
Tree Policy &
Best Management
Practices Manual



Chapter 1 | Our City, Our Community Forest

The tree canopy in the City of San José is a valuable and precious asset that enhances the quality of life in this City. It is the duty of the City and its residents to protect and support the growth of the tree canopy so that it remains a viable asset for future generations.

The community forest is the only infrastructure asset that continually increases in its value and its benefits to the community. The City of San José recognizes that the community forest is not a self-renewable asset, but that it requires human intervention to preserve, protect and enhance. Our stewardship responsibilities include partnering with, and educating, the community and regional stakeholders, to provide thoughtful tree management, centered on developing a knowledge-based, insightful decision-making process. As the local government, it is our responsibility to foster and develop this vision of a community forest for every resident of San José and the surrounding communities that depend on us.

The City of San José is committed to promoting the growth and care of its Community Forest. The Community Forest is made up of trees on private property, in parks and other open spaces, and approximately 243,000 street trees that

are primarily located in park strips and median islands throughout the City.

The City has chosen to use the term “Community Forest” rather than the more common “Urban Forest” in recognition of the diversity of our City, which ranges from urban to semi-rural neighborhoods. It also reflects the City’s philosophy of actively engaging the community in defining and growing our City.

Three primary goals for the Community Forest Program have been established in the *Strategic Framework for the San José Community Forest Master Plan* (2010):

Grow, Protect, Preserve, Restore and Expand San José’s Community Forest. A healthy community forest helps to enhance the City’s quality of life, protect public health, encourage economic vitality and promote environmental sustainability.

Engage, Develop and Maintain Support for the Community Forest. The more informed and engaged the public and City staff are in growing and sustaining the community forest, the more the forest will flourish and be viewed as an asset by the entire community.

Equity. Manage the Community Forest to Maximize Benefits for All Residents of the City. Resources should be allocated equitably and appropriately so that all residents of San José can realize the benefits of a thriving community forest to the greatest extent possible.

The purpose of the City of San José Community Tree Policy Manual & Best Management Practices is to define responsibilities for tree management within the City of San José and to provide guidelines and current recommended Best Management Practices to City staff, residents and others who provide services to the Community Forest in the City of San José.

Our Community Forest Asset

Unlike other pieces of infrastructure such as roadways, sewer systems, streetlights, etc., our Community Forest consistently provides a return on our investment through the benefits it provides and must be treated as an asset. Further, if managed appropriately, the Community Forest is always growing and increases in value over time. Recent scientific research across the United States and around the globe provides solid data proving that

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trees provide a vast array of benefits which include: monetary, physical, psychological, emotional, environmental, ecological, and social benefits. The community forest improves and enhances the quality of life for those who work, live and play in the City of San José.

Trees clean the air

Trees absorb and trap airborne air pollutants and particulate matter. Trees reduce wind speed which allows more particulates to settle out of the air. Researchers calculated that trees in the Chicago area removed 15 metric tons of carbon monoxide, 84 tons of sulfur dioxide, 89 tons of nitrogen oxide, 191 tons of ozone, and 212 tons of small particulate matter. The trees saved over \$9 million for the greater Chicago area in pollution removal costs. (*Norwak 1994*) Visit the California EPA website for more information on Trees and Air Quality.

Trees provide energy savings

Trees cool the air by providing direct shade and releasing water in the form of vapor. Trees placed strategically around a conventional home have been found to cut energy use by up to 25 percent. (*Heisler, 1986*).

Scientific data show that shade from trees planted in strategic locations reduce energy consumption. In California it is estimated that 50 million trees could eliminate the need for seven 100-megawatt power plants, (*McPherson and Simpson, 2001*).

Trees mitigate the urban heat island effect

According to the US Environmental Protection Agency (EPA), trees are a solution to the urban heat island effect. The term “heat Island” describes built up areas that are hotter than the nearby rural areas. The annual mean air temperature of a city with 1 million people or more can be 1.8-5.4°F (1-3°C) warmer than its surroundings. In the evening, the difference can be as high as 22°F (12°C). Heat islands can affect communities by increasing summertime peak energy demand, air conditioning costs, air pollution, greenhouse gas emissions, heat-related illness and mortality, and water quality (*EPA, May 2011*).

Trees provide oxygen

Through the process of photosynthesis, trees

produce oxygen. On a daily basis, 1 acre of trees can provide enough oxygen for 18 people. (*Coder, 1996*).

Trees reduce air pollution

Trees remove pollution by intercepting airborne particles. While some particles can be absorbed into the tree, most particles that are intercepted are retained on the plant surface at least temporarily. (*Nowak 2002*).

Trees help prevent flooding

Trees capture, absorb, and slow down rainfall and stormwater runoff, thereby reducing the total amount of runoff and spreading the flow of water from storm events over a longer period of time (delaying peak flow). Without trees, cities would be more vulnerable to flooding and would need to spend more on heavily engineered stormwater drainage and sewage systems to cope with increased runoff.

Trees clean contaminated soil

The US Department of Agriculture is conducting research to use trees to clean up contaminated soils. This process is “phytoremediation”. Dr. Joel Burken of the University

of Missouri is a leader in this field of study. His research shows a great monetary and environmental advantage to using trees to clean up soils. Learn more at Science Daily.

Trees prevent soil erosion

Wind, rainfall and stormwater runoff cause soil erosion. Tree roots hold soil in place and increase the ability of the soil to accept water. Tree leaves reduce the wind and decrease the force of the rain as it hits the ground. By preventing soil erosion, trees ultimately help reduce the amount of sediment, which negatively impacts fish and other aquatic species, from being carried with stormwater runoff to creeks.

Trees protect against skin cancer

Skin cancer is the most common form of cancer in the United States. Purdue University researchers can now calculate the amount of sun protection shade trees provide. More shade trees, especially in urban areas, will help to prevent skin cancer and reduce health care costs.

Trees reduce the cost of maintenance for

our roadways

Trees shade and protect asphalt pavement and extend the longevity of the road bed. A study of street pavement in Modesto, California showed that an unshaded street required 6 slurry seals over 30 years while a street with large shade trees required only 2.5. 20% shade on a street improves pavement condition by 11%, which provides a 60% savings for resurfacing over 30 years.

Trees increase property values

Research indicates the average value of tree canopy is \$20,226 or 10.7% of the sale price of the home. (*Dimke, Sydnor, Grader, 2013*)

Trees make our roadways safer

Tree lined roadways are safer. Drivers have a better sense of their speed as they pass by street trees. Motorists slow down and drive more carefully making streets safer for both pedestrians and drivers. (*Dumbaugh, 2005*)

Trees help patients heal faster

Children with Attention Deficit Disorder (ADD) show fewer symptoms when they have access to greener settings when compared to indoor

activities or activities in paved areas with less landscaping. It is called Green Therapy. Studies have shown that hospital patients with a bedside view of a window with trees outside compared to those with a view of a brick wall heal faster and with fewer complications when recovering from surgery. (*Taylor, et. al., 2001; Ulrich, 1984*).

Trees provide habitat for wildlife

Trees provide much needed food and shelter for chipmunks, squirrels, birds, opossums, insects, spiders and many other species important to a healthy ecosystem. Trees also provide refuge to many important migratory bird species to roost en route to and from their breeding grounds. (*National Wildlife Federation*)

Trees build stronger and safer communities

Studies find that residents in inner-city buildings with trees have a stronger sense of community than buildings in the same area surrounded by concrete and asphalt. There are also fewer reports of physical violence in homes with trees and greenery outside the buildings. (*Kuo, Sullivan, 2001*)

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Trees are good for businesses

Studies show that tree-lined business districts are places where visitors have a more favorable experience. More shoppers frequent, shop longer, and spend more in business districts with trees. Planting and providing proper maintenance for street trees in commercial districts boosts the local economy and is a smart business investment (*Wolf, 2009*).

Chapter 2 | Responsibility for the Care and Maintenance of Trees

The City of San José provides for the protection of the Community Forest trees in Municipal Code Sections 13.28, 13.32 and 13.44.220.

Trees in the Public Right-Of-Way (Street trees)

Per the Municipal Code Section 13.28.090: “`Street’ shall mean a public right-of-way owned by or under the control of the City of San José whose primary function is to carry vehicular traffic and shall also include sidewalks, park strips and planting easements.” (See Appendix A)

Per the Municipal Code Section 13.28.095: “`Street tree’ shall mean any tree that is planted on a street.”

Trees within the City of San José Right-Of-Way (City of San José maintained roads)

Per the Municipal Code Section 13.28.400: “The property owner of a lot or portion of a lot adjacent to or fronting on any portion of a street shall maintain and replace, if necessary, any street trees, shrubs, hedges or other landscaping adjacent to or fronting on the subject property in such condition that the street trees, shrubs,

*hedges or other landscaping comply with this chapter. Each property owner shall plant and replace any removed or otherwise missing street trees in accordance with the requirements of Sections 13.28.300 and 13.28.310”*To report a tree related issue within the City of San José right-of-way call (408)794-1901.

Property owner maintained

This is any tree within the right-of-way and along a property frontage where the adjacent owner is a private property owner.

City of San José maintained (Property Frontages)

This is any tree within the right-of-way and along the frontage where the adjacent owner is the City of San José.

City of San José maintained (General Fund Landscape Areas)

These are defined as any tree within a median island landscape or roadway frontage landscape that falls within the public right-of-way.

City of San José maintained (Special Landscape Assessment Districts)

This is any tree within the right-of-way and

along a property frontage, median or landscape area where the adjacent owners are part of a specially funded area where the owners pay a special assessment on their property taxes to receive enhanced services such as tree maintenance.

Trees within County of Santa Clara Rights-Of-Way (County of Santa Clara Maintained Roads)

The County of Santa Clara, County Roads & Airport Department is responsible for any tree related work located along expressways and unincorporated county roads. The County Tree Preservation and Removal Ordinance requires permits for tree removal or other work around trees. To report a tree related issue within the Santa Clara County right-of-way you can submit a Customer Service Request or call (408)494-2750.

Trees within CALTRANS Right-Of-Way (CALTRANS Maintained Roads)

The California Department of Transportation (CALTRANS) is responsible for any tree related work along freeways and highways. Caltrans

CHAPTER 2 | **RESPONSIBILITY FOR THE CARE AND MAINTENANCE OF TREES**

Adopt-A-Highway program utilizes volunteers to plant and maintain trees. See the Caltrans Adopt-A-Highway website for additional information. To report an issue within the CALTRANS right-of-way you can submit a Customer Service Request or call (916)654-4470.

Trees within Private Right-Of Way (Privately Maintained Roads)

Private property owners are responsible for any tree related work along privately maintained roadways.

Park Trees

Trees within City of San José Parks

The City Department of Parks, Recreation and Neighborhood Services (PRNS) is responsible for maintenance of the trees within City-owned parks. Through the use of park staff and tree maintenance contractors, park trees are planted, pruned or removed for the health and safety of our park visitors and/or the forest. To report an issue within a City of San José park, call (408)535-3570 or park.concerns@sanjoseca.gov.

Trees within County of Santa Clara Parks

The Santa Clara County Parks Department is responsible for maintenance of the trees within County Parks. To report an issue within a City of San José County Park, call (408)355-2200 or parkinfo@prk.sccgov.org.

Tree within Private Parks

Private property owners are responsible for the maintenance of trees within private parks.

Creek Corridors or Riparian Habitat

The oversight of trees in or near creek corridors and riparian habitat within the boundaries of the City of San José is divided into three jurisdictions (City of San José, Santa Clara Valley Water District and The Department of Fish and Game) depending on the exact location of the creek and the tree. Sources of information for the three agencies are found in the Appendix, Contact Information.

Public Property Trees

The responsibility for trees located on public property such as Airports, Community Cen-

ters, Libraries, Fire Stations, Police Stations, Corporation Yards, Water Treatment facilities, Pump Stations is currently divided among four departments (SJ Airport, PRNS, DOT and Public Works).

