DRAFT

CITY OF GOLETA
URBAN FOREST MANAGEMENT PLAN

City of Goleta
Community Services Department
December 8, 2010

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Table of Contents

		Page
1.	Introduction to the Goleta Urban Forest Management Plan	4
2.	Vision Statement	6
3.	Inventory of the public trees for which the City of Goleta is responsible	7
4.	Goleta Urban Forestry Program Overall Goals	9
	4.1 Canopy Coverage	10
	4.2 Age Diversity	11
	4.3 Species Diversity	13
	4.4 Tree species eligibility list	14
	4.5 Right Tree, Right Place	16
	4.6 Early Tree Care	18
	4.7 Very Mature Tree Care	20
	4.8 Professional Tree Care Standards	22
	4.9 Urban Wood Reuse	24
	4.10 Infrastructure Coordination	26
	4.11 Urban Heat Island Mitigation	28
	4.12 Tree Risk Management	29
	4.13 Pest and Disease Management	31
	4.14 Environmentally Sensitive Habitat Areas	32
	4.15 View corridors	33
	4.16 Heritage Trees	34
	4.17 Trees and Economic Development	36
	4.18 Tree Advisory Board	38
5.	Urban Forestry and Regional Planning	41
	5.1 Air Quality	41
	5.2 Storm-water Management	44
	5.3 Energy Conservation /Coordination with solar power systems	46
	5.4 Greenhouse Gas Reduction	48
	5.5 Utilities	50

6. Goleta Urban Forest Resources
   6.1 Community Services Urban Forestry Personnel, and budget 54
   6.2 Goleta Urban Forestry Program professional standards 57
   6.3 City of Goleta Interdepartmental coordination 58
   6.4 Planting of new and replacement trees Annual Targets 59

7. Urban Forestry Education, outreach and partnerships
   7.1 Public Outreach / Education 61
   7.2 Nonprofit urban forestry partnerships 63
   7.3 Professional urban forestry partnerships 64
   7.4 Government and public agency partnerships 66

8. Goleta Urban Forest Ordinances and enforcement 68

9. Financing strategies 71

10. Summary of Recommendations for approval of 5 year incremental plan 73

Appendices
A. Society for Municipal Arborists Municipal Forestry Accreditation Program 81
B. Goleta Street Tree Species Frequency 82
C. Potential Heritage Tree Sites 87
D. Bibliography and Resources used 88
E. Five Year Projected Allocation of City Urban Forestry Staffing 94
F. Tree species eligibility list 97

1. Introduction to the Goleta Urban Forest Management Plan

The City of Goleta initiated the development of this Urban Forest Management Plan to guide the long term preservation and enhancement of the public urban forest within the City of Goleta. The Conservation Element of the Goleta General Plan calls for the development and maintenance of a Public Urban Forest Master (or Management) Plan that describes and maps the resource, provides a vision statement, establishes measurable urban forest management goals and performance standards, presents a timeline for managing the Goleta Urban Forest, and includes any additional information the city deems is appropriate.

The Goleta urban forest consists of all public and private trees, which include the street tree system, trees on parks and other public lands, and trees on private properties throughout the city. This plan deals with the public trees, especially those on streets, walkways and other areas where they will be affected by people, and need to be proactively managed for the health and safety of both the trees and ourselves.

The City of Goleta shares the responsibility for the management of naturally occurring and planted trees and associated plants in public urban areas with a number of other public agencies. The majority of the urban forest is in private areas and their management is primarily a private responsibility.

With the aid of a grant from the California Department of Forestry and Fire Protection, the City has embarked on a three stage process for developing a Goleta Urban Forest Management Plan. One of the first efforts in creating this plan was to develop a set of baseline conditions of Goleta's trees and the administrative practices for managing them. The State of the Goleta Urban Forest Report developed a snapshot of the current conditions of the Goleta urban forest, including an aerial analysis of the entire Goleta public and private urban forest, and an inventory of current goals, policies, and urban forest conditions. A copy of this report is available through the Community Services Department

The Goleta Urban Forest Guidelines report was the second stage of the Urban Forest Management Planning process and built upon the State of the Goleta Urban Forest Report. The guidelines for the Goleta Urban Forest Management Plan are based on the directives adopted in the Goleta General Plan. This report examined in greater depth the purpose of the urban forest management planning effort, a review of the State of the practice for urban forest management plans, and items to consider in preparing a final urban forest management plan.

Several public meetings were held to gather public input during the development of the State of the Goleta Urban Forest Report and the Goleta Urban Forest Guidelines Report. Public comments were incorporated into the documents.

The purpose of this draft third phase of this process is to achieve a sustainable urban forest in which the ecological, social, and economic functions and benefits are maintained over time. The City of Goleta Urban Forest Management Plan describes a long range 20 year strategic plan for achieving urban forest goals in five year time frame

increments updated with annual reports. The plan includes tasks, priorities, best management practices, standards, specifications, and funding recommendations. Best management practices, or the best available, industry-recognized courses of action, are used to maximize environmental benefits, or improvements to the natural world provided by the urban forest.

The draft Goleta Urban Forest Management Plan includes recommendations that follow from the Goleta General Plan and, if followed, will help ensure the health of the urban forest by setting guidelines for canopy coverage, diversity, size, infrastructure conflicts, maintenance, and other areas of importance.

These recommendations are the basis of the Goleta Urban Forest Management Plan. Implementation of the recommendations and associated objectives are necessary to achieve the goals of the Goleta Urban Forest Management Plan.

Each recommendation is accompanied by specific objectives. Possible performance metrics are included, along with current conditions that will serve as the baseline for comparison. When available, timelines and projected resource needs are identified. These hours are expressed in terms of Full Time Equivalence (FTE) for an-employee working 2000 hours or 250 days per year.

The draft Goleta Urban Forest Management Plan includes an initial five year implementation program. The intent of adopting an Urban Forest Management Plan is to create a living document that can be revised and updated as conditions change. The City Arborist will prepare an annual report that will serve as both a summary of accomplishments for the prior year and a game plan for the year to come.

Recommendation

1. Adopt the Urban Forest Management Plan covering all public areas, and all new land use development applications:

Objectives

1. While only 29% of public trees are under the jurisdiction of the City, this plan establishes comprehensive policies to protect and preserve the City's urban forest that should be followed by all groups, organizations and departments responsible for the management of public trees.

2. The Urban Forest Management Plan will assist in increasing interdepartmental coordination and the ability to identify issues that would benefit from attention from multiple departments. Air quality, storm-water management, water quality, energy conservation and greenhouse gas emissions are among those areas that may be simultaneously affected by their respective management plans, the Urban Forest Management Plan, and others.

Performance Standards

To monitor the progress and assess the success of these recommendations, it is recommended that an annual report be compiled and presented.

Resources and Timelines:

Years 1-5 Writing the introduction section of the annual report: 4 hours = 0.002 FTE

2.0 Vision Statement

The City of Goleta General Plan calls for a vision statement in the Goleta Urban Forest Master Plan. A vision is a short, succinct, and inspiring statement of what the City Council intends for the Goleta urban forest to become and to achieve at some point in the future. Vision refers to the category of intentions that are broad, all-inclusive and forward-thinking. It describes aspirations for the future, without specifying the means that will be used to achieve those desired ends.

While the Goleta urban forest is defined as all public and private trees within the City of Goleta, the current process is to develop a public Urban Forest Management Plan. Recommendations for the private urban forest may be considered at a future date once public urban forest management issues have been addressed.

Staff, consultants and the public reviewed vision statements from other jurisdictions and developed a draft vision statement as part of the Goleta Urban Forest management Plan process. The vision statement from the City of Seattle seemed to have the best fit for Goleta, and is presented here.

We are reminded that trees within an urban forest have many environmental benefits, including creating oxygen and removing gases and particulates that can be harmful to humans. Trees provide shade to reduce temperatures in heat island areas (large areas of paved surfaces) and protect people from excessive sun. Trees absorb storm water, allowing it to sink in and recharge our water basins, and also to protect our neighborhoods from flooding by reducing the need to large scale flood protection structures. When sited correctly, trees can also provide energy conservation by decreasing the need for air conditioning in the summer while still allowing the sun's rays to reach through bare deciduous trees in the winter. And trees surrounding a home or business can make a property much more valuable than a barren location.

Recommendation

1. That the City of Goleta adopt the following vision statement for the Goleta Urban Forest Management Plan;

Goleta's urban forest is a thriving and sustainable mix of tree species and ages that creates a contiguous and healthy ecosystem that is valued and cared for by the City and all of its citizens as an essential environmental, economic and community asset.

Objective

- The current vision statement will serve as a general guide pending review and revision as appropriate by the proposed Goleta Tree Board.

Performance Standard

- Ability of the statement to reflect the future direction of the Goleta Urban Forest

Resources and Timelines

Years 1-5 Reviewing accomplishment of the vision statement as part of the annual report– 4 hours =.002 FTE annually

3.0 Inventory of the public trees for which the City of Goleta is responsible

This section is a further clarification of City of Goleta Tree responsibilities and the City relates to other public and private urban forests.

City of Goleta Tree Inventories Tree inventories are conducted by multiple individual agencies for different reasons and levels of accuracy. Thus the information we have about the entire Goleta Urban Forest is an approximation with some gaps in the data, particularly in dealing with trees on private property and those public agencies with small tree populations.

The latest City of Goleta comprehensive street tree inventory (i.e. surveying every tree) was completed in 2004. The street tree inventory is updated on a continuous basis as trees are maintained by the City's contract arborists. A working copy of the street tree inventory is available for viewing in the City's Community Services Office, but due to its large size and continuous updating, it is not included as an appendix.

The City's partial Park tree inventory was conducted in 2006 by Goleta Valley Beautiful volunteers in an effort to highlight the location, species and condition of major trees close to publicly used areas, and to identify potential sites for new trees on the periphery of Goleta Parks and open spaces. The inventory has not been updated. This inventory is also available with the City Arborist at the Community Service Department.

Number of Trees The total estimated number of trees within the City of Goleta's public and private urban forest is approximately 50,190. These figures are estimates only based on available data.

An estimated 58% of the trees in the Goleta urban forest are within private ownership. This includes most of the trees in creeks and riparian drainage ways which the Santa Barbara County Flood Control Agency is responsible for flood control purposes, but not the ongoing care of trees.

Of the remaining 42% of trees in the Goleta urban forest maintained by public agencies, the City of Goleta is responsible for about 29% of the total or about 14,855 trees. The other 13% or about 7,210 trees are split among 9 other public, semi-public and non-profit agencies

Trees	Tree Subtotals	%	Agency	Location
30,000		57.9	Private Sector	Citywide including riparian areas
	30,000			
6,727		13.0	City of Goleta	Street parkways and medians
5,000		9.7	City of Goleta	Natural and public areas
3,128		6.0	City of Goleta	Parks & Open Spaces-Managed
	14,855			
3,600		7.0	Southern CA Edison	Utility Easements
1,500		2.9	CalTrans	Highway 101, Route 217
1,000		1.9	Goleta Union School District	10 elementary campuses
600		1.2	SB Secondary School District	1 High, 1 Jr. High School
200		0.4	Foundation for Girsh Park	Girsh park
35		0.1	County Fire	Fire Stations 11, 14
0		0	Special Districts	Service Easements
0		0	County of Santa Barbara	Flood Control Corridors
	6,935			
51,790		**100%**	**Total Trees in Goleta Urban Forest**	

Recommendations

1. Maintain a computerized non-proprietary database inventory of public trees that is continuously updated whenever a tree is planted, removed, or maintained by City staff, contractors, or volunteers.
2. Conduct a complete inventory of public trees every ten years beginning in 2014.

Objectives

1. For staff to have an accurate tool for managing the Goleta Urban Forest

Performance Standards

1. Is the information current enough to allow staff to make individual and comprehensive assessments of the condition of the Goleta Urban Forest

Resources and Timelines

Years 1 – 5 Staff review of inventories 5 days = 0.022 FTE annually

Year 1 - 5 Annual inventory summary in the Annual Report 4 hours = .002 FTE annually

4. Goleta Urban Forestry Program Overall Goals

The topics explored in this section are the heart of the Goleta Urban Forest Management Plan. These topics establish the framework for polices that will be later incorporated in ordinances and regulations, and will also provide staff direction for administration of the plan.

:

4.1 Canopy Coverage:

Urban tree canopy is the layer of leaves, branches, and stems of trees that cover the ground when viewed from above. Goleta's overall 2008 canopy coverage is approximately 19%. This figure includes public and private areas, and both tree and large shrub canopy as the analytical tools used do not differentiate between trees and shrubs. The 19% figure is thus a generous interpretation of tree canopy coverage, since shrubs are usually not large enough to provide shade.

The City could increase the total net tree canopy of the City by 2% over a ten year period by planting all 2,952 currently vacant street and park tree sites. This gain would assume that the private tree canopy remains the same. However, anticipated constraints on current vacancies indicate that only 2,362 sites may be plantable. If all plantable sites were planted, a conservative increase in overall canopy would be closer to 1% than 2%.

Recommendations:

1. Consider a policy of no net loss of public tree canopy
2. Consider a policy of increasing the total percentage of canopy within the City from the current 19% to 20% over a ten year period.

Objectives:

1. Identify annual tree planting and care efforts needed to preserve and increase canopy within geographic areas of the City and within specific land uses
2. Encourage other public agencies and private parties to increase the canopy coverage of land under their control.

Performance Standards:

1. Every five years, recalculate the canopy coverage of City-managed and total land.

2. Include a section in the annual report detailing with general changes in canopy such as number of trees added and removed, and including any new recommendations or alterations to the recommended coverage percentages.

Resources and Timelines:

Year 1 - Tree canopy assessment: 3 days = 0.013 FTE

Year 1 - Tree canopy policy refinements: 4 hours = 0.002 FTE

Year 6 - Reassessing the canopy and writing the canopy section of the report every five years: 1 month = 0.088 FTE annually

4.2 Age Diversity:

Goleta's Urban Forest is generally mature to very mature. Most long lived native trees in the Goleta Valley were cut down by settlers in the late ninetieth and early twentieth centuries. A majority of average age Goleta street trees were planted in conjunction with post World War II building booms in the 1950's and 60"s. Recent attempts by nonprofits to revegetate Goleta's parkways and open spaces with moderately to very long lived trees have helped slow the overall average age.

Longevity is an important consideration for long-term shading, screening, beauty and value of a property. Short-lived trees may also be wonderful shade trees, and can be useful where permanence is not the ultimate goal. Longevity may vary depending on proper selection of adapted species, care the tree receives, risk of mechanical damage, and the presence or lack of diseases and pests. Longevity is defined as follows:

- Short – less than 50 years
- Average – 50 to 150 years
- Long – greater than 150 years.

In addition, the environmental benefit of trees increases as they grow and age. As trees live longer than their anticipated lifespan, they are classified as very mature. While the environmental benefits are great, there are also preventative maintenance costs as trees mature.

A healthy urban forest should have tree species that have average to very long lives. In addition, a majority of its trees in mature to really mature status, as older trees are the most environmentally beneficial.

Recommendations:

1. The Goleta Urban Forest should emphasize a variety of ages of trees within its inventory, with an emphasis on species with long lives, and with a majority of the trees being in the average age category

Objectives:

1. Assess the current age distribution of all public trees managed by the City.

2. Enact the necessary administrative policies requiring age estimates to be included in all new tree inventory data

3. Pursue a planting and management program that will gradually produce the following distribution:

Age	Current Estimate	Recommended
Young-less than 50% of avg. lifespan	10%	20%
Mature->50%<125% of avg. lifespan	80%	70%
Very-mature->than 125% of avg. lifespan	10%	10%

<u>Longevity of species</u>

	Current Estimate	Recommended
Short <50 years	30	10
Average >50 years	50	60
Long >150 years	20	30

Performance Standards:

1. Annually reassess the age distribution of the City-managed trees.

2. Include a section in the annual report detailing the change in distribution, and including any new recommendations or alterations to the recommended distribution.

Resources and Timelines:

Year 1 - Annual tree age assessment: 3 days = 0.013 FTE

Year 1 - Writing administrative policies enacting estimated tree age data collection: 2 days = 0.008 FTE

Year 1 – 5 Reassessing age distribution and writing the age diversity section of annual report: 4 hours = 0.002 FTE annually

4.3 Species Diversity:

Species diversity is important for disease and pest resistance, calculating maximum environmental benefit through canopy coverage, identifying sustainable native trees, tree longevity, and resolving tree conflicts with hardscape.

When considering the data from the City's street tree inventory, there are 178 different species of trees along Goleta streets, with over 100 of those species with less than 10 trees represented in the inventory. The top 30 species account for 89% of street trees. 21 of the top 30 species are no longer on the list of species approved to be planted in public right of way. This includes the most numerous tree in the City inventory, the Lemon bottlebrush (Callistemon citrinus), and large street trees such as Ash, Sweet gum, Elms and Pines. The complete list of species frequency within the City of Goleta is included in an appendix to this report.

Recommendations:

1. Consider citywide street/park species diversity goals of 10% Cultivar, 20% Genus, and 30% Family to help protect the Goleta urban forest against diseases and other pests.

Objectives:

1. Assess the current species, genus, and family distribution of all public trees managed by the City.
2. Pursue a planting and management program that will gradually produce the following citywide species distribution:

Tree Group	Current Estimated Distribution	Recommended
Cultivar	10%	10%
Genus	20%	20%
Family	50%	30%

3. Consider developing an individual street/park diversity goal of no more than 15-25% of a cultivar

Performance Standards:

1. After the adoption of the objectives, annually reassess the species distribution of the City-managed trees.

2. Include a section in the annual report detailing the change in distribution, and discussing progress made in each objective.

Resources and Timelines:

Year 1 – 5 Annual tree species distribution assessment: 3 days = 0.013 FTE

Year 1 Implementing the species diversity program: 2 days = 0.008 FTE

Years 1 -5Reassessing species distribution and writing species diversity section of annual report: 4 hours = 0.002 FTE annually

4.4 Tree Species Eligibility List

The current approved street tree species was adopted in February 11, 2009. There is no separate list for park or natural open space areas, restoration sites, other public buildings and areas.

As a replacement for a recommended species list, a proposal for consideration in this report is to adopt an eligibility list from which approved tree species are authorized by the City Arborist. The eligibility list reviews the characteristics of tree species that are potentially workable in the Goleta, depending upon a number of conditions including climate, mature tree height and width, deciduous/evergreen, water needs, longevity, soil volume needs, site location, and invasiveness.

Enlarging the eligibility of species to be considered for public trees is not the same as being recommended for a particular public area. All trees will have some characteristics that may make it more or less suitable for a site. An eligibility list expands the number of potential choices, from which a final species decision will be made.

The tree species eligibility list in the appendix is the first step at expanding the potential tree species to be considered for Goleta public trees. It is based on the Selectree database maintained by the CalPoly Urban Forest Ecoystems Institute and used as a primary source of allowable tree species by the California Department of forestry and fire Protection. To initiate the list, only trees suitable for planting in Goleta's climate are included, which is defined as Sunset Zone 24. Additional tree species proposed to be added to the eligibility list include some of those listed in the Muller and Boorstein study of tree diversity among California's Tree City USA cities, and trees listed in the Muller and Haller text, 'Trees of Santa Barbara'

All palm species were removed from the SelecTree list. Palms are not woody trees and are more related to grasses. Palms do not provide the environmental benefit that woody trees provide nor are their fronds easily recyclable. Legal palms within City right of way can continue to stay, however as a matter of public policy, trees and not palms are recommended for future public tree plantings and replacements.

Any plant listed on the California Invasive Plant List will not be listed on the eligibility list. This list includes many widely established tree species in Goleta including Pittosporum, Myoporum, Mexican Fan Palms (Washingtonia robusta) and Canary Island Date Palms (Phoenix canariensis) among others.

Recommendations:

1. The City's tree species list should relate to the City's adopted urban forest policies, including choosing species for maximum environmental benefit, canopy coverage, native tree emphasis, longevity, sustainability and Increasing the diversity of species.

2. Consider revising the recommended street tree list to include all public tree sites and use the Appendix F tree species list to identify trees eligible for planting in public areas

according to criteria in the Goleta Urban Forest Management Plan and interpreted by the City Arborist.

Objectives:

1. Use Selectree as a standard for identifying allowable species, with recommended additions as identified in Appendix E.
2. If a tree that is on the tree species eligibility list is shown to not meet performance standards in the conditions in which it is to be planted, or if a tree that is *not* on the tree species eligibility list is shown to meet those performance standards, then the official list may be deemed inappropriate by the City Arborist for each situation.
3. If there is no local data for the performance of a particular species in the proposed location conditions, performance in similar climates elsewhere should be referenced.
4. Criteria to consider when selecting trees species for public areas

    I. Considering drought-tolerant species.

    ii. Considering native and non-invasive species[1] to prevent damage to the surrounding habitat.

    iii. Considering trees with resistance to pests and disease.

    v. Considering trees with a low probability of root conflicts near streets.

Performance Standards:

1. Include a section in the annual report assessing whether or not the policy is followed.
2. Identify new plantings that do not appear on the official species list and determine whether or not they were appropriate for the location
3. Determine whether any species on the official list were planted inappropriately.

Resources and Timelines:

Year 1 Developing the program: 1 week = 0.022 FTE

Year 1 – 5 Collecting data: 1 weeks = 0.022 FTE annually

Year 1 - 5 Writing the tree species section of the annual report: 4 hours = 0.002 FTE

4.5 Right tree, right place

Major issues concerning the placement of trees in urban spaces include:

Soil volume – The volume of soil available for rooting must be large enough to support the intended tree size. Most usable soil volume is found in the first three feet below the

surface. Limitations on soil volume will result in trees that do not reach mature size levels, and may also affect adjacent infrastructure. The soil volume for a tree can be increased by removing non permeable coverings (ex. concrete, brick, decomposed granite) within planting sites, enlarging planting sites by reconfiguring adjacent sidewalks to minimum ADA standards, reinforcing construction of nonpermeable walkways adjacent to planting site, installation of appropriate root diverters

Diversity versus Monoculture – Goleta has opted to diversify its plantings to avoid catastrophic failures in the event of changes in insect and disease vectors, and provide diverse habitat for the insect and animal world.

Natives versus exotics – Outside of environmentally sensitive habitat areas, the soil and drainage characteristics of urban environments are different than those of trees growing in their native environment, so essentially most trees are exotic in urban conditions. The best tree suited to a site is recommended

Tree spacing- A general rule of spacing trees every 25 to 35 feet is not as workable as a general rule when applied to trees of varying sizes. Tree spacing should take into consideration the potential mature crown of the tree and plant so that tree crowns adjoin but do not interconnect.

Time and trees – Rather than require an 'instant landscape' by planting a large tree at the time of planting, smaller size trees (5 to 25 gallon trees) should be allowed that provide for greater diversity and less planting cost.

Recommendations:

1. The basic criterion for tree location should follow a flexible "right tree, right place" policy that selects species that are appropriate for the specific conditions in which they are to be planted, so as to minimize ongoing maintenance by city staff. Many elements of this policy are currently in practice an should include;
    - The largest mature size tree species possible should be planted at a site.
    - The ultimate mature size of a tree species that can be planted at a tree sites can be identified by comparing the volume of available soil compared to the projected soil needs of the tree at maturity, with the caveat that lack of sufficient soil volume can result in slower growth, smaller trees, and shorter life expectancy.
    - To allow sight distance for vehicles, trees should be planted a minimum distance away from intersections according to the latest edition of the Traffic Engineering handbook. For example, at least 25' away from intersections on 25 mph roads.
    - Street trees will be gradually pruned to a have clear trunk clearance of 14' along streets and 8' above a sidewalk. A minimum canopy depth of 6-11 feet is recommended, thus tree species at maturity that are less than 20' are not recommended as street trees.
    - Street tree sites should be located a sufficient distance from driveways, gas and water lines (generally a minimum of 7 feet), positioned so that the

canopy at maturity will not substantially interfere with street lights, and not directly over sewer lines.

- New and replacement street trees planted under electrical power lines should not exceed 25' in height at maturity so that the edge of the tree canopy will not come within 4 feet of household electrical transmission wires. This recommendation does not apply to telephone, cable or street light power lines. .

Objectives:

1. Improve current procedures from a 'one size fits all' policy regarding the siting of trees to a policy of taking into consideration a wider range of factors that impact the long term health and viability of a tree.
2. One area not addressed in any policy areas is a planting policy for higher pollen producing trees. A large number of native trees are high pollen producers including oak, sycamore, alder, willow, and elderberry among others. A policy of restricting planting of high pollen producing trees would curtail most native tree planting efforts. Generally the male trees within a species are the pollen producers, while the flower producing females trees are relatively pollen free. Possible future policy considerations would be to consider planting a higher proportion of higher pollinating trees on streets in order to reduce litter.

Performance Standards:

1. Include a section in the annual report on the implementation of each policy. Assess new plantings for their compliance with their respective policies, and include any proposed changes to said policies.

Resources and Timelines:

Year 1 - Implementing 'right tree right place' recommended policies: 3 weeks = 0.066 FTE

Year 1 – 5 Collecting data: 3 days = 0.013 FTE annually

Year 1-5 Writing the 'right tree-right place' annual report: 4 hours = 0.002 FTE annually

4.6 Early Tree Care

Young trees should be viewed as an investment. With time, young trees will eventually reach their full value as mature and structurally sound shade trees providing enormous benefits to the surrounding area at minimal risk to the community. However, proper techniques are essential within the first stages of the tree's life for this to happen.

Local public tree planting experience indicates that a 3% mortality rate can be expected for new trees within the first year of planting, and a 1% annual mortality rate after that. Mortality rates include all causes, including too much or too little water, pests, disease, accidents, vandalism, etc

Recommendation:

1. Recognize the critical importance of the first five years of a tree's life

2. Adopt an early tree care program that implements proper tree planting and training techniques so that young trees will become established within two years of planting with a mortality rate of less than 4%.

Objective:

1. Implement the general elements of tree planting to ensure a well-established young tree keeping in mind that practices may be more specified at the arborist's discretion:

Proper planting holes- firm, flat bottomed hole will prevent trees from sinking. Loosened soil that is three times the area of the size of the root ball

Installment & root management- 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. Also, cut roots to form new roots that grow away from the truck.

Staking (if necessary) **-** holds trees erect and straightens the upper trunk

Mulching- a layer of organic mulch helps protect roots and prevents competing grasses from growing

Irrigating: consistent irrigation is critical for proper establishment.

2. Implement regular training practices to ensure the future quality of young trees. Also, proper training practices promote structurally sound growth so that the tree will pose absolute minimal risks to the community

Structural pruning- cut or remove stems that are competing with the central leader. This will encourage growth in the central leader. Also, identify the lowest branch in

what will become the permanent crown and prevent branches from growing below the identified crown.

3. Enact the necessary ordinances to create special fines or other punishments for damaging or removing young trees

4. Monitor and record the mortality rate of trees within the first 5 years after planting

5. Encourage volunteer training to involve the general public in young tree care

Performance Standards:

1. Include a section in the annual report assessing the mortality rate of trees younger than 5 years old. If the rate is higher than 7%, make recommendations for further action to maintain the health of young trees.

Resources and Timelines:

Year 1 - Developing the early tree care program: 3 days = 0.013 FTE

Year 1 – 5 Implementing early tree care policies: 3 days = 0.013 FTE

Year 1 – 5 Collecting data and writing early tree care section of the annual report: 4 hours = 0.002 FTE annually

4.7 Very Mature Tree Care

Very mature trees are those trees that have lived longer than their normal lifespan. While these may require more preventative maintenance to maintain their health, these trees continue to provide significant environmental benefits. Trees offer more benefits as they age. A mature tree increases property values, beautifies its surroundings, purifies the air, and saves energy by providing shade during summer and protection against cold winds in the winter. Therefore, a preventive care program should not only be viewed as a cautionary measure against tree deterioration but ultimately, as an investment for the city. In order to allow these investments to prosper, regular maintenance of mature trees is critical. Keeping in mind the longevity of most trees, regular maintenance of mature trees are enormously more beneficial in the long run rather than addressing any problems after they have occurred.

Recommendations:

4.7.1 Identify very mature trees in the City's tree inventory and sustain their number through preventive maintenance .
4.7.2 Healthy trees, especially very mature trees, should be retained to the greatest extent possible.

