

Los Angeles County Department of Regional Planning  
**TREE PLANTING GUIDE**

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<b>TABLE OF CONTENTS</b>	<b>PAGE</b>
<b>I. Introduction</b>	<b>3</b>
<b>II. Benefits</b>	<b>3</b>
<b>III. Requirements Flow Chart</b>	<b>4</b>
<b>IV. Parking Lots and Shade Plans</b>	<b>5</b>
<b>V. Landscaping and Low Impact Development</b>	<b>9</b>
<b>VI. Species</b>	<b>9</b>
<b>VII. Size, Location &amp; Support</b>	<b>10</b>
<b>VIII. Irrigation</b>	<b>10</b>
<b>IX. Maintenance</b>	<b>11</b>
<b>X. Attachment A – Tree Species List</b>	<b>11</b>

## **I. INTRODUCTION**

The Tree Planting Guide (Guide) implements the Tree Planting Requirements (Requirements) by providing the Requirements in a user-friendly format and a list of approved tree species (Tree Species List). For the complete Requirements in the native format, please see Part 20 of Title 22. The Guide also includes recommendations and resources to ensure that planted trees thrive and that the maximum benefits of the trees are obtained through proper specie selection, placement, planting and maintenance.

## **II. BENEFITS**

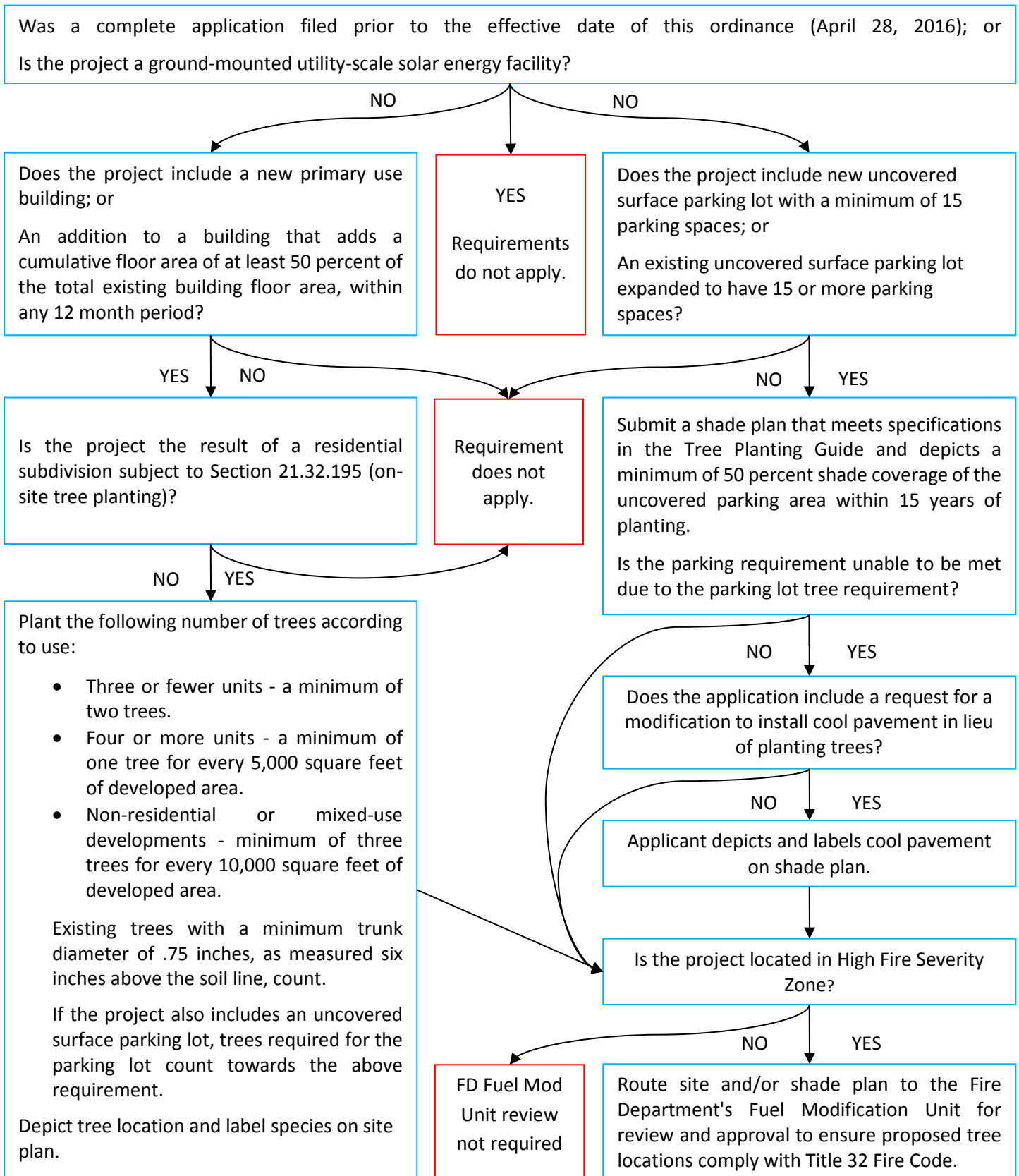
Los Angeles County established tree planting requirements for certain land development projects because trees provide many benefits to communities including reducing:

