Urban Forest Management Plan

PURPOSE AND FINDINGS

This Urban Forest Management Plan ("Management Plan") establishes guidelines and procedures for the care and protection of trees to promote the health, safety, welfare, and quality of life for all Corona residents, business owners and visitors. The City of Corona ("City") acknowledges that trees provide environmental, aesthetic, social and economic benefits to property owners and to the public at large. Specifically, trees increase property values, provide aesthetic value, provide shade and cooling, reduce energy costs, decrease wind velocities, provide erosion control, conserve energy, reduce stormwater runoff, and act as filters for airborne pollutants, reduce noise, provide privacy, provide wildlife habitat and food, sequester carbon, and release oxygen.

Trees also present their share of challenges, particularly when not properly watered and cared for. Those challenges can include invasive and shallow root structures, which can cause damage to sewer and water lines, sprinkler systems, sidewalks, driveways, patios, and other hardscape, and even foundations of homes. Poorly watered and maintained trees can also fall or drop limbs, causing damage to persons and property.

The proper care for trees located in Parkways ("Shared Responsibility Trees") is a shared responsibility of property owners and City government, because not only does the public at large benefit from Shared Responsibility Trees, but the property owner personally and uniquely benefits from their particular Shared Responsibility Tree. Property owners therefore are solely responsible for watering trees on their own property, even when those trees are Shared Responsibility Trees. In addition, while there is no way in which to entirely control where the roots of trees travel, proper and adequate watering of trees is the principal manner in which to mitigate the impacts of roots. Accordingly, property owners are solely responsible for the effects caused by the roots of the trees on their own property, even when those trees are Shared Responsibility Trees, including the effects caused by improper or inadequate watering of any such trees. The City is responsible for periodically evaluating and trimming or otherwise maintaining (other than watering) Shared Responsibility Trees, and removing such trees when the City is on notice that a tree poses an undue risk of danger to person or property.

This Management Plan allows the City to implement best management practices as reflected by professional tree care industry standards for the planting, maintenance, removal, protection, pruning, and preservation of trees on City owned or controlled property, including Shared Responsibility Trees, as well as to enforce the applicable provisions of the Corona Municipal Code ("CMC"), including, but not limited to, Chapter 12.22 (Community Urban Forest and Landscape Guidelines). By helping to assure the preservation and protection of the Urban Forest through regulations and standards of care, our natural resources will continue to enhance the landscape, streets, and parks, while helping to improve the City.

This Management Plan is consistent with the City's goals and objectives, including those outlined in CMC Chapter 12.22 (Community Urban Forest and Landscape Guidelines). Following this Management Plan will therefore support the CMC and thereby help to ensure that the Urban Forest is being maintained and utilized to meet the City's standards.

The City believes that sustaining the urban canopy, creating visually aesthetic landscaping, and maintaining and encouraging a diversity of trees, both in terms of age and species, will increase the value of our Urban Forest, making it an even greater asset to the City's residents.

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SECTION 1 DEFINITIONS

For the purposes of this Management Plan, the following definitions shall apply:

A. **City Arborist**: A licensed staff or contractor designated by the City who has demonstrated knowledge and competency, ideally through the obtainment of the current International Society of Arboriculture ("ISA") Arborist certification.

B. **City Tree:** As defined in CMC Section 12.22.030 and referenced in Section 2 of this Management Plan, the care, maintenance and responsibility of which are solely and exclusively those of the City.

C. **CMC:** The Corona Municipal Code.

D. **Community Forest:** The collection of City Trees and Shared Responsibility Trees located within the City of Corona. Also sometimes referred to as the Urban Forest.

E. **Compaction:** Compression of the soil structure or texture by any means to an extent that it creates an upper layer that is impermeable.

F. **Director:** As defined in CMC Section 12.22.030. Currently, the Director of the Community Services Department, or other department as assigned by the City, or the Director's designee.

G. **Dripline Area:** The suggested minimum area within "X" distance from the trunk of a tree in a typical location, measured from the perimeter of the trunk of the tree at 54 inches above natural grade, where "X" equals a distance ten times the diameter of the trunk at 54 inches above natural grade, or the distance to the outermost edge of the tree canopy, whichever is the lesser distance.

H. **Excessive Pruning:** Removing more than 25 percent of the functioning leaves and stems of a tree in a single pruning. Excessive Pruning may include the cutting of any root two inches or greater in diameter. Exceptions are when clearance from overhead utilities or public improvements is required, or to abate a Hazardous Tree Condition or a public nuisance. When in doubt, a resident should contact the City Arborist to provide additional information and/or guidance. The City shall supplement information and resources to help guide residents in this process.

I. **Hazardous Tree Condition:** When a tree or any substantial part of its trunk or limbs has an observable structural issue creating the imminent likelihood of failure and a high likelihood of striking a foreseeable Potential Target. These hazards can sometimes be discovered through both routine pruning work and through other forms of inspection but are not always identifiable.

J. **Heritage Tree:** Any tree which has been declared to be a Heritage Tree pursuant to the provisions of this Management Plan.

K. **ISA:** International Society of Arboriculture.

L. **Parkway:** As defined in CMC Section 12.22.030. Currently, that area of public or private property that is immediately adjacent to a public street and that is any of the following: (1) the area between the sidewalk and the curb of the street; (2) where there is no sidewalk, that area between the curb of the street and the property line of the lot adjacent thereto; or (3) where there is no curb, that area between the edge of the street and the property line of the lot adjacent thereto.

M. **Pest Control Advisor:** A person licensed by the California Department of Pesticide Regulation to write legal prescriptions for specific pesticides to be applied to or around trees.

N. **Pest Control Applicator:** A person licensed by the California Department of Pesticide Regulation to apply pesticides to or around trees.

O. **Potential Target:** Includes people, vehicles, structures, or anything subject to potential damage by a Hazardous Tree Condition.

P. **Private Tree:** As defined in CMC Section 12.22.030 and referenced in Section 2 of this Management Plan, the care, maintenance and responsibility of which are solely and exclusively those of the property owner.

Q. **Public Nuisance:** An act, condition, or a thing that meets the definition of a Public Nuisance, as provided for in the CMC (12.22.080) and/or other applicable laws, rules, or regulations.

R. **Public Street:** As defined in CMC Section 12.22.030. Currently, any of the following that has been dedicated to the public and maintained under public authority or by others and that is located within the city limits: streets, roadways, highways, avenues, boulevards, lanes, or similar right-of-way designed for vehicular travel.

S. **Removal**: Complete tree removal, such as cutting to the ground or extraction of the tree.

T. **Shared Responsibility Tree:** As defined in CMC Section 12.22.030 and referenced in Section 2 of this Management Plan, the care, maintenance and responsibility of which are shared by the City and property owner.

U. **Soil Disturbance:** All the various activities from construction or development that may damage trees.

V. **Topping:** The practice of cutting back large-diameter branches between nodes or truncating the main stem of a tree.

W. **Tree City USA:** A nationwide designation that provides a framework for communities to manage and expand their public trees.

X. **Tree Injury:** A wound or other damage to a tree resulting from any activity, including, but not limited to, Excessive Pruning, cutting, Trenching, excavating, altering the grade, paving or compaction around a tree, applying an herbicide or other poison, pests or other

disease, a vehicle accident, or any other action leading to the death or permanent damage of a tree. Tree Injury shall include, but is not limited to, bruising, scarring, tearing, or breaking of roots, bark, trunk, branches, or foliage.

Y. **Tree Protection Zone (TPZ):** An area where construction and preconstruction activities are prohibited or restricted to prevent injury to preserved trees.

Z. **Tree Risk Assessment:** A visual and/or physical assessment of a tree (including sometimes its roots, stem, or crown) performed by an ISA certified person to provide the City with an increasingly more detailed assessment of the tree's condition, as well as a report of their observations, any tree defects and, when necessary, options regarding measures that may be taken, including maintenance, mitigation, or removal. There are three (3) levels of Tree Risk Assessments: Level 1 (Visual Tree Inspection); Level 2 (Basic Assessment); and Level 3 (Advanced Assessment).

AA. **Trenching:** Any excavation to provide irrigation, install foundations, utility lines, services, pipe, drainage, or other property improvements below grade.

BB. **Urban Forest:** The collection of City Trees and Shared Responsibility Trees located within the City of Corona. Also sometimes referred to as the Community Forest.

