

Folsom City Council Staff Report

MEETING DATE:	6/9/2020
AGENDA SECTION:	Consent Calendar
SUBJECT:	Resolution No. 10471 – A Resolution Approving the Folsom Tree Care and Maintenance Standards and Folsom Master Tree List
FROM:	Community Development Department

RECOMMENDATION / CITY COUNCIL ACTION

Staff respectfully requests that the City Council approve Resolution No. 10471 – A Resolution Approving the Folsom Tree Care and Maintenance Standards and the Folsom Master Tree List.

BACKGROUND / ISSUE

Trees provide an essential contribution to the general welfare, economic vitality, and overall beauty and character of Folsom. In 1995, the City Council adopted a Tree Preservation Ordinance (Folsom Municipal Code Chapter 12.16) primarily to establish and maintain tree cover and promote conservation of tree resources. In the 25 years since that time, staff has relied on guidance from standards for tree management published by the American National Standards Institute (ANSI) and a master tree list created and maintained by the City Arborist to enforce the purpose and provisions of the Tree Preservation Ordinance.

1. Throughout the course of the original Tree Preservation Ordinance, several challenges were identified by city staff and stakeholders (residents, developers, arborists) with interpreting/implementing the code as written. As such, city staff launched a planned approach for updating the Tree Preservation Ordinance in April of 2019 in a focused effort to solve problems and give us more tools in our toolbelts to better protect and preserve trees. Through the initial outreach efforts with residents and stakeholders, staff garnered voiced feedback reflecting the following focal

problems with the old ordinance: Lack of clear and common understanding/definition of regulated activities.

2. Ambiguities regarding prohibited activities.
3. Lack of reference to or incorporation of best management practices and standards for tree preservation.

In response to these identified issues, staff incorporated references to *ANSI A300 Standards for Tree Care Operations – Tree, Shrub, and Other Woody Plant Management* as well as the International Society of Arboriculture’s (ISA) *Best Management Practices* companion series into the updated Tree Preservation Ordinance. To go a step further, staff also introduced into the new ordinance, the concept of a set of standards for the care and maintenance of protected trees that would be specific to the City of Folsom.

On January 28, 2020, the City Council adopted Ordinance No. 1299 – An Ordinance Repealing and Replacing the Tree Preservation Ordinance as Set Forth in Chapter 12.16 of the Folsom Municipal Code, which incorporates the approved tree species and tree management practices outlined in the Folsom Master Tree List and the Folsom Tree Care and Maintenance Standards.

POLICY / RULE

ANSI A300 Standards are nationally recognized standards for tree management published by Tree Care Industry Association, Inc. The ISA Best Management Practices are companion publications to ANSI A300 and supply easily digestible guidance and context to the standards. Although ANSI A300 Standards and ISA best management practices are the driving forces for tree work standards among the certified arborist community, they are not documents that are easily accessible to the general public. Therefore, a set of standards have been developed by staff to provide guidance on proper tree management practices to Folsom residents.

The Folsom Tree Care and Maintenance Standards fuses the ideals and practices of these documents with the rules and policies outlined in the Folsom Municipal Code and the City’s Design Guidelines to provide guidance to the user on the topics of tree planting, tree pruning, tree management during construction, and landscaping activities near trees. The document also delineates required practices when working on protected trees and thresholds and processes for Tree Permits.

The Folsom Master Tree List, though never formally adopted by City Council, has been a heavily relied upon document by staff and stakeholders alike over the past several years. Maintained by the city arborist, the Master Tree List establishes those tree species that are best suited to be planted as street trees and parking lot shading trees. The List also provides helpful information to the user regarding mature size, water needs, and minimum required distances from hardscape per species. The attached Folsom Master Tree List has been

updated to provide the necessary information in a simpler, more streamlined fashion. A new component has also been added to the list, which delineates those species that are not eligible for “Heritage” status. Unless planted as a street tree or parking lot shading tree, these specific tree species cannot obtain protected status by simple virtue of reaching the threshold size of a “Heritage Tree” as defined in Folsom Municipal Code 12.16.020.

Both the Master Tree List and Tree Care and Maintenance Standards are anticipated to receive minor updates from time to time as knowledge is gained on existing tree species, new varieties are cultivated, and as the national standards and best management practices evolve. However, any future changes to the list of species not eligible for Heritage status shall be subject to approval by City Council.

ENVIRONMENTAL REVIEW

On January 14, 2020, City Council approved and certified an Addendum to the 2035 General Plan Final Program Environmental Impact Report (FPEIR) for the Folsom Tree Preservation Ordinance Update (TPOU). These implementation documents were anticipated as part of that analysis and no further environmental review is required.

ATTACHMENTS

1. Resolution No. 10471 - A Resolution Approving the Folsom Tree Care and Maintenance Standards and the Folsom Master Tree List
2. City of Folsom Tree Care and Maintenance Standards
3. Folsom Master Tree List

Submitted,

PAM JOHNS
Community Development Director

ATTACHMENT 1
RESOLUTION

RESOLUTION NO. 10471

**A RESOLUTION APPROVING THE
FOLSOM TREE CARE AND MAINTENANCE STANDARDS
AND FOLSOM MASTER TREE LIST**

WHEREAS, trees provide an essential contribution to the general welfare, economic vitality, environmental quality, and overall beauty and character of Folsom; and

WHEREAS, on January 28, 2020, the City Council adopted Ordinance No. 1299 – An Ordinance Repealing and Replacing the Tree Preservation Ordinance as Set Forth in Chapter 12.16 of the Folsom Municipal Code, which emphasizes tree protection and preservation; and

WHEREAS, the Tree Preservation Ordinance incorporates the approved tree species and tree management practices outlined in the Folsom Master Tree List and the Folsom Tree Care and Maintenance Standards; and

WHEREAS, the Folsom Tree Care and Maintenance Standards establish a set of local standards to provide guidance on proper tree management practices (e.g., tree planting, pruning, management during construction, landscape activities near trees) utilizing industry standards and best practices accessible to Folsom residents; and

WHEREAS, the Folsom Master Tree List establishes those tree species that are best suited to be planted as street trees and parking lot shading trees, list of trees not eligible for “Heritage” status, along with helpful information regarding mature size, water needs, and minimum required spacing requirements per species; and

WHEREAS, both the Master Tree List and Tree Care and Maintenance Standards are anticipated to receive minor updates from time to time as knowledge is gained on existing tree species, new varieties are cultivated, and as the national standards and best management practices evolve. However, any future changes to the list of species not eligible for Heritage status shall be subject to approval by City Council; and

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Folsom approves the Folsom Tree Care and Maintenance Standards and Folsom Master Tree List as shown in Exhibits 1 and 2.

PASSED AND ADOPTED on this 9th day of June 2020, by the following roll-call vote:

AYES: Council Member(s)
NOES: Council Member(s)
ABSENT: Council Member(s)
ABSTAIN: Council Member(s)

ATTEST:

Sarah Aquino, MAYOR

Christa Freemantle, CITY CLERK

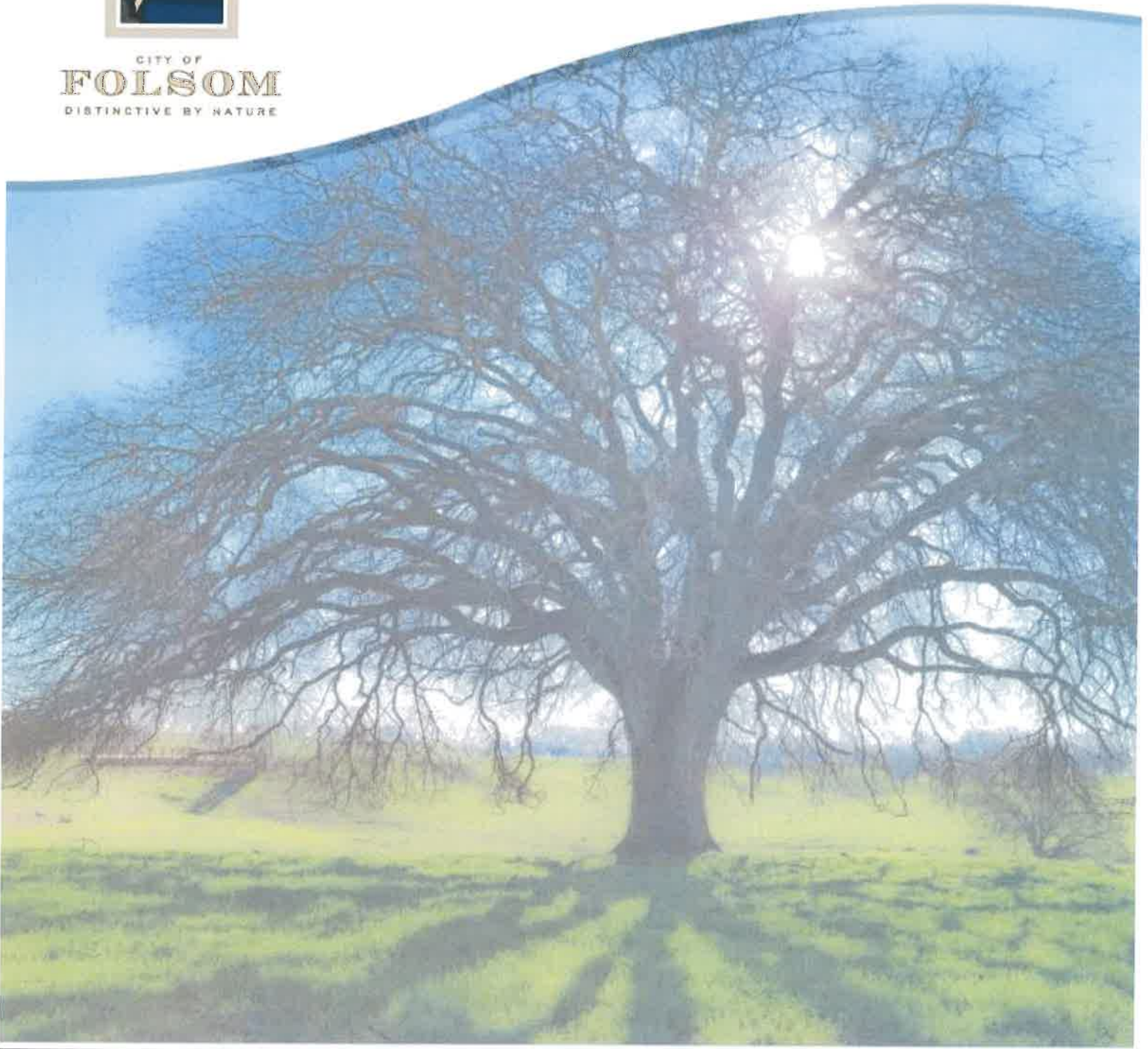
ATTACHMENT 2

CITY OF FOLSOM TREE CARE AND MAINTENANCE STANDARDS



CITY OF FOLSOM
COMMUNITY DEVELOPMENT
MAY 2020

CITY OF
FOLSOM
DISTINCTIVE BY NATURE



TREE CARE AND MAINTENANCE STANDARDS



TABLE OF CONTENTS

FIGURES AND TABLES.....	ii
PURPOSE AND INTENT	1
APPLICABILITY.....	1
DEFINITIONS	1
SECTION A: TREE PLANTING	9
A-1.0 TREE SELECTION.....	9
A-2.0 PREPARING THE PLANTING AREA.....	10
A-3.0 INSTALLING THE TREE	11
A-4.0 MULCHING	12
A-5.0 STAKING	12
A-6.0 IRRIGATION.....	12
SECTION B: TREE PRUNING	14
B-1.0 TREE PERMIT REQUIRED.....	14
B-2.0 PROJECT ARBORIST REQUIRED	14
B-3.0 PRUNING OBJECTIVES.....	14
B-3.1 <i>Improving Structure</i>	14
B-3.2 <i>Risk Mitigation</i>	15
B-3.3 <i>Clearance</i>	16
B-3.4 <i>Tree Health</i>	16
B-3.5 <i>Reduce Density</i>	17
B-3.6 <i>Restoration</i>	17
B-3.7 <i>Size Management</i>	17
B-4.0 TYPES OF PRUNING CUTS	18
B-4.1 <i>Branch Removal Cut</i>	18
B-4.2 <i>Reduction Cut</i>	18
B-4.3 <i>Heading Cut</i>	18
B-4.4 <i>Shearing Cut</i>	19
B-5.0 WHEN TO PRUNE	19
B-6.0 HOW MUCH TO PRUNE	19
B-7.0 PROHIBITED ACTIVITIES.....	20
SECTION C: TREE PROTECTION DURING CONSTRUCTION	20
C-1.0 TREE PERMIT REQUIRED.....	20
C-2.0 PROJECT ARBORIST REQUIRED	20
C-3.0 ARBORIST REPORTS.....	21
C-4.0 TREE PROTECTION AND MITIGATION PLANS	22
C-5.0 STANDARDS FOR TREE PROTECTION ZONES	24
SECTION D: LANDSCAPING NEAR TREES	27
D-1.0 STANDARDS FOR LANDSCAPE INSTALLATION NEAR EXISTING TREES.....	27
D-1.1 <i>Landscaping Near Protected Trees Other Than Native Oak Trees</i>	27
D-1.2 <i>Landscaping Near Native Oak Trees</i>	27
APPENDIX A: EXCERPTS FROM FOLSOM DESIGN STANDARDS 2020 – PARKING LOT SHADE.....	29
20.4 PARKING LOT SHADE	29
20.11 PLATE 20-A TREE SHADING DIAGRAM	32

APPENDIX B: APPLICABLE CITY OF FOLSOM STANDARD LANDSCAPE DETAILS.....	33
LS-01 TREE PLANTING	33
LS-02 TREE PLANTING ON SLOPE.....	34
LS-03 BOX TREE PLANTING.....	35
LS-06 CONCRETE/ASPHALT/ENGINEERED FILL OVER TREE ROOTS.....	36
LS-07 TREE ROOT BARRIER.....	37
LS-08 BORING WITHIN THE TREE PROTECTION ZONE	38
APPENDIX C: RESOURCES AND REFERENCES	39

FIGURES AND TABLES

FIGURES:

FIGURE 1 - CRITICAL ROOT ZONE (CRZ)	2
FIGURE 2 - CRZ OF HERITAGE TREES	3
FIGURE 3 - DIAMETER AT STANDARD HEIGHT (DSH)	3
FIGURE 4 - DRIP LINE RADIUS (DLR)	4
FIGURE 5 - LION’S-TAILING	4
FIGURE 6 - TOPPING.....	8
FIGURE 7 - TREE PROTECTION ZONE (TPZ)	8
FIGURE 8 - TREE PLANTING HOLE	11
FIGURE 9 - TREE STAKING	13
FIGURE 10 - TREE PRUNING	15
FIGURE 11 - BRANCH REMOVAL CUT	18
FIGURE 12 - REDUCTION CUT	18
FIGURE 13 - HEADING CUT.....	19
FIGURE 14 - SECURING THE TREE PROTECTION ZONE	25
FIGURE 15 - SOIL PROTECTION FOR CONSTRUCTION ACCESS WITHIN THE TPZ.....	26

TABLES:

TABLE 1 - NATIVE OAK TREES	5
TABLE 2 - CONDITIONS THAT INCREASE LIKELIHOOD OF FAILURE AND CAN BE MITIGATED THROUGH PRUNING.....	16
TABLE 3 - CONDITIONS THAT INCREASE LIKELIHOOD OF TRUNK OR ROOT FAILURE	16
TABLE 4 - TREE RATING SYSTEM	22

PURPOSE AND INTENT

Trees are both community and environmental assets, unique in their ability to provide a multitude of benefits that appreciate over time. The purpose of this document is to support the provisions outlined in the City of Folsom's Tree Preservation Ordinance (Folsom Municipal Code 12.16) with the goal of fostering a vibrant, healthy urban forest. Although the requirements outlined herein apply only to Protected Trees within the City of Folsom, this document may also serve as guidance to users in the proper management of Protected and non-protected trees alike.

The following provisions are based upon the most current version of ANSI A300 Standards, the International Society of Arboriculture's Best Management Practices series, and all applicable City standards and policies. In the event of a conflict with other related City of Folsom standards or guidelines with regard to Protected Trees, this document shall control.

APPLICABILITY

These standards shall apply when undertaking any regulated activity affecting a Protected Tree in the City of Folsom. Trees that are not protected are not subject to the provisions of these standards; however, this document may be used as an educational source for the proper management of all trees within the City of Folsom.

DEFINITIONS

ANSI A300 (American National Standards Institute A300 standard) - In the United States, industry-developed, national consensus standards of practice for tree care.

ANSI Z133.1 (American National Standards Institute Z133.1 standard) - In the United States, industry-developed, national consensus standards of practice for tree care safety.

arboriculture - Practice and study of the care of trees and other woody plants in the landscape.

arborist - Professional who possesses the technical competency gained through experience and related training to provide for or supervise tree pruning, tree removal or the construction management of trees and other woody plants. For the purposes of this document, an arborist shall be defined as someone who possesses the above-mentioned knowledge and also holds current certification with the International society of Arboriculture (ISA).

arborist report - A report prepared by an Arborist containing specific information on location, condition, potential impacts of development, recommended actions and mitigation measures relating to 1 or more trees on an individual lot or project site

best management practices - Best available, industry-recognized course of action, in consideration of the benefits and limitations, based on scientific research and current knowledge.

branch - A stem arising from a larger-stem; a subdominant stem; the pith in true branches has no connection to the parent stem.

branch bark ridge - Raised strip of bark at the top of a branch union, where the growth and expansion of the trunk or parent stem and adjoining branch push the bark into a ridge.

branch collar - Area where a branch joins another branch or trunk that is created by the overlapping vascular tissues from both the branch and the trunk. Typically enlarged at the base of the branch.

branch protection zone - Chemically and physically modified tissue within the trunk or parent branch at the base of a smaller, subordinate branch that retards the spread of discoloration and decay from the subordinate stem into the trunk or parent branch.

certificate of compliance - A written statement from an Arborist verifying that the conditions associated with a Tree Permit have been satisfied.

city arborist - The City Arborist of Folsom or a duly designated representative.

cleaning - Selective pruning to remove dead, diseased, cracked, and broken branches and foreign objects.

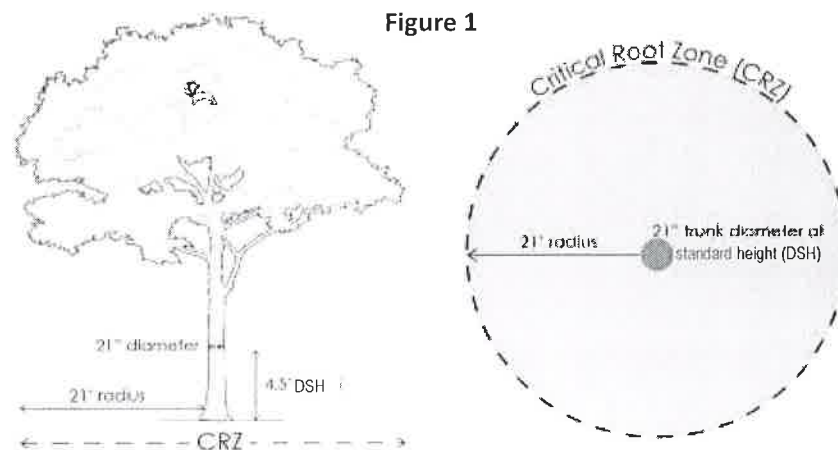
climbing spurs - Sharp devices strapped to a climber's lower legs to assist in climbing poles or trees being removed. Also called spikes, gaffs, irons, hooks, or climbers. Climbing spurs are strictly prohibited from use on trees other than for trees to be removed.

closure - The process in a woody plant by which wound wood grows over a pruning cut or injury.

codominant stem - Forked branches nearly the same diameter (diameter ratios greater than 80%), arising from a common junction and lacking a normal branch union.

