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## PERFORMANCE STANDARDS FOR PARKING LOT SHADING

Updated February 13, 2006

### POLICY

Fifty percent of paved parking lots surface shall be shaded by tree canopies within fifteen years of planting (adopted by City Council policy resolution on July 12, 1988).

### GENERAL

1. A "paved parking lot" shall include parking stalls, driveways, and maneuvering areas.
2. Trees planted to satisfy the requirements of these guidelines are landscaping as defined by Municipal Code and are subject to established landscaping requirements.

### SITE PLAN REQUIRED

3. A landscape plan which details the degree of compliance with the Parking Lot Shade Tree Ordinance is required. The plan shall show:
  - a. All landscaped areas.
  - b. Tree canopies drawn to scale representing the estimated canopy at a fifteen year growth period.
  - c. The total area in square feet of the paved parking lot, driveways, and maneuver areas; and the area shaded by tree canopies. A schedule listing total parking area, shaded area, and the percentage of parking area shaded should be included.
  - d. A schedule of the specific names of proposed trees and their sizes.
4. Such plan shall be approved by the Planning and Development Department prior to issuance of building permits. However, the plan is encouraged to be submitted at the time of site plan review.

### METHODOLOGY

5. To simplify the process of determining compliance, the true angle of deflection of natural sunlight shall not be considered. Shaded areas shall be assumed to be only those portions of a paved parking lot directly beneath the shading canopy or drip line.
6. Shading shall be provided by tree canopies except that any portion of a paved parking lot directly beneath and shaded by a man made structure (overhangs and covered parking, for instance) shall be deleted from the requirements of these performance standards and shall be subtracted from the area of the parking lot to be shaded.
7. Credit shall be given only for surface area shaded. Multiple canopies shading the same surface area will not be counted as multiple credit.
8. Landscape planters beneath the canopy may be considered as shaded parking areas for the purpose of determining compliance.
9. Where more than five trees are to be planted, mix tree species.
10. Trees planted along the perimeter of a lot may be counted as providing shade for the full area of their canopy.

11. If the degree of overlap between trees is less than 15 percent, all trees may be counted as shading 100 percent of their canopy. If the degree of overlap is 15 percent or greater, then it will be necessary to perform individual calculation to determine the area of shading.
12. A ten percent minor deviation of the shading standard may be approved by the Director in accordance with established procedures in the Municipal Code if it is found that the normal standards would impose an undue hardship.

ALLOWABLE SPECIES/CANOPY (Provided by Parks Department)

MINIMUM TREE REQUIREMENT

Provide one medium size tree for every two required parking spaces. (This requirement may be modified by the Director if the standards for shading and perimeter planting have been met.)

Disperse trees over the parking lot area to provide 50 percent shading of the parking area surface within 15 years (This requirement may be reduced to 40 percent for existing development if it is demonstrated that the constraints of an existing site would make it impossible to meet the normal standard). Trees shall also be planted in the required landscaped areas along the periphery of the development in order to shade and enhance adjacent property and public rights-of-ways.

Trees shall be maintained in good health. However, trees may not be trimmed or pruned to reduce the natural height or overall crown of the tree, except as necessary for health of the tree and public safety; or as may otherwise be approved by the Planning and Development Department.

MINIMUM PLANTER SIZE (between tiers of parking)

Continuous Planter

	<u>New Development</u>	<u>Existing Development</u>
Standard Parking Stall	<u>8 feet</u>	<u>6 feet</u>
Compact Parking Stall	<u>6 feet</u>	<u>4 feet</u>

Along Periphery 10 feet except as may be approved pursuant to Municipal Code.

MINIMUM SIGHT TRIANGLE

10 feet in traffic areas

30 – 35 feet at street intersections

100 feet at major street intersections

Trees within the triangle shall be trimmed up to eight-feet minimum above the surface of the parking lot.

Other landscaping (ground cover and shrubs) shall not exceed two and one-half feet above the parking lot surface.

