

CITY OF YUBA CITY  
STAFF REPORT

**Date:** June 21, 2022  
**To:** Honorable Mayor & Members of the City Council  
**From:** Community Services Department  
**Presentation By:** Rob Condrey

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**Summary**

**Subject:** Approve the 2020 Urban Forest Master Plan  
**Recommendation:** Adopt the Resolution approving and adopting the 2020 Urban Forest Master Plan  
**Fiscal Impact:** No additional fiscal impact to the City.

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**Purpose:**

To identify best management practice that supports the health, benefits, and safety of community trees, and to increase the average city-wide tree canopy from 19.1% to 25% over the next 20 years.

**Council's Strategic Goal:**

This project addresses City Council's Strategic Goal to Maintain and Enhance Our Quality of Life.

**Background:**

On March 8, 2018, the City adopted grant funding from CAL FIRE (California Department of Forestry and Fire Protection) under the California Climate Investments Greenhouse Gas Reduction Fund, in the amount of \$376,240. The project included the development of a comprehensive Urban Forest Master Plan (UFMP), a complete community tree inventory, the planting of 500 new trees, a tree canopy assessment, and an updated tree guide.

On June 11, 2019, the City awarded a contract to Davey Resource Group, Inc. (DRG) to help complete the fore mentioned items.

**Analysis:**

The UFMP will serve as a guide to manage, enhance, and grow Yuba City's urban forest and tree resources for the next 20 years. A primary emphasis for the UFMP is to identify adequate resources to ensure that critical tree care needs can be addressed in a timely, cost-effective, and efficient manner. This includes the proactive identification and resolution of potential hazards, thus reducing liability for the city. While the UFMP is focused on the stewardship of community trees, the UFMP considers

private trees as well, as they contribute significantly to Yuba City's livability and environmental quality.

Over the past few years, staff worked closely with the DRG to draft the UFMP. During the planning process, DRG met with city stakeholders, including staff from various departments. There were community meetings and a city-wide tree photo contest. DRG conducted on-line and in-person surveys. This helped DRG gather resident feedback and educate the community on the importance of trees. All feedback, as well as photos are incorporated into the UFMP.

**Alternatives:**

Do not adopt the UFMP and continue to do tree work on a reactive basis and hope that tree canopy will improve in Yuba City.

**Handouts:**

1. Urban Forest Master Plan
2. Tree Guide

**Attachments:**

1. Resolution - Approve 2020 Urban Forest Master Plan
2. Urban Forest Master Plan

**Prepared By:**

Rob Condrey  
Parks & Grounds Superintendent

**Submitted By:**

Diana Langley  
City Manager

# ATTACHMENT 1

**RESOLUTION NO. \_\_\_\_\_**

**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF YUBA CITY  
APPROVING THE 2020 URBAN FOREST MASTER PLAN**

**WHEREAS**, on March 8, 2018, the City adopted grant funding from CAL FIRE (California Department of Forestry and Fire Protection) under the California Climate Investments Greenhouse Gas Reduction Fund, in the amount of \$376,240.

**WHEREAS**, the project included the development of a comprehensive Urban Forest Master Plan (UFMP), a complete community tree inventory, the planting of 500 new trees, a tree canopy assessment, and an updated tree guide.

**WHEREAS**, on June 11, 2019, the City awarded a contract to Davey Resource Group, Inc. (DRG) to help complete the fore mentioned items.

**WHEREAS**, the UFMP will serve as a guide to manage, enhance, and grow Yuba City's urban forest and tree resource for the next 20 years.

**NOW, THEREFORE, BE IT RESOLVED** by the City Council of the City of Yuba City as follows:

The City Council approves the 2020 Urban Forest Master Plan.

The foregoing Resolution of the City Council of the City of Yuba City was duly introduced, passed and adopted at a regular meeting thereof held on the 21<sup>st</sup> day of June, 2022.

AYES:

NOES:

ABSENT:

\_\_\_\_\_  
Dave Shaw, Mayor

ATTEST:

\_\_\_\_\_  
Ciara Wakefield, Deputy City Clerk

APPROVED AS TO FORM:

\_\_\_\_\_  
Shannon Chaffin, City Attorney  
Aleshire & Wynder, LLP

# YUBA CITY



*California*

# 2021

URBAN FOREST MASTER PLAN

When we try to pick out anything  
by itself, we find it hitched to  
everything else in the universe.



*John Muir*



# YUBA CITY

URBAN FOREST MASTER PLAN



# Acknowledgments

## YUBA CITY, CITY COUNCIL

Marc Boomgaarden • Mayor

Dave Shaw • Vice Mayor

Grace Espindola • Council Member

Wade Kirchner • Council Member

Shon Harris • Council Member

## PARKS AND RECREATION COMMISSION & TREE ADVISORY BOARD

## COMMUNITY STAKEHOLDERS

Friends of Yuba City Parks and Recreation

Youth Commission

## CITY DEPARTMENTS

Parks and Recreation

Public Works

Development Services

## PREPARED BY

Davey Resource Group, Inc.

[www.davey.com/drg](http://www.davey.com/drg)

## PHOTO CREDITS

Residents

City of Yuba City

Davey Resource Group, Inc.

Funding for this project provided by the California Department of Forestry and Fire Protection as part of the California Climate Investments Program.



# Table of Contents

<b>Executive Summary</b>	<b>6</b>	<b>How are we doing?</b>	<b>76</b>
<b>Introduction</b>	<b>11</b>	Monitoring and Measuring Results	76
Community	12	Reporting	76
Climate Change and the Urban Forest	13	<b>Appendix A: Dictionary</b>	<b>78</b>
Benefit from Trees and Canopy	14	<b>Appendix B: References</b>	<b>80</b>
<b>What do we have?</b>	<b>16</b>	<b>Appendix C: Industry Standards</b>	<b>84</b>
History of the Urban Forest	16	<b>Appendix D: Soil Volume and Tree Stature</b>	<b>86</b>
Urban Forest Resource	18	<b>Appendix E: Alternative Planter Designs</b>	<b>87</b>
Community Tree Resource	27	<b>Appendix F: Tree Protection Zones</b>	<b>90</b>
Park Maintenance-Urban Forestry Operations	33	<b>Appendix G: Community Survey</b>	<b>94</b>
Policy and Regulation	46	<b>Appendix H: Tree Applications</b>	<b>102</b>
Analysis of Sustainability Indicators	49	<b>Appendix I: Indicators of a Sustainable Urban Forest</b>	<b>104</b>
Conclusions	51	<b>Appendix J: Gantt Chart</b>	<b>107</b>
<b>What do we want?</b>	<b>52</b>	<b>Appendix K: Sample Canopy Cover Calculator for Parking Lots</b>	<b>108</b>
Managing Partners	52	<b>Appendix L: Photo Contest Credits</b>	<b>109</b>
Community Engagement	53		
Four-Year Work Plan	56		
Plan Goals	58		
<b>How do we get there?</b>	<b>60</b>		
Focus Area: Management and Planning	61		
Focus Area: Protection and Regulation	66		
Focus Area: Resilience and Sustainability	70		
Focus Area: Education and Engagement	74		

## PHOTO CONTEST

A photo contest was organized by the city to further engage residents in the development of the Urban Forest Master Plan and to generate high quality images for the plan. The city encouraged residents to submit photos that highlight the different ways that the community appreciates and celebrates Yuba City's urban forest. Community members were encouraged to submit photos of trees, including people enjoying trees, trees and wildlife, and trees that project the character of Yuba City. In total, 60 photos entries were submitted and many of these photos are incorporated to compliment the UFMP. A list of credits is included in Appendix L.





# Scope & Purpose

The Urban Forest Master Plan (UFMP) serves as a guide for managing, enhancing, and growing Yuba City's urban forest and the community tree resource over the next 40 years. The urban forest includes all of the trees and woody shrubs in Yuba City. A subset of the urban forest, the community tree resource, consists of publicly-managed trees along streets, in parks, and at city facilities. While the UFMP is primarily focused on the stewardship of the community tree resource, the plan also considers private trees because of their significant contribution to Yuba City's livability and environmental quality. In summary, the UFMP aims to:

- Recognize best management practices that promote tree health, maximum benefits, and community safety.
- Promote health and resiliency in the urban forest by improving species diversity, planting the right tree in the right place, and by managing pests and invasive species.
- Nurture a cohesive organizational structure to facilitate collaboration among all departments and staff who impact or affect the urban forest.
- Cultivate an ethic of stewardship for the urban forest among City staff, community organizations, businesses, and residents.
- Foster community outreach, engagement, and advocacy for the urban forest.
- Establish baseline metrics and clear goals for urban forest managers.
- Communicate community vision for Yuba City's urban forest.

The UFMP includes short-term actions and long-range planning goals to promote sustainability, species diversity, and greater canopy cover. The plan is a living document that suggests reasonable time frames for achieving goals and is intended to be flexible and adaptable to opportunities and resource fluctuations.

I believe trees are one of the most important things on our planet and I've always appreciated the large amount and variety of beautiful trees in this town.



*Survey Respondent*

In an area that becomes hot during the summertime, trees provide welcome shade.



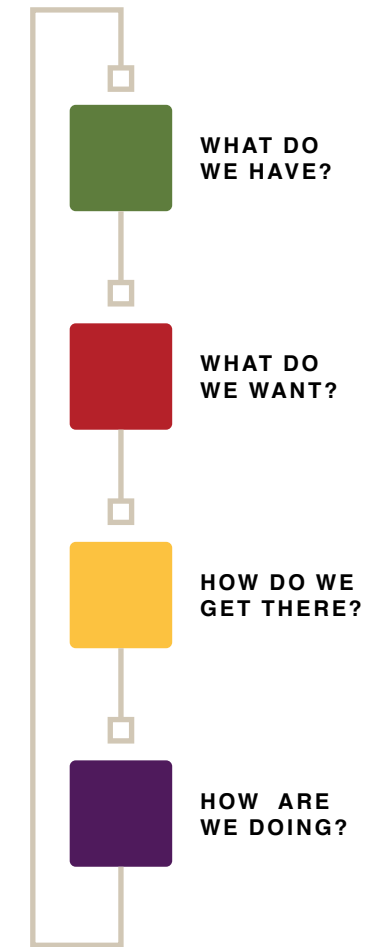
*Survey Respondent*



# Executive Summary

Nestled at the base of the Sutter Buttes along the Feather River, Yuba City is a small agriculture community that offers both urban amenities and small-town charm with tree-lined streets that locals are proud to call home. Trees contribute greatly to the aesthetics of the community. The urban forest also provides valuable and critical services to the community including benefits to air quality, carbon dioxide reductions, water quality, stormwater management, energy savings, health benefits, and wildlife habitat, and socioeconomics. The UFMP provides a road map to guide the management and enhancement of Yuba City's urban forest over the next 40 years.

The UFMP is based on the understanding of What we have, What we want, How we get there, and How we are doing. This structure, known as **adaptive management**, is commonly used for resource planning and management (Miller, 1988) and provides a good conceptual framework for the process of improving urban forest management along with flexibility to adapt in a dynamic environment.



## What do we have?

The Yuba City General Plan and Yuba City Resource Efficiency Plan communicate overall vision and intention for growth and development and include recognition for the contribution and value of trees and canopy. The Sutter County Climate Action Plan encourages trees to reduce energy consumption and address climate change. Federal and state regulations provide consideration for migratory species, water conservation, reductions in greenhouse gas emissions, and solar versus tree conflicts. Municipal Code Title 8 specifies requirements for trees in the landscape, including street trees, medians, and trees at public facilities, including parking lots. Title 9 regulates the management and protection of public trees, including the responsibilities of the city, developers, and adjacent property owners.

Currently, Yuba City has an average canopy cover of 19.1% (1,824 acres) comprising public and privately owned trees (Tree Canopy & Land Cover Assessment, 2020). Historical analysis indicates that canopy cover has increased 23% (a difference of nearly 424 acres) since 2003, when tree canopy covered 14.7% (1,400 acres) of the overall community. Potential for canopy cover in Yuba City is estimated to be 39.4%. To date, Yuba City's urban forest has sequestered 229,115 tons of carbon in woody and foliar biomass.

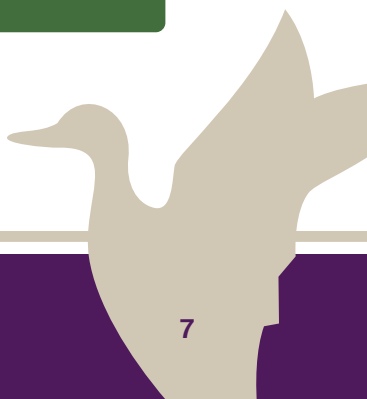
A subset of the overall urban forest, the community tree resource includes trees lining streets and medians, in parks, and at public facilities and parking lots. Currently, the city manages 11,846 community trees (2019). Annually, Yuba City's community trees provide environmental benefits to the community valued at \$48,142, an average of \$4.06 per tree. Benefits include carbon sequestration (\$21,177), air pollution removal (\$19,008), and avoided stormwater runoff (\$7,957). This is a conservative estimation of benefits and does not consider the benefits from trees to socioeconomic and human health.

The Parks Maintenance Division is responsible for the management of all city trees. Safe tree care is a priority, and the department has well trained, collaborative-minded staff that continually identify ways to ensure quality and efficient tree care. Tree care operations include regular tree maintenance, contract monitoring, tree removal and planting, emergency response, pest control, plan review, permitting, and community outreach. Funding for the management of the community tree resource is provided primarily by the general fund, Landscape and Lighting Maintenance Districts (LLMDs), and the Street Tree Fund (gas tax). The 2008 recession resulted in a reduction of city staff and a greater focus on contracted services.

TABLE 1: URBAN FOREST BENCHMARK VALUES

Tree Canopy Cover (public and private trees, 2018)		
<b>Structure</b>		
Estimated Overall Canopy Cover	19.10%	
Carbon Stored to Date	229,115 tons	
<b>Annual Benefits</b>		
Carbon Benefits	9,123 tons	\$1.6 million
Air Quality Benefits	52.6 tons	\$223,000
Reduced Stormwater Runoff	6.3 million gallons	\$56,854

Community Tree Resource (inventoried public trees, 2019)		
<b>Structure</b>		
Number of Inventoried Trees (2019)	11,846	
Total Number of Unique Species	156	
Species exceeding recommended 10%	1	
Carbon Stored to Date	3,042 tons	
Replacement Value	\$33.6 million	
Stocking Level	90.0%	
Number of Vacant Sites	1,181	
<b>Annual Benefits</b>		
Total Annual Benefits	\$48,142	
Carbon Benefits	124 tons	\$21,177
Air Quality Benefits	2.24 tons	\$19,008
Stormwater Management	890,492 gallons	\$7,957



## What do we want?

A number of stakeholders provided input and consideration for the UFMP, including city departments engaged in the management, planning, or advocacy for trees; tree care contractors; and residents. Stakeholders were encouraged to identify challenges, opportunities, and vision for the future urban forest. Seven key challenges and opportunities were identified:

- Manage the community tree resource to increase resilience, maximize environmental benefits, and promote safety.
- Municipal Code should be revised to update language, clarify responsibilities of adjacent property owners, and enhance tree protections, most notably around the removal of street trees.
- Increase average tree canopy cover to 25% by 2040.
- Develop an integrated pest management (IPM) program to address existing and emerging pests..
- Identify adequate resources, including funding, to realize community goals for the urban forest.
- Update the Yuba City Tree Guide (species palettes).
- Increase the level of community engagement and provide more education regarding the care of trees planted in the public rights-of-way within residential areas to improve tree health.
- Increase the level of community engagement.