Private Property Trees

The responsibility for trees located on private property are the responsibility of the property owner. Examples of private property include but are not limited to the following: Single family residences, Multi-family residences, Commercial/Industrial buildings, Shopping Malls, Retail businesses, Private recreation facilities, Private parking facilities, Churches and Schools.

Chapter 3 | Permits and the Law

Over the past few decades it has become common for local governments to implement ordinances which are intended to protect the urban forest. These ordinances vary from one jurisdiction to the next and often depend on whether the tree is located on public or private property. This chapter is intended to clarify current tree ordinances which may affect the owners of property within San José.

Street Tree Planting Permit

Section 13.28.300 of the Municipal Code states: *"It shall be unlawful for any person to plant or install any street tree within the City, unless one of the following conditions exist:*

1. *A permit that allows the planting or installation of a street tree was issued by the Director in accordance with this chapter; or"*
2. *There is a valid written contract with the City for the planting or installation of street trees approved by the City manager or City Council, as applicable."*

Street Tree Planting Permits are free and available upon request through the Department of Transportation (DOT) by request treesandsidewalks@sanjoseca.gov or by phone at (408)794-1901. Street Tree Planting Permits are valid for 60 days and are eligible for up to 60 days extension.

Once a street tree planting permit is complete, the holder of the permit is required to report completion of the work to DOT. Failure to report completion of any planting prior to expiration of the permit will result in an automatic inspection by the Trees and Sidewalks team and the potential issuance of a "Street Tree Repair Notice" if work is required and not yet complete.

Street Tree Pruning and Removal Permit requirements

Section 13.28.310 of the Municipal Code states: *"Except as provided in this section, it shall be unlawful for any person to prune or remove any street tree, or do any construction work or activity that may affect the critical root zone of a street tree, without a permit issued by the Director."*

Street Tree Pruning Permits

Pruning permits are available on request for the routine pruning of the upper canopy or roots of a street tree. Street tree pruning permits are free and can be obtained through Department of Transportation at treesandsidewalks@sanjoseca.gov or by phone at (408) 794-1901. Street tree pruning permits are valid for 60 and are eligible for up to 60 days extension.

Once a street tree pruning permit is complete, the holder of the permit is required to report completion of the work to DOT. If the property owner declines to remove the tree after a permit is issued, the permit may be cancelled after 60 days or the expiration of any extensions. Failure to report completion of any pruning prior to expiration of the permit will result in an automatic inspection by the Trees and Sidewalks team and the potential issuance of a "Street Tree Repair Notice" if work is required and not yet complete.

Street Tree Root Pruning Permits

Street Tree Root Pruning Permits are available on request for the routine pruning of the roots of a street tree. Street Tree Root Pruning Permits are free and can be obtained through

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the DOT at treesandsidewalks@sanjoseca.gov or by phone at (408)794-1901. Street Tree Root Pruning Permits are valid for sixty days and are eligible for up to 60 days extension.

Once a Street Tree Root Pruning Permit is complete, the holder of the permit is required to report completion of the work to DOT. If the property owner declines to root prune after a permit is issued, the permit may be cancelled after sixty (60) days or the expiration of any extensions. Failure to report completion of any root pruning prior to expiration of the permit will result in an automatic inspection by the Trees and Sidewalks team and the potential issuance of a "Street Tree Repair Notice" if work is required and not yet complete.

Street Tree Removal Permits

Section 13.28.310c of the Municipal Code states: "The director shall issue a permit to remove a street tree only if at least one of the following criteria is met:"

1. *The street tree is in a hazardous condition or imminently hazardous condition"*
2. *The type, species, or location of the street tree is in conflict with a community forest master*

plan adopted by the city council or the street tree policy, guidelines, and best practices published by the director."

3. *The street tree interferes with high tension electrical lines and the interference cannot be corrected by topping the street tree."*
4. *The street tree has caused extensive concrete damage and the concrete has been replaced more than once in the preceding ten years."*
5. *The street tree has done extensive sewer system damage that cannot be resolved by any other reasonable means."*
6. *The street tree is in conflict with an approved development permit for the adjacent property or right-of-way pursuant to Title 20 of this Municipal Code."*

Application for Street Tree Removal Permit

Street Tree Removal Permit Applications are free and available upon request through the DOT by request at treesandsidewalks@sanjoseca.gov or by phone at (408)794-1901. Street Tree Removal Permits are valid for 60 days and are eligible for up to 60 days extension.

Once a Street Tree Removal Permit is complete, the holder of the permit is required to report completion of the work to DOT. If the property owner declines to remove the tree after a permit is issued, the permit may be cancelled after 60 or the expiration of any extensions. Failure to report completion of any removals prior to expiration of the permit will result in an automatic inspection by the Trees and Sidewalks team and the potential issuance of a "Street Tree Repair Notice" if work is deemed required and not yet complete.

Street Tree Removal Permit Posting

Section 13.28.360 of the Municipal Code states: "Any street tree for which a removal permit is required pursuant to Section 13.28.310, and the surrounding area, within one hundred and fifty feet on both sides of the street tree and on both sides of the street, shall be posted with a notice of proposed removal in accordance with this section, unless the director determines that such street tree poses an imminently hazardous condition."

The DOT posts all trees with a "Tree Removal Request" notice for a minimum of 14 calendar days. This notice includes the date of posting, reason for the proposed removal, any replanting require-

ments and information on how any citizen may file an objection to proposed tree removal.

Street Tree Removal Permit Protests

Anyone who wishes to object to the permitting of a street tree removal has the right do so within 14 days of the tree posting. Protests must be filed in writing with the Arborist's Office and can be sent by email to Arborist@sanjoseca.gov or standard mail to City Arborist, 1404 Mabury Rd, San José CA 95133. Protests submitted through standard mail must be received within 17 days of the posting. Once a protest is received a protest hearing will be scheduled to allow for all parties to discuss the merits of the tree(s), the justifications for requesting removal and potential solutions that allow to retention of the tree(s) in question.

Street Tree Removal Permit Protest Hearings

The DOT is responsible for conducting of protest hearings. Hearings are typically held on weekdays and allow for both in-person and virtual participation. Hearings are informal and intended to stimulate discussions around the issues or concerns that precipitated the request for removal and potential alternatives that would

effectively address any issues or concerns and allow for retention of the tree for a period of time.

Presentation of Permit

Section 13.28.370 of the Municipal Code states:

"A. It shall be unlawful for any person to prune or remove or cause the same to be done to a street tree unless the permit or a copy of the permit allowing for this activity is maintained on the site where the street tree to be pruned or removed is located.

B. It shall be unlawful for any person to prune or remove or cause the same to be done to a street tree unless the permit or a copy of the permit can immediately be presented upon request to the director of planning, building, and code enforcement, director of transportation, police officers, and their designees.

C. It shall be unlawful for any person to engage in any work on the street tree or allow any work on the street tree that is the subject of the permit to occur unless and until: (1) the permit or a copy of the permit is located on the site where the subject tree is located; and (2) the permit or a copy of the permit is readily available for presentation upon request as described in this section.

Street Tree Repair Notice

Section 13.28.440 of the Municipal Code states: *"No owner or person in possession or control of any premises shall maintain any tree, shrub, hedge or other landscaping located on such premises in a manner that causes or may cause a hazardous condition on a street. No owner or person in possession or control of any premises on any corner or interior lot abutting upon a street shall permit the existence of any tree, shrub, hedge, landscaping, mound of earth, or boulders that obscure and impair the view of intersecting or entering traffic from a street of passing motorists or pedestrians or which impairs the view of the street signs, traffic signs, or any other control devices or signs placed upon the streets for the safety and convenience of the public."* Further, 13.28.500 of the Municipal Code states: *"If the director determines that the condition of any tree, shrub, hedge, or landscaping constitutes a violation of any provision of this chapter, the director shall, by notice in writing, notify the owner of the property in violation to prune or remove the tree, shrub, hedge, or landscaping or take any other necessary corrective action to cure the violation."*

When trees, whether public or private, that pose a threat to vehicle and pedestrian safety by

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blocking regulatory signage, advisory signage, streetlights, traffic signals or from broken branches or other defects are identified, the City will issue a Street Tree Repair Notice to the property owner that identifies any mitigation work that is required. The property owner has up to 60 days to complete any work identified in the Street Tree Repair Notice.

Section 13.28.540 of the Municipal Code states: *"If the corrective action required by notice is not completed within the time specified in the notice of violation, the city shall have the authority to perform this work or cause this work to be performed and the owner of the affected property shall be billed for the costs incurred. The property owner shall be responsible for all costs associated with the corrective action including costs of planting, removal or pruning of the tree, shrub, hedge, or landscaping, administration time and expense, late charges, and the handling of any lien placed on the property owner's property due to failure of the property owner to pay within the required period."*

Private Property Tree Pruning Permit

No notification or permits are required for the

pruning of private property trees with the exception of "Heritage Trees". However, any pruning that involves removal of more than 25% of the foliage or woody tissues within a one year period shall be deemed excessive and can be treated as an illegal removal under section 13.32.020J which states: *"Remove" means eliminate, take away, uproot or destroy. For purposes of this Chapter, "remove" also means taking any action that reasonably and foreseeably will lead to the death of a tree or to permanent significant damage to the health or structural integrity of a tree. Such actions can include, without limitation and by way of example, excessive pruning, cutting, girding, poisoning, or watering of a tree; the unauthorized relocation or transportation of a tree; excessive excavation, alteration, or grading of the soil within the dripline of a tree, or excessively bruising, tearing or breaking the roots, bark, trunk or branches of a tree.*

Private Property Tree Removal Permits on Single Family Lots

Section 13.32.020 defines a tree as: *"any live or dead woody perennial plant characterized by having a main stem or trunk which measures thirty-eight (38) inches or more in circumference at a height of fifty-four (54) inches above natu-*

ral grade slope. For purposes of this Chapter, a multi-trunk tree shall be considered a single tree and measurement of that tree shall include the sum of the circumference of the trunks of that tree at a height of fifty-four inches above natural grade slope. "Tree" shall include the plural of that term". Further sections 13.32.030, 13.32.040 and 13.32.041 state: *"It shall be unlawful for any person to remove, or cause to be removed, any tree, as defined in Section 13.32.020, from any private parcel of land in the city unless a permit has been issued."*

For specific information related to conditions required for the issuance of a Private Property Tree Removal Permit or to obtain an application, please contact the Planning Department at (408)535-3555, or email them at [Live Tree Removal Permit Application](#) Planning Department Website.

Private Property Tree Repair Notice

Section 13.28.440 of the Municipal Code states: *"No owner or person in possession or control of any premises shall maintain any tree, shrub, hedge or other landscaping located on such premises in a manner that causes or may cause a hazard-*

ous condition on a street. No owner or person in possession or control of any premises on any corner or interior lot abutting upon a street shall permit the existence of any tree, shrub, hedge, landscaping, mound of earth, or boulders that obscure and impair the view of intersecting or entering traffic from a street of passing motorists or pedestrians or which impairs the view of the street signs, traffic signs, or any other control devices or signs placed upon the streets for the safety and convenience of the public.” Further, 13.28.500 of the Municipal Code states: *“If the director determines that the condition of any tree, shrub, hedge, or landscaping constitutes a violation of any provision of this chapter, the director shall, by notice in writing, notify the owner of the property in violation to prune or remove the tree, shrub, hedge, or landscaping or take any other necessary corrective action to cure the violation.”*

When trees, whether public or private, that pose a threat to vehicle and pedestrian safety by blocking regulatory signage, advisory signage, streetlights, traffic signals or from broken branches or other defects are identified, the City will issue a Street Tree Repair Notice to the property owner that identifies any mitigation work that is required. The property owner has

up to 60 days to complete any work identified in the Street Tree Repair Notice.