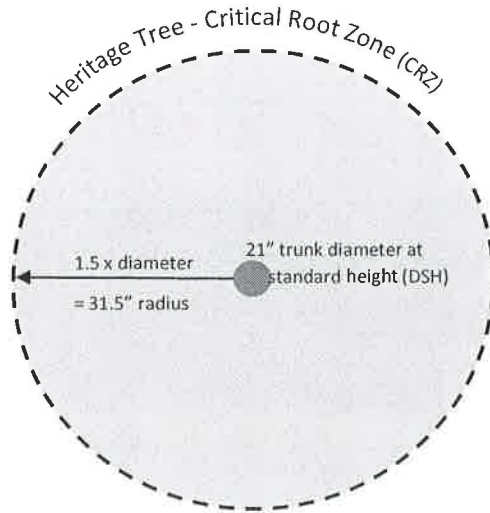
compartmentalization - Natural defense process in trees by which chemical and physical boundaries are created that act to limit the spread of disease and decay organisms.

Critical Root Zone (CRZ). The area of soil extending from the tree trunk where roots required for future tree health and survival are located. This Critical Root Zone area for all trees except Heritage Trees is a circle with a minimum radius of 1 foot for every 1 inch in trunk diameter at DSH. Refer to Figure 1.



For Heritage Trees, the Critical Root Zone area shall be a circle with a minimum radius of 1.5 feet for every 1 inch in trunk diameter at DSH, unless reduced by the City Arborist. Refer to Figure 2.

Figure 2



crown - Upper part of a tree, measured from the lowest branch, including all the branches and foliage.

decay- (noun) An area of wood that is undergoing decomposition. (2) (verb) decomposition of organic tissues by fungi or bacteria.

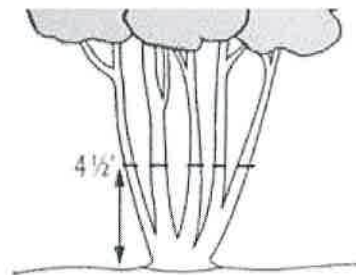
diameter at standard height (DSH). The diameter of a tree measured at four and one-half (4.5) feet above the ground while standing on the high side of the tree. For a tree other than a Multi-trunked Tree that branches at or below four and one-half feet, DSH shall mean the diameter at the narrowest point between the grade and the lowest branching point. The diameter shall be calculated by use of the following formula:

$$\text{diameter} = \text{circumference} / 3.142$$

For Multi-trunked Trees, the DSH shall be the diameter of each stem measured at four and one-half feet above the ground while standing on the high side of the tree added together in total. Refer to Figure 3.

Extrapolated Diameter at Standard Height (DSH). This shall be used for purposes of calculating the mitigation for a Multi-trunked Tree. It is derived from adding the cross-sectional area of each stem measured at four and one-half (4.5) feet above grade to determine a value for the DSH. In a Multi-trunked Tree, this is calculated by taking the square root of the sum of each individual stem's DSH squared. The Extrapolated DSH value is used for determining mitigation and may be calculated using an alternative method acceptable to the City Arborist.

Figure 3



dominant leader/trunk/stem - The stem that grows much larger than all other stems and branches.

dripline radius (DLR). A perfect circle around the tree with the radius being equal to the longest branch of the tree. See Figure 4.

espalier - The combination of pruning, supporting, and training branches to orient a plant in one plane.

good structure/architecture/form - Branch and trunk architecture resulting in a canopy form that resists failure.

hanger - Loose, dangling or unsecured limb in the canopy of a tree.

heading - Cutting a shoot back to a bud, or cutting a branch back to a bud, stub or lateral branch not large enough to assume the terminal role. Cutting an older branch or stem back to a stub or internode.

Heritage Tree - Except for trees listed as “Not Eligible for Heritage Status” on the City’s Master Tree List, a tree on the City’s Master Tree List over 30 inches in DSH or a multi-trunked tree on the Master Tree List having a combined DSH of 50 inches or more.

included bark- Bark that becomes embedded in a crotch (union) between branch and trunk or between codominant stems. Causes weak structure.

internode - The area between lateral branches or buds.

ISA Best Management Practices - Recommended methods for the planting, care, maintenance, pruning of trees prepared by the International Society of Arboriculture.

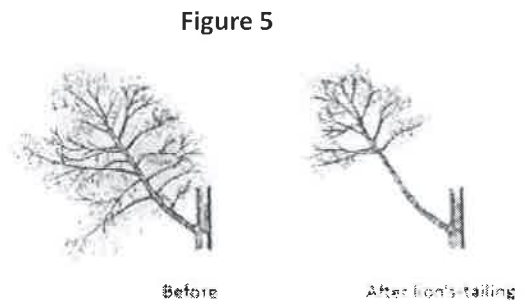
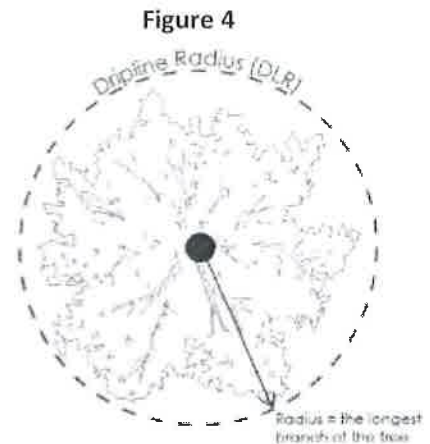
Landmark Tree - A tree or group of trees determined by the City Council to confer a significant community benefit to the general public due to its size, age, location, historic association or ecological value.

lateral - A branch arising from a large stem or branch.

leader - Primary terminal shoot or trunk of a tree. Large, usually upright stem. A stem that dominates a portion of the crown by suppressing lateral branches.

lion’s-tailing - Poor pruning practice in which an excessive number of live branches are thinned from the inside and lower part of specific limbs or a tree crown, leaving mostly terminal foliage. Results in poor branch taper, poor wind load distribution, and a high risk of branch failure. See Figure 5.

major pruning - The cutting of any individual branch or root with a diameter of two inches or greater or a circumference of more than six and one-quarter inches at the location of the cut on such branch or root. It shall also include the cutting of a cumulative amount of more than ten percent of the Root System, the Tree Crown, or a combination of both within a 12-month period.



Master Tree List - A list prepared by the City, as amended from time to time, identifying the species of trees that may be planted as replacement trees, as Parking Lot Shading Trees, or as Street Trees as well as trees that are not-recommended or excluded from protection.

mature tree - Trees that have reached at least 75 percent of their typical final height and spread.

minor Pruning - The cutting of any individual branch or root of less than two inches in diameter at the point of the cut on such branch or root. The cumulative amount of cutting shall not be more than ten percent of the Root System, the Tree Crown, or a combination of both within a 12-month period. Pruning that substantially reduces the overall size or density of the tree or destroys the existing symmetry or natural shape of the tree is not considered Minor Pruning.

MWELO (Model Water Efficient Landscape Ordinance) – Sections 490-495, Chapter 2.7, Division 2, Title 23 in the California Code of Regulations establishes design principals and procedures to promote water efficiency for new and rehabilitated landscapes.

Native Oak Tree - One of the following indigenous species of tree or hybrids of any of the trees listed below, with a minimum diameter as shown in Table 1:

Table 1
Native Oak Trees

Common Name	Botanical Name	Trunk (DSH)	Multi-trunked Combined (DSH)*
Valley Oak	Quercus lobata	6"	20"
Blue Oak	Quercus douglasii	6"	20"
Interior Live Oak	Quercus wislizenii	6"	20"
Coast Live Oak	Quercus agrifolia	6"	20"

*A Native Multi-trunked Tree listed above with a single stem 6 inches or greater shall be considered a Native Oak Tree.

parent branch or stem - A tree trunk or branch from which other branches or shoots grow.

Parking Lot Shading Tree - Any tree planted in a parking lot in order to meet shade coverage requirements and as identified in the Zoning Code.

parts to be removed - The location in the crown of a tree where pruning work will be performed. This can be specified as all of the crown or just the section(s) of the crown to be pruned.

permanent branches (permanent limbs)- In structural pruning of young trees, branches that will be left in place, often forming the initial scaffold framework of a tree.

photosynthesis - Process in green plants (and in algae and some bacteria) by which light energy is used to form glucose (chemical energy) from water and carbon dioxide.

phytotoxic - Term to describe a compound that is poisonous to plants.

pollarding - Specialty pruning technique in which a tree is kept relatively short. Starting on a young tree, internodal cuts are made at a chosen height, resulting in the development of callus knobs at the cut height. Requires regular (usually annual) removal of the sprouts arising from the cuts.

Protected Tree - Trees protected under this Chapter include Native Oak Trees, Heritage Trees, Landmark Trees, and Regulated Trees, as defined herein.

pruning - To cut off or cut back parts a tree to enhance health and structure. Pruning refers to both above surface and underground cutting. See also "Major Pruning" and "Minor Pruning".

protected tree - Trees protected under Folsom Municipal Code 12.16 – *Tree Preservation*. Protected trees include Native Oak Trees, Heritage Trees, Landmark Trees, and Regulated Trees, as defined herein.

raising - Selective pruning to provide vertical clearance; also known as lifting.

reaction zone - Natural boundary formed chemically within a tree to separate damaged wood from existing, healthy wood. Important in the process of compartmentalization.

reducing - Pruning to decrease height or spread on entire tree or one section; also referred to as reduction or reduction pruning.

reduction cut (drop-crotch cut, lateral cut) – A pruning cut that reduces the length of a branch or stem back to a lateral branch large enough to assume the terminal role (at least one third the diameter of the cut stem).

regulated activity - Activities involving Major Pruning of a Protected Tree, activities such as grading, trenching, paving or soil disturbance undertaken within the Tree Protection Zone of a Protected Tree, removal of a Protected Tree, cabling and/or bracing of a Protected Tree, or other activities that may impact the long-term health and survivability of a Protected Tree as may be determined by the City Arborist.

Regulated Tree - Trees required by the City's Zoning Code, (such as Parking Lot Shading Trees and Street Trees), or required as conditions of development project approval (such as landscape buffer or screening trees), or required by this Chapter as mitigation for the removal of a Protected Tree(s).

removal (tree removal) - Removal of most of the above ground portion of a tree by cutting to a stump or to a point on the main trunk where no side branches remain. May also include stump removal.

removal cut (thinning cut) - Cut that removes a branch at its point of origin. Collar cut.

Replacement Tree - A tree required to be planted as mitigation for removal of a Protected Tree in accordance with the requirements of this Chapter.

root system - This configuration of the underground parts or appendages of a tree, providing several functions including anchoring and providing water and nutrients to the tree.

restoration - The process of pruning to improve the structure, form, and appearance of trees that have been improperly trimmed, vandalized, or damaged.

routine maintenance - Includes the following activities: Minor Pruning; dead branch removal; irrigation; mulch application; mowing or trimming grass or other ground cover close to a tree; application of fertilizer, insecticides, or herbicides in accordance with their label; or any other similar activities that promote the life, growth, or health of trees. Any procedure, technique, or practice that is considered unacceptable or prohibited under the City's Tree Care and Maintenance Standards or by this Chapter is not Routine Maintenance.

scaffold limb - A limb or branch that is among the largest diameter on the tree and will remain on the tree perhaps to maturity.

shall - As used in this standard, denotes a mandatory requirement.

shearing - Cutting back exterior growth using internodal heading cuts in one to two-year-old wood resulting in a defined edge with thick outer growth. Outer growth is regularly shaved to maintain the shape and outer density.

shoot - New stem or branch growth on a plant.

should - As used in this standard, denotes an advisory recommendation.

specifications - Detailed plans, requirements, and statements of particular procedures and/or standards used to define and guide work.

stem - Woody structure bearing foliage and buds that gives rise to other stems (branches).

Street Tree - A tree of an approved species in accordance with the Folsom Master Tree List located within 12.5' of a street or sidewalk, measured from the back of the sidewalk or back of curb if no sidewalk exists. Street Trees can be either privately or publicly owned.

structural pruning- Pruning to establish a strong arrangement or system of scaffold branches.

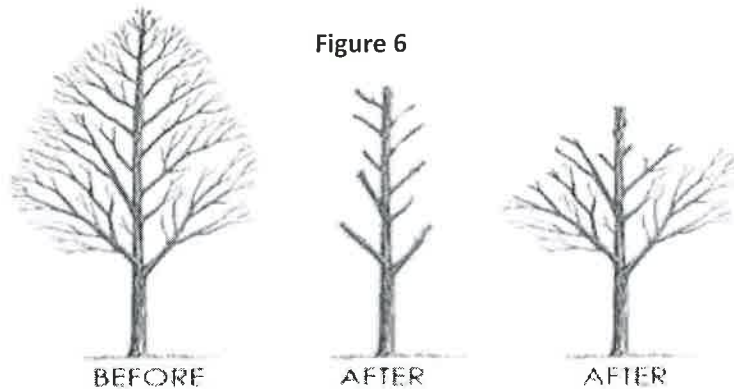
stub - Portion of a branch remaining after a stub (heading) cut, branch breakage, or branch death.

subordination - Pruning to reduce the size and ensuing growth of a branch in relation to other branches or leaders.

terminal leader. This is the vertical stem(s) at the top of the trunk of a tree.

thinning - In pruning, the selective removal of live branches to provide light or air penetration through the tree or to lighten the weight of the remaining branches.

topping - A type of pruning that is not Routine Maintenance and involves the removal of tops of trees, or large branches or trunks from tops of trees, usually at internodes, leaving large stubs or lateral branches that are too small to assume the role of a Terminal Leader. Topping is strictly prohibited. See Figure 6.



tree - A large woody perennial plant having a single, usually elongated stem, generally with few or no limbs on its lower part; or any of the species listed in the Master Tree List including all their cultivars, varieties and hybrids.

tree crown - This is the top part of the tree, which features branches, foliage, flowers, and seeds that grow out from the main trunk and support the various leaves used for photosynthesis.

tree permit - A permit issued by the City covering any Regulated Activity affecting a Protected Tree, which may be a Tree Work Permit or a Tree Removal Permit or both.

Tree Protection and Mitigation Plan (TPMP) - A report and/or plan submitted for review and approval before the start of any Regulated Activity.

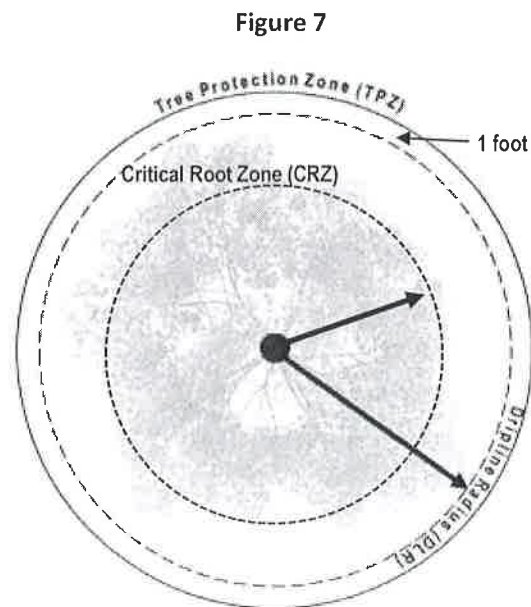
Tree Protection Zone (TPZ) - The circumference of the outermost edge of a tree's Critical Root Zone or Drip-line Radius, whichever is greater, plus one foot. When depicted on a map, the Tree Protection Zone will appear as a perfect circle, or group of overlapping circles for multiple trees. Refer to Figure 7.

trunk - Stem of a tree.

trunk flare- (1) The area at the base of the plant's trunk where it broadens to form roots. (2) The area of transition between the root system and trunk.

union (crotch) - The junction between a stem and branch or between stems.

vista/view prune - Pruning to enhance a specific view without jeopardizing the health of the tree.



wound - An opening that is created when the bark of a live branch or stem is cut, penetrated, damaged, or removed.

wound dressing – A compound applied to tree wounds or pruning cuts. Thus far, no studies have shown wound dressing techniques to be effective in assisting trees with compartmentalization of wounds.

WUCOLS – “Water Use Classification of Landscape Species” is a publication by the University of California Division of Agriculture and Natural Resources that classifies the irrigation needs of most common landscape plants.

SECTION A: TREE PLANTING

The following standards apply to the planting of any protected tree. Additional visual references can be found in the planting details in Appendix B.

A-1.0 Tree Selection

- A-1.1** Consideration shall be given to tree species with regard to the planned planting location and observable site constraints
- A-1.2** Plant selection for wildland urban interfaces and parcels adjacent to open space shall be in accordance with the Folsom Plant List for Defensible Space.
- A-1.3** When establishing the placement of a tree, the following minimum distances shall be required whenever feasible:
 - A-1.3.1** Four feet from utility installations including, but not limited to sewers, gas, water lines, meter vaults, catch basins, etc.
 - A-1.3.2** Five feet from sidewalks and other hardscape areas or the distance specified in the Folsom Master Tree List per species (whichever is greater).
 - A-1.3.2.1** Where the minimum required distance from infrastructure cannot be met, installation of City approved root barrier is required.
 - A-1.3.2.2** As part of the City’s review of plans and permit applications, the City retains the right to prohibit usage of inappropriate species for landscape areas too small to accommodate the mature tree size.
 - A-1.3.3** Ten feet from hydrants
 - A-1.3.4** Ten feet from stop signs
 - A-1.3.5** Twenty feet from light standards

A-1.4 Except for projects utilizing a City approved tree mitigation plan, all tree installation projects shall maintain the following diversity requirements:

A-1.4.1 Projects that entail the installation of less than 20 trees should attempt, whenever possible, to provide a diverse variety of trees with a mixture of genera, species, and cultivars.

A-1.4.2 Projects that entail the installation of more than 20 trees, but less than 60 trees shall not have more than:

A-1.4.2.1 35% of any one genus;

A-1.4.2.2 30% of any one species; and

A-1.4.2.3 25% of any one cultivar.

A-1.4.3 Projects that entail the installation of 60 or more trees shall not have more than:

A-1.4.3.1 35% of any one genus;

A-1.4.3.2 30% of any one species; and

A-1.4.3.3 25% of any one cultivar.

A-1.5 All trees shall be true to name as ordered or shown on planting plans

A-1.6 All trees shall comply with federal and state laws and regulations requiring inspection for plant disease, pests, and weeds

A-2.0 Preparing the Planting Area

A-2.1 The planting hole shall be dug to a depth 1"-2" less than the depth of the root ball. When placed in the hole, the root crown of the tree shall be 1-2" above finished grade.