- Storm water run-off which reduces water pollution and recharges groundwater;
- The urban heat island effect by shading impervious surfaces and by the botanical process transpiration; and
- Carbon dioxide, a greenhouse gas that causes global warming.

For additional information regarding the benefits of trees, please see the following resources:

- Top 22 Benefits of Trees  
<https://www.treepeople.org/resources/tree-benefits>.
- Benefits of Trees  
[http://www.treesaregood.com/treecare/resources/benefits\\_trees.pdf](http://www.treesaregood.com/treecare/resources/benefits_trees.pdf)
- National Tree Benefit Calculator  
[www.treebenefits.com](http://www.treebenefits.com)

### III. REQUIREMENTS FLOW CHART



#### **IV. PARKING LOTS AND SHADE PLANS**

Parking lots should be designed so that planted trees benefit by parking lot drainage through such techniques as sloping the parking lot to direct storm water through curb cuts in the planter to detention swales within the planter. See example at <https://www.treepeople.org/sites/default/files/pdf/resources/Parking%20Lot%20with%20Bio%20Swales%20and%20Curb%20Cuts.pdf>.

Parking lot shade plans should be prepared by professional landscape architects. To locate a licensed landscape architect, contact the American Society of Landscape Architects (<http://www.asla.org/>). See Figure A for an example of a shade plan.

In addition to items required for site plans, the shade plan must comply with the following:

1. Depict and label heights of any power lines, lighting, signage or other above ground infrastructure. Parking lot lighting should not conflict with tree locations and growth. Pole mounted lighting should be lower than the canopy of the lowest tree at maturity. Mature tree species height is indicated on the Tree Species List.
2. Depict planters in parking lots with minimum six (6) inch high/wide concrete curbs for protection. Label inside planter width that conforms to the minimum size identified in the Tree Species List. Continuous planting islands are encouraged to allow for multiple tree plantings to increase soil area available for root growth.
3. Depict location and canopy of existing trees that shade the parking area. Label tree "To Remain" or "To Be Removed". Canopies of trees to remain must be drawn to scale at the size of 15 years maturity as indicated in the Tree Species List.
4. Depict location and canopy of proposed trees. Canopies must be drawn to scale at the size of 15 years maturity as indicated in the Tree Species List.
5. Label trees with symbols keyed to the shade calculation table to identify species. It is recommended that the species of trees be varied throughout the parking lot. For trees planted under power lines, signage or other above ground infrastructure, the species must not have a height identified in the Tree Species List that exceeds the height of the lowest point of above ground infrastructure that the tree is planted under. Trees located within storm water runoff areas should be species with a moderate to very high water requirement.
6. Label trees with shade credit. Shade credit is the percent of parking area directly beneath the canopy or drip line that will be shaded by the tree at 15 years of maturity and must be estimated at 25, 50, 75 or 100 percent. Overlapped canopies or trees with canopies partially off site provide a shade credit of less than 100 percent
7. Depict any proposed cool pavement and label square footage, pavement type and live load capacity if permeable pavement is proposed. The Fire Department requires that alternative surfaces, such as permeable pavement, support a live load of at least 75,000 pounds. For more information about cool pavement, see the Modification of Parking Lot Development Standard section below.