CC. **Visual Tree Inspection:** A visual observation of a tree to assess its condition. In this Management Plan, visual observations which result in inventory updates and maintenance recommendations by the City Arborist are considered Visual Tree Inspections.

SECTION 2 TREE CATEGORIES

For the purposes of this Management Plan, the following categories of trees are defined as:

A. **Private Trees**: As defined in CMC Section 12.22.030. Currently, they are defined as trees which meet either of the following criteria: (1) planted on property which is not owned by the City and which is not within a Parkway; or (2) planted within a Parkway without the City's express written direction and approval. While referenced, this Management Plan does not provide guidance or regulation for any Private Trees.

Examples: Such trees include, but are not limited to, trees planted on private residential or non-residential property or on property owned by public agencies other than the City, including trees planted within a Parkway if not planted at the City's express written direction or approval.

B. **Shared Responsibility Trees**: As defined in CMC Section 12.22.030. Currently, they are defined as trees which meet all the following criteria: (1) planted on public or private property; (2) planted within a Parkway; and (3) planted at the City's express written direction and approval.

Examples: Such trees are expressly limited to those planted in a Parkway at the City's express written direction and approval.

C. **City Trees**: As defined in CMC Section 12.22.030. Currently, they are defined as trees planted by or at the direction of the City on property owned or fully controlled by the City and which is not within a Parkway.

Examples: Such trees include, but are not limited to, park trees, trees planted in street medians, trees planted in LMD and CFD designated areas, trees planted on other property owned in fee by the City (e.g., City Hall, Public Library etc.).

SECTION 3 TREE INSPECTIONS / TREE INVENTORY

A. Applicability

This Section 3 (Tree Inspections/Tree Inventory) shall apply only to City Trees and Shared Responsibility Trees.

B. Visual Tree Inspection - Objectives and Procedures

A Visual Tree Inspection of City Trees and Shared Responsibility Trees shall be done before they are pruned to identify visually obvious problems or risks, and may result in a recommendation for a higher level Tree Risk Assessment if no immediate risk is identified. If further evaluation is needed, a Level 2 or Level 3 Tree Risk Assessment should be performed by a City Arborist in their discretion.

The Pre-Pruning Visual Tree Inspection shall include:

- General condition/branch architecture/health;
- Identification of the type of branches to reduce or remove (e.g., dead, overextended, interfering, needing clearance) and location (e.g., over house, under wires);
- Number of branches to be removed or reduced (number, diameter, or percentage);
- Type of cuts to use (branch removal, reduction, heading, or shearing);
- Signs of wildlife nesting; and
- Worker safety concerns (e.g., root collar buried, powerlines, bees, tree defects).

Each City Tree and Shared Responsibility Tree should receive a Visual Tree Inspection at least once every seven (7) years (e.g., as part of a routine trimming program or inventory update). Notably, routine tree pruning program Visual Tree Inspections do not assign a severity level or mitigation time frame to tree risk; they simply point out a tree condition that requires further evaluation by the City Arborist. Accordingly, supplemental Visual Tree Inspections and higher level Tree Risk Assessments, as further discussed in Section 3(E) (Tree Risk Assessments) below, should be done as needed and as determined by the City Arborist.

As discussed in more detail in Section 3(D) (City Tree Inventory) below, pruning work history data shall be tracked and monitored within the City's tree inventory management program ("City Tree Inventory") that allows for documented work history to be recorded and accessible. This City Tree Inventory should include all City Trees and Shared Responsibility Trees, as determined by the City Arborist. The City should frequently review the inventory for potential high-risk trees and should assign such trees to have Tree Risk Assessments done by the City Arborist or other qualified professional, with written documentation, as often as necessary in the determination of the City Arborist.

Those performing Pre-Pruning Visual Tree Inspections must adhere to current industry standards, to ensure they are being done on a consistent and regular manner. Currently, such standards include the American National Standards Institute (ANSI) A300 standards and ISA Best Management Practices.

C. The Process of Identifying and Documenting Inspections

Inspected items should include, but are not limited to:

1. Lean/root problems: for example, leaning trees with roots heaving out of the ground.
2. Codominant or multiple trunks: competing stems that grow bark between a tight crotch union can be weakened areas prone to failure.
3. Trunk cavities, cankers, mushrooms, and decay: these are indicators of potential internal decay of a tree and, if discovered, may require further investigation and mitigation.
4. Cracks in trunks and branches: these can be indicators of future failures and, if discovered, may require further investigation and mitigation.
5. Weakly attached scaffold limbs and branches: a branch that developed as a reactionary shoot can be predisposed to failure and, if discovered, may require further investigation and mitigation.
6. Hanging or broken branches (hangers): branches that are detached from where they were grown and are hanging and could fall, impacting Potential Targets below. Broken branch stubs should be pruned off properly unless preserved for wildlife habitat reasons.
7. Dead branches (deadwood): branches within a canopy of a tree that no longer produce foliage and have begun to lose bark.
8. Pests and other diseases: identified pests that can cause tree failures such as boring, leaf chewing and leaf sucking insects or pathogenic fungus.

While most Visual Tree Inspections can be conducted from the ground, there are times when an aerial inspection may be advisable, as determined by the City Arborist.

D. City Tree Inventory

One of the goals of the Visual Tree Inspections is to create and maintain the City Tree Inventory, as part of the City's Tree Inventory program. Such program should include:

1. Documenting tree condition and recording dates based on work performed through the City's tree management program.
2. Identifying vacant sites suitable for trees to be planted.
3. Maintaining trees proactively, instead of reactively as budget allows.
4. Identifying the dollar value of each tree and total Urban Forest utilizing the Trunk Formula Method in accordance with the current guide for plant appraisal.
5. Documenting work history records.
6. Scheduling tree maintenance work.
7. Improving tree structure and health through scheduled tree maintenance.
8. Reducing tree loss and liability.
9. Demonstrating due diligence via work history.
10. Identifying trees that can be salvaged or corrected with proper pruning.

E. Tree Risk Assessments

If a Visual Tree Inspection identifies a possible risk, further evaluation of the tree shall be conducted by the City Arborist with the objective to mitigate risk. Except in exigent circumstances, as determined by the City Arborist, a Tree Risk Assessment should be conducted before deciding to remove a tree. However, the City shall not be required to perform a Tree Risk Assessment before removing a tree. A Tree Risk Assessment will be the primary method of further evaluation of all trees.

In terms of ISA best management practices, the City Arborist shall determine the required level of Tree Risk Assessment. If the City identifies a tree that meets the criteria for removal, the tree may be removed as a form of mitigation.

Level 2 and Level 3 Tree Risk Assessments differentiate from a Visual Tree Inspection (Level 1) for reasons that include, as determined by the City Arborist:

1. The use of tools to measure potential defects.
2. Considers Potential Target zones, site history, conditions, potential load, and species failure profile.
3. Develops a report to determine the likelihood and consequences of failure, provides mitigation options, and provides recommendations for a re-inspection cycle or further evolution.

After a Tree Risk Assessment is completed, the City shall conduct the recommended mitigation measure(s), if any, as soon as necessary as determined by the City Arborist according to the risk assessment, but in no event more than (2) two week after receiving the Tree Risk Assessment report.

SECTION 4 ROUTINE TREE MAINTENANCE

A. Applicability

This Section 4 (Routine Tree Maintenance) shall apply only to City Trees and Shared Responsibility Trees. These guidelines establish principles of care and maintenance for such trees, including pruning, planting, watering, soil, and nutrient requirements, as well as insect, disease, and fruit control.

B. Shared Responsibility Trees

City Responsibilities

As provided for in CMC Section 12.22.050, the City is expressly assigned the responsibility to plan, plant, maintain (other than watering), alter and remove the following: (1) all trees and landscape materials in Parkways maintained as part of a landscape maintenance district or a community facilities district; and (2) all Shared Responsibility Trees. It is unlawful for any other person to take any such actions with respect to a Shared Responsibility Tree.

Property Owner Responsibilities

As provided for in CMC Section 12.22.050, the owners of the property on which a Parkway is located are responsible for the following:

1. Watering. To accept, protect and adequately and properly water any Shared Responsibility Tree in their Parkway. At a minimum, such property owner shall comply with the provisions of Section 4(H) (Proper Watering of Shared Responsibility Trees) below.

