertus, Syagrus romanzoffianum	Ulmus parvifolia	No alternate species at this time	No comment

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81.	**16th St**	Washington Ave	California Ave	Pinus canariensis, Lophostemon confertus	Pinus canariensis	No alternate species at this time	No comment
82.	**16th St**	California Ave	Wilshire Blvd	Pinus canariensis	Ulmus parvifolia	No alternate species at this time	No comment
83.	**16th St**	Wilshire Blvd	Colorado Ave	Magnolia grandiflora	Corymbia citriodora Magnolia grandiflora	No alternate species at this time	Eucalyptus are designated to be way finder trees for the Hospital
84.	**16th St**	Colorado Ave	Olympic Blvd	Magnolia grandiflora	E/S of St. = Pinus torreyana W/S of St. = Platanus racemosa	No alternate species at this time	GHG Segment
85.	**16th St**	Olympic Blvd	Delaware End @ Freeway	Cedrus deodara, Casuarina cunninghamiana	Casuarina cunninghamiana	Cedrus deodara	No comment
86.	**16th St**	Freeway	Delaware Ave	Cedrus deodara, Casuarina cunninghamiana	Cedrus deodara	No alternate species at this time	No comment
87.	**16th St**	Pico Blvd	Ocean Park Blvd	Magnolia grandiflora	Tipuana tipu	No alternate species at this time	No comment
88.	**16th St**	Ocean Park Blvd	South City Limit	Podocarpus spp., Eucalyptus spp.	Stenocarpus sinuatus	No alternate species at this time	No comment

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89.	**17th St**	San Vicente Blvd	Montana Ave	Magnolia grandiflora, Pinus canariensis	Magnolia grandiflora Ficus rubiginosa	No alternate species at this time	To be planted in an alternating pattern
90.	**17th St**	Montana Ave	California Ave	Washingtonia robusta, Liquidamber styraciflua, Ficus microcarpa Pinus spp. & Jacaranda	Platanus racemosa	Ginkgo biloba	No comment
91.	**17th St**	California Ave	Wilshire Blvd	Brachychiton populneus, Cinnamomum camphora	Platanus racemosa	No alternate species at this time	No comment
92.	**17th St**	Wilshire Blvd	Colorado Ave	Brachychiton populneus, Cinnamomum camphora, Magnolia grandifolia	Ulmus parvifolia	No alternate species at this time	No comment
93.	**17th St**	Colorado Ave	Dead End @ Freeway	Magnolia grandiflora, Lophostemon confertus	Lophostemon confertus	No alternate species at this time	No comment
94.	**17th St**	Dead End @ Freeway	Pico Blvd	Melaleuca quinquenervia, Koelreuteria bipinnata	E/S of St. = Koelrueteria bipinnata W/S of St. = Platanus racemosa	No alternate species at this time	No comment
95.	**17th St**	Pearl St	Ocean Park Blvd	Magnolia grandiflora	Quercus agrifolia	No alternate species at this time	No comment
96.	**17th St**	Ocean Park Blvd	Ashland Ave	Cinnamomum camphora, Ceratonia siliqua	Cinnamomum camphora	Koelreuteria bipinnata	No comment

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97.	**18th St**	San Vicente Blvd	Montana Ave	Phoenix canariensis, Washingtonia robusta	Jubaea chilensis Jubaea hybrid Washingtonia robusta	No alternate species at this time	Jubaea replaces Phoenix Washingtonia replaces Washingtonia
98.	**18th St**	Montana Ave.	Washington Ave	Washingtonia robusta	Quercus tomentella	No alternate species at this time	GHG segment
99.	**18th St**	Washington Ave	Wilshire Blvd	Podocarpus macrophyllus	Rhus lancea	No alternate species at this time	Recommended for infrastructure improvements
100.	**18th St**	Wilshire Blvd	Colorado Ave	Cinnamomum camphora	Cinnamomum camphora	No alternate species at this time	No comment
101.	**18th St**	Dead End North of Olympic	Dead End @ Freeway	Jacaranda mimosifolia	Chionanthus retusus	No alternate species at this time	No comment
102.	**18th St**	End of St South of Freeway	Pico Blvd	Liquidambar styraciflua	Gingko biloba 'Autumn Gold'	No alternate species at this time	Male trees only
103.	**18th St**	Cedar St	Ocean Park Blvd	Metrosideros excelsus	Metrosideros excelsus	No alternate species at this time	No comment
104.	**18th St**	Ocean Park Blvd	South City Limit	Nerium oleander	Arbutus 'Marina'	Lophostemon confertus 'Variegata'	No comment

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3. DESIGNATED CITY LANDMARK ON THIS STREET SEGMENT:
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See page 53; Guiding Principle #5 Stewardship, Section 14 Landmarks and Historic Districts

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105.	**19th St**	San Vicente Blvd	Montana Ave	Cedrus deodara	Cedrus deodara	No alternate species at this time	No comment
106.	**19th St**	Montana Ave	Wilshire Ave	Washingtonia robusta	Washingtonia robusta	No alternate species at this time	No comment
107.	**19th St**	Wilshire Ave	Broadway Ave	Washingtonia robusta	Washingtonia robusta Cercis occidentalis	No alternate species at this time	GHG sites. The Cercis are to be used as interplanting to create a more pedestrian friendly feel to the street
108.	**19th St**	Broadway Ave	Colorado Ave	Washingtonia robusta	Pinus torreyana	No alternate species at this time	GHG sites
109.	**19th St**	Colorado Ave	Olympic Blvd	Washingtonia robusta	Lyonothamnus f. asplenifolius	No alternate species at this time	GHG sites
110.	**19th St**	Michigan Ave	Pico Blvd	Liquidamber styraciflua	Liquidamber styraciflua	Ginkgo biloba	Two to one replacement ratio
111.	**20th St**	San Vicente Blvd	Montana Ave	Cedrus deodara	Cedrus deodara	No alternate species at this time	No comment
112.	**20th St**	Montana Ave	Wilshire Blvd	Ficus	Lyonothamnus f. asplenifolius	No alternate species at this time	No comment

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113.	**20th St**	Wilshire Blvd	Colorado Ave	Jacaranda mimosifolia, Washingtonia spp.	Jacaranda mimosifolia	No alternate species at this time	Colorado Ave to Santa Monica Blvd has monolithic curb
114.	**20th St**	Colorado Ave	Freeway	Callistemon citrinus, Jacaranda mimosifolia, Ficus microcarpa	Hymenosporum flavum	No alternate species at this time	Expand tree wells; use Sliva Cells for Tipuana tipu
115.	**20th St**	Freeway	Pico Blvd	Callistemon citrinus, Lagerstroemia indica	Arbutus 'Marina' Stenocarpus sinuatus	Lagerstroemia indica "Muskogee"	Species were chosen during the public outreach phase of the Cloverfield streetscape project
116.	**20th St**	Pico Blvd	Ocean Park Blvd	Lagerstroemia indica, Prunus caroliniana	Lagerstroemia indica	Hymenosporum flavum	No comment
117.	**21st Pl**	La Mesa Dr	San Vicente Blvd	Ficus macrophylla	Ficus macrophylla	Ficus rubiginosa	No comment
118.	**21st Pl**	San Vicente Blvd	Montana Ave	Allocasuarina verticiliata, Cedrus deodara, Washingtonia robusta	Allocasuarina verticiliata	No alternate species at this time	No comment
119.	**21st St**	San Vicente Blvd	Montana Ave	Phoenix canariensis, Washingtonia robusta	Jubaea chilensis Washingtonia robusta	No alternate species at this time	Jubaea replaces Phoenix Washingtonia replaces Washingtonia
120.	**21st St**	Montana Ave	Wilshire Blvd	Washingtonia robusta Cinnamomum camphora	Washingtonia robusta	No alternate species at this time	No comment

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121.	**21st St**	Wilshire Blvd	Arizona Ave	Jacaranda mimosifolia	Jacaranda mimosifolia	No alternate species at this time	No comment
122.	**21st St**	Santa Monica Blvd	Broadway Ave	Jacaranda mimosifolia	Jacaranda mimosifolia	No alternate species at this time	No comment
123.	**21st St**	Olympic Blvd	Michigan Ave	Liquidamber styraciflua	Hymenosporum flavum	No alternate species at this time	Monolithic curb
124.	**21st St**	Dead End @ Freeway	Delaware Ave	Lagerstroemia indica, Ficus microcarpa	Ulmus parvifolia	No alternate species at this time	No comment
125.	**21st St**	Virginia Ave	Pico Blvd	Ficus microcarpa	Pistacia chinensis	No alternate species at this time	No comment
126.	**21st St**	Pico Blvd	Ocean Park Blvd	Ficus microcarpa	Ficus microcarpa	No alternate species at this time	No comment
127.	**21st St**	Ocean Park Blvd	South City Limit	Jacaranda mimosifolia, Washingtonia robusta, Ceratonia seliqua	Ulmus parvifolia 'Allee'	No alternate species at this time	No comment
128.	**22nd St**	San Vicente Blvd	Montana Ave	Cedrus deodara, Ficus macrocarpa Magnolia grandifolia	Ulmus parvifolia	No alternate species at this time	No comment

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129.	**22nd St**	Montana Ave	Wilshire Blvd	Schinus molle, Cinnamomum camphora, Cedrus deodara	Koelreuteria bipinnata	No alternate species at this time	No comment
130.	**22nd St**	Wilshire Blvd	Arizona Ave	Cupaniopsis anacardioides	Koelreuteria bipinnata	No alternate species at this time	No comment
131.	**22nd St**	Pennsylvania Ave Ave	Michigan Ave	Pyrus kawakamii	Koelreuteria bipinnata	No alternate species at this time	No comment
132.	**22nd St**	Dead End @ Freeway	Virginia Ave	Podocarpus macrophyllus, Ulmus parvifolia	Koelreuteria bipinnata	No alternate species at this time	No comment
133.	**22nd St**	Pico Blvd	Ocean Park Blvd	Ficus microcarpa	Ficus microcarpa	No alternate species at this time	No comment
134.	**23rd St**	San Vicente Blvd	Montana Ave	Brachychiton populneus, Cinnamomum camphora, Pinus canariensis	Cinnamomum camphora	No alternate species at this time	No comment
135.	**23rd St**	Montana Ave	Wilshire Blvd	Podacarpus macrophyllus Cinnamomum camphora	Melaleuca linariifolia	No alternate species at this time	No comment
136.	**23rd St**	Wilshire Blvd	Broadway Ave	Cedrus deodara	Geijera parvifolia	No alternate species at this time	No comment