Objectives

1. Inspect trees once every three years so that problems can be prevented or solved at a lesser cost. The following are the criteria for inspection of mature tree health:
    - reduction in buds or new leaves compared to previous years that indicate atypical growth pattern
    - Trunk decay and/or crown die back which demonstrates poor tree health. Common signs of stem decay also include loose bark or deformed growths.
    - Any other abnormalities such as insect activity and spotted, deformed, discolored, or dead leaves and twigs should also be taken into consideration.
2. Establish a regular maintenance program to ensure very mature tree health. Three major practices to tend mature trees include mulching, fertilization, and pruning.
   Recommended practices include

- Mulching reduces environmental stress on trees. It also prevents mechanical damages that could be done to the tree's base. Lastly, mulch reduces the competition of invading vegetation.
- Fertilization is to be used based on the arborist's observation of the mature tree's soil conditions. Fertilizer promotes mature tree health by providing essential elements for growth especially in nutrient-poor soils.

- Pruning is to be practiced regularly in order to remove dead, diseased, or infested branches so that the structure, vigor, and safety of the tree can be enhanced.

3. Recognize that tree removal is deemed necessary at the arborist's discretion considering the following conditions of the tree:
    - dead, dying or hazardous
    - causing an obstruction to neighboring trees that pruning cannot correct
    - it is to be replaced by a more suitable specimen
    - required to be removed for construction
    - high maintenance or invasive species that is unsuitable
    - expected sidewalk damages from roots
    - expected hazards such as being situated under a power line
    - poses a risk to the community (4.13 Risk Management)

4. If tree removal is deemed absolutely necessary at the arborist's discretion for reasons such as, but not limited to the ones above, refer to 4.9 Urban Wood Reuse

Performance Standard:

1. After regular inspections, determine the number of very mature trees that continue to thrive after implementing regular maintenance practices (Objective 2). Compare this number to previous years.
2. After regular inspections, access whether or not the need for tree removals have been reduced.

Resources and Timelines:

Year 1 - 5 Annual very mature tree inspection: 5 days= 0.022 FTE

Year 1 – 5 Annual report writing: 4 hours = .002 FTE

4.8 Professional Tree Care standards

The importance of scientifically based pruning and tree care practices is essential for the health of trees, as is contracting with tree care companies that follow safe, environmentally sound practices.

Recommendation:

4.8.1 Adopt the latest revisions of the following professional standards for Tree Care for the City of Goleta Urban Forestry program:

a. American National Standards Institute (ANSI) A300 tree care standards

b. ANSI Z133.1 Safety standards

c. International Society of Arboriculture (ISA) Best Management Practices

4.8.2 All tree care contractors doing business within the City of Goleta should verify that they operate according to the above standards when they secure their Goleta Business License. When awarding tree work contracts, the City should show a bid preference for TCIA-accredited companies. These are prerequisite for Society of Municipal Arborists accreditation.

Objectives:

1. When awarding tree work contracts, consider only those companies that follow professional standards for tree care.
2. Enact the necessary ordinances to require all City Departments and contractors working with existing or new public trees to report changes in the status of each tree within 24 hours to the City Arborist. The report shall be in a format developed by the City Arborist and include information on the location, species, status changes, and additional information as required by the City Arborist.
3. Monitor and record instances of topping and other destructive pruning practices.
4. Advocate for tree preservation and planting plans to be prepared for all new developments
5. Ensure that tree maintenance workers are trained in:

a. Work practices and safety procedures

b. Medical services and first aid

c. Job briefing

d. Personal protective equipment

e. Mechanical equipment

f. Line clearance tree pruning operations

Performance Standards:

1. When a contract is awarded for tree work, determine whether appropriate

preference for TCIA-accredited companies was shown during the bidding process. If not, critically examine the contractor's performance and incorporate findings into the annual report.

2. Include a section in the annual report assessing whether tree status change information given to the City Arborist is accurate. If not, utilize the appropriate enforcement mechanisms.

3. Include a section in the annual report assessing the effectiveness of the ordinances in deterring destructive pruning practices.

Resources and Timelines:

Year 1 – 5 Monitoring professional standards: 5 days= .022 FTE

Year 1 – 5 Writing the professional tree care standards section of the annual report: 4 hours = 0.002 FTE

4.9 Urban Wood Reuse

Creating an environmentally sound policy for the removal trees is critical to avoid any unnecessary and costly removal of trees that would have otherwise provided substantial and long-term benefits to the community. However, the occasional and necessary removal of trees can be expected. When this becomes the case, urban wood reuse policies should be enforced to utilize these tree remains. Not only will urban wood reuse policies greatly decrease the amount of useful materials left to decompose in landfills, but it will ultimately provide profit for the community and reduced damage to the environment.

One method of urban wood reuse is encouraging the creation of sawlogs. Sawlogs are intact sections of removed trees that can substitute traditional lumber. By maintaining larger pieces of removed tree material rather than breaking it up into smaller pieces such as for wood chips, significantly less CO^2 is released.

Recommendations:

1. Establish environmentally sound tree removal practices by adopting an Urban Wood Reuse policy so that the remains of removed trees can be utilized to provide economic and recreational benefits for the community.

Objectives:

1. Adopt policies and practices to ensure that trees are removed in a safe and effective way. Consider the following elements:
    a. The agency, organization or company responsible for the removal of a tree should use the methods and machinery with the lowest carbon impact
    b. The agency, organization or company responsible for the disposal of a tree should use those methods that will limit release of carbon from the dead material.
    c. Public and private parties removing and disposing of trees should report all information regarding said actions to the Tree Board.

2. Consider encouraging local milling site(s) so that urban sawlogs can be generated from removed trees.
    a. This will provide greater community prosperity by providing more jobs.
    b. Local milling of urban sawlogs also provides a greater economic base by reducing disposal costs.

3. Implement a city policy giving the woodworking community access to urban saw logs.
    a. Reusing material that would have otherwise been disposed, the woodworking community can drastically promote “green” or “environmentally friendly” wood just by utilizing these sawlogs within their hobby or work.
    b. The use of urban sawlogs is profitable for the woodworking community and provides them with opportunities to work with species, quality, or grain of wood that might not be available otherwise.
4. Recognize the environmental benefits of utilizing urban woody green waste on

both local and higher levels.

a. Keeping trees out of dump saves critical landfill space and reduces pollution that associates with the breakdown of materials.
b. Greater utilization of urban woody green waste reduces the amount of material used for firewood or burned at dumps. This will create less pollution and CO^2 production.

Performance Standards:

1. Include a section in the annual report discussing the status of Objective 2. Report on the adoption of the policies and determine if it is being followed. Include any recommended changes.

Resources and Timelines:

Year 3 – 5 Developing an Urban Wood Reuse Program: 5 days = 0.022 FTE

Year 3 - Writing the administrative policies: 8 hours = 0.04 FTE

Year 3 – 5 Writing the annual report: 4 hours = 0.002 FTE annually

4.10 Infrastructure Coordination:

This section recognizes the importance of integrating new and existing infrastructure with the urban forest.

Recommendation:

4.10.1 Annually evaluate policies and standards for construction and engineering of roads, sidewalks, parking lots, bus stops, and utility right-of-ways to identify conflicts with urban and community forests and recommend administrative and policy changes

Objectives:

1. Develop and adopt a coordinated design policy and any ordinances necessary to support it. Consider the following elements:

General Elements

a. Integrating planned construction with existing and projected trees during the design stage. Approved projects should not negatively impact existing trees and should ensure that future plantings will have adequate room and healthy soil.

b. Creatively installing new utilities around the identified optimal locations of trees, so as not to negatively impact their growth.

Street tree elements

d. Review the research on the effectiveness of root shields with an effort to identify better methods of calculating root space needs and potential impacts on adjacent hardscape.

e. Designing parking lots with aesthetic curves, traffic islands, setback areas, pavement cutouts, turnarounds and other traffic-calming devices that allow for additional trees.

Building tree elements

f. Planting trees between 5 and 50 feet away from houses (depending on the size of the tree) to avoid conflicts with the building while effectively providing shade.

Surface conditions

h. With new planting locations, permeable paving options such as open planting areas, porous pavers, and porous pavements are recommended.

i. Permanent, non-permeable coverings are not recommended for use on parkways.

2. Identify infrastructure conflicts and costs.

3. Produce an annual report outlining the results of Objectives 2 and 3.

Performance standards:

1. Include a section in the annual report assessing whether infrastructure conflicts have been reduced through the adoption of infrastructure coordination policies. Because root and other conflicts with infrastructure do not generally appear for at least 5 years after a tree is planted, gauging the success or failure of the policy in reducing conflicts before such time has elapsed will be difficult.

2. Include a section in the annual report assessing the fiscal impact of the policy. The costs resulting from the policy and ordinances may be compared with the lifetime cost of conflict mitigation for a similar tree in a similar situation elsewhere.

Resources and Timelines:

Year 2 - Writing policy: 6 days = 0.026 FTE

Year 2 - . Collecting data: 3 days = 0.013 FTE annually

Year 2 - Writing the infrastructure annual report: 4 hours = 0.002 FTE annually

4.11 Urban Heat Island Mitigation

When pavement is shaded by the crowns of mature trees it has a longer life, ultimately reducing the costs of replacement. Shaded vehicles have cooler interiors and fuel tanks, improving their safety, energy efficiency, comfort and lifespan. External air temperatures are dramatically cooler which makes commercial and retail environments more comfortable for shoppers, stimulating visitation. Cooler exterior temperatures also reduce the energy needs of buildings for air conditioning, especially in summer when energy demands for cooling are generally high.

It is now common that municipalities institute ordinances requiring commercial and public areas be planted with shade trees that provide a percentage of shade cover (Sacramento). A standard for Urban Heat Island Mitigation recommended by the Center for Urban Forest Research is 50% coverage. In Goleta's Architectural Standards for Commercial Projects, part 4, it is stipulated that vegetation shall be used to "reduce the effects of heat and glare on pavement" and in order to achieve that goal that there shall be one tree planted for every 8 parking spaces planned. Nothing is indicated as to the species, size, or minimum effective shade cover required of planted trees in the guideline. The ordinance as it stands may be insufficient to achieving its goals and therefore it is recommended that a comprehensive ordinance be adopted.

Recommendations:

1. Modify existing ordinances to insure new parking lots are meeting 50% shade coverage objectives.

2. Provide a standard for retrofitting existing public parking lots and large paved areas with shade trees.

Objectives:

1. The City of Sacramento's Parking Lot Tree Shading Design and Maintenance Guidelines is a model to be used.
2. Empower the City Arborist to enforce the ordinance as part of the annual tree inspection process.

Performance Standards:

Annually report a summary of the progress of tree shade coverage in public areas including, a summary of the actions taken towards properties not in compliance, and an estimation of the success of the program's procedures in achieving its objectives.

Resources and Timeline:

Year 2 - 5 Annual review of urban heat island shade coverage – 8 hours=.004 FTE

Year 2 – 5 Prepare annual report section on urban heat mitigation: 4 hours= .002 FTE

4.12 Tree Risk Management

All trees have some potential element of risk. For example: roots can push up on sidewalks, fruits can drop on walkways, tree branches might grow into overhead lines, etc. However, an effective traditional risk management created by specialists and arborists ensures proper management of trees to create healthy and attractive communities while protecting the safety of the people in those areas. The types of risks that are taken into account are risk involving staff such as workplace safety and risks involving the public such as tree-infrastructure conflicts.

Certain areas within Goleta have been designated as high wildland fire hazard areas, including areas north of Cathedral oaks Road, portions of the Winchester Commons subdivision, and the Bacara Resort property. Figure 5-2 of the General Plan includes a map showing the wildland fire hazard areas within the City of Goleta.

Most Goleta homes that are not in the rural-urban interface are not in danger of being in the path of wildfires. However, homeowners in any area where a grass, brush or forest fire might occur should adhere to rules for creating what firefighters call 'defensible space'. Even then, it does not mean 'no trees' but rather, widely spaced, deciduous trees (with lower limbs pruned to 6 to 10 feet and no limbs touching the house) can be used to assure energy savings while posing minimum threat to spreading a fire.

The City Planning Department is currently working to develop a Wildland Fire Study. The city arborist should be consulted during the development of the plan and informed where the plan involves tree management procedures to reduce fire risk. The city arborist should work with local fire authorities and within the plan to reduce danger to urban areas and adopt best management procedures in areas of high risk.

Recommendation:

1. Adopt a proactive public tree risk management program to minimize dangerous conditions on public property.
2. Coordinate the public urban tree risk management plan with the Wildland Fire Study currently under development by the City Planning and Environmental Services Department.
3. Implement defensible space procedures in high fire hazard areas identified by the County Fire Department

Objective:

1. Clarify appropriate and acceptable care for activities within the arborist's jurisdiction. This will also include methods and equipments that need to be used for specific inspections or tests.
2. Continue a tree risk assessment program which will systematically evaluate the potential for a public tree or one of its parts to pose a threat to the people or property. A risk assessment program should contain the following:
    - Timely inspections prescribed by the arborist keeping in mind budget and staff

- Evaluation of tree defects which usually consists of the standard visual inspection from a ground survey
- Evaluate site conditions to understand the significance influence certain factors can pose to tree failure.
- Evaluating specific targets will take into consideration the activities associated with the area as well as how frequently and intensely the location is used.

Clarify a tree failure rating system that allows the arborist to rank the relative risks posed by each tree within an area so evaluations can be systematically implemented. Trees that are determined to pose an immediate risk should be removed or otherwise altered, as deemed appropriate by the City Arborist.

3. Clarify a tree emergency plan that details preparations to be taken before and actions to be taken after storms, floods, or other emergencies that can result in hazardous situations involving trees.[2]

4. Use defensible space practices in high fire hazard areas defined by the County Fire Department. Defensible space can be the most important space for those living in fire-prone rural/urban areas. Using fire-resistant broadleaf trees for shade near the house, keeping ornament brush close to the house to less than 18 inches, pruning lower limbs to at least six feet, avoiding junipers in the area closest to your house and minimizing the use of wooden fences and trellises will maximize the potential for fire safety. Defensible space is the 30 feet of level ground circumscribing houses, or 100 feet by law in some areas, and at least 200 feet for slopes of 40 degrees

5. Continue implementing tree risk reduction practices:
   - Pre-planning that takes into account both site and tree factors
   - Proper and regular maintenance practices. Refer to 4.6 and 4.7

Performance Standards:

1. Include a section in the annual report assessing the status of the tree risk management program
2. Include a section in the annual report assessing the progress made in implementing an emergency plan, along with any additional recommendations.

Resources and Timeline:

Year 1 - 5 Preparing tree risk management programs and coordinating with other risk management programs 5 days = .022 FTE.

Year 1 – 5 Writing the risk management section of the annual plan: 4 hours = 0.002 FTE annually.

4.13 Pest and Disease Management

Although trees are adapted to coping with environmental stresses such as shading and competition for water and nutrients, many of these stresses can make them more susceptible to insects and diseases. To avoid using harmful and costly treatments such as pesticides or removal, the adoption of a proper Plant Health Care program is critical. The purpose of Plant Health Care is to maintain and improve the vitality of trees through effective environmentally sensitive practices and treatments. Plant Health Care programs are regularly executed by an arborist who performs appropriate diagnostics and maintenance.

Recommendations

1. Take regular preventive measures against pest and disease problems by adopting a Plant Health Care program using least toxic practices.

Objectives

1. Clarify the City Arborist Plant Health Care program specific to the City of Goleta

2. Continue regular tree monitoring and maintenance to detect early stages of problems so that cost-effective and environmentally sound practices can be used as treatment

3. Recognize that least toxic treatment used for a particular insect or disease problem will depend on the species involved, extent of the problem, budgeted resources, and a variety of other which will be addressed by the City Arborist.

Performance Standards

1. Inventory the number of trees having instances of pest and disease related problems. This data will be collected during regular monitoring sessions.

2. Annually access the number of trees that have been successfully treated after the adoption of a Plant Health Care program.

Resources and Timelines

Year 2 Develop a Plant Health Care program: 3 days= 0.013 FTE

Year 1 – 5 Regular monitoring, maintenance, treatment and data collection: 3 days hours=0.013 FTE

Year 1 – 5 Writing the pest and disease management section of the annual report: 4 hours=0.002 FTE

4.14 Environmentally Sensitive Habitat Areas

Originally Goleta was a deep lagoon surrounded by woodlands dominated by the coastal live oak (*Q. Agrifolia*). Today there are very few native woodland areas because they have been cut down for fuel or to make arable agricultural land. In order to provide more habitats for monarch butterflies, appropriate roosting sites for raptors, stabilize soils and support local wildlife it would be appropriate to adopt a program of reestablishing native woodlands.

It would be erroneous to assume that a policy of promoting native woodland and maintaining monarch habitat are mutually exclusive activities. Monarchs have been present in North America much longer than the eucalyptus. The current trend among monarchs is to congregate for the winter on the branches of eucalyptus trees; however they will congregate on native species of trees just as readily.

Eucalyptus trees distribute the chemical caffeine into the soil which suppresses the growth of other, competitive plants and is very effective at suppressing California natives. Eucalyptus groves should be managed to prevent them from encroaching on the surrounding native habitat. Native woodland is a substitute congregational site for monarchs. A program of reintroduction of the oak at the perimeters of eucalyptus groves would both contain the spread of eucalyptus and provide the monarch butterflies with an overall larger habitat area.

Recommendations:

1. Develop a plan to plant and maintain buffer zones around eucalyptus groves with native species in order to create and preserve native woodland, gradually convert eucalyptus groves into native habitat, and prevent the spread of non-native species.

Objectives:

1. Create and implement a plan to curtail eucalyptus encroachment on native habitats.
2. Create and implement a plan to develop native woodlands as habitat for wildlife.

Performance Standards:

Every five years after initial program implementation perform an evaluation to determine whether restoration and protection attempts have been successful and whether the committee needs to adjust the program's implementation in order to meet its objectives.

Resources and Timelines:

Year 2 - Identifying buffer zones 5 days= 0.0.022 FTE

Year 2, 4, 6 - Biennial monitoring and data collection: 5 days=0.022FTE

4.15 View Corridors

Section 6 of the Goleta General Plan, Visual and Historical Resources, stipulates that trees shall be planted and preserved in order to develop and maintain the aesthetic properties along roadways. Trees are integral to beautiful natural views of natural landscapes and agricultural land and extend under, through and around the trunk and canopy. Trees also enhance views because they screen buildings, roads and other man-made structures. Any developed roadway can become a scenic corridor and has the potential to increase Goleta's beauty and property values.

In order to preserve views of the foothills, coastal bluffs, and scenic agricultural land trees along scenic corridors should be planted so as to avoid a wall-like appearance and drivers and pedestrians should be able to see under and through the trees to avoid obstruction and maintain safety. Tree canopies along roadways are normally pruned to 14' above the ground to avoid interference with large vehicles, and this also provides for clear views from those within vehicles.

Diversity of species is important to views, i.e. deciduous trees lose their leaves, and evergreens can provide screening from undesirable views. A larger variety of sizes, canopy densities and color provides screening or see-through as desired, preserves a more natural view, and provides durability to the urban forest as it ages.

Recommendations:

1. Recognize the ability of trees to enhance the aesthetic quality of views along public right of way, including locating trees within scenic corridors..
2. Plant a diverse number of species, densities, sizes, deciduous and evergreen trees along scenic corridors that will allow drivers and pedestrians to see under , around and through trees.

Objectives:

1. Establish a formal process for review of view corridor conflicts involving trees.

2. Produce an annual report outlining the results of Objectives 1.

Performance Standards:

1. Number of view conflicts brought to the attention of the city arborist for resolution.

Resources and Timelines:

Year 2 - Collecting data: 2 days = 0.008 FTE

Year 2 - Preparing Annual Report on view corridors: 4 hours = 0.002 FTE

4.16 Heritage Trees

Irreplaceable and significant urban trees in good health and of stable form are substantial components to the history of each urban forest. These trees, known as heritage trees, are outstanding because of size, form, age, color, rarity, genetic constitution or shape. They can also be a distinctive landmark to a community; a specimen associated with a historic person, place, event or period; a representative of a crop grown by ancestors and their successors that is at risk of disappearing from cultivation; a specimen recognized by members of a community as deserving heritage recognition. Heritage trees also increase the prestige of the community and they play a vital role in maximizing environmental benefits.

The Witness Tree, a 250 year old Sycamore located in the patio of the Sizzler Restaurant on Hollister Avenue has been recognized as a historically significant tree by several historical organizations, but it is not a publically protected tree. No trees have been designated as historical since the City has formed, and there is no current legal administrative process for protecting any Heritage tree or tree of significance on public or private property. A list of potential Goleta heritage tree sites is identified in Appendix G

Recommendations

1. Consider an ordinance that protects heritage trees, regardless of location:
2. Consider adopting procedures for defining and designating heritage/landmark trees

Objectives:

1. To initiate protection and enhancement of heritage trees in Goleta
2. Design a Heritage Tree Registry and work with partners to identify and list candidate trees.

Performance Standards:

1. Ordinance language that could be utilized to protect heritage trees is as follows:

    a. Heritage trees are an irreplaceable scientific and scenic resource. Often these trees have also been associated with historical events. As such, it is the declared legislative policy of City of Goleta to preserve and protect specimen trees.

    b. The City Arborist shall be authorized to designate certain trees or stands of trees as Heritage Trees. Trees so designated shall be protected without regard to their location, within the jurisdiction of the City. A listing of horticultural information, photographs, and a location map of all designated landmark trees shall be maintained and updated by the City Arborist

c. Heritage Tree Criteria

The City Arborist shall have as one of his other duties the location, selection an identification of any trees or stand of trees which qualify as "Heritage Trees.· A tree may qualify as a Heritage Tree if it meets one or more of the following criteria:

1) A tree one hundred (100) years of age or more

2) A tree or stand or trees which are of historical significance

3) A tree or stand of trees which is of a rare species and is unusual because of size, color, or blossoms

4) A tree or stand or trees which have unique characteristics of form or shape that contribute to the community skyline

5) A tree or stand or trees which are intended to become of future visual, cultural and/or historical significance

6) Trees having a 30” diameter at breast height (DBH) measured at 4.5 feet above the ground, or having 75% or more of the DBH of the current State champion tree of that species.

d. Designation as a Heritage may occur in any one of the following ways:

1) An applicant may request such designation as part of any land use application. To do so, the applicant shall submit an expert evaluation by a landscape architect, certified arborist, certified urban forester, registered consulting arborist, historian or other expert as part of the application.
2) A property owner may request such designation at any time.
3) The City Arborist may make such designation as part of his or her review of any land use application form, stating in writing his or her reasons for such designation.
4) The City Arborist may make such designation as part of an overall tree protection planning program for the City or portion thereof. Such designation shall be subject to approval by resolution of the City Council

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Resources and Timelines:

Year 2 - Collecting data and writing ordinance: 5 days = 0.022 FTE

Year 2 – 5 - Preparing annual report on heritage trees: 4 hours = 0.002 FTE annually

4.17 Trees and Economic Development

It is very common for merchants to focus entirely on the direct costs of revitalization projects and to overlook the invaluable long-term benefits of maintaining the trees lining their place of business. Healthy and well-maintained trees within business districts send positive messages to consumers and ultimately increase the quality of their shopping experience through a number of ways: providing amenity and comfort, encouraging interaction with merchants, increasing the quality of products, and a more positive view on the maintenance and upkeep of a business from the consumer's standpoint. According to recent case studies, all four of these aspects have increased with the implementation of city-wide revitalization plans along business districts. These case studies highlighted the importance of shaded versus non-shaded sidewalks in attracting customers and also illustrated that districts with trees had increased positive reviews about the quality of products being sold.

Also, trees in business districts positively influence patronage behavior by: increasing consumers' willingness to travel further to shop, increasing their duration and frequency of visits, and increasing their willingness to pay for parking. . According to recent studies, consumers were willing to pay, on average, eleven percent more for products being sold in revitalized districts. This "amenity margin" provided by trees undoubtedly offset the cost of such revitalization projects.

However, effective pre-planning processes must be enforced so that the value of large trees can be maintained within business district despite ongoing or future city projects that would otherwise force the removal of these trees. By accommodating the needs of trees during the pre-planning process, opportunity for providing large shade trees at lower costs can be increased, especially in redeveloping business districts such as Old Town Goleta

Recommendation

4.18.1 Promote the planting of large shade trees in commercial and business areas as an economic development measure, particularly within Old Town Goleta

4.18.2 Accommodate trees during early infrastructure design of city projects

Objective

1. To increase overall success of business districts.
2. Improve the pre-planning process of city projects in business districts by involving trees in the early design stages. Therefore, city departments in charge of the infrastructure of given projects (street reconstruction, sidewalk

renovations, etc.) should be coordinating with the city arborists and other key members of the community to accommodate trees in the earliest processes.

3. Implement tools to accommodate the future needs of large trees located in business districts. A prominent example would be the use of Silva cells which encourages larger trees to be planted in commercial areas by fulfilling the spatial needs of the tree's roots without interfering with ongoing or future city projects.

Revenues and Timelines:

Year 2 - Promote trees and economic development policy: 1 day= .004 FTE

Year 2 - Prepare trees and economic development section of annual report: 2 hours= .001 FTE

4.18 Tree Advisory Board

The Tree Advisory Board (or commission or some other title) provides advice to the Community Services Director and the City Council on how to plan and implement an urban forestry management program, as opposed to how to plant individual trees. The mission of the board should include policy formulation, advising, administration, management, representation and advocacy.

A formal tree advisory board, normally established by ordinance, is an essential part of qualifying for an annual Tree City USA Award.

Recommendation:

1. Develop an ordinance for the volunteer tree advisory board to be included within the City of Goleta Urban Forestry ordinances.
2. The City should solicit volunteers and appoint a tree advisory board to advise the city staff and city arborist in developing plans and goals for the Goleta Urban Forest, representing the interests of the community, working to resolve conflicts between community members and Urban Forestry policy, and advocate within the community for support of the urban forestry program.
3. The City should provide training and assistance to the tree advisory board on public relations strategies, communicating with elected officials, participatory approaches, fund raising and organizational development, developing marketing plans, developing effective advocacy and public relations programs and developing a marketing plan.

   Objectives

   1. The ordinance creating the Tree Board should identify

      a. Number and qualifications of members, including at minimum one certified arborist/certified urban forester/ registered consulting arborist professional.

      b. Terms of office including provisions for staggered terms, succession and vacancies, and procedures for perpetuation of the Board.

      c. Duties and responsibilities to citizens, city arborist, and city government.

      d. Operational provisions detailing the choosing of officers, making rules, keeping records, meeting requirements, and the constitution of a quorum.

      e. Scope of responsibilities and privileges.

Performance Standards:

After the creation of the Tree Board, a section will be included in the annual report assessing its performance including;

1. Determine whether the Board is discharging its duties as per its charter.
2. Identify any overlapping duties with other committees, boards or agencies and determine whether or not there is a conflict.

3. Determine the efficacy of the recommendations and decisions of the tree advisory board.

Resources and Timelines:

Year 1 - Creating the tree advisory board and providing ongoing support: 3 weeks = 0.066 FTE

Year 1 - 5 – One day of staff support for each tree advisory board meeting: 10 days = 0.044 FTE annually

Year 1 - 5 Writing the tree advisory board summary section of the annual report: 4 hours = 0.002 FTE annually

Note: Other City staff time will be needed for preparation of the ordinance, recruitment of the Board and administrative support for meetings.

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Urban Forestry and Regional Planning

This section recognizes that urban forestry issues extend beyond the borders of the City of Goleta. There are numerous legally mandated and cooperative regional organizations that the City is a member that deal with issues that are affected by urban forestry.

This section addresses the process by which urban forestry issues within and outside of the City of Goleta can be more effectively addressed by officials representing the City in the agencies dealing with air quality, storm water management, energy conservation, green house gas reduction and utilities.

5.1 Air Quality and Urban Forestry

Trees symbolize a cleaner world; they symbolize a cleansing of the air. Future generations depend on the sequestration of carbon emissions and have made it a top priority for government involvement. Maximizing carbon removal from our atmosphere involves many cleaning processes, but one commonly overlooked process is the adaption of a successful urban forest. When developing an air quality plan, to maximize the benefits, trees should be taken into consideration and should be implemented and combined with current air cleaning processes.