2. City Notification. To notify the Community Services Department of any suspected Hazardous Tree Condition or other potential injury to, or maintenance needs of, any Shared Responsibility Tree in their Parkway.

3. Leave and Deadfall Collection and Disposal. To promptly and routinely remove and dispose of in an appropriate waste receptacle any of the following which are found to be located on the sidewalk or other area of the Parkway that people are likely to use for walking, bicycling or other activities: (i) all fallen leaves and other deadfall from any tree, including from any Shared Responsibility Tree in their Parkway; and (ii) any other debris and dead or otherwise removed landscape material located on the sidewalk or other area of the Parkway that people are likely to use for walking or other activities.

4. Impacts to Dripline Area. To prevent any and all improvements, installations or other impacts within the Dripline Area of a Shared Responsibility Tree that could in any way reasonably be expected to damage the root system, compact the soil over the roots, or impede the free passage of water, air or fertilizer to the roots of the Shared Responsibility Tree.

C. Standards for Tree Maintenance

All City maintenance work, including pruning, on City Trees and Shared Responsibility Trees shall be in accordance with the current edition of the following industry standards: ANSI A300 and ANSI Z133.

D. Pruning Methods for Trees

There are seven types of pruning that may be appropriate for the City to conduct on City Trees and Shared Responsibility Trees. They are:

1. Structural pruning: a type of tree pruning for young trees that establishes a strong central leader and develops subordinate branches. Structural pruning helps to alleviate future failures.
2. Crown cleaning: the selective removal of dead, diseased, detached, and broken branches. No live foliage is to be pruned during crown cleaning, and this is the preferred pruning type for mature trees.
3. Crown thinning: the selective removal of small live branches to reduce crown density. No more than 25% of live foliage should be removed in a growing season.
4. Crown raising: the selective removal of branches to provide vertical clearance.
5. Crown restoration: the selective removal of branches, sprouts and stubs from trees that have been topped.
6. Crown reduction: the selective removal of branches and stems to decrease the height and/or spread of a tree.
7. Utility pruning: the selective removal of branches and stems to reduce growth away from utility lines.

For routine pruning, the current edition of ANSI A300 (Part 1) Pruning and ISA Best Management Practices Pruning Third Edition shall define the pruning method.

Pruning may be done outside of a routine trimming program if the prune will satisfy at least one of the following criteria:

1. Accomplishing a mitigation measure identified as part of a Tree Risk Assessment.
2. Improved tree structure.
3. Establish a “dominant leader” (developing trunk) in a young tree.
4. Clearance for new or existing infrastructure.

Climbing and pruning practices shall not cause a Tree Injury, except for the pruning cuts. It is best to clearly identify a pruning objective and then select the pruning type most suitable to achieve that objective. For example, if the objective is roadway clearance, crown raising would be the selected type of pruning.

E. Tree Care for Birds and Other Wildlife in City Projects

The City utilizes consultants to ensure compliance to the many federal and state laws pertinent to wildlife, tree care, and landscape industry in California. Of note is the Migratory Bird Treaty Act. The City shall make sure that tree care workers hired by the City are qualified with proper training on inspecting for birds and other wildlife during tree care operations. The current edition of Tree Care for Birds and Other Wildlife Best Management Practices in California should be the City's guiding document for managing wildlife habitat as it pertains to trees, including the Tree Care for Birds and Other Wildlife Best Management Practices Project Preparation Procedure which is attached hereto as Appendix A and incorporated herein by reference ("Project Preparation Procedure"). City staff working in trees and any tree contractor hired by the City shall utilize such Project Preparation Procedure to determine the best plan of action to eliminate harm done to birds and other wildlife.

F. Plant Health Care Plan and Integrated Pest Management

The City shall develop a comprehensive plant health care program with the goal of managing the health, structure, and appearance of plants and trees under its care ("Plant Care Program"). As part of that Plant Care Program, there shall be an Integrated Pest Management ("IPM") strategy ("IPM Strategy"). The IPM Strategy shall be a method of controlling plant pests by combining biological, culture, mechanical, physical, and/or chemical management strategies. The City's IPM Strategy shall be constructed based on the IPM Flowchart attached hereto as Appendix B and incorporated herein by reference ("IPM Flowchart"). The IPM Flowchart is based on ANSI A300 standards and shall dictate the City's plan of action when there is an identified plant health concern.

The pest source shall be identified and targeted with a specific and timely treatment. All prescriptions for pesticides are to be issued by a Pest Control Advisor and applied by Pest Control Applicators. If it appears that insects or disease may lead to the death of a City Tree or Shared Responsibility Tree, then the City may evaluate the condition according to the following guidelines and treat the problem in a timely fashion to prevent further decline of the tree.

1. For treatment of insects, the Pest Control Advisor shall be consulted. Nontoxic materials shall be used whenever feasible. All chemicals must conform to the California Department of Pesticide Regulations.
2. For disease and decay that erodes the health or weakens the structure, further analysis by an arborist may be required to evaluate the stability.
3. Diseases below ground are often caused by poor landscape design surrounding old trees, which encourages harmful and often lethal ailments. This could include fungi, rot, and other decay. The following conditions favor such disease:

    a. Compaction of the soil within the tree's Dripline Area;
    b. Removing soil from the tree root area;
    c. Excessive watering on or near the tree trunk;
    d. Planting incompatible plants within the tree's Dripline Area.

When planning landscaping around a public tree, an evaluation of the tree and soil must be performed by the City Arborist to determine if there is disease present. If the tree is diseased and

it is reasonable to expect that landscaping will contribute to decline, permanent damage, or render it hazardous, it is the obligation of the City may take measures to reduce or eliminate the conditions that may cause the decline of the public tree.

G. Fertilizing

Fertilizers shall only be applied if specified by the City Arborist as part of the Plant Care Program for City and Shared Responsibility Trees. Fertilizing may be specified for trees that will be impacted by an upcoming disturbance, grade change, or a modified environment. Fertilizing in these instances may aid the tree to overcome the stress caused by disturbance.

H. Proper Watering of Shared Responsibility Trees

The owners of the property on which a Parkway is located are responsible for accepting, protecting, and adequately and properly watering any Shared Responsibility Tree in their Parkway. Adequate and proper watering of trees necessitates deep watering, which involves slowly watering with an amount of water appropriate to the age and species of the tree, as well as the season. Surface watering, like the way in which lawns are watered, is not an adequate way in which to water a tree and must be avoided. While deep watering encourages roots to grow down, surface watering with sprinklers encourages roots to grow invasively along the surface and create hazards or damage to sewer and water lines, sprinkler systems, sidewalks, driveways, patios, and other hardscape, and even foundations of homes. Poorly watered and maintained trees can also fall or drop limbs, causing damage to persons and property.

There are a variety of ways in which to adequately and properly deep water trees, so property owners should educate themselves in how to do so in a manner that works for them. At a minimum, property owners should keep the following in mind:

1. Tree Establishment Period. Newly installed trees, including drought tolerant species, are dependent upon supplemental irrigation until established ("Establishment Period"). Providing a watering well around the Dripline Area during this Establishment Period is also recommended, as well as applying mulch around the trunk area to retain moisture. If a tree is native to areas of higher rainfall, then the tree will require supplemental water throughout its life cycle. Periods of extreme heat, wind or drought may require even more supplemental water.

2. Reclaimed Water. If reclaimed water is to be used, the species of trees to be irrigated should have an elevated tolerance of salts.

3. Sample Techniques. You can deep water trees in a variety of ways, including, but not limited to, using a soaker hose or drip system that slowly applies water to the soil in and around the Dripline Area over several hours, or you may use perforated piping installed in the ground to apply water directly to the root zone. An automatic sprinkler system may be used as well, but must be designed and programmed appropriately. For instance, you can install a "bubbler" or similar sprinkler with the perforated piping noted above. Providing a watering well for newly planted or

establishing trees is also recommended in to applying mulch around the trunk area to retain moisture.

4. Educational Materials. The City will seek to develop and disseminate deep watering and other tree watering guide educational materials, as further discussed in Section 10 (Education and Community Outreach). Property owners should also reach out to the Community Services Department to obtain such educational materials.

I. Proper Watering of City Trees

The City Arborist will develop and implement appropriate watering techniques and schedules for all City Trees.