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137.	**23rd St**	Pico Blvd	Ocean Park Blvd	Cassia leptophylla	Arbutus 'Marina' Corymbia citriodora	No alternate species at this time	Alternating species every other tree
138.	**23rd St**	Ocean Park Blvd	South City Limit	Lagerstroemia indica Cassia leptophylla	Lagerstroemia indica 'Muskogee'	No alternate species at this time	Millenium Grove
139.	**24th St**	La Mesa Dr	San Vicente Blvd	Ficus macrophylla	Ficus macrophylla	Ficus rubiginosa	No comment
140.	**24th St**	San Vicente Blvd	Montana Ave	Pinus canariensis	Pinus canariensis	Pinus halepensis	P. halepensis planted every 3rd tree &/or @ corners Designated City Landmark on this street segment [3]
141.	**24th St**	Idaho Ave	Wilshire Blvd	Schinus molle	Koelreuteria bipinnata	Ginkgo biloba	No comment
142.	**24th St**	Wilshire Blvd	Arizona Ave	Chionanthus retusus	Chionanthus retusus	No alternate species at this time	No comment
143.	**24th St**	End of street	Broadway Ave	Ficus microcarpa	Zelkova serrata	No alternate species at this time	Root barriers required
144.	**24th St**	Michigan Ave	Delaware Ave	Ficus microcarpa	Ficus microcarpa	No alternate species at this time	No comment

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145.	**24th St**	Pico Blvd	Pearl St	Podocarpus macrophylla	Corymbia citriodora		Interplanting when funds allow
146.	**25th St**	San Vicente Blvd	Montana Ave	Cedrus atlantica 'Glauca'	Cedrus atlantica	No alternate species at this time	
147.	**25th St**	Montana Ave	Wilshire Blvd	Nerium oleander	Geijera parvifolia Tristaniopsis laurina	No alternate species at this time	Create balance with the two species
148.	**25th St**	Wilshire Blvd	Arizona Ave	Nerium oleander	Chionanthus retusus	No alternate species at this time	No comment
149.	**25th St**	Santa Monica Blvd	Broadway Ave	Washingtonia spp, Cupaniopsis anacardioides, Brachychiton populneus	Koelreuteria bipinnata	No alternate species at this time	No comment
150.	**25th St**	Pico Blvd	Ocean Park Blvd	Schinus terebinthefolius	Koelreuteria bipinnata	Robinia x. ambigua 'Idahoensis'	Robinia to be planted at corners Designated City Landmark on this street segment [3]
151.	**25th St**	Ocean Park Blvd	Ashland Ave	Liquidambar styraciflua	Ginkgo biloba	No alternate species at this time	No comment
152.	**26th St**	North City Limit	Georgina Ave	Podocarpus macrophyllus	Howea forsteriana	No alternate species at this time	Seek Grant funds for streetscape design for commercial zone Designated City Landmark on this street segment [3]

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153.	**26th St**	Georgina Ave	Colorado Ave	Podocarpus macrophyllus	Arbutus 'Marina' Corymbia citriodora	No alternate species at this time	Plant Arbutus @ 20 25' on center where possible. Corymbia is to be planted only on corners to serve as wayfinding trees
154.	**26th St**	Colorado Ave	Olympic Blvd	Cupaniopsis anacardioides	Washingtonia robusta	No alternate species at this time	Create tree wells. Determine route for Expo Line
155.	**26th St**	Olympic Blvd	Cloverfield Blvd	Phoenix canariensis	Phoenix dactylifera	No alternate species at this time	No comment
156.	**26th St**	Pico Blvd	Dead End	Casuarina cunninghamiana	Casuarina cunninghamiana	No alternate species at this time	No comment
157.	**27th St**	Virginia Ave	Kansas Ave	Afrocarpus falcatus	Hymenosporum flavum	No alternate species at this time	No comment
158.	**27th St**	Pico Blvd	Pearl St	Nerium oleander	Lagerstroemia indica 'Muskogee'	Chionanthus retusus	No comment
159.	**28th St**	Pico Blvd	Ocean Park Blvd	Schinus terebinthefolius	Koelreuteria paniculata	No alternate species at this time	No comment
160.	**28th St**	Ocean Park Blvd	Dead End	No trees currently existing at this time	Add median in Business Park. Measure V Funds to create bioswale & new section	No alternate species at this time	No comment

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161.	**29th St**	Pico Blvd	Ocean Park Blvd	Ceratonia siliqua, Cupaniopsis anacardiodes	Pistachia chinensis	No alternate species at this time	No comment
162.	**30th St**	Pico Blvd	Ocean Park Blvd	Podocarpus macrophylla Afrocarpus falcatus	Gleditsia triacanthos	No alternate species at this time	No comment
163.	**31st St**	Pico Blvd	Ocean Park Blvd	Jacaranda mimosifolia, Metrosideros excelsus, Platanus occidentalis	Jacaranda mimosifolia	No alternate species at this time	Root barriers will be a requirement for new trees on this street
164.	**32nd St**	Pico Blvd	Ocean Park Blvd	Ficus microcarpa	Ginkgo biloba	No alternate species at this time	This species was chosen by the 32nd St. residents in 2003
165.	**33rd St**	Pico Blvd	Ocean Park Blvd	Cupaniopsis anacardioides	Melaleuca linariifolia	No alternate species at this time	No comment
166.	**34th St**	Pico Blvd	Ocean Park Blvd	Podocarpus macrophylla Afrocarpus falcatus	Albizia julibrissin	No alternate species at this time	Root barriers are required for this street
167.	**34th St**	Exposition Blvd	Centinela Ave	Prunus caroliniana, Podocarpus macrophyllus	Ulmus parvifolia 'Drake'	No alternate species at this time	No comment
168.	**Airport Ave**	City Limits	Centinela Ave	Ceratonia siliqua	Handroanthus avellanedae	No alternate species at this time	Designated City Landmark on this street segment [3]

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169.	**Alta Ave**	Ocean Ave	7th St	Magnolia grandiflora, Washintonia robusta	Magnolia grandiflora	No alternate species at this time	Designated City Landmark on this street segment [3]
170.	**Alta Ave**	7th St	11th St	Pinus spp., Agonis flexuosa, Eucalyptus spp.	Agonis flexuosa	No alternate species at this time	No comment
171.	**Alta Ave**	11th St	14th St	Ficus microcarpa	Ficus microcarpa	Ulmus parvifolia	
172.	**Alta Ave**	14th St	26th St	Pinus Canariensis, Casuarina cunninghamiana	Pinus canariensis	No alternate species at this time	No comment
173.	**Arizona Ave**	Ocean Ave	7th St	Washingtonia spp., Cinnamomum camphora, Ceratonia siliqua	Species will be selected as part of a future Arizona Ave. streetscape design	No alternate species at this time	Waiting on future streetscape improvements thru Planning Dept.
174.	**Arizona Ave**	7th St	26th St	Cinnamomum camphora, Magnolia grandiflora, Pittosporum undulatum	Cinnamomum camphora	No alternate species at this time	Designated City Landmark on this street segment [3]
175.	**Arizona Ave**	26th St	Centinela Ave	Ficus microcarpa	Pistachia chinensis	No alternate species at this time	Due to resident concerns about winter sunlight and visibility, deciduous trees are recommended for this street segment Male trees only
176.	**Ashland Ave**	Neilson Way	2nd St	Cupaniopsis anacardioides	Cupaniopsis anacardiodes	No alternate species at this time	No comment

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177.	**Ashland Ave**	2nd St	Lincoln Blvd	Ficus	Fraxinus oxycarpa 'Raywood'	No alternate species at this time	The proposed species is more suitable for the limited parkway size and sidewalk width
178.	**Ashland Ave**	Lincoln Blvd	14th St	Cinnamomum camphora, Schinu molle, Cedrus spp., Jacaranda mimosifolia	Cedar deodara Cinnamomum camphora	No alternate species at this time	Cedar replace Cedar and Camphors replace Camphors
179.	**Ashland Ave**	16th St	17th St	Ficus microcarpa	Ficus microcarpa	Jacaranda mimosifolia	No comment
180.	**Ashland Ave**	17th St	23rd St	Callistemon citrinus	Pyrus kawakamii	No alternate species at this time	No comment
181.	**Ashland Ave**	23rd St	25th St	Brachychiton populneus, Pyrus kawakamii, Jacaranda mimosifolia	Jacaranda mimosifolia	No alternate species at this time	No comment
182.	**Barnard Way**	Hollister Ave	Neilson Way	Washingtonia robusta	Brahea edulis	Woodvetchia bifurcate	No comment
183.	**Bay St**	Ocean Ave	6th St	Washingtonia robusta	Brahea armata	No alternate species at this time	GHG Site/ create parkway. Designated City Landmark on this street segment [3]
184.	**Bay St**	6th St	Lincoln Blvd	Callistemon citrinus	Handroanthus avellanedae	Myrica californica	No comment

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185.	**Bay St**	Lincoln Blvd	11th St	Ficus microcarpa	Lyonothamnus f. asplenifolius	No alternate species at this time	Plant @ 20 – 25' on center for 2 trees per property
186.	**Bay St**	11th St	14th St	Ficus microcarpa	Ficus microcarpa	Laurus nobilis 'Saratoga'	No comment
187.	**Bay St**	14th St	16th St	Ficus microcarpa	Ficus microcarpa	Laurus nobilis 'Saratoga'	No comment
188.	**Beach St**	2nd St	3rd St	Lagunaria patersonii	Heteromeles arbutifolia	No alternate species at this time	This segment is in the Historic District Designated City Landmark on this street segment [3]
189.	**Berkeley St**	Stanford St	Wilshire Blvd	Podocarpus macrophyllus	Cassia leptophylla	No alternate species at this time	No comment
190.	**Berkeley St**	Wilshire Blvd	Pennsylvania Ave	Variety of species on this street segment	Rhus lancea	Pyrus kawakamii	No comment
191.	**Beverley Ave**	Kensington Rd	Ocean Park Blvd	Magnolia grandiflora, Eucalyptus spp.	Angophora costata	Corymbia citriodora	Designated City Landmark on this street segment [3]
192.	**Bicknell Ave**	Ocean Ave	Neilson Way	Magnolia grandiflora, Arbutus menziesii, Washingtonia robusta	Cercis occidentalis	Magnolia grandiflora 'Little Gem'	This site is a bioswale created thru Measure V