Trees have the unique ability to sequester pollutants from our atmosphere and clean our air. One specific target for all trees is the air pollutant carbon dioxide. CO2 is in an ever growing state since the industrialization period of our country. This has created hotter temperatures for our planet by trapping heat closer to the ground instead of letting it pass through the ozone. Thus, trees represent a significant part of any air quality program and there are many ways to implement their benefits. The City of Goleta is part of a regional agency which monitors and regulates air quality through the air quality plan put forth every three years. With the average lifespan of a tree being 100 years, we can then expect an urban forest to benefit over 30 updates of the Santa Barbara County air quality plan. Almost more important than the immediate impacts are the long term impacts that the urban forest provides. As particulate and carbon sequestration levels escalate towards the maturity of the tree the long term benefits continue to increase, this will also benefit each separate three year plan.

Recommendations:

5.1.1 Recognize the direct ability of the urban forest to sequester carbon emissions and particulates and provide a better quality and a cleaner air for all.
5.1.2 Recognize that the actions taken now to promote the planting of trees will have impacts on multiple updates of the three year air quality maintenance plan

Objectives:

1. Adopt the following recommendations into the 2010 or future versions of the Clean Air Plan put forth by the Santa Barbara County Air Pollution Control District to help control and regulate the climate:
    i. Add the general reporting protocol used by the California Climate action registry to calculate and report the sequestration and the

emissions of the new trees planted. Used as a mechanism for the impact of carbon emissions.

ii. Also record other particulate ratings and data from the reporting protocol.

When choosing a tree for the purpose of meeting air quality standards the following should be taken into consideration.

1. Choose the tree with the highest relative leaf area and the largest canopy practicable for the location (see: right tree, right place and canopy coverage). Increasing the size of leave and canopy coverage increase the amount of carbon sequestration because leaves work as air cleaners. An average tree can absorb 26 pounds of carbon dioxide per year and replace it with oxygen, while an average acre of trees can replace 2.5 tons (Tree City USA Bulletin, No. 10).
    - Oxygen is created through photosynthesis. Carbon dioxide, water and sunlight enter the tree and create food for the tree through sugar and oxygen for the outer world.
2. A difference in species can change the amount of carbon storage capacity a tree has. When choosing a tree for air quality purposes, select trees that provide relatively high carbon storage and carbon sequestration as well as those that are long lived.
    - The amount of carbon sequestration by new tissue growth from trees is increased with healthier and large diameter trees. Thus, the longer the tree is able to live and larger the tree is then the more carbon removal is possible.
3. When selecting a tree for a pollutant rich area then select a tree that has a high pollutant tolerance to maximize air quality benefits.
4. Considering placing carbon absorbing trees closest to the carbon sources. This can be done by creating central medians in roadways, or by reducing street widths.
5. Carefully consider advantages and disadvantages when planting trees with high or moderate biogenic emissions. In this case, Biogenic emissions are secretions or constituents of plants.
6. When planting trees consider a removal system to reuse tree waste for products and biomass energy production.

Overall, the benefits trees provide for air quality outweigh the costs. To have an effective air quality plan consider implementing a carbon design where net loss is minimized; which means that the removal of trees never exceeds the planting of trees based on life span and carbon sequestration values. This maximizes the benefits that trees can provide for carbon sequestration and allows the urban

forest to always be growing and never shrinking. Being able to understand that large trees are more cost effective than smaller trees and provide the most benefit in cleaning air pollutions and carbon sequestration will maximize the benefits of the urban forest. The benefits that trees have in removing carbon and pollutants from the air offset any harmful effects that plants produce when they emit volatile organic compounds.

Performance Standards:

1. Include a section in the annual report assessing the progress made in the adoption of the new system, along with any additional recommendations.
2. Include annual changes and growth trends of the urban forest in the annual report.
3. Determine if the objectives mentioned above are implemented and meet the standards of the new tree board and determine if they are within city guidelines or perimeters.
4. Determine if the no net loss policy is being followed.
5. Determine to see if local policies are within local tree ordinances adapted by newly formed tree board.
6. By 2010, examine the Air Quality plan to make sure the general reporting protocol used by the California Climate action registry is implemented.

Resources and Timelines:

Year 2 – 5 Air Quality record keeping: 5 days= 0.022 FTE annually

Year 2 – 5 Writing the Air Quality section of the annual report: 4 hours = 0.002 FTE annually

Year 2 – 5 Writing and implementing air quality ordinances: 5 days = 0.022 FTE

5.2 Storm Water Management:

Trees act as vertical rainwater filtration systems during storms as they collect the water around their radius through their roots, and then transpire that water through their leaves back into the atmosphere. Trees also capture the energy from rainfall and dissipate it, thus reducing run off and erosion. The filtration process slows down the speed of storm water allowing trees more time to capture dirt, chemicals and pollutants. This integration of urban forestry techniques into urban watershed planning acknowledges the importance of trees and forests in protecting water resources. With limited space in urban areas, trees provide the most cost effective way to manage storm water. The city of Goleta has recognized this already in their latest version of the Storm Water Management Plan approved by the Central Coast Regional Water Quality Control Board in February of 2010. In the plan they reference the urban forest and its importance in helping reduce storm water runoff. The plan focuses on implementing the best management practices intended to reduce the discharge of pollutants from the City and protect downstream water quality to the maximum extent practicable and the urban forest is one of the best management practices.

From youth to maturity, trees roots are constantly growing allowing for a better filtration system of pollutants and debris. The tree's canopy is also growing, allowing for more canopy coverage to catch the rainfall and dissipate the rainfall force. Constantly increasing the urban forest allows for better water quality and better land quality.

Recommendations:

5.2.1 Recognize the short and long term value of the urban forest in storm water management through urban forestry projects that reduce storm water run-off, recharge groundwater, reduce stream channel erosion and improve soil and water quality.

Objectives:

2. Reduce storm water runoff by implementing the following considerations:
    a. Increase the canopy coverage of trees to intercept the amount of rainfall that hits the ground. A portion of this intercepted rain will evaporate and never affect the ground below.
    b. Allow for full root development by allowing the most space possible for tree expansion. Trees soak up water through their roots and by allowing trees to reach full root maturity enables them to extract the highest amount of storm water possible.
    c. In areas not inhibited by people and not in a high fire hazard, allow for trees to naturally shed leaves. This creates duff, and these leaves on the ground further absorb rainwater.

d. In paved areas, design the pavement to allow flow of storm water to travel toward the closest trees and use water-permeable surface materials which will allow the roots the possibility of maximal absorption.
e. Lastly, expand the urban forest to promote the most canopy coverage and the most root development.

3. Reduce stream channel erosion by implementing the following considerations:
    a. Planting trees along bank sides prevent the erosion of soil and sediment by stabilizing the soil and by dispersing raindrop energy.
    b. Plant more trees on hills and stream banks. This will limit the erosion of topsoil caused by storms and landslides as the roots and organic matter provide soil stability to the surrounding ground making rainfall more likely to percolate rather than runoff.
4. To improve soil and water quality implement the following considerations:
    a. Trees absorb storm water pollutants such as nitrogen from soil and groundwater.
    b. Forested areas can filter sediment and associated pollutants from runoff.
    c. Certain tree species break down pollutants commonly found in urban soils, groundwater and runoff, such as metals, pesticides and solvents.

5. Realize the benefits of a system of coordination with public education by using relevant portions of programs such as Project Learning Tree in K-6 school educational programs and in high schools
6. Coordinate with non-profit volunteer efforts to reduce the amount of debris that ends up in runoff. Coordinate public participation in non profit sponsored road and creek clean-up projects.

Performance Standards:

1. Include a section in the annual report assessing the progress made in the adoption of the new system, along with any additional recommendations.
2. Determine if the objectives mentioned above are implemented and meet the standards of the new tree board.
3. Conduct feedback reports with coalitions in debris collection.

Resources and Timelines:

Year 2 – 5 Developing stream stabilization projects: 5 days= 0.022 FTE
Year 2 – 5 Writing the storm water management section of the annual report: 4 hours= 0.002 FTE annually

5.3 Energy Conservation/Coordination with solar power systems

One constantly overlooked benefit of the strategic planting of trees is the money it can save. With the right type of tree planting design, the shade from trees can reduce air conditioning costs during the summer, block the cold wind during the winter and extend the life of buildings, windows, driveways, patios, porches, and swimming pools. The sun can be brutal, and can create problems for the inner city. The heat in the inner city is usually ten degrees Fahrenheit higher than the surrounding areas, which is called a heat island. This is due to trees; which reduce the heat of the city through shade.

The city of Goleta recognizes that trees play an important role in energy conservation. They have added tips to their website about shade trees including their benefits but should consider adopting a program similar to the Sacramento Municipal Utility District (SMUD). SMUD utilizes a tree benefits estimator to persuade more customers to plant trees around their home, thus reducing their costs by saving money on heating and air conditioning. They also offer homes with high heat probability houses with free trees that will mature and save the home up to forty percent on their air conditioning bill.

The urban forest has been shown to be a crucial part of energy conservation and the city should recognize policies reducing the heat island in the city and urging citizens to strategically plan their own trees around their house. These both will reduce costs for businesses and homeowners while providing a more aesthetic appeal to the city and to home.

Because trees expand the life of concrete and pavement, consider a strategic plan for developers to keep pavement in the shade with the use of trees and shrubbery. When contemplating the sun's harmful effect, developers will notice that completed projects will last longer with the strategic use of trees. This applies to buildings, pavement, homes and more.

Recommendations:

5.3.1 Add a policy to the City of Goleta's energy plan and the South Coast Energy Efficiency Partnership that recognizes the importance of long term urban forest benefits, i.e. more than 5 years.

5.3.2 Combine landscape planning with urban forest planning to maximize the potential energy conservation benefits of trees.

Objectives:

1. Increase the canopy coverage of the urban forest to increase the shade it provides. Shade constitutes the number one energy saver for trees and the more canopy coverage, the more shade.
2. Allow inner cities to develop with trees in mind. To reduce the heat island created by inner cities the developers should strategically place new and mature trees to provide shade to streets, buildings, parking lots and

pedestrians.

3. Use light colored/high-albedo materials and/or open grid pavement, with a minimum reflective index of 0.6 for pavements.
4. Consider instituting the city of Goleta's general plan recommendation of one tree for every four parking spots.
5. create a computer model to estimate the amount of energy savings and the amount of CO2 removed by one tree planted similar to the SMUD tree benefits estimator. With specific information inputted by the consumer or tree purchaser the estimator should calculate the savings and the environmental impact that tree has.
6. Adopt planning policies to make planting shade trees more beneficial to the consumer. Allow for tax refunds on energy for the consumer and inform the masses about the energy savings that shade trees provide. Allowing more trees closer to the home will reduce deterioration of their home and cut the air conditioning costs by a maximal forty percent.
7. Inform homeowners to plant trees that lose their leaves in the fall closer to their homes to block the summer sun but still let in the winter sun.
8. Inform homeowners to plant trees on the south and east sides of their home to create a windbreak, which will keep the house warmer during the summer.
9. Adopt a carbon offset program that allows consumers to plant trees to offset the number of daily activities they do that produces CO2 for a reduction in energy bills. Preferably, a negative offset allows the consumer to make money, while a net zero offset does not charge them.
10. Encourage planting of deciduous trees to the west and northwest of buildings, where they are most effective in reducing energy use.
11. Planting of deciduous trees on the east, to allow for shade in the summer and passive heating in the winter.
12. Avoid planting trees on the southern sides of buildings that would interfere with the installation of solar panels.

Performance Standards:

1. Include a section in the annual report assessing the progress made in the adoption of the new system, along with any additional recommendations.
2. Include annual changes and growth trends of the urban forest in the annual report.
3. Determine if local policies are approved by local, environmental and energy efficiency boards.
4. Include in the annual report the amount of consumer benefits for keeping track of their carbon sequestration due to newly planted trees.

Resources and Timelines:

Year 3 – 5 Develop Energy Conservation Program including trees: 1 week = 0.022 FTE annually

Year 3 – 5 Writing the energy conservation section of the annual report: 4 hours = 0.002 FTE annually

5.4 Greenhouse gas reduction

Trees are like giant sticks of carbon. Large woody trees have been recognized to sequester a great deal of carbon for long periods of time. Several state and national agencies have developed protocols for identifying how to measure the carbon sequestration of trees and how to secure carbon credits for reducing greenhouse gases**.**

Recommendation

5.4.1 Recognize the formal relationship between urban forestry and the Greenhouse Gas emission reduction goals through use of California Climate Registry models

Objectives

1. Maximize the benefits and limit the costs of maintaining a healthy urban forest. Clarify baseline data that will allow the City to more accurately gauge its progress in carbon sequestration.

Performance Measures

Use national and state programs like the California Climate Registry that have researched how to measure this carbon, and to give communities carbon credits for having large tree populations. There are the beginnings of a market to voluntarily trade these carbon credits. Of interest to the City of Goleta is how these carbon credits can be used to offset other carbon producing impacts within the City.

Resources and Timelines:

Year 2 – 5 Implement Greenhouse Gas reduction procedures: 5 days= .022 FTE
Year 2 - 5 Prepare Greenhouse Gas reduction section of annual report: 4 hours= .002 FTE

5.5 Utilities

Public utilities, particularly electrical companies such as Southern California Edison, have a significant responsibility for maintaining a safe electrical grid by managing the trees close to their power lines. There are overlapping responsibilities between some public trees that are the responsibility of the City to maintain, but may also be within an electrical easement and thus are also the maintenance responsibility of Southern California Edison.

Close coordination between Southern California Edison and the City is necessary to maintain effective working relationships.

Recommendations:

1. Develop ongoing coordination between utility representatives and city officials to insure continued utility service while maintaining and supporting appropriate urban forestry

Objectives:

1. Avoid topping trees when at all possible. Implement the correct pruning techniques to avoid interference with nearby overhead utilities.
    - Understand the detrimental effects of tree topping, not only surrounding overhead utilities, but also to the tree's limbs. With topped trees the new growth of limbs will result in a dramatic loss in strength.
    - Instead of putting power lines or other overhead utilities above existing trees consider underground cables, or choose to string the line over already mature trees that will not grow taller.
    - When trees are topped, they are starved because they can't produce the same amount of food with the leaf canopy coverage they lost. They also are more susceptible to insects and disease, because topping reduces the naturally made chemical protecting the tree's health. And the most important harmful effect of topping trees is the result of weak limbs. Branches will grow from new locations on the branch, not from the previously cut areas.
    - When working under power lines, the most important tool used by arborists is crown reduction. This minimizes the harmful effects to the trees as well as to the power lines. (Crown reduction is a thinning cut reducing height and spread of the tree without resulting in stubs which create the problems associated with tree topping)

2. To reduce conflicts with underground utilities, consider implement root barrier systems in well-drained areas. In compact soil areas consider using root barriers for existing trees but for seedlings, lessen the width of the tree, thus reducing the root circumference and thus reducing the conflicting problem.

- Instead of trenching to install underground utilities, consider tunneling the lines, thus avoiding, to the maximum extent, severing pre-existing roots. Beware for under-developed trees, and know that their roots may still grow. Contact a local arborist for planning advice.
- To reduce trenching for foundations of new homes or buildings, posts and pillars can be substituted for footers and walls, thus minimizing root kill.
- The routing of underground utilities does not have to follow a straight line from the street to the house. Careful route selection can often avoid important trees.
- Avoid using planters to maintain the urban forest. Closed-bottom containers and raised planters pose problems for trees because of the buildup of salt from watering, root freezing, and very few tree species can live in these types of planters and those that can, incur raised-root problems.

The key to maintaining a healthy urban forest around new construction sites is awareness. Have all workers be aware of which trees will be saved, and have those trees roots estimated and barricaded off with bright colored fencing. This shows real intent on the protection for those trees.

- If this is not done then the results can be detrimental and may not be seen until years later. Construction causes soil compaction, which can limit the air and water that a tree needs to stay alive. Thus, it may take many years to kill a tree but it was due to the construction.
- When construction involves changing the landscape grade then consider using retaining walls. Keep important trees at their same level ensuring their survival because they will be able to maintain their root placement making it easy for them to extract water. The retaining wall will then keep the new grade flat but will also keep the old grade the same as it was. Leveling, cutting and filling can smoother roots when soil depth is increased, can change the natural flow of water which can deprive trees, can sever roots, and can remove nutrient-rich topsoil.
- The architect can help maintain the urban forest by locating buildings in harmony with the natural terrain, as well as raising paved driveways and

using similar techniques that minimize excavation.

- When architects do need to move trees, a tree spade can be used to transplant trees over ten feet tall and are more than two inches in diameter. This maintains the urban forest as well as letting the architect build where the tree used to be.
- Trees should be removed or moved away from the structure if they are going to be within five feet of the building. Trees should also be removed if they are going to be leaning over the new structure because they are structurally unsound.
- During construction, some soil can be damaged, which will eventually poison existing trees. To avoid these mistakes follow the following guidelines:
    - Spread a heavy plastic tarp where concrete is going to be mixed or sheet rock will be cut. The alkalinity of these materials can change the soil PH.
    - Read all labels for the products being used. Do not use wood products containing pentachlorophenol, which is deadly to roots. Instead use CCA-treated timber, which has a green tint, as a safer alternative.
    - Clean paint brushes or tools in a sink and not over any tree roots.
    - Dispose of chemical wastes, such as paint thinner, properly. Consult local sanitary authorities for proper removal sites.

Forming a utility partnership, while improving city tree ordinances, and by improving maintenance by public utility companies will earn the city the Tree City USA Growth Award.

Performance Standards:

2. Determine if local tree board policies fall within environmental and utility guidelines.
3. Include a section in the annual report assessing the progress made in the adoption of the new system, along with any additional recommendations.
4. Include annual changes and growth trends of the urban forest in the annual report.
5. Determine if the city is eligible for the Tree City USA award for working with utility companies.

Revenues and Timelines:

Year 1-5 Writing the utility section of the annual report: 4 hours = 0.002 FTE annually.

Year 1-5 Writing and implementing utility/urban forest ordinances: 3 days = 0.013 FTE

6. Goleta Urban Forest Resources

6.1 Community Services Urban Forestry Personnel and Budget

An effective management program will meet SMA specifications, follow good risk management practices, issue guidelines to tree-care contractors, and initiate an open and easy-to-use computerized tree inventory process.

Professional staff

The Goleta Community Services Parks and Open Space Manager, an experienced Certified Arborist, is designated as the City's Arborist.

Young and mature tree maintenance within the City of Goleta is done under contract with private sector firms specializing in tree care. The hazardous nature of the work requires special equipment and training. By contracting for services, the City can meet its tree care needs effectively while retaining budgetary control.

Budget

While a separate urban forest budget is not specifically identified, the line items of various components of the city budget can be combined to compile an estimated annual urban forest budget of approximately $300,000. This amount more than qualifies the City for meeting a Tree City USA requirement to maintain a minimum $2 per capita annual tree care budget.

The primary revenue sources for funding street tree maintenance is Measure D at approximately $210,000 annually, with City General Funds providing park and other public tree care at approximately $90,000 annually.

Most of the budget is allocated for contract maintenance of mature trees, pest and disease control, and for 0.7 staff which provide administration, inspection and maintenance. Less than 5% of the budget is allocated for new tree planting and care.

Budget Assumptions:

- Total managed street and park trees for the City of Goleta is 9,855, which includes 6,727 street trees and 3,128 park trees.
- The City attempts to plant 50 new or replacement trees annually, and supports the efforts of non profits to secure grant funding for new trees. Nonprofits planted by 50 trees in 2009, 209 new trees in 2010, and have secured grant funding to plant 150 trees in 2011 and 2012. The new trees are maintained by volunteers for two to three years of tree establishment before they are transferred to the City for long term maintenance responsibility.
- United Pacific Services has the current annual street tree care contract of approximately $175,000 which includes approximately 15% for general street tree maintenance and 85% for systematic pruning of every tree on a five year cycle. This decreases the cost per tree while increasing the safety and condition of the trees, and reduces demand and storm damage requests.

- Venco Pacific has the current annual contract of approximately $45,000 for street median and park maintenance. Approximately $5,000 is allocated for tree maintenance in the median, with $15,000 used for general landscaping purposes, and the remaining $25,000 used for general park tree and landscape maintenance, and pruning on an as needed basis.
- Spraying and injection of trees for disease and insect control occurs every two years at a cost of about $16,000 ($8,000 annualized), and is funded in part through Park Department budget allocation.
- City tree planting by contractors is limited primarily to replacements and responding to special requests.
- Personnel costs allocated in Full Time Equivalents

Public Works Mgr for Parks & Open Space	.4 FTE	$57,033
Lead Maintenance Worker	.1 FTE	$ 7,555
Lead Maintenance Worker II	.2 FTE	$13,908

- The amount of Community Services staff time allocated for review of tree related activities in Planning and Environmental Services is less than 50 hours annually.
- No amounts are included for litigation due to tree related activity as the City does not have a sufficient insurance claims to establish an average cost. Cost allocation costs are not included, nor are concrete repair costs of sidewalks, curb and gutter, which are budgeted in the road maintenance budgets.

Recommendations:

6.1.1 Require professionally trained and experienced arborists in guiding the implementation of Goleta's Urban Forestry program, and enforcing urban forestry ordinances.

6.1.2 Insure that Urban Forestry budgeted will be sufficient to meet minimum standards for annual Tree City USA Awards.

Objectives

1. Professional staff members should have education, training and experience in the fields of urban forestry, arboriculture, and/or horticulture. These requirements are intended to ensure that the person with the primary person responsible has the ability to professionally manage the urban forest resource and advance Goleta's urban forestry program.
2. Applicants desiring to plant, remove or modify trees in public areas within the City must submit their planting plan to a Certified Arborist before submitting it to the City Arborist. If the City Arborist determines the plan to be acceptable, the City Arborist will provide the applicant with a letter of approval before planting begins.

Performance Measures

1. City employees, contractors advising in the management of the urban forestry program, and consultants providing arboricultural consultation within the community shall have one or more of the following, degrees or certifications:
    - a degree in urban forestry or a closely related field (e.g., forestry, horticulture, arboriculture, etc.), and/or;
    - International Society of Arboriculture(ISA) Certified Arborist, Municipal Specialist, American Society of Consulting Arborists Registered Arborist, California Urban Forest Council Urban Forester, or equivalent certification

Resources and Timeline:

Year 1 – 5 Program administration: 10 days = 0.044 FTE

6.2 Goleta Urban Forestry Program Professional Standards

There are practical and symbolic benefits gained by accreditation and following accepted industry standards in urban forestry.

The Tree City USA award is sponsored by the National Arbor Day Foundation and coordinated with the CalFire State Urban Forester. To receive the Tree City USA award the following criteria must be met: The city must have a tree board or department, the city must have a tree ordinance or by-law, the City must have a comprehensive urban forestry program supported by a minimum of two dollars per capita, and the City must make an Arbor Day proclamation and hold a commemorative tree planting at a public ceremony.

The Tree City USA Growth Award recognizes additional achievement and encourages higher level of tree care in addition to the minimum Tree City USA qualifications.

Recommendations:

6.2.1 Continue to maintain accreditation in the annual Tree City USA program

6.2.2 Achieve and maintain accreditation in the Tree City USA Growth Award.

6.2.3 Achieve and maintain accreditation from the Society of Municipal Arborists.

6.2.4 Identify new or updated professional standards and make recommendations for their inclusion within the City of Goleta Urban Forest program.

Objectives

1.Recognize city agencies and private companies that follow ANSI tree care standards, and identify areas of improvement to make adoption of ANSI standards more widespread.

2.Recognize local tree care companies that have earned TCIA accreditation in the last year.

Performance Standards:

1.Ensure that standards adoption is recognized and progress is made year-to-year.

2.Include a section in the annual report assessing the progress made in meeting/retaining each of the professional standards, and develop further recommendations to ensure further progress.

Resources and Timeline:

Year 1 – 5 Writing the professional standards section of the annual report: 4 hours = 0.002 FTE annually

6.3 City of Goleta Interdepartmental Coordination

An effective interdepartmental coordination program will require other departments to consider the impact of their projects on the urban forest, help them identify conflicts between their interests and those of the urban forest, and encourage them to cooperate with the Tree Board to develop solutions that benefit all parties, including the public.

Recommendation:

6.3.1 Recognize the impact of other departments on the urban forest and the importance of developing collaborative solutions that preserve the interests of both the urban forest and other departments.

Objectives:

1. The City Arborist should provide a copy of the Goleta Urban Forest Management Plan to other City departments.

2. Routine communications should take place between the City Arborist department and other departments regarding the planting, protection and maintenance of the Goleta urban forest

3. Require departments whose projects conflict with the urban forest policies/ordinances to enter into discussions with the Tree Board to develop a compromise solution.

Performance Standards:

1. Include a section in the annual report discussing the impact of the explanatory document and regulations. Determine whether departments are adequately considering the interests of the urban forest, and include any further recommendations.

Timeline:

Year 1 – 5 Communicating policies to other departments: 1 day = 0.004 FTE

Year 1 – 5 Writing policies: 5 days = 0.022 FTE

Year 1 – 5 Writing the intergovernmental coordination section of the annual report: 4 hours = 0.002FTE annually

6.4 Planting of new and replacement trees

An effective tree planting program will set annual targets, pursue good record-keeping practices to measure success, plant the right tree in the right place, and be supervised by a certified arborist.

The Goleta Urban Forest Management Plan provides guidance on locating, planting and caring for public trees within the City of Goleta. Successful implementation of the plan requires providing for the trees' long-term viability and maximizing as many environmental benefits as practicable.

Computer models comparing current City of Goleta public tree inventories to vacant locations identified a total of 2,952 potential park (618) and street trees (2334) within the City. The number of trees to be generated by new development within the City of Goleta is not included in total potential new trees.

Not every vacant site can be planted however. Some sites will not be suitable due to conflicts with utilities, visibility triangles, and lack of owner acceptance. If an adjacent homeowner is unwilling or unable to care for a new tree during its establishment period, the city will not plant a tree at that location. To recognize these constraints, the total number of sites is reduced by 20% (590) for a vacant site plantable total of 2,362 sites. Non-City public jurisdictions such as CalTrans, Southern California Edison and School Districts are also not included in these totals.

The City of Goleta added 209 additional trees to the street tree inventory in 2010 primarily through the efforts of non profits funded by grants and donations. A voluntary public tree planting program in the City of Goleta will require more extensive outreach and education among Goleta residents, as well as coordinated cooperation among City staff and urban forestry volunteers and professionals.

Recommendation:

Planting of new and replacement trees –Annual Targets

6.5.1 Recognize the importance of annual targets to a successful tree planting program.

6.5.2 Set an annual target of planting 232 new public trees a year.

6.5.3 Set a target of planting all 2,362 vacant public street tree sites within ten years.

6.5.4 Establish a policy of replanting any failed new tree within one year.

Objectives:

1. Annually identify tree planting targets including:

    a. Location and number of planting sites available

    b. Projected number of species of trees to be planted during the year.

2. Every five years produce a list of projected number of trees to be planted during the next 10 years.

3. Publicize the targets document to all agencies and organizations responsible for planting public trees.

4. Enact the necessary policies and or ordinances to ensure that public trees are planted.

5. Work with non profits to assist in leveraging fiscal and volunteer resources for young tree planting and care.

Performance Standards:

1. Using records of trees planting during the year to assess if the projected number of trees were planted..

Resources and Timeline:

Year 1 – 5 Writing the annual targets document: 4 hours = 0.002 FTE annually

Year 1 Writing the five-year targets document: 1 week = 0.022 FTE every 5 years
Year 1 – 5 Collecting data and writing the relevant section of the annual report: 4 hours = 0.002 FTE annually

7 Urban Forestry Education, Outreach and Partnerships

7.1 Public Outreach/Education

While many Goleta homeowners enjoy the aesthetic and environmental benefits of large shade trees, those residential areas directly affected by deteriorated hardscape occurring before the City was formed have seen many large street trees removed, parkways paved over, or new trees being planted mostly without formal government approval. These actions are evident by the large number of species present that are not identified on adopted street tree lists, and the number of parkways without trees covered with impervious surfaces.

Public support comes in the form of the public's perception regarding the Urban Forestry program. Public support is necessary in order to obtain the funding necessary to pay for street tree management. Public support can be enhanced through a wide variety of public relations programs including personal outreach by staff during the course of their daily activities, and public information distributed through the city's website, the Monarch News and during community events.

Recommendations:

7.1.2 Encourage wide public participation in the urban forestry program.
7.1.2 Recognize the benefits of adopting an open and accessible computerized tree inventory system.
7.1.3 The City should seek to Identify and support diverse public leaders to serve as spokespeople for urban forestry.