J. Fruit Control

While many trees produce flowers or fruit, some trees can require additional or different maintenance due to the debris generated by the tree. The City Arborist may recommend treatments as part of the Visual Tree Inspection process. For example, the dropping fruit of the European Olive (Olea europaea), American Sweetgum (Liquidambar styraciflua), or acorn drip of a Holly Oak (Quercus ilex) should be considered if it is in the proximity of an ADA accessible ramp or other pedestrian area.

For City Trees, if control measures are warranted as determined by the City Arborist, they shall be prescribed by a Pest Control Advisor and administered by a Pest Control Applicator to ensure successful application of treatment materials.

SECTION 5 PROTECTION OF TREES DURING CONSTRUCTION

A. Applicability

This Section 5 (Protection of Trees During Construction) shall apply only to City Trees and Shared Responsibility Trees.

B. Tree Protection Objectives

The objective of this section is to reduce the negative effects of construction on City Trees and Shared Responsibility Trees. Tree protection should begin before construction starts. Successful tree preservation occurs when designers, construction personnel, and project managers are committed to tree preservation. All members of the project team must be familiar with the rudimentary aspects of tree growth and development to understand the relationship between tree survival and construction practices. Helping to ensure that the City Arborist has input on public and private projects that may impact City Trees or Shared Responsibility Trees will ensure everyone is understanding of the needs regarding trees.

Notwithstanding, all trees cannot and should not be preserved. Trees that are structurally unstable, dead, in poor health, or unable to survive the effects of construction become a liability to the project and may have to be removed.

C. Enforcement – Conditions of Project Approval

The Director shall work with the Community Development Department, Public Works Department, Department of Water and Power, and any other departments to adopt any laws, rules or regulations necessary to ensure that conditions of approval are included in any public or private construction projects that may impact City Trees or Shared Responsibility Trees.

D. Site Plan

For all projects that require a site plan (including demolition, grading, irrigation, electrical, landscape, etc.), each site plans must indicate accurately plotted trunk locations and the Tree Protection Zone ("TPZ") of all trees or group of trees to be preserved within the project area. Additionally, for all trees within the project area, the site plans shall accurately show the trunk diameter, Dripline Area and clearly identify the TPZ. The type of protective fencing shall be specified and indicated with a bold dashed line.

Site plans shall also include the following minimum information:

1. Surveyed tree locations, species, size (height, width, DBH). Dripline Area (including trees located on neighboring property that overhang or within 25 feet of the project site) and city trees adjacent to the project site.
2. Paving, concrete, Trenching, or grade change (including the limits of over-excavation) located within the Tree Protection Zone (TPZ).
3. Existing and proposed utility easements.
4. Surface and subsurface drainage and aeration systems to be used.

5. Walls, tree wells, retaining walls and grade change barriers, both temporary and permanent.
6. Landscaping, irrigation, and lighting within dripline of trees, including all lines, valves, etc.

E. Tree Protection Zone

During the design phase of the project, the City Arborist and the project manager (or other person assigned by the person or entity responsible for the project) will work together on developing the TPZ for each tree impacted by the project. If an unresolved disagreement arises between the City Arborist and the project manager on the size of a TPZ for a tree, the dispute shall be brought to the Director, who will render a final decision on the size of the TPZ.

Each tree to be retained shall have a designated TPZ identifying the area sufficiently large enough to protect it and its roots. Improvements or other activities, such as paving, utility and irrigation trenching, and other ancillary activities shall occur outside the TPZ, unless otherwise specified by the City Arborist. The protection fence shall serve to delineate the TPZ on the project site.

Activities prohibited within the Tree Protection Zone include:

1. Parking vehicles or equipment, storage of building materials, refuse, or excavated soils, or dumping poisonous material on or around trees and roots. Poisonous materials include, but are not limited to, paint, petroleum products, concrete, stucco mix, dirty water or any material that may be harmful to tree health.
2. The use of tree trunks as a backstop, winch support, anchorage, as a temporary power pole, signpost, or other similar function.
3. Cutting of tree roots by utility Trenching, foundation digging, placement of curbs and trenches, or other miscellaneous excavations without prior approval of the City Arborist and report of recommendations.
4. Soil Disturbance or grade change.
5. Drainage changes.

F. Verification of Tree Protection

Following consultation with the City Arborist, the project contractor shall verify in writing that all pre-construction TPZ conditions have been met as follows:

1. Tree fencing installed.
2. Erosion control secured.
3. Tree pruning completed.
4. Soil Compaction preventive measures installed.
5. Tree maintenance schedule established, and the responsible party designated.
6. Tree Protection Zone (TPZ)

G. Activities During Construction and Demolition Near Trees

Soil Disturbance

Soil Disturbance or other damaging activities within the TPZ are prohibited unless approved by the City Arborist.

Trenching, Excavation and Equipment Use

Trenching, excavation or boring within the TPZ shall be limited to activities approved by the City Arborist (or the Director).

If *Trenching* is unavoidable, the City Arborist may recommend allowing trenches up to the following distances away from the tree:

TRUNK DIAMETER (measured at 4.5 feet above natural grade)	DISTANCE FROM OF THE TRUNK ON BOTH SIDES
Up to 9 inches	5 feet
10-14 inches	10 feet
15-19 inches	12 feet
over 19 inches	15 feet

Alternative Methods for Hardscape Maintenance and Installation to Prevent Root Cutting

The following remedies should be considered as an alternative to severing tree roots:

1. Grinding a raised walkway or concrete pad
2. Ramping the walkway surface over the roots or lifted slab with pliable paving
3. Re-routing the walkway around tree roots
4. Permeable paving materials (e.g., decomposed granite), interlocking pavers, or flagstone walkways on sand foundations
5. Root bridging

H. Tree Maintenance During Construction

Providing adequate maintenance can mitigate stressful changes that occur to a tree's environment during construction. To remain vigorous, the tree needs to maintain stored carbohydrates and preserve the effectiveness of its growth regulators.

The City Arborist may therefore also require that projects provide certain maintenance activities, such as the following:

Irrigation

Providing supplemental irrigation for trees under water stress may be the single most important treatment. Irrigation should be designed to wet the soil within the TPZ to the depth of the root zone

and to replace that water once it is depleted. Light, frequent irrigation should be avoided. Create a six-inch berm around trees at the edge of the TPZ and fill with no more than six inches of mulch. Fill the basin with water. Irrigation should wet the top two to three feet of soil to replicate similar volumes and normal seasonal distribution.

Soil Compaction Mitigation

To prevent negligent encroachment into the TPZ, trees to be preserved during construction must always have the specified type of protection fences in place. Removal of fences, even temporarily, to allow deliveries or equipment access is not allowed unless approved by the City Arborist and a root buffer is installed. The root buffer components: mulch, gravel, and plywood, must be maintained continually to assure its effectiveness against soil Compaction.

Dust Control

During periods of extended drought, wind or grading, trunks, limbs, and foliage should be sprayed with water to remove accumulated construction dust.

SECTION 6 TREE REMOVAL

A. Applicability

This Section 6 (Tree Removal) shall apply only to City Trees and Shared Responsibility Trees.

B. Tree Removal Policy; Tree Replacement Ratio

Tree Removal Procedures

City Trees and Shared Responsibility Trees have value to the City and the public. As such, it is the policy of the City to preserve such trees whenever reasonably practical, considering risk mitigation and other legitimate considerations. There are certain conditions in which a tree must be removed, however, as outlined in this Section.

Tree Replacement Ratio

When practical, every City Tree or Shared Responsibility Tree removed should be replaced, at the same location and/or elsewhere in the City, at a 2:1 ratio with a new species selected from the City's Approved Tree List provided for in Section 8 below.

C. Removal Criteria

Trees will be removed only when one or more of the following criteria are met:

1. The tree is in a state of decline due to any Tree Injury and is unlikely to return to good health.
2. The tree poses a safety risk that cannot reasonably be corrected or where an unreasonable safety risk would be created by the construction process or root pruning.
3. Work improvements required to be made around the tree will likely kill the tree or render it a hazardous tree.
4. The tree interferes with the growth and development of a more desirable tree.
5. The tree has or is causing damage to infrastructure, such as roads, sidewalks, water mains, sewer laterals or electrical infrastructure and no other alternative repair method is feasible.
6. The owner of the property on which the tree is located shows that the burden on them of their tree remaining substantially outweighs the benefits to the public of having the tree remain.
7. For any other reason which is in the best interest of the public health, safety, or welfare, as determined by the City Manager and City Attorney/LRM Director in consultation with the Director.