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193.	**Bicknell Ave**	Neilson Way	4th St	Variety of species on this street segment	Harpephyllum caffrum	No alternate species at this time	Plant males only
194.	**Brentwood Terrace**	12th St	14th St	Cedrus spp., Nerium Oleander	Cedrus deodara	No alternate species at this time	No comment
195.	**Broadway Ave**	Ocean Ave	Lincoln Blvd	Magnolia grandiflora, Eucalyptus spp., Koelreuteria bipinnata	Koelreuteria paniculata	No alternate species at this time	Designated City Landmark on this street segment [3]
196.	**Broadway Ave**	Lincoln Blvd	11th St	Magnolia grandiflora, Eucalyptus spp.	Koelreuteria paniculata	No alternate species at this time	Designated City Landmark on this street segment [3]
197.	**Broadway Ave**	11th St	16th St	Lophostemon confertus, Eucalyptus ficafolia.	Cedrela fissilis	No alternate species at this time	No comment
198.	**Broadway Ave**	16th St	Cloverfield Blvd	Magnolia grandiflora, Eucalyptus spp., Lophostemon confertus	Sophora japonica 'Regent'	No alternate species at this time	Where necessary create parkways and plant trees at 20' on center
199.	**Broadway Ave**	Cloverfield Blvd	26th St	Magnolia grandiflora, Eucalyptus spp., Melaleuca quinquenervia	Lophostemon confertus	No alternate species at this time	No comment
200.	**Broadway Ave**	26th St	Centinela Ave	Eucalyptus spp.	Sophora japonica 'Regent'	No alternate species at this time	No comment

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STREET SEGMENT #	STREET SEGMENT	FROM	TO	EXISTING SPECIES	RECOMMENDED REPLACEMENT SPECIES[1]	ALTERNATE SPECIES[2]	COMMENTS
201.	**California Ave**	Ocean Ave	7th St	Eucalyptus spp., Phoenix canariensis, Washingtonia spp.	Angophora costata	No alternate species at this time	Designated City Landmark on this street segment [3].
202.	**California Ave Median**	Ocean Ave	7th St	Eucalyptus spp.	Eucalyptus sideroxylon	No alternate species at this time	E. sideroxylon to be planted in the median only
203.	**California Ave**	7th St	Lincoln Blvd	Cedrus deodara, Magnolia grandiflora, Brachychiton populneus	Cinnamomum camphora	Cedrus deodara	Cedar only get planted on the south side of street adjacent to Reed Park
204.	**California Ave**	Lincoln Blvd	14th St	Brachychiton populneus, Magnolia grandiflora, Cinnamomum camphora, Pinus canariensis	Cinnamomum camphora	No alternate species at this time	No comment
205.	**California Ave**	14th St	17th St	Ficus microcarpa, Pittosporum undulatum	Ficus microcarpa	No alternate species at this time	No comment
206.	**California Ave**	17th St	26th St	Brachychiton populneus, Ficus microcarpa, Jacaranda mimosofolia, Phoenix canariensis	Albizia julibrissin	No alternate species at this time	No comment
207.	**Carlyle Ave**	9th St	14th St	Liquidambar styraciflua	Liquidambar styraciflua 'Rotundiloba'	Ginkgo biloba	No comment
208.	**Carlyle Ave**	14th St	26th St	Pinus canariensis, Washingtonia spp.	Pinus canariensis	No alternate species at this time	No comment

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209.	**Cedar St**	7th St	Lincoln Blvd	Ficus microcarpa	Podocarpus latifolius	No alternate species at this time	No comment
210.	**Cedar St**	Lincoln Blvd	14th St	Cassia leptophylla, Metrosideros excelsus	Hymenosporum flavum Cassia leptophylla		Planting plan will be developed to create a regular rhythm on the street
211.	**Cedar St**	17th St	18th St	Schinus molle	Quercus tomentella	Schinus molle	No comment
212.	**Centinela Ave**	Darlington Ave	Wilshire Blvd	Casuarina cunninghamiana	Casuarina cunninghamiana	No alternate species at this time	No comment
213.	**Centinela Ave**	Pico Blvd	Ocean Park Blvd	Ficus	Ficus microcarpa	No alternate species at this time	No comment
214.	**Chelsea Ave**	Washington Ave	Wilshire Blvd	Ficus	Zelkova serrata	Pistachia chinensis	If Zelkova doesn't work use alternate species
215.	**Chelsea Ave**	Wilshire Blvd	Santa Monica Blvd	Ficus	Zelkova serrata	Pistachia chinensis	If Zelkova doesn't work use Pistache
216.	**Chelsea Place**	Chelsea Ave	Dead End	Callistemon citrinus Phoenix canariensis	Cassia leptophylla	No alternate species at this time	No comment

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217.	**Cloverfield Blvd**	Santa Monica Blvd	Colorado Ave	Melaleuca spp. Ficus spp. Callistemon citrinus	Phoenix dactylifera	Tipuana tipu	Tipuana tipu in Silva Cell
218.	**Cloverfield Blvd**	Colorado Ave	Michigan Ave	Phoenix dactylifera, Tipuana tipu in median	Phoenix dactylifera in tree wells Tipuana tipu in the median	No alternate species at this time	No comment
219.	**Cloverfield Blvd**	Freeway	Pico Blvd	Callistemon citrinus, Lagerstroemia indica	Lophostemon confertus Handroanthus avellanedae	Lagerstroemia indica 'Muskogee'	Species were chosen during the public outreach phase of the Cloverfield streetscape project
220.	**Cloverfield Blvd**	Pico Blvd	Ocean Park Blvd	Ficus spp.	Ficus microcarpa	No alternate species at this time	No comment
221.	**Colorado Ave**	Ocean Ave	4th St	Ficus microcarpa, Metrosideros excelsus, Corymbia citriodora	This section is being developed as part of a future streetscape for the Expo Line	No alternate species at this time	This section is being developed as part of a future streetscape for the Expo Line
222.	**Colorado Ave - Sears Triangle**	2nd St	Main St	Washingtonia spp.	Replacement species will be disignated as a part of a future streetscape for the Expo Line	No alternate species at this time	Part of the Esplanade design phase of the Expo Line project
223.	**Colorado Ave**	4th St	26th St	Metrosideros excelsus, Cupaniopsis anacardioides	Replacement species will be designated as a part of a future streetscape for the Expo Line	No alternate species at this time	Streetscape design for the Colorado Esplanade. Designated City Landmark on this street segment [3]
224.	**Colorado Ave**	26th St	Centinela Ave	Ficus spp.	Ficus microcarpa	No alternate species at this time	Infrastructure improvements to accommodate the Ficus trees will be requested.

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225.	**Delaware Ave**	15th St	18th St	Casuarina cunninghamiana	Casuarina cunninghamiana	No alternate species at this time	No comment
226.	**Delaware Ave**	18th St	Cloverfield Blvd	Cupaniopsis anacardioides	Schinus molle	No alternate species at this time	No comment
227.	**Delaware Ave**	Stewart St	Warwick Ave	Ficus microcarpa	Ficus microcarpa	No alternate species at this time	No comment
228.	**Dewey St**	16th St	23rd St	Prunus cerasifera, Pittosporum undulatum, Podocarpus spp,	N/S of St. = Cercis canadensis S/S of St. = Pinus radiata	N/S of St. = Prunus cerasifera S/S of St. = Pinus radiata	GHG Segment
229.	**Dorchester Ave**	Exposition Blvd Blvd	Virginia Ave	Araucaria araucana, Afrocarpus falcatus, Podocarpus macrophylla	Handroanthus chrysotricha	Eucalyptus cladocalyx	Eucalyptus are way finder trees planted in curb pop outs at intersections
230.	**Dorchester Ave**	Dead End	Pico Blvd	Podocarpus macrophyllus, Morus alba	Lagerstroemia indica 'Muskogee'	Afrocarpus falcatus	Podocarpus planted on corners with root barriers Future site for curb extensions
231.	**Esparta Way**	San Vicente Blvd	Dead End	Magnolia grandiflora	Magnolia grandiflora	No alternate species at this time	No comment
232.	**Euclid St**	Georgina Ave	Montana Ave	Magnolia grandiflora	Magnolia grandiflora	No alternate species at this time	No comment

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233.	Euclid St	Montana Ave	Wilshire Blvd	Cedrus spp., Palm spp., Brachychiton, Cinnamomum camphora	Agonis flexuosa	No alternate species at this time	Designated City Landmark on this street segment [3]
234.	Euclid St	Wilshire Blvd	Broadway Ave	Palm spp. Ceratonia siliqua	Schinus molle	Albizia julibrissin	Albizzia will be planted where the Schinus does not thrive
235.	Euclid St	Broadway Ave	Colorado Ave	Palm spp., Magnolia grandifolia	Calocedrus decurrens	No alternate species at this time	Create new tree well cutouts
236.	Euclid St	Dead End	Olympic Blvd	Washingtonia spp., Magnolia grandifolia	Lyonothamnus f. asplenifolius	No alternate species at this time	No comment
237.	Euclid St	Dead End @ Freeway	Pico Blvd	Quercus ilex	Quercus suber	Quercus agrifolia	No comment
238.	Euclid St	Pico Blvd	Ocean Park Blvd	Metrosideros excelsus, Prunus caroliniana	Schinus molle	Metrosideros excelsus	No comment
239.	Euclid St	Ocean Park Blvd	Ashland Ave	Liquidambar styraciflua	Liquidamber styraciflua	No alternate species at this time	Designate this as a 'Green Street'
240.	Exposition Blvd	Stewart St	Centinela Ave	Podocarpus macrophyllus	Geijera parvifolia	No alternate species at this time	No comment