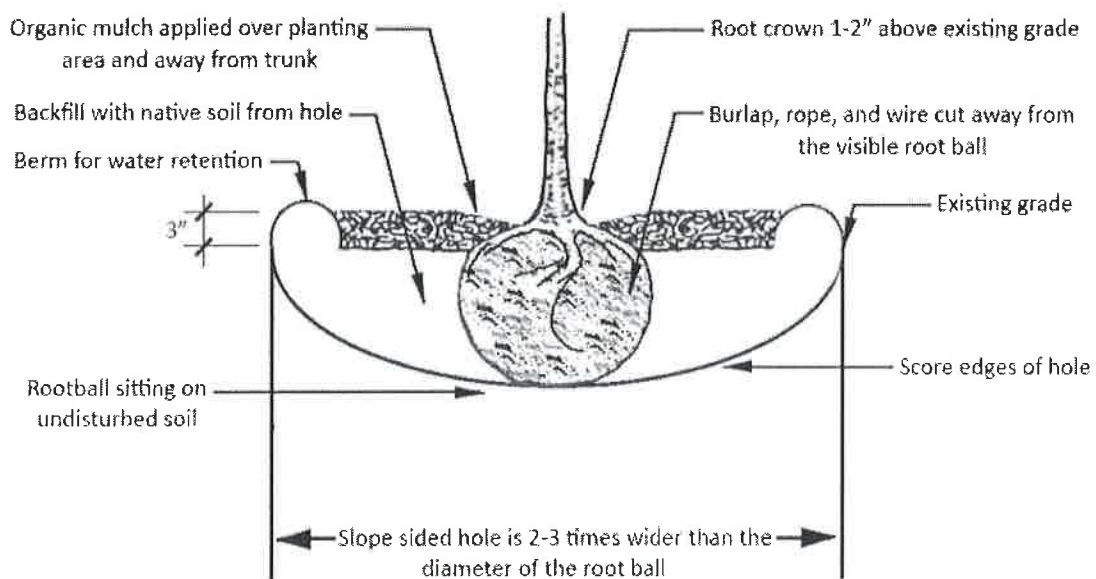
A-2.2 The planting hole shall be dug to a minimum of two times the diameter of the root ball.

A-2.3 Hard, smooth edges within the planting hold shall be avoided. A shovel or other hand tool shall be used to score the edges of the planting hole to loosen the native soil. This loose soil along the edges of the planting hole will promote rapid root growth and quick establishment.

A-3.0 Installing the Tree

- A-3.1 Soil on the top of the root ball shall be removed as necessary to expose the root collar.
- A-3.2 Girdling roots or roots growing over the root collar shall be removed as necessary.
- A-3.3 When possible, orient the tree so that it faces the same compass direction as it did when it was growing in the nursery. If the tree cannot be oriented as before, it may be necessary to protect the trunk of thin-barked trees from sunscald.
- A-3.4 Remove or cut away the root ball container (usually plastic or wood containers) before placing the root ball in the planting hole. Ropes and burlap shall be cut away from the root ball prior to backfilling.
- A-3.5 Any circling roots within the root ball should be loosened or cut as necessary. Avoid excessive root removal.
- A-3.6 Unless otherwise recommended by a soils report backfill material should be native soil.
- A-3.7 Minimize air pockets by packing gently and applying water. Build a berm 3-4" tall around the root ball to direct water percolation into the root ball.

Figure 8 – Tree Planting Hole



A-4.0 Mulching – A layer of organic mulch, such as leaf litter, shredded bark, or wood chips helps conserve moisture in the soil and improve soil quality over time.

A-4.1 Apply a layer mulch at a depth of 3 to 4 inches around the newly planted tree.

A-4.1.1 For trees planted from a 15-gallon container or smaller, spread the mulch layer out to a radius of approximately 30" from the base of the tree.

A-4.1.2 For trees larger than a 15-gallon, spread the mulch layer out to a minimum radius of 48" from the base of the tree.

A-4.2 Mulch shall not directly contact the trunk of the tree.

5.0 Staking – When installed properly, stakes can assist young trees in developing erect, central leaders and allow the roots to take anchor. Figure 9 on the following page illustrates a properly staked tree. The following shall be applied when taking young protected trees:

A-5.1 Wires or other rigid materials that could potentially cause trunk girdling shall not be used as stake ties.

A-5.2 Stakes shall be driven into the ground outside the root ball.

A-5.3 Ties shall be loose enough to allow the trunk some movement from wind. Trees tied too tightly will develop weak trunks.

6.0 Irrigation

A-6.1 Trees shall be deeply watered immediately following installation.

A-6.2 Irrigation systems should be designed to prevent direct contact of water on trunks of newly planted trees.

A-6.3 Irrigation systems shall be designed to comply with the most current version of the state's Model Water Efficient Landscape Ordinance (MWELO).

A-6.4 For new landscape installations, trees shall be irrigated on a separate valve from shrubs, groundcovers, and lawns.

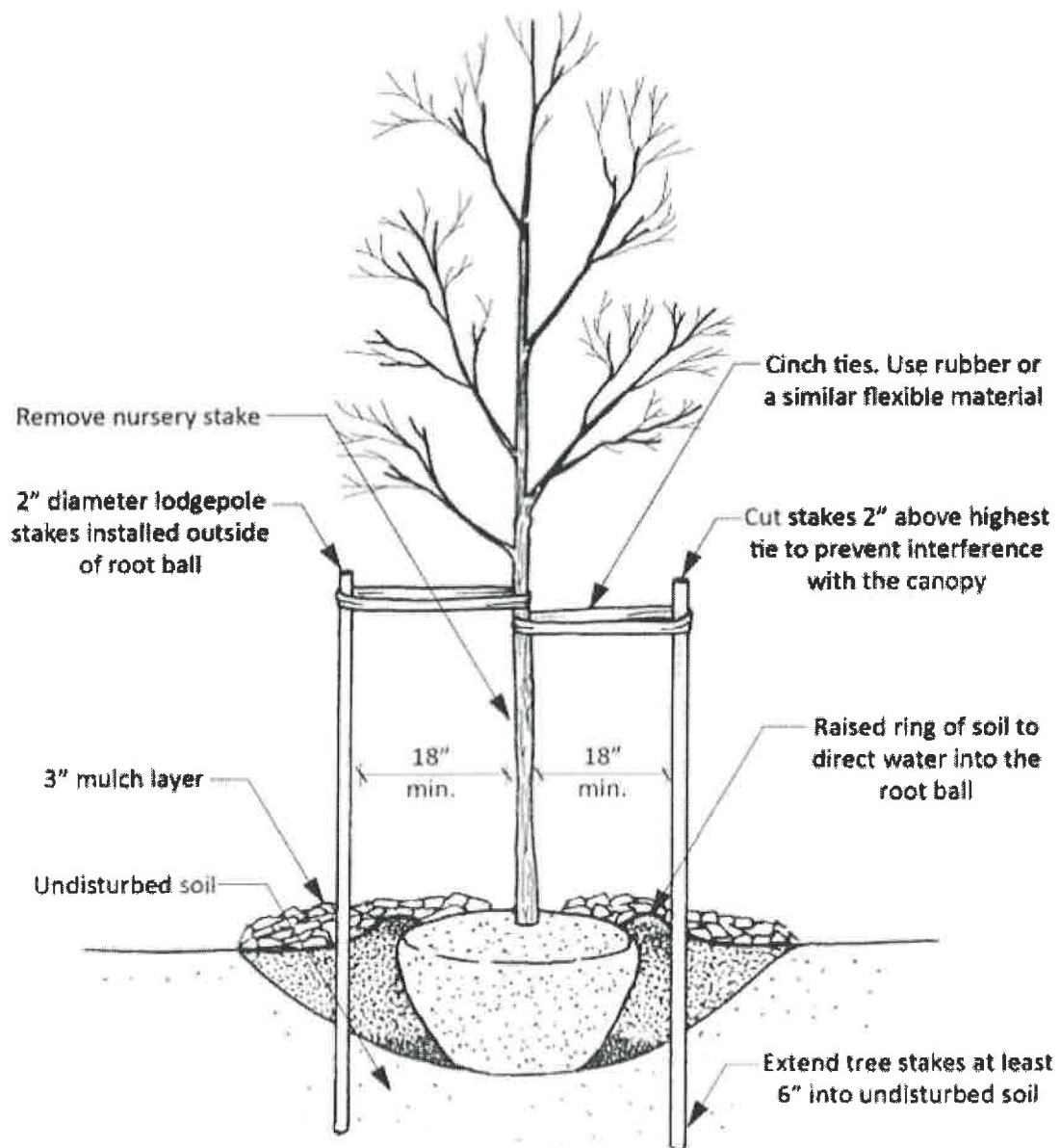
A-6.5 For rehabilitated landscape installations, trees shall be irrigated on a separate valve from shrubs, groundcovers, and lawns wherever feasible.

A-6.6 Irrigation systems shall be designed so that separate remote-control valves are used to irrigate trees with differing water needs in accordance with WUCOLS

A-6.7 Trees irrigated on the same hydrozone shall have similar WUCOLS ratings. Where trees with adjacent WUCOLS ratings are irrigated on the same valve, the highest WUCOLS rating shall be used to determine the Plant Factor for that hydrozone for the purposes of calculating Estimated Total Water Use (ETWU).

A-6.8 Planting trees in lawn areas should be avoided wherever possible.

Figure 9 – Tree staking



SECTION B: TREE PRUNING

When executed properly, pruning can provide a multitude of benefits for tree health, public safety, and general welfare. The opposite is true for improper pruning: when poorly performed, pruning can be injurious to trees and have negative impacts on aesthetics and safety.

Pruning live branches reduces a tree's ability to photosynthesize and produce sugars. Pruning also creates wounds the tree must expend energy to close and defend. Therefore, the costs and benefits of pruning live limbs should be weighed when establishing pruning objectives.

These pruning standards are intended to guide the user in proper pruning practices and highlight important factors to consider when developing pruning goals.

B-1.0 Tree Permit Required – Where the scope of the intended pruning activities on a protected tree entails cuts greater than 2" in diameter on live limbs or the removal of more than 10% of the tree's canopy, a Tree Work Permit application shall be submitted to the City's Community Development Department for review and approval. A submitted Tree Work Permit application shall contain the following:

B-1.1 Filled out application form supplied by the City;

B-1.2 ISA certification number of the project arborist to perform the work; and

B-1.3 A description of the pruning specifications proposed for the permit application. The pruning specifications should outline the pruning objective, and the number, size, and types of cuts required to achieve the pruning objective.

The Community Development Department may approve, modify, approve with conditions, or deny the permit application in accordance with Folsom Municipal Code 12.16.

B-2.0 Project Arborist Required – Where the scope of the intended pruning activities requires a Tree Permit per the criteria above, an ISA certified arborist shall perform or supervise the tree work.

B-3.0 Pruning Objectives – When a Tree Permit is required, no tree shall be pruned without a clearly defined objective. Appropriate objectives to consider may include:

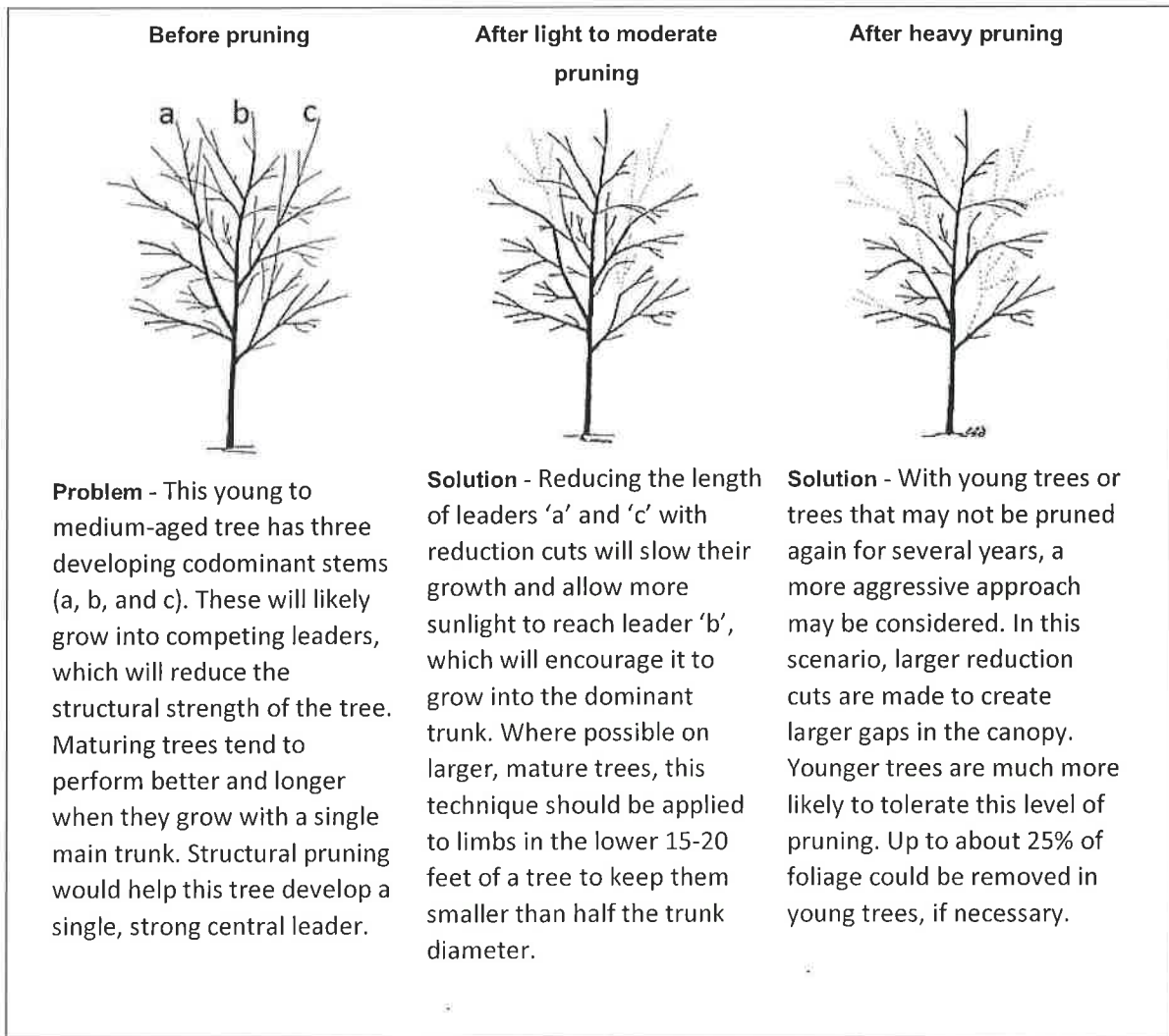
B-3.1 Improving Structure – This objective consists of selective cuts to improve the stem and branching architecture primarily in young and medium aged trees. In addition to developing strong architecture, structural pruning can promote or discourage branch growth in a certain direction (directional pruning). This can help minimize future interference with people, traffic, buildings, utilities, and lighting.

B-3.1.1 Dominant leader(s) should be selected for development as appropriate

B-3.1.2 Identify the intended lowest branch of the permanent canopy

- B-3.1.3** Strong, properly spaced scaffold branch structure should be selected and maintained by reducing or removing other branches
- B-3.1.4** Temporary branches should be retained or reduced as appropriate
- B-3.1.5** Interfering, overextended, defective, weak and/or poorly attached branches should be removed or reduced

Figure 10 – Tree Pruning



B-3.2 Risk Mitigation – Pruning to reduce the risk of branch, stem, or whole tree failure. This is often a primary concern for mature trees. Conditions and defects to consider for risk mitigation pruning are outlined in Table 2 and Table 3 below.

Table 2 - Conditions that increase the likelihood of branch failure and can be mitigated through pruning:	
▸ dead branches	▸ limbs with cracks
▸ branches with cavities	▸ broken or detached limbs
▸ hangers	▸ excessively long branches
▸ overly large branches	▸ Limbs with weak attachments

Table 3 - Conditions that increase the likelihood of trunk or root failure:	
▸ buried root collar	▸ excessive soil moisture
▸ cavities and decay in the trunk	▸ girdling roots
▸ excessive lean	▸ root decay
▸ cut roots from construction activity	▸ codominant stems with included bark

The best way to prevent a high likelihood of failure in mature trees is to perform routine structural pruning on trees while they are young or middle aged in order to develop strong form and architecture. As trees mature, pruning to correct structural defects can prove injurious to trees due to the increased size of the cuts required to mitigate the risk.

B-3.3 Clearance – In order to maintain public safety, it is often necessary to prune trees to accommodate surrounding site conditions. The following standards apply to owners of Protected Trees:

B-3.3.1 Trees shall be pruned as needed to maintain a minimum vertical clearance of 14.5’ over a street.

B-3.3.2 Trees shall be pruned as needed to maintain a minimum vertical clearance of 8’ over bike paths.

B-3.3.3 Trees shall be pruned as needed to maintain a minimum vertical clearance of 7’ over sidewalks.

B-3.3.4 Trees shall be pruned as needed to maintain a minimum distance of 10’ from chimneys.

B-3.3.5 Trees should be pruned as needed to maintain a minimum distance of 5’ over roofs.

B-3.4 Tree Health – Also referred to as “sanitation pruning” or “cleaning”, pruning to improve tree health entails the removal or reduction of dead branches or limbs infested by pests and disease.

B-3.4.1 Location and parts to be removed shall be specified prior to commencement of work.

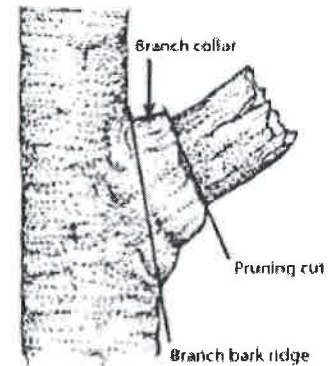
- B-3.4.2** Pruning equipment shall be properly sanitized as appropriate between cuts to prevent the spread of disease-causing pathogens.
- B-3.5 Reduce Density** – This objective aims to lessen branch and foliage density within the crown of a tree. This practice is also referred to as “thinning” and may be performed to increase wind or light penetration.
- B-3.5.1** Thinning should result in an even distribution of live branches on individual branches throughout the crown.
- B-3.5.2** Lion’s-tailing is a poor pruning practice and shall not occur when pruning live branches for the purposes of thinning.
- B-3.5.3** Location and parts to be removed shall be specified prior to commencement of work.
- B-3.6 Restoration** – Corrective pruning may be necessary when trees have been damaged by high winds or incurred poor pruning, vandalism, or other mechanical injuries. Pruning performed for the purposes of correcting mechanical damage to reinstate tree structure is called “Restoration” pruning. Crown restoration is usually accomplished over several pruning cycles.
- B-3.6.1** Location and parts to be removed shall be specified prior to commencement of work.
- B-3.7 Size Management** – When proper pruning practices are employed, the overall size or spread of a tree can be appropriately managed. This type of pruning is done to minimize risk of failure and to reduce height or spread.
- B-3.7.1** Not all trees can be reduced. Therefore, the species and plant health shall be considered prior to commencement of work.
- B-3.7.2** Crown reduction shall be accomplished using reduction and removal cuts. The tree’s form, branch structure, health and structural integrity shall be considered in determining the appropriate amount of reduction to meet the objective.
- B-3.7.3** Topping shall not be used as a pruning technique to reduce tree size.
- B-3.7.4** Location of parts to be removed or clearance requirements shall be specified prior to commencement of work.

B-4.0 Types of Pruning Cuts

Figure 11 – Branch Removal Cut

B-4.1 Branch Removal Cut – Also known as thinning or removal cuts, a branch removal cut removes the smaller of two branches at a union with the parent stem (see Figure 11).