Objectives:

- Investigate the potential platforms for such a system, including Google Earth Enterprise and open-source alternatives.
- Collect as much data as possible from previous inventories and create a comprehensive database for the new system.
- Enact the necessary ordinances to ensure that all future tree inventory data collected in the City is incorporated into the new system.
- Ensure that the new inventory is publicly available for viewing and incorporate the public in keeping the inventory up to date
- Promote participatory approaches in all urban forestry projects.
- Provide forums for diverse participants to network and learn from each other
- Keep all interested citizens informed of opportunities through the Citizen Forester newsletter.
- Prepare and distribute fact sheets on the benefits of trees and forests to local and state leaders.
- Quantify and publicize the economic values of urban and community trees and forests
- Widely distribute "best management practices" for preserving trees during construction.
- Reach out to developers and builders to increase their understanding of urban

tree issues through site tours and industry publications.

- Publicly recognize developers who successfully integrate trees and green infrastructure.
- Educate public about State, regional and local laws to encourage compliance.
- Involve legislators in tree-planting, special events and grant announcements
- Reach out to the media with urban forestry issues and news.
- Improve, link and promote urban forestry web sites.
- Identify and support more individuals to serve as spokespeople for urban and community forestry.
- Develop and distribute a general press kit and timely news releases concerning urban and community forestry issues to local groups.
- Use the Project Learning Tree program to distribute existing educational resources and curricula on teaching about urban forestry in our schools.
- Include educators and school contacts on urban forestry mailing lists.
- Partner with local schools to implement urban forestry projects.
- Develop and distribute a publication on common trees of Goleta for teaching in local schools.
- Promote an " Urban Forester" training program with nonprofit urban forestry organizations to train citizens to be tree stewards.
- Feature ecosystem management efforts in newsletters and public relations materials.
- Develop and distribute fact sheets detailing a diverse list of site appropriate species.
- Disseminate relevant research findings through professional associations and publications.
- Demonstrate cost effectiveness of regular maintenance.

Performance Standards:

1. Include a section in the annual report assessing the progress made in the adoption of the public tree inventory system, along with any additional recommendations.

Resources and Timeline:

Year 1 – 5 Implementing a public outreach program: 10 days = 0.044 FTE

Year 1 - 5 Writing the public outreach section of the annual report: 4 hours = 0.002 FTE annually

7.2 Nonprofit urban forestry partnerships

Many city urban forestry programs began through the efforts of local citizens groups, and these groups often serve as a catalyst to encourage active local urban

forest resource management for the long term. Presence of advocacy and/or advisory groups actively operating within a community is used by the Forest Service Urban and Community Forestry program as a benchmark to measure community urban forest management performance.

Non-governmental non- profit groups are active in Goleta to advocate and participate in the planting, protection and maintenance of urban and community trees and forests. These organizations ensure that community residents and program stakeholders are informed, educated, and engaged in the development and implementation of a sound urban forestry program .

The City of Goleta partners with numerous public and nonprofit organizations to support public trees. Volunteers are used to assist City Departments in managing the urban forestry program, especially for tree planting and care projects.

Recommendations

1. Acknowledge and support the efforts of non-profit urban forestry groups to provide urban forestry services and community outreach.

Objectives

- Increase community awareness and support for urban forestry
- Secure access to volunteer labor and financial support for urban forestry programs.
- Bring together professionals and activists in training and networking events.
- In cooperation with all stakeholders, develop and promote a consistent set of standards and policies
- Promote cooperation and understanding among stakeholders.

Performance Standards

1. Identify annual value of support from nonprofit organizations.

Timeline

Year 1 – 5 Engage nonprofit urban forestry partnerships: 8 hours=.004 FTE

Year 1 - 5 Writing the nonprofit urban forestry partnership section of the annual report: 4 hours = 0.002 FTE

7.3 Professional urban forestry partnerships

Professional urban forestry groups provide support for establishing and upgrading professional standards among tree care professionals working within the city of Goleta. Active professional organizations with an interest in urban forestry include

the following;

Western Chapter International Society of Arboriculture - The Western Chapter ISA is a member driven organization dedicated to fostering a greater appreciation for trees by promoting research and education to advance the professional practice of arboriculture. The chapter was formed in 1934 as a nonprofit corporation and is composed of over 3200 persons in Arizona, California, Hawaii and Nevada engaged or interested in the practice of arboriculture. The chapter strives to;

- Promote and improve the practice of arboriculture
- Stimulate greater public interest in the planting and preservation of trees for shade and ornamental value
- Promote public education to develop a greater appreciation for shade and ornamental trees
- Recommend and uphold the ISA's "Code of Ethics" established to maintain a high level of practice of those engaged in the profession
- Initiate and support scientific education of problems concerned with arboriculture and to publish the results of such investigations
- Afford the producers of materials, services and equipment of value to arboriculture an opportunity to advertise, exhibit, and demonstrate their value to arborists
- Sponsor an annual meeting and regional conferences devoted to the exchange of information and to provide Continuing Education Units for Certified Arborists, Tree Workers and Utility Specialists as applicable
- Be apprised of the most progressive arboricultural information
- Network with the most active arborists in the Western States

Central Coast Urban Forest Council

The California Urban Forest Council is a non-profit organization dedicated to supporting urban forestry to improve communities. This is achieved this through programs to improve air quality, conserve and protect water, improve quality of life and contribute beauty to California. These initiatives include:

- advocacy and support for public policy and government action that supports holistic ecosystems and encourages the development of policies and practices to sustain such systems;
- creation of educational materials that offer research, professional expertise and contemporary knowledge to empower California residents to participate actively in urban forestation;
- Development and support for successful local, regional and state-wide urban forestry programs, projects and organizations.

The Council coordinates educational workshops, hosts an annual conference, runs a certified urban forestry program, and supports seven regional councils.

The mission of the Central Coast Urban Forest Council (CCUFC) is to promote the health, vitality and stewardship of urban and community forests throughout

Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz and Ventura Counties. CCRUFC is one of seven Regional Urban Forest Councils that make up the California Urban Forest Council, the oldest statewide urban forest advocate

American Society of Consulting Arborists

The American Society of Consulting Arborists (ASCA) is the industry's premier professional association focusing solely on arboricultural consulting. Consulting Arborists are authoritative experts on trees, consulting property owners, municipalities, attorneys, insurance professionals and others on tree disease, placement, preservation and dispute resolution in addition to providing consulting and expert testimony in the legal, insurance and environmental arenas. The role of the Consulting Arborist is to bring a comprehensive, objective viewpoint to the diagnosis, appraisal and evaluation of arboricultural issues.

ASCA's more than 600 consulting arborists separate themselves from other arborists through their commitment to the continual development of their knowledge and skills as industry leaders. In order to maintain membership status and ensure their professional training keeps them current on arboricultural issues, ASCA members must meet strenuous continuing education requirements every two years.

To that end, ASCA delivers the best resources for skills development, career enhancement, idea sharing and training in the profession. Members are held to the highest standards of professional practice. In addition, they are the only source for achieving the industry's coveted Registered Consulting Arborist designation.

Recommendations

1. Acknowledge and support the efforts of professional urban forestry groups to provide urban forestry services and community outreach.

Objectives

1.Increase community awareness and support for urban forestry.

2. Secure access to volunteer labor and financial support for urban forestry programs.

Performance Standards

1. Identify annual value of support from professional organizations.

Resources and Timeline

Year 1 – 5 Engage professional urban forestry partners: 8 hours= .004 FTE

Year 1 – 5 Writing the professional urban forestry partnership section of the annual report: 4 hours = 0.002 FTE annually

7.4 Government and public agency partnerships

United State Department of Agriculture, Forest Service, Urban and Community Forestry – They work to ensure more livable communities by caring for trees where

people live, work and play. Urban and Community Forestry (UCF) is a cooperative program of the US Forest Service that focuses on the stewardship of urban natural resources. With 80 percent of the nation's population in urban areas, there are strong environmental, social, and economic cases to be made for the conservation of green spaces to guide growth and revitalize city centers and older suburbs.

UCF responds to the needs of urban areas by maintaining, restoring, and improving urban forest ecosystems on more than 70 million acres. Through these efforts the program encourages and promotes the creation of healthier, more livable urban environments across the nation.

CalFire Urban Forestry - Urban and Community Forestry Under the authority of the Urban Forestry Act (PRC 4799.06 - 4799.12) the Urban Forestry Program offers grants of over $1 million dollars a year to plant trees and over $2.5 million for related projects in urban communities throughout California. Seven Urban Forestry Field Specialists provide expert urban forestry support to communities, non-profit groups and other municipal governments to create and maintain sustainable urban forest.

The mission of the California Department of Forestry and Fire Protection's Urban Forestry Program is to develop a regional and statewide cooperative effort to advance the development of sustainable urban and community forests. Trees provide energy conservation, reduction of storm-water runoff, extend the life of surface streets, improve local air, soil and water quality, reduce atmospheric carbon dioxide, provide wildlife habitat and increase property values. They give us shady sidewalks and parks, and improve the quality of life in our urban environments.

This mission is accomplished in cooperation with many groups including California ReLeaf, a non-profit organization that coordinates grants to local groups, urban forestry researchers and educators including the USFS Center for Urban Forest Research located in Davis and the Urban Forestry Ecosystem Institute at California Polytechnic in San Luis Obispo, the California Urban forest Council, power and utility companies, municipal arborists and professional organizations. Together they discuss trends, address concerns, develop suggestions for consideration by CAL FIRE management, and provide support and information to their local communities on urban forestry issues.

California's State Urban Forestry Program also works with our Fire Prevention Program in advocating fire-safe landscaping for homeowners and communities. Landscape design, tree selection and especially maintenance are critical elements in reducing the spread of fire and the risk to adjacent buildings. Even well-designed landscapes can become hazardous if not properly maintained. The program encourages compliance with the 100-foot defensible space requirement for communities in the urban wildland interface areas (PRC 4291) and offers suggestions for types of trees, landscape designs and pruning methods to assist homeowners in meeting that standard.

CAL FIRE Urban Forestry is dedicated to California’s efforts under AB32 to mitigate Climate Change. An approved Urban Forestry project reporting and project accounting protocol are now available. A summary of the protocols and how urban forestry projects can contribute to achieving climate change goals is also available

Recommendations

1. Acknowledge and support the efforts of government and public agency partnerships to provide urban forestry services and community outreach.

Objectives

1.Increase community awareness and support for urban forestry.

2.Secure access to technical expertise and financial support for urban forestry programs.

Performance Standards

1. Identify annual value of support from governmental and pubic agency organizations.

Resources and Timeline

Year 1 – 5 Engage Government and Public Agency Partners: 8 hours= .004 FTE

Year 1 – 5 Writing the Government and Public Agency Partners section of the annual report: 4 hours = 0.002 FTE

8 Goleta Urban forest Ordinances and Enforcement Program

In general, City General Plan policies are incorporated into ordinances to provide for effective enforcement. The City also has specific ordinances dealing with the protection of native trees in environmentally sensitive habitat areas (ESHA). Upon incorporation, the City inherited prior tree ordinances These City tree ordinances need

additional refinement in order to provide specific enforcement for policies identified in the General plan document

The City's ordinances provide legal support to city staff in dealing with public trees. However, the City's has very little if any legal control in dealing with privately owned trees.

Permitting is an important part of protecting the public while work is being done in the public right of way. It assures that work is performed safely and meets the minimum City standards. A permit also helps avoid conflicting work within the public right of way.

The Public Works Division manages and administers encroachment permits for a variety of uses of the public right of way. Generally, the public right of way begins at the sidewalk and includes the parkway planting strip (which may be on either side of the sidewalk, the curb, and roadway surface. Below is a sampling of work in the public right of way that requires an Encroachment Permit be issued prior to work commencing:

- Any tree trimming, planting or removal on public land, including the parkway. The City has a pre-approved planting list for your use, but planting location and methods need to be approved by the City Arborist.

- Landscaping in the parkway, usually the strip of land between the curb and the sidewalk. Sometimes the parkway is at the back of the sidewalk. Poured concrete or mortared pavers are not allowed in the parkway.

Some property owners are confused about where their personal property ends and City right of way begins. Some property owners plant trees and other permanent structures in the public parkways in front of their properties as if they were extensions of their personal property. As a result, the City's tree inventory reflects a wide diversity of trees that were not part of a County or City authorized permitting process. City Community Services staff are responsible for monitoring and enforcing City ordinances through regular surveys and response to public requests.

A single ordinance location may not be as effective as multiple locations in the city's Subdivision, Zoning Regulations and other legal references. Additional urban forest policies found in the General Plan may be supplemented with supplements to local and regional policies and plans that impact the Goleta urban forest.

An effective enforcement program will establish a Tree Advisory Board with appropriate authority, allow for the development of the necessary ordinances to implement the Urban Forest Management Plan, and invest authority with City staff to enforce the ordinances that follow from this Plan.

Recommendation:

8.1.1 Place a high priority on the immediate development of comprehensive ordinances and policies in order to successfully enforce the Urban Forest Management Plan.

Objectives:

1. Revise as appropriate and approve a timeline for the completion of each ordinance identified in this Plan that is necessary for Plan implementation.

2. Assign the Tree Board responsibility for reviewing, seeking public input, and

making recommendations on the proposed ordinances

3. Allow a period of time for public comments on each draft of an ordinance

4.. Enact the necessary ordinances to prevent destructive pruning practices. Consider the following actions:

a. Ban the topping of trees on public and private land.

b. Ensure that agencies and organizations do not damage the branch collar of a tree when pruning.

c. Ensure that agencies and organizations prune public trees effectively while young so as to minimize maintenance when the trees are mature.

1. Invest the City Arborist with the authority to issue citations for violations of the ordinances specified in this Plan.

2. Provide staff and law enforcement personnel with legal support for stopping and correcting violations of tree ordinances, such as:

a. Unlawful tree planting or removal

b. Improper tree pruning or care

c. Paving and inappropriate plantings within parkways impacting street trees.

Performance Standards:

1. Include a section in the annual report discussing the progress made in preparing ordinances, securing their approval by City Council, and the effectiveness of implementation.
2. Include a section in the annual report discussing the success of these Objectives.
3. Determine whether the City Arborist has the legal authority necessary to enforce Urban Forest Management Plan ordinances.
4. Determine whether city law enforcement understand the new laws and are helping to enforce them.

1.

Resources and Timeline:

Year 1 Writing the draft ordinances: 15 days = 0.066 FTE

Year 2-5 Writing/refining ordinances : 5 days = 0. 022 FTE

Year 1 – 5 Enforcing ordinances 5 days = .022 FTE

Year 1 – 5 Writing the ordinance and enforcement section of the annual report: 8 hours= 0.004 FTE annually

Note that the drafting of the ordinance will require assistance from other City staff.

9. Financing Recommendations

This document recognizes that, despite the many benefits and services that an urban forest offers, the amount of funding for urban forestry is subject to available funding from the City's limited financial resources. While this document clarifies existing

urban forestry programs and proposes new programs and standards, the implementation of these programs can occur under essentially status quo funding. A better managed urban forestry program supported by a long term management plan can result in fewer maintenance costs over time while increasing the number of trees in the City's inventory.

While the City concentrates on the more effective and efficient management of its existing urban forest inventory, the City can take advantage of partnerships with nonprofits, developers and restoration specialists to create and expand the urban forest of tomorrow. These partnerships will be necessary to assist the City in developing the resources to implement this Urban Forestry Management Plan.

City leaders are also encouraged to be cognizant of research on establishing the value of trees. Tree scientists have discovered how to estimate a specific dollar value of an urban forest. The process involves directly relating an individual tree's costs and benefits to the local environment where it grows. Scientists are now able to show the cumulative financial impact of individual trees in the urban forest using data unique to a geographic area. Tree scientists can also identify how individual trees grow over their normal lifespan. With this information, we can calculate urban forest costs and benefits for decades into the future

In order to support the financing required to implement a successful urban forest management plan, it is important to understand the value that trees in general provide the community. A 2008 National Urban and Community Forestry Advisory Council study of Goleta trees identifies that existing trees cost $351,322 annually to maintain and produced $643,574 in annual benefits for a net benefit of $292,252 and a cost benefit ratio of 1.83, or a net positive benefit of trees. Similar studies in other communities show that trees have tangible and intangible benefits that translate into improved services to the Goleta community.

Recommendations:

1. Recognize the monetary value of trees and incorporate this understanding into decision-making.
2. The Goleta Urban Forestry Program funding should as a minimum be equal to or greater than the 2009-10 budget levels in order to achieve the services outlined in this report.

Objectives:

- Dedicated public financing for urban forestry be increased and sustained.
- Use I-Tree to calculate benefits.
- Encourage collaborative to increase buying power for urban forestry products and services.
- Encourage collaborative to market urban forest products including municipal wood waste.

- Identify and promote successful partnerships and novel revenue sources
- Develop relationships with philanthropy networks.
- Encourage more partnerships with utilities companies.
- Solicit corporate support for events, publications and special projects.
- Create a City tree fund to accept fines and in-lieu mitigation contributions.
- Become more active in environmental networks.
- Advocate for sufficient compensation to the City when trees are destroyed for construction and development.

Performance Standards:

1. After the adopting of the recommendation, annually assess the impact of the non-fiscal cost-benefit analyses on decision-making. Identify projects with a net loss in fiscal terms that were approved after being shown to have net benefits in I-Tree or I-Tree Streets.

Resources and Timelines:

Year 1 – 5 Developing financial support for the urban forestry program: 5 days= .022 FTE

Year 1 – 5 Writing the financial section of the annual report: 4 hours = 0.004 FTE

10 Summary of recommendations/Annual Report

This section is a summary of each of the recommendations in the report. The resources, which are essentially staffing requirements, that are estimated to implement the plan and a recommended timeline are included as part of Appendix E.

In order to provide ongoing information about the status of the Urban Forest Management Plan, an annual report prepared by the City Arborist is recommended to assess timeliness of implementation efforts, if modifications are needed to the Plan, and if changes in resources are needed

Annual Report

Recommendation:

1. The City should prepare an annual urban forestry report that recognizes progress made in implementing the Urban Forest Management Plan and identifies those portions of the plan requiring modification to meet the changing needs of the urban forest.

Objectives:

1. Include a section in the report for each item of the Urban Forest Management Plan that requires it (specified in the Performance Standard of each item).

2. Recommend the addition or removal of items from the annual report as necessary

3. Identify necessary changes to items in the Urban Forest Management Plan, and recommend them to be made in the next version of the Urban Forest Management Plan.

4. Identify any items in the Urban Forest Management Plan that are no longer necessary, and recommend their removal in the next version of the Urban Forest Management Plan.

5. Identify new items that may be necessary, and recommend their inclusion in the next version of the Urban Forest Management Plan.

Performance Standards:

1. Ensure that all significant changes in the growth and maintenance of the urban forest are recorded and assessed.

2. Ensure that the Urban Forest Management Plan remains a consistent, effective document, but allow for necessary changes to be made

Resources and Timeline:

Year 1 – 5 Preparing Projected timelines are listed for each item: 8 hours= .004 FTE

Year 1 – 5 Writing the summary section of the annual report: 4 hours = 0.002 FTE annually

Summary of Recommendations

Introduction

1.0 Adopt the Urban Forest Management Plan covering all public areas, and all new

land use development applications:

Vision Statement

2.0 That the City of Goleta adopts the following vision statement for the Goleta Urban Forest Management Plan;

Goleta's urban forest is a thriving and sustainable mix of tree species and ages that creates a contiguous and healthy ecosystem that is valued and cared for by the City and all of its citizens as an essential environmental, economic and community asset.

Inventory of the public trees for which the City of Goleta is responsible

3.0.1 Maintain a computerized non-proprietary database inventory of public trees that is continuously updated whenever a tree is planted, removed, or maintained by City staff, contractors, or volunteers.

3.0.2 Conduct a complete inventory of public trees every ten years beginning in 2014.

Goleta Urban Forestry Program Overall Goals

Canopy coverage

1.1.1 Consider a policy of no net loss of public tree canopy

4.1.2 Consider a policy of Increasing the total percentage of canopy within the City from the current 19% to 21% over a ten year period.

Age Diversity

4.2.1 The Goleta Urban Forest should emphasize a variety of ages of trees within its inventory, with an emphasis on species with long lives, and with a majority of the trees being in the average age category.

Species Diversity

4.3.1 Consider citywide street/park species diversity goals of 10% Cultivar, 20% Genus, and 30% Family to help protect the Goleta urban forest against diseases and other pests

Recommended Tree Species

4.4.1 The City's tree species list should relate to the City's adopted urban forest policies, including choosing species for maximum environmental benefit, canopy coverage, native tree emphasis, longevity, sustainability and Increasing the diversity of species.

4.4.2 Consider revising the recommended street tree list to include all public tree sites and use the Appendix F tree species list to identify trees eligible for planting in public areas according to criteria in the Goleta Urban Forest Management Plan and interpreted by the City Arborist.

Right Tree, Right Place

4.5.1 The basic criterion for tree location should follow a flexible "right tree, right place" policy that selects species that are appropriate for the specific conditions in which they

are to be planted, so as to minimize ongoing maintenance by city staff.

4.5.2 The largest mature size tree species possible should be planted at a site.

4.5.3 The ultimate mature size of a tree species that can be planted at a tree sites can be identified by comparing the volume of available soil compared to the projected soil needs of the tree at maturity, with the caveat that lack of soil volume can result in slower growth, smaller trees, and shorter life expectancy.

4.5.4 To allow sight distance for vehicles, trees should be planted a minimum distance away from intersections according to the latest edition of the Traffic Engineering handbook. For example, at least 25' away from intersections on 25 mph roads.

4.5.5 Street trees will be gradually pruned to a have clear trunk clearance of 14' along streets and 8' above a sidewalk. A minimum canopy depth of 6" is recommended, thus tree species at maturity that are less than 20' are not recommended as street trees.

4.5.6 Tree sites should be located a sufficient distance from driveways, gas and water lines (generally a minimum of 7 feet), and also positioned so that the canopy at maturity will not substantially interfere with street lights.

4.5.7 New and replacement trees planted under electrical power lines should not exceed 25' in height at maturity so that the edge of the tree canopy will not come within 4 feet of household electrical transmission wires. This recommendation does not apply to telephone, cable or street light power lines. .

Early Tree Care

4.6.1 Recognize the critical importance of the first three years of a tree's life with a young tree care program

Very Mature Tree Care

4.7.1 Identify very mature trees in the City's tree inventory and sustain their number through preventive maintenance .

4.7.2 Healthy trees, especially very mature trees, should be retained to the greatest extent possible.

Professional Tree Care Standards

4.8.1 Adopt the latest revisions of the following professional standards for Tree Care for the City of Goleta Urban Forestry program:

a. American National Standards Institute (ANSI) A300 tree care standards

b. ANSI Z133.1 Safety standards

c. International Society of Arboriculture (ISA) Best Management Practices

4.8.2 All tree care contractors doing business within the City of Goleta should verify that they operate according to the above standards when they secure their Goleta Business License. When awarding tree work contracts, the City should show a bid preference for TCIA-accredited companies. These are prerequisite for Society of Municipal Arborists accreditation.

Urban Wood Reuse

4.9.1 Establish environmentally sound tree removal practices by adopting an Urban Wood Reuse policy so that the remains of removed trees can be utilized to provide economic and recreational benefits for the community.

Infrastructure Coordination

4.10.1 Annually evaluate policies and standards for construction and engineering of roads, sidewalks, parking lots, bus stops, and utility right-of-ways to identify conflicts with urban and community forests and recommend administrative and policy changes.

Urban Heat Island Mitigation

4.12.1 Modify existing ordinances to insure new parking lots are meeting 50% shade coverage objectives.

4.12.2 Provide a standard for retrofitting existing public parking lots and large paved areas with shade trees.

Tree Risk Management

4.13.1 Adopt a proactive public tree risk management program to minimize dangerous conditions on public property.

4.13.2 Coordinate the public urban tree risk management plan with the Wildland Fire Study currently under development by the City Planning and Environmental Services Department.

4.13.3 Implement defensible space procedures in high fire hazard areas identified by the County Fire Department

Pest and Disease Management

4.14.1 Take regular preventive measures against pest and disease problems by adopting a Plant Health Care program using least toxic practices.

Public Trees In and Near Environmentally Sensitive Habitat Areas

4.15.1 Identify buffer zones around eucalyptus groves to plant and maintain native oak habitat with long term (50 to 100 year) intent to reduce or contain eucalyptus groves and convert to native tree habitats where appropriate.

View Corridors

4.16.1 Recognize the ability of trees to enhance the aesthetic quality of views along public right of way, including locating trees within scenic corridors..

4.16.2 Plant a diverse number of species, densities, sizes, deciduous and evergreen

trees along scenic corridors that will allow drivers and pedestrians to see under , around and through trees.

Heritage Trees/ Historical landmarks

4.17.1 Consider adopting procedures for defining and designating heritage/landmark trees.

4.17.2 Consider future policies or ordinances that protect heritage trees, regardless of location within the City.

Trees and Economic Development

4.18.1 Promote the planting of large shade trees in commercial and business areas as an economic development measure, particularly within Old Town Goleta

4.18.3 Accommodate trees during early infrastructure design of city projects

4.19 Tree Advisory Board

4.19.1 Develop an ordinance for a volunteer Tree Advisory Board to be included within the City of Goleta Urban Forestry ordinances.

4.19.2 Create a volunteer community member board to advise the city staff and city arborist in developing plans and goals for the Goleta Urban Forest, representing the interests of the community, working to resolve conflicts between community members and Urban Forestry policy, and advocate within the community for support of the urban forestry program.

4.19.3 The City should provide training and assistance to the tree advisory board on public relations strategies, communicating with elected officials, participatory approaches, fund raising and organizational development, developing marketing plans, developing effective advocacy and public relations programs and developing a marketing plan.

5.0 Urban Forestry and Regional Planning

Air Quality and Urban Forestry

5.1.1 Recognize the direct ability of the urban forest to sequester carbon emissions and particulates and provide a better quality and a cleaner air for all.

5.1.2 Recognize that the actions taken now to promote the planting of trees will have impacts on multiple updates of the three year air quality maintenance plan

Storm Water Management

5.2.1 Recognize the short and long term value of the urban forest in storm water management through urban forestry projects that reduce storm water run-off, recharge groundwater, reduce stream channel erosion and improve soil and water quality.

Energy Conservation

5.3.1 Add a policy to the City of Goleta's energy plan and the South Coast Energy Efficiency Partnership that recognizes the importance of long term urban forest benefits, i.e. more than 5 years.
5.3.2 Combine landscape planning with urban forest planning to maximize the potential energy conservation benefits of trees.

Greenhouse Gas Reduction

5.4.1 Recognize the formal relationship between urban forestry and the Greenhouse Gas emission reduction goals through use of California Climate Registry models

Utilities

5.5.1 Develop ongoing coordination between utility representatives and city officials to insure continued utility service while maintaining and supporting appropriate urban forestry

Goleta Urban Forest Resources

Community Services Urban Forestry Personnel and Budget

6.1.1 Require professionally trained and experienced arborists in guiding the implementation of Goleta's Urban Forestry program, and enforcing urban forestry ordinances.
6.1.2 Insure that Urban Forestry budgeted will be sufficient to meet minimum standards for annual Tree City USA Awards.

Goleta Urban Forestry Program Professional Standards

6.2.1 Continue to maintain accreditation in the annual Tree City USA program

6.2.2 Achieve and maintain accreditation in the Tree City USA Growth Award.

6.2.3 Achieve and maintain accreditation from the Society of Municipal Arborists.

6.2.4 Identify new or updated professional standards and make recommendations for their inclusion within the City of Goleta Urban Forest program.

City of Goleta Interdepartmental Coordination

6.3.1 Recognize the impact of other departments on the urban forest and the importance of developing collaborate solutions that preserve the interests of both the urban forest and other departments.

Planting of new and replacement trees –Annual Targets

6.5.1 Recognize the importance of annual targets to a successful tree planting program.
6.5.2 Set an annual target of planting 232 new public trees a year.

6.5.3 Set a target of planting all 2,362 vacant public street tree sites within ten years.

6.5.4 Establish a policy of replanting any failed new tree within one year.

Public Outreach/Education

7.1.3 Encourage wide public participation in the urban forestry program.

7.1.2 Recognize the benefits of adopting an open and accessible computerized tree inventory system.

7.1.3 The City should seek to Identify and support diverse public leaders to serve as spokespeople for urban forestry.

Nonprofit urban forestry partnerships

7.2.1 Acknowledge and support the efforts of non-profit urban forestry groups to provide urban forestry services and community outreach.

Professional urban forestry partnerships.