Section 13.28.540 of the Municipal Code states: *“If the corrective action required by notice is not completed within the time specified in the notice of violation, the city shall have the authority to perform this work or cause this work to be performed and the owner of the affected property shall be billed for the costs incurred. The property owner shall be responsible for all costs associated with the corrective action including costs of planting, removal or pruning of the tree, shrub, hedge, or landscaping, administration time and expense, late charges, and the handling of any lien placed on the property owner’s property due to failure of the property owner to pay within the required period.”*

Public Tree Pruning Permits

While no permits are currently required for pruning of trees that grow on public property, the City of San José is committed to following all best management practices and permit conditions required as a part of our street tree permits.

Public Tree Removal Permits

While no permits are currently required for removal of trees that grow on public property,

The City of San José is committed to following the all best management practices, posting notifications and permit conditions required as a part of our street tree permits.

Heritage Tree Pruning Permits

Heritage Tree Pruning Permits are available on request for the routine pruning of the upper canopy or roots of a Heritage Tree. Heritage Tree Pruning Permits are free and can be obtained through the DOT at treesandsidewalks@sanjose-ca.gov or by phone at (408)794-1901. Street tree pruning permits are valid for sixty (60) days and are eligible for up to 60 days extension.

Once a Heritage Tree Pruning Permit is complete, the holder of the permit is required to report completion of the work to DOT. If the property owner declines to prune the tree after a permit is issued, the permit may be cancelled after sixty (60) days or the expiration of any extensions. Failure to report completion of any pruning prior to expiration of the permit will result in an automatic inspection by the Trees and Sidewalks team and the potential issuance of a *“Street Tree Repair Notice”* if work is required and not yet complete.

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Heritage Tree Removal Permits

Heritage Tree Removal Permits for street trees and private trees are processed in the same manner as Street and Private Tree Removal Permits described above. Failure to obtain a permit prior to performing work may result in the issuance of an illegal tree removal citation as described below.

Emergency Tree Services by Property Owner

Section 13.28.340 of the Municipal Code states: *“Notwithstanding any provisions of this part, no permit shall be required for pruning or removing a street tree if any of the following criteria are met prior to any work being performed:*

1. *An imminently hazardous condition exists where the immediate pruning of a street tree(s) is necessary to protect the public health, safety or welfare. The person who performs the emergency work must not prune the street tree(s) more than is reasonably required to eliminate the imminently hazardous condition and must provide, within two business days of the completion of the emergency work, written notice to*

the director that includes a full description of the work completed, the exact location where the work was performed, and the basis for the emergency pruning.

2. *An imminently hazardous condition exists and the director has provided written notice to the responsible property owner to take certain corrective action to abate the imminently hazardous condition and the work performed complies with the notice.”*

While no permits are required to address “imminently hazardous trees” it should be noted that the person taking corrective action must clearly document the imminent nature of the hazard and why the corrective action taken was the only option to mitigate the risk.

Emergency Tree Services by City of San José

Section 13.28.550 of the Municipal Code states:

“A. In cases of imminently hazardous conditions, the director shall have the authority to perform or cause to be performed the corrective work to abate the imminently hazardous condi-

tion without observance of any notice requirements. The property containing a tree, shrub, hedge, or landscaping that poses an imminently hazardous condition or the property adjacent to or fronting on the subject street tree, shrub, hedge, or landscaping that poses an imminently hazardous condition may be assessed for the costs incurred in accordance with this part.

B. The owner of a property containing a tree, shrub, hedge, or landscaping that poses an imminently hazardous condition or adjacent to or fronting on a street tree, shrub, hedge, or landscaping or a property containing a tree, shrub, hedge, or landscaping that poses an imminently hazardous condition for which the city takes corrective action shall pay any costs and expenses associated with the emergency services, including costs of removal of the tree, shrub, hedge, or landscaping, administration time and expense, late charges, and the handling of any lien placed on the property owner's property due to failure of the property owner to pay within the required period. The city shall send an invoice to the property owner setting forth the costs and expenses as described herein and the date specified for full payment to the city.

C. If the property owner has failed to pay the invoice, the director shall issue a notice of cost informing the property owner of the failure to pay the invoice and that failure to pay the amount will result in the initiation of proceedings to place a lien against the property owner's property."

While every effort will be made to contact the adjacent property owner or responsible party will be made prior to the City of San José taking corrective action, public safety does not always allow sufficient time and is not required.

Tree Citations

Street trees

Section 13.28.310 of the Municipal Code states: *"Except as provided in this section, it shall be unlawful for any person to prune or remove any street tree, or do any construction work or activity that may affect the critical root zone of a street tree, without a permit issued by the director."*

Street Tree Planting Permit Violation

The DOT is responsible for the issuance of administrative citations related to plantings of street trees without a permit. Prior to issuing an official "Administrative Citation", a "Notice of Violation" is mailed to the property owner. The property owner must respond within 14 days of receipt and provide justification for the illegal planting. If the justification provided is determined to be inadequate, an Administrative Citation is issued. The fines for planting a street tree without a permit or of an inappropriate species is as follows:

Trunk Diameter	Fine Amount
Any size	\$50.00

Street Tree Pruning Permit Violation

The DOT is responsible for the issuance of administrative citations for unpermitted or improper pruning of Street Trees. Prior to issuing an official "Administrative Citation", a "Notice of Violation" is mailed to the property owner. The property owner must respond within 14 days of receipt and provide justification for the illegal pruning. If the justification provided is determined to be inadequate, an Administrative Citation is issued. The fines for pruning a street tree without a permit or improperly is as follows:

Trunk Diameter	Fine Amount
0 to 5.99 inch	\$150.00
6.0 to 11.99 inch	\$175.00
12.0 to 17.99 inch	\$200.00
18.0 to 23.99 inch	\$225.00
24.0 and greater	\$250.00

CHAPTER 3 | **PERMITS AND THE LAW**

Street Tree Removal Permit Violation

The DOT is responsible for the issuance of administrative citations for unpermitted removal or failure to plant a replacement street tree as a condition of the removal permit. Prior to issuing an official “Administrative Citation”, a “Notice of Violation” is mailed to the property owner. The property owner must respond within 14 days of receipt and provide justification for the illegal removal. If the justification provided is determined to be inadequate, an Administrative Citation is issued. The fines for removing a street tree without a permit are as follows:

Trunk Diameter (When measured at 4.5' above natural grade)	Fine Amount (1st violation in 3 year period)	Fine Amount (2nd violation in 3 year period)	Fine Amount (3rd violation in 3 year period)
0 to 5.99 inch	\$500.00	\$1,000.00	\$1,500.00
6.0 to 11.99 inch	\$750.00	\$1,500.00	\$2,250.00
12.0 to 17.99 inch	\$1,000.00	\$2,000.00	\$3,000.00
18.0 to 23.99 inch	\$1,500.00	\$3,000.00	\$4,500.00
24.0 to 29.99 inch	\$2,000.00	\$4,000.00	\$6,000.00
30.0 to 35.99 inch	\$3,000.00	\$6,000.00	\$9,000.00
36.0 to 39.99 inch	\$4,000.00	\$8,000.00	\$12,000.00
40.0 and greater	\$5,000.00	\$10,000.00	\$15,000.00

Private Property Tree Removal Permit Violation

Code Enforcement is responsible for the issuance of citations for unpermitted removal of private property trees. The fines for violating this ordinance are as follows:

Trunk Diameter (When measured at 4.5' above natural grade)	Fine Amount (1st violation in 3 year period)	Fine Amount (2nd violation in 3 year period)	Fine Amount (3rd violation in 3 year period)
12.0 to 17.99 inch	\$1,000.00	\$2,000.00	\$3,000.00
18.0 to 23.99 inch	\$1,500.00	\$3,000.00	\$4,500.00
24.0 to 29.99 inch	\$2,000.00	\$4,000.00	\$6,000.00
30.0 to 35.99 inch	\$3,000.00	\$6,000.00	\$9,000.00
36.0 to 39.99 inch	\$4,000.00	\$8,000.00	\$12,000.00
40.0 and greater	\$5,000.00	\$10,000.00	\$15,000.00

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Administrative Citation Appeal

Any individual who has been issued an administrative citation and wishes to contest a Tree Citation may do so by submitting an Administrative Citation Hearing Request Application and paying an advance deposit of the citation costs. If you are contesting the citation and are unable to pay the advance deposit, there is a portion of the Hearing Request form that allows you to request a hardship waiver. Hardship waivers must be requested within 15 calendar days of the citation date.

County of Santa Clara – Tree Regulation

Any private tree that resides within the jurisdiction of the County of Santa Clara is subject to the rules and regulations of the County. For the most up to date information, please contact:

Santa Clara County Department of Planning
70 W Hedding Street, East Wing, 7th Floor, San José, CA 95110
Phone: (408) 299-5770
Website: <https://www.sccgov.org/sites/dpd/lwantto/Permits/Pages/Tree-Removal.aspx>

Hazardous or fallen street trees along County Roadways should be reported to County Communications at (408)299-2750

Hazardous or fallen trees within Santa Clara County Parks should be reported to: County Parks Division
298 Garden Hill Dr., Los Gatos, CA 95032
Phone: 408-355-2200
Email: parkinfo@prk.sccgov.org
website <https://www.sccgov.org/sites/parks/Pages/Welcome-to-Santa-Clara-County-Parks.aspx>

School Districts – Tree Regulation

Street trees located adjacent to school district property are subject to the permits requirements of the appropriate agency (e.g. City, County, etc.).

Trees located within School District property are subject to the rules and regulations of the individual School District and the State of California. No planting, pruning or other tree related work may be performed without specific permission from the school district office (not the particular school or facility). For more information or to report tree emergencies

residents should contact the School Districts Main office.

Riparian Areas and Valley Water – Tree Regulation

Trees located within the various riparian areas of San José are the responsibility of the property owner as identified in Santa Clara County parcel records.

Trees located within property that is owned by Valley Water, or street trees along its frontage and in riparian areas, are subject to the rules and regulations of the Santa Clara Valley Water and the State of California, and not subject to City permitting. No planting, pruning or other tree related work may be performed without specific permission from Valley Water. For more information or to report tree emergencies with riparian areas residents should contact:

Valley Water
5750 Almaden Expressway, San José, CA 95118
Phone: (408)265-2600
Email: info@valleywater.org
Website: <https://www.valleywater.org/>

California Fish and Wildlife

The California Department of Fish and Wildlife (CDFW) is responsible for the protection of California's natural resources and provide public safety through effective and responsive law enforcement. CDFW is responsible to regulate, but not manage, trees in riparian corridors. The City is responsible for tree and habitat maintenance on the City's creek side property. The City of San José falls within District 3-Bay Delta Region. For more information or to report concerns with wildlife, residents should contact:

CA Fish and Wildlife
825 Cordelia Road, Suite 100, Fairfield, CA 94534
Phone: (707)428-2002
email: askbdr@wildlife.ca.gov
website: <https://wildlife.ca.gov/Regions/3>

State of California Highways (CALTRANS)

Trees located within property that is owned by the State of California are subject to the rules and regulations of the State of California. No planting, pruning or other tree related work may be performed without specific permission from CALTRANS. For more information or to report tree emergencies or concerns along State Highways residents should contact:

CALTRANS District 4
111 Grand Ave, Oakland, CA 94612
Phone: (510)286-4444
email: caltrans_d4@dot.ca.gov
Online: Service Request Portal
website: <https://dot.ca.gov/caltrans-near-me/district-4>

Non-permit related section of City of San José Municipal Code

Disclosure Upon Sale or Transfer of Residential Real Property

Section 13.28.410 states: "A. *Not less than seven business days before the sale or other transfer of residential real property concludes a selling or transferring property owner must disclose to the acquiring property owner, on a disclosure form provided by the city, whether the residential real property to be sold or transferred fully complies with the city's street tree maintenance and replacement requirements of [Section 13.28.400](#).* B. If the selling or transferring property owner cannot determine whether street trees located on or adjacent to the residential property are substantially in compliance with the approved development permits for the property, or the property's approved

development permits are inconclusive as to the requirements for the presence and location of street trees on or adjacent to the property, then the following requirements for the planting and presence of street trees shall apply:

1. The property must have one street tree for any adjacent street if it is an interior lot and at least three street trees if it is a corner lot, unless otherwise modified by the director in the interest of public safety.
2. If the current general plan requirements for street trees on or adjacent to the property differ from the requirements specified in Subsection B.1., then the current general plan requirements shall govern the number and location of street trees required on or adjacent to the property at the time of sale or transfer. If the property meets the general plan requirement, then the selling property owner must indicate such compliance with the general plan on the disclosure form provided to the acquiring property owner.
3. All street trees shall be planted in accordance with the requirements of [Section 13.28.300](#).