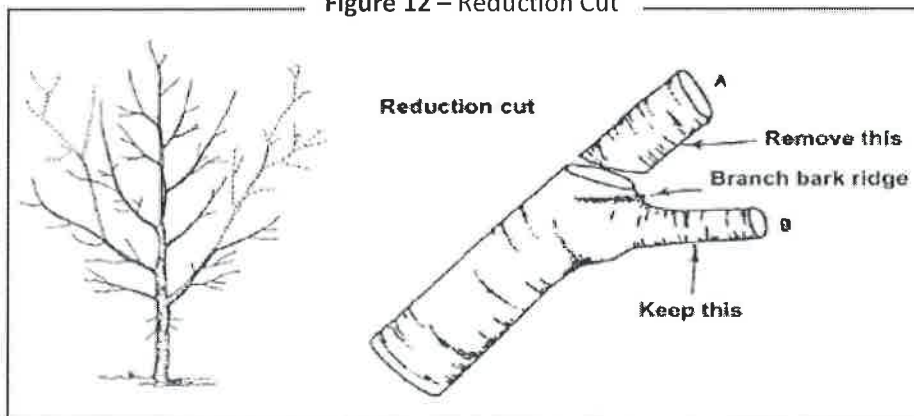
When making a branch removal cut, it is important to retain the branch collar and branch bark ridge. “Flush cuts” shall be avoided. Making a flush cut is the act of removing a limb at a union, including the branch collar and branch bark ridge. Flush cuts are difficult for trees to compartmentalize and create avenues for decay organisms to enter the tree.



B-4.2 Reduction Cut – Also known as “cutting to a lateral”, a reduction cut removes the larger of two or more branches or stems to a live lateral branch or stem (see Figure 12). When possible, the limb to be retained should be at least one-third the diameter of the limb or stem being removed in order to assume the terminal role.

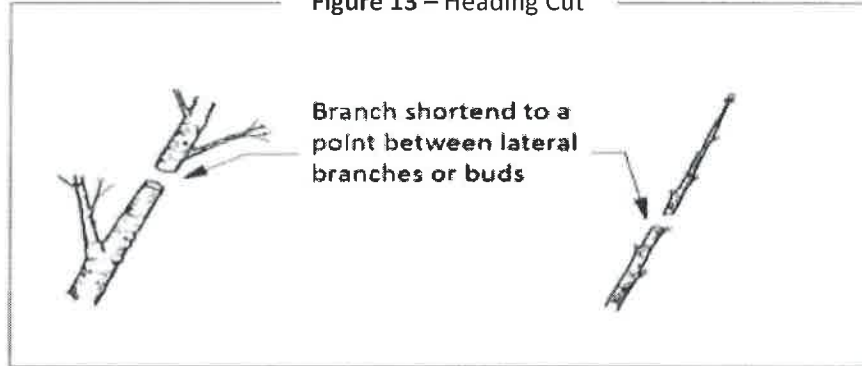
Trees may not be able to close pruning wounds from reduction cuts as well as branch removal cuts. Reduction cuts greater than 4 inches in diameter should be avoided whenever possible. The smaller the cut, the better able a tree will be able to close the wound.

Figure 12 – Reduction Cut



B-4.3 Heading Cut – This type of cut removes a branch between nodes to a bud, or to a branch less than one-third the diameter of the branch or stem being removed. Except for specific circumstances, this type of cut is rarely appropriate for medium aged and mature trees. Circumstances that may warrant a heading cut include: to start a pollard, to remove old flowers or fruit, for structural development in young trees, and to avoid removal of a large limb that would otherwise require a cut at the trunk or a scaffold limb (See Figure 13 on the following page).

Figure 13 – Heading Cut



B-4.4 Shearing Cut – This type of cut involves the removal of leaves, twigs, and small branches to a desired plane or shape. Shearing is a common pruning practice used for shaping topiaries and hedges and often results in a dense outer canopy and sparse inner canopy.

B-5.0 When to Prune – The timing of when to prune a tree depends entirely on the objectives being employed. Risk mitigation pruning, for example, should be performed as soon as possible to ensure public safety. Additionally, limbs identified as diseased should be removed in a timely manner to prevent the issue from spreading. Removal of dead, diseased, and broken branches can take place at any time with little negative impact to the tree.

Insects are less active during the winter months and wound closure is generally fastest during the spring, making these the ideal seasons for routine pruning to improve structure, provide clearance, and promote tree health.

Tree growth rate can be reduced by waiting until early summer (after the initial spring growth flush) to prune. In some cases, reduced growth rate may be the goal. However, removing live branches from stressed trees or trees in decline during this time of year, may worsen the tree's condition by further reducing energy reserves.

B-6.0 How Much to Prune – The amount of canopy that should be removed from a tree depends on the pruning objectives. Generally, the extent of the pruning scope should be as minor as possible to achieve the established pruning goals. Pruning more than 10% of a Protected Tree's canopy requires a Tree Permit.

B-6.1 Pruning Young Trees – Young trees are more vigorous than their mature counterparts and, therefore, are more tolerant of a pruning scope that may otherwise be considered aggressive. Establishing strong architecture should be a primary pruning goal with young trees to develop a strong central leader and select properly spaced scaffold branches. This may sometimes mean removal of 25% or more of the tree's canopy.

B-6.2 Pruning Mature Trees – The extent of branch removal in mature trees should be as minimal as possible to achieve the pruning objective. When pruning mature trees:

B-6.2.1 The smallest cuts possible shall be performed in order to achieve the pruning goals.

B-6.2.2 Removal of multiple small branches shall be selected over the removal of a single large branch wherever possible.

B-6.2.3 Poor pruning practices such as lions-tailing shall be avoided

B-7.0 Prohibited Pruning Practices – The following actions shall be prohibited on Protected Trees:

B-7.1 The use of climbing spurs (also known as climbing gaffs or climbing hooks) while performing pruning activities.

B-7.2 The excessive removal of live interior and lower lateral branches (known as lion’s-tailing).

B-7.3 Topping.

B-7.4 Performing pruning activities outside the scope of an issued Tree Permit.

SECTION C: TREE PROTECTION DURING CONSTRUCTION

Site disturbance from grading and construction activities can have significant negative impacts on the health and longevity of trees. It is for this reason the following standards have been established. The items and actions delineated in this section shall be executed where construction activity encroaches into the Tree Protection Zone (TPZ) of any protected tree.

C-1.0 Tree Permit Required – A Tree Permit is required for any regulated activities undertaken within the TPZ of a protected tree. Prior to any site disturbance, the applicant shall supply a tree permit application package to the Community Development Department, which shall include the following:

C-1.1 Application form supplied by the Community Development Department;

C-1.2 Arborist Report prepared by an ISA certified arborist; and

C-1.3 Tree Protection and Mitigation Plan.

The Community Development Department may approve, modify, approve with conditions, or deny the permit application in accordance with Folsom Municipal Code 12.16.

C-2.0 Project Arborist Required – Where regulated activity encroaches into the TPZ of a protected tree, an applicant shall retain the services of an ISA certified arborist (to be known as the project arborist) to perform the following duties:

- C-2.1** Prepare an Arborist Report in accordance with C-3.0 of this document and FMC 12.16.140(B).
- C-2.2** Assist the applicant in the preparation of a Tree Protection and Mitigation Plan in accordance with Section C:4.0 of this document and FMC 12.16.140.
- C-2.3** Implement the recommendations for tree preservation as outlined in the City-approved Tree Protection and Mitigation Plan.
- C-2.4** Monitor the health of all protected trees potentially impacted by the construction activities throughout the duration of the development project.
- C-2.5** Monitor the health of all trees planted as mitigation throughout the duration of the monitoring period as approved by the City Arborist.
- C-2.6** Supervise and direct all regulated activity within the TPZ of protected trees.
- C-2.7** Assist the applicant in the execution of all prescribed recommendations by the project arborist to lessen impacts and promote tree health.
- C-2.8** Prepare a certificate of compliance at the conclusion of the project, attesting compliance with the standards outlined herein and the conditions of the tree permit.

The City may request a copy of the executed contract between the applicant and project arborist prior to issuance of a Tree Permit.

C-3.0 Arborist Reports – The project arborist shall prepare a document containing the following and any other information determined to be necessary by the City Arborist:

- C-3.1** The date of the report, address of the project, property owner information, and the project arborist's contact information
- C-3.2** A statement of qualifications of the project arborist and any other individuals who assisted in the preparation of the arborist report and Tree Protection and Mitigation Plan
- C-3.3** A survey of all trees potentially impacted by the proposed regulated activities. The survey shall include the following information for each tree:
 - C-3.3.1** Tag number identification

C-3.3.2 Botanical name

C-3.3.3 Common name

C-3.3.4 DSH

C-3.3.4.1 In the case of multi-stemmed trees, the diameter of each stem shall be listed.

C-3.3.5 Dripline radius

C-3.3.6 TPZ radius

C-3.3.7 Field notes on health, structure, defects, site conditions, and any other information the project arborist deems relevant

C-3.3.8 Tree condition rating based on health and structure. The tree condition rating shall be determined on a scale of 0-5 (See Table 4).

Table 4 – Tree Rating System

Rating	Rating	Rating Description
Excellent	5	Tree appears near perfect. Excellent structure and vigor.
Good	4	Good structure and vigor. Any problems are correctable.
Fair	3	Minor to moderate problems are present but can be managed.
Poor	2	Major structural or health problems. Retention is questionable.
Hazardous/uncorrectable	1	Problems are extreme. Likelihood of failure is high.
Dead	0	Dead

C-3.3.9 Development impact assessment shall be based on the most recent development plans. The impact assessment shall consider grading activity, excavation, necessary clearance pruning, anticipated soil compaction, construction and vehicular access, and any other site disturbance the project arborist deems relevant.

C-3.3.10 Management, preservation, and protection actions to be executed for each tree, based upon the development impact assessment to minimize impacts and ensure long term tree health. This section shall address the TPZ fencing perimeter, necessary pruning, soil protection, trunk protection, irrigation, mulching, and any other actions the project arborist deems necessary.

C-4.0 Tree Protection and Mitigation Plans – The Tree Protection and Mitigation Plan (TPMP) shall be prepared by an arborist or other licensed professional, as approved by the approving authority, and contain the following information:

C-4.1 Existing and proposed characteristics including:

- C-4.1.1** Property lines.
- C-4.1.2** Streets, access easements and/or public or private driveways and other paved areas.
- C-4.1.3** Buildings, structures, and setbacks.
- C-4.1.4** Existing utilities above and below ground.
- C-4.1.5** Parking and other paved areas.
- C-4.1.6** Land uses on the parcel (existing and proposed).
- C-4.1.7** Proposed grading and construction, including utilities.
- C-4.1.8** Any other information determined to be necessary by the Approving Authority.

C-4.2 Existing tree information, including:

- C-4.2.1** The exact TPZ as described in the arborist report. Trees on neighboring properties with TPZs that overlap into the property shall be included.
- C-4.2.2** The exact location, both vertically and horizontally, of the base of each tree.
- C-4.2.3** The physical tag number for each tree, consistent with the arborist report.
- C-4.2.4** Trees proposed for removal.
- C-4.2.5** Trees proposed for preservation.
- C-4.2.6** The contact information of the project arborist.
- C-4.2.7** Tree preservation notes outlining actions to be executed for the purposes of minimizing construction impacts to trees planned for retention.

C-4.3 Replacement tree information, including:

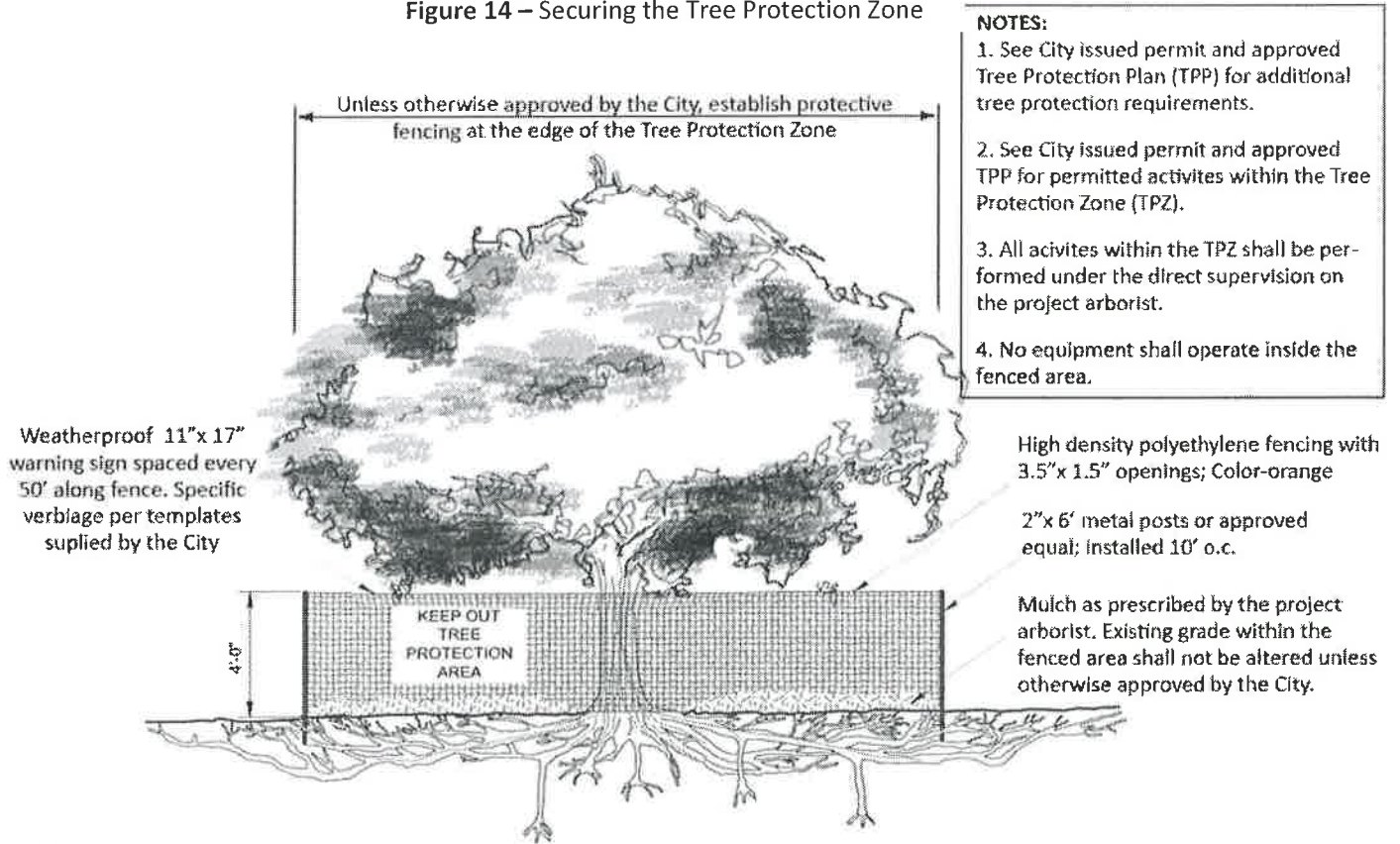
- C-4.3.1** A planting plan showing the size, species, and locations of trees to be planted as mitigation for the removal of protected trees.
- C-4.3.2** Irrigation design plan showing the methods and scheduling for irrigating the replacement trees.
- C-4.3.3** Timeline and schedule for the proposed monitoring and maintenance plan of the replacement trees by the project arborist.
- C-4.3.4** The contact information of the project arborist.

C-5.0 **Standards for Tree Protection Zones** – The following standards apply to all permitted site disturbance activities within the TPZ of protected trees.

C-5.1 The following actions shall take place prior to any site disturbance:

- C-5.1.1** High-visibility exclusionary fencing shall be installed to protect the TPZ of all protected trees in proximity to the regulated activity. Unless otherwise approved by the City, the exclusionary fencing shall encompass the entire TPZ (See Figure 14 on the following page).
- C-5.1.2** Weatherproof warning signs shall be affixed to the TPZ fencing. The signs shall be a minimum dimension of 11" x 17", posted on all sides of fences and spaced a maximum of 50' apart. The signs shall state that enclosed tree(s) are to be preserved and the penalty for damage to, or removal of, the protected tree(s).
- C-5.1.3** Any pruning for construction clearance at the recommendation of and under the supervision of the project arborist.
- C-5.1.4** Any soil or trunk protection prescribed by the project arborist.
- C-5.1.5** Any other pre-construction measures prescribed by the project arborist.

Figure 14 – Securing the Tree Protection Zone



- NOTES:**
1. See City issued permit and approved Tree Protection Plan (TPP) for additional tree protection requirements.
 2. See City issued permit and approved TPP for permitted activities within the Tree Protection Zone (TPZ).
 3. All activities within the TPZ shall be performed under the direct supervision on the project arborist.
 4. No equipment shall operate inside the fenced area.

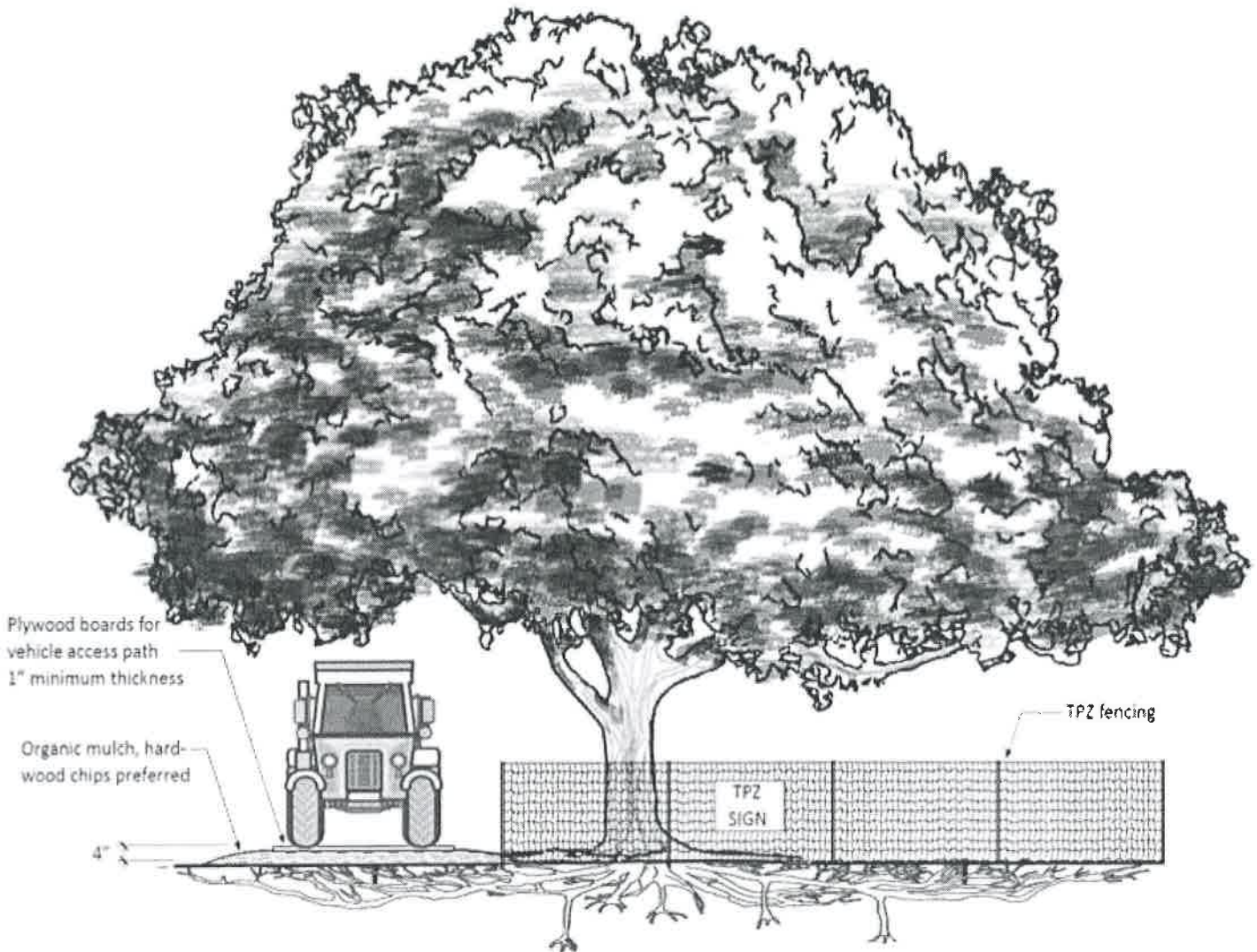
C-5.2 The following actions shall take place during site disturbance and construction activities:

- C-5.2.1** All work to be performed inside the TPZ of trees to be preserved shall be supervised by the project arborist.
- C-5.2.2** Removal of tree stumps within the TPZ of trees to be preserved shall be performed via grinding using a stump router or left in place.
 - C-5.2.2.1** Removal of tree stumps within the TPZ of trees to be preserved via excavation equipment such as tractors or backhoes is strictly prohibited.
- C-5.2.3** Any approved trenching inside the TPZ of trees to be preserved shall be performed by hand, by hydraulic air spade, placing pipes underneath roots, or by boring deeper underneath the roots.
 - C-5.2.3.1** Refer to Appendix B, LS-08 for specifications on boring underneath tree roots.