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241.	**Frank St**	Delaware Ave	Virginia Ave	Eucalyptus spp.	Tristaniopsis laurina	No alternate species at this time	No comment
242.	**Franklin St**	Montana Ave	Wilshire Blvd	Nerium oleander	Geijera parvifolia	Lagerstroemia indica 'Muskogee'	Crape Myrtles are way finder trees for the Reservoir
243.	**Franklin St**	Wilshire Blvd	Colorado Ave	Ficus microcarpa	Albizia julibrissin	No alternate species at this time	No comment
244.	**Franklin St**	Colorado Ave	Nebraska Ave	Ceratonia siliqua, Ulmus parvifolia, Palm spp.	Ulmus parvifolia 'Drake'	No alternate species at this time	No comment
245.	**Fraser Ave**	Barnard Way	Neilson Way	Metrosideros excelsus	Wodyetia bifurcata	No alternate species at this time	No comment
246.	**Georgina Ave**	Ocean Ave	14th St	Phoenix canariensis, Phoenix dactylifera	Jubaea chilensis Jubaea hybrid	Phoenix dactylifera	Create a planting plan that will unify the street tree theme for this segment. Phoenix (male only) may be used if Jubaea is not available Designated City Landmark on this street segment [3]
247.	**Georgina Ave**	14th St	17th St	Casuarina cunninghamiana	Casuarina cunninghamiana	No alternate species at this time	No comment

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248.	**Georgina Ave**	17th St	26th St	Ficus microcarpa	Ficus microcarpa	Ulmus parvifolia	No comment
249.	**Glenn Ave**	Marine St	Ashland Ave	Callistemon viminalis	Callistemon viminalis	No alternate species at this time	No comment
250.	**Grant St**	6th St	Lincoln Blvd	Cinnamomum camphora, Pittosporum undulatum	Cinnamomum camphora	No alternate species at this time	No comment
251.	**Grant St**	Lincoln Blvd	16th St	Ficus microcarpa	Arbutus 'Marina'	No alternate species at this time	Plant trees @ 20 – 25' on center for 2 trees per property where appropriate
252.	**Hart Ave**	Barnard Way	Neilson Way	Metrosideros excelsus	Wodyetia bifurcata	No alternate species at this time	No comment
253.	**Harvard St**	Montana Ave	Wilshire Blvd	Jacaranda mimosifolia	Jacaranda mimosifolia	No alternate species at this time	No comment
254.	**Harvard St**	Wilshire Blvd	Colorado Ave	Jacaranda mimosifolia, Podocarpus macrophyllus	Jacaranda mimosifolia	Melia azedarach	Plant Melia (males only) if Jacaranda does not thrive
255.	**Highland Ave**	Ocean Park Blvd	South City Limit	Callistemon citrinus, Eucalyptus spp	Acacia stenophylla	No alternate species at this time	No comment

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256.	**Hill St**	Neilson Way	4th St	Trachycarpus fortunei	Heteromeles arbutifolia	No alternate species at this time	Historic District extends from 2nd St to 3rd St. Designated City Landmark on this street segment [3]
257.	**Hill St**	4th St	6th St	Melaleuca quinquenervia	Melaleuca linariifolia	No alternate species at this time	No comment
258.	**Hill St**	Highland Ave	Lincoln Blvd	Trachycarpus fortunei	Chionanthus retusus	Prunus blireiana	Plant Prunus if the Chionanthus do not thrive
259.	**Hill St**	Lincoln Blvd	11th St	Podocarpus macrophyllus	Chionanthus retusus	Prunus blireiana	No comment
260.	**Hill St**	11th St	17th St	Lagerstroemia indica, Ceratonia siliqua, Cupaniopsis anacardioides	Arbutus 'Marina'	Lagerstroemia indica "Muskogee"	Designated City Landmark on this street segment [3]
261.	**Hill St**	17th St	21st St	Ceratonia siliqua, Cupaniopsis anacardioides	Arbutus 'Marina'	Lagerstroemia indica "Muskogee"	No comment
262.	**Hill St**	21st St	25th St	Ficus microcarpa	Ficus microcarpa	Laurus nobilis 'Saratoga'	Plant Laurus only if the Ficus start to fail
263.	**Hollister Ave**	Barnard Way	Neilson Way	Metrosideros excelsus	Banksia integrifolia	No alternate species at this time	No comment

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264.	**Hollister Ave**	Ocean Ave	Main St	Metrosideros excelsus	Arbutus 'Marina'	No alternate species at this time	Designated City Landmark on this street segment [3]
265.	**Hollister Ave**	Main St	3rd St	Callistemon citrinus, Lagerstroemia indica	Hymenosporum flavum	No alternate species at this time	Parkway 3-4 ft Designated City Landmark on this street segment [3]
266.	**Hollister Ave**	4th St	Beverly Ave	Metrosideros excelsus	Leptospermum petersonii	No alternate species at this time	Parkway 1-4 ft
267.	**Idaho Ave**	Ocean Ave	7th St	Liquidambar styraciflua, Pittosporum undulatum	Liquidamber styraciflua	Gingko biloba	Use the Gingko if the Liquidambar styraciflua fails
268.	**Idaho Ave**	7th St	14th St	Cedrus spp., Schinus molle, Magnolia grandifolia Washingtonia spp.,	Cedrus deodara Eucalyptus cladocalyx	No alternate species at this time	Eucalyptus to be planted at corners cross streets and alleys
269.	**Idaho Ave**	14th St	21st St	Magnolia grandiflora, Washingtonia spp., Cinnamomum camphor	Pinus radiata	No alternate species at this time	GHG Segment. Designated City Landmark on this street segment [3]
270.	**Idaho Ave**	21st St	26th St	Brachychiton populneus, Cinnamomum camphora	Cinnamomum camphora	No alternate species at this time	No comment
271.	**Kansas Ave**	Cloverfield Blvd	Dead End	Afrocarpus falcatus	Afrocarpus falcatus	No alternate species at this time	No comment

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272.	**Kennsington Ave**	Beverly Ave	Lincoln Blvd	Afrocarpus falcatus	Eucalyptus leucoxylon	Eucalyptus macrocarpa	600 Block/ 4 ft Parkway Use 'Rosea' cultivar if possible
273.	**Kinney St**	Neilson Way	Main St	Cupaniopsis anacardiodes	Cupaniopsis anacardiodes	No alternate species at this time	No comment
274.	**La Mesa Dr**	19th St	26th St	Ficus macrophylla	Ficus macrophylla	Ficus rubiginosa	Designated City Landmark on this street segment [3]
275.	**La Mesa Pl**	La Mesa Dr	26th St	Ficus macrophylla	Ficus macrophylla	Ficus rubiginosa	No comment
276.	**Lipton Ave**	Stanford St	Centinela Ave	Trachycarpus fortunei	Cassia leptophylla	No alternate species at this time	No comment
277.	**Lincoln Blvd**	San Vicente Blvd	Montana Ave	Ceratonia siliqua	Quercus agrifolia	Quercus suber	No comment
278.	**Lincoln Blvd**	Montana Ave	Wilshire Blvd	Cedrus spp., Washingtonia spp.	Quercus agrifolia	No alternate species at this time	Designated City Landmark on this street segment [3]
279.	**Lincoln Blvd**	Wilshire Blvd	South City Limit	Liquidambar styraciflua, Tristainia laurina	Waiting on CALTRANS to release this street to the City of SM	No alternate species at this time	Waiting on CALTRANS to release this street to the City of Santa Monica

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280.	**Main St**	Colorado Ave	Pico Blvd	Podocarpus macrophyllus	Tipuana tipu	No alternate species at this time	Designated City Landmark on this street segment [3]
281.	**Main St**	Pico Blvd	South City Limit	Ficus microcarpa, Podocarpus macrophyllus	Ficus microcarpa	Corymbia citriodora	Designated City Landmark on this street segment [3]
282.	**Maple St**	Lincoln Blvd	16th St	Ficus microcarpa	Ficus microcarpa	Lophostemon confertus 'Variegata'	Plant Lophostemon in locations where Ficus die from Sooty Canker
283.	**Maple St**	17th St	18th St	Variety of species on this street segment	Lyonothamnus f. asplenifolius	No alternate species at this time	GHG Segment
284.	**Margaret Lane**	Marine St	Dead End	No trees currently existing at this time	No trees currently existing at this time	No alternate species at this time	Skipped Parkway too small/ no trees
285.	**Marguerita Ave**	Ocean Ave	7th St	Phoenix canariensis, Phoenix dactylifera	Jubaea chilensis Jubaea hybrid	Phoenix dactylifera	Create a planting plan that will unify the street tree theme for this segment
286.	**Marguerita Ave**	7th St	14th St	Phoenix canariensis, Washingtona robusta	Washingtonia robusta	No alternate species at this time	No comment
287.	**Marguerita Ave**	14th St	16th St	Ficus microcarpa	Ficus microcarpa	Ulmus parvifolia	No comment

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Trees that will be planted at the discretion of the City only in cases where the recommended species is not thriving, poses a threat of disease transfer to other trees or is unavailable in nurseries.