Sidewalk Lifts

If a public tree's root system has been found to be elevating the sidewalk to a degree greater than a quarter of an inch where the tree's removal is not recommended, the sidewalk repair will be made

using an approved replacement or modification method which best corrects the sidewalk anomaly while minimizing harm to the tree.

D. Tree Evaluation for Removal

If a City Tree or Shared Responsibility Tree has been brought to the City's attention for possible removal, but a Visual Tree Inspection does not reveal apparent and adequate justification for its removal, the City should conduct a higher level Tree Risk Assessment to determine the level of risk and the range of possible mitigation measures. In reviewing the Tree Risk Assessment and assessing the tree's possible removal, the City Arborist shall refer to the criteria noted in Section 6(C) above. Mitigation pruning or other mitigation measures short of removal will typically be considered first to reduce the risk to a level deemed acceptable by the City Arborist, but if the condition cannot be mitigated or reduced to a level of risk deemed acceptable, then the tree shall be removed. The City has the right, in its reasonable discretion, to implement any of the mitigation measures, considering the noted risks in relation to the benefits of the tree.

E. Appeal Process

If a City Tree or Shared Responsibility Tree is determined by the City to not meet any criteria for removal, but the reporter or owner of the property on which the tree is located wishes to have the tree removed due to personal preference, such person would have the option to utilize the following appeal process:

1. The person shall submit a written formal request for removal of the tree, with a statement listing their reasons for the requested removal. The standard for removal shall be that the burden of the tree remaining on the reporter or property owner substantially outweighs the benefits to the public of having the tree remain.
2. The request would then be reviewed by the Parks and Recreation Commission. By a majority vote of the members present, the Commission would make a recommendation to the City Council.
3. Recommendation would then be reviewed by the City Council. By a majority vote of the members present, the City Council will make a final determination. The City Council determination shall not be subject to appeal.
4. Once the appeal process is completed and the determination is finalized, the appropriate action will be executed. If the determination is to remove the tree, the tree will be removed by the City and replaced, if possible, in accordance with the "tree replacement ratio" provision in Section 6(B) above.

SECTION 7 REPLACEMENT AND PLANTING OF TREES

A. Applicability

This Section 7 (Replacement and Planting of Trees) shall apply only to City Trees and Shared Responsibility Trees.

B. Tree Planting Specifications

The following specifications pertain to all City Trees and Shared Responsibility Trees:

1. Replacement trees should be selected from the Approved Tree List set forth in Section 8 of this Management Plan.
2. The location of a replacement tree shall be subject to the approval of the City Arborist. A replacement tree shall be planted in a reasonable location as close as possible to the removed tree.
3. The minimum size planting area for the tree species will be dictated by the Approved Tree List.

C. Planting Stock and Materials

1. Quality

    a. All plants and trees installed within the city shall conform to most current ANSI Z60.1 standard.
    b. Plants shall be sound, healthy, vigorous, and free of plant disease and insect pests and their eggs.
    c. Container stock shall be grown for at least eight months in containers and shall not be root bound or have girdling roots.
    d. Trees shall not have been topped.
    e. Nursery stakes shall be removed when tree is installed in the ground.

2. Miscellaneous Materials

When deemed necessary by the City Arborist, the following materials shall be used:

    a. Support stakes shall be treated or untreated two-inch diameter lodge pole pine without the use of cross braces.
    b. Tree ties shall be used and installed in a figure eight fashion to support the tree to the stakes at the bending point of the trunk.
    c. Screened untreated mulch shall be used that are one-half to one inch in size and spread to a two-inch depth out to the edge of the root ball. The mulch shall be kept at least six inches away from the trunk and shall be applied to each tree at two times the diameter of the tree root ball.
    d. Where appropriate for use along public sidewalks, 12-inch linear root barrier shall be used and shall be ten feet in length and placed on center with

the tree and on the sidewalk or curbside only. Root barrier boxes or barrier circles that encircle the tree are not approved. Species selection should be suitable to minimize infrastructure conflicts.

e. Where sidewalk and Parkway width are less than eight feet and new trees will be installed, tree well designs should consider reduction of trip hazards as approved by the City Arborist.
f. Stem guard devices are recommended for new trees in turf areas to help reduce damage to lower trunks by weed trimmers.
g. Root guards installed adjacent to curb and sidewalk when planting.
h. Perforated piping installed in tree well to allow deep root watering.
i. Education materials (e.g., care, watering practices, etc.) provided by City to residents and/or property owners for Shared Responsibility Trees.

D. Planting Site Preparation

All debris, wood chips, pavement, concrete, and rocks over two inches in diameter shall be removed from the planting pit to a depth dictated by the root ball size of the tree being installed, unless approved otherwise by the City Arborist.

E. Planting in Difficult Soil Conditions

1. Trees planted in turf areas shall have a ring of mulch. The turf shall be maintained a minimum of one foot from the new tree stem, with mulch placed on top of the root ball. The mulch shall be six inches away from and not touching the tree stem.
2. Occasionally, tree planting must occur in poor or difficult soil where standard planting techniques will result in poor-to-average performance or mortality. In this case, alternative or specified soils, such as engineered, amended, or structural urban tree soil mix, including written specifications and physical samples, shall be submitted for approval by the City Arborist or designated City staff person.
3. Planting Cue Card from ISA located in Appendix C.

SECTION 8 APPROVED TREE LIST

A. Applicability

This Section 8 (Approved Tree List) shall apply only to City Trees and Shared Responsibility Trees, which shall only be of the following types:

Common Name	Botanical Name
Ash	Fraxinus velutina
Australian Willow	Geijera parviflora
Bottle Tree	Brachychiton populneus
Brisbane Box	Tristania conferta
California Fan Palm	Washington filifera
California Live Oak	Quercus agrifolia
Camphor Tree	Cinnamomum camphora
Chinese Fring Tree	Chionanthus retuses
Chinese Hackberry	Celtis sinensis
Chinese Glame Tree	koelreuteria bipinnata
Chinese Pistachio	Pistacia chinensis
Chitalpa	Chitalpa tashkentensis
Cork Oak (Open Space Only)	Quercus suber
Eastern Redbud	Cercis canadensis
Evergreen Pear	Pyrus kawakamii
Fern Pine	Podacarpus gracilior
Firewheel Tree	Stenocarpus sinuatus
Flame Tree	Brachychiton acerifolius
Ginkgo	Ginkgo biloba
Gold Medallion Tree	Cassis leptophylla
Golden Trumpet Tree	Tabebuia chrysotricha
Holly Oak	Quercus ilex
Jacaranda	Jacarnada mimosifolia
Lemon Bottle Brush	Callistemon ctirinus
London Plan Tree	Platanus acerifolia
Mexican Fan Palm	Washingtonia robusta
New Zealand Christmas Tree	Metrosideros tomentosus
Ornamental Pear	Pyrus calleryana
Pink Trumpet Tree	Tabebuia avellanedae
Raywood Ash	Fraxinus oxycarpa 'Raywood'
Scarlet Oak	Quercus coccinea
Sour Gum	Nyssa sylvatica
Southern Live Oak	Quercus virginiana
Southern Magnolia	Magnolia grandiflora
Sweet Shade	Hymenospormum flavum
Thornless Honey Locust	Gleditsia triacanthos inermis
Tulip Tree	Liriodendrom tulipfera
Valley Oak	Quercus lobata
White Iron bar	Eucalyptus leucoxylon
Zelkova (Open Space Only)	Zelkova serrata 'Village'

SECTION 9 HERITAGE TREES

A. Applicability

This Section 9 (Heritage Trees) shall apply to City Trees and Shared Responsibility Trees, and may apply to Private Trees with the written consent of the owner of the real property on which the Private Tree is located at the time the Heritage Tree designation is made.

B. Designation of Heritage Trees

Upon nomination by any person, and for Private Trees with the written consent of the owner of the real property on which the tree is located, a tree may be designated as a Heritage Tree.