C-5.2.4 Any necessary root severance shall be performed with sharp, sterile hand tools. Roots that have been ripped, torn, or crushed shall be traced back to undamaged tissue and cut cleanly, resulting in a flat surface with the adjacent bark firmly attached.

C-5.2.5 Roots exposed from grade cuts shall not be allowed to dry out. Cut faces shall be moistened and covered until backfilled.

C-5.2.6 Where construction access through the TPZ is necessary, the soil shall be protected via the installation of an access path. The access path shall be comprised minimally of 1" minimum thickness plyboards laid over a 4" layer of mulch (See Figure 15).



- C-5.3** The following actions are prohibited within the TPZ of protected trees at all times:
- C-5.3.1** Parking of vehicles, equipment, or storage of material within the TPZ, unless otherwise approved by the City.
 - C-5.3.2** Breaking roots with a backhoe or crushing them with a grader.
 - C-5.3.3** Wounding or breaking tree trunks or branches through contact with vehicles or heavy equipment.
 - C-5.3.4** Contamination of soil by washing out equipment or vehicle maintenance.
 - C-5.3.5** Performing any regulated activity without a City issued Tree Permit or performing regulated activities outside the scope of a City issued Tree Permit.
- C-5.4** The following actions shall take place at the conclusion of permitted activities:
- C-5.4.1** The applicant shall supply a Certificate of Compliance from the project arborist to the City attesting compliance with the conditions of the tree permit and all prescribed recommendations in the City-approved arborist report.

SECTION D: LANDSCAPING NEAR EXISTING TREES

Trees can be easily damaged or killed from the impacts of trenching for irrigation lines and incompatible irrigation applications. The following standards apply to landscape installation within the TPZ of existing protected trees.

D-1.0 Standards for landscape installation near existing protected trees

- D-1.1** Landscaping near Protected Trees other than Native Oak Trees
- D-1.1.1** Unless otherwise included within the scope of a City issued Tree Permit and City approved Tree Protection Plan, trenching for the installation of underground irrigation lines within the TPZ is prohibited.
 - D-1.1.2** Plant material such as shrubs and groundcover installed within the TPZ of a non-native oak shall have the same or adjacent WUCOLS rating of the subject tree.
 - D-1.1.3** Planting holes for the installation of shrubs and groundcover within the TPZ of protected trees shall be dug by hand. Cutting tree roots 1" and larger for the purposes of installing plant material within the TPZ shall be avoided.

D-1.1.4 Irrigation systems shall be designed to prevent direct water contact to tree trunks.

D-1.2 Landscaping near Native Oak Trees

D-1.2.1 Unless otherwise included within the scope of a City issued Tree Permit and City approved Tree Protection and Mitigation Plan, trenching for the installation of underground irrigation lines within the TPZ is prohibited.

D-1.2.2 Plant material shall be planted no closer than 6' of native oaks with a DSH of up to 18" and no closer than 10' of native oaks with a DSH of 18" and greater.

D-1.2.3 All plant material within the TPZ shall have a WUCOLS rating of either low or very low.

D-1.2.4 Planting holes for the installation of shrubs and groundcover within the TPZ of protected trees shall be dug by hand. Cutting tree roots 1" and larger for the purposes of installing plant material within the TPZ shall be avoided.

D-1.2.5 Unless otherwise included within the scope of a City issued Tree Permit and City approved Tree Protection Plan, all irrigation methods within the TPZ shall be via above-ground means only.

D-1.2.6 Irrigation systems shall be designed to prevent direct water contact to any part of the trunk of the tree.

D-1.2.7 Installation of turf or lawn within the TPZ is expressly prohibited.

APPENDIX A: EXCERPTS FROM FOLSOM DESIGN STANDARDS 2020 – PARKING LOT SHADE

20.4 PARKING LOT SHADE

A. Tree Shading:

Trees shall be planted, monitored, and maintained throughout the surface parking lot to ensure that, within 15 years after establishment of the parking lot, at least 40 percent of the parking area will be shaded. This should be calculated by using the City's diameter of the tree crown at 15 years. Each planting area shall be of adequate size for the landscaping approved and shall have adequate irrigation for that landscaping.

Note: Planter dimensions exclude curbing. Planter shall contain earth and living ground cover. Bark mulch is not allowed in planter areas adjacent to public right-of-way, wood chip mulch is acceptable (hardwood chip mulch is preferred).

B. Parking Lot Shade (40% with 15 years)

All surfacing on which a vehicle can drive is subject to shade calculation.

- Parking stalls
- All drives within property line (regardless of length)
- All maneuvering (regardless of depth)

Exceptions

- Truck loading in front of overhead doors
- Truck maneuvering and parking areas unconnected to and exclusive of any vehicle parking
- Surfaced areas not to be used for vehicle parking, driving or maneuvering, provided they are made inaccessible to vehicles by a barrier such as bollards or fencing
- Automobile dealerships, display/sales/service/vehicle storage (required parking for automobile dealerships is still subject to shading)

If a site has two or more unconnected parking areas, shade is calculated separately for each area. If they are connected by a joining drive, they are calculated as one lot.

- 1) Shade is determined by using the appropriate percentage of the crown as indicated on the approved shade tree list (see Plate 20-A).
- 2) Trees must be planted at a distance one half of the required planter size behind curb. Refer to the Folsom Master Tree List and Folsom Tree Care and Maintenance Standards for information on minimum required planter size per species. Where a walk falls adjacent to a curb, any 35-foot diameter tree within 10 feet of the curb face receives 50% shade credit. It is necessary for the tree to be planted at a distance one half of the required planter size behind walk for this to apply.
- 3) Two feet of vehicle overhang into planter area is allowed, provided the planter is a minimum 6 feet wide. Vehicle overhang is not allowed into required setback areas.

- 4) Identify any existing tree species on-site for consideration in shade credit calculations. New trees planted for mitigation shall not count for shade or “street tree” requirements.
- 5) Overlapping shade does not count twice.
- 6) Parking lot lighting shall not conflict with required shade tree locations or growth. No new trees to be planted within 20’ of a light standard.
- 7) Provide shade calculations to the Community Development Department- Engineering Division for review and approval. The planting plan may be used as the shade plan, provided the trees are drawn to scale at the size indicated on the approved shade list. To calculate shade, indicate: surface area, shade area, shade provided, and mark each tree with the credit accorded it (F or 100 percent, TQ or 75 percent, H or 50 percent, Q or 25 percent, OT or 33.3 percent, TT or 66.6 percent). Each tree with different shade credit shall be listed separately. This method allows easy follow-up and coordination when a discrepancy is found in the plan check process. See Plate 15-A for examples of tree placement.
- 8) The shade trees shall be inspected by the Project Arborist to confirm compliance with the proposed shade target with a report to the City Arborist.

Shade Inspections and monitoring report shall be submitted to the City by December 1st with all corrections made within 90 days.

- 1) 1-year after acceptance
- 2) 5-year after acceptance to be 25% coverage
- 3) 10-year after acceptance to be 50% coverage
- 4) 15-year after acceptance to be 100% coverage.

C. General Requirements

All projects submitted for building permits must include site grading, landscape planting and irrigation with irrigation calculations. All plans that include parking must also include a shade plan. The planting plan may be used as the shade plan provided the trees are drawn to scale at the size indicated on the approved shade list and shade calculations are included. Plans will not be accepted into the building permit plan check process unless these items are present.

All landscape, irrigation and shade plans shall be approved by the Planning Department. This approval occurs as part of the development application review process.

D. Trees for Parking Lot Shading

Selection of the trees listed is based on adaptability to parking lot conditions. The following tree conditions and characteristics are informational to help select a good shade tree:

- 1) Minimum planter width (clear inside soil width)

- 2) Approximate tree height
- 3) Growth rate
- 4) Root growth and depth
- 5) Suggested soil type
- 6) Soil Moisture Needs (per "Water Use Classification of Landscape Species (WUCOLS)")

VL = Very Low

L = Low

M = Moderate

H = High

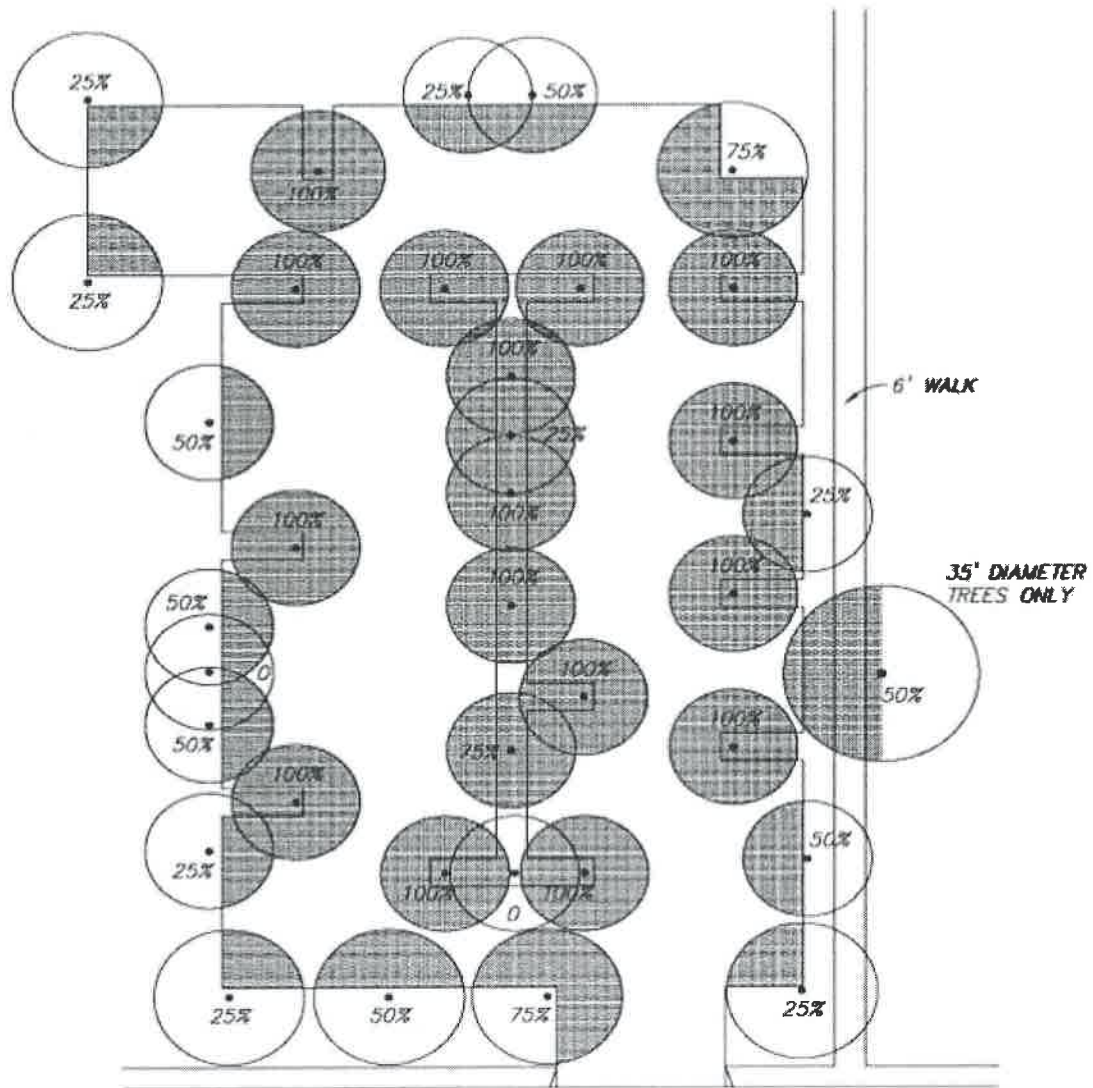
- 7) Remarks - deciduous or evergreen, miscellaneous information

The species listed are not foolproof for all situations. Consultation with a nurseryman or landscape architect is desirable before any selections are made. Professional guidance is recommended to assure that optimal design is achieved to meet the needs of each development. Proper planting procedures, optimal spacing distance, soil, water requirements and maintenance programs should be ascertained at the start of the landscape project. It is important to note that proper planting procedure may include digging past the hardpan layer to assure deep rooting and proper growth.

Refer to the "Folsom Master Tree List" and "Folsom Tree Care and Maintenance Standards" for canopy diameters and appropriate planter sizes of Parking lot Shading Trees.