## How do we get there?

The UFMP identifies four focus areas to address challenges and opportunities for Yuba City’s urban forest over the next 40 years:

- Management and planning
- Protection and regulation
- Resilience and sustainability
- Education and engagement

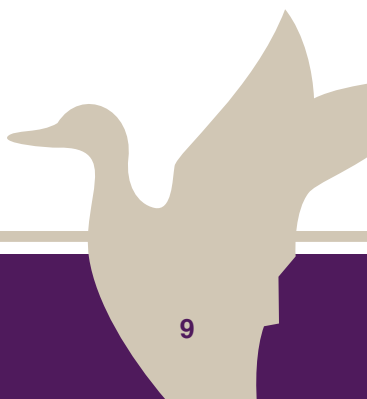
A total of 16 goals support the vision for each focus area and promote the preservation of the health, value, services, and sustainability of Yuba City’s urban forest. Goals are supported by comprehensive objectives and actions. Recognizing that community engagement is integral to success, the UFMP includes specific objectives for engaging the community and encourages partnership and collaboration. The timeline for each of the goals is reasonable and flexible and should be adjusted as necessary to take advantage of emerging opportunities and changes in funding and staffing resources.

## How are we doing?

The long-term success of the UFMP will be measured through the realization of plan goals and demonstrated through increased value and environmental services from the urban forest. The plan identifies methods of measurement, priorities, potential partners, and estimated costs. Since the UFMP is intended to be a dynamic tool, it can and should be updated in response to available resources and opportunities. One of the greatest measures of success for the UFMP will be its level of success in meeting community expectations for the care and preservation of Yuba City’s urban forest.

TABLE 2: FOCUS AREAS, GOALS, AND PRIMARY OBJECTIVES

Focus Area	Goals	Primary Objectives
<b>Management &amp; Planning</b>	<ul style="list-style-type: none"> <li>Goal: Consider trees as integral infrastructure</li> <li>Goal: Provide proactive maintenance for the community tree resource to reduce costs and promote efficiency</li> <li>Goal: Promote the safe management of the community tree resource</li> <li>Goal: Predictable and stable funding for the community tree resource</li> <li>Goal: Enhance the livability and character of the community</li> <li>Goal: Follow integrative pest management (IPM) protocols and best management practices when addressing pests and diseases</li> </ul>	<ul style="list-style-type: none"> <li>Set emphasis on planting the right tree in the right place.</li> <li>Recognize trees as green infrastructure to mitigate conflicts between trees and other utilities and promote tree longevity.</li> <li>Create and follow planting plans to allow for increased impact and success of tree plantings.</li> <li>Develop maintenance cycles and work plans to guide the care of the community tree resource.</li> <li>Establish a risk management policy.</li> <li>Implement policies and procedures that make tree work as safe as possible.</li> <li>Secure funding for the care of all community trees.</li> <li>Plant and retain trees to sustain environmental benefits.</li> <li>Use integrated pest management practices (IPM) when controlling pests.</li> </ul>
<b>Protection &amp; Regulation</b>	<ul style="list-style-type: none"> <li>Goal: Promote tree preservation and protection</li> <li>Goal: Support consistency in guiding documents</li> </ul>	<ul style="list-style-type: none"> <li>Revise and amend Municipal Code to promote the protection of community trees.</li> <li>Preserve heritage oak trees and other native trees of substantial size through the development of a Heritage Tree Ordinance (per Yuba City Resource Efficiency Plan, Goal 6).</li> <li>Enhance methods for cost recovery in the case of tree removals or improper tree maintenance.</li> <li>Strive for uniformity between city policies, guiding documents, and departments.</li> </ul>
<b>Resiliency &amp; Sustainability</b>	<ul style="list-style-type: none"> <li>Goal: Promote species diversity in the urban forest</li> <li>Goal: Expand canopy cover and the resulting environmental benefits</li> <li>Goal: Establish a more water-wise urban forest</li> <li>Goal: Repurpose woody materials resulting from removals whenever possible</li> <li>Goal: Reduce the risk of wildfire in the Feather River Parkway</li> </ul>	<ul style="list-style-type: none"> <li>Set species diversity goals for the community tree resource.</li> <li>Achieve 25% canopy cover by 2040.</li> <li>Help to increase tree planting efforts within the County (per Sutter County Climate Action Plan).</li> <li>Ensure tree plantings are climate adapted and low water use species.</li> <li>Identify a wood reutilization policy.</li> <li>Become a more wildfire-prepared community.</li> </ul>
<b>Education &amp; Engagement</b>	<ul style="list-style-type: none"> <li>Goal: Engage community members in stewardship of the urban forest.</li> <li>Goal: Celebrate the importance of urban trees</li> </ul>	<ul style="list-style-type: none"> <li>Support community engagement and stewardship of the urban forest.</li> <li>Maintain Tree City USA status.</li> </ul>





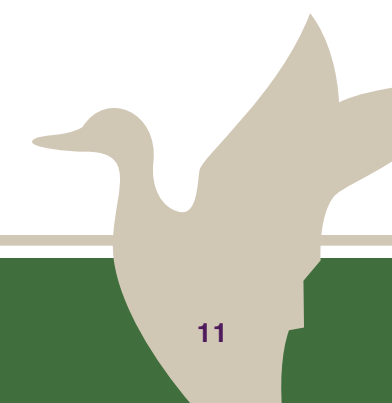


# Introduction

Yuba City is the county seat of Sutter County, California. The city is situated in the Sacramento Valley between the Feather River and the Sutter Buttes, which are eroded lava domes endearingly called the “smallest mountain range in the world” (Yuba City, 2019). In relation to other municipalities, it is 40 miles north of Sacramento, the state capital, and approximately 150 miles from the San Francisco Bay Area and Silicon Valley.

The city has a Mediterranean climate, characterized by warm, dry summers with average temperatures in the 90s° F, and moderate winters with average temperatures in the 50s° F and 60s° F. Yuba City typically experiences 260 days of sunshine a year. Annual precipitation averages 22 inches, mostly occurring from November to April (Sperling’s, 2018).


In 2015, the population of Yuba City was nearly 67,000 people (Yuba City, 2019) and it is a diverse community with a rich cultural heritage. The Punjabi population is one of the largest in the country, and approximately 30% of the population has cultural roots from India or Mexico. The median age is 34-years old and home ownership is high, where almost 93% of the 23,672 housing units are owner-occupied.



## Community

Residents of Yuba City enjoy recreational opportunities in beautiful parks, a state-of-the-art aquatic center, and natural areas. Hunting, fishing, and boating are coveted activities in preserves such as the Feather River and Sutter Bypass Wildlife Areas in close proximity to the community (California Department of Fish and Wildlife, 2019).

The annual Cultural Celebration is one of several events that promote the ethnic traditions of community members throughout the region (Yuba Sutter Arts, 2019). The Sikh parade, and the Bok Kai Festival also highlight the cultural diversity of the community. Notably, the Bok Kai Festival features one of the oldest parades in the United States (Yuba City, 2019). The city is brought together to share food, arts, and music during the many cultural festivals and through worship and fellowship in the numerous churches scattered throughout.



The most appealing neighborhoods and business districts in California are those with mature & interesting trees.



*Survey Respondent*



## 1700s

The Maidu Tribe were the first to call the land east of the Sacramento River and west of the Sierra Nevada mountain range home, relying on the valley and surrounding hills for fish and game. Although the first contact between the Maidu and the Spaniards was likely in 1808, the settlements established in the Sacramento Valley in association with the Gold Rush in 1849 led to the decimation of the Maidu (Fontana, 1956).

## 1800s

In 1848, the California Gold Rush brought 100,000 people to the state. With this drastic influx came the need for food and supplies. By 1849, a small settlement was established just west of the mouth of the Yuba River and the Feather River. The settlement became what is now known as Yuba City. The City founders, Samuel Brannan, Pierson Reading, and Henry Cheever purchased land which was formerly a land grant called Rancho Nuevo Helvetia owned by John Sutter. At the time, the city primarily functioned as a distribution center for Gold Rush supplies, but Yuba City also has roots in agricultural production of grains and cattle (General Plan, 2004).

## 1900s

In 1917, the California Prune and Apricot Association was founded in Yuba City. Now known as Sunsweet Growers, they maintain a dried fruit processing plant in Yuba City, which is the largest in the world (Sunsweet, 2019). Additionally, the community provides service for Beale Air Force base, built in 1940. The population growth increased after World War II, and the community has steadily grown since.

## 2000s

Today, Yuba City serves as the agricultural, economic, and social hub for the region, all the while displaying small-town charm (Yuba City, 2019).





## *Climate Change and the Urban Forest*

As energy from the sun (sunlight) strikes the Earth's surface, it is reflected into space as infrared radiation (heat). Greenhouse gases (GHG) absorb some of this infrared radiation and trap this heat in the atmosphere, increasing the temperature of the Earth's surface. Many chemical compounds in the Earth's atmosphere act as GHGs, including methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), water vapor, and human-made gases/aerosols. As GHGs increase, the amount of energy radiated back into space is reduced and more heat is trapped in the atmosphere. An increase in the average temperature of the Earth may result in changes in weather, sea levels, and land use patterns, commonly referred to as "Climate Change."

Local governments are paying particular attention to global warming and the effects of GHG emissions, which have increased by 25% over the last 150 years (US Energy Information Administration, 2020). Because urban trees use carbon as a building component for wood and foliar growth, they can help offset carbon emissions and should be recognized as a part of a community's solution for meeting carbon offset goals identified in climate action plans and other environmental policies.

In recognition of the urban forest's contributions to this effort, CAL FIRE requires projects to reduce GHG emissions and help meet the goals of California's Global Warming Solutions Act. In fact, projects funded by the grant must estimate the GHG and carbon sequestration benefits of the project using USFS i-Tree tools (Urban and Community Forestry Program Quantification Methodology, 2020).

## Benefits from Trees and Canopy

Trees in the urban forest work continuously to mitigate the effects of urbanization and development and protect and enhance lives within the community in many ways. Healthy trees are vigorous, producing more leaf surface and canopy cover area each year. The amount and distribution of leaf surface area are the driving force behind the urban forest's ability to produce services for the community (Clark et al, 1997). Services (i.e., benefits) include:

### ENERGY SAVINGS

- **Transpiration** converts moisture to water vapor, thereby cooling the air by using solar energy that would otherwise result in heating of the air (Heisler, 1986; Ellison et al, 2017; Huang et al, 1990; Lyle, 1996).
- Producing shade for dwellings and hardscape reduces the energy needed to cool the building with air conditioning (Akbari et al, 1997).

### URBAN HEAT ISLAND

- Shade reduces the amount of radiant energy absorbed and stored by hardscapes and other impervious surfaces, thereby reducing the **heat island effect**, a term that describes the increase in urban temperatures in relation to surrounding locations (Akbari et al, 1997; McDonald et al, 2016).

### CARBON DIOXIDE REDUCTION

- Trees and forests directly reduce CO<sub>2</sub> in the atmosphere through growth and sequestration of CO<sub>2</sub> in woody and foliar biomass.
- Indirectly, trees and forests reduce CO<sub>2</sub> by lowering the demand for energy and reducing CO<sub>2</sub> emissions from the consumption of natural gas and the generation of electric power. Reducing energy use has the added bonus of reducing carbon dioxide (CO<sub>2</sub>) emissions from fossil fuel power plants.

### AESTHETICS

- Provide beauty in the urban landscape, privacy to homeowners, provide a sense of comfort & place, and even contribute to increased property values (Theriault et al, 2001).





## AIR QUALITY

- Trees protect and improve air quality by intercepting particulate matter (PM<sub>2.5</sub>), including dust, pollen, and smoke. The particulates are filtered and held in the tree canopy until precipitation rinses the particulates harmlessly to the ground.
- Trees absorb harmful gaseous pollutants like ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), and sulfur dioxide (SO<sub>2</sub>). Shade and transpiration reduce the formation of O<sub>3</sub>, which is created at higher temperatures. Scientists are now finding that some trees may absorb more volatile organic compounds (VOCs) than previously thought (Karl, 2010; Science Now, 2010). VOCs are carbon-based particles emitted from automobile exhaust, lawnmowers, and other human activities.
- Increasing oxygen levels through photosynthesis



## STORMWATER MANAGEMENT AND WATER QUALITY

- The tree canopy creates interception, which during storm events reduces and slows runoff (Xiao et al, 1998). In addition to catching stormwater, canopy interception lessens the impact of raindrops on barren soils. Root growth and decomposition increase the capacity and rate of soil infiltration by rainfall and snow melt (McPherson et al, 2002). Each of these processes greatly reduces the flow and volume of stormwater runoff, avoiding erosion and preventing sediments and other pollutants from entering streams, rivers, and lakes, which is a source of pollution that threatens aquatic wildlife.
- Increasing soil capacity and rate of infiltration



## HEALTH

- Exposure to nature, including trees, has a positive impact on human health and wellness through improvements in mental and physical health, including lower incidence of depressive symptoms (Kuo, 2001; Sherer, 2003; Jennings et al, 2016).



## PUBLIC SAFETY

- Park-like surroundings increase neighborhood safety by relieving mental fatigue and feelings of violence and aggression that can occur as an outcome of fatigue (American Planning Association, 2003).
- Residents who live near outdoor greenery tend to be more familiar with nearby neighbors, socialize more with them, and express greater feelings of community and safety than residents lacking nearby green spaces (American Planning Association, 2003).
- 25% reduced incidence of domestic crimes when landscapes and trees are planted near their homes (Kuo, 2001).
- Correlations have been found between increased tree coverage and decreased crime rates, even after adjusting for a number of other variables, such as median household income, level of education, and rented versus owner-occupied housing (Gilstad-Hayden et al, 2015; Troy et al, 2012).



## ACADEMICS

- Positive correlations between exposure to nature and student success, and lack of views of natural features were negatively associated with student performance (Matsuoka, 2010).



## ECONOMIC ACTIVITY

- Research shows that trees promote better business by stimulating more frequent and extended shopping and willingness to pay more for goods (Wolf, 1999).



## WILDLIFE

- Wooded streets potentially function as movement corridors, allowing certain species—particularly those feeding on the ground and breeding in trees or tree holes— to fare well by supporting alternative habitat for feeding and nesting (Fernandez-Juricic, 2000).
- Greater tree density improves outcomes for birds and bats (Threlfall et al, 2016).
- Trees and forest lands provide critical habitat (for foraging, nesting, spawning, etc.) for mammals, birds, fish, and other aquatic species. Trees can offer pollinators a valuable source of flowering plants. By including an array of flowering trees that provide pollen and nectar in the urban forest, bees are provided with additional food sources. Increasing tree species diversity and richness contributes to greater numbers of bird species among urban bird communities (Pena et al, 2017).
- Restoration of urban riparian corridors and their linkages to surrounding natural areas have facilitated the movement of wildlife and dispersal of flora (Dwyer et al, 1992). Usually, habitat creation and enhancement increases biodiversity and complements many other beneficial functions of the urban forest. These findings indicate an urgent need for conservation and restoration measures to improve landscape connectivity, which will reduce extinction rates and help maintain ecosystem services (Haddad et al, 2015).

## Calculating Tree Benefits



Communities can calculate the benefits of their urban forest by using a complete inventory or sample data in conjunction with the USDA Forest Service *i-Tree* software tools ([itreetools.org](http://itreetools.org)). This open-source, state-of-the-art, peer-reviewed software suite considers regional environmental data and costs to quantify the ecosystem services unique to a given urban forest resource. Individuals can calculate the benefits of trees to their property by using *i-Tree Design* ([www.itreetools.org/design](http://www.itreetools.org/design)).