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STREET SEGMENT #	STREET SEGMENT	FROM	TO	EXISTING SPECIES	RECOMMENDED REPLACEMENT SPECIES[1]	ALTERNATE SPECIES[2]	COMMENTS
288.	**Marguerita Ave**	16th St	17th St	Casuarina cunninghamiana	Casuarina cunninghamiana	No alternate species at this time	No comment
289.	**Marguerita Ave**	17th St	22nd St	Palm spp., Cinnamomum camphora, Brachychiton populneus	Jubaea chilensis Jubaea hybrid Cinnamomum camphora	Palms will be replaced with Jubaea. Broadleaf trees will be replaced with Camphor.	Create a planting plan that will unify the street tree theme for this segment
290.	**Marguerita Ave**	22nd St	26th St	Cinnamomum camphora, Brachychiton populneus, Palm spp.	Cinnamomum camphora	No alternate species at this time	No comment
291.	**Marine St**	Neilson Way	4th St	Eucalyptus spp., Metrosideros excelsus	Metrosideros excelsus	Tristaniopsis laurina in 200 Block	No comment
292.	**Marine St**	4th St	Highland Ave	Afrocarpus falcatus Podacarpus macrophyllus	Metrosideros excelsus Tristaniopsis laurina	No alternate species at this time	Metrosideros in large parkways Tristania in small parkways
293.	**Marine St**	Highland Ave	Lincoln Blvd	Podacarpus macrophyllus, Radermachera sinica	Stenocarpus sinuatus	Pyrus calleryana 'Aristocrat'	No comment
294.	**Marine St**	Lincoln Blvd	17th St	Ficus microcarpa	Ficus microcarpa	No alternate species at this time	No comment
295.	**Marine St**	18th St	23rd St	Ficus microcarpa	Ulmus parvifolia 'Drake'	No alternate species at this time	No comment

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296.	**Michigan Ave**	7th St	Lincoln Blvd	Schinus molle	Schinus molle	No alternate species at this time	No comment
297.	**Michigan Ave**	Lincoln Blvd	20th St	Ficus	Ficus microcarpa	No alternate species at this time	No comment
298.	**Michigan Ave**	21st St	Cloverfield Blvd	Punus cerasifera, Pyrus kawakamii	Lophostemon confertus Platanus racemosa	No alternate species at this time	Remove asphalt @ 22nd St to create new sites for GHG trees
299.	**Michigan Ave**	Cloverfield Blvd	Dead End @ Bergamont Station	Trachycarpus fortunei, Punus cerasifera	Lophostemon confertus 'Variegata'	Prunus cerasifera	Plant in between the existing Prunus cerasifera
300.	**Mills St**	2nd St	3rd St	Melaleuca stypheloides	Melaleuca stypheloides	No alternate species at this time	No comment
301.	**Montana Ave**	Ocean Ave	7th St	Liquidambar styraciflua	Liquidamber styraciflua	Ginkgo biloba	Only use Gingko if Liquidambar styraciflua fails
302.	**Montana Ave**	7th St	17th St	Ficus microcarpa	Corymbia citriodora	No alternate species at this time	Corymbia is being proposed as the replacement. Task Force will take input from merchants & businesses on this street segment before a final decision

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303.	**Montana Ave**	17th St	21st St	Afrocarpus falcatus	Afrocarpus falcatus	No alternate species at this time	No comment
304.	**Montana Ave**	21st St	Stanford St	Brachychiton populneus, Palm spp., Cinnamomum camphora	Fraxinus oxycarpa 'Raywood'	No alternate species at this time	No comment
305.	**Navy St**	Highland Ave	Lincoln Blvd	Afrocarpus falcatus	Arbutus 'Marina'	Acacia stenophylla	No comment
306.	**Navy St**	18th St	23rd St	Ficus microcarpa	Ulmus parvifolia 'Drake'	No alternate species at this time	Street trees to be pruned to preserve existing view corridors
307.	**Nebraska Ave**	Stewart St	Centinela Ave	No trees currently exist on this street segment	Platanus racemosa	No alternate species at this time	GHG Segment
308.	**Neilson Way**	2400 Block	2500 Block	Eucalyptus spp., Metrosideros excelsus, Punus cerasifera	Arbutus 'Marina'	No alternate species at this time	No comment
309.	**Neilson Way**	2600 Block	Municipal Parking Lot	Ficus microcarpa, Metrosideros excelsus, Punus cerasifera	Arbutus 'Marina'	No alternate species at this time	Arbutus 'Marina' planted on the E/S of St
310.	**Neilson Way**	2700 Block	2900 Block	Ficus microcarpa, Eucalyptus spp.	Eucalyptus torquata	No alternate species at this time	No comment

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311.	**Neilson Way Median**	Pico Blvd	South City Limit	Cassia leptophylla	Acrocarpus fraxinifolius	Koelreuteria paniculata	No comment
312.	**Norman Pl**	Main St	2nd St	Metrosideros excelsus, Lagerstroemia indica	Lagerstroemia indica 'Natchez'	No alternate species at this time	No comment
313.	**Oak St**	11th St	14th St	Metrosideros excelsus	Metrosideros excelsus	No alternate species at this time	No comment
314.	**Oak St**	14th St	17th St	Variety of species on this street segment	Cercis occidentalis	No alternate species at this time	Need to create new sites for GHG trees
315.	**Oak St**	17th St	23rd St	Ficus microcarpa	Ficus microcarpa	Sophora japonica 'Regent'	No comment
316.	**Oak St**	23rd St	25th St	Ficus microcarpa	Ficus microcarpa	Bischofia javanica	No comment
317.	**Ocean Ave**	North City Limit	Colorado Ave	Plam spp., Magnolia grandifolia, Koelreuteria bipinnata	Brahea armata Pinus torreyana (east side only)	No alternate species at this time	Designated City Landmark on this street segment [3]
318.	**Ocean Ave**	Colorado Ave	Bicknell Ave	Palm spp.	Brahea armata Pinus torreyana (east side only)	No alternate species at this time	No comment

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319.	**Ocean Ave**	Bicknell Ave	Strand St	Palm spp. Cercis canadensis, Metrosideros excelsus	Metrosideros excelsus	Arbutus unedo	Designated City Landmark on this street segment [3]
320.	**Ocean Ave**	Barnard Way	Hollister Ave	Washingtonia robusta	Wodyetia bifurcata	Brahea edulis	No comment
321.	**Ocean Park Blvd**	Barnard Way	Neilson Way	Syagrus romanzoffianum	Wodyetia bifurcata	Brahea edulis	No comment
322.	**Ocean Park Blvd**	Neilson Way	Main St	Syagrus romanzoffianum, Metrosideros excelsus	Wodyetia bifurcata	Brahea edulis	No comment
323.	**Ocean Park Blvd**	Main St	Lincoln Blvd	Syagrus romanzoffianum, Cassia leptophylla, Arbutus menziesii	Cassia leptophylla, Geijera parvifolia, Rhus lancea, Melaleuca linerifolia, Syagrus romanzoffianum, Washingtonia robusta	No alternate species at this time	All species designated for this street segment were selected through the public process for the Ocean Park Blvd. Streetscape Design
324.	**Ocean Park Blvd**	Lincoln Blvd	14th St	Ceratonia siliqua, Liquidambar styraciflua	Liquidamber styraciflua	Ginkgo biloba	No comment
325.	**Ocean Park Blvd**	14th St	25th St	Podocarpus macrophyllus, Lagerstroemia indica	Corymbia citriodora Lagerstroemia indica 'Muskogee'	No alternate species at this time	Eucalyptus to be used as interplanting Lagerstroemia replaces Podocarpus
326.	**Ocean Park Blvd**	25th St	34th St	Liquidambar styraciflua, Podocarpus macrophylla, Afrocarpus falcatus, Ceratonia siliqua	Corymbia citriodora	No alternate species at this time	No comment

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327.	**Ocean Park Blvd Median**	25th St	34th St	Pinus canariensis, Liquidambar styraciflua	Pinus canariensis	No alternate species at this time	No comment
328.	**Olympic Blvd Median**	10th St	Centinela Ave	Erythrina caffra	Erythrina caffra	No alternate species at this time	No comment
329.	**Olympic Blvd**	10th St	19th St	Ficus, Erythrina caffra, Washingtonia robusta	Stenocarpus sinuatus	No alternate species at this time	No comment
330.	**Olympic Blvd**	19th St	Cloverfeild Blvd	Bauhinia variegata, Melaleuca quinquenervia	Bauhinia blakeana	No alternate species at this time	No comment
331.	**Olympic Blvd**	Cloverfield Blvd	26th St	Melaleuca quinquenervia	Melaleuca linariifolia	No alternate species at this time	No comment
332.	**Olympic Blvd**	26th St	Centinela Ave	Melaleuca quinquenervia	Melaleuca quinquenervia	No alternate species at this time	No comment
333.	**Ozone St**	Highland Ave	Lincoln Blvd	Melaleuca quinquenervia	Quillaja saponaria	Cercis canadensis	No comment
334.	**Ozone Ave**	Lincoln Blvd	Frederick St	Schinus terebinthefolius, Prunus cerasifera	Quillaja saponaria	Prunus cerasifera	No comment

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335.	**Pacific St**	Ocean Ave	Neilson Way	Palm spp.	Lyonothamnus f. asplenifolius Livingstonia australis	No alternate species at this time	Livingstonia replaces Washingtonia Create new sites in-between palms for Lyonothamnus
336.	**Pacific St**	Neilson Way	4th St	Podocarpus macrophyllus, Afrocarpus falcatus, Eucalyptus spp.	Arbutus unedo	Acacia stenophylla	Plant between Palm
337.	**Pacific St**	4th St	6th St	Podocarpus macrophyllus, Eucalyptus spp.	Quercus tomentella	Quillaja saponaria	Overhead powerlines require the use of smaller statured trees
338.	**Pacific St**	6th St	Lincoln Blvd	Washingtonia robusta	Quercus tomentella	Quillaja saponaria	Overhead powerlines require the use of smaller statured trees
339.	**Pacific St**	Lincoln Blvd	14th St	Allocasuarina verticiliata	Allocasuarina verticiliata	No alternate species at this time	No comment
340.	**Pacific St**	14th St	16th St	Ficus microcarpa	Ficus microcarpa	Allocasuarina verticiliata	No comment
341.	**Palisades Ave**	Ocean Ave	7th St	Magnolia grandifolia, Palm spp.	Magnolia grandiflora	No alternate species at this time	Designated City Landmark on this street segment [3]
342.	**Pearl St**	Lincoln Blvd	14th St	Ficus microcarpa, Pittosporum undulatum, Cinnamomum camphora	Quercus agrifolia	Cinnamomum camphora	No comment