Nominations for a Heritage Tree shall be reviewed and approved by the Community Services Department and Parks and Recreation Commission. The Community Services Department and Parks and Recreation Commission may designate a tree as a Heritage Tree upon a finding that it is unique and of importance to the community due to any of the following factors:

1. It is one of the oldest and largest of its species located in the City.
2. It is a tree of unique form or species.
3. It has historic significance due to an association with an historic building, site, street, person, or event.
4. It has unique cultural significance that warrants special consideration.
5. It is a defining landmark or significant outstanding feature of a neighborhood which can include significant aesthetic, botanical, or ecological value.

C. Once Heritage Tree is Designated

Upon Community Services Department approval, the tree shall be designated as a Heritage Tree. Any work on or in the vicinity of a designated Heritage Tree shall be done in accordance with this manual and under supervision of the City Arborist or another licensed arborist if approved by the City Arborist. The requirement for City Arborist or other licensed arborist supervision may be waived by the Director, or his or her designee, in cases of hazardous trees or other cases where immediate action must be taken for public health or safety reasons.

After Community Services approval of a Heritage Tree designation, a listing of trees, including the specific locations thereof, shall be kept by the City within its tree management database. This information shall be made available to the public through the Community Services Department by way of request. An owner of a Heritage Tree may choose to install a plaque or marker at their own cost, but it will not be logged, managed, or maintained by the City. For Private Trees which have been designated to be Heritage Trees, the City may require a notice of designation to be recorded against the property with the Riverside County Recorder to provide record notice of such designation.

D. Removal of Heritage Tree Designation

Once designated, a Heritage Tree shall be subject to the provisions of this Management Plan, unless removed from the list of Heritage Trees by action of the City. The Community Services Department may remove a tree from the list upon its own recommendation or, for Private Trees, upon written request by the owner of the real property on which the tree is located. Requests for a Heritage Tree designation removal must originate in the same manner and proceed through the same process as a nomination for Heritage Tree; provided, however, that the removal of a Heritage Tree designation will be approved only when one or more of the following criteria are met:

1. The tree is in a state of decline due to any Tree Injury and is unlikely to return to good health.
2. The tree poses a safety risk that cannot reasonably be corrected or where an unreasonable safety risk would be created by the construction process or root pruning.
3. Work improvements required to be made around the tree will likely kill the tree or render it a hazardous tree.
4. The tree has or is causing damage to infrastructure, such as roads, sidewalks, water mains, sewer laterals or electrical infrastructure and no other alternative repair method is feasible.
5. For any other reason which is in the best interest of the public health, safety, or welfare, as determined by the City Manager and City Attorney in consultation with the Director.

For Private Trees which have been designated to be Heritage Trees, the City shall have a notice of removal of designation recorded against the property with the Riverside County Recorder, if a notice of designation had been recorded to provide record notice of such designation.

E. Appeal Process

Any person may appeal the Community Services Department's decision to designate a Heritage Tree, or its decision not to remove of such designation, by utilizing the following appeal process:

1. The person shall submit a written formal request, with a statement listing their reasons for the request. The standard for removal shall be that the burden of the tree remaining on the Heritage Tree designation list for the property owner substantially outweighs the benefits to the public of having the tree remain on the list.
2. The request would then be reviewed by the Parks and Recreation Commission. By a majority vote of the members present, the Commission would make a recommendation to the City Council.
3. The Commission recommendation would then be reviewed by the City Council. By a majority vote of the members present, the City Council will make a final determination. The City Council determination shall not be subject to appeal.
4. Once the appeal process is completed and the determination is finalized, the appropriate action will be executed.

SECTION 10 EDUCATION AND COMMUNITY OUTREACH

A. Applicability

This Section 10 (Education and Community Outreach) shall apply to City Trees, Shared Responsibility Trees, and Private Trees. Accordingly, the City shall provide education and community outreach to benefit all trees within its jurisdiction.

B. Community Forestry Objectives

Education is an integral and primary element of a City's Urban Forest. Education tempers the use of regulations by empowering citizens. The City believes citizens will act responsibly if given the information they need to make sound decisions.

Distinct educational strategies can be developed to reach a wide range of affected people, including the general public, the development community (property owners, architects, realtors, investors, builders, and contractors), public agencies, and educational institutions. The common factor in educating these groups is to provide them with information about how proper tree planting, maintenance, and protection can contribute to and enrich the quality of life.

Additionally, awareness will be raised surrounding benefits of trees and the Urban Forest. Information circulation places trees and their care in front of the public and allows them to learn, understand, and relate to the City's forest management program. Additionally, public tree and Community Forest knowledge is raised, either through the Tree City USA celebrations, City social media, presentations, press releases, handouts, or conversations, raising the tree awareness of citizens will have a significant positive affect on the Community Forest at large.

C. Public Relations

There are several effective methods available for raising the awareness of citizens in terms of tree care. Many citizens are unaware that there are resources for information regarding proper tree selection, planting, and maintenance. The City will employ the following methods to educate its citizens and its staff.

1. Direct public relations are practiced when any City employee discusses tree care or tree issues with members of the public. All employees who have contact with the public concerning Urban Forest management issues will be trained to answer questions properly. Staff will carry International Society of Arboriculture handouts describing common tree issues and proper practices that can be easily distributed. Staff will also participate in regional tree related activities.
2. Indirect public relations are no less important than direct public relations and can often reach a larger audience. The City will provide news releases when appropriate, hold Arbor Day celebrations when feasible, provide exhibits in local

fairs, and provide educational programs and material to schools. City social media will be the primary platform to disseminate information on urban forestry.

D. Distribution of Education Material

The City will develop and provide education material to be used as handouts, displays, and web-based resources. The City will develop an approach to educating its citizens and provide some of the following education material: flyers, newsletters, fact sheets, brochures, maps, and informational signs. Materials will be developed into infographics, diagrams, and visual representations where applicable to best convey messaging. This information will be presented to the community on a quarterly basis through social media, mailers, and flyers.

In addition, the City will develop a section dedicated to the Urban Forest Management program on its website, which will include links to maintenance schedules, removal requests, heritage tree nomination forms and protected tree lists, educational materials, contact information and general tree care information.

E. Tree City USA

The City shall endeavor to become a Tree City USA and maintain Tree City USA status. There are many benefits to the community of the Tree City USA designation, including a framework for Community Forest standards, elevating the public image of the City, citizen pride, access to urban forestry related financial assistance and opportunities for good direct public relations.

To qualify as a Tree City USA community, a town or City must meet four standards established by The Arbor Day Foundation and the National Association of State Foresters. These standards were established to ensure that every qualifying community would have a viable citywide tree program:

1. A Tree Board or Department (i.e., Parks and Recreation Commission)
2. A Tree Care Ordinance (i.e., CMC Chapter 12.22)
3. A Community Forestry Program with an Annual Budget of at Least $2 Per Capita
4. An Arbor Day Observance and Proclamation.

SECTION 11 URBAN WOOD RECYCLING PROGRAM

A. Applicability

This Section 11 (Urban Wood Recycling Program) shall apply to City Trees and Shared Responsibility Trees, and may apply to Private Trees with the written consent of the owner of the Private Tree.

Urban tree waste shall be used for its greatest environmental benefit. This shall be done by reducing the amount of wood being sent to landfills, resulting in reduced greenhouse gas emissions. Co-environmental benefits include sourcing local raw materials, supporting a local workforce, and creating greater community value products.

B. Tree Pruning and Removal Biomass Utilization Plan

1. Any trees that are removed for reasons such as failure, disease, decline, or other reasons stated within this Management Plan are subject to be repurposed for their highest use. This includes, but is not limited to, being milled into lumber, left in public spaces as natural architecture, wildlife habitat, crafted into usable products such as benches, picnic tables, new construction elements and/or other wood projects.

2. The selection criteria for urban wood shall be made at the discretion of the City Arborist or other designated City staff using current industry standards.

    a. The City shall consider possible urban wood utilization for trees that are removed.
    b. The City shall coordinate the proper removal and transportation of eligible logs when feasible.

3. Should wood not be eligible for repurposing into product, trees may be processed into mulch or converted into other biomass products for use in the community (for example, March Mulch Madness).

4. Mulching is one of the most effective ways to improve soil quality and tree health. Organic mulches moderate soil temperatures, reduce water use, stimulate soil microbial activity, and improve soil structure over time. Green waste from tree care operations should be recycled back into the community as much as possible by way of allowing public access to free source wood chips from the City. Mulching provides the following beneficial uses:

    a. Prevent soil compaction
    b. Prevent erosion
    c. Limit evaporation
    d. Deter pests
    e. Control weeds

f. Promote soil aggregation
g. Increase soil organic matter
e. Increase soil nutrients.