# What do we have?

## History of the Urban Forest

Although Yuba City's establishment is tied to the Gold Rush, settlers quickly discovered that the rich soil along the riverbeds was ideal for fruit and nut bearing trees. The river provided additional opportunities for sub irrigating crops. Orange and lemon trees were amongst the first fruit bearing trees brought to the area and planted around homes, but later stone fruits became a central crop.

Early homes were built amongst stately oaks, mulberries, and cottonwoods. Settlers highly regarded mature trees affronting homes, outbuildings, and lining roads because they created a shady refuge on hot days. One California white mulberry, at the Gilbert M. Smith Ranch, was recorded for its grandeur and integral role in shading livestock and the horse trough that was used for bathing.

Peach orchards began appearing in the early 1880s and the first cannery was established around 1886. Before the establishment of the cannery, growers planted various varieties of fruit trees. Later, and to the detriment of some producers, they found out that the cannery only accepted peaches that produced clear syrup. Fruit was pulled by two horse teams to the cannery on wagons that had box beds and springs. By 1918, the Harter Packing Company opened a cannery closer to the orchards and prided itself on canning fruit the same day it was picked.

Horticulturist, Joseph Phillips, in partnership with A. F. Abbott, planted 60 acres of peaches just south of Yuba City. Three years after planting, these trees produced 200 tons of fruit that was sold for \$80/ton. The Hull family planted peach and apricot orchards. The flavor of their peaches was high-quality, but they produced colored syrup when they were canned. The Hull's dug up their peach orchards and replanted with varieties that the cannery would accept. The varieties changed throughout the years, and the Hulls planted over seven varieties that reflected what was in demand. These varieties were clingstone peaches, a group of peaches with the shared characteristic that the fruit does not fall off the pit.

To this day, clingstone peaches are consistently in the top 5 ranking crops in Sutter County and fruit and nut crops have the highest gross production value. The Harter Packing Company reported canning around 30,000 pounds of peaches in 2002. Walnut, peaches, plums, and almonds are amongst the leading tree fruit crops in the area. The area around Yuba City is known for the production of organic fruits and vegetables, with over 17,000 acres in production (California Department of Agriculture, 2018).

In the 1980s, a developer was threatening to remove a stand of California white oaks (*Quercus lobata*) in a detention pond north of Shanghai Garden Park (pictured on the right). But because the community advocated on the behalf of the trees, the trees were protected and still stand today.

## Did you know?

Yuba City continues to be a community that values its trees. An article from the Marysville Daily Appeal, published in 1919, highlights a story about George C. Roeding, a nurseryman from Fresno, who regularly harvested nuts from the "worlds' largest walnut tree", located on a residential property, just north of the Sutter County Courthouse (present-day Courthouse West). Reportedly, the nurseryman used the nuts from this massive walnut tree, with a circumference of 15 feet and four inches, to produce a variety of walnut known as 'Paradox', a cross between a Northern California black walnut and an English walnut.

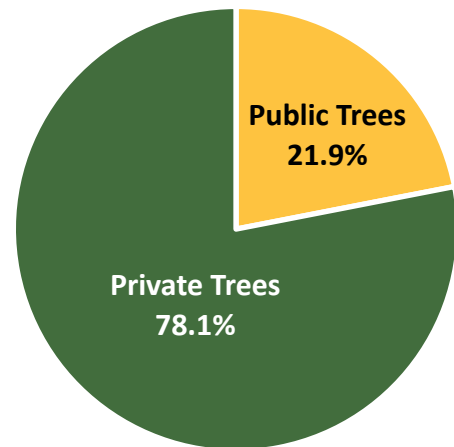




## Urban Forest Resource

Yuba City encompasses approximately 14.9 square miles (9,545 acres) and includes 1,824 acres of tree canopy for an average canopy cover of 19.1%. The majority (78%) of tree canopy cover is on private property (1,423.9 acres). The community tree resource is estimated to provide 400.1 acres of canopy<sup>1</sup> (Figure 1). Tree canopy extends beyond property lines and so do the benefits, which are enjoyed by residents, neighboring communities, and the region. The more tree canopy, the more benefits to the community.

FIGURE 1: CANOPY COVER DISTRIBUTION BETWEEN PUBLIC AND PRIVATE LAND



## GEOGRAPHIC DISTRIBUTION OF TREE CANOPY

To better understand the distribution of tree canopy and associated benefits, Yuba City was divided into four quadrants. Colusa Highway was used as the north-south boundary and Highway 99 for the east-west boundary.

Canopy cover is highest in the northwest, at nearly 23%. Currently, northeast Yuba City has the lowest canopy cover, at 17.6%. The northeast quadrant of the city is characterized by older neighborhoods with primarily older, mature private trees and generally do not have any trees in the rights-of-way.

All areas of Yuba City have experienced an increase in canopy. Since 2003, canopy cover has increased 141% in the northwest from 417.4 acres to 558.1 acres (Table 3). Most notably, the southeast, which had the lowest canopy cover in 2003 (12%) saw the greatest increase in canopy acres (47.5 acres) and the greatest increase in canopy cover (currently 17.7%).

Throughout Yuba City, trees have a lot of competition for space. Development pressures are particularly strong in the southwest part of the city and could result in a loss of canopy in the future if protection measures are not provided.



TABLE 3: CANOPY COVER BY QUADRANT

Quadrant	Acres	Canopy Acres	Canopy %	Impervious Acres	Impervious %	Canopy Acres 2003	Canopy % 2003	Difference in Acres 2003-2018	% Change 2003-2018	Absolute Change
Yuba City Southwest	2,548	462.13	18.14	1,338	52.51	414.81	16.28	11.41	47.31	1.86
Yuba City Southeast	2,893	511.51	17.68	1,570	54.28	346.68	11.98	47.54	164.81	5.70
Yuba City Northwest	2,438	558.09	22.89	1,219	50.01	417.36	17.12	33.72	140.72	5.77
Yuba City Northeast	1,665	292.40	17.56	918	55.15	221.66	13.31	31.92	70.74	4.25

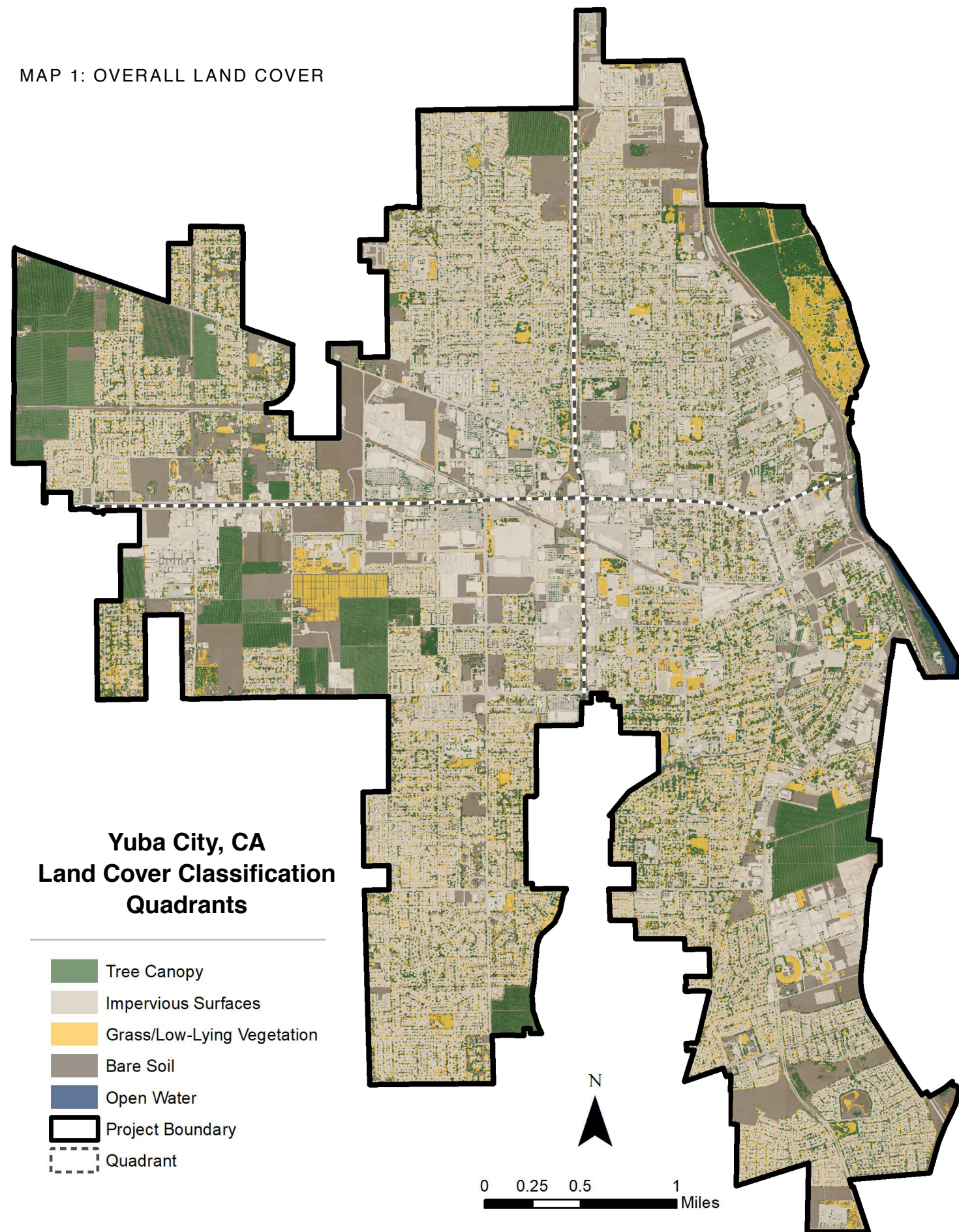
The most appealing neighborhoods and business districts in California are those with mature & interesting trees.



*Survey Respondent*

<sup>1</sup> Yuba City, CA Resource Analysis (2020)

MAP 1: OVERALL LAND COVER



## TREE CANOPY BY PARKS

Yuba City has 25 parks, which combined cover a total of 265.5 acres (Table 4). The parks vary in size, form, and use, where some parks provide residents with ball fields and others have detention ponds or open green spaces. The availability of space to plant trees is limited by the different land uses in parks. For example, ball fields are unsuitable sites for tree planting. However, parks that do have ball fields likely can still support some tree planting. In fact, Blackburn-Talley Sports Complex, the second largest park, currently has nearly 12% canopy cover, but could support additional trees, which is evident from its potential canopy cover of nearly 23%.

Feather River Parkway, the largest park, has the most canopy acres (172.9 acres) and nearly 30% canopy cover with a potential canopy cover of nearly 78%. While the land cover data suggests that there is a large area suitable for planting trees, Feather River Parkway is a natural area that does not have irrigation and only trees adjacent to trails are actively managed. Parks Maintenance staff have planted trees in this park to promote wildlife habitat, but the lack of irrigation provides a challenge for tree selection and establishment. With an average canopy cover of 27.7%, almost all parks have the space to accommodate additional tree planting. Although all but one park has the potential to support additional tree planting, to maximize available planting funds and provide the greatest benefit to the overall community, planting priority should be considered first (Table 4).