8. Shade calculation table (table). See Figure B for an example of a completed table. Include any existing trees that will remain. If a site has two or more unconnected parking areas, shade must be calculated separately for each area using a separate table. A spreadsheet that calculates tree shade for parking lots is located at <http://planning.lacounty.gov/tree>. An electronic copy of the table must be submitted with the application materials. The table must include the following:
- a. Uncovered parking area. The uncovered impervious surface area of the parking lot that includes parking stalls, pedestrian loading areas, driveways within the property line, areas for maneuvering and walkways within the parking lot. Excludes: areas covered by solar panels, truck loading areas in front of overhead doors; truck maneuvering and parking areas unconnected to and exclusive of any vehicle parking; and display, sales, service, and vehicle storage areas associated with uses such as automobile dealerships or lumber yards. Enter uncovered parking area in cell N1 of the table.
  - b. Required shade area. The total area required to be shaded by trees. This field is calculated by the table.
  - c. Tree symbols (symbol). A unique identifier for each species of tree that is keyed to the shade plan. Example: "T1". Enter the symbol in column A of the table.
  - d. Botanical and common name. Enter botanical and common names obtained from the Tree Species List in columns B and C of the table.
  - e. Canopy diameter. Tree canopy diameter at 15 years maturity for each species. Enter diameter obtained from Tree Species List in column D of the table.
  - f. Canopy area. Tree canopy area at 15 years maturity for each species. This field is calculated by the table.
  - g. Shade credit quantity. Tree quantity per species and shade credit (100%, 75%, 50% or 25%). This is the number of provided trees per species and shade credit that is entered into table columns F, H, J and L.
  - h. Shade credit area. The area of provided shade for each species and shade credit. This field is calculated by the table
  - i. Provided shade area. The total provided shade area for each species. This field is calculated by the table.
  - j. Total provided shade area. The total provided shade area for all species. This field is calculated by the table.
  - k. Percent shade coverage. Percentage of the parking area to be shaded by trees. This field is calculated by the table.