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343.	**Pearl St**	14th St	16th St	Ficus microcarpa, Pittosporum undulatum, Cinnamomum camphora	Quercus agrifolia Eucalyptus cladocalyx	Oak replaces Ficus Eucalyptus replaces Eucalyptus	Collaborate with SMMUSD to plant Albizzia in front of JAMS
344.	**Pearl St**	16th St	20th St	Eucalyptus spp., Jacaranda mimosifolia	Albizia julibrissin Jacaranda mimosifolia	No alternate species at this time	Plant Jacaranda only if Albizia is not thriving
345.	**Pearl St**	20th St	28th St	Brachychiton populneus, Jacaranda mimosifolia, Callistemon citrinus	Albizia julibrissin Jacaranda mimosifolia	No alternate species at this time	Plant Jacaranda only if Albizia is not thriving
346.	**Pearl St**	28th St	Centinela Ave	Callistemon citrinus	Robinsonella cordata	No alternate species at this time	No comment
347.	**Pennsylvania Ave**	21st St	22nd St	Melaleuca quinquenervia	Plans for future infrastructure improvements to be proposed for this street segment to accommodate new trees.	No alternate species at this time	Recommend converting into a One Way Street & create new streetscape
348.	**Pennsylvania Ave**	26th St	Stewart St	Melaleuca quinquenervia	Platanus racemosa	No alternate species at this time	GHG sites
349.	**Pennsylvania Ave**	Stanford St	Centinela Ave	Jacaranda mimosifolia, Magnolia grandiflora, Brachychiton populneus	Jacaranda mimosifolia	No alternate species at this time	No comment
350.	**Pico Blvd**	Ocean Ave	Centinela Ave	Platanus X acerifolia	Platanus acerifolia	No alternate species at this time	Designated City Landmark on this street segment [3]

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351.	**Pier Ave**	Neilson Way	2nd St	Brachychiton populneus	Leptospermum petersonii	No alternate species at this time	No comment
352.	**Pier Ave**	4th St	Lincoln Blvd	Podocarpus macrophyllus	Tristaniopsis laurina Hymenosporum flavum	No alternate species at this time	Interplanted with alternating pattern Prune to maintain view corridors to the east
353.	**Pier Ave**	Lincoln Blvd	11th St	Ficus microcarpa	Ficus microcarpa	No alternate species at this time	Traffic corridor
354.	**Pier Ave**	17th St	20th St	Pinus spp, Ceratonia siliqua, Prunus caroliniana	Pinus halepensis	Pinus thunbergiana in smaller parkways on opposite side of street	Prunus cerasifera can be used as in-fill planting
355.	**Pier Ave**	20th St	Clover St	Magnolia grandiflora, Nerium oleander, Eucalyptus spp.	Melaleuca linariifolia	No alternate species at this time	Preserve view corridors
356.	**Pine St**	7th St	Lincoln Blvd	Podocarpus macrophyllus	Pinus torreyana	Pinus thunbergiana in smaller parkways on opposite side of street	No comment
357.	**Pine St**	Lincoln Blvd	14th St	Ficus	Ficus microcarpa	Melaleuca linerifolia	No comment
358.	**Pine St**	17th St	18th St	Jacaranda mimosifolia	Jacaranda mimosifolia	No alternate species at this time	No comment

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359.	**Princeton St**	Montana Ave	Wilshire Blvd	Ficus microcarpa	Castinopsis cuspidata	Calodendrum capense	Use Calodendrum where the Castinopsis doesn't work
360.	**Princeton St**	Wilshire Blvd	Colorado Ave	Variety of species on this street	Stenocarpus sinuatus	No alternate species at this time	No comment
361.	**Prospect Ave**	Marine St	Dead End	Podocarpus macrophyllus	Podocarpus macrophyllus	No alternate species at this time	No comment
362.	**Raymond Ave**	4th St	Lincoln Blvd	Variety of species on this street	Harpullia pendula	Stenocarpus sinuatus	Designated City Landmark on this street segment [3]
363.	**Robson Ave**	17th St	Dewey St	Ficus microcarpa	Ficus microcarpa	Calodendrum capense	Use Calodendrum if Ficus die from Sooty Canker
364.	**San Vicente Blvd Median**	Ocean Ave	26th St	Erythrina caffra	Erythrina caffra	No alternate species at this time	No comment
365.	**San Vicente Blvd**	Ocean Ave	7th St	Magnolia grandiflora	Magnolia grandiflora 'Samuel Sommer'	Corymbia citriodora	E. citriodora to indicate major cross streets. Designated City Landmark on this street segment [3]
366.	**San Vicente Blvd**	7th St	26th St	Magnolia grandiflora	Magnolia grandiflora	Corymbia citriodora	E. citriodora to indicate major cross streets Designated City Landmark on this street segment [3]

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367.	**Santa Monica Blvd**	Ocean Ave	Lincoln Blvd	Koelreuteria bipinnata, Cupaniopsis anacardioides	Koelreuteria bipinnata	No alternate species at this time	Designated City Landmark on this street segment [3].
368.	**Santa Monica Blvd**	Lincoln Blvd	26th St	Cupaniopsis anacardioides, Magnolia grandiflora, Palm spp.	Waiting on CALTRANS to release this street to the City of SM	No alternate species at this time	Waiting on determination of future large scale streetscape development once the strret has been released by CALTRANS
369.	**Santa Monica Blvd**	26th St	East City Limit	Washingtonia robusta	Waiting on CALTRANS to release this street to the City of SM	No alternate species at this time	Waiting on determination of future large scale streetscape development once the strret has been released by CALTRANS
370.	**Stanford St**	Montana Ave	Wilshire Blvd	Nerium oleander, Callistemon citrinus	Cercis canadensis Afrocarpus falcatus	No alternate species at this time	Street tree planting plan to be developed for this street segment
371.	**Stanford St**	Wilshire Blvd	Colorado Ave	Prunus caroliniana, Podocarpus macrophyllus, Afrocarpus falcatus	Cercis canadensis Afrocarpus falcatus	No alternate species at this time	Street tree planting plan to be developed for this street segment
372.	**Stanford St**	Colorado Ave	Nebraska Ave	Casuarina Callistemon citrinus	Tipuana tipu	No alternate species at this time	Recommend infrastructure improvements prior to planting
373.	**Stewart St**	Kansas Ave	Colorado Ave	Tristania laurina Eucalyptus amplifolia	Lophostemon confertus Eucalyptus amplifolia	No alternate species at this time	Eucalyptus to be planted in the larger parkways
374.	**Strand St**	Ocean Ave	Main St	Metrosideros excelsus, Melaleuca leucadendron, Podocarpus macrophyllus	Banksia integrifolia	Leptospermum petersonii	100 Block only /Parkway 3-4 FT

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375.	**Strand St**	Main St	Lincoln Blvd	Podocarpus macrophyllus, Eucalyptus spp.	Hymenosporum flavum	Castanopsis cuspidata	700 Block/ Parkway 3-4 FT
376.	**Sunset Ave**	Glenn Ave	16th St	No trees currently exist at this time	No trees currently exist at this time	No alternate species at this time	Skipped-Parkway too small/ no trees
377.	**Urban Ave**	Pico Blvd	Yorkshire Ave	Variety of species on this street	No trees currently exist at this time	No alternate species at this time	No comment
378.	**Virginia Ave**	20th St	Cloverfield Blvd	Ficus microcarpa	Ulmus parvifolia	Pistachia chinensis	Use Pistachia if Ulmus fails to thrive
379.	**Virginia Ave**	Cloverfield Blvd	27th St	Podocarpus macrophylla Afrocarpus falcatus Geijera parvifolia	Pinus canariensis	No alternate species at this time	No comment
380.	**Virginia Ave**	Stewart St	Centinela Ave	Pinus canariensis, Podocarpus macrophylla, Afrocarpus falcatus	Pinus canariensis	No alternate species at this time	Pines are proposed for their environmental benefits, to offset the close proximity to the I-10
381.	**Wadsworth Ave**	Barnard Way	Neilson Way	Metrosideros	Wodyetia bifurcata	No alternate species at this time	No comment
382.	**Warwick Ave**	Exposition Blvd	Virginia Ave	Callistemon citrinus	Ulmus parvifolia 'Drake'	No alternate species at this time	No comment

1. RECOMMENDED REPLACEMENT SPECIES:
Trees that will be the designated species for individual street segments

2. ALTERNATE SPECIES:
Trees that will be planted at the discretion of the City only in cases where the recommended species is not thriving, poses a threat of disease transfer to other trees or is unavailable in nurseries.

3. DESIGNATED CITY LANDMARK ON THIS STREET SEGMENT:
Public Landscape Division staff will seek input from the Landmarks Commission in an advisory capacity to obtain information on the historical context regarding species designations adjacent to Landmarks on this street segment.
See page 53; Guiding Principle #5 Stewardship, Section 14 Landmarks and Historic Districts

City of Santa Monica Street Tree Designations List
Long Range Urban Forest Master Plan

Urban Forest Master Plan Task Force
Species Selection Subcommittee

STREET SEGMENT #	STREET SEGMENT	FROM	TO	EXISTING SPECIES	RECOMMENDED REPLACEMENT SPECIES[1]	ALTERNATE SPECIES[2]	COMMENTS
383.	**Washington Ave**	Ocean Ave	4th St	Washingtonia robusta, Phoenix canariensis	Calocedrus decurrens	No alternate species at this time	GHG Segment Designated City Landmark on this street segment [3]
384.	**Washington Ave**	4th St	7th St	Washingtonia robusta, Phoenix canariensis	Cinnamomum camphora	No alternate species at this time	No comment
385.	**Washington Ave**	7th St	14th St	Cinnamomum camphora, Magnolia grandiflora, Cedrus doedara	Cinnamomum camphora	No alternate species at this time	No comment
386.	**Washington Ave**	14th St	16th St	Ceratonia siliqua, Cedrus doedara	N/S of St. = Bishofia javanica N/S of St. = Podocarpus totara	Bishofia javanica only when Podocarpus totara unavailable	Cedrus deodara to be planted adjacent to N/S of school as wayfinder trees
387.	**Washington Ave**	16th St	21st St	Palm spp., Eucalyptus spp., Ceratonia siliqua	Calocedrus decurrens	No alternate species at this time	GHG species
388.	**Washington Ave**	21st St	24th St	Palm species, Podocarpus macrophylla, Afrocarpus falcatus	Koelreuteria bipinnata	No alternate species at this time	No comment
389.	**Washington Ave**	24th St	Stanford St	Grevillea robusta	Koelreuteria bipinnata	No alternate species at this time	No comment
390.	**Wilshire Blvd**	Ocean Ave	Centinela Ave	Washingtonia robusta	Washingtonia robusta	No alternate species at this time	Designated City Landmark on this street segment [3]