MAP 2: YUBA CITY PARKS

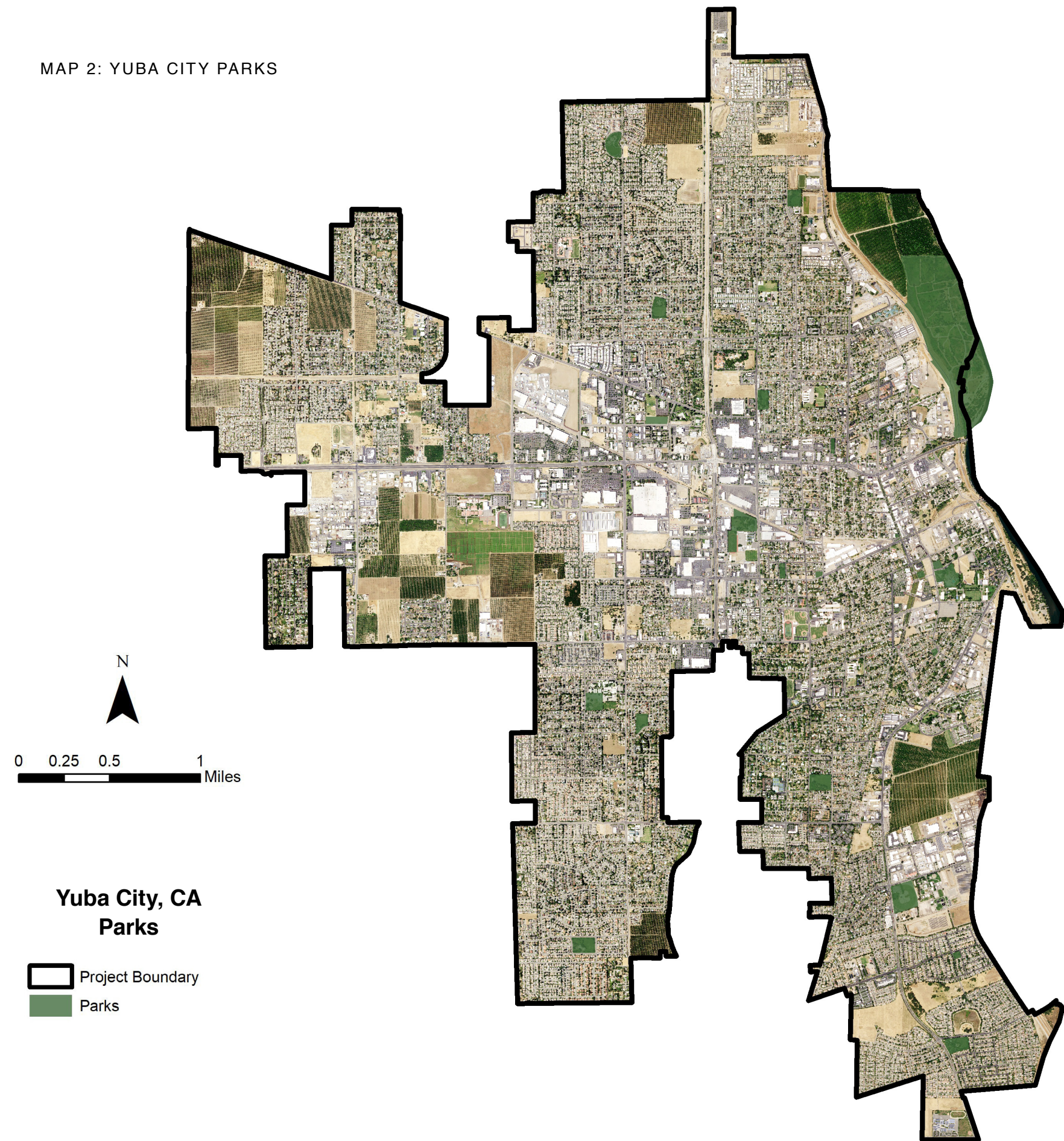




TABLE 4: CANOPY COVER BY PARKS

Park	Acres	Canopy Acres	Canopy %	Impervious Acres	Grass/Low Lying Veg. Acres	Bare Soil Acres	Open Water Acres	Potential Plantable Acres	Potential Canopy %
Feather River Parkway <sup>2</sup>	172.89	29.73	17.19	14.14	86.07	34.76	8.18	105.05	77.95
Blackburn-Talley Sports Complex	12.76	1.50	11.75	3.40	5.80	2.06	0.00	1.38	22.55
Gauche Aquatic Park	8.64	1.98	22.96	4.28	1.73	0.64	0.00	2.37	50.43
Sam Brannan Park	8.51	2.42	28.44	3.06	2.64	0.38	0.00	3.03	64.01
Happy Park	6.81	0.75	11.02	0.53	5.25	0.29	0.00	0.95	25.01
Hillcrest Park	6.67	1.87	28.11	0.29	4.50	0.01	0.00	0.46	35.01
Regency Park	6.29	1.04	16.57	1.76	3.20	0.30	0.00	0.01	16.71
Shanghai Garden Park	6.02	2.77	45.94	0.54	2.65	0.07	0.00	2.72	91.00
Walton Park <sup>3</sup>	5.73	0.67	11.61	2.23	1.90	0.94	0.00	0.57	21.52
Greenwood Park	5.42	1.84	33.89	0.51	3.01	0.05	0.00	0.55	43.98
Northridge Park	4.48	2.20	49.07	0.31	1.88	0.09	0.00	1.42	80.84
Kingwood Park	4.21	1.58	37.59	0.54	1.86	0.22	0.00	0.19	42.16
Geweke Field <sup>3</sup>	3.97	0.14	3.46	0.95	2.63	0.26	0.00	0.55	17.44
Holly Tree Park	3.56	0.41	11.62	0.01	2.97	0.16	0.00	0.09	14.15
Civic Center Field	3.20	0.08	2.54	0.12	0.01	2.99	0.00	3.00	96.15
Lloyd Park	1.63	0.49	30.23	0.00	0.95	0.18	0.00	1.13	99.71
Maple Park	1.05	0.87	82.36	0.11	0.08	0.00	0.00	0.08	89.68
Bogue Park	0.89	0.39	43.97	0.00	0.40	0.10	0.00	0.49	99.47
Town Square	0.82	0.20	24.58	0.21	0.39	0.01	0.00	0.41	74.09
Moore Park	0.69	0.00	0.68	0.03	0.49	0.16	0.00	0.66	95.61
Southside Park	0.64	0.13	20.62	0.12	0.29	0.10	0.00	0.39	81.90
Patriot Park	0.25	0.06	24.75	0.10	0.08	0.00	0.00	0.08	58.68
Plumas Tower	0.19	0.13	67.81	0.06	0.00	0.00	0.00	0.00	0.00
Veterans Park	0.17	0.00	0.00	0.00	0.00	0.17	0.00	0.11	66.08
Clark-Ainsley Mini-Park	0.06	0.04	64.63	0.00	0.02	0.00	0.00	0.02	94.76

<sup>2</sup> Approximately 30 acres of Feather River Parkway are outside of city limits, but are still maintained by Yuba City Parks Maintenance.

<sup>3</sup> Walton Park and Geweke Field are parks managed by the local school district.



Our parks and parking lots desperately need more shade.

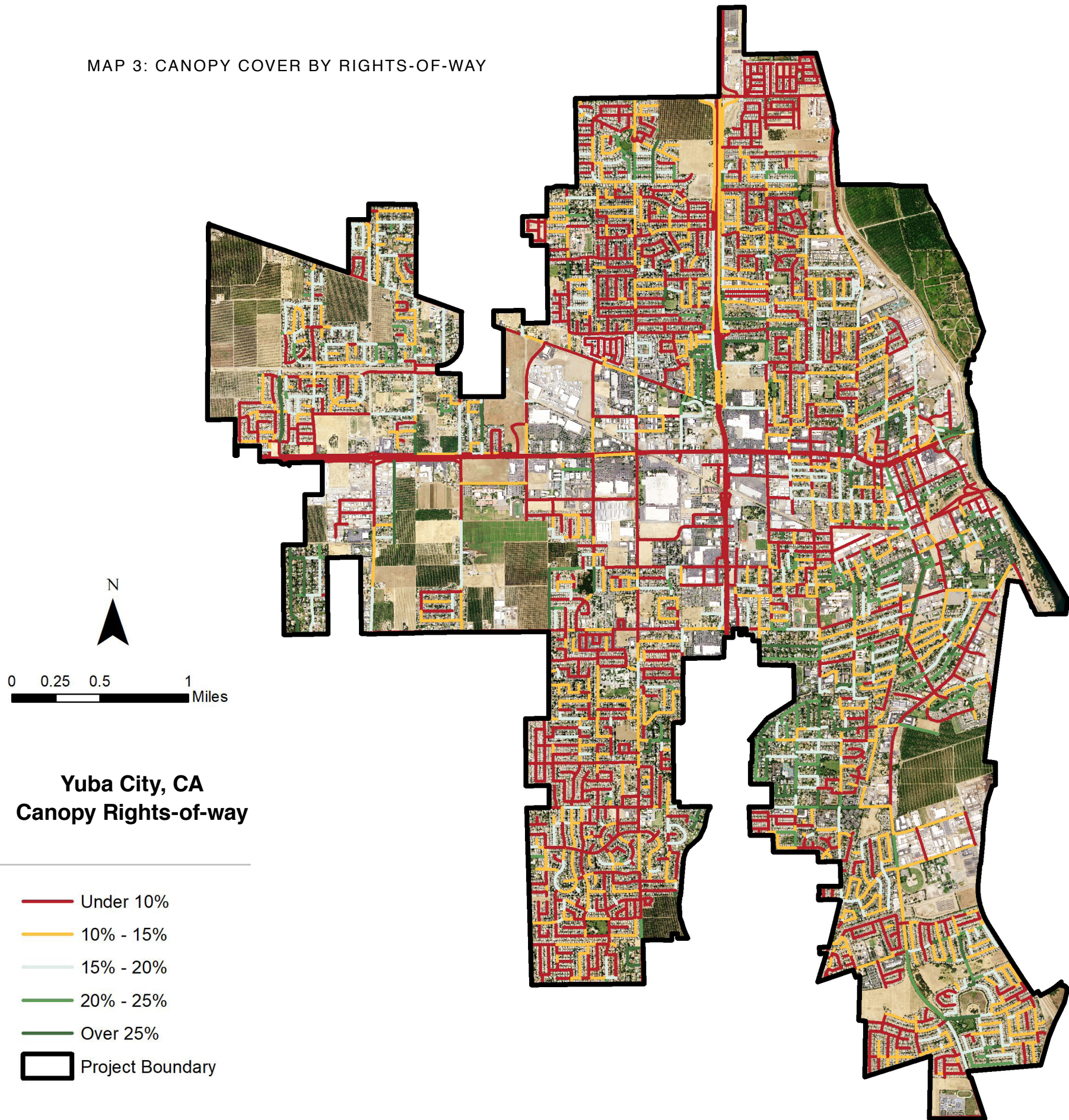
*Survey Respondent*

## CANOPY BY RIGHTS-OF-WAY

To better understand the canopy distribution provided by trees that are actually maintained by the city, canopy cover was reviewed for the public rights-of-way (ROW). Using street segments obtained from the USDA website and a 75-foot buffer from road centerlines broken up by intersections, it was estimated that Yuba City's public rights-of-way encompasses 5,783 acres, with 648 acres of canopy and an average canopy cover of 11.2%.

The highest level of canopy cover in the ROW is 52.7% on Plumas Boulevard (north of C Street and south of Franklin Avenue). The average canopy cover on Plumas Boulevard is 37.4%. Several street segments have no canopy cover in the ROW. There is an estimated 74 acres of available planting space in the ROW (Tree Canopy & Land Cover Assessment, 2020).

MAP 3: CANOPY COVER BY RIGHTS-OF-WAY





## ENVIRONMENTAL BENEFITS

To date, Yuba City's urban forest has stored 229,115 tons of carbon (CO<sub>2</sub>) in woody biomass, valued at over \$39.0 million. Annually, this resource provides \$1.8 million in benefits to air quality, stormwater, and carbon sequestration (Figure 2).

## HISTORICAL CHANGE

Historical change in tree canopy was assessed using a point sampling of canopy data derived from 2003 and 2018 imagery. To determine change in canopy cover over the 15-years, land cover was visually inspected at each point for both years simultaneously and was identified as one of five classes: tree canopy, impervious surfaces, grass/shrub, bare soil, and open water. Tree canopy cover was analyzed using a "top-down" or "birds'-eye" approach. Therefore, where tree canopy visibly overlapped with another land cover class, tree canopy was recorded at the point location.

From 2003 to 2018, tree canopy cover increased from 14.7% to 19.1%, this is a 23.1% increase over a 15-year period. In this time period, the population has increased by 20.1%.

FIGURE 2: ANNUAL BENEFITS SUMMARY FOR YUBA CITY

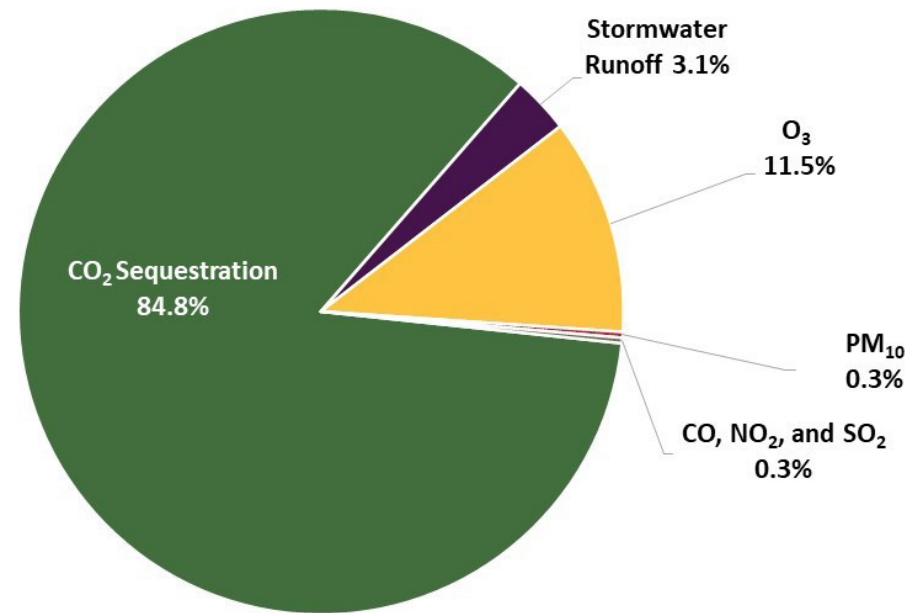
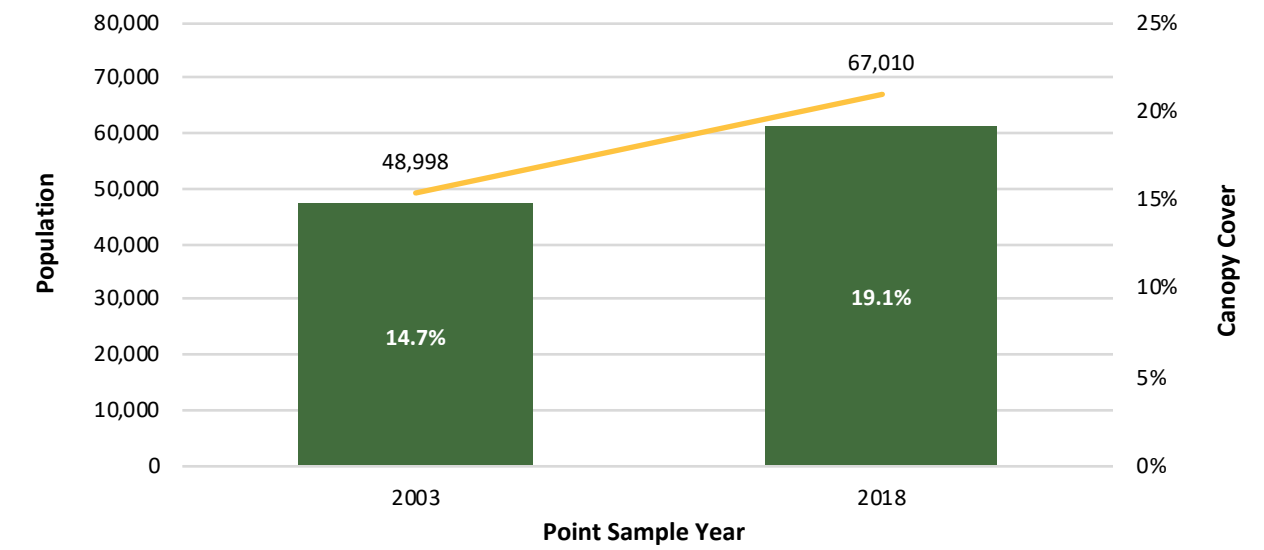