20.11 PLATES

A. Plate 20-A Tree Shading Diagram

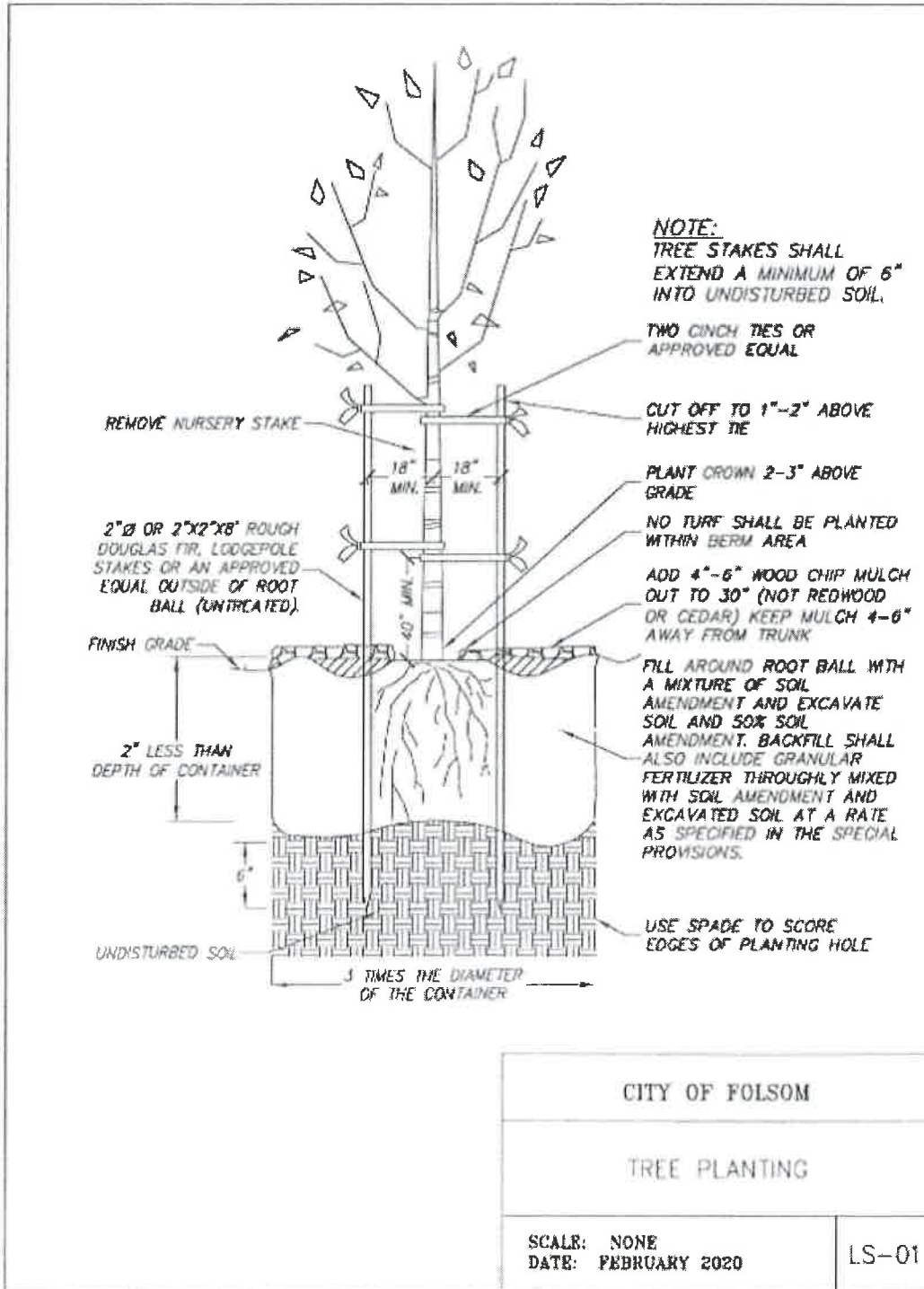


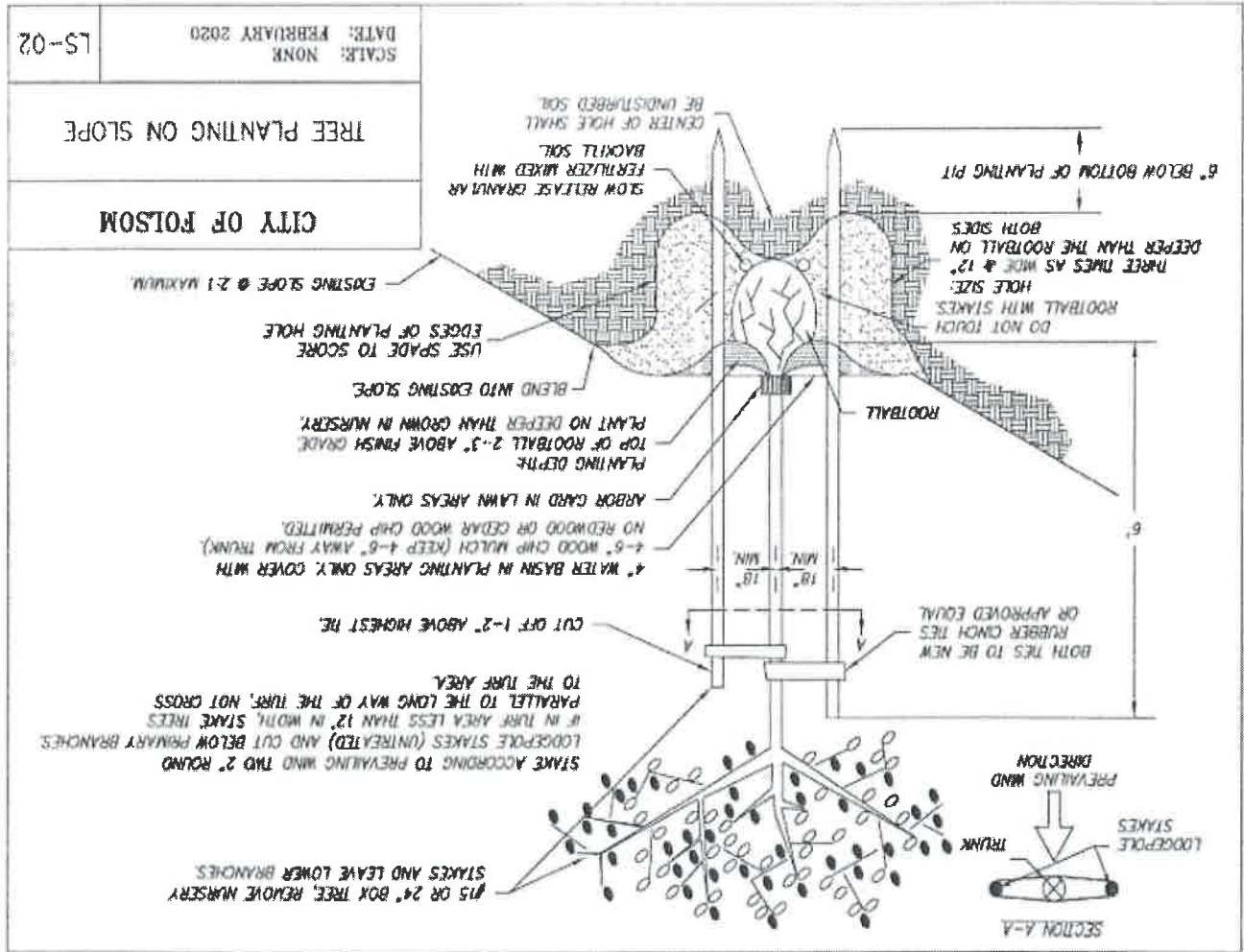
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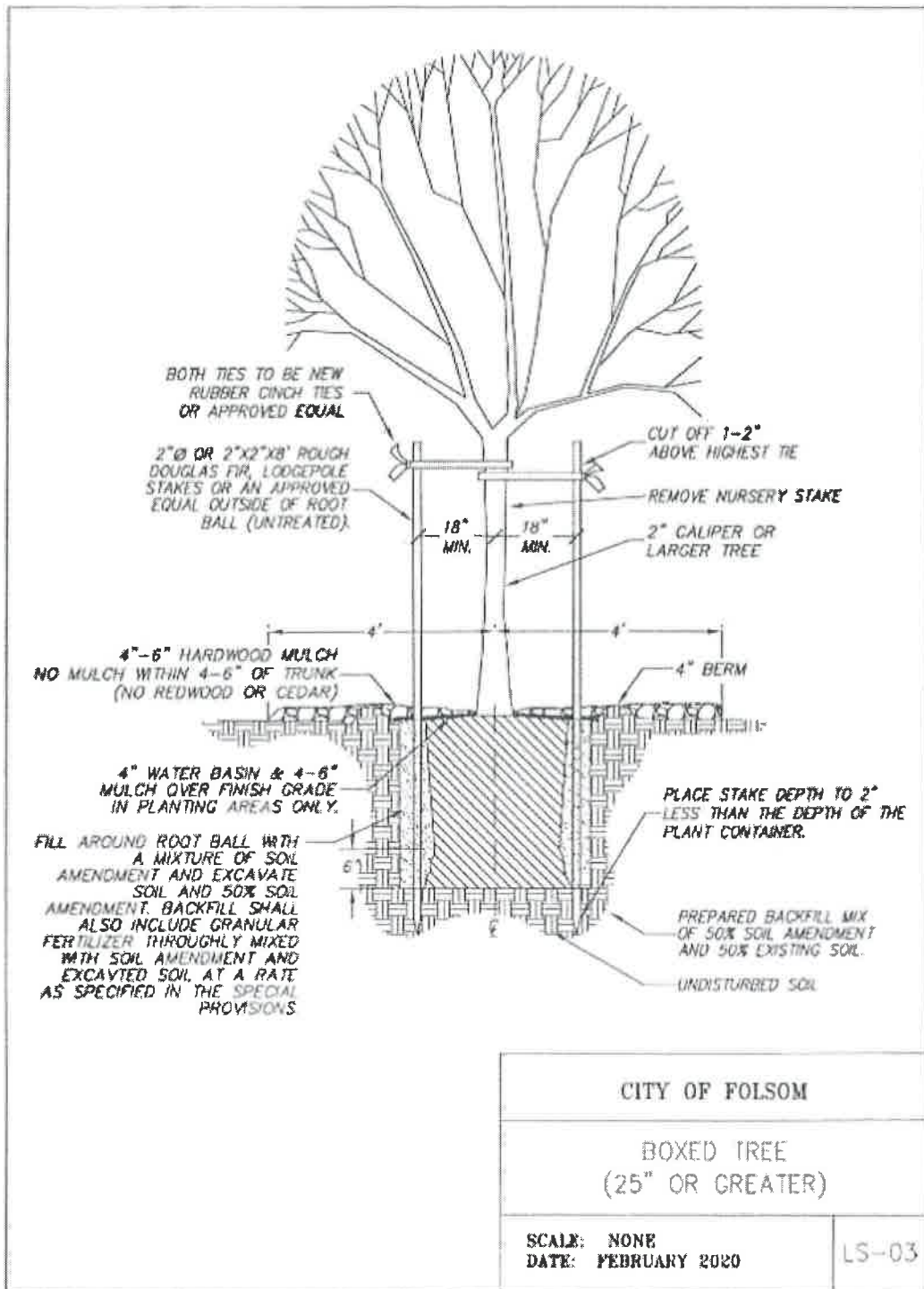
1. THIS DIAGRAM IS INTENDED TO REFLECT A MANNER IN WHICH SHADE IS CREDITED UNDER VARIOUS CONDITIONS. IT IS NOT AN ILLUSTRATION OF 40% COVERAGE.
2. TREES MAY RECEIVE 25% 33% 50% 66% 75% OR 100% SHADE CREDIT AS SHOWN.
3. SHADE OVERLAP IS NOT COUNTED TWICE.
4. SHADE TREES MAY NOT COUNT AS MITIGATION OR AS "STREET TREES".

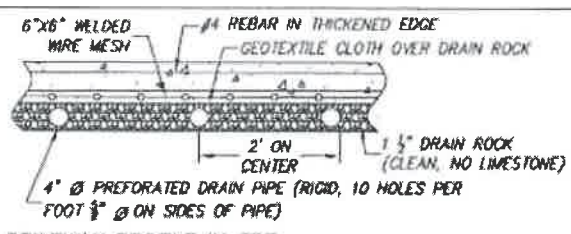
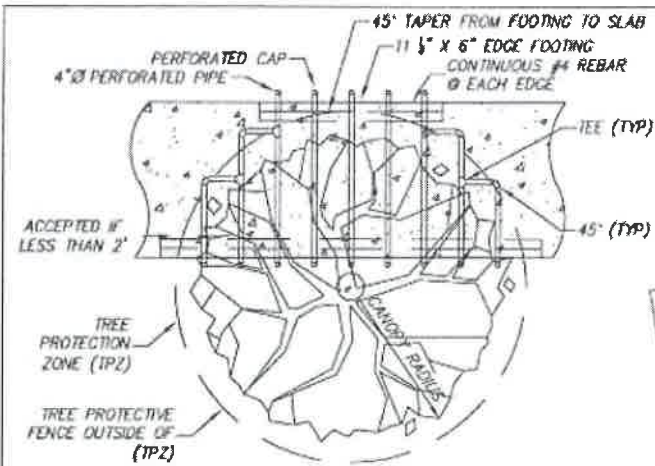
**TREE SHADING DIAGRAM
PLATE 20-A**

APPENDIX B: APPLICABLE CITY OF FOLSOM STANDARD LANDSCAPE DETAILS

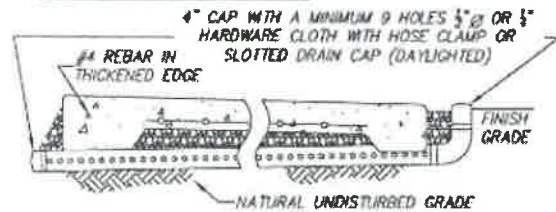




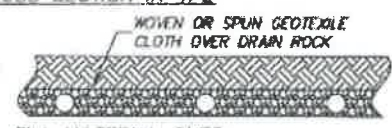




DRIVEWAY PROFILE IN TPZ



DRIVEWAY CROSS SECTION IN TPZ

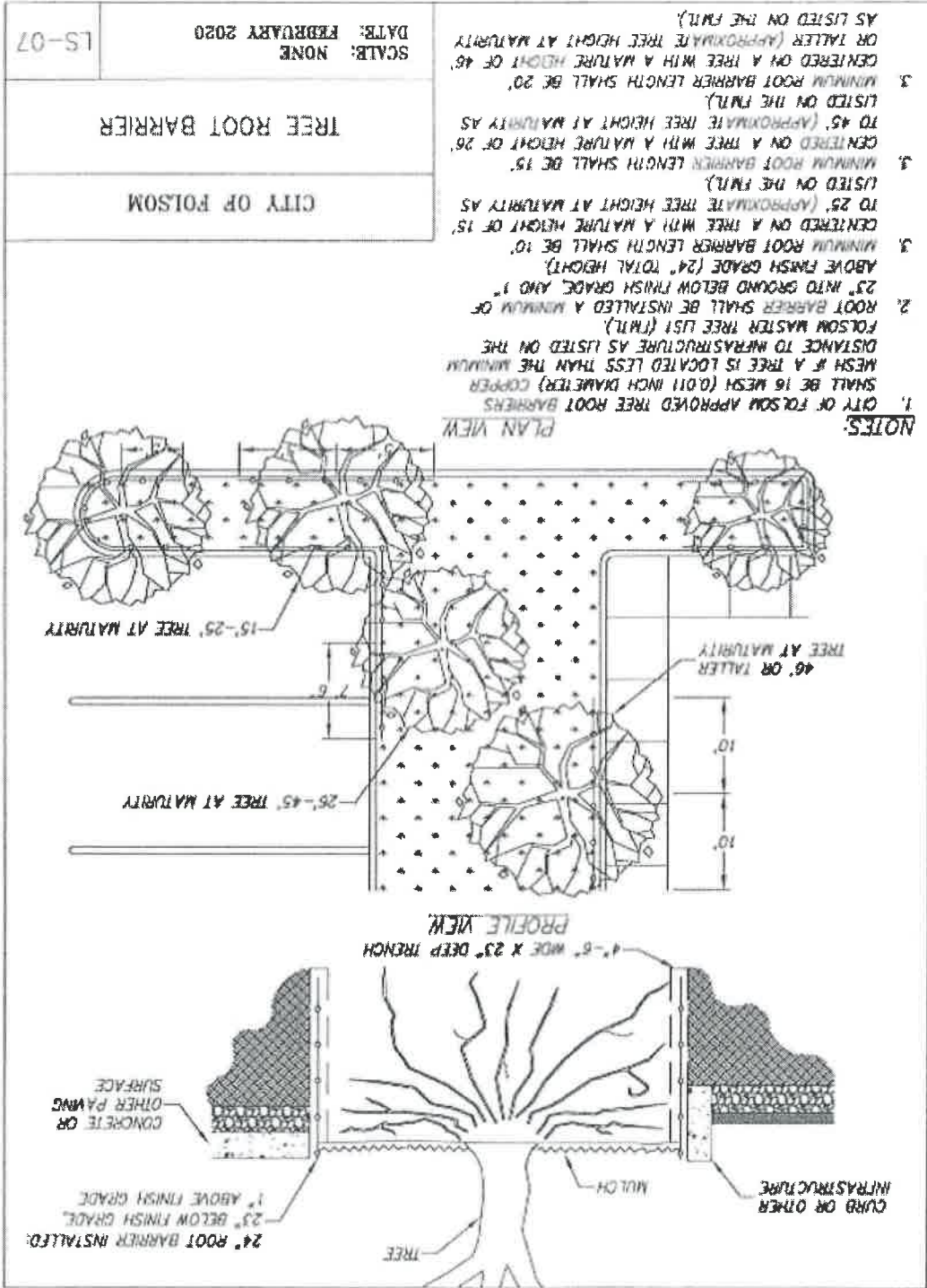


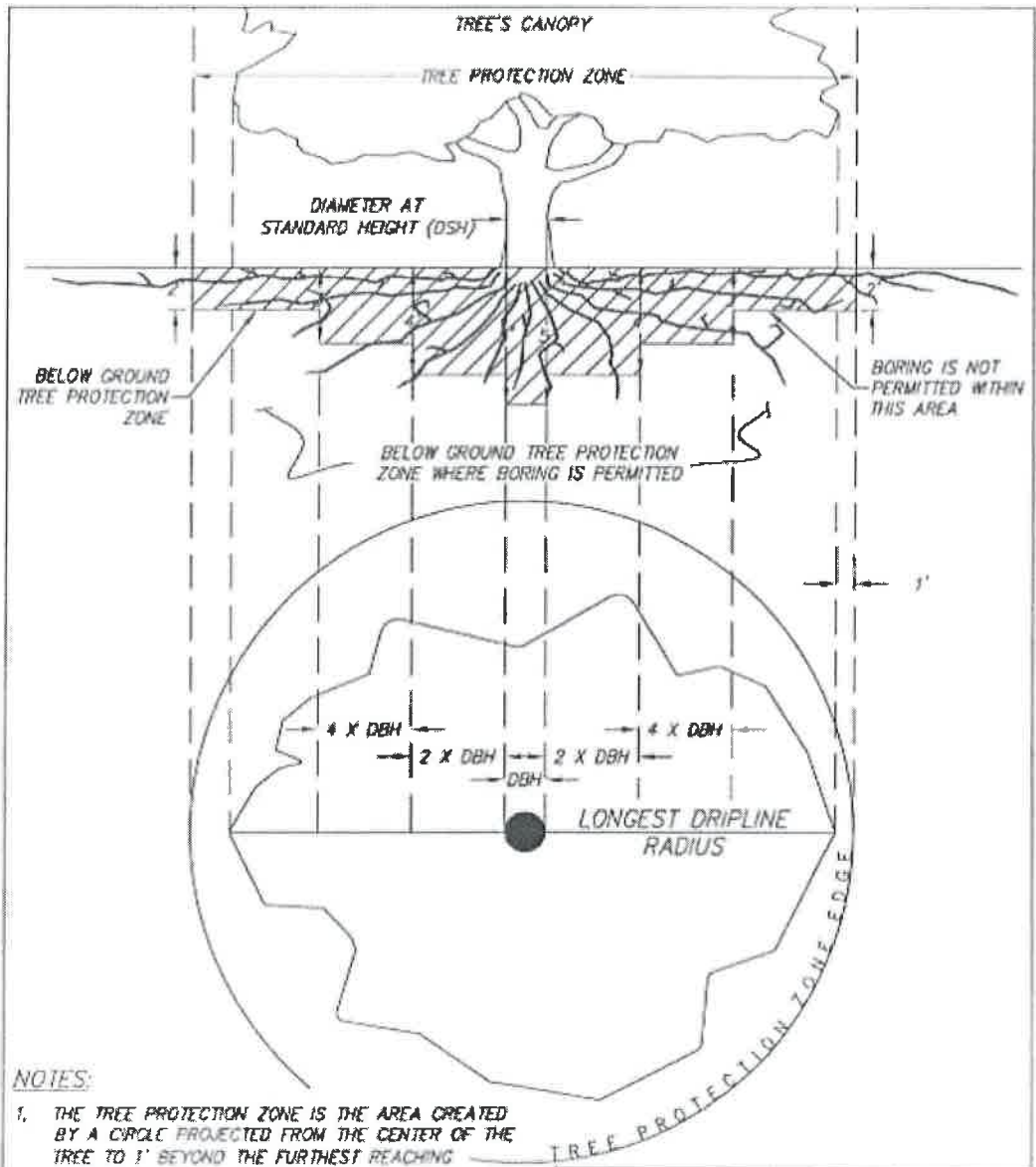
FILL MATERIAL OVER AERATION SYSTEM IN TPZ

NOTES:

1. THE TREE PROTECTION ZONE (TPZ) IS DEFINED BY THE RADIUS OF A CIRCLE AROUND EACH PROTECTED TREE THAT IS THE LONGEST HORIZONTAL DRIPLINE BRANCH, PLUS 1 FOOT OR THE AREA WITH A RADIUS OF 1 FOOT FOR EVERY 1 INCH OF DIAMETER AT STANDARD HEIGHT (DSH) WHICHEVER IS GREATER.
2. ROOTS MAY EXTEND UP TO 2-3 TIMES BEYOND THE BRANCHED CANOPY.
3. THIS WHOLE ROOT VENTILATION SYSTEM SHALL BE PLACED UPON UNDISTURBED SOIL GRADE.
4. PATIO/SIDEWALK SHALL BE MINIMALLY 3 1/2" THICK CLASS B CONCRETE.
5. CONCRETE / DRIVEWAYS / VEHICLE PARKING:
 - A. SHALL BE CLASS B WITH A THICKNESS OF 4" (5" FOR POROUS CONCRETE / 3" FOR ASPHALT).
 - B. SHALL HAVE A MINIMUM THICKENED EDGE OF 6" WITH #4 REBAR @ ALL EDGES. REBAR LAP JOINTS OF 40 BAR DIAMETERS (NO REBAR FOR POROUS CONCRETE).
 - C. HAVE A 6"x6" WELDED WIRE MESH (WWM) THROUGHOUT (NO WWM FOR POROUS CONCRETE).
 - D. SLOPED TO DRAIN AWAY FROM TREE.
 - E. FINAL STRUCTURAL DESIGN BY OWNER'S ENGINEER OR ARCHITECT.
6. FILL SOIL MAY VARY IN DEPTH OVER AERATION SYSTEM.

CITY OF POLSOM	
CONCRETE / ASPHALT / ENGINEERED FILL OVER TREE ROOTS	
SCALR: NONE DATE: FEBRUARY 2020	LS-06





NOTES:

1. THE TREE PROTECTION ZONE IS THE AREA CREATED BY A CIRCLE PROJECTED FROM THE CENTER OF THE TREE TO 1' BEYOND THE FURTHEST REACHING BRANCH OR AN AREA WITH A RADIUS OF 1' FOR EVERY INCH OF DIAMETER AT STANDARD HEIGHT (DSH), WHICHEVER IS GREATER.
2. THE DRIPLINE IS THE PERIMETER OF THE AREA COVERED BY THE TREE'S CANOPY.
3. TRENCHING SHALL BE DONE MANUALLY WHEN DIRECTIONAL BORING UNDERNATH THE BELOW GROUND TREE PROTECTION ZONE CANNOT BE ACHIEVED.
4. ALL DIRECTIONAL BORING OR MANUAL TRENCHING WITHIN THE TREE PROTECTION ZONE SHALL BE DONE UNDER THE SUPERVISION OF A CERTIFIED ARBORIST.

CITY OF FOLSOM	
BORING WITHIN TREE PROTECTION ZONE	
SCALE: NONE DATE: FEBRUARY 2020	LS-08

APPENDIX C: RESOURCES AND REFERENCES

ANSI A300. *American National Standard for Tree Care Operations – Tree, Shrub and Other Woody Plant Management*. Londonderry, NH: Tree Care Industry Association, Inc.