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STREET SEGMENT #	STREET SEGMENT	FROM	TO	EXISTING SPECIES	RECOMMENDED REPLACEMENT SPECIES[1]	ALTERNATE SPECIES[2]	COMMENTS
391.	**Wilshire Blvd Medians**	Ocean Ave	Centinela Ave	Dypsis decaryi	Neodypsis decaryii	No alternate species at this time	No comment
392.	**Yale St**	Montana Ave	Arizona Ave	Ficus microcarpa	Tipuana tipu Ficus microcarpa	No alternate species at this time	Use Ficus if Tipuana fails
393.	**Yale St**	Arizona Ave	Colorado Ave	Palm spp., Schinus molle, Brachychiton populneus	Quillaja saponaria	Hymenosporum flavum	No comment
394.	**Yorkshire Ave**	Pico Blvd	Dead End	Podocarpus macrophyllus	Handroanthus avellanedae	No alternate species at this time	No comment

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APPENDIX 4 - GLOSSARY

ADAPTIVE MANAGEMENT APPROACH

The principle of accommodating changes and unforeseen events without forcing changes to strategic goals and key objectives.

A systematic process for continually improving management policies and practices by learning from the outcomes of previously employed policies and practices.

AIR QUALITY MANAGEMENT DISTRICT (AQMD)

The air pollution control agency for all of Orange County and the urban portions of Los Angeles, Riverside and San Bernardino counties.

ALLUVIAL FAN

A fan-shaped deposit of eroded soil or sediment formed by flowing water.

ALLUVIAL DEPOSIT

Eroded soil deposited by flowing water.

BENEFIT-COST ANALYSIS

A type of economic evaluation in which both the costs and consequences of different interventions are expressed in monetary units.

BEST MANAGEMENT PRACTICES (BMP)

Methods that have been determined to be the most effective, practical means of preventing or reducing pollution from non point sources.

A practice or combination of practices determined to be the most effective and practical means (technological, economic, and institutional) that when implemented to their maximum efficiency will facilitate the protection, maintenance, health and management of the urban forest, city streets and its users.

BIODIVERSITY

The spectrum of life forms and the ecological processes that support and sustain them. Biological diversity is a complex of four interacting levels: genetic, species, community, and landscape.

BIOGENIC VOLATILE ORGANIC COMPOUNDS (BVOC)

Emissions of biogenic volatile organic compounds.

BIOMASS

The total mass of living matter, including plants, vegetation, large animals and insects.

Plant materials, vegetation, and agricultural waste used as source of energy.

BIOSWALE

A storm water runoff conveyance system that provides an alternative to storm sewers. Designed to absorb low flows or carry runoff from heavy rains to storm sewer inlets or directly to surface waters.

A landscape element designed to remove silt and pollution from surface runoff water; consisting of a swaled drainage course with gently sloped sides that are filled with vegetation and permeable materials, such as gravel and/or riprap.

BRANCH COLLAR

Wood tissue that forms around the base of a branch between the main stem and the branch. Usually as a branch begins to die the branch collar begins to increase in size.

CALIFORNIA COASTAL COMMISSION

The Coastal Commission, in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone.

CALLUS

New growth made by the cambium layer around all of a wound.

CAMBIUM LAYER

Growing point between the bark and sapwood.

CANOPY

The branches and foliage of a tree above ground or water.

CARBON SEQUESTRATION

Removal of carbon from the air by living trees and plants to be stored in their cells through the process of photosynthesis.

CAVITY

An open and exposed area of wood, where the bark is missing and internal wood has been decayed and dissolved.

COMPACTION

The compression of soil, causing a reduction of pore space and an increase in the density of the soil. Tree roots cannot grow in compacted soil.

COMPLETE STREETS

Streets that are designed to enable safe access for all users. Pedestrians, bicyclists, motorists and transit riders of all ages and abilities must be able to safely move along and across a complete street.

CONIFER

Plant that bears seeds in a cone.

CONTINUOUS IMPROVEMENT PROCESS/CYCLE

An ongoing effort to improve products, services or processes on an incremental basis or breakthrough improvement all at once.

CRITICAL ROOT ZONE (CRZ)

The area of undisturbed natural soil around a tree defined by a concentric circle with a diameter in feet equal to twice the number of inches of trunk diameter that is used to determine compliance with design standards and construction specifications.

CURB EXTENSIONS

A traffic calming measure, primarily used to extend the sidewalk and reducing the crossing distance and allowing pedestrians about to cross and approaching vehicle drivers to see each other when vehicles parked in a parking lane would otherwise block visibility.

Also known as curb bump-outs and curb pop-outs.

CUT BACK

Specified reduction of the overall size of the tree or individual branches, but may include the overall reduction of the sides as well as the top of the tree.

DIAMETER AT STANDARD HEIGHT (DSH)

Measurement standard for trees taken four and a half feet (4 1⁄2') height from finish grade.

DECIDUOUS TREE

A tree that naturally sheds its leaves seasonally.

DECLINING TREE

Declining trees are defined as having a permanent and progressive reduction in health, vigor and/or structural stability that can eventually lead to its death or structural failure. Declining trees may typically be over mature, suffering from old wounds or other impacts that has interrupted the living system resulting in impeded growth and followed by the depletion of energy reserves that are normally stored in the root mass resulting in the reduction of health, condition and stability.

DECOMPOSED GRANITE (DG)

Granite stone that is broken down into smaller pieces to become gravel made up of fine particles that can be compacted into a permeable walking surface.

DIG ALERT

A service used to locate underground utilities prior to any kind of excavation in the public right-of-way.

DORMANT

A condition of non-active growth. Deciduous trees are considered to be dormant from the time the leaves fall until new foliage begins to appear.

ECOLOGY

An interconnected and symbiotic grouping of animals, plants, fungi, and microorganisms.

ECOSYSTEM

The interacting system of a biological community and its non-living environmental surroundings.

EMISSIONS

The discharge of a substance into the environment as the result of a process, partially or completely treated or in its natural state. Generally refer to the release of gases into the atmosphere as a by-product of combustion.

ENDEMIC

In ecology, a species or higher taxonomic unit found only within a specific area.

E/S

East side

EVAPOTRANSPIRATION

The process by which moisture is carried through plants from roots to small pores on the underside of leaves, where it changes to vapor and is released to the atmosphere. The evaporation of water molecules from the surfaces of plants, soil, and other objects.

An effect of evapotranspiration is the cooling of surrounding air.

EVERGREEN TREE

A tree that has leaves in all seasons. These trees can be broadleaved, conifers or palms.

EXPANSIVE SOILS

Expansive soils swell when wetted and shrink as they dry out.

GAP-GRADED SOIL

Soil with some particles coarse and some fine but without any significant amount of intermediate-sized fine and very fine sand particles, and consisting chiefly of small uniformly sized and angular stones (80 percent) and soil (20 percent). Once compacted, can support root growth as well as stability for pavement.

GIRDLING ROOTS

Located above or below ground level, whose circular growth around the base of the trunk or over the individual roots applies pressure to the bark area, thereby choking or restricting the flow of sap.

GEOGRAPHIC INFORMATION SYSTEM (GIS)

A Geographic Information System is a system designed to capture, store, manipulate, analyze, manage, and present all types of geographically referenced data.

A computerized system organizing data sets through the geographical referencing of all data included in its infrastructure.

GREENHOUSE EFFECT

The process that raises the temperature of air in the lower atmosphere due to heat trapped by greenhouse gases, such as carbon dioxide, methane, nitrous oxide, chlorofluorocarbons, and ozone.

GREENHOUSE GAS (GHG)

A gas involved in the greenhouse effect.

GREEN INFRASTRUCTURE

The interconnected network of natural areas and other open spaces that conserves natural ecosystem values and functions, sustains clean air and water, and provides a wide array of benefits to people and wildlife.

An interconnected network of protected land and water that supports native species, maintains natural ecological processes, sustains air and water resources and contributes to the health and quality of life for communities and people.

GREEN STREETS

Streets, parkways and sidewalks designed to capture runoff and infiltrate it through paved and landscaped areas, utilizing permeable materials and drought tolerant plants.

A green street is designed to:

- Integrate a system of stormwater management within its right of way
- Reduce the amount of water that is piped directly to streams, rivers, and oceans
- Be a visible component of a system of “green infrastructure” that is incorporated into the aesthetics of the community
- Make the best use of the street tree canopy for stormwater interception as well as temperature mitigation and air quality improvement
- Ensure the street has the least impact on its surroundings, particularly at locations where it crosses a stream or other sensitive areas (oregonmetro.gov).

GREY INFRASTRUCTURE

A city's physical elements such as buildings, roads, and utilities, all of which are vital to a community. Gray elements are also impervious, forcing stormwater to run off roofs, parking lots, and streets into stormwater sewer systems.

GUIDING PRINCIPLE

Overall guiding force that forms a vision.

GOAL

The result or achievement toward which effort is directed. Goals can be short term, long term and adaptable.

GROWSPACE

The ground level space that a tree is allotted to grow.

HABITAT

A place where the physical and biological elements of ecosystems provide a suitable environment including the food, cover, and space resources needed for plant and animal livelihood.

HARDSCAPE

Paved area surrounding a tree or adjacent to a tree; such as a sidewalk, street, curb, gutter, driveway, planter wall, retaining wall, walkway etc.

HAZARD EVALUATION

A report form as described in the book by Nelda P. Matheny & Report James R. Clark, *A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas*.

HAZARD TREE

A tree, or part of a tree, that has a high potential for failure and hitting a nearby target because of dead or dying foliage, branches, roots or trunk.