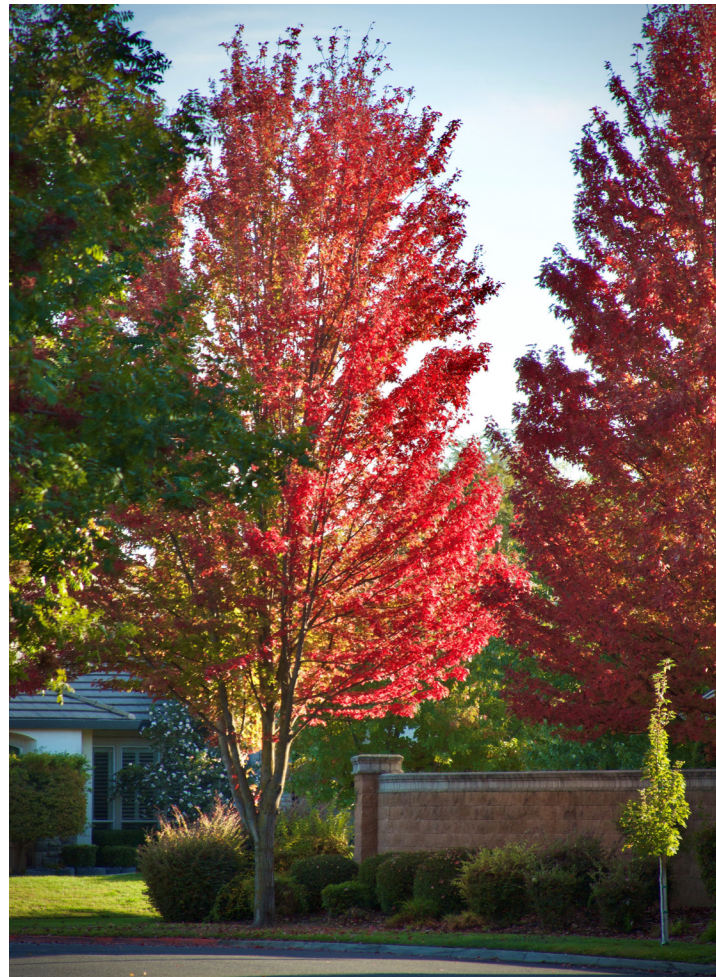
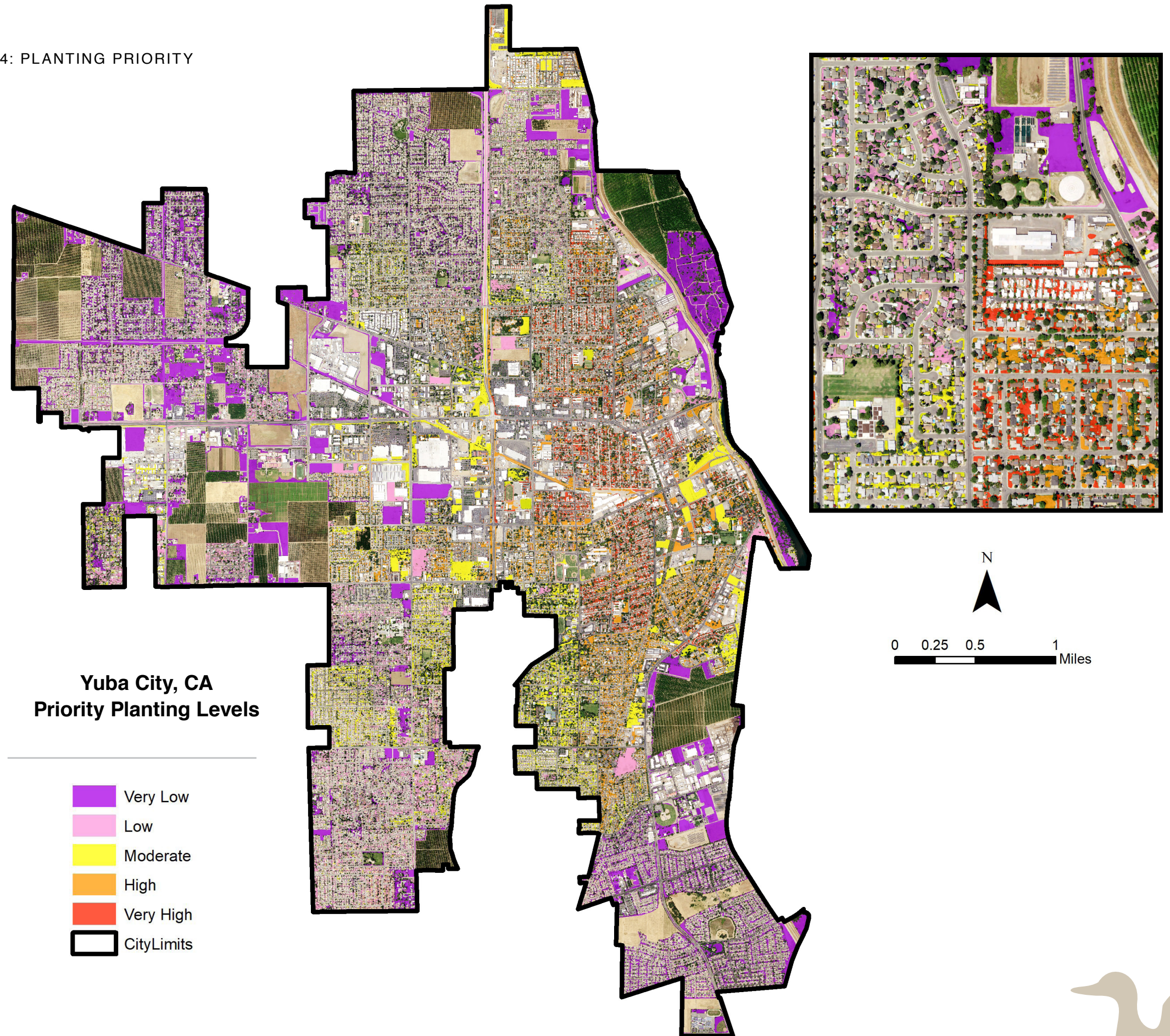
FIGURE 3: HISTORIC CHANGE



## CANOPY GOALS AND TREE CANOPY POTENTIAL

The Tree Canopy and Land Cover Assessment (2019) identified 1,940 acres where trees could be planted to augment existing canopy. Of these potential planting sites, approximately 383 acres were considered high or very high priority (Map 4). While it is important to prioritize planting in these areas, it is equally important to prioritize the preservation of existing trees, too. If Yuba City were to plant trees to cover all of this area, then the overall average tree canopy could be increased to 39.4%.

MAP 4: PLANTING PRIORITY



## SETTING CANOPY GOALS

Setting canopy goals is an important step in urban forest management and can help to ensure the quality of life and sustainability of a community. While the tree canopy potential for Yuba City is currently 39.4%, this value does not consider the potential for other land cover. Agricultural land and undeveloped areas are common in Yuba City. Some of these areas will inevitably be developed to include structures, roads, and parking lots that will compete with trees for space. The population of the community is increasing, and development will likely continue to expand and create more competition for trees, especially with some developers advocating for omitting park strips in new subdivisions to allow for the construction of larger homes. Due to current setbacks, there would not be adequate space for a tree in a front yard.

Considering the existing land cover and development pressures, a goal of 25% tree canopy cover by 2040 is likely attainable but will require the commitment and support of the community.

Canopy goals can be tailored to specific land use, such as residential zones or parks. A determinant for actually reaching canopy goals is dependent on the willingness of the community to accomplish and sustain these goals. Expansion of canopy cannot be accomplished through planting trees on public property alone, it also requires preservation and conservation of existing trees and new tree planting on private property. Approximately 78% of tree canopy is on private property in Yuba City, which makes tree canopy expansion on private property especially important to reach the community's tree canopy goal.



# Community Tree Resource

Community trees (publicly managed trees along streets, in parks, and at city facilities) play a vital role in Yuba City. They provide numerous tangible and intangible benefits to residents, visitors, and neighboring communities. The community recognizes that community trees are a valued resource, a vital component of the urban infrastructure, and part of the city's identity.

## STRUCTURE & COMPOSITION OF THE COMMUNITY TREE RESOURCE

Yuba City's community tree inventory includes 11,846 trees and 1,320 available planting sites (2019). Considering species composition and diversity, age distribution, condition, canopy coverage, and replacement value, the following information characterizes Yuba City's community tree resource:

- The most common species are red maple (*Acer rubrum*, 16.8%), crape myrtle (*Lagerstroemia spp.*, 7.7%), and trident maple (*Acer buergerianum*, 7.5%).
- 55.8% of trees are less than 8 inches in diameter (DBH) and 4.4% of trees are larger than 24 inches in diameter, indicating an established resource.
- 81.2% are in good condition, with 3.2% in poor or worse condition.
- Community trees provide an estimated 400.1 acres of canopy cover, 21.9% of the overall canopy cover, but represent less than 1% of the total land area.
- The current stocking level for the community tree inventory is 90.0%, based on a total 13,166 suitable planting sites, including 11,846 trees, 1,181 vacant sites, and 139 stumps.
- Replacement of the 11,846 community trees with trees of equivalent size, species, and condition, would cost over \$33.6 million.

- Community trees store nearly 3,042 tons of carbon (CO<sub>2</sub>) in woody and foliar biomass
- Annually, community trees provide nearly \$48,142 to the community, an average of \$4.06 per tree.

These benefits include:

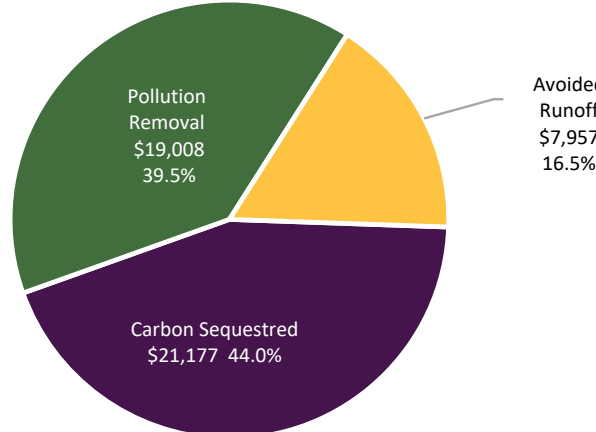


FIGURE 4: ANNUAL BENEFITS FROM COMMUNITY TREES

A limitation of the annual benefits summary is that it does not fully account for all benefits provided by the community tree resource. Some benefits could not be included in the analysis such as reductions in energy use (electricity and natural gas) through shading and climate effects. Other benefits are intangible and/or difficult to quantify such as increases in property values and impacts on psychological and physical health, crime, and violence.

Empirical evidence of these benefits does exist (Wolf, 2007; Kaplan and Kaplan, 1989; Ulrich, 1986), but there is limited knowledge about the physical processes at work and the complex nature of interactions make quantification imprecise. Tree growth and mortality rates are highly variable. A true and full accounting of benefits and investments must consider variability among sites (e.g., tree species, growing conditions, maintenance practices) throughout the city, as well as variability in tree growth. In other words, trees are worth far more than what one can ever quantify!

I strongly believe in maintaining and absolutely adding more trees to the Yuba City community. They provide the necessary shade to balance out the hot and long summers in this area. They encourage people to be outside more, improve air quality, and beautify the area.



Survey Respondent

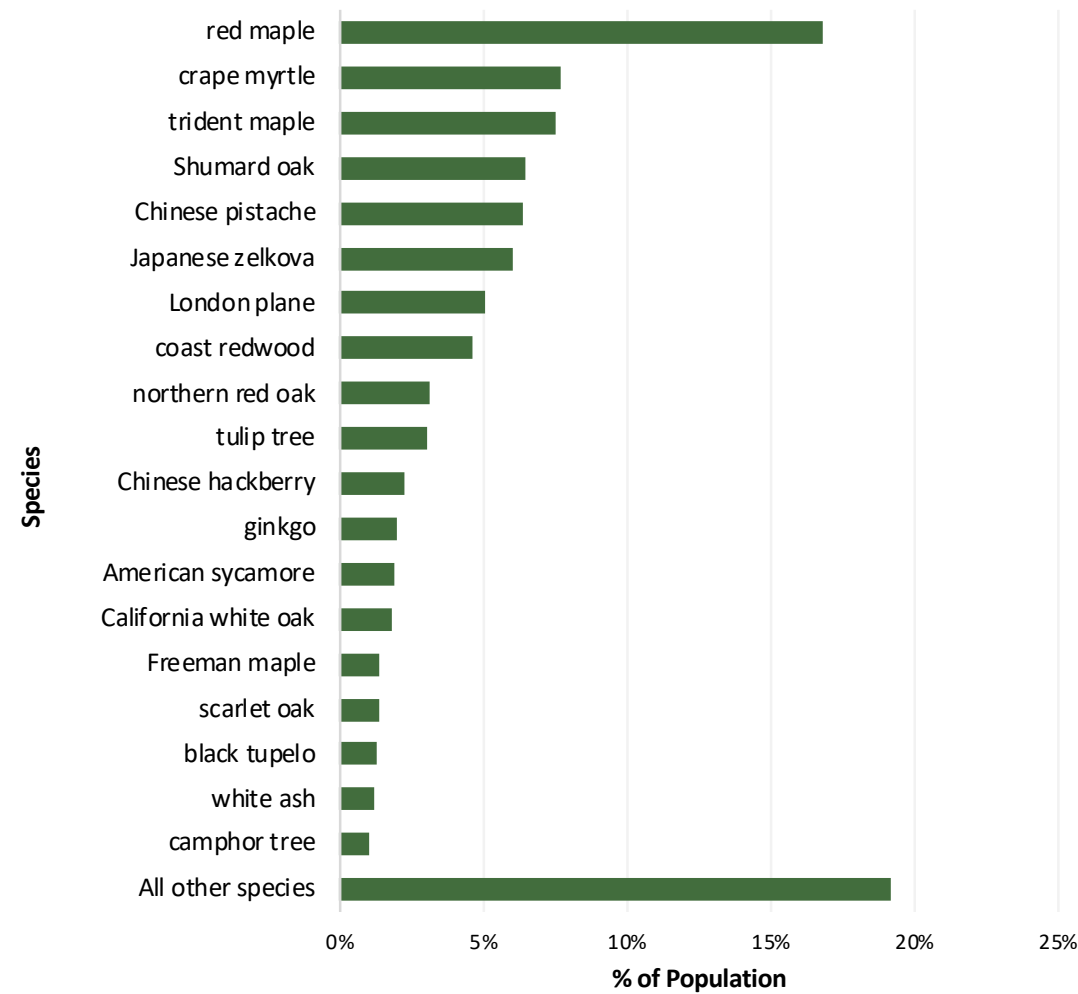
## SPECIES DIVERSITY

The number of unique species (156) in the community tree resource greatly exceeds the mean of 53 species reported by McPherson and Rowntree (1989) in their nationwide survey of street tree populations in 22 US cities. The three most predominant species represent 32.0%.

Maintaining diversity in a community tree resource is important. Dominance of any single species or genus can have detrimental consequences in the event of storms, drought, disease, pests, or other stressors that can severely affect a community tree resource and the flow of benefits and costs over time. Catastrophic pathogens, such as Dutch

elm disease (*Ophiostoma ulmi*), emerald ash borer (*Agilus planipennis*), Asian longhorned beetle (*Anoplophora glabripennis*), and sudden oak death (*Phytophthora ramorum*) are some examples of unexpected, devastating, and costly pests and pathogens that highlight the importance of diversity and the balanced distribution of species and genera. In addition to these pests, there is growing concern for polyphagous shot hole borer (PSHB) (*Euwallacea spp.*), a new pest complex that has devastated urban forests in Southern California due to its wide host range (Eskalen, 2015).

FIGURE 5: MOST PREVALENT SPECIES



## Consequences of Monocultures

Prior to the devastating impacts of Dutch elm disease, it was a common trend to design streets with a single species and therefore promote monocultures. When many individuals of a single species are concentrated in a small area, the impact of a stressor can have significant implications. Like the majority of communities, Yuba City named streets after trees and planted some streets with a continuous lining of a single tree species. It is common for a particular species to be abundant within a small area of the community. For example, Plumas Blvd. is lined with sycamores and ginkgo trees are concentrated in Veteran's Circle, north of City Hall. This design appeals to many people because it is aesthetically pleasing and promotes the character of an area, but current industry standards do not recommend this practice.

Long term management can be achieved through successional planting and removal or replacement with a wider variety of species, which is already occurring in Yuba City. A near monoculture of tulip trees was planted in south end of town. Tulip trees are a species that has proven to be particularly susceptible to drought stress. As a result of a historic drought, Yuba City lost approximately 100 tulip trees. This significantly impacted tree canopy, but urban forest managers began replacement plantings with a wider range of species.

Many neighborhoods in Yuba City have a high density of maple trees as street tree plantings, which can increase the implications of pests and pathogens. Boxelder bugs thrive in these neighborhoods and other areas of Yuba City that have a high proportion of maple trees. Recently, urban forest managers began requiring the incorporation of greater tree diversity in new developments. Diversity at the street level should also be considered during replacement plantings throughout Yuba City. Not only does the climate allow a broad species palette to thrive, but there is an opportunity to increase resiliency in the urban forest.





In light of significant pests and diseases, many cities are opting to increase diversity to improve resilience. The widely used **10-20-30 rule** of thumb states that an urban tree population should consist of no more than 10% of any one species, 20% of any one genus, and 30% of any one family (Clark et al, 1997; Santamour, 1990). While this rule does ensure a minimum level of diversity, it may not encourage enough genetic diversity to adequately support resilience. Therefore the 10-20-30 rule should be considered a minimum goal. Managers should always strive to increase the range of representation among species and genera within an urban forest. Among Yuba City's community tree population, red maple (*Acer rubrum*) exceeds this well-accepted rule, and the genus of maples (*Acer spp.*) exceeds the 20% rule.

To increase species diversity and promote greater resilience in the overall resource, future tree planting should focus on increasing diversity and reducing reliance on overused species. As over-predominant species are removed and replaced, new species should be introduced when possible. New species should be resistant to the known pest issues that currently pose a threat to the region. In addition, consideration should be given to species that withstand higher temperatures and periods of drought.