Best Management Practices. *Companion Publication to the ANSI A300: Tree, Shrub, and Other Woody Plant Maintenance*. Champaign, IL: The International Society of Arboriculture.

California Code of Regulations. Title 23. Chapter 2.7. Model Water Efficient Landscape Ordinance (MWEL0). § 490. publisher?. 2015.

<https://www.folsom.ca.us/civicax/filebank/blobdload.aspx?blobid=34621>.

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Fite, Kelby and Smiley, Thomas E. *Best Management Practices, Managing Trees During Construction*. Champaign, IL: The International Society of Arboriculture, 2019

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Gilman, Edward F. and Lilly, Sharon J. *Best Management Practices, Tree Pruning*. 3rd ed. Champaign, IL: The International Society of Arboriculture, 2019.

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Matheny, Nelda P. and Clark, James R. *Trees and Development: A Technical Guide to Preservation of Trees During Land Development*. Champaign, IL: International Society of Arboriculture, Jun. 1998.

Olsen, Jeff L. *Training and Pruning Your Home Orchard*. Oregon State University Extension. Aug. 2019: <https://catalog.extension.oregonstate.edu/pnw400/html>.

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ATTACHMENT 3
FOLSOM MASTER TREE LIST

FOLSOM MASTER TREE LIST

(Updated May 1, 2020)

PURPOSE

The City of Folsom Master Tree List establishes the approved tree species that shall be planted to fulfill Street Tree and Parking Lot Shading Tree requirements for new developments and tree replacement projects. Existing trees not included in this list shall still qualify as Protected Trees if their location satisfies Street Tree and/or Parking Lot Shading Tree requirements as outlined in the Tree Preservation Ordinance and Zoning Code.

This is not an exhaustive list and the information herein is subject to change from time to time as knowledge is gained on existing species and new varieties are cultivated. Some species that may perform well have been purposefully omitted due to growth habits or other specific cultural requirements; however, use of excluded varieties may be approved by the City Arborist on a case by case basis.

The species listed herein perform well under varying growing conditions and are suitable as shade trees under most, but not all circumstances. Species and cultivar preferences will vary based on soil, sun exposure, available planting space and micro-climate. Tree crown height and spread as listed are approximate and vary based on climate, growing conditions and cultivars or varieties.

As examples, 'October Glory' red maple will grow to 40 feet tall and 30 feet wide. In contrast, 'Bowhall' red maple will grow to the same height, but only 15 feet wide. Neither will tolerate drought conditions. 'Hopi' crape myrtle will grow to 10 feet tall with a low and rounded shape, 'Watermelon Red' to over 20 feet with an upright form. Both of these will tolerate drier soil conditions. Japanese black pine may attain a height of 60 to 80 feet in the San Francisco Bay Area but will seldom exceed 30 to 40 feet in the Sacramento Valley.

Unless otherwise approved by the City Arborist, selection of new Street Tree and Parking Lot Shading Tree species shall be in accordance with the species listed below. Choose trees carefully and with purpose. Prune to train trees for strong structure early, when trees are young and growing rapidly. These efforts will result in long-lived, healthy and structurally sound trees. The primary reasons for almost all tree removals are due to improper species selection, lack of space above and below ground and poor early care.

Common Name	Botanical Name	Mature Height	Mature Canopy Spread	Canopy Shape	Deciduous or Evergreen	Street Tree?	Parking Lot Tree?	Utility Tree?	WUCOLS Rating	Flowers	Fall Color	Root Damage Potential	Minimum Planter Width	Minimum Distance from Hardscape without root barrier	Remarks
Trident Maple	<i>Acer buergerianum</i>	20-25	20-25	Full-crowned	D	✓	✓	✓	M	N/A	Orange, gold	Low	7'	5'	Attractive bark, small stature
Hedge Maple	<i>Acer campestre</i>	15-25	15-25	Spreading	D	✓		✓	M	N/A	Yellow	Low	6'	5'	Dense and compact
Japanese Maple (select cultivars)	<i>Acer palmatum</i>	15-25	15-25	Spreading	D	✓		✓	M	N/A	Red, orange, yellow	Low	6'	5'	Best in afternoon shade, but a few varieties can handle full sun. Approval by the City Arborist is required prior to use as a Street Tree.
Red Maple (many cultivars)	<i>Acer rubrum</i>	40-50	25-35	Full-crowned	D	✓	✓		M	N/A	Orange-red	Low	8'	6'	Form varies with cultivar, provide good drainage. 'Bowhall' has a columnar form with a 15' canopy spread.
Amur Maple	<i>Acer tataricum ginnala</i>	20-25	20-25	Spreading	D	✓	✓	✓	M	N/A	Red	Low	7'	5'	Winter seeds hold for birds
Shantung Maple	<i>Acer truncatum</i>	20-30	20-30	Vase	D	✓	✓	✓	M	N/A	Orange red	Low	7'	5'	Good lawn tree, dense crown, similar to Japanese maple but more sun tolerant
California Buckeye	<i>Aesculus californica</i>	10-25	20-30	Spreading	D	✓		✓	VL	White	Yellow	Low	7'	5'	Striking in age, summer deciduous, native to our region
Red Horsechestnut	<i>Aesculus x carnea</i> (including 'Briotii' and 'O'Neill Red')	35-50	35-50	Spreading	D	✓	✓		M	Bright red	Yellow	Low	7'	6'	Striking in bloom
Beefwood	<i>Allocauarina stricta</i> (verticillata)	25-35	25-35	Pyramidal	E	✓	✓		L	N/A	N/A	Moderate	7'	6'	Good screening, drought tolerant

FOLSOM MASTER TREE LIST

(Updated May 1, 2020)

Common Name	Botanical Name	Mature Height	Mature Canopy Spread	Canopy Shape	Deciduous or Evergreen	Street Tree?	Parking Lot Tree?	Utility Tree?	WUCOLS Rating	Flowers	Fall Color	Root Damage Potential	Minimum Planter Width	Minimum Distance from Hardscape without root barrier	Remarks
Strawberry Tree 'Marina'	<i>Arbutus 'Marina'</i>	40-50	30-40	Spreading	E	✓	✓		L	Pink	N/A	Low	7'	6'	Small strawberry-like fruit attractive flowers
Strawberry Tree	<i>Arbutus unedo</i>	20-35	20-35	Spreading	E	✓	✓	✓	L	Light pink	N/A	Low	7'	5'	Smaller than 'Marina' interesting trunk structure, fruit attractive but can be messy
River Birch 'Duraheat'	<i>Betula nigra 'BNMTF'</i>	30-40	25-35	Pyramidal	D	✓			H	N/A	Yellow	Moderate	8'	6'	Best birch for hot areas, others are marginal
Incense Cedar	<i>Calocedrus decurrens</i>	60-80	20-25	Pyramidal	E	✓			M	N/A	N/A	Moderate	10'	10'	Best in full sun, good drainage, fragrant foliage and wood, attracts birds, native to California
European Hornbeam	<i>Carpinus betulus</i>	35-40	20-30	Pyramidal	D	✓	✓		M	N/A	Yellow	Low	7'	6'	Symmetrical crown, protect young bark from sunscald
River She-Oak	<i>Casuarina cunninghamiana</i>	50-70	20-30	Pyramidal	E	✓	✓		L	N/A	N/A	Low	8'	8'	Good screening tree, allow plenty of space
Atlas (Blue) Cedar	<i>Cedrus atlantica ('Glauca')</i>	60-90	30-40	Pyramidal	E	✓	✓		M	N/A	N/A	Moderate	10'	10'	Striking silhouette against the skyline, blue-gray foliage, large accent tree
Deodar Cedar	<i>Cedrus deodara</i>	60-80	30-40	Pyramidal	E	✓	✓		L	N/A	N/A	Moderate	10'	10'	Rapid growth when young, large tree for large spaces, fragrant foliage and wood
Common Hackberry	<i>Celtis occidentalis</i>	45-80	40-50	Full-crowned	D	✓	✓		L	N/A	Yellow	Moderate	10'	8'	Rugged shade tree, late leaf out in spring
Western Hackberry	<i>Celtis laevigata (var. reticulata)</i>	25-35	25-30	Full-crowned	D	✓	✓		L	N/A	Yellow	Low	7'	6'	Rugged shade tree, native to California
Carob	<i>Ceratonia siliqua</i>	25-35	25-30	Spreading	E	✓	✓	✓	L	Small red	N/A	High	7'	8'	May surface root, allow plenty of room, litter from fruit pods on female trees used as a chocolate substitute
Eastern Redbud	<i>Cercis canadensis</i>	25-35	25-35	Spreading	D	✓	✓	✓	M	rosy-pink	Yellow, russet	Low	7'	6'	Early bloomer, tree-like form, 'Forest Pansy' has purple foliage, attractive, good lawn tree
Western Redbud	<i>Cercis occidentalis</i>	10-20	10-20	Layered	D	✓		✓	VL	pink	Yellow, russet	Low	6'	5'	Generally more shrub-like, may be trained in to a small tree, very early bloom, native to our region
Desert Willow 'Bubba'	<i>Chilopsis linearis 'Bubba'</i>	15-20	10-15	Layered	D	✓		✓	VL	vary	Yellow	Low	6'	5'	Fragrant flowers, 'Bubba' is slightly smaller than the species, good under utility wires, drought resistant, bird friendly
Chinese Fringe Tree	<i>Chionanthus retusus</i>	10-20	10-12	Vase	D	✓	✓	✓	M	white-fringe clusters	yellow	Low	6'	5'	Small flowering tree, small fruit, bird friendly

FOLSOM MASTER TREE LIST

(Updated May 1, 2020)

Common Name	Botanical Name	Mature Height	Mature Canopy Spread	Canopy Shape	Deciduous or Evergreen	Street Tree?	Parking Lot Tree?	Utility Tree?	WUCOLS Rating	Flowers	Fall Color	Root Damage Potential	Minimum Planter Width	Minimum Distance from Hardscape without root barrier	Remarks
Chitalpa 'Morning Cloud' or 'Pink Dawn'	<i>Chitalpa tashkentensis</i> 'Morning Cloud' or 'Pink Dawn'	25-30	30	Vase	D	✓	✓	✓	*M	Pink	Yellow	Low	7'	5'	Drought tolerant, fast, showy flowers
Camphor Tree	<i>Cinnamomum camphora</i>	50-65	50-60	Full-crowned	E	✓	✓		M	N/A	N/A	High	8'	10'	Fragrant foliage and wood, subject to Verticillium wilt, plant sparingly, allow plenty of space
Dogwood 'Eddie's White Wonder'	<i>Cornus nutalli</i> x 'florida Eddie's White Wonder'	20-40	15-45	Spreading	D	✓		✓	M	White, pink, rose	Red	Low	7'	6'	Usually small, good drainage, best in partial shade and moist soil, hybrid between Eastern and Western dogwoods
Smoke Tree	<i>Cotinus coggyria</i>	10-15	15-18	Spreading	D	✓		✓	L	Fuzzy pink pendulous clusters	Orange, yellow	Low	6'	5'	Typically multi-stem
Smooth Arizona Cypress	<i>Cupressus (Hesperocyparis) arizonica</i> var. <i>glabra</i>	40-50	20	Pyramidal	E	✓	✓		VL	N/A	N/A	Low	7'	6'	Seedlings vary, rugged, tough tree, good screen, 'Chaparral' grows to only 15 ft.
Bronze Loquat	<i>Eriobotrya deflexa</i>	15-20	15-20	Vase	E	✓	✓	✓	M	Creamy white	N/A	Low	6'	5'	Good small evergreen tree, some litter from summer fruit
Peppermint Gum	<i>Eucalyptus nicholii</i>	40-50	15-40	Weeping	E	✓	✓	✓	L	White	N/A	Moderate	8'	8'	Flowers not showy, fragrant foliage
Silver Dollar Gum	<i>Eucalyptus polyanthemos</i>	30-75	15-45	Spreading	E	✓	✓		L	White	N/A	Moderate	8'	10'	Flowers not showy, fragrant foliage, good screen
Red Ironbark	<i>Eucalyptus sideroxylon</i>	30-90	30-60	Vase	E	✓	✓		L	Fuzzy pink pendulous clusters	N/A	High	8'	10'	Usually on the smaller side in our area, red to black furrowed bark
Hardy Rubber Tree	<i>Eucommia ulmoides</i>	40-60	30-40	Spreading	D	✓	✓		M*	N/A	brown	Moderate	8'	8'	Good street tree
Autumn Ash (cultivars)	<i>Fraxinus americana</i> ('Autumn Purple', Autumn Applause')	80	50	Spreading	D	✓	✓		M	N/A	purple-bronze	High	10'	10'	Fast growing, excellent fall color, watch for borers, 'Autumn Purple' is a favorite
Australian Willow	<i>Geijera parvifolia</i>	25-30	20	Weeping	E	✓	✓		M	White	N/A	Low	6'	5'	Non-invasive roots, can be litter-prone, fire-resistant
Ginkgo (Male, grafted)	<i>Ginkgo biloba</i> 'Autumn Gold', 'Princeton Sentry', 'Saratoga')	25-50	25-35	Spreading	D	✓	✓		M	N/A	golden	Moderate	7'	8'	Plant only "male" trees to avoid noxious fruit, 'Princeton Sentry' maintains central leader best, more narrow form, beautiful lawn or street tree
Kentucky Coffee Tree	<i>Gymnocladus dioica</i>	60-100	45-50	Full-crowned	D	✓	✓		M	N/A	yellow	Moderate	10'	10'	Adaptable to poor soils, litter from dry seed pods
Carolina Silver Bell/Snow Drop Tree	<i>Halesia carolina</i>	30-40	15-30	Spreading	D	✓	✓	✓	M*	White	yellow	Low	7'	6'	Usually on the small side, flowers attractive from below crown

FOLSOM MASTER TREE LIST

(Updated May 1, 2020)

Common Name	Botanical Name	Mature Height	Mature Canopy Spread	Canopy Shape	Deciduous or Evergreen	Street Tree?	Parking Lot Tree?	Utility Tree?	WUCOLS Rating	Flowers	Fall Color	Root Damage Potential	Minimum Planter Width	Minimum Distance from Hardscape without root barrier	Remarks
Wilson Holly	<i>Ilex x altacrerensis</i> 'Wilsonii'	15-20	15-25	Full-crowned	E	✓	✓	✓	M	White	N/A	Low	6'	5'	Usually a large shrub, easily trained to a small tree, bright red berries, flowers inconspicuous
Chinese Flame Tree	<i>Koelreuteria bipinnata</i>	20-40	15-30	Full-crowned	D	✓	✓	✓	M	Yellow	yellow	Low	7'	6'	Sometimes called Chinese Lantern, showy summer bloom, pink paper-lantern like fruit capsules in fall
Goldenrain Tree	<i>Koelreuteria paniculata</i>	20-35	25-40	Spreading	D	✓	✓		M	Yellow	Yellow	Low	7'	6'	Similar to the Chinese Flame but seed capsules are tan to brown
Crape Myrtle (and Japanese crape myrtle)	<i>Lagerstroemia sp.</i> (select cultivars and hybrids)	20	10	Vase	D	✓	✓	✓	L	Varies with species	Golden yellow to red	Low	6'	5'	Profuse bloom May to November. Use tree forms only. Approval by the City Arborist is required prior to use as a Street Tree or Parking Lot Shading Tree.
Bay Laurel	<i>Laurus nobilis</i>	20-40	15-30	Spreading	E	✓	✓		L	White	N/A	Moderate	6'	6'	Inconspicuous flowers, aromatic foliage used for cooking, sometimes shrubby, fast growing, allow space
Tulip Poplar	<i>Liriodendron tulipifera</i>	60-80	40	Pyramidal	D	✓	✓		M	Light yellow and	Yellow and gold	Moderate	10'	10'	Very large tree, allow plenty of space, aphid may cause dripping
Southern Magnolia	<i>Magnolia grandiflora</i> (and select cultivars, 'Little Gem', St. Mary')	60-80	50-60	Full-crowned	E	✓	✓		M	White	N/A	High	10'	12'	Can be root invasive, allow space, litter-prone but beautiful summer blossoms
Dwarf Southern Magnolia	<i>Magnolia grandiflora</i> 'Little Gem' and St. Mary'	15-25	10-20	Full-crowned	E	✓		✓	M	White	N/A	Moderate	6'	6'	Same beautiful summer blossoms in a smaller framed tree
Saucer Magnolia	<i>Magnolia x soulangeana</i> (and cultivars)	20-25	15-20	Vase	D	✓	✓	✓	M	Pink-white-purple	Yellow to russet	Low	6'	5'	Many hybrids with a broad range of burgundy, pink and white blossoms, blooms before leaves emerge, usually multi-trunked
Osage Orange/Hedge Apple 'Whitefield'	<i>Maclura pomifera</i>	40-50	30-40	Spreading	D	✓	✓		*L	N/A	yellow	Moderate	7'	8'	Species is armored with spines, 'Whiteshield' is thornless male, fruitless
Flowering Crabapple	<i>Malus sp.</i>	12-25	18-30	Spreading	D	✓	✓	✓	M	White, pink, red, rose	Red to bronze	Low	6'	5'	Many cultivars with differing forms, subject to fireblight, select disease-resistant varieties, one of the best spring flowering trees if well cared for, ask for RightRoot™
Mayten	<i>Maytenus boaria</i>	30-50	20-30	Weeping	E	✓	✓		M	N/A	N/A	Moderate	7'	8'	Needs well drained soil to avoid surface rooting, full sun
Black Tea Tree	<i>Melaleuca lanceolata</i>	20-30	15-25	Layered	E	✓	✓	✓	L	Creamy white	N/A	Moderate	7'	6'	Interesting contorted trunk forms with age, fragrant foliage and wood, striking bloom
Dawn Redwood	<i>Metasequoia glyptostroboides</i>	70-90	12-20	Pyramidal	D	✓	✓		H	N/A	Yellow to russet	Moderate	8'	10'	A deciduous conifer, can be fast growing with adequate water, striking silhouette both in and out of leaf, allow plenty of space
Tupelo / Sour Gum	<i>Nyssa sylvatica</i>	30-50	20-30	Pyramidal	D	✓	✓		M	N/A	Scarlet	Low	7'	6'	Female trees may produce small fruit, tolerates a wide range of soil conditions, prune when young to thin closely spaced branches

FOLSOM MASTER TREE LIST

(Updated May 1, 2020)