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C. Upon a written request, the director may grant the selling or transferring property owner an exemption in writing from the requirements of this section if the director determines in the interest of public safety that planting and maintaining street trees on or adjacent to the residential property at the time of sale or transfer is not appropriate. Such an exemption does not run with the land and shall not allow any deviations from the disclosure requirements upon residential real property sales or transfers for future sellers or transferors.”

Willful Damage to Tree

Section 13.28.420.B.A states “No person shall, except with written permission of the director damage, cut, carve, girdle or injure the bark of any street tree.”

Attaching of Anything to Trees

Section 13.28.420.B.B states “No person shall, except with written permission of the director, attach or keep attached, or cause the same, any sign, wire, device or injurious material to any such tree or to the guard or stake intended for the protection of such street tree.”

Section 13.28.420.E states “Every person having any wire charged with electricity running through a street in the city shall securely fasten such wire so that it will not come in contact with any street tree therein; and no person shall, without the written permit of the director, attach any electric wire, insulator or any device for the holding of any electric wire or for bracing the poles which carry the same to any street tree growing or planted upon any street.”

Protection of Street Trees during construction

Section 13.28.420.C states “As part of any construction work or activity of a building or structure, the owner or responsible party thereof shall place such guards around all nearby street trees as shall in the opinion of the director effectively prevent injury to them.”

Chapter 4 | Design Guidelines and Specifications

Proper tree care starts with the design and placement of trees into an environment that is able to meet their basic needs and avoid significant conflicts that may impact the health or structure of the tree reducing its life span or the benefits it provides. Below are the most critical factors that must be considered when planting a tree.

Site assessment

Before planting any tree, a full site assessment should be completed to ensure it will thrive in its environment and have the space needed to accommodate the tree at maturity. On a developed site where buildings, utilities and other features have already been installed, the process is fairly straight forward. For designers or planners that are working on new developments or redevelopments, the process may be more difficult. This is because the future building design, and utility locations are frequently on separate drawings.

A Site Assessment check list can be downloaded free of charge from the Cornell University publication, *Recommended Urban Trees: Site Assessment and Tree Selection for Stress Tolerance*.

Some of the most important features of the site assessment are discussed below

Sufficient Root and Trunk Space

Trees need adequate space for trunk expansion and space to develop woody structural roots for support. Since every location is unique, it is important to involve a professional Arborist to provide guidance on species location selection.

For street tree plantings the Office of the City Arborist has a list of recommended set-backs that can be found in Appendix A, Clearance and Setback Guidelines for City Streetscape Projects. Keep in mind that the setbacks are recommendations and can be adjusted depending on the individual planting locations.

Recent research has also suggested that to ensure the sustainability of newly planted trees one must consider the availability of loosely compacted soils (soil volume) available to the tree to reduce conflicts related to root growth and provide sufficient water and nutrients for the tree at maturity. Recommended soil volumes are listed in Appendix B.

Placement of the tree in relation to other plant

material on the site must be considered. In a new landscape turf and other ground cover, shrubs and annuals should be planted a minimum of two feet from the outside edge of the planting pit. In existing landscapes, the same guideline should be followed.

Similar to the upper canopy of a tree, tree roots require water, nutrients and oxygen to grow. To limit the availability of these basic needs frequently results in undue stress on the tree and reduces the benefits the tree is able to provide. Therefore, the City of San José encourages the use of designs that address these basic needs.

Tree Wells

In the dense urban areas (downtown) of San José it is common for the City to require trees to be planted in tree wells or small cut-outs within the sidewalk to ensure safe and efficient movement of pedestrians. Unfortunately, this type of design is not conducive to proper tree development and frequently results in hazardous conditions when the roots or the root flare begin to grow underneath the surrounding sidewalk. To address this issue the City of San José recommends designers create the largest possible tree

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well possible for the given right-of-way. Further, the City of San José encourages the use of alternative technologies and surfaces that improve water infiltration and the absorption of air when appropriate.

Decorative Tree Grates in the Public Right of Way

In the urban environment it is common for designers to recommend the use of decorative tree grates and tree guards. Decorative tree grates are often used to provide some aesthetic appeal to the sidewalk or to account for differences in grade between the tree well and surrounding sidewalk. These decorative grates are commonly built with mostly solid surfaces and provide only limited openings to ensure a solid and safe walking surface. Unfortunately, this means the decorative tree grates require continual monitoring, adjustment or enlargement to account for the growth of the tree trunk. When this preventative maintenance is not addressed in a timely manner, the resulting damage to the tree is often significant enough that the structural integrity of the tree is compromised and complete removal may be required. The City of San José does not recommend the use of decorative tree grates in most instances and would instead encourage

designers to use permeable pavers over a sand and gravel base or other similar permeable surface that accommodates tree growth without requiring the additional on-going maintenance.

Decorative Tree Guards in the Public Right-of-Way

Similar to decorative tree grates, it is common for designers to recommend the use of decorative tree guards in the urban environment. Unfortunately, the challenges are similar to those with decorative tree grates. The City of San José does not recommend the use of decorative tree grates in most instances and would encourage designers to use permeable pavers over a sand and gravel base or other similar permeable surface that accommodates tree growth without requiring the additional on-going maintenance.

Parkstrip or Landscape Strip

The majority of San José's residential neighborhoods consists of parkstrip or landscape strips between the curb and gutter and the sidewalk. The depth of this areas ranges from as little as 1 to two (2) feet across to as much as ten (10) feet in some of the older neighborhoods north of downtown. Similar to tree wells in the more

urban areas of San José, this limited grow space frequently results in conflicts with the surrounding hardscape and utilities that result in significant impacts to the tree when repairs are made. Of additional concern is that it is not uncommon for property owners to pave or otherwise fill the parkstrip/landscape strip with concrete aggregate or other impervious surfaces that provide a walkable surface but prevent the infiltration of water and diffusion of oxygen into the soil. The City of San José recommends that property owners maintain the parkstrip/landscape strip free of impervious surfaces. As inspection of these properties occurs the City of San José will require that impervious surfaces be removed to provide a minimum amount of pervious surface area adjacent to the stem of a tree that allows for air and oxygen to enter the soil. The minimum dimensions of the pervious surface area will be equivalent to the depth of parkstrip by five feet in width. In cases where the depth of parkstrip is larger, the property owner will be expected to provide a surface area with equal dimension of the depth and width (5 feet x 5 feet, 6 feet x 6 feet, 10 feet x 10 feet).

Utility Conflicts

Further complicating the issue of sufficient root volume and limiting the impacts to our trees is the installation of utility conduits and vaults within the public rights-of-way and in close proximity to our street trees. Therefore the City of San José encourages the use of alternative technologies such as directional boring or complete relocation of utilities when repair or replacement is required to reduce the long term impacts that repair and replacement of these utility facilities have on our trees and the sustainability of the Community Forest.

Sufficient Canopy Space

The shape and size of the tree canopy at maturity is one of the primary considerations to accurately determine the placement of the tree. It is the goal of the City of San José to maximize the tree canopy of our Community Forest. To accomplish this goal the City Arborist staff chooses a street tree species that will provide the largest canopy at maturity and that is suitable for the size of the planting site.

Unfortunately, street trees in the urban environment frequently have limited growing space. To

ensure street trees have the ability to maximize their canopy and limit future maintenance needs, the project arborist must balance the need for canopy over the street with the need for clearance from vehicle traffic, buildings, street lights, traffic signals, overhead utilities, etc.

On new developments, building designs should consider incorporating step back architecture to provide increased grow space for the upper canopy at maturity. Consideration should also be given to the undergrounding of overhead utilities or selecting a species with mature canopy height that provides a minimum of five feet of clearance.

As a general rule, tree spacing should be equivalent to roughly 80% of what the canopy spread will be at maturity. This means that for a tree with a canopy spread of 50 feet at maturity, the spacing should be roughly 40 to 45 feet. Recommended tree spacings are listed in Appendix B.

Species Selection and Diversity

Experience has taught us that species diversity is the key to a healthy community forest. In the middle of the 20th Century, an over-reliance on the American Elm (*Ulmus americana*) resulted in

the significant loss of tree canopy for many cities in the Eastern and Central United States when Dutch Elm Disease arrived in the United States. To prevent similar issues from arising in the future, it is important to maintain species diversity and limit the effect any one pest or disease can have on the Community Forest. As such, experts recommend using the “10-20-30 rule” to prevent over-reliance on any one species. The 10-20-30 rule can be described as follows:

- no more than 10 % of the overall tree population is composed of one species
EX: Coast Live Oak (*Quercus agrifolia*)
- no more than 20 % composed of one genus
EX: Red oak, black oak, live oak, etc. *Quercus*
- no more than 30 % is composed of one family
EX: Fagaceae family includes the oaks (*Quercus*), tanoaks (*Lithocarpus*), beech (*Fagus*) and chestnut (*Castanea*)

Currently the street tree portion of our Community Forest has three popular tree species, the Chinese Pistache (*Pistacia chinensis*), the Crape Myrtle (*Lagerstroemia* spp.) and the London Plane tree (*Platanus acerifolia*) or Sycamore, that

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are very close to or are already exceeding the 10 % of one species guideline. Therefore, planting more of these species should be avoided and other tree species should be considered when planting new trees in San José.

For assistance with selecting appropriate species, the City of San José recommends using the SelectTree website published by California Polytechnic University (<https://selecttree.calpoly.edu>).

Climate Change

Given the potential for significant climate change and that trees are a long term asset, the City of San José is committed to exploring alternative non-native species that may be better suited to a warmer and drier environment.

Native Species

Native species are those species that have either evolved in a geographic area or have naturally migrated to that area and very important to the overall ecological health of the environment. As such, the City of San José is committed to prioritizing the use of native plants that are appropriate to the location whenever possible with particular focus on Riparian and Urban Wildland interface areas as well as Regional Parks.

Invasive Tree species

Imported trees (imported by design or by accident) often adapt well to our California climate and spread to open space, wetlands and forested areas. Often these imported or invasive trees can be detrimental to the habitat of native plants and wildlife. Invasive trees can cause a decline of the native species of plants, insects and wildlife. Selection of landscape trees for planting (whether on private property or in the public right-of-way) should include investigating whether the tree species is considered invasive or detrimental to our California Landscape.

The nonprofit organization California Invasive Plants Council (Cal-IPC) is vigilant in its efforts to prevent, detect and remove plant species detrimental to California to protect and restore waterways and wildlands. The CalIPC website provides information on invasive species including photographs and descriptions of invasive tree species.

The list of invasive tree species for the Bay Area include trees commonly found in San José.

- Black Acacia (*Acacia melanoxylon*)
- Tree-of-Heaven (*Ailanthus altissima*)

- Blue Gum tree (*Eucalyptus globulus*)
- Chinese Tallow Tree (*Sapium sebiferum*)

Refer to the Cal-IPC site before selecting any tree, shrub, groundcover or other plant material to plant in the City of San José.

Wildlife

Wildlife habitat life thrives where the complex interactions between organisms and their surroundings are balanced. Trees provide habitat for a wide variety of wildlife that might otherwise have a difficult time living in our cities. Native trees support insects that provide pollination services and that move energy up the food chain from plants to birds, frogs, lizards and other wildlife. For example, a single oak tree can support up to 500 species of insects and invertebrate species, thereby providing a broad range of dietary choices for birds, bats, and other wildlife. This wildlife can in turn provide pest control services in our gardens and agricultural areas. Additionally, by reducing both the amount of pollutants that reach the Bay and soil erosion, the trees support aquatic and riparian wildlife as well as micro-organisms that live in the soil itself.