7.3.1Acknowledge and support the efforts of professional urban forestry groups to provide urban forestry services and community outreach.

Government and Agency Partnerships

7.4.1 Acknowledge and support the efforts of government and public agency partnerships to provide urban forestry services and community outreach.

Goleta Urban Forest Ordinances and Enforcement Program

8.1.1 Place a high priority on the immediate development of comprehensive ordinances and policies in order to successfully enforce the Urban Forest Management Plan.

Financing Recommendations

9.1.1 Recognize the monetary value of trees and incorporate this understanding into decision-making.

9.1.2 The Goleta Urban Forestry Program funding should as a minimum be equal to or greater than the 2009-10 budget levels in order to achieve the services outlined in this report.

Summary of Recommendations/Annual report

10.1 The City should prepare an annual urban forestry report that recognizes progress made in implementing the Urban Forest Management Plan and identifies those portions of the plan requiring modification to meet the changing needs of the urban forest.

Appendix A Society of Municipal Arborists Municipal Forestry Accreditation Program

A. Accreditation standards, in summary form, are:

1. Program must have at least one ISA Certified Arborist on staff, with an ISA Certified Municipal Specialist preferred
2. Program must have a Local Forest Master Plan approved by appropriate local body.
3. Program must be a current Tree City USA or equivalent outside U.S. (this criterion must be maintained annually to maintain Accreditation).
4. Program must have a NADF Growth Award, or equivalent outside USA, in at least one of the past five years.
5. Program must show preference to TCIA Accredited, or equivalent outside USA, tree care companies when private arborists are contracted.
6. Program must incorporate ANSI Z133.1 safety standards, or equivalent outside USA.
7. Program must incorporate ANSI A300 tree care performance standards, or equivalent standards outside USA.
8. Program must pledge adherence to the SMA Code of Ethics and to promote SMA objectives.

B. Interpretation of Standard #2 (Local Forest Master Plan): To qualify under Standard #2, a Local Forest Master Plan must address at least the following issues, presenting specific operational goals, designating responsible agencies, and identifying the personnel, equipment, budget, and other resources tasked to meet these goals:
1. Operational Goals
2. The agencies, personnel, equipment budget, and other resources tasked to meet these goals
3. Designation of trees for which the municipality is responsible
4. Continuing care of municipally-owner trees
5. Identification and removal of municipally-owned trees that are past their useful or safe lifespan
6. Planting of new and replacement trees as appropriate
7. Progress toward educating the general public, municipal employees, commercial and utility tree workers, and others, as appropriate, concerning the benefits and care of trees.
8. Actions taken in enforcement of tree-protection ordinances, zoning and construction regulations, etc. to the extent that these are elements of the municipality's tree program.
9. Inventory or other systems for identification and management of tree resources, problems, and opportunities
10. Identification of the program's current objectives and goals for the future.
11. Local governing body approval.

C. Documentation of compliance with Standard #6 (incorporation of ANSI Z133.1 safety standards or equivalent outside of USA.) and # 7 (ANSI A300 tree care performance standards, or equivalent standards outside of USA)

Appendix B –Goleta Street Tree Species Frequency

This is a list of the 178 species and the number of each in the Goleta street tree inventory.

Species Frequency

Botanical Name	Common Name	Total	Photo
Callistemon citrinus	LEMON BOTTLEBRUSH	606	Yes
Cupaniopsis anacardioides	CARROTWOOD	552	Yes
Liquidambar styraciflua	AMERICAN SWEETGUM	524	Yes
Schinus terebinthifolius	BRAZILIAN PEPPER	361	Yes
Pyrus kawakamii	EVERGREEN PEAR	348	Yes
Jacaranda mimosifolia	JACARANDA	332	Yes
Melaleuca quinquenervia	CAJEPUT TREE	313	Yes
Syagrus romanzoffianum	QUEEN PALM	260	Yes
Lophostemon confertus	BRISBANE BOX	251	Yes
Fraxinus uhdei	SHAMEL ASH	240	Yes
Geijera parviflora	AUSTRALIAN WILLOW	159	Yes
Fraxinus velutina 'Modesto'	MODESTO ASH	153	Yes
Callistemon viminalis	WEEPING BOTTLEBRUSH	138	Yes
Washingtonia robusta	MEXICAN FAN PALM	132	Yes
Prunus cerasifera	PURPLE-LEAF PLUM	127	Yes
Quercus suber	CORK OAK	125	Yes
Pittosporum undulatum	VICTORIAN BOX	119	Yes
Ulmus parvifolia	CHINESE ELM	107	Yes
Prunus caroliniana	CAROLINA LAUREL CHERRY	87	Yes
Trachycarpus fortunei	WINDMILL PALM	78	Yes
Podocarpus gracilior	FERN PINE	73	Yes
Ligustrum lucidum	GLOSSY PRIVET	65	Yes
Harpephyllum caffrum	KAFFIR PLUM	63	Yes
Magnolia grandiflora	SOUTHERN MAGNOLIA	62	Yes
Quercus ilex	HOLLY OAK	47	Yes
Archontophoenix cunninghamiana	KING PALM	43	Yes
Pinus radiata	MONTEREY PINE	38	Yes
Malus floribunda	CRABAPPLE	35	Yes
Zelkova serrata	SAWTOOTH ZELKOVA	31	Yes
Pistacia chinensis	CHINESE PISTACHE	28	Yes
Olea europaea	OLIVE	26	Yes
Ficus benjamina	WEEPING FIG	25	Yes
Yucca gloriosa	SPANISH DAGGER	25	Yes
Tristania laurina	WATER GUM	22	Yes
Erythrina caffra	KAFFIRBOOM CORAL TREE	21	Yes
Phoenix roebelenii	PYGMY DATE PALM	21	Yes
Cinnamomum camphora	CAMPHOR TREE	20	Yes
Eucalyptus torquata	CORAL GUM	20	Yes
Pinus canariensis	CANARY ISLAND PINE	20	Yes
Agonis flexuosa	PEPPERMINT TREE	18	Yes

Ginkgo biloba	MAIDENHAIR TREE	16	Yes
Other tree	OTHER TREE	16	Yes
Quercus agrifolia	COAST LIVE OAK	16	Yes
Juniperus chinensis 'Torulosa'	HOLLYWOOD JUNIPER	15	Yes
Pyrus calleryana	ORNAMENTAL PEAR	13	Yes
Unknown	UNKNOWN	13	
Acacia spp.	ACACIA	12	Yes
Arbutus 'Marina'	MARINA ARBUTUS	11	Yes
Fraxinus spp.	ASH	11	
Phoenix canariensis	CANARY ISLAND DATE PALM	11	Yes
Pinus pinea	ITALIAN STONE PINE	11	Yes
Albizia julibrissin	SILK TREE	10	Yes
Betula pendula	EUROPEAN WHITE BIRCH	10	Yes
Cassia leptophylla	GOLD MEDALLION TREE	10	Yes
Lagerstroemia indica	CRAPE MYRTLE	10	Yes
Brahea edulis	GUADALUPE PALM	9	Yes
Cupressus sempervirens	ITALIAN CYPRESS	9	Yes
Tipuana tipu	TIPU	9	Yes
Acacia decurrens	GREEN WATTLE	8	Yes
Eucalyptus polyanthemos	SILVER DOLLAR GUM	8	Yes
Prunus domestica	PLUM	8	Yes
Rhapiolepis 'Majestic Beauty'	INDIAN HAWTHORNE	8	Yes
Cedrus deodara	DEODAR CEDAR	7	Yes
Chamaerops humilis	MEDITERRANEAN FAN PALM	7	Yes
Dead Tree	DEAD TREE	7	Yes
Magnolia soulangiana	SAUCER MAGNOLIA	7	Yes
Myoporum laetum	MYOPORUM	7	Yes
Ravenea rivularis	MAJESTY PALM	7	Yes
Bauhinia variegata	PURPLE ORCHID TREE	6	Yes
Ceratonia siliqua	CAROB	6	Yes
Eucalyptus cinerea	ASH GUM	6	Yes
Eucalyptus citriodora	LEMON-SCENTED GUM	6	Yes
Eucalyptus spp.	EUCALYPTUS	6	Yes
Koelreuteria bipinnata	CHINESE FLAME TREE	6	Yes
Nerium oleander	OLEANDER	6	Yes
Pinus spp.	PINE	6	Yes
Schinus molle	CALIFORNIA PEPPER	6	Yes
Acer saccharinum	SILVER MAPLE	5	Yes
Ficus microcarpa 'Nitida'	INDIAN LAUREL FIG	5	Yes
Laurus nobilis	SWEET BAY	5	Yes
Prunus persica	PEACH	5	Yes

Robinia pseudoacacia	BLACK LOCUST	5	Yes
Washingtonia filifera	CALIFORNIA FAN PALM	5	Yes
Casuarina stricta	DROOPING SHE-OAK	4	Yes
Chorisia speciosa	SILK-FLOSS TREE	4	Yes
Fraxinus uhdei 'Tomlinson'	TOMLINSON ASH	4	Yes
Hymenosporum flavum	SWEETSHADE	4	Yes
Salix spp.	WILLOW	4	Yes
Sequoia sempervirens	COAST REDWOOD	4	Yes
Ulmus pumila	SIBERIAN ELM	4	Yes
Brugmansia spp.	ANGELS TRUMPET	3	
Calocedrus decurrens	INCENSE CEDAR	3	Yes
Caryota urens	FISHTAIL WINE PALM	3	
Cordyline australis	DRACAENA	3	Yes
Eriobotrya japonica	EDIBLE LOQUAT	3	Yes
Eucalyptus sideroxylon	RED IRONBARK	3	Yes
Juniperus chinensis	CHINESE JUNIPER	3	Yes
Metrosideros excelsus	NEW ZEALAND CHRISTMAS TREE	3	Yes
Neodypsis decaryi	TRIANGLE PALM	3	Yes
Parkinsonia aculeata	JERUSALEM THORN	3	Yes
Pinus thunbergiana	JAPANESE BLACK PINE	3	Yes
Pittosporum rhombifolium	QUEENSLAND PITTOSPORUM	3	Yes
Populus fremontii	FREMONT COTTONWOOD	3	Yes
Prunus blireiana	FLOWERING PLUM	3	Yes
Quercus spp.	OAK	3	Yes
Stenocarpus sinuatus	FIREWHEEL TREE	3	Yes
Acacia longifolia	SYDNEY GOLDEN WATTLE	2	Yes
Acacia melanoxylon	BLACK ACACIA	2	Yes
Acer palmatum	JAPANESE MAPLE	2	Yes
Alnus rhombifolia	WHITE ALDER	2	Yes
Brachychiton acerifolius	AUSTRALIAN FLAME TREE	2	Yes
Broussonetia papyrifera	PAPER MULBERRY	2	Yes
Carya illinoensis	PECAN	2	Yes
Chitalpa tashkentensis	CHITALPA	2	Yes
Eucalyptus ficifolia	RED FLOWERING GUM	2	Yes
Eucalyptus rudis	DESERT GUM	2	Yes
Koelreuteria paniculata	GOLDENRAIN TREE	2	Yes
Malus sylvestris	EDIBLE APPLE	2	Yes
Markhamia hildebrandtii	MARKHAMIA	2	Yes
Melaleuca spp.	MELALEUCA	2	Yes
Morus alba	WHITE MULBERRY	2	Yes
Palm spp.	PALM	2	Yes

Paulownia tomentosa	EMPRESS TREE	2	Yes
Persea americana	AVOCADO	2	Yes
Photinia fraseri	FRASERS PHOTINIA	2	Yes
Pinus edulis	PINON PINE	2	Yes
Pinus halepensis	ALEPPO PINE	2	Yes
Platanus racemosa	CALIFORNIA SYCAMORE	2	Yes
Podocarpus nagi	PODOCARPUS NAGI	2	Yes
Prunus armeniaca	APRICOT	2	Yes
Prunus ilicifolia	HOLLYLEAF CHERRY	2	Yes
Punica granatum	POMEGRANATE	2	Yes
Salix babylonica	WEEPING WILLOW	2	Yes
Zelkova serrata 'Village Green'	ZELKOVA VILLAGE GREEN	2	
Ailanthus altissima	TREE OF HEAVEN	1	Yes
Albizia distachya	PLUME ALBIZIA	1	Yes
Araucaria heterophylla	NORFOLK ISLAND PINE	1	Yes
Arbutus unedo	STRAWBERRY TREE	1	Yes
Bauhinia blakeana	HONG KONG ORCHID TREE	1	Yes
Broussonetia spp.	PAPERBARK	1	
Caesalpinia spinosa	BIRD OF PARADISE	1	Yes
Cassia excelsa	CROWN OF GOLD TREE	1	Yes
Chionanthus retusus	CHINESE FRINGE TREE	1	Yes
Citrus reticulata	TANGERINE	1	Yes
Citrus sinensis	ORANGE	1	Yes
Crinodendron patagua	LILY OF THE VALLEY TREE	1	
Cupressus macrocarpa	MONTEREY CYPRESS	1	Yes
Eucalyptus cladocalyx	SUGAR GUM	1	Yes
Eucalyptus viminalis	MANNA GUM	1	Yes
Ficus carica	EDIBLE FIG	1	Yes
Ficus elastica	RUBBER TREE	1	Yes
Ficus spp.	FIG	1	Yes
Fraxinus velutina 'Dr Pironne'	ASH ARIZONA	1	
Grevillea robusta	SILK OAK	1	Yes
Heteromeles arbutifolia	TOYON	1	Yes
Howea forsterana	PARADISE PALM	1	Yes
Juglans regia	ENGLISH WALNUT	1	Yes
Lagunaria patersonii	PRIMROSE TREE	1	Yes
Ligustrum japonicum	JAPANESE PRIVET	1	Yes
Magnolia stellata	MAGNOLIA	1	Yes
Maytenus boaria	MAYTEN TREE	1	Yes
Melaleuca styphelioides	PRICKLY MELALEUCA	1	Yes
Musa spp.	BANANA	1	Yes

Phoenix dactylifera	DATE PALM	1	Yes
Platanus acerifolia	LONDON PLANE	1	Yes
Prosopis glandulosa	MESQUITE	1	Yes
Prunus amygdalus	ALMOND	1	Yes
Pyrus communis	FRUITING PEAR	1	Yes
Quercus lobata	VALLEY OAK	1	Yes
Salix laevigata	RED WILLOW	1	Yes
Sophora japonica	JAPANESE PAGODA TREE	1	Yes
Syzygium paniculatum	BRUSH CHERRY	1	Yes
Tabebuia avellanedae	LAVENDER TRUMPET TREE	1	Yes
Tabebuia impetiginosa	PINK TRUMPET TREE	1	Yes
Tecomaria capensis	CAPE HONEYSUCKLE	1	Yes
Ulmus americana	AMERICAN ELM	1	Yes
Umbellularia californica	CALIFORNIA BAY	1	Yes
Yucca elephantipes	GIANT YUCCA	1	Yes
		Total: 6,261	

Non Species:

Vacant site		
Stump	VACANT SITE	2565
Not City Planted/Maintained	STUMP	34
Total: 2,629	NOT CITY PLANTED/MAINTAINED	30
	Grand Total: 8,890	

Height Frequency

Height	Total
---	2,566
01-15	1,420
15-30	2,531
30-45	1,958
45-60	392
60+	23
Total: 8,890	

DBH Frequency

DBH	Total
---	2,565
0-6	815
07-12	1,250
13-18	2,869
19-24	856
25-30	397
31+	138
Total: 8,890	

Appendix C. City of Goleta Potential Heritage Tree Sites

The listed trees are within or visible from public right of ways, or in private or semi-public areas that require the permission of the owners to enter. Please respect trees in private areas by not trespassing. NOTE: City Map to be developed-.

Map #	Name -	Location	Description
1	Witness Tree and Sister Witness Tree	5555 Hollister Avenue	Goleta's 250 year old Sycamore and 'twin' across the street
2	Sexton Historic Grove	5490 Hollister Avenue	Remnants of Sexton plantings from 1860's
3	Kellogg Ranch	100 S. Kellogg	Large Avocado and Oak examples
4	Orange Avenue Street Trees	Orange Avenue	Camphors from the 1930's
5	Goleta Community Center	5679 Hollister Avenue	Community Holiday Tree
10	Coronado Preserve/Ellwood Mesa	400 Coronado Drive	Eucalyptus serve as home for Monarch butterflies
11	Santa Barbara Shores Park	7801 Hollister Ave	Remnants of Ellwood Cooper plantings from 1880's
12	Sandpiper Golf Course/Bacara	7925 Hollister Ave. via Access Road	Variety of Eucalyptus in parking area/ Cypress at Beach
14	Evergreen Open Space	Evergreen and Brandon	Eucalyptus serve as backdrop for disc golf course
15	Bella Vista Open Space	Placer Dr and Mirano Dr	Excellent examples of massed Australian Willows
16	Glen Annie Road Orchards	Glen Annie north of Cathedral Oaks	Commercial Avocado and lemon orchards
17	Bishop Ranch Grove	96 Glen Annie Road	1907 garden with 100 year old imported specimens
18	Stow House Gardens and Al Turnbull Grove	304 N. Los Carneros Rd	Specimen plantings from the 1870's/ Oak Honor Grove
19	Lake Los Carneros	304 N. Los Carneros Rd	S of the dam is the largest local oak
20	Stow Grove	La Patera Lane	Picnic area for Stow family containing 300 Redwoods

Appendix D BIBLIOGRAPHY and Resources Used

Arbor Day Foundation. "Tree City USA Standards."

http://www.arborday.org/programs/treeCityUSA/standards.cfm

Arbor Day Foundation. "Tree City Growth Awards." http://www.arborday.org/programs/treeCityUSA/growthAwards.cfm

California Climate Action Registry. "Urban Forest Project Reporting Protocol." August 2008.

California Invasive Plant Council. "Invasive Plant Inventory." http://www.cal-ipc.org/ip/inventory/index.php

City of Goleta. "Goleta General Plan/Coastal Land Use Plan." September 2006. http://www.cityofgoleta.org/index.aspx?page=192

Goleta Valley Beautiful. "State of the Goleta Urban Forest Report." October 26, 2009. http://www.cityofgoleta.org/Modules/ShowDocument.aspx?documentid=3823

Goleta Valley Beautiful. "Goleta Urban Forest Guidelines." April 24, 2010. http://www.cityofgoleta.org/Modules/ShowDocument.aspx?documentid=4357

McPherson, E.G., J.R. Simpson, P.J. Peper, K.I. Scott and Q. Xiao. 2000. "Tree Guidelines for Coastal Southern California Communities." Sacramento, CA: Local Government Commission.

Urban Forest Ecosystems Institute. "SelecTree: A Tree Selection Guide." California Polytechnic State University San Luis Obispo. http://selectree.calpoly.edu/index.html

About ReLeaf California ReLeaf, n.d. Web. 8 Jan. 2010. <http://californiareleaf.org/about-releaf>.

About TCIA Tree Care Industry Association, n.d. Web. 8 Jan. 2010. <http://www.treecareindustry.org/public/main_about.htm>.

American Forests. Trees and Air Quality.http://www.americanforests.org/graytogreen/air/

Bernhardt, E.; Swiecki, T. J. 1991. Guidelines for developing and evaluating tree ordinances. Prepared for: Urban Forestry Program, California Department of Forestry and Fire Protection, Sacramento, CA. 76 p

California's Solar Rights Act.http://www.sandiego.edu/EPIC/publications/documents/070123_RightsActPaperFINAL.pdf

California's Solar Shade Control Act.http://www.sandiego.edu/epic/publications/documents/070123_SSCAPaperFINAL_001.pdf

Casey Trees, Washington DC. "Data Collection and GIS Technology" http://www.caseytrees.org/geographic/tree-inventory/plantings/GIS/index.php

City of Davis Urban Forest Vision Statements http://cityofdavis.org/pgs/trees/pdfs/CFMP-Final-Sept2002.pdf

Climate Change Resource Center. http://www.fs.fed.us/ccrc/topics/urban-forests/

Community Trees: Tree Ordinances for Iowa Communitieshttp://www.extension.iastate.edu/publications/pm1429b.pdf

Costello, L. R., and K. S. Jones. *Reducing Infrastructure Damage by Tree Roots: A Compendium of Strategies*. Cohasset, Canada: Laurence R. Costello and Katherine S. Jones, 2003. Print.

Desert-Tropicals. http://www.desert-tropicals.com/Plants/Fagaceae/Quercus_suber.html

Dockter, Dave. "Tree Technical Manual." *City of Palo Alto Website* City of Palo Alto, June 2001. Web. 5 Dec. 2009. <http://www.cityofpaloalto.org/civica/filebank/blobdload.asp?BlobID=6436>.

"Download and Installation Instructions for the CUFR Tree Carbon Calculator." *Urban Forests and climate Change* US Forest Service, n.d. Web. 5 Dec. 2009. <http://www.fs.fed.us/ccrc/topics/urban-forests/ctcc/>.

Dwyer, Mark C. and Robert W. Miller. “Using GIS to Assess Urban Tree Canopy Benefits and Surrounding Greenspace Distributions.” http://cambria.cgu.edu/ccsi/resources/08_USING_GIS_TO_ASSESS_CANOPY_BENEFITS_dwyer.pdf

Elements of Sustainability in Urban Forestry. July 1994 By Richard P. Thompson, Norman Pillsbury, Richard Hanna, Urban Forests Ecosystem Institute, California Polytechnic State Institute, San Luis Obispo, in cooperation with the California Department of Forestry and Fire Protection, Riverside, CA

ESRI – The GIS Software Leader.http://www.esri.com/

“Green Plants or Power Plants?” Center for Urban Forest Research. Davis, CA. http://www.fs.fed.us/psw/programs/cufr/products/3/cufr_148.pdf

Guide to Developing a Community Tree Preservation Ordinance Presented by the Community Tree Preservation Task Force of the Minnesota Shade Tree Advisory Committee, this guide describes the planning process, typical ordinance elements, and resources available for the taskhttp://www.mnstac.org/RFC/preservationordguide.htm

Guidelines for Developing Urban Forest Practice Ordinances. This guide is designed to assist cities and counties in the development of urban forest practice regulations.http://www.oregon.gov/odf/urban_forests/docs/other_publications/urbanfp.pdf

"I-Tree Eco." *i-Tree*, n.d. Web. 5 Dec. 2009. <http://www.itreetools.org/urban_ecosystem/introduction_step1.shtm>.

I-Tree: Tools for Assessing and Managing Community Forests. http://itreetools.org/

Knight, Kenneth A. “Planning and Financing Future Urban Forests – A Capital Asset Hybrid Proposal”. NUFCA. June 2008. http://login.npwebsiteservices.com/goletavalleybeautiful/NUCFACone.asp

Landscape Ordinances Research Project A resource home page for urban design, city planning, urban forestry, site design, landscape architecture, site engineering, land use law and land development—highlighting legal standards and technical requirements for site development plan.http://www.greenlaws.lsu.edu/sitemanager.htm

McPherson, Gregory E., et al. “Tree Guidelines for Coastal Southern California Communities.” Western Center for Urban Forest Research and Education, USDA Forest Service. January 2000. http://www.ufei.org/files/pubs/cufr_48.pdf

Mission Statement International Society of Arboriculture, n.d. Web. 8 Jan. 2010. <http://www.wcisa.net/AboutUs.asp>.

Municipal Forest Benefits and Costs in Five US Cities. McPherson, Greg1; Simpson, James R.2; Peper, Paula J.3; Maco, Scott E.4; Xiao, Qingfu5 Journal of Forestry, Volume 103, Number 8, December 2005 , pp. 411-416(6)

Myeong, Soojeong. “Urban cover mapping using digital, high-spatial resolution aerial

imagery."http://www.fs.fed.us/ccrc/topics/urbanforests/docs/urban%20cover%20mapping%20using%20digital,%20high%20spatial%20resolution%20aerial%20imagery.pdf

"Notice of 15 Day Comment Period on Changes to Proposed Amendments to the State CEQA Guidelines." *CEQA Guidelines* California Natural Resources Agency, n.d. Web. 5 Dec. 2009. <http://ceres.ca.gov/ceqa/docs/Notice_of_Proposed_Changes.pdf>.

Nowak, David J. Estimated Biogenic VOC Emission Rates for Common U.S. Trees and Shrubs.2002. http://www.nrs.fs.fed.us/units/urban/local-resources/downloads/vocrates.pdf

Nowak, David J. The Effects of Urban Trees on Air Quality. USDA Forest Service, Syracuse, New York.http://www.ufore.org/effects_of_urban_tree.html

Ordinances Research Article—Kathleen Wolfhttp://www.cfr.washington.edu/research.envmind/roadside/trees_parking.pdf

Rowntree, Rowan A. and David J. Nowak. Quantifying the Role of Urban Forests in Removing Atmospheric Carbon Dioxide. http://www.fs.fed.us/ccrc/topics/urban-forests/docs/quantifying%20the%20role%20if%20urban%20forests%20in%20removing%20atmospheric%20carbon%20dioxide.pdf

Policy Elements National Complete Streets Coalition, n.d. Web. 8 Jan. 2010. <http://www.completestreets.org/changing-policy/policy-elements/>.

Program Overview Urban and Community Forestry, 2008. Web. 8 Jan. 2010. <http://www.fs.fed.us/ucf/about_overview.html>.
Santa Barbara County Air Pollution Control District. Santa Barbara County Air Quality Attainment Designation.http://www.sbcapcd.org/sbc/attainment.htm

Scott, K.I., Simpson, J.R., and E.G. McPherson. 1999. Effects of tree cover on parking lot microclimate and vehicle emissions. Journal of Arboriculture 25(3): 129-142. Online at: http://wcufre.ucdavis.edu/effects_of_tree_cover_on_parking.htm

Simpson, James R, and Gregory E. McPherson. Potential of Tree Shade for Reducing Residential Energy Use in California.http://www.fs.fed.us/psw/programs/cufr/products/cufr_35_JS96_49.PDF

Simpson, James R, and Gregory E. McPherson. Carbon Dioxide Reduction Through Urban Forestry: Guidelines for Professional and Volunteer Tree Planters.
http://www.fs.fed.us/psw/programs/cufr/products/cufr_43.pdf

Simpson, James R, and Gregory E. McPherson. Energy and Air Quality Improvements Through Urban Tree Planting.http://www.fs.fed.us/psw/programs/cufr/products/cufr_44_JS00_47.PDF

Talking Trees: An Urban Forestry Toolkit for Local Governments. November 2006.
http://www.lpb.org/programs/forest/talking_trees_urban_forestry_toolkit.pdf

"Terrestrial Sequestration Baselines, Supply Curves, and Pilot-Scale Validation Projects." *West Coast Regional Carbon Sequestration Partnership* Department of Energy, n.d. Web. 5 Dec. 2009. <http://www.westcarb.org/index.htm>.

The City of Santa Barbara: Trees and Views http://www.santabarbaraca.gov/NR/rdonlyres/E402FE9C-B19A-4C8D-8D0D-B1A5B929E7B9/0/StreetTreesBro.pdf
The City of Santa Barbara: View Dispute Resolution Process http://www.santabarbaraca.gov/NR/rdonlyres/CD96EA94-2F94-429D-B0E2-F48276885FCC/0/ViewDisputeResolution.pdf

The State of Urban and Community Forestry in California. Technical Report No. 13 July 2006 By Richard P. Thompson

Tree City USA Bulletin #9 How to Write a Municipal Tree ordinance National Arbor Day Foundation; http://www.arborday.org/porgrams/treecitybulletinsbrowse.cfm

Tree City USA Bulletin #31 Tree Protection Ordinances National Arbor Day Foundation; http://www.arborday.org/programs/treecitybulletinsbrowse.cfm

TreeOrd Software Unique software for cities is available to help them develop ordinances that will ensure the future of their community forests. http://www.mnstac.org/RFC/tree_order_form.pdf

Trees – The Air Pollution Solution.Center for Urban Forest Research. January 2006.

Urban and Community Forestry CAL Fire, 2007. Web. 8 Jan. 2010. <http://www.fire.ca.gov/resource_mgt/resource_mgt_urbanforestry.php>.

Urban Forests Effects Model. US Department of Agriculture.http://www.ufore.org/

Urban Forests for Clean Air Project. Researching the Relationship Between Trees and Local Air Quality. http://greenprintonline.org/doc.aspx?135

"Urban Forest Project Reporting Protocol." *Urban Forests and Climate Change* US Forest Service, n.d. Web. 5 Dec. 2009. <http://www.fs.fed.us/ccrc/topics/urban-forests/>.