Common Name	Botanical Name	Mature Height	Mature Canopy Spread	Canopy Shape	Deciduous or Evergreen	Street Tree?	Parking Lot Tree?	Utility Tree?	WUCOLS Rating	Flowers	Fall Color	Root Damage Potential	Minimum Planter Width	Minimum Distance from Hardscape without root barrier	Remarks
Olive	<i>Olea europaea</i> (various cultivars w/ & w/o fruit)	25-35	25-30	Layered	E	✓	✓	✓	VL	White	N/A	Moderate	7'	6'	Inconspicuous flowers, edible fruit can be messy, 'Mission' produces good quality fruit, 'Swan Hill' and 'Majestic Beauty' are mostly fruitless
Desert Ironwood	<i>Olneya tesota</i>	15-30	15-30	Irregular	E	✓	✓	✓	L*	Lavender, pink	N/A	Low	6'	5'	Tough tree native to the Sonoran desert, extremely heavy durable wood, good summer color, keep it on the dry side
Sweet Olive	<i>Osmanthus fragrans</i>	10-20	6-8	Vase	E	✓	✓	✓	M	White	N/A	Low	6'	5'	A large shrub easily trained to a small tree form, fragrant white blossoms spring and summer
American Hop-hornbeam	<i>Ostrya virginiana</i>	25-45	20-30	Spreading	D	✓	✓		H*	N/A	Yellow, russet	Low	7'	6'	Graceful, light shade, better in moist soils, winged seeds attractive
Sourwood	<i>Oxydendron arboreum</i>	40-60	25-40	Pyramidal	D	✓	✓		M	Creamy white	Orange to red	Moderate	8'	8'	Excellent fall color, not a common tree in the region
Desert Museum' Palo Verde'	<i>Parkinsonia</i> 'Desert Museum'	15-20	20-25	Layered	D	✓	✓	✓	VL	Bright yellow	Yellow	Low	6'	5'	Top choice for dry garden themes, 'Desert Museum' is thornless
Blue Palo Verde	<i>Parkinsonia floridum</i>	20-25	15-20	Spreading	D	✓		✓	VL	Bright yellow	Yellow	Low	6'	5'	Top choice for dry garden themes, small thorns offer protection for birds
Colorado (Blue) Spruce	<i>Picea pungens (glauca)</i>	30-60	10-20	Pyramidal	E	✓			M	N/A	N/A	Moderate	7'	8'	Green to bluish needle color, multiple cultivars offer varying depth of color, slow grower, specimen tree
Canary Island Pine	<i>Pinus canariensis</i>	30-60	20-30	Pyramidal	E	✓	✓		L	N/A	N/A	Moderate	8'	8'	Long needle, graceful pine, almost a weeping appearance, usually not over 40 feet in our area
Japanese Red Pine	<i>Pinus densiflora</i>	30-50	30-40	Pyramidal	E	✓	✓		M	N/A	N/A	Moderate	8'	8'	Tall and spreading, dense crown, red/orange bark
Afghan (Mondell or Calabrian) Pine	<i>Pinus eldarica</i>	30-80	15-25	Pyramidal	E	✓	✓		L	N/A	N/A	Moderate	8'	10'	Very similar to Aleppo pine, loose, thinner, spreading crown than most pines
Aleppo Pine	<i>Pinus halepensis</i>	30-60	20-40	Pyramidal	E	✓	✓		L	N/A	N/A	Moderate	8'	8'	Similar to Aleppo pine, loose, thinner, spreading crown than most pines, cones persistent
Austrian Black Pine	<i>Pinus nigra</i>	40-60	25-35	Pyramidal	E	✓	✓		M	N/A	N/A	Moderate	8'	8'	One of the better pines for urban settings, dark green erect growth
Italian Stone Pine	<i>Pinus pinea</i>	40-80	40-60	Full-crowned	E	✓			L	N/A	N/A	Moderate	10'	10'	Very large tree suitable for parks or large spaces, dense crown, often multi-trunked, source of pine nuts
Scotch Pine	<i>Pinus sylvestris</i>	30-70	20-35	Pyramidal	E	✓	✓		M	N/A	N/A	Moderate	8'	10'	Fast growing when young, short needles, dark green foliage, more round topped with age

FOLSOM MASTER TREE LIST

(Updated May 1, 2020)

Common Name	Botanical Name	Mature Height	Mature Canopy Spread	Canopy Shape	Deciduous or Evergreen	Street Tree?	Parking Lot Tree?	Utility Tree?	WUCOLS Rating	Flowers	Fall Color	Root Damage Potential	Minimum Planter Width	Minimum Distance from Hardscape without root barrier	Remarks
Japanese Black Pine	<i>Pinus thunbergii</i>	25-30	35-40	Layered	E	✓	✓		M	N/A	N/A	Moderate	7'	6'	Bright green needles, common selection in Asian themed gardens due to interesting branching pattern
Chinese Pistache 'Keith Davey' or 'x Red Push'	<i>Pistacia chinensis</i>	25-35	25-35	Spreading	D	✓	✓		L	N/A	Orange to red to	Low	7'	6'	Keith Davey' reliably male and seedless, 'Red Push' hybrid leafs out red in spring, turning to green, a popular selection with outstanding fall color
London Plane 'Columbia' and 'Exclamation'	<i>Platanus x hispanica 'Columbia' and 'Exclamation'</i>	40-60	40-60	Full-crowned	D	✓	✓		M	N/A	Yellow to gold	Moderate	8'	8'	Generally disease resistant, but surface roots are common, These are over-planted, use sparingly and allow plenty of space
American Sycamore	<i>Platanus occidentalis</i>	70-90	50-70	Full-crowned	D	✓	✓		*M	N/A	Yellow to gold	Moderate	12'	12'	Fast growing, may get anthracnose, powdery mildew, good for moist locations, good for large areas only
Fern Pine	<i>Podocarpus gracilior</i>	30-50	15-25	Oval	E	✓	✓		M	N/A	N/A	Low	7'	6'	Moderate growth rate. Works well as a screening tree due to its columnar growth habit
Phoenix (thornless) Mesquite	<i>Prosopis hybrid 'Phoenix'</i>	30	30-35	Narrow vase	D	✓	✓	✓	L	Yellow	Yellow	Moderate	7'	6'	Phoenix' is thornless, tough desert tree for dry landscapes, usually on the smaller side of the size range
Flowering Cherry (many cultivars)	<i>Prunus sp.</i>	20-25	20-25	Spreading	D	✓		✓	M	White, pink, rose	Yellow to gold	Low	6'	5'	Many cultivars with varying form including weeping, beautiful spring bloom, trunk and branches sunburn easily, maintain leafy crown
Purple Leaf Plum (fruitless)	<i>Prunus x blierinana or cerasifera 'Krauter Vesuvius'</i>	12-15	12-15	Spreading	D	✓	✓	✓	M	Light pink	Red to bronze	Low	6'	5'	Only mostly fruitless cultivars, 'x blieriana' suitable under utilities, select "high-head" trees
Flowering Pear 'Chastity'	<i>Pyrus hybrid</i>	35	25	Layered	D	✓	✓		M	White	Red to scarlet	Moderate	7'	6'	The only non-invasive cultivar, others highly invasive in wetlands, resistant to fireblight, very popular species but very over-utilized
Evergreen Pear	<i>Pyrus kawakamii</i>	15-30	15-30	Layered	E	✓	✓	✓	M	White	Yellow	Low	7'	5'	Early spring bloom, interesting form, partially deciduous, watch for fireblight and leaf spot
Coast Live Oak	<i>Quercus agrifolia</i>	30-60	30-60	Full-crowned	E	✓	✓		VL	N/A	N/A	Low	8'	6'	Native oak that does well in our area, wider than tall at maturity, deep green foliage contrasts with silvery bark, great for wildlife
Blue Oak	<i>Quercus douglasii</i>	50-65	40-50	Spreading	D	✓	✓		VL	N/A	Yellow to gold	Low	8'	6'	The most common native oak in our area, prefers dry conditions once established, picky about disturbance as established natural trees
Holly Oak	<i>Quercus ilex</i>	30-60	30-60	Spreading	E	✓	✓		L	N/A	N/A	Low	8'	6'	Popular choice for an evergreen oak, dense crown, silvery underside to the leaves, usually on the smaller side of the size range
Valley Oak	<i>Quercus lobata</i>	50-70	50-70	Spreading	D	✓	✓		L	N/A	Yellow to gold	Moderate	10'	8'	Classic native oak of California postcards and photos, large spreading crown, will tolerate some irrigation but not constant moisture, allow plenty of space
Burr Oak (JFS-KW3)	<i>Quercus macrocarpa 'Urban Pinnacle'</i>	40-60	40-50	Full-crowned	D	✓			M	N/A	Yellow to russet	Moderate	8'	8'	Fast grower, tolerates wide range of soils, huge 1-2 " acorns, 'Urban Pinnacle' taller than wide, much smaller acorns, a top performer for large spaces

FOLSOM MASTER TREE LIST

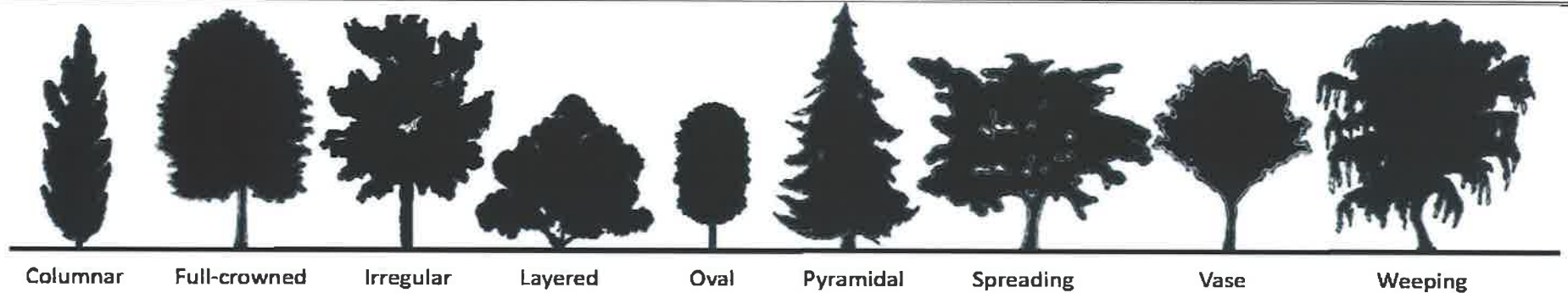
(Updated May 1, 2020)

Common Name	Botanical Name	Mature Height	Mature Canopy Spread	Canopy Shape	Deciduous or Evergreen	Street Tree?	Parking Lot Tree?	Utility Tree?	WUCOLS Rating	Flowers	Fall Color	Root Damage Potential	Minimum Planter Width	Minimum Distance from Hardscape without root barrier	Remarks
Willow Oak	<i>Quercus phellos</i>	50-90	30-50	Full-crowned	D	✓	✓		M*	N/A	Yellow	Moderate	10'	10'	Fine-textured, almost weeping appearance, prefers deep well drained soil, allow space
English Oak (many cultivars)	<i>Quercus robur</i>	40-70	40-70	Full-crowned	D	✓	✓		M	N/A	Yellow to orange	Moderate	10'	10'	Similar to valley oak, but usually much smaller, not a native, many forms make this a top choice for urban settings
Red Oak	<i>Quercus rubra</i>	50-80	60-70	Full-crowned	D	✓	✓		M	N/A	Red	High	10'	10'	Retains dry fall leaves throughout winter, aphids are common, needs space for roots, best in well drained loamy soils
Shumard Oak	<i>Quercus shumardii</i>	40-60	30-40	Full-crowned	D	✓	✓		M	N/A	red	Moderate	8'	8'	Similar to red, scarlet and pin oaks, may retain fall leaves until spring, will tolerate wet areas
Cork Oak	<i>Quercus suber</i>	30-60	30-60	Full-crowned	E	✓	✓		L	N/A	N/A	Moderate	8'	8'	Picturesque form, thick, corky, deeply furrowed bark, Mediterranean origin, the original source of corks is the bark itself, good choice for our area, give it space to
Southern Live Oak	<i>Quercus virginiana</i>	40-80	60-100	Spreading	E	✓	✓		M	N/A	N/A	Moderate	12'	10'	On the smaller side of the size range in our area, evergreen or partly deciduous, tolerates urban sites, gnarled twisting trunks with age
Interior Live Oak	<i>Quercus wislizenii</i>	30-70	40-80	Spreading	E	✓			VL	N/A	N/A	Moderate	10'	8'	Commonly multi-trunked, a native of the region, dense crown, leaves smooth or prickly
California Pepper Tree	<i>Schinus molle</i>	25-40	25-40	Weeping	E	✓	✓		L	N/A	N/A	High	7'	8'	Can be litter-prone, berries may be toxic to those with nut allergies, roots are intrusive, allow plenty of space
African Sumac	<i>Searsia lancea</i>	20-30	20-35	Spreading	E	✓	✓	✓	L	N/A	N/A	Low	7'	5'	Small evergreen, good screening tree, a little litter-prone, but graceful form and compact size make it a popular choice
Japanese Pagoda Tree 'Regent'	<i>Sophora japonica</i> 'Regent' (<i>Styphnolobium japonicum</i>)	40-50	30-40	Spreading	D	✓	✓		L	Yellow or white	Yellow	Low	7'	6'	Produces some litter from seed pods, 'Regent' is a faster grower, more reliable in form than the parent, prefers good drainage
Texas Mountain Laurel (Mescal Bean)	<i>Sophora scundiflora</i>	15-20	10-15	Irregular	E	✓	✓	✓	L	Violet blue	N/A	Low	6'	5'	Good under utilities, dry themed landscapes, seeds are toxic, prefers drier locations
Japanese Snowbell	<i>Styrax japonicus</i>	20-30	15-20	Vase	D	✓	✓	✓	M	White	Yellow	Low	6'	5'	Prefers some afternoon shade, keep slightly moist, beautiful pendulous white bloom, fragrant, followed by small berries
Fragrant Snowbell	<i>Styrax obassia</i>	20-30	15-20	Vase	D	✓	✓	✓	M*	White with yellow	Yellow to gold	Low	6'	5'	Prefers some afternoon shade, keep slightly moist, beautiful pendulous white bloom with yellow centers, fragrant, followed by small berries
Japanese Tree Lilac 'Ivory Silk'	<i>Syringa reticulata</i> 'Ivory Silk'	20-25	20	Vase	D	✓	✓	✓	M	Creamy white	Yellow	Low	6'	5'	Prolific summer bloom, fragrant, compact form, good for urban sites with limited space
Western Red Cedar	<i>Thuja plicata</i>	50-70	15-25	Pyramidal	E	✓	✓		M	N/A	N/A	Moderate	8'	10'	Native conifer of the NW coast. Prefers slightly moist soil, fragrant foliage and wood. Dense crown, retain lower branches for best appearance.

FOLSOM MASTER TREE LIST

(Updated May 1, 2020)

Common Name	Botanical Name	Mature Height	Mature Canopy Spread	Canopy Shape	Deciduous or Evergreen	Street Tree?	Parking Lot Tree?	Utility Tree?	WUCOLS Rating	Flowers	Fall Color	Root Damage Potential	Minimum Planter Width	Minimum Distance from Hardscape without root barrier	Remarks
American Linden	<i>Tilia americana</i>	40-65	20-25	Full-crowned	D	✓	✓		M	Light Yellow	Yellow	Moderate	8'	8'	Prefers moist soil, a favorite of bees and birds, good lawn or shade tree. 'Redmond' cultivar is larger, not as good in hot inland areas
Little-Leaf Linden	<i>Tilia cordata</i>	30-50	15-30	Pyramidal	D	✓	✓		M	Light yellow	Yellow	Moderate	7'	8'	Prefers moist and well drained soils, smaller in leaf than American linden, 'Summer Sprite' is a smaller cultivar
American/Hybrid Elm (hybrids only)	<i>Ulmus sp.</i> (including 'Accolade', 'Frontier', 'Emerald Sunshine')	30-60	15-40	Vase	D	✓	✓		M	N/A	Yellow, red	Moderate	7'	8'	Dutch Elm Disease (DED) & Elm Leaf Beetle (ELB) resistant. Steeped in the history of the Sacramento Valley, allow plenty of space.
Chinese (Lacebark) Elm	<i>Ulmus parvifolia</i> (including the cultivar 'Allee')	50-70	50-70	Vase	D	✓	✓		M	N/A	Yellow to gold	High	8'	10'	Subject to DED & ELB but not commonly affected, large, spreading and graceful form, emphasize early training for best form in age
Chinese (Lacebark) Elm cultivars	<i>Ulmus parvifolia</i> 'Drake', 'Dynasty', 'Frontier', & 'True Green'	35-50	30-50	Vase	D	✓	✓		M	N/A	Yellow to gold	High	7'	8'	Subject to DED & ELB but not commonly affected, large, spreading and graceful form, emphasize early structural pruning for best form in age.
Prospector Elm	<i>Ulmus wilsoniana</i> 'Prospector'	40	30	Vase	D	✓	✓		M	N/A	Yellow to gold	Moderate	7'	6'	New leaves emerge orange in color. Good medium sized street tree. Resistant to DED and ELB.
Chaste Tree	<i>Vitex agnus-castus</i>	15-25	15-25	Spreading	D	✓	✓	✓	L	Lavender to blue	Yellow	Low	6'	5'	Multi or single trunk, very hardy, fragrant foliage, blooms summer to fall
Zelkova (and select cultivars)	<i>Zelkova serrata</i> (including 'Drake', 'Green Vase', and 'Village Green')	50-65	50-65	Vase	D	✓	✓		M	N/A	Yellow to gold to red	Moderate	8'	8'	Urban friendly, excellent fall color russet to gold to red, broad and spreading.
Zelkova 'Musashino'	<i>Zelkova serrata</i> 'Musashino'	40-45	10-15	Columnar	D	✓	✓		M	N/A	Yellow to gold to red	Moderate	6'	6'	Urban friendly and excellent fall color russet to gold to red. Canopy shape is narrow and columnar.
Dwarf Zelkova	<i>Zelkova serrata</i> 'City Sprite'	20-25	15-18	Vase	D	✓	✓	✓	M	N/A	Yellow to gold to red	Moderate	6'	5'	Urban friendly, excellent fall color russet to gold to red. Great accent tree for use under utility lines.



TREES NOT ELIGIBLE FOR HERITAGE STATUS

The following tree species are exempt from obtaining a status of “Heritage Tree”, as defined in Folsom Municipal Code 12.16.020 - Tree Preservation, due to rapid growth rates, root intrusion, invasiveness, or other objectionable characteristics. Although the Folsom Master Tree List is subject to change from time to time as knowledge is gained on appropriate species selection, the following list of species is fixed and shall not incur changes unless otherwise approved by City Council:

Common Name	Botanical Name	Characteristics
Poplars	<i>Populus sp</i>	Very high water needs. Weak limb attachments make these trees susceptible to limb failure. Aggressive, far-reaching surface roots are common.
Chinese Tree of Heaven	<i>Ailanthus altissima</i>	Extremely invasive.
Mimosa/Silk Tree	<i>Albizia julibrissin</i>	Invasive. Weak wood and limb attachments are common, making this species prone to limb failure.
Palms (all)	<i>Arecaceae</i>	Biologically, these plants are not trees and do not provide the same level of benefit as true trees.
Eucalyptus	<i>Eucalyptus sp.</i>	Prone to limb failure in age. Mature size may not be suitable for some urban settings. High flammability.
Modesto Ash	<i>Fraxinus arizonica</i> <i>'Modesto'</i>	Poor structure with weak limb attachments result in high likelihood of limb failure in age. Disease-prone.
Liquidambar	<i>Liquidambar styraciflua</i>	Weak branching strength. Aggressive, far-reaching surface roots are common.
Mulberry	<i>Morus sp</i>	Weak branching strength. Aggressive, far-reaching surface roots are common.
Foothill Pine	<i>Pinus sabiniana</i>	Weak branching strength. Large pine cones can be injurious to people and property.
Flowering Pear	<i>Pyrus calleryana</i>	Weak limb attachments are characteristic of this species, resulting in a high likelihood of limb failure. Invasive.
Willows	<i>Salix sp</i>	Very high water needs. Aggressive, far-reaching surface roots are common.
Coast Redwood	<i>Sequoia sempervirens</i>	Very high water needs. Aggressive, far-reaching surface roots are common.

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