Water Usage and Conservation

The City of San José is dedicated to long-term water conservation to address the chronic water shortage, to protect the aquifers of the city, and to prevent land surface subsidence. Moreover, the city is subject to periodic droughts, a circumstance which requires the city council to take steps to protect the health, safety and general welfare of the public. Given the potential for climate change and decreased levels of annual rainfall, the City of San José is committed to prioritizing the use of tree species that are categorized as moderate, low and very low as identified in the [California “Water Use Classification Of Landscape Species” \(WUCOLS\)](#) database.

Green Stormwater Facilities

Trees are perfectly suited for green stormwater infrastructure (GSI). As presented in this CFMP, trees naturally capture stormwater in their canopies while absorbing precious stormwater runoff with their roots. The next time there is a light rain, observe the dry patch underneath a leafy tree to understand the benefits of its canopy, where the leaves will absorb moisture. Stormwater capture within the root zone is becoming a prized resource

during times of drought when supplemental irrigation is insufficient. When a storm occurs, roots will absorb moisture where trees can store their supply throughout dry seasons. This section discusses trees, their compatibility with GSI, and some challenges for successful designs.

The CFMP compliments the City of San José’s Green Stormwater Infrastructure Plan, or GSI Plan (2019) that references trees eleven times within Part 1, including assurances for the protection of existing trees when installing subsurface infiltration chambers (Appendices, p. 6-1). One of the first discussions of trees highlights the benefits of green systems, “especially for the types of GSI that use vegetation and trees. Vegetated GSI systems can help improve air quality by filtering and removing airborne contaminants from vehicle and industrial sources and can reduce urban heat island effects by providing shade and cooling landscapes. Increasing vegetation can also provide an ecological benefit by improving the biodiversity of plant types in the urban environment and providing habitat for birds, butterflies, bees, and other local species” (p. 15). Trees

are key components to the multi-benefits of green stormwater infrastructure.

Trees are considered when discussing community quality of life and new career paths in the GSI Plan. “These include greening and beautifying public spaces by planting additional trees, installing green roofs that provide park-like spaces (if accessible), providing unique design opportunities for the integration of public art, and enhancing parks and public rights-of-way for public gathering. When traffic calming improvements such as curb extensions and bulb-outs at intersections are used to promote active transportation and increased pedestrian bicycle safety, there is an opportunity to use the additional space created by the improvements to integrate GSI facilities. The trend toward development of GSI facilities is also creating the need for a new ‘green workforce’ to perform installation and maintenance of the facilities, which helps create jobs” (p. 15). Combined, trees within GSI participate in the City’s plan to support a triple bottom line to improve opportunities for quality of life, the environment, and prosperity through new jobs and career options.

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Trees do not need to be specifically integrated into GSI to be included for stormwater capture considerations. For example, the GSI Plan highlights median trees that were planted for the Chynoweth Green Street (p.61). These trees and related median renovation replaced an exposed landscape area that would have otherwise contributed sediment to runoff and increased heat island effect. As the newly installed trees mature, their canopies will support these mitigations.

Another example of an existing facility utilizing trees in stormwater systems is discussed in the GSI Plan. At the City of San José's Environmental Innovation Center, 100-year-old olive trees are irrigated by a cistern capturing water from the facility's roof, an example of rainwater harvesting and storage for later use during the dry season (p. 18). While this example highlights an opportunity when building new construction, the GSI Plan recognizes the value of existing trees when determining the feasibility of new installations and their compatibilities within existing infrastructure, including said trees with established root and canopy structures.

As the GSI Plan establishes criteria for the prioritization of sites to install GSI, the evaluation considers "site space constraints" (p. 41). Utility densities that present conflicts when installing GSI facilities, street typologies (from residential to grand boulevards), public transportation stops, and mature trees are assessed to determine the feasibility of retrofitting GSI along our public rights-of-way. Should the co-benefits for improving water quality, flood mitigation, groundwater recharge plus community, place-making, and enhanced habitat outweigh hydrological and site space constraints, a site may be reprioritized for GSI.

Looking further into site space constraints, the GSI Plan's Table 5-1, Updated Green Street Prioritization Methodology specifically discusses length constraints of GSI treatments along roadways by what appears to be a 2' buffer around existing trees 24" in diameter (p. 43). This direction is unclear when considering larger or smaller trees or if the buffer is adequate, nor does it consider site specific situations where tree roots are either shallow, deep, twist, or turn. In other words, this direc-

tion provides an opportunity to discuss how trees will be evaluated by a certified arborist so a GSI site can be properly prioritized. Site constraints also include right-of-way length and number of trees per block (p. 45) and "estimated driplines of mature trees" (p. 52).

The GSI Plan, while considering site constraints, also looks at opportunities when improvements can include street trees. As an example, the San Carlos Safety Improvement Project, located on West San Carlos Street between Highway 880 and McEvoy Street, will include street trees and landscaping while integrating GSI facilities. At the time of this writing, it is unclear if the street trees will be integrated or act as compliments to GSI (p. 62). As the GSI workplan continues, additional efforts will be directed toward updating site space constraints to evaluate barriers and conflicts, which includes established trees in the landscape (p. 78). Should a site meet the GSI Plans criteria for feasibility, the next step is to determine how the trees, mature or newly proposed, will be integrated within stormwater treatments. Currently, GSI designs present challenges to this tree integration.

One such challenge is the use of biotreatment soil mix (BSM) in GSI practices. BSM is a mixture of sand and compost that allows for the fast drainage to minimize ponding within GSI. The resulting condition creates an engineered drought that may require careful selection of trees for their drought tolerance.

The City may resort to experimenting with new and alternative soils that can be submitted for approval by the County-wide Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) and the Regional Water Quality Control Board (RWQCB) Executive Officer. The City of San José's Infrastructure Maintenance Section has learned that careful monitoring of soil moistures, mulch layers, and irrigation operations is required to insure both short- and long-term success of its managed GSI landscapes. This experience should inform how trees are used in public rights-of way when integrated with GSI. Alternatively, trees could be planted in native soil adjacent to BSM, which allows trees and plants to adapt to familiar soil textures while gaining access to stormwater runoff, depending on facility type.

Proprietary Tree Well Filters

Known for their convenience in constructing GSI along public rights-of-way, proprietary systems are designed to hold one or two large shrubs or small trees within a subterranean planter. Their installation supplements curb drain inlets, and from the outside look very similar. Stormwater enters the inlet where the sediment and trash are captured, allowing the water to filter through the tree's planter as the final cleaning process before flowing into a nearby storm drain or infiltrating into the native soil below.

Principally, these systems are effective practices, however, their confined space restricts root growth. Once trees reach container capacity, there is growing concern that trees will no longer effectively perform, become rootbound and will likely decline, prompting a necessary replacement and related expenses. Currently, proprietary tree well filters are exclusively used for projects that meet specified criteria allowing them to provide less than 100% LID stormwater treatment onsite.

Site-Constructed Tree Trenches

Large cities, such as Philadelphia, Canada's Toronto and Vancouver, and state agencies from CalTrans to Minnesota Pollution Control and Delaware's Division of Energy & Climate have either implemented or encouraged the use of tree trenches. Visually, tree trenches within the public rights-of-way are camouflaged to appear like ordinary parkstrips between the curb and sidewalk. For residential or high-aesthetic areas, parkstrips have diverse plantings, including street trees and understory shrubs or ground covers serving as attractive streetscapes for pedestrians and drivers alike, effectively turning bland streets into dynamic public landscapes. Parkstrips may also act as landscape buffers for protected bikeways, further enhancing safety on urban streets.

Tree trenches enhance tree and landscape performance by providing access to stormwater runoff and subsequent capture. Through curb inlets, water is collected then dispersed through perforated pipes running the length of the tree trench, enabling the stormwater to be captured and cleaned for use by trees and other ornamental plants. Excess water will

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overflow into a storm drain through a lower elevation pipe, if necessary, or infiltrates into the native soil. In times of drought, this offers an opportunity to provide trees with additional moisture that trees will internally store over the dry season.

Unlike standard parkstrips, tree trenches will likely require additional structural support, particularly adjacent to roadways and buildings, and greater coordination with underground infrastructure. To satisfy this requirement, designs may include structurally engineered soils, vertical retaining walls, and/or suspended pavement systems. While the short-term cost may be higher, the long-term gain is proven with mature trees while reducing heat island effects. This is not the answer for all street trees, but as we look for opportunities to integrate GSI and trees into our landscape or rights-of-way, tree trenches offer significant public benefits.

Alternative Systems

Following the parkstrip model, permeable pavers set between trees will provide a comfortable walking experience where pedestri-

ans do not need to maneuver around other landscape plants or uneven surfaces. These permeable pavers would be set on a gravel subbase and sand bed, allowing water to percolate into the native soil. The trees will effectively utilize this water as they mature, minimizing their search for superficial water. Using permeable paver options over the alternative poured concrete and tree wells offers another benefit by being less costly when repairs are needed. Permeable pavers are collected, repairs resolved, then pavers are reinstalled. Should any permeable pavers become damaged, there are plenty of manufacturers that can provide the same or similar, standardized replacements when needed. Conversely, poured concrete, when damaged, will require removal and disposal to a landfill, only to be replaced with more custom concrete.

Consider further the differences between parkstrips and city standard tree wells. As landscape areas, parkstrips offer opportunities to be self-treating stormwater facilities for sidewalk runoff, allowing for “infiltration, evapotranspiration, and other natural processes [to] remove pollutants from stormwater,”

as defined in SCVURPPP’s C.3 Stormwater Handbook (p. xvii). By contrast, tree wells minimize this opportunity, as they are in most cases surrounded by impervious pavement. This suggests that trees will potentially perform better in parkstrips where water could be more readily available during rain events versus the confined space of a tree well. Tree wells, however, offer pedestrian comfort, and there are ways to accommodate both trees and pedestrians alike.

New technologies, such as porous asphalt and pervious concrete, are other options in support to trees’ access to water. These materials are already implemented on private developments around the Bay Area, where porous asphalt has replaced traditional parking lots, and pervious concrete provides an alternative to traditional sidewalks.

Chapter 5 | Tree Planting and Replacement

As discussed in Chapter 1 there are numerous benefits to voluntarily planting trees within the community. These include aesthetics, increased property values, improved air quality and personal health, reduced energy consumption and stormwater runoff, and a more livable/walkable community. In addition to voluntary planting of trees, there are instances where tree planting is required. These include as a condition of development, as a replacement for trees removed by permit, etc. To assist property owners with their tree planting needs, the City of San José has partnered with Our City Forest. Our City Forest is a non-profit tree planting group in the Santa Clara Valley that may be able to help with providing and planting a tree. See Chapter 6, Our City Forest.

Nursery Stock Selection

When choosing a young tree, make sure it is free of significant defects, such as poor branching structure, major wounds, overgrown roots, disease or insect infestations. Also look at the root structure. Trees that have been in their nursery containers too long have roots that have overgrown the available soil space and are circling around one another. Poor quality nursery stock

is one of the major causes of poor tree growth and tree failure.

Choosing younger trees of size that may not look like trees, but more like a tall shrub is highly recommended. The lower branches (less than 3/8" diameter) help the trunk to grow and become sturdy. The lower branches are only temporary and will be removed later. It may take two to three seasons of pruning before the tree form begins to develop, but it is then possible to make sure that the trunk develops good stability and the lowest branches are high enough to allow for safe pedestrian and vehicle traffic.

The City of San José recommends the planting of 15 gallon trees over the larger box or container grown trees as it limits the potential for circling roots to have developed, it is easier to correct any branch or structural issues when the tree is smaller and the smaller trees will typically establish faster and out-perform the larger trees as a result.