Urban, James. *Up by the Roots*. Champaign, IL: International Society of Arboriculture, 2008. 118. Print.

Urban Tree Canopy (UTC) Goal Setting.http://www.forestsforwatersheds.org/urban-tree-canopy/

USDA Forest Service. "Urban Tree Effects on Air Quality and Climate" http://www.nrs.fs.fed.us/units/urban/focus/air_quality_climate/

USDA, National Resources Conservation Service. http://www.plants.usda.gov/plantguide/pdf/cs_quag.pdf

City of Sacramento. (2003). Parking Lot Tree Shading Design and Maintenance Guidelines. Retrieved from http://www.cityofsacramento.org/parksandrecreation/ppdd/pdf/SHADING_GUIDELINES_06-05-03.pdf

2010-2012 Strategic Focus California Urban Forests Council, 2009. Web. 8 Jan. 2010. <http://www.caufc.org/Mission>.

2010-2012 Strategic Focus California Urban Forests Council, 2009. Web. 8 Jan. 2010. <http://www.caufc.org/Mission>.

Gardner, Shelley. March 2006. 'Selling' Urban Forestry in Your Town.

McPherson, E.G. 2004. A Functional Approach to Urban Forest Planning and Management

Wolf, Kathy L. Trees in Business Districts: Positive Effects on Consumer Behavior. University of Washington, College of Forest Resources

California Climate Action Registry. “General Reporting Protocol.” Version 3.1, January 2009. http://www.climateregistry.org/
Climate Action Reserve. “Urban Forest Project Protocol.” Version 1.1, March 2010. http://www.climateactionreserve.org/
Climate Change Resource Center. “Urban Forests and Climate Change.” http://www.fs.fed.us/ccrc/topics/urban-forests/
The Climate Registry. http://www.theclimateregistry.org/

Internet Sources

Useful Links and Resources

159.121.9.10/wq/pubs/factsheets/uic/uicstormwater.pdf

research.cals.cornell.edu/entity?home=6&id=20639

www.arborday.org/programs/buildingwithtrees/index.cfm

www.ecosmart.gov/

www.enterprisefoundation.org/

www.epa.gov/greenscapes/

www.firewise.org/

www.greencommunitiesonline.org/

www.greenhighways.org/

www.lid-stormwater.net/; http://www.lowimpactdevelopment.org/

www.nsrwa.org/greenscapes/

www.stopwaste.org/home/index.asp?page=188

www.sustainabilityproject.org/DesktopDefault.aspx?pageid=88

www.amfor.org/citygreen

www.anjec.org/pdfs/Stormwtr.pdf

www.cwp.org/

www.eoainc.com/download/3_Tree_Well_Filter_Technical_Guidance.pdf

www.fs.fed.us/psw/programs/cufr/products/cufr_665_GreenstreetsStructuralSoilsPub6-20-06.pdf

www.fs.fed.us/psw/programs/cufr/products/psw_cufr686_UCDParkingLot.pdf

www.fw.vt.edu/UrbanForestry/Posters/Trees_and_StructuralJB.pdf

www.itreetools.org

www.nrdc.org/water/pollution/storm/chap12.asp

www.pca.state.mn.us/publications/wq-strm9-17.pdf

www.shinglecreek.org/comloc.shtml

www.unh.edu/erg/cstev/

www.unh.edu/erg/cstev/fact_sheets/tree_box_filter.pdf

www.urbanext.uiuc.edu/lcr/LGIEN2002-0017.html

www.cfr.washington.edu/research.envmind/urban.html

www.walkable.org/download/22_benefits.pdf

Examples of Urban Forest Plans in Other Communities

Portland http://www.portlandonline.com/shared/cfm/image.cfm?id=184641-

Torontohttp://harbordvillage.com/files/Urban%20Forest%20Managment%20Plan%20for%20Harbord%20Village,%20Part%201.pdf:
http://www.riversides.org/rainguide/riversides_hgr.php?cat=2&page=54&subpage=93
Davis (http://www.cityofdavis.org/pcs/trees/)
Los Angeleshttp://www.laparks.com/dos/forest/urbanforestprogram.htm
Palo Altohttp://www.cityofpaloalto.org/environment/urban_canopy.asp
http://www.cityofpaloalto.org/environment/news/details.asp?NewsID=180&TargetID=64
San Franciscohttp://www.urbanforestmap.org/, http://www.sfgov.org/site/sfdpw_index.asp?id=31963
http://www.fuf.net/about_us/index.html
Santa Monica: http://www01.smgov.net/epd/scpr/OpenSpaceLandUse/OSLU2_Trees.htm
Anaheim http://anaheimurbanforestry.arboraccess.com/flash/
Bakersfield http://www.urbanforest.org/economics
Berkeley http://www.ci.berkeley.ca.us/ContentDisplay.aspx?id=8826
Monterrey http://www.monterey.org/trees/
San Diego www.caufc.org/regions/regions_sd.html
http://www.arb.ca.gov/research/ecosys/tree-aq/tree-aq.htm

City of Portland, Oregon. Portland Parks and Recreation.
http://www.portlandonline.com/PARKS/index.cfm?c=40280
http://login.npwebsiteservices.com/goletavalleybeautiful/TTarchive.asp
City of Menlo Park, CA. http://www.menlopark.org/departments/pln/htree/Htree_Ord.pdf

ACKNOWLEDGEMENTS
The City of Goleta acknowledges the following individuals for their talents and contributions in developing this report; Steve Wagner, Bill Millar, Liz LaRovere, Diane White, Steve Chase, Native Communities Development Corporation (NCDC), Mark Broomfield, Ken Knight, Eirin Bareis, C.J. Cintas, Leah Schulman, Haley Anderson, Cristina Cook, Kyle Knoebel, Mauricio Perez, Cassie Roth, John Walker, Ted Elliot, Christopher Guillen, Susan Shim, Edward Teyber, Blaine Tehaney, Jimmy Chang, Alaina Beckham.

Appendix E –Five Year Projected Allocation of City Urban Forestry Staffing

The following table represents the estimated resources necessary to complete the projects in this plan. These figures should be considered approximations of staff time needed and subject to change. The recommendations for staffing assumed existing

staffing levels that total approximately full time equivalency of 0.7 of one position annually allocated to urban forestry issues. Additional City support and related staff are not included.

Section	Title	Year 1 FTE	Year 2 FTE	Year 3 FTE	Year 4 FTE	Year 5 FTE
1.0.	Introduction Section of Annual Report	.002	.002	.002	.002	.002
2.0.	Vision statement accomplishments in the Annual Report	.002	.002	.002	.002	.002
3.1.1	Inventory of the public trees for which the City of Goleta is responsible	.022	.022	.022	.022	.022
3.1.2	Annual inventory summary in the Annual Report	.002	.002	.002	.002	.002
4.1.1.	Canopy coverage-Tree canopy assessment:	.013	.000	.000	.000	.000
4.1.2.	Canopy coverage-Tree canopy policy refinements	.002	.000	.000	.000	.000
4.1.3.	Canopy coverage-Reassessing canopy/writing canopy section of report every 5 years	.000	.000	.000	.000	.000
4.2.1.	Age diversity-Annual tree age assessment	.013	.013	.013	.013	.013
4.2.2.	Age diversity-Writing administrative policies enacting estimated tree age data collection	.008	.000	.000	.000	.000
4.2.3.	Age diversity-Reassessing age distribution/writing age diversity section of annual report	.002	.002	.002	.002	.002
4.3.1.	Species diversity-Annual tree species distribution assessment	.013	.013	.013	.013	.013
4.3.2.	Species diversity-Implementing the species diversity program	.008	.000	.000	.000	.000
4.3.3.	Species diversity-Reassessing species distribution/write species diversity annual report	.002	.002	.002	.002	.002
4.4.1.	Recommended tree species-Developing the program	.022	.000	.000	.000	.000
4.4.2.	Recommended tree species-Collecting data	.022	.022	.022	.022	.022
4.4.3.	Recommended tree species-Writing the tree species section of the annual report	.002	.002	.002	.002	.002
4.5.1.	Implementing ‘right tree right place’ recommended policies	.066	.000	.000	.000	.000
4.5.2.	Select the right tree for the right place-collecting data	.013	.013	.013	.013	.013
4.5.3.	Writing right tree/right place annual report	.002	.002	.002	.002	.002
4.6.1.	Early tree care-Developing the early tree care program	.013	.000	.000	.000	.000
4.6.2.	Early tree care- Implementing early tree care policies:	.013	.013	.013	.013	.013
4.6.3.	Early tree care-Collecting data and writing early tree care section of the annual report	.002	.002	.002	.002	.002
4.7.1.	Very mature tree care-Annual very mature tree inspection	.022	.022	.022	.022	.022
4.7.2.	Very mature tree care-Annual report writing	.002	.002	.002	.002	.002
4.8.1.	Professional tree care standards-monitoring standards	.022	.022	.022	.022	.022
4.8.2.	Writing professional tree care standards section of annual report	.002	.002	.002	.002	.002
4.9.1.	Urban wood reuse-Developing an Urban Wood Reuse Program	.000	.000	.022	.022	.022
4.9.2.	Urban wood reuse-writing the ordinances	.000	.000	.040	.000	.000
4.9.3.	Urban wood reuse-writing the annual report	.000	.000	.002	.002	.002
4.10.1.	Infrastructure Coordination-writing policy	.000	.026	.000	.000	.000
4.10.3.	Infrastructure Coordination-Collecting data	.000	.013	.013	.013	.013
4.10.4.	Writing the infrastructure annual report	.000	.002	.002	.002	.002
4.11.1.	Urban heat island mitigation-Annual review of urban heat/shade coverage	.000	.004	.004	.004	.004
4.11.2.	Urban heat island mitigation-prepare annual report section	.000	.002	.002	.002	.002
4.12.1.	Tree risk management-Preparing TRM programs and coordination	.022	.022	.022	.022	.022
4.12.2.	Tree risk management-Preparing risk management section of Annual	.002	.002	.002	.002	.002

	Report					
4.13.1.	Pest and disease management-Develop a Plant Health Care Program	.000	.013	.000	.000	.000
4.13.2.	Pest and disease management-Monitoring and data collection	.013	.013	.013	.013	.013
4.13.3.	Pest and disease management-regular maintenance and treatment-Annual Report	.002	.002	.002	.002	.002
4.14.1.	Public trees in and near env. sensitive habitat areas-Identifying buffer zones	.000	.022	.022	.022	.022
4.14.2.	Public trees in/near env. sensitive habitat areas-biennial monitoring/data collection	.000	.022	.000	.022	.000
4.15.1.	View corridors-Collecting data	.000	.008	.008	.008	.008
4.15.2.	View corridors-Preparing Annual report on view corridors	.000	.002	.002	.002	.002
4.16.1.	Heritage trees-Collecting data and writing ordinance	.000	.022	.022	.022	.022
4.16.2.	Heritage trees-Preparing annual report on heritage trees	.000	.002	.002	.002	.002
4.17.1.	Trees and economic development-Promote trees and economic development policy	.000	.004	.004	.004	.004
4.17.2.	Prepare trees & Economic Development section of annual report	.000	.001	.001	.001	.001
4.18.1.	Tree board-Creating the Tree Board	.066	.000	.000	.000	.000
4.18.2	One day of staff support for each tree advisory board meeting	.044	.044	.044	.044	.044
4.18.3	Tree board-Writing the Tree Board section of the annual report	.002	.002	.002	.002	.002
5.1.1.	Air quality and urban forestry-Air Quality Record Keeping	.000	.022	.022	.022	.022
5.1.2.	Air quality and urban forestry-Writing the Air Quality section of Annual Report	.000	.002	.002	.002	.002
5.1.3.	Air quality and urban forestry-Writing air quality ordinances	.000	.022	.000	.000	.000
5.2.1.	Storm water management-Developing stream stabilization projects	.000	.022	.022	.022	.022
5.2.2.	Storm water management-Writing the storm water management Annual report	.000	.002	.002	.002	.002
5.3.1.	Energy conservation-Develop Energy Conservation Program with trees	.000	.000	.022	.022	.022
5.3.2.	Energy conservation-Writing the Energy Conservation section of annual report	.000	.000	.002	.002	.002
5.4.1.	Greenhouse gas reduction-Implement GHG reduction procedures	.000	.022	.022	.022	.022
5.4.2.	Greenhouse gas reduction-Prepare GHG reduction section of annual report	.000	.002	.002	.002	.002
5.5.1.	Utilities-Writing and implementing utility/urban forest ordinances	.013	.013	.013	.013	.013
5.5.2.	Utilities-Writing the utility section of the annual report	.002	.002	.002	.002	.002
6.1.1.	Community Services Urban Forestry personnel and budget-Administration	.044	.044	.044	.044	.044
6.2.1.	Professional standards-Writing section of annual report	.002	.002	.002	.002	.002
6.3.1.	Communicating policies to other departments	.004	.004	.004	.004	.004
6.3.2.	City of Goleta interdepartmental coordination-Writing the policies	.022	.000	.000	.000	.000
6.3.3.	Writing interdepartmental section of annual report	.002	.002	.002	.002	.002
6.4.1.	Planting of new and replacement trees-Writing annual targets document	.002	.002	.002	.002	.002
6.4.2.	Planting of new and replacement trees-Writing the five-year targets document	.022	.000	.000	.000	.000
6.4.3.	Collecting data & writing section of annual report	.002	.002	.002	.002	.002
7.1.1.	Public outreach/education-Implementing a public outreach program	.000	.044	.044	.044	.044
7.1.4.	Public outreach/education-Writing the public outreach section of the annual report	.002	.002	.002	.002	.002
7.2.1.	Nonprofit urban forestry partnerships-Engage nonprofit urban forestry partners	.004	.004	.004	.004	.004
7.2.2.	Nonprofit urban forestry partnerships-Writing the relevant section of	.002	.002	.002	.002	.002

	annual report					
7.3.1.	Professional urban forestry partnerships-Engage prof. urban forestry partners	.004	.004	.004	.004	.004
7.3.2.	Professional urban forestry partnerships-Writing annual report	.002	.002	.002	.002	.002
7.4.1.	Government and public agency-Engage Govt. and Public Agency partners	.004	.004	.004	.004	.004
7.5.1.	Government and public agency-Writing the Govt/Public Agency section of report	.002	.002	.002	.002	.002
8.0.1.	Goleta Urban forest ordinances and enforcement-Writing ordinances	.066	.022	.022	.022	.022
8.0.2.	Goleta Urban forest ordinances and enforcement-Enforcement	.022	.022	.022	.022	.022
8.0.3.	Writing the Ordinances and enforcement section of annual report	.004	.004	.004	.004	.004
9.0.1.	Financing recommendations-Developing financial support for urban forestry	.022	.022	.022	.022	.022
9.0.2.	Financing recommendations-Writing the financial section of the annual report	.004	.004	.004	.004	.004
10.0.1.	Summary of recommendations/Annual report-Preparing projected timelines	.004	.004	.004	.004	.004
10.0.2.	Summary of recommendations/Annual report-Writing the summary section	.002	.002	.002	.002	.002
	Total	.703	.698	.703	.685	.663

Full Time Equivalent (FTE) is based on a position with 1840 work hours annually

.0005	One hour
.002	Four Hours
.004	Eight hours (one day)
.008	Sixteen hours (two days)
.013	Twenty four hours (three days)
.017	Thirty two hours (four days)
.022	Forty hours (five days/one week)
.044	Eighty hours (ten days/two weeks)
.066	One Hundred twenty hours (15 days/3 weeks)

Appendix F Tree Species Eligibility List

The purpose of the eligibility list to identify the number of potential tree species available for planting within our area while also recognizing the many constraints on planting sites

and types of species. This is an evolving list that the City will use for identifying opportunities for diversity. The City Arborist retains final responsibility for determining the appropriate species for a site.

The basis for the eligible species list is the list of trees in CalPoly's website data base SELECTREE (www.selectree.calpoly.edu). The list was narrowed to all species that are recommended for Goleta's climate zone number 24 classified by Sunset Magazine. The six factors used in the Sunset Garden Climate Zone include latitude, elevation, influence of the Pacific Ocean, influence of the continental air mass, mountains and hills, and local terrain. Non woody palms were excluded from the list to emphasize the environmental benefits of woody plants. Also excluded from the list are trees listed on the California Invasive Plant List.

Explanation of column headings for attached Tree Species Eligibility List

Botanical and Common Names The species are listed by their botanical names. This was done so that closely related species are grouped together as their common names may provide confusing information about the tree's family or genus.

Maximum Height The maximum height of each species was obtained by SelecTree. Although exact values are not given for each species, they all fall within the maximum range of 20ft, 25ft, 35ft, 50ft, 65ft, or greater than 65ft. However, many variables influence the actual height of the final tree. The values given are the maximum height a tree can potentially grow in their natural setting.

Maximum Spread The values for maximum spread were obtained from Sunset Western Garden. The spread or width was given as a range from minimum to maximum. This species table is the maximum value.

Deciduous or Evergreen SelecTree lists the natural growth habit for each species as deciduous (D), evergreen (E), or partially deciduous (P).

Water Needs The descriptions used for the water needs come from SelecTree.

Wet soil = naturally wet areas or areas with high rainfall (and riparian areas)
Moist soil = damp most of the year in areas with moderate rainfall (poor drainage areas)
Dry soil = crumbly or compacted where there is little or no rainfall (Goleta general area)

Longevity Longevity is an important aspect when considering the long term or short term goals. SelecTree provides ranges of the expected life spans of tree species since longevity varies due to numerous factors such as care the tree actually receives, risk of mechanical damage, presence or lack of disease and pests, etc.

Short - Less than 50 years

Average – Greater than 50 years and less than 150 years
Long - Greater than 150 years

California Native/ California Indigenous California native species was determined by SelecTree. These species are characteristic of the geographic region. California indigenous species were determined by *Trees of Santa Barbara*. Indigenous species are original to the sites where they grow. Native species may be genetically challenged by a nonnative tree having the potential for hybridizing with the native. An example is the London plane tree's potential to hybridize with the indigenous California sycamore. Hybridization threatens local genetic integrity.

Diversity Trees A diversity tree is labeled D under various categories. Diversity trees are extracted from those species identified in a Journal of the International Society of Arboriculture research paper on the Diversity of California's Urban Forests compiled by Muller and Boorstein. Muller's research article focused on recommended street tree lists for the 44 California Tree City cities. A tree can be a diversity tree either as a 25ft and under, over 25ft street tree or as a park tree.

Street Trees Under Transmission Lines Trees that are recommended for planting under transmission lines were determined by SelecTree. For nearly all of these recommendations, the criteria for a under transmission line tree was defined as any species that reaches a maximum height of 25ft. However, trees less than 25' are not recommended as street trees as they cannot sustain sufficient canopy when pruned to the standard height of 14' above street level. A tree that is under 25" in height could be better suited to be a park tree, but this would be contrary to other urban forest recommended policies that state the largest possible tree should be planted at any site,

Street Unrestricted Height The species listed as street unrestricted height was any tree species that was not recommended for under transmission lines planting. Street unrestricted height species consists of trees that exceed 25ft. As long as a street tree can be trimmed to 14ft above the ground with a single trunk, its location is more dependent on soil volume availability and not of its location on the street, such as a median or a parkway on either side of a sidewalk.

Park Trees Park trees are species eligible for park planting. These species include trees that may not be suitable street trees under transmission lines and street unrestricted height. A tree that is under 25" in height could be eligible as a park tree, but this maybe contrary to other urban forest recommended policies that state the largest possible tree should be planted at any site,

Soil Volume These values were derived from a 1992 study by James Clark that developed a ratio between the crown spread and diameter breast height as a means of identifying the amount of cubic feet of soil needed to support a tree.

Small (S) = 120 ft
Medium (M) = 120 ft to 240 ft
Large (L) 240 ft

Botanical Name	Common Name	Maximum Height	Maximum Spread	Deciduous/Evergreen/ Partially deciduous	W-W, M-M, D-Dry DT-Drought Tolerant	Longevity S-Short,	Indigenous/-Ca Native	Street trees under transmission lines	Street trees-no height	Park	Soil Volume- Small, Medium Large
Abies concolor	White Fir	>65	20	E	M	L	N		X		L
Abies Koreana	Korean Fir	50	10	E	M	A			X		L
Abies nord.	Nordmann Fir	>65	20	E	M	L			X		L
Abies pinsapo	Spanish Fir	50	10	E	M	A			X		L
Acacia abyssinica	Acacia	25	20	P	M-D	S		X			S
Acacia aneura	Mulga	20	20	E	M-D	A				X	S
Acacia baileyana	Bailey acacia	25	40	E	DT	S		D			S
Acacia 'purpurea'	Purple-leaf acacia	25	30	E	M-D	S		X			S
Acacia boormanii	Snowy river wattle	20	15	E	M-D	S				X	S
Acacia constricta	Mescat acacia	20	18	P	M-D	S				X	S
Acacia craspedocarpa	Desert acacia	20	10	E	M-D	S				X	S
Acacia cultriformis	Knife acacia	20	15	E	M-D	S				X	S
Acacia cyclopis	Cyclop acacia	20	--	E	M-D	S				X	S
Acacia farnesiana	Sweet acacia	20	25	P	DT	S				X	S
Acacia howitti	Sticky wattle	25	--	E	DT	S		X			S
Acacia longifolia	Sydney golden wattle	25	20	E	DT	S		X			S
Acacia pendula	Weeping acacia	25	15	E	M-D	A		X			S
Acacia podalyrifolia	Pearl acacia	25	15	E	M-D	S		X			S
Acacia pruinosa	Frost acacia	25	--	E	M	S		X			S
Acacia retinodes	Water wattle	20	--	E	W-D	S				X	S
Acacia salicina	Willow acacia	25	15	E	M-D	S		X			S
Acacia saligna	Blue-leaf wattle	25	20	E	M-D	S		X			S
Acacia subporosa	Bower wattle	35	--	E	M-D	S			X		M
Acacia verticillata	Prickly mosses	20	15	E	W-D	S				X	S
Acer capillipes	Japanese snakebark maple	35	--	D	M	A			X		M
Acer negundo	Box elder	65	--	D	W/M	A	N		D		L

Botanical Name	Common Name	Maximum Height	Maximum Spread	Deciduous/Evergreen/ Partially deciduous	W-W, M-M, D-Dry DT-Drought Tolerant	Longevity S-Short,	Indigenous/-Ca Native	Street trees under transmission lines	Street trees-no height	Park	Soil Volume- Small, Medium Large
Acer negundo 'flamingo'	Flamingo box elder	50	--	D	W	--	N		D		L
Acer negundo 'variegatum'	Variegated box elder	50	--	D	W/M	A	N		D		L
Acer oblongum	Evergreen maple	50	--	P	M	A			D		L
Acer palmatum	Japanese maple	25	20	D	M	A		D			S
Acer palmatum 'atropurp.'	Red Japanese maple	25	20	D	M	A		D			S
Acer palmatum 'bloodgood'	Bloodgood Japanese maple	20	--	D	M	A				X	S
Acer palmatum 'burgundy'	Burgundy lace Japanese maple	20	15	D	M	A				X	S
Acer plamatum 'dissectum a.'	Ever red Japanese maple	20	12	D	M	A				X	S
Acer plamatum 'heptalobum'	Osakazuki Japanese maple	20	--	D	M	A				X	S
Acer palmatum 'koshimino'	Koshimono Japanese maple	20	--	D	M	A				X	S
Acer palamtum 'ornatum'	Ornatum Japanese maple	20	--	D	M	--				X	S
Acer palmatum 'oshio beni'	Oshio Beni Japanese maple	25	--	D	M	A		X			S
Acer palmatum 'sango kaku'	Sango Kaku Japanese maple	25	--	D	M	A		X			S
Acer paxii	Evergreen maple	35	--	E	M	A			D		M
Acer saccharinum	Silver maple	65	100	D	W/M	A			D		L
Acer saccharinum 'silver queen'	Silver queen maple	65	100	D	W/M	A			D		L
Acer saccharinum 'wieri'	Wier maple	65	100	D	W/M	A			D		L
Acmena smithii	Lilly-pilly tree	25	15	E	M	A		D			S
Acrocarpus fraxinifolius	Pink cedar	50	--	P	M	A			D		M
Aesculus californica	California buckeye	25	30	D	M-D/ DT	A	N	D			S
Aesculus pavia	Red buckeye	25	30	D	M	A		X			S
Agonis flexuosa	Peppermint tree	35	30	E	W-D	A			D		M
Agonis juniperina	Juniper myrtle	35	30	E	M	A			X		M
Albizia distachya	Plume albizia	25	--	P	M-D	S		X			S
Alnus cordata	Italian alder	50	25	D	W/M	A			D		M
Alnus gultinosa	Black alder	65	30	D	W/M	A			D		L

Botanical Name	Common Name	Maximum Height	Maximum Spread	Deciduous/Evergreen/ Partially deciduous	W-W, M-M, D-Dry DT-Drought Tolerant	Longevity S-Short,	Indigenous/-Ca Native	Street trees under transmission lines	Street trees-no height	Park	Soil Volume- Small, Medium Large
Alsophila australis	Australian tree fern	25	--	E	M	S		X			S
Anogophora costata	Gum myrtle	50	--	E	M-D	A			D		M
Annona cherimola	Cherimoya	20	--	D	M	A				X	S
Aralia elata	Japanese angelica	35	30	D	M	S			X		M
Aralia spinosa	Devil's walking stick	35	30	D	M	S			X		M
Araucaria araucana	Monkey puzzle tree	>65	30	E	M	L			X		L
Araucaria bidwillii	Bunya-bunya	>65	60	E	M	L			X		L
Araucaria cunninghamii	Hoop pine	>65	--	E	M	L			X		L
Araucaria heterophylla	Norfolk island pine	>65	60	E	M	L			D		L
Arbutus 'marina'	Marina madrone	35	30	E	M-D	A			D		M
Arbutus unedo	Strawberry madrone	35	35	E	M-D	A			D		M
Arctostaphylos Manzanita 'dr. h.'	Dr. Hurd Manzanita	20	10	E	M-D	A	N			X	S
Asiminia triloba	Pawpaw, custard apple	25	--	D	M	A		X			S
Azara microphylla	Boxleaf azara	25	12	E	M	A		X			S
Betula albo-sinensis	Betula Albo-sinensis	>65	30	D	W/M	A			X		L
Betula maximowicziana	Monarch birch	>65	40	D	W/M	A			X		L
Betula nigra	River birch	>65	60	D	W/M	A			D		L
Betula nigra 'heritage'	Heritage river birch	50	60	D	W	--			D		M
Betula pendula	European white birch	50	25	D	W/M	A			X		M
Betula pendula'fastigiata'	Pyramidal white birch	50	25	D	W/M	A			X		M
Betula pendula 'youngii'	Youngii European birch	50	25	D	W/M	--			X		M
Betula pendula 'Dalecarlica'	Dalecarlica weeping birch	35	25	D	W/M	A			X		M
Betula platphylla japonica	Japanese white birch	50	25	D	W/M	A			D		M
Bischofia javanica	Bischofia	>65	--	E	W	--			D		L
Brachychiton populneus	Bottle tree	50	30	E	M-D/DT	A			D		L
Broussonetia papyrifera	Paper mulberry	50	40	D	M-D/DT	A			X		M