5. Mulching with green waste should be considered a long-term method to treat moderately compacted soil within the root zones of trees and woody plants. Fresh or partially composted coarse (greater than ¾" average wood particle size) wood-chip mulch from trees should be preferred when the objective is to improve soil structure.
6. The ignitability of mulch should be considered when placing it in the landscape, and mulch should not be placed against tree trunks. Green waste from tree care operations should be applied and maintained at a depth of 2-4 inches and applied over as much to the root zone as practical. Seasonal refreshing or reapplication of mulch is encouraged when practical.

C. Tree Recycling Plan

1. Trees that are removed are subject to be potentially repurposed for their highest use. This includes, but is not limited to, being milled into lumber, left in public spaces as natural architecture including wildlife habitat or crafted into useable products such as benches, picnic tables, new construction elements and / or other wood crafts/projects.
2. Suggested resources for wood processing can be found at urbansalvagedwoods.com and urbanwoodnetwork.org.
3. The selection criteria for urban wood shall be made at the discretion of the City Arborist.
4. Should wood not be eligible for repurposing into product, trees may be mulched or other biomass products for use in the community.

D. Urban Wood Mitigation Fund

1. If a small or large project requires the removal of a tree with a DBH greater than 35, the project can fund the reutilization of wood from the removed tree(s) for City use.

    a. Reutilization includes the cost of transportation, milling, and creation of end use product.
    b. Prior to the reutilization, the log must be inspected by the City Arborist to ensure that they will be suitable for use.
    c. The City will determine an end use that results in a cost no greater than 1% of the total project.

E. Species Replacement Plan

1. Tree replacement criteria should include a consideration for end of life uses, including lumber. For trees that are removed, with the potential for urban wood, a replacement tree from the Replacement Sustainable Species List (Appendix D) will be considered for replant.
2. It is recommended that these replacement species be selected in collaboration with local experts based upon the unique region and climate.

SECTION 12 REFERENCES

The sources listed below are for reference purposes only and shall not be automatically deemed to be incorporated into this Management Plan by reference. The City shall expressly determine in writing, which, if any, part of these sources become part of its standards for compliance.

ANSI A300: Standards for Tree Care Operations
ANSI Z133: Safety Requirements for Arboricultural Operations
ANSI Z60.1: Nursery Stock Standard
Guide for Plant Appraisal, Current Edition
ISA Tree Risk Assessment BMP
ISA Tree Pruning BMP
Tree Care for Birds and Other Wildlife BMP
https://www.urban-forestry.com/city-trees-roundtables
http://www.isa-arbor.com/education/onlineresources/cadplanningspecifications.aspx
http://www.ansi.org
https://www.arborday.org/programs/treecityusa/

SECTION 12 APPENDICES

Appendix A Tree Care for Birds and Other Wildlife Best Management Practices Project Preparation Procedure

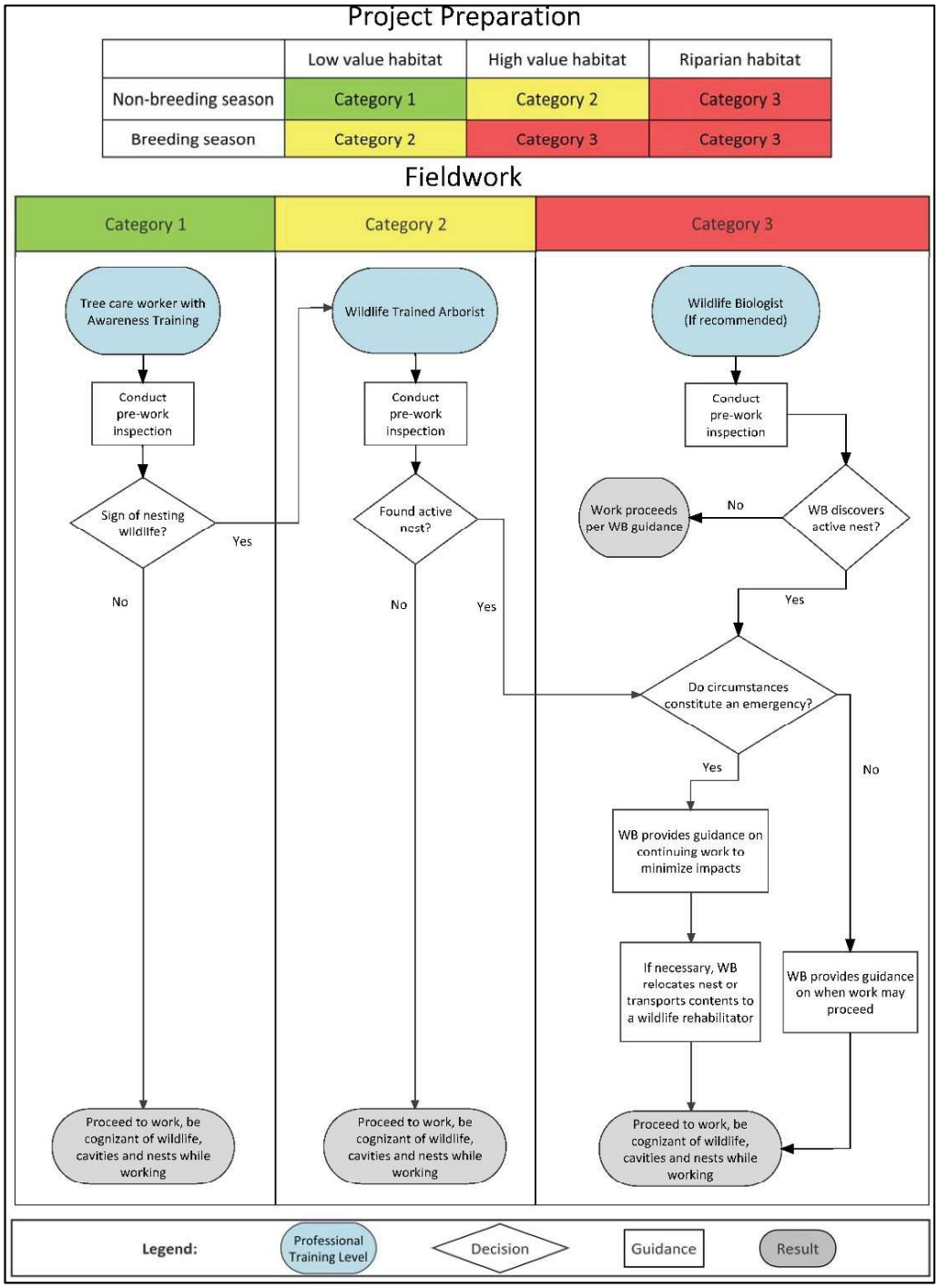
Appendix B Integrated Pest Management Plan Flowchart