A guide to choosing good quality nursery stock was developed by the Urban Tree Foundation in cooperation with the UC Cooperative Extension. This guide has many excellent photo-

graphs showing both "good quality" and "bad quality" trees from roots to branches. It contains a detailed checklist of characteristics that are both acceptable and not acceptable for nursery grown trees. Reading this guide is strongly recommended to professionals and homeowners before choosing any nursery plants. This guide can be found and downloaded for free at The Urban Tree Foundation website.

Tree Inspection for City Projects

Container grown trees to be planted on City property or in the public right-of-way should be inspected by the installing contractor and City staff prior to planting the tree. Both above ground and below ground parts of the tree are inspected for conformity to species characteristics, pests and diseases, branch structure and root structure.

Branches should be uniformly spaced both vertically and radially along the trunk. A central leader should be present. The woody structural roots should be present within the top one inch of soil mix and flare out in a radial pattern from the trunk. No bruised, torn, sunken, discolored or soft tissues are acceptable on the trunk. No

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broken branches or other defective branches should be removed without approval of the City inspection staff.

The entire rootball must be inspected. To perform the root inspections, the tree should be removed from the container and inspected for the presence of circling roots. Small circling roots less than one-half inch in diameter may be easily removed before planting. However, circling roots on the inside of the rootball are not acceptable. A long knife or other probe must be used to check the rootball for circling roots within the rootball. If circling roots are present near the trunk that are greater than one-fourth inch in diameter the tree should be rejected. In some cases, circling roots can be pruned to correct this defect. The City arborist staff or inspection team must approve of any corrective pruning to the roots.

To avoid issues with contractors ordering, delivering and then having to return nursery stock that does not meet City of San José quality standards, the City has identified an independent contractor that can be dispatched to the local wholesale nurseries at the expense of contractor to perform the required inspections.

How to Plant Trees

The City of San José provides standard guidelines to developers and contractors for City projects involving planting street trees. In 2013, the City of San José published our Streetscape Guidelines and Streetscape Standard Details. These Guidelines contain the written specifications for street landscape improvements including soil testing, nursery stock selection, planting procedures, etc. The Details contain the drawings for all aspects of street tree plantings for development projects. The following sections present general information for contractors and homeowners, but contractors shall adhere to the specifications, as written, for each individual project.

Soil Testing

Prior to planting a tree in disturbed soil (recently graded, altered or amended) the City requires the developer or contractor to have the soil tested for nutrient content, chemical suitability and physical characteristics. Appendix C contains both soil sampling guidelines (how to properly procure, package and submit a soil sample) and the types of tests to be performed.

Typically, any data generated from the soil samples are interpreted by the soil testing laboratory and recommendations for fertilizers and soil amendments (organic and inorganic) are provided to improve the characteristics of the soil.

Tree Planting Pit Width

The tree planting pit should be dug a minimum of two times the diameter of the rootball of the tree being planted whenever possible. The sides of the planting pit should be scarified, loose and free of any auger slick.

Tree Planting Pit Depth

The depth of the planting pit is shallow enough to allow for the top of the root ball (where the primary woody root flare out from the trunk) to provide a finished planting height that is at least equal or no more than one (1) inch above the surrounding final soil grade on the outside of the planting pit. This depth is not the same as the depth of the rootball when pulled out of the container. The depth of the pit is equal to the depth of the rootball after any loosening or disturbance to the rootball that has been removed from the container.

Be careful not to plant the tree too deeply. If your tree looks like a pole in the ground, remove some of the soil from the top until the trunk flare is exposed. This may require adjustment of the pit depth or removal of some of the soil from the nursery pot the tree came in. Planting a tree too deeply can cause many issues and can lead to premature death.

Symptoms of trees planted too deeply are:

- Branch dieback
- Reduced growth or dwarfing
- Splits in the trunk
- Leaf yellowing
- Girdling Roots
- Death

Root Barriers

Root barriers are no longer required or recommended by the City as their effectiveness is limited to the area immediately adjacent to the barrier. The most effective way to prevent roots from breaking up your sidewalk is to select the proper species, plant the tree properly in soil with limited compaction and care for the tree by deep-root watering (See Hand Watering

below). While the City does not prohibit the installation of linear root barriers if desired by the property owner, they must be linear along either the edge of curb or sidewalk and allow for lateral growth within the parkstrip. Round or fully enclosed root barriers are prohibited as they lead to trees with girdling roots and the higher than normal risk of complete failure or uprooting. Please consult the installation procedure provided by the manufacturer except in cases it may violate city standards.

Fertilizer and Amendments

For City projects the planting process for the contractor differs from the process for a homeowner. For the contractor: The soil from the planting pit should be set aside and amended per the recommendations generated by the soil analysis. Most fertilizers and inorganic amendments can be mixed in the excavated soil.

The excavated soil mixed with inorganic amendments is used to backfill the planting pit. Organic amendments should only be mixed into the last batch of soil that is placed in the upper soil profile (0 to 8 inches deep in a clayey soil; up to 12 inches deep in a sandy soil). Contractors

and homeowners should avoid placing organic amendment below 8 to 12 inches deep in the planting pit.

Homeowners are not required to test the soil or add fertilizer or inorganic amendments, but may do so if done through the methods described above.

Root Pruning

For street tree planting on City projects see previous section, Tree Inspection for City Projects. Homeowners should also inspect the rootball of trees before buying and planting them. Any root pruning that may be required should be minor in nature. See the guidelines provided by the Urban Tree Foundation for more details.

Backfilling the Planting Pit

Soil excavated from the planting pit (or if the soil analysis indicates, a contractor may be required to use imported topsoil) should be placed from the bottom of the pit to within 8 to 12 inches of the top of the pit. No organic amendments should be placed at the lower depths. (See directions above, Fertilizer and Amendments).

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Watering Berm and Basin

Create a berm around the outer edge of the planting pit (not the outer edge of the rootball) by building a berm that is at least 4 inches high and 36 inches in diameter. The berm will provide a basin to store an adequate volume to keep the tree well watered. When a new tree is planted it is important to immediately and thoroughly soak the newly planted tree with approximately 15 to 20 gallons of water to settle the soil and collapse large air pockets. Once the initial watering is complete, the watering basin should be filled with 3 to 4 inches of organic mulch, such as wood or bark chips, to conserve water and protect the roots from high temperatures. See section below.

Organic Mulch

There are many benefits to placing a layer of wood chip mulch on the soil under woody trees and shrubs. Mulch can provide significant water savings during the summer months. The wood chip mulch over the bare soil helps to prevent the surface of the soil from “crusting,” which often occurs when irrigation water evaporates too quickly. When the soil surface is crusty, water does not pen-

etrate well and runs off the soil surface and into the gutter.

Wood mulch also helps woody plants by protecting the roots that grow just under the soil surface. This surface soil can reach high temperatures quickly in the hot summer months. The temperature increase and the lack of water as the soil dries out kills the roots growing in the top few inches of soil. Organic mulch provides an insulated layer which prevents the soil from heating and drying out. Further, as wood chip mulch decomposes it provides organic nutrients to woody plants that are not available in most fertilizers. Be aware that applying mulch directly to the trunk of the tree or creating a “volcano” around the base of the tree can be detrimental to the tree. When the mulch is in constant contact with the base and bark of a tree and holds any moisture, the tree can begin to rot or grow adventitious roots that have the potential to girdle the tree. As the mulch decomposes, it can also produce and accumulate heat in this area that can cause additional damage to the bark and the underlying transporting systems of nutrients and water.

Similar to laying too much organic mulch,

the use of cobble rock, pea gravel or other non-organic materials can be detrimental to long term tree health of the tree because of excessive heat build-up and storage.

A 3 or 4 inch layer of wood chips is all that is needed. That amount translates to about one cubic yard per 100 square feet. Often, free wood chip mulch can be obtained from tree service companies. A Bay Friendly Guide to Mulch can be downloaded for free by clicking on this link. Contractors working on City projects receive a package that contains specifications for the quality and type of mulch required for City projects.

Staking

Research in the field of arboriculture shows that trees develop stronger and larger trunks when no stakes are installed. However, many trees from the nursery have not developed trunks strong enough to stand alone. When the trunk is weak or when the tree requires protection from vandalism, stakes may be needed.

Typically trees from the nursery will come with a small stake attached directly to the stem of the tree using landscape tie or some other

similar material. Failure to remove a stake that is tied tightly to the trunk can prohibit trunk development and cause serious injury if left in place. If damage to the trunk from the nursery stake is noted at the time of removal, the tree may require replacement.

The city requires the installation of at least 2 lodge pole pine stakes that are each 2-inches in diameter on 15 gallon sized trees that are installed as part of a city project. Tree stakes and ties should be installed perpendicular to the direction of the prevailing wind. The height of the stake should be slightly lower than the lowest permanent branch. This stake height may vary between 3 and 6 feet depending on the strength of the trunk and the height of the lowest permanent branch.

“Young trees with weak trunks may also require an additional set of ties at 1 m (3 ft) below the leader terminal and about 150 mm (6 in.) above the lowest level at which the trunk can be held and the top return upright after being deflected.” -Arboriculture, 2004.

As important as the height of the stake is the distance between the stake and the flexible tie

which should be no more than 6 inches from the top of the stake. Two tree ties are used and affixed to each stake. The flexible ties are installed with a twist around the trunk and secured with a nail or screw. The ties should be installed with enough slack to allow the trunk to sway slightly in the wind. Ties can be made of recycled tires, elastic nylon shock cord or recycled watering hose.

Tree ties should be adjusted periodically for the first two years to ensure that the tree is not absorbing them or being damaged by these ties.

Hand Watering

Once the tree is planted, keep it well watered for the first three years to help establish a deep root system. Water requirements will be greater and more frequent during hot summer days; less often if the tree is planted near turf or other groundcover that is watered frequently. Water requirements during the winter depend on rainfall, irrigation of adjacent plantings, the tree species and the soil type.

Monitoring Soil Moisture

The best way to judge if the planting site re-

quires additional water is to dig using a small shovel or trowel in the soil surrounding the rootball about 4 to 6 hours after water has been applied. The sample should be taken at a depth of 6 to 12 inches. A better tool to use to monitor soil water is a soil probe. Soil probes can be purchased at a nursery supply or hardware store.

Place a sample of the soil in the hand and squeeze it. If free water runs out or the hand remains wet and the soil sample is likely in a tight ball (if loamy to clayey in texture) – the soil is too wet. If the soil is moist to the touch and slightly crumbly – the soil moisture is near field capacity and perfect after irrigation. If the soil sample is dry and feels like dust – the soil moisture is near permanent wilting point and water should be applied immediately.

The soil moisture for new tree plantings should be monitored weekly at minimum for the first 6 months, bi-weekly for the next 6 months and monthly thereafter to make sure you are on a good schedule for your soil and climate. For newly planted trees a sample should be obtained from near the bottom of the original rootball – usually about 12 to

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16 inches for a 15-gallon size tree. Water will often run through the nursery soil and accumulate at the bottom of the planting pit. The top may appear overly dry, when the bottom of the rootball may be supersaturated.

Apply enough water in the basin so that it fills, but drains within an hour or less. Apply water slowly so that it will percolate into the soil deeply, taking care not to apply water so fast that it runs off.

Chapter 6 | Tree Stewardship and Maintenance

The Community Forest provides benefits to every person who lives, works or plays in the City of San José. Properly planting and caring for trees is a gift of clean air, clean water and healthy living to not just the current generation but many generations to come. Each of us shares a role as stewards of the Community Forest.

The Community Forest in San José consists of a diverse array of location types. From highly developed urban streets, to suburban neighborhoods, parks, gardens and riparian corridors, the community forest provides continuing economic, social, environmental and ecological benefits. The Community Forest is the only infrastructure asset that continually increases in value and the amount of benefits that it provides to the community. The City of San José recognizes that the Community Forest is not a self-renewable asset and that frequently requires human intervention to enhance, protect and preserve. As the local government, it is our responsibility to foster and develop a vision of a community forest for every citizen of San José and the surrounding communities that depend on us. Our respon-

sibilities include educating ourselves and partnering with the community and regional stakeholders to provide proactive management of the urban forest that aligns with industry standards and community needs.