CITY OF FRESNO PARKS AND RECREATION DEPARTMENT

30 feet to 35 feet diameter trees 100% = 962 square ft; 50% = 481 square ft; 25% = 240 square ft

Botanical Name	Planter Size (Sq. Ft.)	Height (Feet)	Growth Rate	Roots	Soil	Remarks
Alnus rhombifolia WHITE ALDER	6	50	Rapid	Shallow	Moist	Deciduous
Celtis sinensis CHINESE HACKBERRY	6	50	Moderate	Medium to Deep	Most Soils	Deciduous
Cinnamomum camphora CAMPHOR TREE	8	50	Slow	Shallow	Most Soils	Evergreen, attractive, shiny, yellow-green foliage
Fraxinus o. 'Raywoodi' RAYWOOD ASH	6	40	Fast	Medium	Most Soils	Deciduous, dark green foliage
Ginkgo biloba MAIDENHAIR TREE	6	50	Slow	Deep	Most Soils	Deciduous, very open tree
Liriodendron tulipifera TULIP TREE	8	60	Moderate	Medium	Deep Moist	Deciduous, susceptible to aphids, causes dripping
Magnolia grandiflora SOUTHERN MAGNOLIA	8	50	Slow	Medium	Most Soils	Evergreen, constant litter problem
Pistacia chinensis CHINESE PISTACHE	6	40	Moderate	Deep	Most Soils	Deciduous, provides filtered shade, excellent fall color
Platanus acerifolia LONDON PLANE TREE	8	50	Fast	Medium to Deep	Most Soils	Deciduous, anthracnose, red spider, plant bloodgood variety
Quercus agrifolia COAST LIVE OAK	8	50	Moderate	Deep	Most Soils	Evergreen, biannual acorn drop
Quercus ilex HOLLY OAK	6	50	Moderate	Deep	Deep	Evergreen, biannual heavy acorn drop
Quercus lobata VALLEY OAK	8	50	Moderate	Deep	Deep	Deciduous
Quercus suber CORK OAK	8	60	Moderate	Deep	Moist Drained	Evergreen
Quercus virginiana SOUTHERN LIVE OAK	8	60	Moderate	Deep	Most Soils	Evergreen, attractive, bright green foliage
Ulmus sempervirens CHINESE EVERGREEN ELM	6	50	Rapid	Medium	Most Soils	Semi-evergreen, should be annually trimmed
Zelkova serrata SAWLEAF ZELKOVA	8		Fast	Medium	Most Soils	Deciduous, attractive vase shape

**20 feet to 30 feet diameter trees 100% = 707 square ft; 50% = 354 square ft; 25% = 177 square ft**

Botanical Name	Planter Size (Sq. Ft.)	Height (Feet)	Growth Rate	Roots	Soil	Remarks
Ceratonia siliqua CAROB TREE	8	40	Moderate	Shallow	Most Soils	Evergreen, use male trees only
Koelreuteria Paniculata GOLDENRAIN TREE	6	35	Moderate	Deep	Most Soils	Deciduous, drought resistant, yellow flowers
Liquidambar styraciflua AMERICAN SWEET GUM	8	60	Moderate	Shallow	Most Soils	Deciduous, seed pods a litter problem, fall color
Pinus canariensis CANARY ISLAND PINE	6	60	Fast	Deep	Most Soils	Evergreen, conifer, bluegreen needles, shed constantly
Pinus eldarica MONDELL PINE	6	60	Fast	Deep	Most Soils	Evergreen, conifer, good color
Pyrus c. 'Bradford' BRADFORD PEAR	6	30	Fast	Deep	Most Soils	Evergreen, white flowers, good fall color
Quercus palustris PIN OAK	6	50	Fast	Shallow	Best in Clay Soil	Deciduous, brown leaves hang on during winter
Prunus c. pissardi PURPLE-LEAF PLUM	6	20	Fast	Medium	Most Soils	Deciduous, purple leaves, messy fruit
Sapium sebiferum CHINESE TALLOW TREE	6	35	Fast	Medium	Most Soils	Deciduous, surface roots, good fall color
Sequoia sempervirens COAST REDWOOD	8	70	Fast	Deep	Most Soils	Evergreen, conifer

**15 feet to 20 feet diameter trees 100% = 314 square ft; 50% = 157 square ft; 25% = 79 square ft**

Botanical Name	Planter Size (Sq. Ft.)	Height (Feet)	Growth Rate	Roots	Soil	Remarks
Acer palmatum JAPANESE MAPLE	4	20	Slow	Shallow	Moist Drained	Deciduous, best in afternoon shade
Cercis canadensis EASTERN REDBUD	4	20	Moderate	Medium	Most Soils	Deciduous, drought resistant, spring flowers
Malus purpurea 'Eleyi' ELEY CRABAPPLE	4	20	Moderate	Medium	Most Soils	Deciduous, wine red flowers in spring
Podocarpus gracilior FERN PINE	6	40	Moderate	Deep	Most Soils	Evergreen, clean and pest free
Pyrus Kawakami EVERGREEN PEAR	4	25	Moderate	Medium	Most Soils	Deciduous, subject to fireblight
Rhus lancea AFRICAN SUMAC	4	25	Medium	Oedius	Most Soils	Evergreen, shiny green foliage, drought, suckers

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