Botanical Name	Common Name	Maximum Height	Maximum Spread	Deciduous/Evergreen/ Partially deciduous	W-W, M-M, D-Dry DT-Drought Tolerant	Longevity S-Short,	Indigenous/-Ca Native	Street trees under transmission lines	Street trees-no height	Park	Soil Volume- Small, Medium Large
Brugmansia candida	Datura	20	12	E	M	A				X	S
Brugmansia versicolor	Brugmansia	20	15	E	M	S				X	S
Buddleja alternifolia	Fountain butterfly bush	20	12	D	M-D /DT	S				X	S
Calliandra haematocephala	Powderpuff	20	10	E	WD	--				X	S
Callistemon citrinus	Lemon bottlebrush	25	15	E	M-D/DT	A		D			S
Callistemon rigidus	Stiff bottlebrush	20	10	E	M-D/DT	A				X	S
Callistemon rosea	Rose bottlebrush	25	--	E	M-D/DT	A		X			S
Callistemon salignus	White bottlebrush	25	15	E	W-D/DT	A		X			S
Callistemon viminalis	Weeping bottlebrush	25	15	E	W-D/DT	A		D			S
Calocedrus decurrens	Incense cedar	>65	15	E	M-D/DT	L	N		D		L
Calodendrum capense	Cape chestnut	35	40	D	M	A			D		M
Camellia reticulate	Camellia reticulate	20	8	E	M	A				X	S
Camellia sinensis	Tea	20	15	E	M	A				X	S
Casimiroa edulis	White sapote	50	--	E	M	A			X		M
Cassia bicapsularis	Butterfly bush	20	--	P	M-D	--				X	S
Cassia excels	Crown of gold tree	35	--	P	M-D	A			D		M
Cassia fistula	Golden-shower	50	35	D	M-D	--			X		L
Cassia leptophylla	Gold medallion tree	25	30	P	M-D	S		D			S
Cassia multijuga	Cassia	20	--	E	M-D	A				X	S
Cassia surattensis	Glaucous cassia	25	--	E	M-D	--		X			S
Casuarina cunninghamiana	River she-oak	>65	30	E	W-D/DT	A			D		L
Casuarina equisetfolia	Horsetail tree	65	20	E	W-D/DT	A			X		L
Casuarina stricta	Mountain she-oak	35	--	E	W-D/DT	A			D		M
Catalpa bignonioides	Common catalpa	50	--	D	M	A			D		M
Catalpa speciosa	Western catalpa	65	--	D	M	A			D		L
Catalpa x chitalpa tashkentensis	Chitalpa	35	--	D	M-D	A			X		M

Botanical Name	Common Name	Maximum Height	Maximum Spread	Deciduous/Evergreen/ Partially deciduous	W-W, M-M, D-Dry DT-Drought Tolerant	Longevity S-Short,	Indigenous/-Ca Native	Street trees under transmission lines	Street trees-no height	Park	Soil Volume- Small, Medium Large
Catha edulis	Khat	20	--	E	M-D	S				X	S
Ceanothus 'ray hartman'	Ray Hartman ceanothus	20	16	E	D/DT	S	I			X	S
Ceanothus thyrsiflorus	Blue blossom	20	30	E	M-D	S	I			X	S
Ceanothus thyrsiflorus 'snow'	Snow flurry ceanothus	20	30	E	M-D	S	I			X	S
Cedrela fissilis	Cedrela	65	--	D	M	A			D		M
Cedrela sinensis	Chinese cedrela	50	--	D	M	A			D		M
Cedrus brevifolia	Cyprus cedar	50	40	E	M-D	L			X		M
Cedrus deodara	Deodar cedar	>65	40	E	M-D	L			D		L
Cedrus libani	Cedar of Lebanon	>65	--	E	M-D/DT	L			D		L
Celtis occidentalis	Common hackberry	65	S	D	M-D/DT	A			D		L
Ceratonia siliqua	Carob	35	40	E	M-D	L			D		M
Cercis Mexicana	Mexican redbud	25	--	D	M-D	--		D			S
Cercis occidentalis	Western redbud	25	18	D	M-D/DT	A	I	X			S
Cercis reniformis	Southwest redbud	20	--	D	M-D	A				D	S
Cercocarpus betuloides	Mountain ironwood	20	12	E	M-D/DT	A	N			X	S
Cercocarpus ledifolius	Curly-leaf mountain mahogany	20	--	E	Dry/DT	A	N			X	S
Chionanthus retusus	Chinese fringe tree	20	20	D	M	A				D	S
Chiranthodendron pentadactylon	Monkey hand tree	50	--	E	M	A			X		L
Chorisia insignis	White floss silk tree	50	50	E	M-D	A			X		L
Chorisia speciosa	Floss silk tree	65	60	E	M-D	A			D		L
Chorisia speciosa 'l.a beautiful'	L.A Beautiful floss silk tree	50	60	D	W	A	N		D		L
Cibotium schiedei	Mexican tree fern	20	15	E	M	S				X	S
Cinnamomum camphora	Camphor tree	65	60	E	M	A			D		L
Cinnamomum galnduliferum	Nepal Camphor tree	65	60	E	M	A			X		L
Citrus aurantifolia	Persian lime	20	--	E	M	A				X	S
Citrus grande	Pummelo	25	--	E	M	A		X			S

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Citrus grande x citrus paradise	Melogold	25	--	E	M	A		X			S
Citrus 'oroblanco'	Orblanco	25	--	E	M	A		X			S
Citrus limon	Lemon	25	20	E	M	A		X			S
Citrus paradise	Grapefruit	25	25	E	M	A		X			S
Citrus reticulate	Mandarin orange	20	12	E	M	A				X	S
Citrusreticulata x citrus maxima	Tangelo	25	--	E	M	A		X			S
Citrus retculata x citrus sinesis	Tangor	20	8	E	M	A				X	S
Citrus sinensis	Orange	25	10	E	M	A		X			S
Clerodendrum trichotomum	Harle quin Glorybower	20	15	D	M	S				X	S
Clethra arborea	Lily of valley tree	25	10	E	M	S		X			S
Cleyera japonica	Cleyera	20	15	E	M	S				X	S
Cocculus laurifolius	Cocculus	25	25	E	M	S		X			S
Comarostaphylis diversifolia	Summer holly	20	8	E	M	A	N			X	S
Cordia boissieri	Cordia	20	10	E	M-D/DT	S				X	S
Cordyline australis 'atropurpurea'	Bronze dracaena	35	12	E	M-D/DT	A		X			S
Cordyline indivisa	Blue dracaena	35	10	E	M-D/DT	A		X			S
Cordyline stricta	Dracaena	20	6	E	M	A				X	
Corynocarpus laevigata	New Zealand laurel	35	--	E	M	A			X		S
Cotinus coggygria	Smoke tree	25	15	D	M	A		X			S
Cotinus coggygria 'purpureus'	Purpureus smoke tree	25	15	D	M-D	A		X			S
Cotinus coggyria 'royal purple'	Royal purple smoke tree	25	15	D	M-D	--		X			S
Cotinus obovatus	American smoke tree	25	30	D	M-D	--		D			S
Cotoneaster salicifolius	Willowleaf cotoneaster	20	18	P	M-D/DT	A				X	S
Cryptocarya rubra	Cryptocarya	35	--	E	M	A			D		M
Cryptomeria japonica	Japanese cryptomeria	65	30	E	M	L			X		L
Cryptomeria japonica 'elegans'	Plume cryptomeria	25	--	E	M	A		X			S

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Cunonia capensis	African red alder	35	--	E	M	A			X		M
Cupaniopsis anacardioides	Carrot wood	35	30	E	W/M	A			D		M
Cupressocyparis leylandii	Cupressocyparis	50	30	E	M-D	A			D		M
Cupressus arizonica	Arizona cypress	50	20	E	M-D	A			D		M
Cupressus glabra	Smooth Arizona cypress	35	--	E	M-D/DT	A			D		M
Cupressus sempervirens 'glauca'	Italian cypress	50	10	E	M-D/DT	A			D		M
Cupressus sempervirens 'stricta'	Columnar Italian cypress	65	10	E	M-D/DT	A			D		L
Cussonia spicata	Spiked cabbage tree	20	--	E	M	S				X	S
Cydonia oblonga	Quince	20	--	D	W-D	A				X	S
Dendromecon harfordii	Island bush poppy	20	20	E	D/DT	S	N			X	S
Dicksonia Antarctica	Tasmania tree fern	20	12	E	M	A				X	S
Dicksonia squarrosa	New Zealand tree fern	25	16	E	M	A		X			S
Dodonaea viscosa	Hop bush	20	15	E	M-D/DT	A				X	S
Dodonaea viscose 'purpurea'	Purple hopseed	20	15	E	M-D/DT	A				X	S
Dombeya wallichii	Dombeya	35	30	E	M	S			X		M
Dracaena draco	Dragon tree	25	20	E	M/DT	A		X			S
Drimys winteri	Winter's bark	25	20	E	M	A		X			S
Elaeagnus pungens	Silverberry	20	15	E	M-D/DT	A				X	S
Elaeagnus pungens 'fruitlandii'	Fuitlandii silverberry	20	15	E	M-D	A				X	S
Elaeagnus pungens 'maculata'	Golden elaeagnus	20	15	E	M-D	A				X	S
Eriobotrya deflexa 'coppertone'	Bronze loquat	25	--	E	M	A		D			S
Eriobotrya japonica	Loquat	35	35	E	M-D/DT	A			X		M
Erythrina Americana	Coral tree	25	--	D	M-D	A		X			M
Erythrina corralloides	Naked coral tree	25	30	D	M-D	A		X			M
Escallonia bifida	White escallonia	25	20	E	M/DT	S		X			S
Escallonia laevis	Pink Escallonia	20	15	E	M/DT	S				X	S

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Escallonia rubra macrantha	Red Escallonia	20	15	E	M-D/DT	S				X	S
Eucalyptus albens	White box	65	--	E	M-D/DT	A			X		L
Eucalyptus baueriana	Blue box	65	--	E	M-D/DT	A			X		L
Eucalyptus caesia	Blue-gray eucalyptus	20	--	E	M-D/DT	A				X	S
Eucalyptus calophylla	Beautiful leaf eucalyptus	65	--	E	M-D/DT	A			X		L
Eucalyptus campaspe	Silver-topped gimlet	35	--	E	M-D/DT	A			X		M
Eucalyptus cinerea	Silver dollar tree	65	45	E	W-D/DT	A			X		L
Eucalyptus citriodora	Lemon-scented gum	>65	45	E	W-D/DT	A			D		L
Eucalyptus cladocalyx	Sugar gum	>65	75	E	M-D/DT	A			D		L
Eucalyptus cornuta	Yate	65	30	E	M-D/DT	A			X		L
Eucalyptus deglupta	Mindanao gum	>65	75	E	M-D/DT	A			D		L
Eucalyptus eremophila	Tall sand malle	25	--	E	M-D/DT	A		X			S
Eucalyptus erythrocorys	Red-cap gum	25	25	E	M-D/DT	A		X			S
Eucalyptus erythronema	Red-flowered mallee	25	--	E	M-D/DT	A		X			S
Eucalyptus ficifolia	Red flowering gum	45	60	E	M-D/DT	A			D		M
Eucalyptus formanii	Eucalyptus	35	--	E	M-D/DT	A			X		M
Eucalyptus forrestiana	Fuchsia eucalyptus	20	--	E	M-D/DT	A				X	S
Eucalyptus globules 'compacta'	Dwarf blue gum	>65	75	E	M-D/DT	A			D		L
Eucalyptus gunnii	Cider gum	65	45	E	M-D/DT	A			X		L
Eucalyptus lehmannii	Bushy yate	25	--	E	M-D/DT	A		X			S
Eucalyptus leucoxylon	White ironbark	65	60	E	M-D/DT	A			D		L
Eucalyptus leucoxylon macrocarpa	Large-fruited red flowering gum	25	--	E	M-D/DT	A		D			S
Eucalyptus macrandra	Long-flowered marlock	35	--	E	M-D/DT	A			X		M
Eucalyptus maculate	Spotted gum	65	--	E	W-D/DT	A			X		L
Eucalyptus mannifera maculosa	Red-spotted gum	50	--	E	M-D/DT	A			X		M
Eucalyptus megacornuta	Big-horned eucalyptus	35	--	E	M-D/DT	A			X		M

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Eucalyptus melliodora	Honey scented eucalyptus	65	--	E	M-D/DT	A			X		L
Eucalyptus microtheca	Coolibah	50	54	E	M-D/DT	A			D		M
Eucalyptus nicholii	Nichol's willowleafed peppermint	50	36	E	M-D/DT	A			D		M
Eucalyptus niphophila	Snow gum	25	--	E	M-D/DT	A		X			S
Eucalyptus papuana	Ghost gum	65	45	E	M-D/DT	A			X		L
Eucalyptus perriniana	Round-leafed snow gum	35	--	E	M-D/DT	A			X		M
Eucalyptus platypus	Round-leafed moort	35	--	E	M-D/DT	A			X		M
Eucalyptus polyanthemos	Silver dollar gum	65	45	E	W-D/DT	A			D		L
Eucalyptus populnea	Bimble box	65	--	E	M-D/DT	A			X		L
Eucalyptus pulchella	White peppermint	50	--	E	M-D/DT	A			X		M
Eucalyptus pyriformes	Pear-shaped fruited gum	20	--	E	M-D/DT	A				X	S
Eucalyptus robusta	Swamp mahogany	>65	75	E	M-D/DT	A			X		L
Eucalyptus rudis	Flooded gum	65	40	E	M-D/DT	A			D		L
Eucalyptus saligna	Sydney blue gum	65	--	E	M/DT	A			D		L
Eucalyptus sargentii	Salt river mallet	35	40	E	M-D/DT	A			X		M
Eucalyptus sideroxylon	Red ironbark	65	60	E	M-D/DT	A			D		L
Eucalyptus spathulata	Swamp mallee	20	--	E	W-D/DT	A				X	S
Eucalyptus stellulata	Black sally	50	--	E	M-D/DT	A			X		M
Eucalyptus torquata	Coral gum	35	30	E	M-D/DT	A			D		M
Eucalyptus viminalis	Manna gum	>65	45	E	M-D/DT	A			X		L
Eucalyptus woodwardii	Lemon-flowered gum	50	--	E	M-D/DT	A			X		M
Eugenia myrtifolia 'compacta'	Dwarf brush cherry	35	--	E	M	A			X		M
Eugenia myrtifolia	Brush cherry	50	--	E	M	A			X		M
Eugenia uniflora	Surnam cherry	25	--	E	M	A		X			S
Euphorbia cotinifolia	Caribbean copper plant	20	18	E	M-D	S				X	S
Euphorbia tirucalli	Pencil tree	35	6	E	M-D	--			X		M

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Fagus grandifolia	American beech	>65	60	D	M	A			X		L
Fagus sylvatica	European beech	65	60	D	M	A			D		L
Fagus sylvatica 'asplenifolia'	Aspenifolia fagus sylvatica	35	45	D	M	A			D		M
Fagus sylvatica 'atropunicea'	Purple beech	35	45	D	M	A			D		M
Fagus sylvatica 'fastigata'	Dawyck beech	65	16	D	M	A			D		L
Fagus sylvatica 'laciniata'	Cutleaf beech	50	--	D	M	A			D		M
Fagus sylvatica 'pendula'	Purpurea pendula European beech	20	>20	D	M	--				D	S
Fagus sylvatica 'purpurea pendula'	Weeping European beech	35	10	D	M	--			D		M
Fagus sylvatica 'tricolor'	Tricolor beech	35	--	D	M-D/DT	A			D		M
Feijoa sellowiana	Pineapple guava	20	20	E	W-D	S				X	S
Feijoa sellowiana 'coolidge'	Coolidge pineapple guava	25	20	E	M	S		X			S
Ficus auriculata	Ficus auriculata	25	25	D	M	A		X			S
Ficus benjamina	Weeping Chinese banyan	60	>60	E	M	A			D		L
Ficus elastic	Rubber tree	25	--	E	M	--		X			S
Ficus elastic 'variegata	Variegata rubber tree	25	--	E	M	--		X			S
Ficus lyrata	Fiddleleaf fig	25	35	E	W	--		X			S
Ficus macrophylla	Moreton bay fig	>65	L	E	M	L			X		L
Ficus microcarpa	Indian laurel fig	35	40	E	M	A			X		L
Ficus microcarpa nitida	Indian laurel	25	--	E	M	A		D			M
Ficus religiosa	Peepul	65	40	D	M	A			X		L
Ficus retusa	Cuban laurel	65	50	E	M	--			X		L
Ficus rubiginosa	Rusty leaf fig	50	--	E	M	A			X		L
Firmiana simplex	Chinese parasol tree	35	12	D	M-D/DT	S			D		M
Fortunella margarita	Kumquat	25	--	E	M	A		X			S
Fraxinus dipetala	Foothill ash	20	--	D	M-D/DT	A	N			X	S
Fraxinus excelsior	European ash	65	--	D	W/M	A			X		L

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Fraxinus excelsior 'pendula'	Weeping European ash	65	--	D	M	A			X		L
Fraxinus excelsior 'rancho'	Rancho roundhead European ash	35	--	D	M-D	A			X		L
Fraxinus holotricha	Holotricha ash	50	--	D	M	A			D		L
Fraxinus holotricha 'moraine'	Moraine ash	50	--	D	M	A			D		L
Fraxinus latifolia	Oregon ash	65	50	D	W-D	L	N		D		L
Fraxinus oxycarpa 'flame'	Flame ash	35	--	D	M-D	A			X		M
Fraxinus oxycarpa 'raywood'	Raywood ash	35	--	D	M-D	A			D		M
Fraxinus uhdei	Evergreen ash	>65	60	P	M-D	A			D		L
Fraxinus uhdei 'majestic beauty'	Shamel ash	>65	60	P	M-D	A			D		L
Fraxinus uhdei 'sexton'	Sexton ash	65	60	P	M-D	A			D		L
Fraxinus velutina	Arizona ash	50	40	D	M-D	A			D		L
Fraxinus velutina 'modesto'	Modesto ash	50	40	D	M-D	A			D		L
Fraxinus velutina 'rio grande'	Fan-tex ash	50	40	D	M-D	A			D		L
Fraxinus velutina coriacea	Montebello ash	50	40	D	M-D	A	N		X		L
Fremontodendron 'CA glory'	California glory fremontia	25	12	E	Dry/DT	S	N	X			S
Fremontodendron 'pacific sunset'	Pacific sunset fremontia	25	15	E	Dry/DT	S	N	X			S
Fremontodendron 'san gabriel'	San Gabriel fremontia	25	15	E	Dry/DT	S	N	X			S
Fremontodendron californicum	Common flannel bush	20	15	E	Dry/DT	S	N			D	S
Fremontodendron mexicanum	Mexican flannel bush	20	15	E	Dry/DT	S	N			X	S
Geijera parviflora	Australian willow	35	20	E	M-D/DT	A			D		M
Genista monosperma	Bridal veil broom	20	--	D	M-D/DT	S				D	S
Ginkgo biloba	Maidenhair tree	65	35	D	M-D	L			D		M
Ginkgo biloba 'autumn gold'	Autumn gold maidenhair	65	30	D	M-D	L			D		M
Ginkgo biloba 'fairmont'	Fairmont maidenhair tree	65	20	D	M-D	L			D		M
Grevillea banksii	Banks grevillea	20	--	E	M-D/DT	S				X	S
Grevillea robusta	Silk oak	65	35	E	M-D/DT	A			D		L

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Griselinia littoralis	Griselinia	20	20	E	M	A				X	S
Hakea laurina	Sea Urchin	35	30	E	M-D/DT	A			X		M
Hakea saligna	Willow leaf hakea	20	20	E	M-D/DT	A				X	S
Hakea suaveolens	Sweet hakea	20	20	E	M-D/DT	A				X	S
Halesia Carolina	Snowdrop tree	50	35	D	M	A			X		M
Halesia monticola	Mountain silver bell	65	--	D	M	A			X		L
Harpephyllum caffrum	Wild plum	35	--	E	M	A			X		M
Harpullia arborea	Harpullia	25	--	E	M	A		X			S
Heteromeles arbutifolia	Toyon	25	25	E	M-D/DT	A	N	D			S
Hibiscus rosa-sinensis	Chinese hibiscus	20	20	E	M	S				D	S
Hibiscus rosa- sinensis 'agnes galt'	Agnes Galt hibiscus	20	20	E	M	S				D	S
Hibiscus rosa-sinensis 'brilliant'	Brilliant hibiscus	20	20	E	M	S				D	S
Hibiscus rosa-sinensis 'kona'	Kona Chinese hibiscus	20	20	E	M	S				D	S
Hibiscus rosa-sinensis 'white wings'	White wing Chinese hibiscus	20	20	E	M	S				D	S
Hoheria populnea	New Zealand lacebark	65	--	E	M	A	N		X		L
Hovenia dulcis	Japanese raisin tree	35	--	D	M/DT	A	N		X		M
Idesia polycarpa	Idesia	50	--	D	M-D	A			X		M
Ilex 'nellie r. stevens'	Nellie Stevens holly	25	10	E	M	A		X			S
Ilex 'san jose hybrid'	San Jose holly	25	--	E	M	A		X			S
Ilex altaclarensis 'wilsonii'	Wilson holly	25	12	E	M/DT	A		D			S
Ilex aquifolium 'big bull'	Big bull English holly	35	--	E	M	A			X		M
Ilex aquifolium 'boulder creek'	Boulder Creek English holly	50	--	E	M	L			X		M
Ilex aquifolium 'sparkler'	Sparkler English holly	50	--	E	M	L			X		M
Ilex aquifolium 'van tol'	Van Tol English holly	50	--	E	M	L			X		M
Ilex cornuta	Chinese holly	20	>10	E	M	A				X	S
Ilex cornuta 'burdfordii'	Burford holly	25	10	E	M	--		X			S

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Ilex latifolia	Luster-leaf holly	25	15	E	M	A		X			S
Ilex pernyi	Perny holly	35	10	E	M	A			X		S
Ilex vomitoria	Yaupon	20	--	E	M	A				X	S
Itea ilicifolia	Hollyleaf sweetspire	20	10	E	M	S				X	S
Jacaranda mimosifolia 'alba'	Alba Jacaranda	50	30	P	M	S-A			D		M
Jacaranda mimosifolia	Jacaranda	50	30	P	M	A			D		M
Jatropha integerrima	Spicy jatropha	20	--	E	M	A				X	S
Juniperus californica	California juniper	35	--	E	M-D/DT	A	N		X		M
Juniperus chinensis	Chinese juniper	15	8	E	M-D/DT	A				X	S
Juniperus chinensis 'columnaris'	Chinese blue column juniper	20	--	E	M-D/DT	A				X	S
Juniperus chinensis 'torulosa'	Hollywood juniper	20	--	E	M-D/DT	A				X	S
Juniperus deppeana pachyphlaea	Alligator juniper	50	--	E	M-D/DT	A			D		M
Juniperus monosperma	One-seeded juniper	35	--	E	M-D/DT	A			X		M
Juniperus occidentalis	Western juniper	65	50	E	M-D/DT	L	N		X		L
Juniperus osteosperma	Utah juniper	35	30	E	M-D/DT	A	N		X		M
Juniperus scopulorum 'blue heaven'	Blue heaven juniper	25	10	E	M-D/DT	A		X			S
Juniperus scopulorum 'pathfinder'	Pathfinder juniper	25	10	E	M-D/DT	A		X			S
Juniperus scopulorum 'tolleson's'	Tolleson's Rocky Mountain juniper	50	10	E	M	--			X		M
Juniperus scopulorum varieties	Rocky Mountain juniper	25	10	E	M-D/DT	A		X			S
Juniperus virginiana	Eastern red cedar	50	30	E	M-D/DT	L			X		M
Juniperus virginiana 'cupressifolia'	Hillspire juniper	20	30	E	M-D/DT	A				X	S
Juniperus virginiana 'idyllwild'	Idyllwild red cedar	20	30	E	M-D/DT	A				X	S
Juniperus virginiana 'manhattan'	Manhattan blue cedar	20	30	E	D/DT	A				X	S
Juniperus virginiana 'skyrocket'	Skyrocket cedar	20	30	E	D/DT	A				X	S
Koelreuteria bipinnata	Chinese flame tree	35	40	D	M	A			D		M
Koelreuteria elegans	Flamegold	50	30	D	W	--			D		M

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Koelreuteria henryi	Henry flame tree	35	--	D	M	A			X		M
Lagerstroemia 'muskogee'	Muskogee hybrid crape myrtle	25	--	D	M-D/DT	A		X			S
Lagerstroemia 'natchez'	Natchez hybrid crape myrtle	25	--	D	M-D/DT	A		X			S
Lagerstroemia 'tuscarora'	Tuscarora hybrid crape myrtle	25	25	D	M-D/DT	A		X			S
Lagerstroemia indica 'cherokee'	Cherokee crape myrtle	25	25	D	M-D/DT	A		D			S
Lagerstroemia indica 'potomac'	Potomac crape myrtle	25	25	D	M-D/DT	A		D			S
Lagerstroemia indica 'powhatan'	Powhatan crape myrtle	25	25	D	M-D/DT	A		D			S
Lagunaria patersonii	Primrose tree	50	40	E	M-D	A			D		M
Laurus 'saratoga'	Saratoga laurel	25	25	E	M-D	A		X			S
Laurus nobilis	Sweet bay	35	35	E	M-D	A			D		M
Lavatera assurgentiflora	Tree mallow	20	12	E	M-D/DT	S	N			X	S
Leptospermum petersonii	Tea tree	20	15	E	M-D/DT	A				D	S
Leucaena retusa	Golden ball lead tree	25	20	E	M	--		X			S
Leucodendron argenteum	Silver tree	35	--	E	M-D/DT	S			X		M
Ligustrum japonicum	Japanese privet	20	8	E	M	A				X	S
Ligustrum ovalifolium	California privet	20	10	P	M	A				X	S
Ligustrum vulgare	Common privet	20	12	D	M	A				X	S
Liquidambar formosana	Chinese sweetgum	65	25	D	M	A			X		L
Liquidambar orientalis	Oriental sweetgum	35	30	D	M	A			X		M
Liquidambar styraciflua	American sweetgum	>65	25	D	W-D	L			D		L
Liquidambar styraciflua 'burgundy'	Burgundy sweetgum	>65	25	D	W-D	L			D		L
Liquidambar styraciflua 'festival'	Festival sweetgum	>65	25	D	W-D	L			D		L
Liquidambar styraciflua 'palo alto'	Palo alto sweetgum	>65	25	D	W-D	L			D		L
Liquidambar styraciflua 'rotundiloba'	Rotundiloba sweetgum	>65	25	D	W	--			D		M
Litchi chinensis	Lychee	50	40	E	W	--			X		M
Lithocarpus densiflorus	Tanoak	65	50	E	M-D	L	N		X		L

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Lophostemon confertus	Brisbane box	50	25	E	M-D/DT	A			D		M
Luma apiculata	Luma	20	20	E	M-D/DT	S				X	S
Lyonothamnus floribundus aspen.	Catalina ironwood	50	15	E	M-D/DT	A	N		D		M
Lysiloma thornberi	Feather bush	20	15	P	M-D/DT	S				D	S
Macadamia integrifolia	Smooth-shell macadamia	35	35	E	M/DT	A			D		M
Macadamia tetraphylla	Rough-shell macadamia	35	35	E	M/DT	A			X		M
Magnolia grandiflora	Southern magnolia	65	60	E	M	L			D		L
Magnolia grandiflora 'edith bogue'	Edith Bogue magnolia	35	20	E	M	A			D		M
Magnolia grandiflora 'little gem'	Little gem magnolia	20	15	E	M	A				X	S
Magnolia grandiflora 'majestic b.'	Majestic beauty southern magnolia	50	20	E	W	--			D		M
Magnolia grandiflora 'russet'	Russet southern magnolia	25	20	E	M	A		D			S
Magnolia grandiflora 'samuel s.'	Samuel Sommer southern magnolia	50	30	E	M	A			D		M
Magnolia grandiflora 'san marino'	San Marino magnolia	20	20	E	M	A				D	S
Magnolia grandiflora 'st. mary'	St. Mary magnolia	25	20	E	M	A		D			S
Magnolia grandiflora 'victoria'	Victoria magnolia	25	15	E	M	A		D			S
Magnolia hybrid 'galaxy'	Galaxy hybrid magnolia	20	--	D	M	A				X	S
Magnolia hybrid 'monland'	Timeless beauty magnolia	25	--	E	M	A		X			S
Magnolia hybrid 'spectrum'	Spectrum hybrid magnolia	25	--	D	M	A		X			S
Magnolia kobus	Kobus magnolia	50	20	D	M	--			D		M
Magnolia liliflora 'nigra'	Purple lily magnolia	20	15	D	M	A				X	S
Magnolia liliflora	Lily magnolia	20	15	D	M	A				X	S
Magnolia loebneri 'merril'	Merril magnolia	20	15	D	M	A				X	S
Magnolia loebneri 'spring show'	Spring snow magnolia	25	15	D	M	A		X			S
Magnolia sargentiana robusta	Mauve magnolia	35	35	D	M	A			X		M
Magnolia sinensis	Chinese magnolia	25	--	D	M	A		X			S
Magnolia soulangiana	Saucer magnolia	25	25	D	M	A		D			S