Monitoring and Inspection

One of the most important aspects of tree care is the act of monitoring or inspecting the trees. It could be said that most trees progress through four different life stages - establishment, growth, maintenance and decline. Each period has a different frequency of monitoring and inspection, but the points to be inspected are fairly consistent. Below are some basic guidelines on what to watch for:

Ground Plane

- Is the watering berm intact?
- Is soil moisture low, adequate or wet?
- Are mushrooms present (often indicates over-watering)?
- Are there exposed or circling roots?
- Are weeds present?
- Is their cracking or lifted soil?

Trunk

- Is the trunk vertical or leaning?
- Is bark missing or damaged?
- Is sap or dark liquid oozing from the trunk?
- Are unusual growths (galls) present?
- Are there fungal bodies (mushrooms) on the trunk?

Structural Branches (Lower Canopy)

- Are cracked, broken or hanging branches present?
- Are branches too close or crossing and rubbing?
- Are large structural branches spaced adequately?
- Are there any branches that have included bark or weak points of attachment?
- Are branches discolored or oozing sap?
- Are there fungal bodies (mushrooms) on the branches?

Upper Canopy

- Are the leaves fully formed and the right color for the species and season?

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- Are the leaves distorted, show signs of insect chewing or dead spots?
- Are any insects present or signs of insects, like sticky sap on the ground?
- Are leaves falling prematurely?
- Are there any dead/dying or crossing branches?
- Are cracked, broken or hanging branches present?
- Do any of the branches have heavy end weights?

Are there any branches which extend beyond the typical form for the canopy

During establishment stage (0-3 years), it is recommended that property owners monitor or inspect their tree on weekly basis during warmer summer months and bi-weekly during cooler winter months. Monitoring should include soil moisture, repair the watering berm, replacement of organic mulch, adjust, replace or remove tree stakes or ties and identify potential damage from yard tools such as string trimmers, lawn mowers, or vandalism that require mitigation.

During the growth stage (3-20 years), it is recommended that property owners monitor or inspect their tree on a quarterly to annual basis.

Monitoring should include but is not limited to soil moisture levels, replacement of organic mulch, removal of tree stakes or ties, monitoring for defects in the trunk, branches or upper canopy and the monitoring of the trunk and upper canopy for presence of disease or pests.

During the maintenance stage (20-60 years), it is recommended that property owners monitor or inspect their tree on an annual basis. Monitoring should include but is not limited to soil moisture levels, replacement of organic mulch, monitoring for defects in the trunk, branches or upper canopy and the monitoring of the trunk and upper canopy for presence of disease or pests.

During the decline stage (20-60 years), it is recommended that property owners monitor or inspect their tree on an annual basis. Monitoring should include but is not limited to soil moisture levels, replacement of organic mulch, monitoring for defects in the trunk, branches or upper canopy and the monitoring of the trunk and upper canopy for presence of disease or pests.

Monitoring for Tree Defects

Tree defects present potential danger if repairs are not completed in a timely manner. To help address this problem in the Community Forest, the USDA funded research and published a manuscript to help communities recognize and report tree defects. The document is written for both community members and professionals. It provides detailed information about detecting tree defects, what the defect indicates and how to manage tree risk. Also, the Appendix contains the USDA Community Tree Risk Evaluation Form which can be printed and used as a guideline for monitoring community trees.

Automatic irrigation systems for trees

As with the hand watering procedures described above, Irrigation systems installed for the purpose of watering trees should be designed in such a manner that it waters the entire rootball and surrounding soils to a depth of at least twenty-four (24) inches. The recommended method to achieve this level of watering is drip irrigation as it provides a slow flow of water that can penetrate deep into

the soil without generating much run-off. The irrigation should be placed at the edge of the rootball (approximately 12 inches from the trunk) for new 15 gallon trees and progressively moved out or away from the trunk on an annual basis.

Irrigation should not be placed on or directly against the base of the woody stem of a tree as it can lead to rot or disease and affect the long term health and structure of the tree..

Irrigation for shrubs, groundcover and turf nearby should be designed to prevent the irrigation water from wetting the trunk of any tree for any duration.

Irrigation designers should be aware of the City of San José Municipal Code section 15.11 which details the requirements for water efficient landscapes. See Chapter 3, Permits and the Law.

Tree Pruning

General Guidelines and Standards

Pruning is the most common tree maintenance procedure. Although forest trees grow well with only nature's pruning, urban trees re-

quire a higher level of care to maintain certain clearances, improve structural integrity and aesthetics and reduce risk related to branch or tree failure. Pruning must be done with at least a basic understanding of tree biology because improper pruning can create lasting damage, increase risk and shorten the tree's life. For more information on the proper care of trees, visit the TREESAREGOOD.ORG website brought to you by the International Society of Arboriculture (ISA).

The City of San José follows the American National Standards Institute (ANSI) A300 Pruning Standard. (ANSI) A300 pruning standards are a nationwide pruning standard prepared by professional arboricultural industry leaders and university researchers to ensure the proper care of trees that may be obtained from your local library or purchased online.

The City of San José endorses the use of the ISA Best Management Practices – Pruning 3rd edition (2019) published by the International Society of Arboriculture (ISA) for tree related work performed by all professional tree care companies providing services within the City of San José.

The City of San José does not currently provide funds for pruning street trees except in cases of financial hardship or work related to special public works projects. For example, the City may prune trees before a major neighborhood street resurfacing project or when a street light is repaired or replaced. For individuals on a limited income or those that are experiencing a temporary hardship, The City of San José does provide funding to cover the expense of required planting, pruning, removal or stump grinding services at households that meet income guidelines. An application for hardship assistance can be obtained by contacting the Trees and Sidewalks section at 408-794-1901.

Pruning Techniques

Several different types of pruning techniques have been defined by professional arborists. In San José the two primary types of proper pruning performed are “crown raising/clearance pruning” and “structural pruning”.

Crown Raising/Clearance Pruning

As trees grow and mature, it is important to remove or reduce branches that would otherwise impede vehicle or pedestrian traffic,

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roadway signage, street lighting, traffic signals or buildings. It is recommended that crown raising/clearance pruning be performed to provide the following clearances for vehicles (14') and pedestrians (8'), signage (5'), streetlights (5') or other structures (5'). This type of pruning can often be accomplished by the property owner with a basic understanding of making proper cuts. Additional information on proper pruning techniques is available through the International Society of Arboriculture at their site Trees Are Good.

Structural Pruning

The first step in structural pruning is the establishment of a central leader. This is accomplished by identifying the dominant leader that has the potential to be the tallest growing point for the canopy and performing either removal or reductive pruning on any competing laterals. The second step involves the removal of dead or dying, cracked, broken, crossing, or diseased branches and any additional branches to create branch spacing of 8 inches for small canopy trees and up to 24 inches for large canopy trees. The third step is to perform crown raising or limb reduction

as appropriate to provide sufficient clearance for vehicles (14') and pedestrians (8'), signage (5'), streetlights (5') or other structures (5'). As structural pruning requires a significant understanding of a tree's physiology, The City strongly recommends residents contact a licensed and certified tree care professional to perform these tasks (See section Why Hire a Certified Arborist), but general instruction and guidelines for pruning are provided with the Street Tree Pruning Permit.

Clearance Pruning for overhead utilities

Occasionally, clearance pruning is required to remove potentially dangerous branches that threaten high voltage electrical lines or their utility poles. It is extremely important to keep trees and their branches away from these high voltage lines to prevent wildfires and electrical service disruption. This type of pruning must be performed by an Electrical Line Clearance Certified Contractor that has employees specifically trained on electrical hazard awareness and prevention. PG&E has an active Utility Line Clearing program that actively monitors vegetation along these high voltage electrical lines (typically the thin wires at the top of the utility

pole, not the thick black lines that are lower on the pole or that drop down directly to your home) and will assist with clearing branches. PG&E does this work for property owners free of charge as is required by state law. If clearance cannot be obtained, removal of the tree may be required (I.e. a palm directly under the lines). If you have Questions About Trees and Power Lines visit the PGE website.

Illegal Pruning Practices

The harmful act of making large cuts to reduce branch length for safety reasons is called topping or heading and is a misguided and injurious method of cutting a tree that frequently damages the tree and results in a tree with a weaker more hazardous structure. When a tree is topped or headed the tree's natural response is to produce multiple new shoots near the cut to make up for the loss of foliage. Unfortunately, these new shoots are weakly attached, grow at an accelerated rate and stress the tree because it is forced to draw upon stored energy reserves. Topping or severe pruning of more than 25% of the tree canopy within a growing season is prohibited. The City may issue a citation for trees that are

topped or pruned without obtaining a permit or for not following the pruning permit guidelines. See Chapter 3, Permits and the Law,

Unhealthy Pruning Practices

Misguided tree pruners often remove the inner branches within a canopy to “show off” the branch structure of the tree. This is called “over thinning” or “lions tailing”. Although some individuals may see this be aesthetically pleasing, this type of pruning practice is damaging to the long term health and structure of the tree. This interior growth is the primary source of energy for development of new wood on the structural branches that support the upper canopy. When this foliage is removed from the interior of the tree, it is forced to share the energy produced in the upper canopy. This frequently results in reduced branch caliper that is unable to support the heavy foliage on the ends of the branch resulting in an increased risk of branch failure.

Tree Removal

Tree removal should be done in accordance with ANSI A300 standard and ISA Best Management Practices. Tree removal should

include grinding of the stump to a depth and width that allows for future replant. In cases where tree replacement is not required, flush cutting of the stump to at or below the surrounding grade to prevent any tripping hazard is required.

Stump Grinding

The City of San José recommends that stump removal be performed to a minimum depth of 18 inches and at least 12 inches wider than the stump to be removed. As discussed in Chapter 4, there are numerous utilities that have been installed below the soil surface but within the parkstrip/landscape strip areas. Any time a property owner will be digging, grinding or otherwise disrupting the surface of the parkstrip/landscape strip, they are legally required to contact Underground Service Alert (USANorth811) to have all underground utilities marked for safety reasons. USANorth811 can be reached by dialing 811 from your telephone.

Why Hire a Certified Arborist

Tree pruning or removal involves a significant level of risk of both personal injury and

property damage and should mostly be left to a trained and qualified professional. Unfortunately there are numerous businesses and individuals offering tree care services that are not licensed by the state, county or city and have very little professional training or experience. The City of San José highly encourages the hiring of only ISA Certified professionals and TCIA accredited business that have undergone significant training. A list of certified arborists can be viewed at the ISA website [Why Hire an Arborist](#).

In addition to possessing professional technical expertise, the City of San José recommends that a professional arborist performing tree services should provide a minimum of the following to the property owner before commencing work:

- A Tree Pruning or Removal Permit as required
- A City business license
- A State of California Contractor License
- Proof of Insurance coverage including personal and property damage
- Proof of Workers' Compensation Insurance

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- Professional references from other customers that have hired the company to do similar work.

Heritage Trees

Municipal Code, section 13.28.220 describes a heritage tree as follows: "Any tree which, because of factors including but not limited to its history, girth, height, species or unique quality, has been found by the city council to have a special significance to the community shall be designated a heritage tree. Such trees shall be placed on a heritage tree list which shall be adopted by the city council by resolution, which resolution may be amended from time to time to add to or delete certain trees therefrom."

Nomination Process

Designation of a tree as a heritage tree resides within the jurisdiction of the City Arborist's Office. The property owner can contact the Arborist's office to nominate a tree for Heritage status or someone other than the property owner may nominate a tree only after obtaining written permission from the property owner.

Maintenance Responsibility

Any tree that is designated as a heritage tree is subject to the same maintenance responsibilities as a street tree whether or not it is located on private property. For any tree related services performed on a heritage tree the property owner should contact the Arborist's Office for consultation.