## Maples and the Boxelder bug

Boxelder bugs (*Boisea trivittatus*) are a seed feeding species of insect. Boxelder (*Acer negundo*) is their primary host, but they are known to feed on other species of maples, ash, and fruit trees. Indeed, they can be a nuisance for residents when congregating in large numbers or entering homes during the fall and winter. In order to decrease the number of box elder bugs congregating outdoors, residents can try to manage their numbers by (1) using a forceful stream of water to knock off and drown the bugs, (2) spraying them with laundry detergent or soap (where direct contact with these chemicals kills the insect), (3) knocking or brushing them into a bucket of soapy water, (4) cleaning fallen branches and seed pods from under the female box elder trees, and (5) removing debris from around the building, particularly on the south and west sides since these places get more winter sun. If the bugs become an inconvenience inside of homes, it is best to locate indoor congregations and then block any nearby crevices and repair any damaged windows or screens. Vacuuming the insects is an effective way to remove them from homes (Peairs, 2014; Perry 2014).

Boxelder bugs do not warrant the removal of healthy trees because they cause minor damage to their host trees and are only an annoyance. Furthermore, the use of insecticides is rarely recommended because of the many alternative management options that are less toxic and, in most cases, more effective. Insecticides are toxic to humans and other animals and should not come in contact with non-target organisms (including non-target insects such as pollinators). Some life stages of the insect (larger nymphs and adults) are more tolerant to insecticides; therefore, insecticide applications may not be very effective. If insecticides are used, applications should target the insects when they are small nymphs, and more vulnerable. Insecticide resistance can occur when applications do not target the younger, more vulnerable life stages.

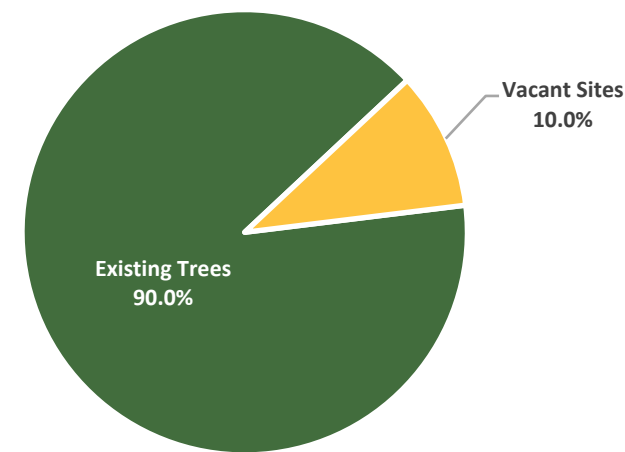
Long term management can be achieved through removal/replacement of declining trees that are attractive hosts to boxelder bugs.

Replacement plantings should be with a non-host species to lessen the impact.

## STOCKING LEVEL

The stocking level is an indication of how many planting sites within the community contain trees. It is clear that managers have prioritized tree planting in Yuba City, as the estimated stocking level for the community tree resource is currently 90.0%. Yuba City's community tree resource contains 11,846 existing trees. The stocking rate, calculated using the inventory's 1,320 available planting sites and 13,166 total sites, is quite high.

FIGURE 6: STOCKING LEVEL



## PLANTING PRIORITY IN THE RIGHTS-OF-WAY

While meeting canopy goals require support and collaboration from private property owners to ultimately meet the need for additional tree plantings, Yuba City can work to expand tree canopy through increased planting in the public rights-of-way. Considering the amount of acreage within the public rights-of-way (74 acres), managers have an opportunity to not only support city-wide canopy goals, but also increase equitable distribution of canopy through additional tree planting within the public rights-of-way. When areas of lower canopy cover and household median income were considered, approximately 46 acres were classified as high or very high planting priority.

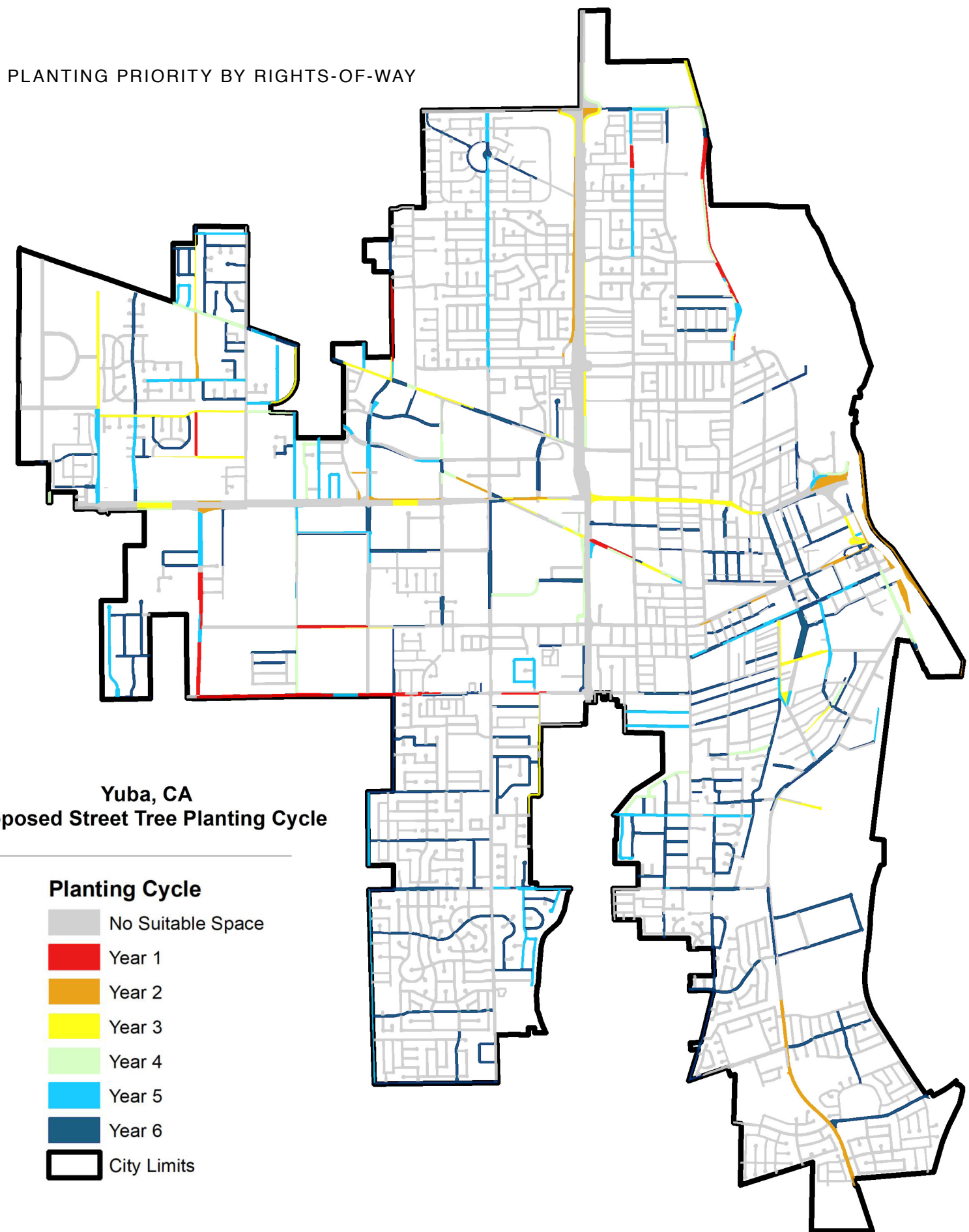
While available planting areas may ultimately be established over the next several decades, the trees that are planted in the next several years, should be planned for areas in most need, and

TABLE 5: PLANTING CYCLE FOR RIGHTS-OF-WAY

Planting Cycle Year	Number of Planting Areas	Estimated Planting Miles	Average Planting Area (Acres)	Estimated Total Planting Area (Acres)
1	8	4.47	1.29	10
2	10	6.59	0.99	10
3	26	10.20	0.58	15
4	24	7.49	0.38	9
5	47	16.01	0.24	11
6	172	45.00	0.11	19

where they will provide the most benefits and return on investment. In order to provide the most benefits to the community and to maximize available funds, a planting cycle can be used to prioritize planting of trees within the public rights-of-way. Table 5 and Map 5 outline a six-year planting plan, to prioritize planting in areas that currently have low canopy and low median income. The areas indicated in red are areas that should be planted in the first year of the planting cycle, which include nearly 4.5 miles of rights-of-way. Whereas areas in blue include areas with lesser planting priority and can be delayed until later in the cycle, or as funds become available. Not all areas within the public rights-of-way are suitable for planting. Areas that are too small to support trees within the public rights-of-way included 1,779 planting areas, which on average were less than 0.05 acres in size. These planting areas were not considered in the planting cycle and are indicated on the map in gray.

MAP 5: PLANTING PRIORITY BY RIGHTS-OF-WAY





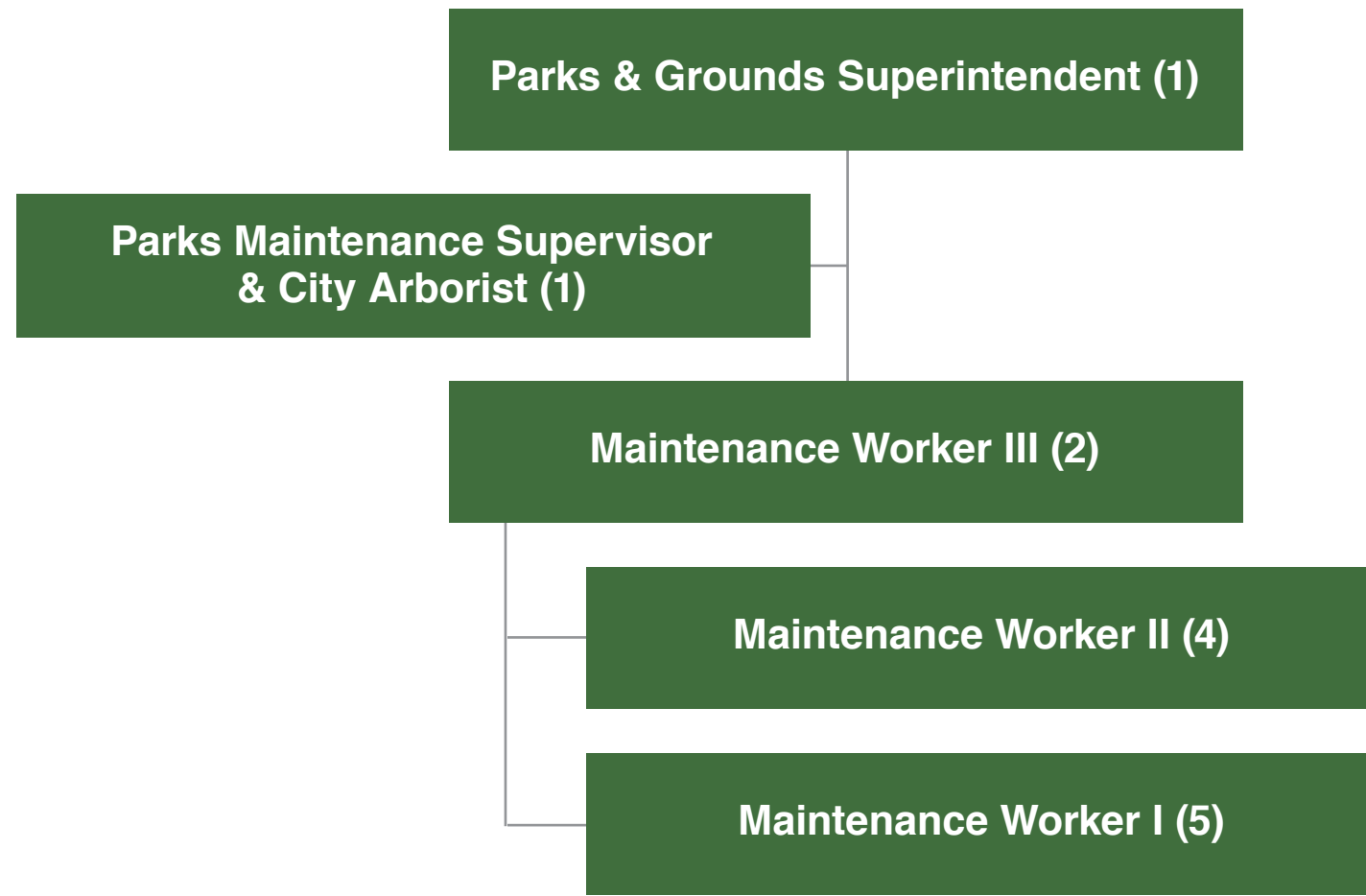
We need help for property owners in choosing the right trees and how to maintain them in off seasons.



*Survey Respondent*



# Park Maintenance–Urban Forestry Operations



The Parks and Recreation Department maintenance staff are responsible for the management of community trees within the public rights-of-way, parks, and public places. Maintenance in LLMDs is primarily conducted by city contractors. Most of Park Maintenance staff’s time is spent on landscaping, debris removal, and maintenance of 16 playgrounds in 23 city parks and 20% is spent on management of trees at parks and facilities.

Park Maintenance staff perform the following services:

- Tree maintenance in parks and City facilities (planting, pruning, watering, removal, stump grinding, and leaf/debris pick up).
- Contract monitoring (planting, grid pruning, visibility and clearance pruning, watering, removal, stump grinding, and leaf pick up of park strips in LLMDs and public rights-of-way [areas that pre-date LLMDs]).
- Responding to service requests.
- Emergency response.
- Community outreach & engagement.

Currently, the Parks Maintenance Division consists of 13 staff, who all provide a standard level of care to community trees. Parks Maintenance staff maintain park trees and trees at City facilities with a bucket truck (1999), a brush chipper (2017), and a stump grinder (1999). Prior to the 2008 financial crisis, the Parks Maintenance Division staffed 28 people who were responsible for the maintenance of all community trees (including trees within

LLMDs). During this time, contractors were only used to supplement tree maintenance. After the recession, due to budgetary constraints, staffing levels were reduced and the Council directed that maintenance of trees within the 84 LLMDs be conducted exclusively by contractors. Utility providers are responsible for tree maintenance around transmission lines.

The Parks Maintenance Division is led by the Parks Maintenance Supervisor & City Arborist, who is an ISA certified arborist, and actively encourages all staff to acquire their arborist ISA certification. All staff participate in weekly safety “tailgate briefings” where they are trained in proper use and maintenance of equipment and are expected to inspect all equipment before each shift and log their inspection.

While tree care is dangerous, proper training and good safety practices can help make the work safer. The city uses a contractor to provide safety training and consulting for all City departments. Parks Maintenance staff have been proactive in ensuring that tree crew members are trained thoroughly and are provided with all necessary personal protective equipment (PPE). While there are no formalized standard operating procedures (SOP) for safety practices, the Parks Maintenance Division sets an expectation for regular and daily inspection of all equipment and tree pruning tools (e.g., pole saws, hand saws, and chainsaws) which is consistent with recommendations set by the Tree Care Industry Association (TCIA). Additionally, tree crews are required to assess work sites for potential hazards, energy sources, and Personal Protective Equipment (PPE) prior to beginning work.

## TREE MAINTENANCE

Approximately 8,665 trees are within 58 LLMDs and maintained by a contractor. There are 84 LLMDs, 26 of which do not contain any community trees. An additional 4,516 trees are outside of LLMDs, which may include trees in older parts of the city that were never incorporated into an LLMD. In contrast, park trees and trees at city facilities are maintained by in-house Parks Maintenance staff, unless a tree exceeds 50-feet in height which will then be handled by the city contractor.