Figure A. Shade Plan Example

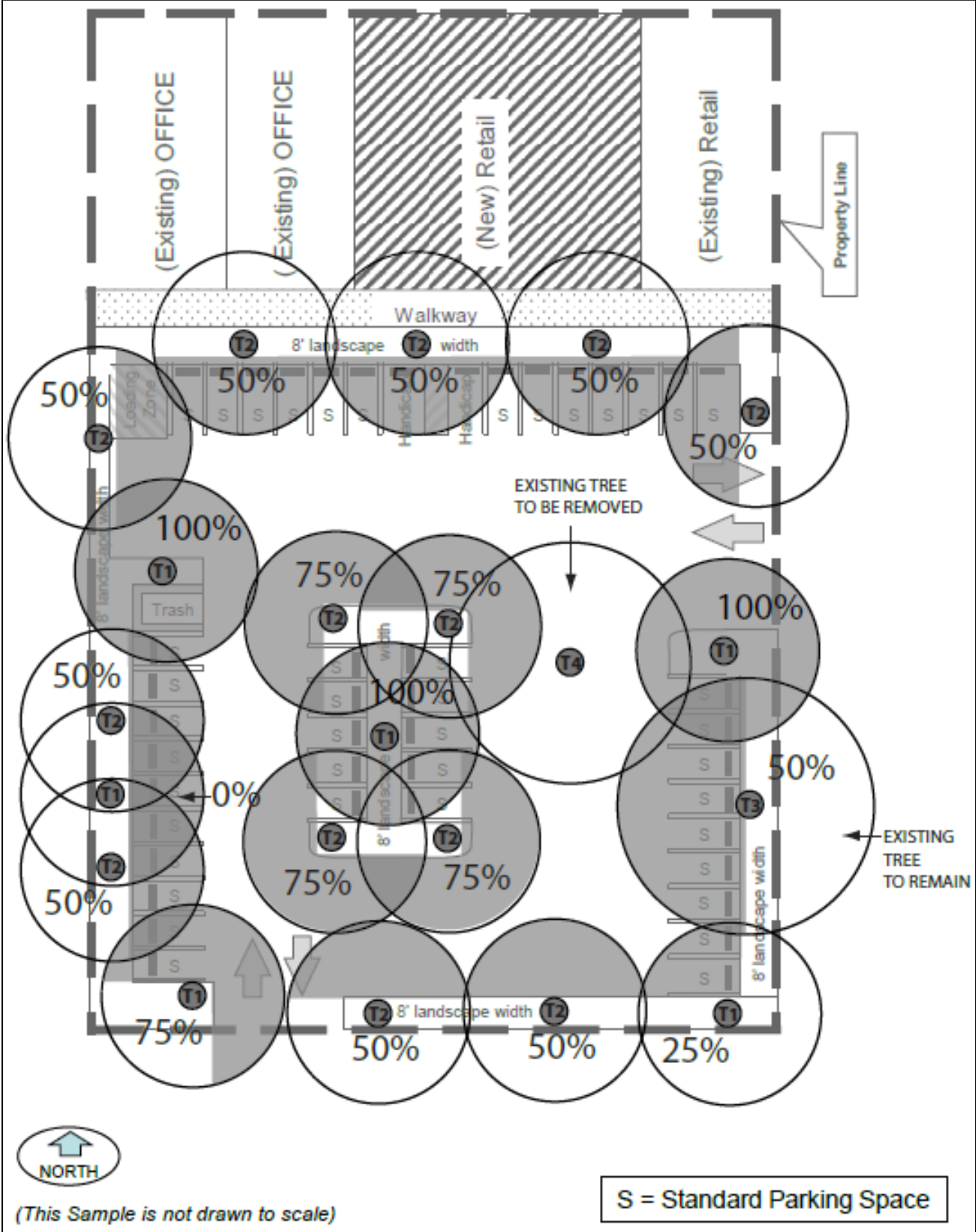


Figure B. Shade Calculation Table Example

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	<b>PARKING LOT SHADE CALCULATION TABLE</b>												Uncovered Parking Area:	16,000
2	<i>Complete white cells only. Grey cells are calculated. Diameters are in feet and areas are in square feet.</i>												Required Shade Area:	8,000
3		<b>Species Name</b>		<b>Canopy Diameter</b>	<b>Canopy Area</b>	<b>100% Shade Credit</b>		<b>75% Shade Credit</b>		<b>50% Shade Credit</b>		<b>25% Shade Credit</b>		<b>Provided Shade Area</b>
4	<b>Symbol</b>	<b>Botanical</b>	<b>Common</b>	<b>Diameter</b>	<b>Area</b>	<b>Quantity</b>	<b>Area</b>	<b>Quantity</b>	<b>Area</b>	<b>Quantity</b>	<b>Area</b>	<b>Quantity</b>	<b>Area</b>	
5	T1	Pistacia	Chinese	30	707	3	2121	1	530	0	0	1	177	2,827
6	T2	Chitalpa	Chitalpa	30	707	0	0	4	2121	9	3181	0	0	5,301
7	T3	Quercus	Coast Live	35	962	0	0	0	0	1	481	0	0	481
8					0		0		0		0		0	-
9					0		0		0		0		0	-
10					0		0		0		0		0	-
11					0		0		0		0		0	-
12					0		0		0		0		0	-
13	<b>Total Provided Trees: 19</b>						3		5		10		1	
14													Total Provided Shade Area :	8,610
15													Percent Shade Coverage (50% Minimum):	54%



Section 22.52.2140 of the Tree Planting Requirements allows the Director to reduce the required parking lot shade area because there is not enough square footage for both the required shade area and the required parking. As long as the parking requirements are met, the Director may replace the tree requirements intended to create the shade area with a cool pavement requirement. The Director will require permeable pavement unless it is infeasible for reasons other than financial. Requested modification should be included on the appropriate application for the project.

## **V. LANDSCAPING AND LOW IMPACT DEVELOPMENT**

Trees planted pursuant to the Tree Planting Requirements may contribute to fulfilling other Title 22 (Planning and Zoning) landscaping requirements.

Pursuant to Section 12.84.410.D of the County Code, trees planted for Low Impact Development may count towards the Tree Planting Requirements.

## **VI. SPECIES**

Tree species must be those that provide adequate shade, are not invasive, are resistant to local pest and diseases, are adaptable to the local climate, and are appropriate for the planting location. The attached Tree Species List identifies shade tree species that meet the aforementioned criteria and are deemed suitable for planting in developed areas. Additionally, the Tree Species List includes information to aid in the selection of suitable species for a particular location.

Title 31 (Green Building) of the County Code states that, "Non-Invasive drought-tolerant plant and tree species appropriate for the climate zone region must be utilized in at least 75 percent of the total landscaped area." Species identified in the Tree Species List with a water requirement of very low (VL) to moderately low (M/L) are considered drought-tolerant.

When planting in locations where root damage to structures or infrastructure is a concern, it is recommended that species from the Tree Species List with low root damage potential be chosen. Additionally, it is recommended that underground root barriers be installed to deflect roots downward.

Large tree species provide greater benefits than smaller tree species. It is therefore recommended that the largest tree species that is appropriate for the planting location be selected whenever possible. For further information regarding tree species selection, please see the following resources:

- US Forest Service's Large Tree Argument  
[http://www.fs.fed.us/psw/programs/uesd/uep/products/cufr\\_511\\_large\\_tree\\_argument.pdf](http://www.fs.fed.us/psw/programs/uesd/uep/products/cufr_511_large_tree_argument.pdf)
- Choosing the Right Tree  
<http://www.treesaregood.com/treeowner/choosingTheRightTree.aspx>
- How To Choose the Right Tree For the Right Place  
<https://www.treepeople.org/sites/default/files/pdf/resources/How-to%20Choose%20the%20Right%20Tree%2C%20Right%20Place.pdf>
- SelectTree - A Tree Selection Guide: <http://selectree.calpoly.edu/>

## VII. SIZE, LOCATION & SUPPORT

Required trees must be a minimum size of 15 gallons and have a trunk diameter of 0.75 to 1.5 inches as measured six inches above the soil line.