Heritage Tree Removal

Permits to remove a heritage tree on private property must be obtained from the Department of Planning, Building and Code Enforcement. For removal of a heritage tree planted in the public right-of-way contact the Arborist's Office for permit information. Violations can lead to a citation and a fine of up to \$10,000 for a first offense.

Transfer of Ownership

Property owner should disclose the presence of any heritage trees prior to sale or transfer of property ownership.

Inventory Collection and Updates

The City of San José will endeavor to maintain its street, parks and facilities tree inventory

data through periodic updates. The International Society of Arboriculture recommended best practices calls for periodic updates to be in the range of every 5-7 years.

Chapter 7 | Our City Forest

Our City Forest (OCF) is a 501(c)3 nonprofit serving the San José community since 1994. OCF was founded in 1994 in partnership with the City of San José, replicating a successful strategy already used by other major cities throughout the U.S. for advancing urban forestry. Our City Forest's mission to cultivate a green and healthy metropolis by engaging the community to grow, maintain, appreciate and understand our urban forest, aims to increase the capacity of residents to be effective tree stewards. With a more informed and engaged populace, San José can achieve its urban forestry goals. OCF's programs combine education with action and are proven strategies for cost-effectively growing and maintaining trees in cities.

With foundational support from the city, OCF garners state and federal grants to underwrite its direct services for residents, neighborhoods, schools, businesses, and agencies. OCF has, to date:

- obtained and administered \$15+ million in non-City cash grants
- leveraged an estimated additional \$25 million in donated volunteer time, including tree stewards

- hosted/trained 425 individuals with green jobs who have provided San José 700,000 hours of service
- certified 782 Tree Amigo volunteers
- engaged 180,000+ community volunteers with greening opportunities
- developed and managed 15,000+ tree planting and tree care events
- planted 100,000+ 15-gallon trees and shrubs
- converted 196,000 sq ft of lawn to climate-smart gardens to save 6 million gallons of water annually
- conducted educational presentations for 41,431 elementary and middle school students

Green Jobs Training (AmeriCorps Service Program)

OCF hosts an AmeriCorps program which trains and supports up to 30 full-time service members every year to provide urban forestry assistance to residents. Each member provides 1,700 hours of service to the San José area over 11 months. In 2015, OCF was one of two organizations in the nation to win

the Senator Harkin Service Award from the AmeriCorps national office. To date, OCF has graduated some 400 service members, many immediately embarking on an urban forestry or related career. Service members receive a stipend of \$20,000 for 11 months of full-time community service. The AmeriCorps grant pays for approximately one-third of OCF's cost for stipends and health insurance, plus a portion of the cost to train and daily manage the service members. OCF obtains match funds from the City of San José and others to pay the remaining two-thirds cost plus seeks additional funding to cover field project expenses, fleet operations, accounting and other expenses. The AmeriCorps program provides a cost-effective means to deliver services and programming for California's 3rd largest city, including planting trees in every zip code across San José for the past 13 years.

For more information, please visit www.ourcityforest.org/ameri-corps

Volunteer Recruitment, Training & Opportunities

Our City Forest has engaged an average of

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5,000 volunteers each year to assist with a variety of urban forest projects. Opportunities include nursery work days, tree plantings, tree care projects, community outreach, watering and office assignments. OCF is committed to recruiting and engaging residents from various ethnic, age, social and employment backgrounds, and who reflect our community's vast diversity. Volunteers include high-school students, retirees, corporate employees, non-profit groups, business associations, people with disabilities, at-risk youth, government and elected officials, and members of such service clubs as Rotary and Kiwanis.

All volunteers receive training from OCF staff and service members. For plantings, one-time volunteers are required to watch a planting demonstration as well as a tool safety demonstration. For those desiring to be regular volunteers, OCF offers more in-depth training through its Tree Amigo course. Since 1994, the number of residents attending the complete course is 782. Tree Amigos are invited to help with such tasks as coaching the many one-time planting volunteers, conducting planting or tree staking demonstrations, or contacting

tree stewards for health updates. Additional training is also available for specialized opportunities such as helping with nursery open hours or assisting with truck watering in non-residential locations.

Interested volunteers can register for events and trainings on the OCF website www.ourcityforest.org/volunteers

Community Nursery & Training Center

Our City Forest (OCF) operates a nursery for the general public that offers 250+ species of largely drought-tolerant trees, shrubs, and grasses, including many California natives. OCF cultivates trees from seedlings as well as from small container stock until the trees are ready to be planted. OCF promotes tree diversity to ensure a sustainable, healthy urban forest that is resilient to pests and disease. An average of 1,500 volunteers assist at the nursery every year, helping maintain the younger trees and preparing them for future plantings throughout the community.

The nursery is a valuable regional resource for the general public as well as for cities and agencies throughout the South Bay. The

nursery welcomes an average of 2,000 visitors every year. Anyone can visit the nursery during open hours, or place a phone or online order and arrange for curbside pick-up. Open hours can change, but are typically Thursday, Friday and Saturdays from 9 AM to noon. Agencies wishing to source trees through OCF may schedule an appointment with the nursery manager during the week. For planning large-scale plantings that are scheduled one or two years into the future, OCF can accommodate contract-grow requests.

During the winter holiday season, OCF also offers residents and businesses a Rent-A-Holiday-Tree program. These often smaller versions of traditional Christmas trees are returned by renters in January to be cared for until they are ready for planting.

Nursery tours for neighborhood groups, businesses and others are available by appointment.

For current open hours and curbside pick-up options, as well as any other questions, please visit www.ourcityforest.org/nursery.

3-Year Tree Stewardship Program

Any resident, school, business, or agency can receive a tree from OCF after signing a stewardship agreement to properly water and care for the tree for at least 3 years. This agreement helps ensure that every new tree will be cared for and properly maintained by a steward - whether that is a resident, a teacher, a business owner, or a park manager. Throughout this 3-year establishment period, stewards are also asked to complete and return surveys to OCF to report on the health of their trees. OCF also invites stewards to contact OCF via email or phone with any questions.

This community engagement model for tree establishment is a best practice. It is the only economically feasible approach for establishing newly planted trees, given that relying on truck watering by any agency is simply cost-prohibitive. Investing resources in the training and ongoing support of residents as tree stewards not only ensures tree survival, but also protects the considerable capital and labor outlay of getting the trees in the ground. Community engagement is the essential key to a healthy urban forest.

For more information please visit www.ourcityforest.org/tree-care

Community Tree Plantings

The Community Tree Planting program coordinates and oversees tree planting events for neighborhoods, schools, parks, businesses, and all other public and private properties. The Community Planting team conducts site visits, recommends tree species, obtains planting permits, secures stewardship agreements, discusses the maintenance plan, and creates planting site-maps in consultation with tree applicants. Other pre-event tasks include recruiting an adequate number of volunteers, hand-selecting trees, subcontracting for augering and/or cement-cutting as needed, and arranging for delivery of trees, stakes, mulch, safety equipment, vests, gloves, materials and tools. For all plantings, volunteers are carefully instructed in the proper techniques for planting, staking, and tool safety.

To request planting services, please visit www.ourcityforest.org/plant-on-your-street

Parks

Park plantings are essential for a healthy urban ecosystem and provide an opportunity

to plant trees that may require more space than is available for trees in residential parking strips. The larger the canopy, the more environmental benefits a tree can provide, including filtering dangerous air particulates, managing stormwater, recharging groundwater, and providing habitat for birds and insects. OCF has granted and planted more than 15,000 15-gallon shade trees in San José parks using state urban forestry grants. OCF continues to provide free trees when grants are available, relaying these opportunities to the city, and working closely with parks personnel to determine potential projects. Species selections, tree locations, and tree care plans are discussed and agreed upon prior to moving forward.

Trees For All Program

Residents may request trees through OCF for the street or their yard. When OCF has a state planting grant available, residents in the eligible area may receive street trees at no cost. The vast majority of street trees (as well as parks and schools) planted through OCF have been provided in this manner.

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To request one or more trees, residents complete an online tree application form which includes a stewardship agreement which also must be signed. If the resident is a renter, the property owner must sign the application, while the renter can sign on as the steward. Street tree requests can be for replacement street trees where the resident has been referred to OCF with a planting permit already issued. In other cases, the resident may request OCF to obtain a street tree planting permit. Residents must have a valid permit in order to plant in any street location.

OCF works closely with each tree applicant to determine whether the tree will be planted by OCF, or if the resident prefers to pick up the tree at the OCF Community Nursery and attend the required planting and staking class. Senior citizens, as well as anyone with a disability, have always been able to request the cost of planting waived. Residents are responsible for the care and maintenance of each tree that is planted per signed stewardship agreements.

Please visit www.ourcityforest.org/plant-trees for more information and a tree application form.

Lawn Busters

Lawn Busters is an innovative OCF lawn conversion program for installing drought-tolerant landscapes for residents who meet low income, disabled, veteran, or senior citizen qualifiers. The Lawn Busters program is sponsored, in part, by the Santa Clara Valley Water District and thus adheres to the District's rebate program requirements. Lawn Busters was created to address the severe drought by assisting high-need residents to lower their water use by replacing thirsty lawns with water-wise gardens. These conversions also create beneficial urban habitats by adding plants which thrive in Santa Clara Valley's climate. Plants are sourced from Our City Forest's Community Nursery and hand-selected for residents. For residents who do not qualify for Lawn Busters, OCF offers a 3-day DIY training course.

To inquire about Lawn Busters, please visit www.ourcityforest.org/lawnbusters

Planet Tree & Youth Education

Planet Tree is OCF's popular school program for elementary and middle school students. Planet Tree engages our future generation,

especially underserved youth, in environmental topics such as the importance of our urban forest, tree biology, how trees address climate change, and the meaning of environmental stewardship. Though this program has been significantly curtailed in recent years due to funding challenges, it has managed to reach more than 40,000 students through nearly 600 school presentations. Educating young children about trees in cities at a young age provides a foundation for future community stewardship. OCF also offers online educational and immersive activities such as neighborhood tree tours, an urban scavenger hunt, pollinator activities, and coloring pages.

For more information about environmental education opportunities for youth, please visit www.ourcityforest.org/activities

Urban Forestry Education Center

Our City Forest's unique outdoor environmental education venue is under development at Martial Cottle County Park in San José. The Urban Forest Education Center currently includes a new outdoor education classroom, an arboretum, a native garden, and a DIY Lawn

Busters teaching area. OCF is seeking funding to add additional features, including an educational greenhouse for propagation workshops, a fruit tree orchard and a rainwater harvesting system. OCF is committed to raising awareness about the benefits that trees and shrubs provide, all with the goal of emphasizing the importance of stewardship in order to build and maintain a healthy urban forest. With its outdoor demonstration areas, this venue adds an important dimension to Our City Forest's ongoing efforts to engage, inspire and teach.

To learn more about the Education Center and scheduled events, please visit www.ourcityforest.org/martialcottle

OCF Plantings - 20 Years

To view a 7-second animated map showing locations of trees planted by Our City Forest, please go to www.ourcityforest.org/

These data are taken from the OCF database using the longitude and latitude of each planted tree.

CONTACT INFORMATION:

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President & CEO: Rhonda Berry - rberry@ourcityforest.org

Chapter 8 | RIPARIAN CORRIDOR POLICY

City of San José, California

COUNCIL POLICY

TITLE RIPARIAN CORRIDOR PROTECTION AND BIRD-SAFE DESIGN	PAGE Page 1 of 8	POLICY NUMBER 6-34
EFFECTIVE DATE August 23, 2016	REVISED DATE	
APPROVED BY COUNCIL ACTION: 08-23-16, Item 4.2(b)		

PURPOSE

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- 3) encouraging bird-safe design in baylands and riparian habitats of lower Coyote Creek, north of State Route 237.

This Policy's guidelines supplement the regulations for Riparian Corridor protection in the Council-adopted Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan (Habitat Plan) (Chapter 18.40 of Title 18 of the San José Municipal Code), the Zoning Code (Title 20 of the San José Municipal Code), and other existing City policies that may provide for riparian protection and bird-safe design.

DEFINITIONS

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