## Service Requests

Residents can report tree issues through the city YC311 app and by calling the Parks and Recreation Department directly. Using the app, residents can include pictures with their requests. Generally, a representative from Parks Maintenance will review a request within 24 hours and assign a contractor, in-house staff, or if a request involves a lifting sidewalk, a representative from Street Maintenance within two to three days. Due to the volume of open service requests (approximately 60 open requests), issues are generally resolved within four weeks. Ideally, Parks Maintenance staff would provide regular routine care, but due to the volume of service requests, Parks Maintenance staff are largely reactive at this time.

## Tree Pruning

Yuba City has longstanding and high rapport with landscaping contractors that maintain rights-of-way trees in LLMDs and areas that were never incorporated into an LLMD. Because maintenance for trees is largely dependent on the initiation of a service request, there are some trees that are likely receiving care every three to four years, while other trees that have no service requests are likely not receiving any care.

Residents sometimes request extensive pruning that is not always conducive to tree health. Currently, Municipal Code defines residents' responsibilities for the care of street trees to include watering and fertilizing but does not prohibit residents from pruning trees. As a result, some residents and businesses may prune their own street trees. This often results in trees being improperly pruned and, in severe cases, "topped" meaning the tops of trees are taken off and large branches are reduced to stubs. These pruning practices are stressful to trees because it removes a significant amount of foliage and causes trees to be more prone to pests, disease, decay, and breaking.

## Clearance and Visibility

Park Staff provide clearance and visibility pruning for all park trees as needed. In the winter months, pruning efforts are focused on addressing higher priority maintenance needs and parks with the most maintenance needs are addressed first. Park Maintenance staff estimate that park trees are maintained on a three to four-year cycle. Removals and stump grinds in parks are conducted by in-house Park Maintenance staff, but large tree removals (trees greater than 50-feet in height) are contracted out.

The utility provider, PG&E, manages trees located under utility lines. Trees should be directionally pruned only by authorized line clearance personnel to provide clearance and/or reduce height. Municipal Code requires notification and permission for any utility work that impacts trees in the public rights-of-way. Some removals have occurred, and the utility provider funded tree plantings as mitigation. Selecting small-stature tree species that are utility friendly for planting sites in utility rights-of-way can minimize the need for these maintenance activities or removals.

## Tree Inventory Management

In the past, all city trees and associated work orders were managed through a hand-written system, which was alphabetically organized by street. With the 2019 tree inventory, the city transitioned to using TreeKeeper8. Through this software, managers can maintain historic records of tree maintenance, update tree data as trees are pruned or removed, and add new trees to the inventory as they are planted.



Trees will always filter the air and promote a sense of comfort, health and beauty.



*Survey Respondent*

## TREE PLANTING

Street trees are planted in residential areas with park strips. If a neighborhood was built without park strips, there are no city-owned trees. Currently, there is not a formal process for residents to request street trees, rather Parks Maintenance staff evaluate requests for trees on a case-by-case basis. In instances where residents have minimal to no space in the public rights-of-way, Park Maintenance staff consider providing a tree to be planted elsewhere on the property, with the understanding that the resident is taking full responsibility for maintenance of the tree.

Annually, approximately 200 trees are planted throughout Yuba City's LLMDs and at park and city facilities. Species are selected from the Recommended Street Trees List or the Yuba City Tree Guide. Tree planting is primarily for replacing trees that have previously been removed and is prioritized in LLMDs that are fully funded. In underfunded LLMDs, tree planting is mostly dependent on grant funding. Similarly, areas outside of the LLMDs are also dependent grant funding for tree planting. The 2019 tree inventory identified 1,320 available planting sites within the city, which provided opportunities for additional tree planting efforts throughout the community.

Once a tree is planted, per Municipal Code, residents are responsible for watering and fertilizing street trees, while Parks Maintenance staff are responsible for watering trees in parks and at city facilities. After installation, park trees are irrigated weekly for a period of two months. In new construction developments, developers are responsible for funding new tree plantings in the rights-of-way. The success of tree establishment after planting is largely unknown. New tree plantings have not historically been monitored after planting in the LLMDs, but through expanded use of the inventory management software, mortality rates will be easier to track

in the future. In instances where trees have died due to lack of watering, it has been policy that the city will not contract to replace those trees. In future plantings, Parks Maintenance staff should consider incorporating biochar into the soil of new planting sites. Research in biochar is showing many potential benefits including increased soil fertility, increased water retention and availability, protection against some foliar and soil borne diseases, and carbon sequestration and mitigation of climate change (Lehmann 2007a/b; Winsley 2007).

In the years following a new tree planting, Park Maintenance staff provide training pruning for young park trees. For trees planted within the LLMDs, the landscape contractor conducts training pruning for newly planted trees. Training provides an opportunity to address structural issues when trees are small. Removing undesirable branches when they are small is better for the tree and also more cost-efficient. Smaller cuts heal more quickly, require less time and safety considerations for tree crews, and reduce the need for debris disposal. The benefits of providing training pruning now, will result in trees with better structure and reduced costs for maintenance in the future.

According to Municipal Code, along with irrigating, residents are also responsible for fertilizing street trees. In most cases, trees do not need to be fertilized and over fertilizing trees can negatively affect their water efficiency and growth rates (University of Georgia, 2020). As such, residents being responsible for fertilization is likely not conducive to tree health. Properly diagnosing nutrient deficiencies or toxicities requires consultation from a well-qualified plant health care provider and in many instances a soil test might be required, as diagnosing these issues is challenging due to similar symptoms of deficiency between nutrients.

## Right Tree, Right Place

The practice of installing the optimal species for a particular planting site is known as the “**Right Tree, Right Place**”. This philosophy considers the effects of tree growth on existing and planned utilities, existing landscape, and other infrastructure. Factors to consider include, planter size, soil characteristics, water needs, as well as the intended role and characteristics of the species. By considering the long-term consequences of planting a particular tree in a particular place, conflicts and premature removal of trees can be avoided.

Proper consideration for species selection and planting location has not always been provided. Some species were planted heavily at different periods in the history of Yuba City's urban forestry program. A few of these species are costly to maintain, some are poorly suited to the local climate, and others drop unwanted debris. As such, Parks Maintenance staff are considering the past performance of certain tree species when determining future species selection. For example, due to their high-water use, periods of prolonged drought and watering restrictions, tulip tree (*Liriodendron tulipifera*) and coast redwood (*Sequoia sempervirens*) are no longer planted. Due to their prevalence in the current inventory, crape myrtle (*Laegerstromia indica*, 7.7%) and maple species (*Acer*, 28%) are limited in future plantings.

Like many communities, Yuba City experiences tree-hardscape conflicts. Narrow park strips and past species selection both contribute to roots of trees growing underneath sidewalks and cause lifting and heaving. To avoid such conflicts in the future, Parks Maintenance staff are recommending that species that have a reputation for hardscape conflicts be reserved for better suited, open areas with adequate space for root spread and growth, as well as advocating for widening of park strips where possible. To address heaving/lifting sidewalks,

Parks Maintenance staff coordinate with Public Works to conduct sidewalk repairs and perform root pruning when needed.

Shade trees are preferred street tree plantings because they provide greater environmental benefits when compared to palms. While the city has never planted palms in the public rights-of-way, residents in certain neighborhoods in Yuba City prefer palms. In some cases, residents have removed shade trees in the public easement and replaced them with palms. Palms are not included in Yuba City's street tree list due to their high maintenance needs and limited shade production. Unlike most trees, palms often require annual maintenance to remove dead and dying fronds before they are dislodged by wind or time. Neglect can result in dead fronds and fruit stalks which can create sidewalk hazards. Furthermore, some species of palm can reach substantial heights and if planted under power lines, must be removed because they cannot be directionally pruned to avoid contact. However, there are some small-statured palms and trees recommended for use near and under power lines, which can result in fewer of these conflicts (PG&E, n.d.).

## Palm Species

Like many communities in the Central Valley, Yuba City has palm species in the city inventory. There are currently 79 palms planted on public property. While some might see palm trees as synonymous with California, there is only one species of palm native to California, the California fan palm (*Washingtonia filifera*). All other palms are imported, but popular and widely planted.

While the name “palm tree” would suggest that palms are trees, they are actually more closely related to grasses than trees. Palms are vulnerable to numerous pests, including South American palm weevil, Fusarium fungus, polyphagous shot hole borer, red ring, sudden crown drop, and pink rot.

Palms are known to be fast growing and are aesthetically pleasing, but do not provide the same environmental benefits as hardwood trees. In fact, a study comparing the effects on microclimates of three tree species (date palm, *Ficus retusa*, and *Tipuana tipu*) with different canopy characteristics determined that the date palm was ineffective at cooling (Shashua-Bar et al, 2010). In addition, palms require more frequent maintenance than hardwood trees. Neglect can result in dead fronds and fruit stalks which can create dangerous conditions. Commonly, annual, or bi-annual maintenance is needed to remove dead and dying fronds before they are dislodged by wind or time. Palm frond skirts can be a fire hazard and are a potential hazard to tree workers. Yuba City currently maintains palms on a 2-year cycle. Because fronds demand more maintenance, the cost to manage palms is higher than caring for hardwood tree species.

In order to increase environmental benefits and the return on investments, Yuba City prohibits the planting of palms in the rights-of-way. Some exceptions exist for areas where palms provide “character”, such as community entrances.







## *Adapting to Climate Change*

Increasingly, cities are recognizing that shifts in weather patterns are likely to alter species habitat ranges and render some species less adapted to the region. Research on climate change in complex urban ecosystems is challenging and still evolving. Although there is no clear consensus on the future outcomes, it is thought that extraordinary weather events are likely to increase in years to come. In Yuba City, regional climate projections estimate the urban forest could face significant damage due to excessive heat and flooding. By 2035, average annual daily maximum temperatures are predicted to rise by approximately 1°C and precipitation patterns may vary 20 inches above or below average (Yuba City, CA Tree Canopy & Land Cover Assessment, 2020). As temperatures rise and precipitation patterns fluctuate from historical norms, existing trees must adapt or succumb to the changes in climate. Impacts on urban forestry programs may include:

- Health and structural impacts on tree species that are not adapted to new and changing conditions
- Increase in pests and disease as a result of changes in temperature, precipitation, and tree stress
- Additional costs for mitigation and tree removal for marginal species
- Canopy loss, especially where key species (e.g., predominant species) become marginalized

Trees can adapt to climate change by changing their range (e.g., expanding northward and to a higher elevation) or contracting their range. In a study of North American tree species, more than half were contracting their ranges in response to climate change (Zhu, et al 2012). With a potential for an increase in maladapted species in the tree population and the potential for urban areas to exacerbate the stresses, it is important to incorporate plantings of promising new species and then proactively monitor and select high performing species for new plantings. Climatic events (e.g., storms, drought, wildfire), disease or pest outbreaks, land use changes, and other stressors can severely affect the urban forest and the flow of benefits and costs over time. Increasing species diversity and tracking species performance can help managers determine suitable species and lessen the detrimental consequences in the event species are susceptible to changes in climate and urbanization.

## TREE REMOVALS

Residents can also submit service requests for removals. Oftentimes, these requests for removals are for otherwise healthy city trees. In these cases, Park Maintenance staff follow Municipal Code tree maintenance and removal policies. Tree removals and stump grinds in the LLMD are also addressed by the city contractor. Municipal Code prohibits the removal of community trees without a permit and mitigation planting; however, illegal removals do occur. If a resident chose to remove a healthy tree without a permit, the city would not replace the tree. Because Municipal Code does not have any fines for violations of the Tree Ordinance, Code Enforcement has no ability to impose consequences.

Park Maintenance staff incorporate “clean” wood chips generated from tree maintenance at the city water treatment facility, in open space, at ball fields, and at Feather River Parkway. In some instances, Park Maintenance staff will divide up large trees into firewood and residents can take the wood on a first-come, first-served basis. But most tree debris are sent to the local green waste program where it is made into compost.

## PEST MANAGEMENT

Parks Maintenance contracts with a landscape company to chemically treat trees that have historically received complaints due to pests and nuisance insects. Complaints have primarily been to report street trees with aphids, which exude a sticky residue onto parked cars. In these instances, trees are systemically treated with a neonicotinoid class of insecticides on a bi-annual basis. The city invests approximately \$25,000 annually in preventative applications. Insecticide resistance can occur when insecticides with the same mode of action are applied over subsequent years. Integrated Pest Management (IPM) practices should be used to address infestations and to prevent insecticide resistance in insect populations. Other complaints include concerns over the boxelder bug. These insects are not harmful to tree health but tend to congregate in homes and vehicles. In September of 2020, applications using an insecticide (bifethrin) and laundry detergent were tested to decrease these pests congregating on the trunks of maple trees in the public rights-of-way. Parks Maintenance staff determined that the insecticide and laundry detergent applications were equally effective at reducing the insect population.

## *Preventing Insecticide Resistance*

Integrated Pest Management (IPM) uses a variety of biological, chemical, cultural, and mechanical controls in order to lessen the selection pressure from one control tactic. The basis behind IPM should also be applied to pesticide management. The premise behind using pesticides in an integrated way is to lessen the selection pressure on the pest population, as this can lead to pesticide resistance problems in the future. Pesticides function differently inside of the organism depending on the mode of action. There are several ways to lessen the selection pressure from a single mode of action. First, if one mode of action is overused, the strong selective pressure causes resistance to evolve at an unprecedented rate. Rather, if modes of action are alternated, diverging selection pressures can help prevent resistance to the individual chemicals applied (Palumbi, 2001). There are several reasons pesticide resistance has occurred, and in many cases, it has to do with recurring suboptimal doses of the pesticide, overuse of a single mode of action, and the lack of new pesticides on the market.

The worst problem with the city's trees are they tear up the sidewalks making it hazardous to walk on.



*Survey Respondent*



# Piercing Sucking Insects and Honeydew

Shade is highly coveted during hot 100-degree days in Yuba City and residents park their cars in the shade of trees to manage the heat. It is not uncommon for car owners to return to their vehicle and find it covered in a sticky film. This substance, commonly called honeydew, is the excrement, or frass, of aphids, soft scale, or other soft-bodied insects. Other plant-feeding true bugs, such as spotted lanternfly, can also create honeydew. These insects feed on the phloem of plants (Cranshaw, 2018). The phloem is the part of the vascular system which moves sugars and other metabolites produced in the leaves down to the roots.

Because these insects are primarily consuming sugar, the waste that is produced is also mostly made up of sugars. The honeydew from these insects drips off the leaves of a tree and onto anything beneath the canopy of the tree.

Aside from the nuisance of the sticky residue, honeydew also is strongly associated with black sooty mold. When honeydew drips onto sidewalks, spores of numerous species of fungi germinate on it, producing black fungal strands (mycelial threads), which give a sooty appearance to the sidewalk or any other surfaces where the honeydew encouraged colonization (Cranshaw, 2018).

Generally, aphids and sooty mold do not harm trees, although sometimes a slight loss in tree vigor can occur. In an effort to manage the undesirable aesthetics and mess from aphids and consequently, sooty mold, the Parks Maintenance staff contract with a landscaping company to inject trees with chemicals to reduce aphid populations in street trees throughout the community. Furthermore, trees that attract higher aphid populations are being avoided for future street tree plantings.

## Crapemyrtle Aphid

In general, the crape myrtle aphid (*Sarucallis kahawaluokalani*) do not pose a major threat to crape myrtle, but they can reduce vigor and decrease flower set. It is important to note that aphid populations fluctuate dramatically depending on the year. Monitoring trees that have historically experienced high levels of aphids is one way to determine if aphids will reach populations above an accepted threshold. In general, allowing for some pests and promoting predatory insects is a more sustainable and less expensive approach to aphid management. Choosing species and varieties that are aphid resistant is important for long term management. Also, one of the most benign treatments is to hose off the aphids with a stream of water.