Required trees must be planted in locations that maintain the required lines of sight for safe pedestrian and vehicular movement and will not cause root damage to the sidewalk or other public infrastructure, to the satisfaction of the Department of Public Works. Also, trees planted near buildings or fire lanes must not be in locations that adversely impact Fire Department (FD) operations or response times.

The trees must be supported with staking and ties, made of soft and mold resistant material (such as rubber), until the trees are able to support themselves.

Following, are recommended resources for tree planting:

- Smart Landscaping and Energy Efficiency  
[https://www.firstenergycorp.com/content/customer/help/saving\\_energy/trees.html](https://www.firstenergycorp.com/content/customer/help/saving_energy/trees.html)
- Dig Alert for locating underground utilities: <http://www.digalert.org/home.html>
- Planting a Tree: <http://www.treesaregood.com/treeowner/plantingtree.aspx>
- How to Plant a Tree: <https://www.treepeople.org/sites/default/files/pdf/resources/How-to%20Plant%20trees.pdf>

## VIII. IRRIGATION

Except projects for three or fewer residential units, trees not planted in turf require an irrigation system to ensure that newly planted trees, which have a limited root system, survive until they are established.

Irrigation systems must comply with requirements of Title 31 (Green Building) of the County Code (<https://library.municode.com/HTML/16274/level1/TIT31GRBUSTCO.html>). Gray water may be used to irrigate trees. Gray water systems are allowed for all uses in the unincorporated areas and are encouraged, especially during drought conditions. For more information about requirements for gray water or irrigation systems, please contact Building and Safety (<http://dpw.lacounty.gov/bsd/content/ContactUs.aspx>).

It is recommended that irrigation systems be designed, installed and programmed by a certified irrigation professional. To locate a certified irrigation professional, contact the Irrigation Association ([http://www.irrigation.org/Certification/Find\\_a\\_Certified\\_Professional.aspx](http://www.irrigation.org/Certification/Find_a_Certified_Professional.aspx)).

On average, trees need the equivalent of one inch of rain every seven to ten days, which is more than the normal rainfall in Los Angeles County. Generally it will take one full year per inch of trunk diameter for a tree to get established (e.g. It will take three years for a 3-inch caliper/diameter tree to establish itself). Following, is a recommended watering schedule for a newly planted 15 gallon tree:

- Month 1: Twice a week.
- Months 2–3: Once a week.
- Months 4–7: Once every two weeks.
- Months 8–12: Once every three weeks.
- Years 1-3: Once every four to five weeks.
- Years 4–5: Once every five to six weeks.

Fifteen gallons of water per tree is generally recommended for each watering. However, actual watering requirements vary based on the trees species. The Tree Species List indicates water requirements for each species.

It is recommended that both newly planted trees and mature trees be watered until water stops soaking in the ground because the soil has become saturated and reached its water-holding capacity. Sandy soils will drain quicker than soils with clay. It is best to check the soil for moisture about four inches down before watering. If it's wet, don't water, even though the schedule says to.

In drought conditions, even older trees will start to show symptoms of drought stress and will need supplemental water although less frequently than younger trees. Established drought tolerant species may also need supplemental watering with continued drought.

## **IX. MAINTENANCE**

Trees planted pursuant to the Tree Planting Requirements that fail to survive must be replaced. To ensure required trees survive, it is recommended that certified arborists be used to provide critical tree care services such as planting, soil modification and aeration, pruning, pest and disease diagnosis and treatment, and tree removal. To locate a certified arborist in your area, please see the following resources:

- American Society of Consulting Arborists  
<http://www.asca-consultants.org/search/custom.asp?id=3818>
- International Society of Arboriculture  
<http://www.isa-arbor.com/findanarborist/findanarborist.aspx>
- Tree Care Industry Association: <http://tcia.org/tree-care-service-search?acr=1>

Following, are recommended resources for tree care and maintenance:

- Plant Health Care: <http://www.treesaregood.com/treeowner/planthealthcare.aspx>
- TreePeople Resources: <https://www.treepeople.org/resources>
- Pruning Your Trees: <http://www.treesaregood.com/treeowner/pruningyourtrees.aspx>

## **X. ATTACHMENT A – TREE SPECIES LIST**