HEAT ISLAND EFFECT

A rise in atmospheric temperatures in urban and suburban areas due to isolating air pollutants as well as reflected heat off buildings, asphalt, and concrete surfaces.

INFRASTRUCTURE

The basic physical organization of a city's capital assets (e.g. sewer, utility, transportation systems) needed for operational function within a city.

INTEGRATED PEST MANAGEMENT (IPM)

An ecological approach to controlling pests and their damaging effects through use of mechanical, chemical, biological, cultural and regulatory techniques and the limited use of chemicals and pesticides.

iTREE

A software program developed by the US Forest Service to help Urban Foresters assess and manage the structure, function, and value of urban tree populations. The program provides information on the benefits and services provided by community trees, and is used to create effective urban forest management and arboricultural practices.

LANDMARK TREE

A tree that meets one or more of the following criteria:

- It exemplifies, symbolizes, or manifests elements of the cultural, social, economic, political, or architectural history of the City.
- It has aesthetic or artistic interest or value, or other noteworthy interest or value.
- It is identified with historic personages or with important events in local, state or national history.
- It embodies distinguishing architectural characteristics valuable to a study of a period, style, method of construction, or the use of indigenous materials or craftsmanship, or is a unique or rare example of an architectural design, detail, or historical type to such a study.
- It is a significant or a representative example of the work or product of a notable builder, designer, or architect.
- It has a unique location, a singular physical characteristic, or is an established and familiar visual feature of a neighborhood, community or the City.

LAND USE

The use of land.

LAND USE AND CIRCULATION ELEMENT (LUCE)

A Plan designed to maintain the City's character, protect its neighborhoods, manage transportation systems and encourage additional housing in a sustainable manner that will encourage a high quality of life for the residents of Santa Monica.

LION'S TAILING

The removal of all inner foliage from a particular branch displacing the weight to the end of the branch giving the branch the appearance of a lion's tail.

LIFTING

The removal of lower branches for under clearance.

LIVING STREET

A street in which the needs of vehicles are secondary to the needs of the users of the street as a whole.

MEASURE V

Tax revenue to be used solely for the purpose of implementing urban runoff water quality improvements in the City in accordance with the City's Watershed Management Plan.

MITIGATION
Measures taken to reduce adverse impacts on the environment.

MONOCULTURE
Continuous stands of the same tree species. A large number of the same trees in a city or region.

MONOLITHIC CURB
A curb that is cast as one piece, formed or composed of material without cut-outs or planting areas.

NATIVE PLANT
A plant that lives or grows naturally in a particular region without direct or indirect human intervention.

Plants indigenous to a region, naturally occurring and not introduced by humans.

NON-POINT SOURCE POLLUTION
Pollution that occurs when rainfall or irrigation runs over land or through the ground, picks up pollutants, and deposits them into rivers, lakes, and coastal waters or introduces them into ground water (EPA).

N/S
North side

PACIFIC FLYWAY
A major north-south route of travel for migratory birds in the Americas, extending from Alaska to Patagonia.

PARENT STEM
The main trunk system of a tree.

PARKWAYS
That portion of a public street right-of-way lying between the curb and sidewalk.

PARTICULATES
Finely divided solid or liquid particles in the air or in an emission. Particulates include dust, smoke, fumes, mist, spray and fog (EPA).

PRECUT/PRECUTTING
The removal of a branch at least 6” beyond the finished cut, to prevent splitting into parent stem or branch.

PRUNING
The removal of dead, dying, diseased, live interfering, objectionable and weak branches in a scientific manner.

PRUNING STANDARDS
Pruning Standards which have been adopted by the International Society of Arboriculture (ISA) and/or the National Arborists Association (NAA).

RECEIVING WATERS
Rivers, lakes, oceans or other bodies that receive treated or untreated waste waters.

RIPARIAN
Areas adjacent to rivers, steams and watersheds with a differing density, diversity, and productivity of plant and animal species relative to nearby uplands.

RISK ASSESSMENT
Identifying the risks associated with trees involving the following three components:

- A tree with a potential to fail.
- An environment that may contribute to that failure.
- A target that may be damaged (i.e. person or property).

ROOT BARRIER
A mechanical guide used to redirect normal root growth away from a specified area such as a sidewalk or street.

ROOT ZONE
The area and volume of soil around the tree in which roots are normally found. May extend to three or more times the branch spread of the tree, or several times the height of the tree.

RUNOFF
The portion of rainfall or irrigation water that flows across ground surface and eventually is returned to the ocean.

SAP FLOW
The definite course assumed by sap in its movement through a tree.

SAPROPHYTE
An organism that obtains its nutrition from dead organic matter.

SCARS (INJURIES)

Natural or man made lesions of the bark in which wood is exposed. Also referred to as injuries.

SOIL STRUCTURE

The arrangement of soil particles into aggregates and larger structures in natural soil.

SPECIFICATIONS

Precise written documents created to establish detailed construction methods to be carried out by contractors.

S/S

South side

STANDARD

Recommended practices that help protect, maintain, and manage a City's urban forest.

STORMWATER RUNOFF

Precipitation which travels via flow across surfaces, such as streets, parking lots, construction sites and industrial facilities, through storm drain systems into lakes, streams and beaches.

STRATEGY

The art of devising or employing plans or stratagems towards a goal.

STREET

A thoroughfare in the City that is wider than an alley or lane and usually includes sidewalks.

STREETSCAPE

A term used to describe the natural and built fabric of the street that usually includes street trees, ornamentals, landscape and site amenities.

STREET TREES

Trees planted on public property along City streets and alleys. Trees located within any street median, and City park, or any other property owned and operated by the City shall not be considered street trees.

SUBGRADE

Soil underneath a constructed surface or areas where soils for planting are to be installed.

SUCKERS

Abnormal growth of small branches usually not following the general pattern of the tree.

Also known as water sprouts.

SUSTAINABILITY

The quality of not harming the environment or depleting natural resources, and thereby supporting a long-term ecological balance.

Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

THINNING OUT

The removal of live branches to reduce wind resistance and to create more space.

TOPPING

The indiscriminate cutting of tree branches to stubs or lateral branches that are not large enough to assume the terminal role.

TRACING

Careful cutting of the bark along the lines of sap flow to encourage closure and to be the outline of a wound area.

TREE PROTECTION ZONE (TPZ)

A designated area around trees where maximum protection and preservation efforts are implemented to minimize soil compaction, etc., especially during construction.

TRIMMING

The same as pruning.

UNDERSTORY

Trees and plants that naturally grow or adapt to live below a mature tree canopy.

URBAN AND COMMUNITY FORESTRY

A planned and programmatic approach to the development and maintenance of the urban forest, including all elements of green infrastructure within the community, in an effort to optimize the resulting benefits in social, environmental, public health, economic, and aesthetic terms, especially when resulting from a community visioning and goal setting process.

URBAN FORESTRY

The art, science, and technology of managing trees and forest resources in and around urban community ecosystems for the physiological, sociological, economic, and aesthetic benefits trees provide society.

A planned and programmatic approach to the development of the urban forest, including all elements of green infrastructure within the community, in an effort to optimize the resulting benefits in social, environmental, public health, economic, and aesthetic terms, especially when resulting from a community visioning and goal-setting process.

The management, establishment and protection of trees and forests within cities, suburbs and towns.

URBAN RUNOFF

Water and storm water runoff from city streets and adjacent domestic or commercial properties that carries pollutants of various kinds into sewer systems, storm drains and receiving waters.

VISION

Thinking and planning for the future with imagination and wisdom.

WATERSHED

The area of land from which rainfall drains into a stream or other water body. Watersheds are also sometimes referred to as drainage basins or drainage areas.

WAYFINDING

Encompasses the ways in which people can use street trees to orient themselves in the city to find specific locations or streets.

WETLANDS

An area that is saturated by surface or ground water with vegetation adapted for life under those soil conditions, such as swamps, bogs, fens, marshes, and estuaries.

WILDLIFE CORRIDOR

A pathway or habitat linkage that connects discreet areas of natural open space otherwise separated or fragmented by urbanization. Such a corridor allows animals to move between remaining habitats and provides escape routes from fire, predators and human disturbances.

WOUND CLOSURE

Refers to the roll of the callus growth around the wound area.

W/S

West side

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WEB RESOURCES

Las Pilitas Nursery. www.laspilitas.com.

San Marcos Growers. www.smgrowers.com.

Santa Monica Public Library. www.smpl.org.

Urban Forestry Division – Street Tree Selection Guide. City of L.A. Bureau of Street Services – Street Tree Division. www.ci.la.ca.us/boss/UrbanForestryDivision/StreetTreeSelectionGuide.htm.

Urban Forestry Ecosystems Institute. www.ufei.org.

US National Park Service. www.nps.gov.

US Department of Agriculture. www.usda.gov.

OTHER RESOURCES

Street Tree List. City of Manhattan Beach.

Coastal Zone Nursery Plant List.

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Terry O'Day

CITY MANAGER
Rod Gould

URBAN FOREST MASTER PLAN TASK FORCE
Judy Abdo, Chair
Susan McCarthy, Vice Chair
Tom Cleys
Peter Jensen
Grace Phillips
Linda Piera-Avila
Doris Sosin

COMMUNITY AND CULTURAL SERVICES DEPARTMENT
Barbara Stinchfield, Director
Karen Ginsberg, Assistant Director

PUBLIC LANDSCAPE DIVISION
Randy Little, Public Landscape Manager
Walt Warriner, Community Forester
Heidi Said, Staff Assistant III
Erin Hamant, Administrative Analyst

THE RESIDENTS OF SANTA MONICA

CONSULTANT TEAMS
ARTECHO ARCHITECTURE AND LANDSCAPE ARCHITECTURE
Pamela Palmer, ASLA-Principal in Charge
Howard Rosen
Catherine Burce
Simon Beer
Marisol Metcalfe

SWCA ENVIRONMENTAL CONSULTANTS
Rebecca Latta

WEST COAST ARBORISTS, INC.
Patrick Mahoney
Victor Gonzalez
Steve Brown
Dave Cooper
Christopher Crippen
Brian Koch