Appendix C ISA Tree Planting Cue Card

Appendix D Urban Wood Sustainability Species List

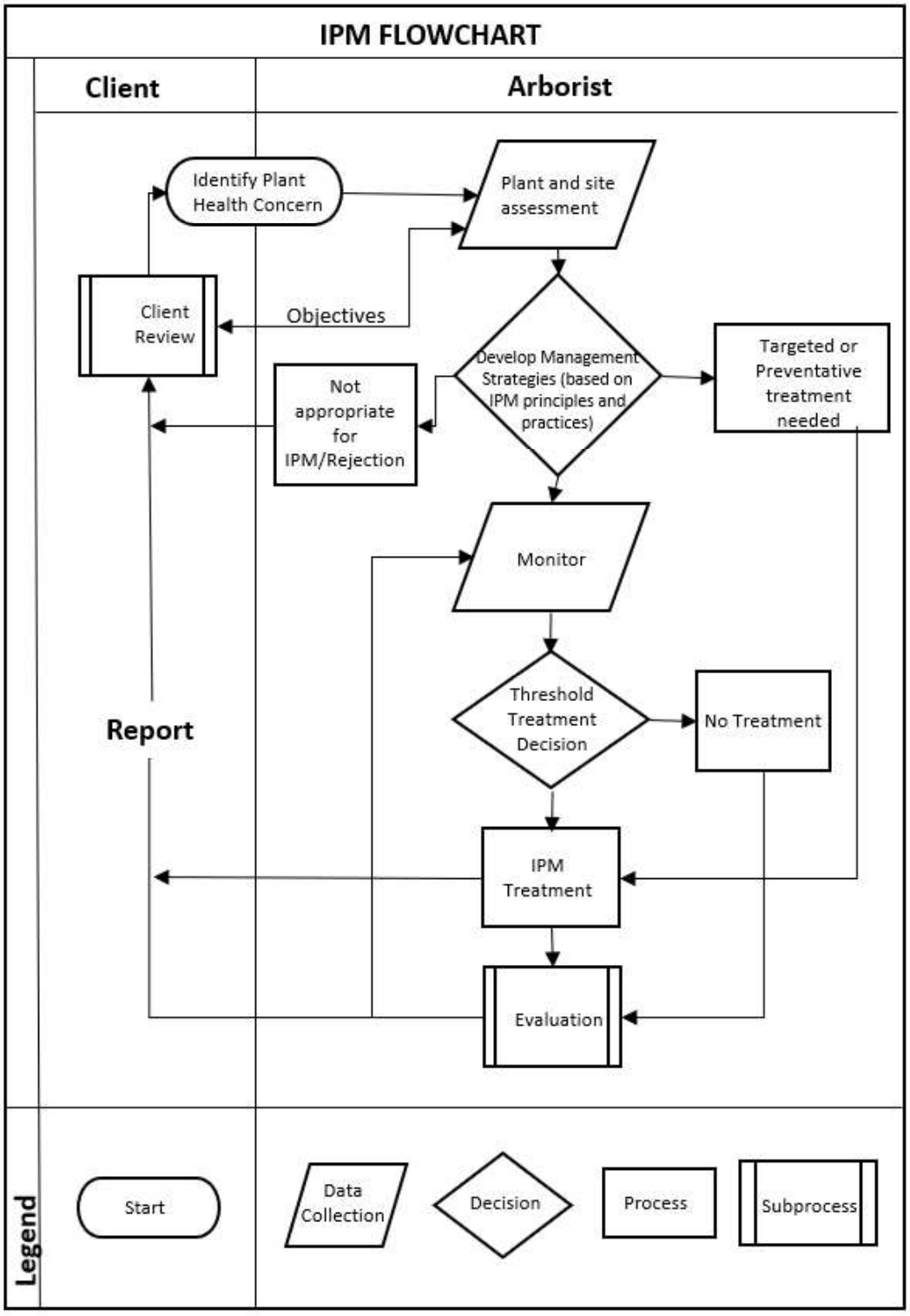
Appendix A

Tree Care for Birds and Other Wildlife Best Management Practices Project Preparation Procedure



Appendix B

Integrated Pest Management Plan Flowchart



Appendix C

ISA Tree Planting Cue Card

Selecting quality trees: Planting quality trees begins by choosing vigorous, structurally sound trees from the nursery. Strong trees have straight roots, a thick trunk with taper, and a good branch structure appropriate for the species (Fig. 1). The root collar (the uppermost roots) should be in the top 2 inches of the root ball.

Figure 1. Quality tree ready for planting.

Digging the hole: A firm, flat-bottomed hole will prevent trees from sinking. Dig the hole only deep enough to position the root collar even with the landscape soil surface (Fig. 2). Use a rototiller or shovel to loosen soil in an area three times the size of the root ball. This loose soil promotes rapid root growth and quick establishment.

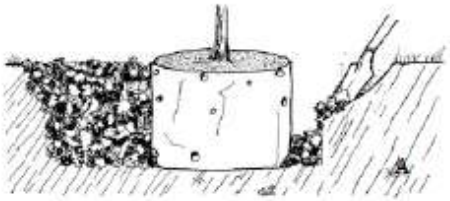


Figure 2. Loosening soil in a large area around the root ball allows for rapid root growth and quick establishment.

Installing the tree: Remove soil and roots from the top of the root ball to expose the root collar; cut away any roots that grow over the collar (Fig. 3). Also cut any roots that circle or mat along the sides and bottom of the root ball (Fig. 4). The root collar should be even with the landscape soil after planting (see Fig. 3). Backfill with soil removed from the hole. Minimize air pockets by packing gently and applying water. Build a berm 4 inches tall around the rootball to help force water through the root ball. Enlarge the berm as the tree establishes.

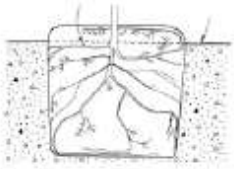


Figure 3. Remove soil and roots growing over the root collar (A) and place collar level with soil surface (B).

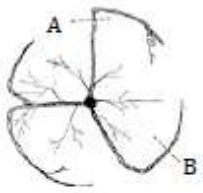
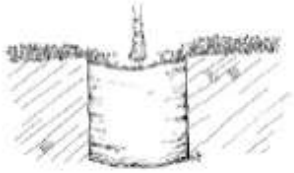


Figure 4. Cut roots at (A) to form new roots that grow away from the trunk. Do not cut roots at (B), since the root defects will regrow.

Staking: Staking holds trees erect and allows the root ball to anchor. Secure the trunk at the point where the tree stands straight. A second stake tied directly to the trunk made of bamboo may be required to straighten the upper trunk.

Mulching: A layer of organic mulch, such as leaf litter, shredded bark, or wood chips, helps protect tree roots from temperature extremes and conserves soil moisture. Mulch also helps prevent grass from competing with the tree for water and nutrients. The mulched area makes it easier to operate mowers and weed eaters without hitting the trunk and compacting soil. Apply mulch to a depth of 3 to 4 inches (slightly thinner on top of the root ball).



Irrigating: Consistent irrigation is critical for establishment.
1. Apply about 3 gallons irrigation per inch of trunk diameter to the root ball 2 or 3 times a week for the first growing season.
2. Increase volume and decrease frequency as the tree becomes established.
3. Weekly irrigation the second year and bimonthly irrigation the third year should be sufficient for establishment.
4. Once established irrigation requirements depend on species, climate and soil conditions.
5. Irrigation devices should be regularly checked for breaks and leaks.

Pruning: Training young trees promotes structurally sound growth and overall tree health. Cut back or remove codominant stems (stems that compete with the central leader) to encourage growth in the central leader (below).

Before Pruning

After Pruning

Urban Tree Foundation

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Appendix D

Urban Wood Sustainability Species List

Botanical name	Common Name	Type	Height	Spread	Growth Rate	Water use
Acacia melanoxylon	Black Acacia	Evergreen	40-50	20-30	Fast	Moderate
Alnus cordata	Italian Alder	Deciduous	40-50	25-30	Fast	Moderate
Calocedrus decurrens	Incense Cedar	Evergreen	50-70	15-20	Slow	Moderate
Casuarina equisetifolia	River she-oak	Evergreen	60-70	30-40	Moderate	Moderate
Ceratonia siliqua	Carob tree	Evergreen	30-40	30-40	Moderate	Moderate
Cupressus arizonica	Arizona cypress	Evergreen	30-40	15-20	Slow	Low
Dalbergia sissoo	Indian Rosewood	Deciduous	45-60	30-40	Moderate	Moderate
Eucalyptus camaldulensis	River red gum	Evergreen	45-150	45-105	Fast	Moderate
Eucalytpus sideroxylon	Red ironbark	Evergreen	30-90	30-60	Fast	Moderate
Fraxinus uhdei 'Majestic Beauty'	Majestic Beauty' ash	Deciduous	70-80	50-60	Fast	Moderate
Gleditsia tricanthos var. inermis	Thornless honey locust	Deciduous	50-60	30-40	Fast	Moderate
Grevillea robusta	Silk oak	Evergreen	50-65	25-40	Fast	Moderate
Hesperocyparis macrocarpa	Monterey cypress	Evergreen	45-60	45-50	Fast	Moderate
Juglans nigra	Black walnut	Deciduous	90-100	60-70	Moderate	Moderate
Morus alba 'Fruitless'	Fruitless mulberry	Deciduous	20-30	30-45	Fast	Moderate
Pinus torreyana	Torrey pine	Evergreen	40-50	30-40	Fast	Moderate
Populus fremontii 'Nevada'	Western cottonwood	Deciduous	40-80	30-50	Fast	Moderate
Prunus caroliniana	Prunus caroliniana	Evergreen	20-30	15-25	Fast	Moderate