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Magnolia soulangiana 'alba'	Alba saucer magnolia	25	>25	D	M	A		D			S
Magnolia soulangiana 'alexandrina'	Alexandria saucer magnolia	25	--	D	M	A		D			S
Magnolia soulangiana 'brozzonii'	Brozzoni saucer magnolia	25	>25	D	M	A		D			S
Magnolia soulangiana 'burgundy'	Burgundy saucer magnolia	25	>25	D	M	A		D			S
Magnolia soulangiana 'coates'	Coates saucer magnolia	25	>25	D	M	A		D			S
Magnolia soulangiana 'lennei'	Lenn saucer magnolia	25	>25	D	M	A		D			S
Magnolia soulangiana 'lilliputian'	Lilliputian saucer magnolia	20	15	D	M	A				D	S
Magnolia soulangiana "norbertii'	Norbert saucer magnolia	25	15	D	M	A		D			S
Magnolia soulangiana 'pink superba'	Pink superb saucer magnolia	25	>25	D	M	A		D			S
Magnolia soulangiana "rustica rubra'	Rustica rubra saucer magnolia	25	>25	D	M	A		D			S
Magnolia soulangiana 'san jose'	San Jose saucer magnolia	25	>25	D	M	A		D			S
Magnolia sprengeri 'diva'	Magnolia sprengeri 'diva'	35	30	D	M	A			X		M
Magnolia stellata 'rubra'	Tree star magnolia	20	20	D	M	A				X	S
Magnolia stellata 'waterlily'	Waterlily star magnolia	20	20	D	M	A				X	S
Magnolia stellata varieties	Star magnolia	20	--	D	M	A				X	S
Magnolia thompsoniana	Thompson magnolia	20	--	D	M	A				X	S
Magnolia veitchii	Veitch magnolia	35	20	D	M	A			X		M
Magnolia virginiana	Sweet bay	50	20	P	W/M	A			X		M
Magnolia watsonii	Watson magnolia	25	--	D	M	A		X			S
Magnolia wilsonii	Wilson magnolia	25	25	D	M	A		X			S
Malus sylverstris	Apple	25	--	D	M	A		X			S
Mangifera indica	Mango	50	--	E	M	--			X		S
Markhamia hildebrandtii	Muho	25	--	E	M	A		X			S
Melaleuca armillaris	Drooping melaleuca	25	30	E	W-D/DT	A		X			S
Melaleuca decussate	Lilac melaleuca	20	20	E	M-D/DT	A				X	S
Melaleuca elliptica	Crimson melaleuca	20	15	E	M-D/DT	A				X	S

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Melaleuca ericifolia	Heath melaleuca	25	24	E	W-D/DT	A		X			S
Melaleuca nesophila	Pink melaleuca	25	20	E	M-D/DT	A		X			S
Melaleuca quinquenervia	Cajeput tree	35	25	E	W-D/DT	A			D		M
Melaleuca styphelioides	Prickly melaleuca	35	20	E	W-D/DT	A			D		M
Melia azedarach	Chinaberry	50	50	D	M/DT	A			D		M
Melia azedarach 'umbraculifera'	Texas umbrella tree	35	25	D	M-D	A			D		M
Meryta sinclairii	Puka	20	--	E	M	S				X	S
Metasequoia glyptostroboides	Dawn redwood	65	20	D	M	L			D		L
Metrosideros excelsus	New Zealand Christmas tree	35	35	E	M-D	A			D		M
Metrosideros kermadecensis	Metrosideros	25	--	E	M-D/DT	A		X			S
Michelia doltsopa	Michelia	35	--	E	M	A			D		M
Michelia figo	Banana shrub	20	15	E	M	A				X	S
Montanoa arborescens	Daisy tree	20	--	E	M	A				X	S
Morus alba	White mulberry	50	50	D	M-D	A			D		M
Morus alba 'chaparral'	Chaparral white mulberry	50	50	D	W	--			D		M
Morus alba 'fruitless'	Fruitless mulberry	35	--	D	M-D	A			D		M
Morus nigra	Black mulberry	35	35	D	M	A			X		M
Myrica californica	Pacific wax myrtle	25	30	E	M-D/DT	A	N	X			S
Myrtus communis	Common myrtle	20	5	E	M/DT	A				X	S
Neopanax arboreus	Neopanax	25	--	E	M	A		X			S
Olea europaea 'swan hill'	Swan hill olive	35	25	E	M-D/DT	L			X		M
Olmediella betschlerana	Guatemalian holly	25	--	E	M	A		X			S
Osmanthus fortune	Hybrid osmanthus	20	8	E	M-D/DT	A				X	S
Osmanthus fragrans	Sweet olive	20	8	E	M-D/DT	A				X	S
Osmanthus heterophyllus 'ilicifolius'	Holly osmanthus	20	20	E	M-D/DT	A				X	S
Osmanthus heterophyllus	Holly-leaf osmanthus	20	20	E	M-D/DT	A				X	S

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Parkinsonia aculeate	Jerusalem thorn	25	30	D	M-D/DT	A		X			S
Paulownia tomentosa	Empress tree	65	50	D	M	A			D		L
Persea 'fuerte'	Fuerte avocado	50	50	E	M	A			X		L
Persea 'hass'	Hass avocado	50	50	E	M	A			X		L
Persea 'pinkerton'	Pinkerton avocado	50	50	E	M	A			X		L
Persea Americana x drymifolia	Avocado	35	--	E	M	A			X		M
Persea Americana 'whitsell'	Whitesell avocado	20	--	E	M	S-A				X	S
Philodendron amurense	Amur corktree	50	--	D	M-D	A			X		L
Photinia glabra	Red leaf photina	25	10	E	M	--		X			S
Phyllostachys heterocycla pubescens	Moso bamboo	50	--	E	M	A			X		L
Phyllostachys nigra 'henon'	Henon bamboo	50	--	E	M	A			X		L
Pinus attenuata	Knobcone pine	65	25	E	M-D/DT	A	N		X		L
Pinus brutia	Calabrian pine	65	25	E	M-D/DT	L			D		L
Pinus bungeana	Lacebark pine	>65	35	E	M-D	L			X		L
Pinus canariensis	Canary island pine	65	--	E	M-D/DT	A			D		L
Pinus cembroides	Mexican Pinyon pine	25	>25	E	M-D/DT	L		X			S
Pinus contorta	Shore pine	35	35	E	M	L	N		X		M
Pinus coulteri	Coulteri pine	65	40	E	M-D/DT	L	N		D		L
Pinus densiflora	Japanese red pine	65	40	E	M-D	L			D		L
Pinus eldarica	Mondell pine	65	--	E	M-D/DT	A			D		L
Pinus halepensis	Aleppo pine	65	40	E	M-D/DT	L			D		L
Pinus monophylla	Singleleaf pinyon pine	25	--	E	M-D/DT	L	N	X			S
Pinus montezumae	Montezuma pine	>65	--	E	M-D	A			X		L
Pinus muricata	Bishop pine	50	40	E	M-D	A	N		D		L
Pinus nigra	Australian black pine	50	25	E	M-D	L			X		L
Pinus nigra caramanica	Crimean pine	65	--			L			X		L

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Pinus palustris	Longleaf pine	65	--	E	M-D	L			X		L
Pinus parviflora	Japanese white pine	50	50	E	M-D	L			X		L
Pinus patula	Jelecote pine	65	35	E	M-D	A			X		L
Pinus peuce	Macedonian pine	>65	--	E	M-D/DT	A			X		L
Pinus pinaster	Cluster pine, maritime pine	>65	35	E	M-D	L			X		L
Pinus pinea	Italian stone pine	>65	60	E	M-D/DT	A			D		L
Pinus roxburghii	Indian longleaf pine	>65	--	E	M-D	A			X		L
Pinus sabiniana	Gray pine	65	50	E	M-D/DT	A	N		X		L
Pinus strobes	White pine	>65	40	E	M-D	L			X		L
Pinus sylvestris	Scots pine	>65	30	E	M-D/DT	L			D		L
Pinus thunbergiana	Japanese black pine	65	40	E	M-D	L			D		L
Pinus torreyana	Torrey pine	65	50	E	M-D/DT	L	N		D		L
Pinus wallichiana P. griffithii,	Himalayan white pine	65	30	E	M-D	A			X		L
Pistacia atlantica	Mt. Atlas pistache	65	60	P	M-D/DT	A			X		L
Pittosporum crassifolium	Seaside pittosporum	25	20	E	M/DT	A		X			S
Pittosporum napaulense	Golden fragrance	20	--	E	M/DT	A				X	S
Pittosporum phillyraeoides	Willow pittosporum	25	25	E	M-D/DT	A		D			S
Pittosporum rhombifolium	Queensland pittosporum	25	25	E	M/DT	A		D			S
Pittosporum tenuifolium	Tarata pittosporum	35	15	E	M/DT	A			X		M
Pittosporum tobira	Tobira	25	15	E	M/DT	A		X			S
Pittosporum viridiflorum	Cape pittosporum	25	25	E	M/DT	A		D			S
Platanus acerifolia	London plane tree	65	40	D	W-D	L			D		L
Platanus acerifolia 'bloodgood'	Bloodgood London plane tree	65	--	D	M	L			D		L
Platanus acerifolia 'pyramidalis'	Pyramid London plane tree	65	--	D	M	L			D		L
Platanus acerifolia 'yarwood'	Yarwood London plante tree	65	--	D	M-D	L			D		L
Platanus occidentalis	American sycamore	>65	--	D	W-D	L			D		L

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Platanus orientalis	Oriental plane tree	65	--	D	M	A			D		L
Platanus racemosa	California sycamore	>65	50	D	M-D	L	N		D		L
Platycladus orientalis 'beverlyensis'	Beverly Hills arborvitae	20	10	E	M	A				X	S
Platycladus orientalis	Oriental arbor arborvitae	50	--	E	M	A			X		M
Plumeria rubra	Frangipani	25	20	D	M	--		X			S
Podocarpus falcatus	Podocarpus	50	--	E	M	--			X		M
Podocarpus gracilior	Fern pine	65	20	E	M	L			X		M
Podocarpus macrophyllus	Yew pine	50	15	E	M/DT	L			D		M
Podocarpus nagi	Broadleaf podocarpus	25	8	E	M	L		X			S
Podocarpus totara	Totara	35	25	E	M	A			X		M
Populus acuminate	Lanceleaf cottonwood	65	45	D	W-D	S			X		L
Populus alba	White poplar	65	70	D	W-D	S			X		L
Populus alba 'pyramidalis'	Bolleana poplar	65	15	D	W-D	A			X		L
Populus angustifolia	Narrowleaf cottonwood	65	45	D	W-D	A	N		X		L
Populus balsamifera	Balm-of-Gilead	65	--	D	W-D	A			X		L
Populus Canadensis	Carolina poplar	>65	40	D	W-D	A			X		L
Populus Canadensis 'eugenei'	Eugene Carolina poplar	65	40	D	W-D	A			X		L
Populus Canadensis 'imperial'	Imperial Carolina poplar	>65	40	D	W/M	A			X		L
Populus canescens 'macrophylla'	Populus canescens 'macrophylla'	65	50	D	W-D	A			X		L
Populus deltoids	Eastern cottonwood	65	--	D	W/M	A			X		L
Populus fremontii	Fremont cottonwood	>65	30	D	W-D	A	N		X		L
Populus maximowiczii	Japanese poplar	>65	--	D	W-D	S			X		L
Populus nigra 'italica'	Lombardy poplar	>65	30	D	W-D	A			X		L
Populus nigra thevestina	Algerian poplar	>65	30	D	W-D	S			X		L
Populus simonii 'fastigiata'	Pyramidal Simon poplar	50	--	D	W-D	S			X		M
Populus wisilizenii	Rio Grande cottonwood	>65	--	D	W/M	A			X		L

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Prunus carolniana	Carolina laurel cherry	35	25	E	M/DT	A			D		M
Prunus caroliniana 'bright n tight'	Bright N Tight cherry laurel	25	--	E	M	--		D			S
Prunus ilicifolia	Hollyleaf cherry	25	25	E	M-D	A	N	X			S
Prunus laurocerasus	English laurel	25	30	E	M	A		X			S
Prunus lusitanica	Portugal laurel	35	30	E	M-D/DT	A			X		M
Prunus lyonii	Catalina cherry	35	--	E	M-D/DT	A	N		X		M
Prunus persica	Peach	25	--	D	M	S		X			S
Pseudopanax crassifolius	Lancewood	50	15	E	M	A			X		M
Pseudopanax ferox	Pseudopanax	20	4	E	M	S				X	S
Psidium cattleianum	Strawberry guava	20	--	E	M-D/DT	A				X	S
Psidium guajava	Apple guava	20	--	P	M-D/DT	A				X	S
Pterocarya stenoptera	Chinese wingnut	65	50	D	W-D	A			D		L
Punica granatum	Pomegranate	20	--	D	M-D/DT	A				X	S
Pyrus kawakamii	Evergreen pear	25	30	P	M	A		D			S
Quercus agrifolia	Coast live oak	65	70	E	M-D	L	N		D		L
Quercus berberidifolia	Scrub oak	20	--	E	D/DT	A	N			X	S
Quercus chrysolepis	Canyon live oak	65	60	E	M-D/DT	L	N		D		L
Quercus coccinea	Scarlet oak	65	60	D	M	L			D		L
Quercus douglasii	Blue oak	50	70	D	M-D	L	N		D		M
Quercus durata	Leather oak	20	12	E	D/DT	A	N			X	S
Quercus ilex	Holly oak	65	60	E	M-D	L			D		L
Quercus lobata	Valley oak	>65	>65	D	M-D	L	N		D		L
Quercus macrocarpa	Burr oak	>65	>65	D	W-D	L			D		L
Quercus myrsinifolia	Japanese live oak	50	25	E	M-D	L			X		M
Quercus palustris	Pin oak	65	40	D	W/M	L			D		L
Quercus rubra	Red oak	65	50	D	M	L			D		L

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Quercus virginiana	Southern live oak	50	100	P	W/M	L			D		M
Rhamnus alaternus	Italian buckthorn	20	20	E	M-D/DT	S				X	S
Rhamnus californica	Coffeeberry	20	8	E	M-D/DT	A	N			X	S
Rhaphiolepis 'majestic beauty'	Majestic beauty Indian hawthorn	20	--	E	M	S				D	S
Rhopalostylis baueri	Rhopalostylis baueri	50	20	E	W/M	A			X		M
Rhus lancea	African sumac	25	35	E	M-D/DT	A		D			S
Robinia ambigua 'decaisneana'	Pink locust	50	20	D	M-D/DT	A			D		M
Robinia ambigua 'idahoensis'	Idaho locust	50	30	D	M-D/DT	A			D		M
Robinia ambigua 'purple robe'	Purple robe locust	50	--	D	M-D/DT	A			D		M
Salixalba tristis S. babylonica aurea	Golden weeping willow	>65	100	D	W/M	S			X		L
Salix babylonica	Weeping willow	50	50	D	W/M	S			X		M
Salix blanda	Wisconsin weeping willow	50	--	D	W/M	S			X		M
Salix caprea	French pussy willow	25	15	D	W/M	S		X			S
Salix discolor	Pussy willow	20	15	D	W/M	S				X	S
Salix lasiolepis	Arroyo willow	35	--	D	W/M	S	N		X		M
Salix matsudana	Hankow willow	50	40	D	W/M	S			X		M
Salix matsudana 'navajo'	Globe Navajo willow	>65	70	D	W/M	A			X		L
Salix matsudana 'tortuosa'	Twisted Hankow willow	35	20	D	W/M	S			X		M
Sambucus caerulea	Blue elderberry	25	--	D	W/M	S	N	X			S
Sambucus Mexicana	Hairy blue elderberry	25	--	D	M-D	S	N	X			S
Schefflera actinophylla	Queensland umbrella tree	25	40	E	M	S		X			S
Schefflera arboricola	Hawaiian schefflera	25	20	D	M	S		X			S
Schefflera digitata	New Zealand schefflera	20	--	E	M	S				X	S
Sciadopitys verticillata	Umbrella pine	50	30	E	M	L			X		M
Sequoia sempervirens	Coast redwood	>65	30	E	M	L	I		D		L
Sequoia sempervirens 'aptos blue'	Coast redwood	>65	30	E	M	L	I		D		L

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Sequoia sempervirens 'los altos'	Coast redwood	>65	--	E	M	L	I		D		L
Sequoia sempervirens 'santa cruz'	Coast redwood	>65	--	E	M	L	I		D		L
Sequoia sempervirens 'soquel'	Coast redwood	>65	--	E	M	L	I		D		L
Sequoiadendron giganteum	Giant sequoia	>65	50	E	M-D	L	I		D		L
Sophora japonica	Japanese pagoda tree	50	70	D	M	A			D		M
Sophora japonica 'regent'	Regent Japanese pagoda tree	65	--	D	M	--			D		L
Sophora secundiflora	Mescal bean	25	15	E	M-D	A		X			S
Sparmannia Africana	African linden	20	--	E	M	S				X	S
Spathodea campanulata	African Tulip tree	50	50	P	M	S			D		M
Stenocarpus sinuatus	Firewheel tree	35	15	E	M	A			D		M
Strelitzia Nicolai	Giant bird of paradise	35	30	E	M	A			X		M
Syzygium jambos	Rose apple	35	20	E	M	A			X		M
Tabebuia avellanedae	Lavendar trumpet tree	35	--	P	M-D/DT	A			X		M
Tabebuia chrysotricha	Golden trumpet tree	25	50	P	M/DT	A		D			S
Tabebuia impetiginosa	Purple Tabebuia	25	50	D	WD	--		D			S
Talauma hodgsonii	Heart flower	25	--	E	M	A		X			S
Taxodium distichum	Bald cypress	65	30	D	W-D	A			D		L
Taxodium mucronatum	Montezuma cypress	65	50	P	W-D/DT	A			X		L
Taxus baccata	English yew	35	25	E	M-D/DT	L			X		M
Taxus baccata 'stricta'	Irish yew	25	10	E	M-D/DT	L		X			S
Tecoma stans	Yellow bells	20	20	E	M	S				X	S
Thevetia peruviana	Yellow oleander	20	30	E	M	S				X	S
Thuja occidentalis	American arborvitae	65	15	E	M	A			X		L
Thuja occidentalis 'fastigiata'	Columnar American arborvitae	25	5	E	M	A		X			S
Thuja plicata	Western red cedar	>65	60	E	M	L	N		D		L
Thuja plicata 'fastigiata'	Fastigiata western red cedar	65	25	E	W	--			D		L

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Tibouchina urvilleana	Princess flower	20	10	E	M	S				X	S
Tipuana tipu	Tipu tree	50	60	P	M-D	A			D		M
Torreya californica	California nutmeg	35	15	E	M-D	L	N		X		M
Trevesia palmatum 'micholitzii'	Snowflake tree	20	--	E	M	S				X	S
Tristania laurina 'elegans'	Elegant Brisbane box	25	30	E	M	A		X			S
Tupidanthus calyptratus	Tupidanthus	20	--	E	M	S				X	S
Ulmus parvifolia 'drake'	Drake Chinese elm	50	70	P	M	A			D		M
Ulmus parvifolia 'true green'	True green Chinese elm	50	60	P	M	A			D		M
Ulmus parvifolia	Chinese elm	65	70	P	M	A			D		L
Umbellularia californica	California laurel	65	25	E	M-D/DT	L	N		D		L
Viburnum cinnamomifolium	Cinnamon viburnum	20	--	E	M	S				X	S
Viburnum japonicum	Japanese viburnum	20	12	E	M	A				X	S
Viburnum macrocephalum	Chinese snowball	20	20	D	M	S				X	S
Viburnum odoratissimum	Sweet viburnum	25	20	P	M	A		X			S
Vitex agnus-castus	Chaste tree	25	25	D	M-D	A		D			S
Vitex agnus-castus 'rosea'	Rosea chaste tree	20	--	D	M	--				D	S
Vitex lucens	New Zealand chaste tree	50	--	E	M	A			X		M
Xanthorrhoea preissii	Grass tree	20	3	E	D/DT	S				X	S
Xylosma congestum	Xylosma	25	10	E	M	A		X			S
Yucca brevifolia	Joshua tree	25	30	E	M-D/DT	A	N	X			S
Ziziphus jujube	Chinese jujube	25	--	D	M-D	A		X			S

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Additional species under consideration											
Abarema sapindoides											
Abies bracteata (venusta)											
Abies grandis											
Abies lowiana											
Acacia arabica											
Acacia binervia (glaucescens)											
Acacia dealbata											
Acacia decurrens											
Acacia mearnsii											
Acacia melanoxylon											
Acacia pycnantha											
Acacia stenophylla											
Acca sellowiana											
Acer buergerianum											
Acer japonicum											
Acer macrophyllum											
Acer rubrum											
Acronychia baueri											
Aesculus x carnea											
Aesculus hippocastanum											
Afrocarpus gracilior											
Agathis robusta											
Ailanthus altissima											

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Akeake (Alamo cottonwood)											
Albizia chinensis											
Albizia julibrissin											
Alectryon excelsus											
Aleurites moluccana											
Allocasuarina verticillata											
Alnus rhombifolia											
Aloe barberae (bainsii)											
Araucaria columnaris											
Arbutus menziesii											
Archidendron											
Archontophoenix cunninghamiana											
Arecastrum romanzoffianum											
Armeniaca vulgaris											
Baloghia inophylla (lucida)											
Banksia integrifolia											
Banksia verticillata											
Bauerella simplicifolia											
Bauhinia blakeana											
Bauhinia forficata											
Bauhinia variegata											
Beilschmiedia miersii											
Brachychiton acerifolius											
Brachychiton discolor											
Brachychiton gregorii											
Brachychiton x roseus											

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Brahea armata											
Brahea brandegeei											
Brahea edulis											
Brassaia actinophylla											
Butia capitata											
Caesalpinia pluviosa											
Caesalpinia spinosa											
Callicoma serratifolia											
Callitris rhomboidea											
Calyptranthes syzygium											
Carya illinoensis											
Caryota gigas											
Caryota urens											
Cassipourea gummiflua var. verticillata											
Castanospermum australe											
Casuarina glauca											
Cedrela odorata											
Cedrus atlantica											
Ceiba insignis											
Ceiba pentandra											
Ceiba speciosa											
Cercidium floridum											
Chamaecyparis funebris											
Chamaecyparis lawsoniana											
Chamaecyparis nootkatensis											
Chamaerops humilis											

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Chilopsis linearis											
Chitalpa tashkentensis X											
Cinnamomum japonicum											
Citrus aurantium											
Citrus maxima											
Citrus medica											
Cocos australis											
Cocos campestris											
Cocos plumosa											
Copernica cerifera											
Cordia myxa											
Corymbia calophylla											
Corymbia citriodora											
Corymbia ficifolia											
Corymbia maculata											
Corymbia torelliana											
Crinodendron patagua											
Cupressus abramsiana											
Cupressus funebris											
Cupressus goveniana											
Cupressus guadalupensis											
Cupressus lawsoniana											
Cupressus macrocarpa											
Cupressus sargentii											
Cuprocyparis leylandii X											
Dais cotinifolia											

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Diospyros kaki											
Diospyros virginiana											
Dombeya cacuminum											
Duranta repens (erecta)											
Dypsis decaryi											
Ehretia anacua											
Enterolobium cyclocarpum											
Erythea armata											
Erythea brandegeei											
Erythea edulis											
Erythea elegans											
Erythrina abyssinica											
Erythrina caffra											
Erythrina crista-galli											
Erythrina falcata											
Erythrina humeana											
Erythrina latissima											
Erythrina lysistemon											
Erythrina poianthes											
Erythrina speciosa											
Erythrina x sykesii											
Eucalyptus amygdalina											
Eucalyptus botryoides											
Eucalyptus bridgesiana											
Eucalyptus camaldulensis (rostrata)											
Eucalyptus cephalocarpa											

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Eucalyptus cosmophylla											
Eucalyptus crebra (racemosa)											
Eucalyptus crenulata											
Eucalyptus diversicolor											
Eucalyptus fibrosa subsp. fibrosa											
Eucalyptus grandis											
Eucalyptus grossa											
Eucalyptus maidenii											
Eucalyptus odorata (fruticetorum)											
Eucalyptus punctata											
Eucalyptus steedmanii											
Eucalyptus tereticornis											
Eucalyptus torelliana											
Eugenia jambolana											
Euodia daniellii (hupehensis)											
Euphorbia ingens											
Evodia hupehensis											
Ficus benghalensis											
Ficus capensis											
Ficus carica											
Ficus gnaphalocarpa											
Ficus microphylla											
Ficus mysorensis											
Ficus palmata											
Ficus rumphii											
Ficus thonningii (petersii)											

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Ficus vogelii											
Ficus watkinsiana											
Fraxinus malacophylla											
Gleditsia triacanthos f. inermis											
Glochidion ferdinandii											
Gymnocladus dioica											
Hibiscus elatus											
Howeia belmoreana											
Howeia forsteriana											
Hymenosporum flavum											
Inga pilosula (affinis)											
Jacaranda acutifolia											
Jubaea chilensis											
Juglans californica											
Juglans nigra											
Juglans regia											
Ka'a oveti											
Khaya nyasica											
Koelreuteria paniculata											
Kurrajong (bottle tree)											
Leptospermum laevigatum											
Leucaena esculenta											
Leucaena leucocephala subsp. glabrata											
Ligustrum lucidum											
Liriodendron tulipifera											
Livistona australis											

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Livistona chinensis											
Livistona decipiens											
Luehea divaricata											
Maclura pomifera											
Magnolia denudate											
Manihot carthaginensis											
Manihot esculenta											
Maytenus boaria											
Melaleuca decora (genistifolia)											
Melaleuca leucadendra											
Melaleuca linariifolia											
Myoporum laetum											
Myoporum sandwicense											
Myrciaria edulis											
Myrrhinium atropurpureum var. octandrum											
Neodypsis decaryi											
Nerium oleander											
Nuxia floribunda											
Oreopanax capitatus											
Palma negra											
Pararchidendron pruinosum											
Parkinsonia florida											
Parrotia persica											
Peltophorum africanum											
Persea americana											
Persea indica											

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Phillyrea latifolia											
Phoenix canariensis											
Phoenix canariensis x reclinata											
Phoenix dactylifera											
Phoenix reclinata											
Phoenix roebelenii											
Phoenix rupicola											
Phytolacca dioica											
Picea abies											
Picea sitchensis											
Picea smithiana (morinda)											
Pinus cembra											
Pinus edulis											
Pinus jeffreyi											
Pinus longaeva											
Pinus ponderosa											
Pinus quadrifolia											
Pinus radiata											
Pinus saponis											
Pistacia chinensis											
Pistacia khinjuk											
Pistacia terebinthus											
Pithecellobium pruinosum											
Pittosporum colensoi											
Pittosporum floribundum											
Pleiogynium timorense (solandri)											

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Plinia edulis											
Podocarpus elongates											
Podocarpus henkelii											
Prosopis glandulosa var. torreyana											
Prunus armeniaca											
Prunus campanulata											
Prunus cerasifera											
Prunus dulcis											
Pseudotsuga macrocarpa											
Pseudotsuga menziesii											
Pyrus calleryana											
Pyrus communis											
Quercus dumosa											
Quercus engelmannii											
Quercus kelloggii											
Quercus x kinseliae											
Quercus robur											
Quercus suber											
Quercus tomentella											
Quillaja saponaria											
Radermachera sinica											
Rauwolfia samarensis											
Rhodosphaera rhodanthema											
Rhopalostylis sapida											
Robinia pseudoacacia											
Robinsonella cordata											

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Roble Serrano											
Sabal causiarum											
Sapindus rarak											
Sapindus saponaria											
Sarcomelicope simplicifolia											
Schefflera pueckleri											
Schinus molle											
Schinus terebinthifolius											
Schotia afra var. angustifolia											
Schotia brachypetala											
Schotia latifolia											
Seaforthia elegans											
Stenolobium stans											
Syagrus capitata											
Syagrus romanzoffiana											
Syncarpia glomulifera (laurifolia)											
Syzygium aromaticum											
Syzygium australe											
Syzygium cumini											
Syzygium floribundum											
Syzygium paniculatum											
Tamarix aphylla											
Taxus brevifolia											
Tecoma ipe											
Tetradium daniellii											
Thuja orientalis											

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Toona sinensis											
Trachycarpus fortunei											
Tristiana conferta											
Trithrinax brasiliensis											
Ulmus americana											
Ulmus pumila											
Vepris undulata											
Viburnum awabuk											
Viburnum lantanum											
Vitex negundo											
Washingtonia filifera											
Washingtonia robusta											
Waterhousea floribunda											
Wigandia caracasana											
Yucca elephantipes											
Zelkova serrulata											