Insecticide control is marginally successful because it is complicated by aphids' high reproductive capacity (Clemson University, 2019; Dedryver et al, 2010). Furthermore, insecticide applications can kill non-target pollinators and predatory insects that feed upon aphids. The loss of predatory insects allows any surviving aphids to rapidly grow in population. If aphids surpass tolerable levels, there are several alternatives that can provide some level of control (e.g., horticultural oils and insecticidal soaps).

It is also important to monitor for threatening pests and diseases that may cause damage to established trees. Pest management is especially critical as Yuba City is in close proximity to large urban centers (with highly mobile populations) and agricultural lands, which increases the possibility of pest introductions and the implications of the spread of pests. Among the numerous potential pest and pathogen threats, the following have the potential to significantly impact the tree resource:

## Spotted Lanternfly

The spotted lanternfly (*Lycorma delicatula*) was introduced to the United States in 2014, where it emerged as a significant pest to many species of fruit and shade trees. Currently, spotted lanternfly is present in eastern states, including Pennsylvania, New Jersey, Virginia, and Delaware. These insects damage plants with their piercing mouthparts, and cause oozing or weeping at the site of the feeding wounds. Sooty mold is also an indication of spotted lanternfly feeding because this fungus can colonize the sticky fluids that result from feeding damage. Range mapping for this pest predicts suitable habitat in much of California, including Yuba City (Kaplan, 2019). Maples (*Acer*) and oaks (*Quercus*) are Yuba City's community trees most threatened by the spotted lanternfly (USDA APHIS, n.d.).

## Invasive Shot-hole Borer and Fusarium Dieback

The polyphagous shot hole borer and the Kuroshio shot hole borer (*Euwallacea* sp.) contribute to a disease called Fusarium dieback. The disease is present in Southern California (Eskalen, 2015, 2019), and there is concern of its spread northward. The invasive beetles feed on heartwood tissues and fungi that they carry into the tree. Some of the introduced fungi are tree pathogens that disrupt the flow of water and nutrients. Staining and gummosis are indications of beetle entry and exit wounds, and typically cankers form at these sites. The damage causes branch dieback, and over time can kill the tree (Eskalen et al, 2017). These beetles have the potential to colonize healthy or stressed trees and have a large host range consisting of more than 260 plant species. Yuba City has several species of landscape trees such as maples (*Acer*), plane trees (*Platanus*), and oaks (*Quercus*) that are at risk to polyphagous shot hole borer.

## Citrus Greening

Citrus greening (*Candidatus liberibacter asiaticus*) is a bacterial disease spread by the Asian citrus psyllid. The disease causes bitter, hard fruit production, and is among the most concerning pests as it threatens the viability of California's citrus crop. While citrus species represent less than 1% of the public tree population, it is fair to assume that many residences in Yuba City grow citrus trees. Due to quarantines in place to protect California's citrus crop, and the lack of effective treatments, infected trees must be destroyed and disposed of appropriately (Grafton-Cardwell et al, 2019). The result of citrus greening would be losses to canopy on both public and private property.

## Verticillium Wilt

Verticillium wilt is caused by several species of fungal pathogens in the genus *Verticillium*. Over 400 herbaceous and woody plants are impacted by verticillium wilt, including species commonly found in Yuba City such as maple (*Acer*), Chinese pistache (*Pistachia chinensis*) and hackberry (*Celtis*). Several of the more susceptible trees include catalpa (*Catalpa*), and ash (*Fraxinus*). The pathogen can persist in a dormant state in the soil for approximately ten years. Infected trees lack vigor, exhibiting small leaves or sparse canopies. Toward the end of the growing season, leaves may become limp and fall prematurely (Berlanger and Powelson, 2000).

## Emerald Ash Borer

Another pest of concern is emerald ash borer (*Agrilus planipennis*), which has rapidly and consistently spread throughout the eastern United States. All species of ash are susceptible to emerald ash borer, including white ash (*Fraxinus americana*), an abundant species in Yuba City. To date, this pest has killed hundreds of millions of ashes (Emerald Ash Borer Information Network, 2019).

# Pollinators and their Threats

Limiting the use of pesticides, especially on flowering trees, is one way we can protect non-target predatory species and pollinators. Avoiding applying pesticides to trees that are insect-pollinated, such as crape myrtle, promotes pollinator health. Pollinators are essential to plant and animal life. The pollination of landscape plants and economically important fruit and nut producing crops results in many economic, environmental, and socioeconomic benefits. The most abundant and common group of pollinators are insects (US Fish & Wildlife, 2020).

Many of the pollinators in Yuba City are native insect species, as documented by historical records of wild bees and butterflies (Thorp et al, 1983). Honeybees are also common but originate from Europe and typically receive special recognition or appreciation for their role in the creation of beneficial products such as honey and bee's wax. Each year, honeybees pollinate approximately \$10 billion worth of crops, and many of the most relied upon foods are pollinated by wild bees (US Fish & Wildlife, 2020).

In many cases we take pollination services for granted, but because of the recent decline in pollinators, attention has shifted toward finding pest management practices that promote pollinator health. One of the most controversial topics in the decline of pollinators is the use of pesticides. Insect physiology is similar whether the insect is a pest or pollinator (an insect we want to kill or protect, respectively). Therefore, the use of insecticides typically impacts species that we do not intend to harm, such as

pollinator and predator non-target insects. The side effects can be lethal or cause long-term effects. Pesticides can be present in the environment through plant exudates, dust, or water that pollinator and predatory insects come in contact with (Johnson, 2015). Furthermore, water soluble pesticides, some of which are commonly used pesticides for ornamental trees and plants (e.g., neonicotinoids) are present in the floral parts of plants which are frequented by pollinators (Goulson et al, 2015).

Although a contentious topic, several changes can be made in order to decrease the impact pesticides have on pollinator health. Limiting the use of pesticides on flowering trees and following label directions are two most important ways we can protect pollinators. Following pesticide labels is extremely important, because the label will state when it is appropriate to treat the plant (i.e., avoiding insecticide applications when the plant is in bloom, considering wind speed/direction, neighboring plants in bloom) (Purdue Extension, 2016).

It is important to note that these essential, but often overlooked insects are also threatened by other causes such as disease, habitat alteration, and fragmentation that occurs in conjunction with "human endeavor" (development of cities, towns, agricultural fields, and pastures). There is not one group responsible for management of habitat fragmentation or the use of pesticides in our landscapes and food systems. We are all accountable and can promote the protection of pollinators.



## COMMUNITY ENGAGEMENT & OUTREACH

Arbor Day has been celebrated in the community primarily through school assemblies led by Parks Maintenance staff. Parks Maintenance staff present on the history of Arbor Day, provide equipment demonstrations, and plant a tree using proper planting and maintenance procedures with students. The crowd favorite at these events is a demonstration of a winged seed dropped from the bucket truck and explanation how trees reproduce from the falling seeds. The students are then broken up into four groups to further discuss proper tree planting techniques. In 2019, 12 trees were planted at King Avenue Elementary School.

Currently, there is little information about trees on the city website. Increasingly, people look to the city website as a resource. Parks Maintenance staff recognize that a more robust city website for tree-related information would be beneficial for providing quick and accurate answers to residents. Because residents would be able to get answers to the most frequently asked questions, calls to Parks Maintenance staff could foreseeably be reduced. With reduced call volumes, Park Maintenance staff would be able to respond to service requests for trees that require maintenance more quickly. A tree page could further engage and educate the community about the urban forest. Incorporating educational materials to the city website about the benefits of trees, the state of the urban forest, tree care operations, tree selection (the Recommended Street Trees List and the Yuba City Tree Guide), or information on how property owners can best care for trees would provide another avenue to promote community involvement in the urban forest. There is opportunity to advertise outreach activities such as the annual Arbor Day events or volunteer events centered around urban forestry.

## EMERGENCY RESPONSE

The city has an Emergency Operations Center (EOC), which coordinates responses during emergencies. Emergencies, such as storm events that result in damage to trees are rare. While typically not on-call, Parks Maintenance staff do respond to such events and can clear blocked roadways. If needed, the city contractor can be called to respond to tree-related emergency, such as trees that are blown over during business hours, whereas in-house staff will respond during off-hours. All staff participate in emergency training provided by the city safety training contractor.

Historically, most trees impacted by storms are private trees, as most city trees are smaller and do not cause as much damage. Parks Maintenance staff will chip or cut private trees and leave the debris in a property owners' yard. City trees will be chipped and stored at the wood bin at the Corporate Yard and later diverted to green waste.



Involving young children in planting and education of importance of trees is huge.



*Survey Respondent*

## FUNDING

Stable and predictable funding is critical to effective and efficient management of the urban forest. Trees are living organisms, constantly growing, and changing over time and in response to their environment. There are a number of factors that affect tree health and structure, including nutrition, available water, pests, disease, wind, and humidity. While it might seem like most changes to trees take a long time to occur, some specific maintenance is critical at certain stages of life. For instance, young trees benefit greatly from early structural pruning and training. Minor corrections that are simple can be applied with low costs when a tree is

young. However, if left unattended they can evolve into very expensive structural issues and increase liability as trees mature (at which point it may be impossible to correct the issue without causing greater harm). Over mature trees often require more frequent inspection and removal of dead or dying limbs to reduce the risk of unexpected failure. A stable budget allows urban forest managers to program the necessary tree care at the appropriate life stage when it is most beneficial and cost effective. Currently, the average annual cost to maintain a community tree in Yuba City is \$31.66 (Yuba City Urban Forest Resource Analysis, 2020).

TABLE 6: ANNUAL INVESTMENTS IN THE COMMUNITY TREE RESOURCE

Investments	Total (\$)	\$/tree	\$/capita
Purchasing Trees & Planting	4,000	0.34	0.06
Pruning	270,000	22.79	4.16
Removal	10,000	0.84	0.15
Pest and Disease Control	25,000	2.11	0.39
Irrigation	1,000	0.08	0.02
Litter clean-up	5,000	0.42	0.08
Repair/Mitigation of Infrastructure Damage	60,000	5.07	0.92
<b>Total Investment</b>	<b>\$375,000</b>	<b>\$31.66</b>	<b>\$5.78</b>

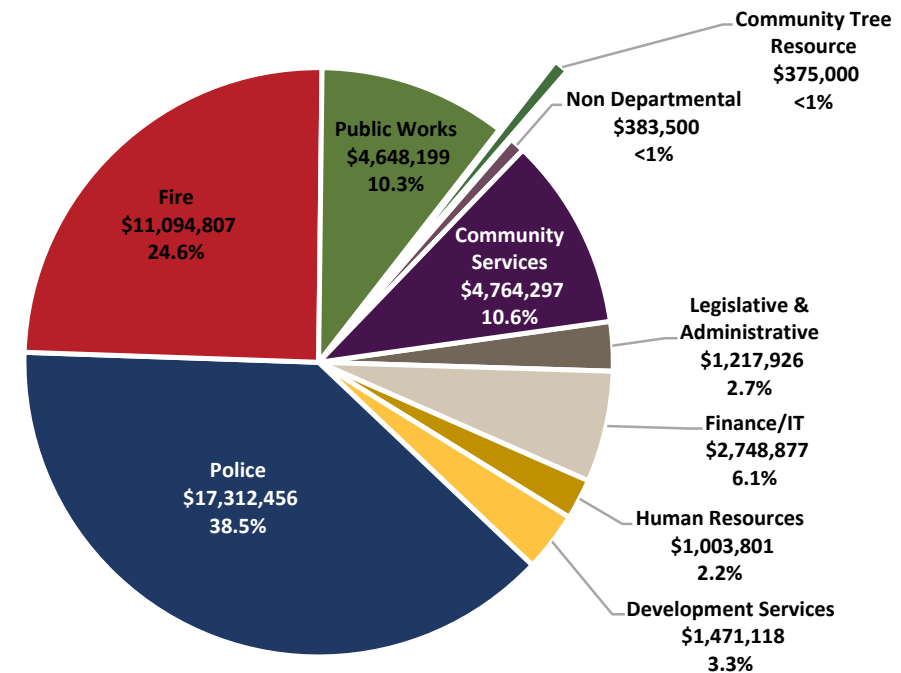
## SUMMARY OF ANNUAL FUNDING

Trees in parks and at city facilities are maintained using funding from the General Fund. In total, less than 1% of the annual budget is allotted to the care of community trees in park and facility properties (Figure 7).

Other community trees in Yuba City are maintained through Lighting and Landscape Maintenance Districts (LLMDs) where residents pay a fee to support a higher level of tree care along with other amenities (e.g., streetlights). In total there are 84 LLMDs that comprise 1,849 acres with an average of 11.4% tree canopy cover (Yuba City, CA Tree Canopy and Land Cover Assessment, 2020).

Trees that are not located within city parks, at city facilities or an LLMD are funded through the Street Tree Fund. The Street Tree Fund is supported through a gas tax, which provides approximately \$80,000 annually for contractor services.

FIGURE 7: ANNUAL GENERAL FUND BUDGET



Ask residents to serve the community by helping plant trees. We would be happy to!

*Survey Respondent*



## INTERNAL PARTNERS

While the maintenance and care of community trees is primarily the responsibility of the Parks Maintenance Division, other internal departments and teams share responsibility for tree management, regulation, advocacy, and planning.

### Public Works—Street Maintenance

Public Works is responsible for maintaining the streets, sidewalks, curbs, and gutters. The Municipal Code calls for collaboration between Public Works and the Parks and Recreation Department when improvement projects impact street trees. Street Maintenance and Parks Maintenance staff coordinate and work together to resolve conflicts around trees, which may result in root pruning or rerouting of sidewalks as alternatives to removal. Additionally, Public Works notifies Parks Maintenance staff when any improvement projects occur in close proximity to established street trees. However, Tree Protection Zones (TPZ) are not required, which may result in accidental damage to trees that are recommended to be preserved. Adjacent property owners are required to maintain the public rights-of-way per Title 6 of Municipal Code. Residents can conduct repairs to sidewalks and curbs after acquiring encroachment permits with the city prior to completing work.

### Public Works—Engineering

Engineering is responsible for Capital Improvement Projects (CIP). While most CIPs are small projects that do not typically involve street trees, in the instances where street trees are impacted, Engineering coordinates with Parks Maintenance staff to provide protection during construction.

### Public Works—Water Distribution

Waterlines are located under streets in neighborhoods with park strips and in neighborhoods with no park strips, water lines are located in the front yards. Street trees mostly grow under water lines and cause breaks from underneath. Street trees have impacted water mains, but this is likely a result of sandy soils.

## Development Services—Planning

Development Services oversees building permit issuance and land entitlement processes where staff work to implement city standards, including irrigation, landscaping, and shading requirements. Parks Maintenance staff review permits and designs and can make recommendations for species selection and changes in design, especially for the expansion for the width of park strips. The Recommended Street Trees List and the Yuba City Tree Guide presents a challenge for the development of parking lots, as the canopy cover that species will achieve within 15 years is not apparent.

## Community Services—Parks Division

Community Services oversees parks and LLMDs. Community Services and Parks Maintenance collaborate to provide maintenance to street and park trees.

## Development Services—Code Enforcement

Code Enforcement frequently responds to complaints regarding trees on private property which are obstructing public elements such lights and signage. Parks Maintenance and Code Enforcement primarily coordinate on addressing clearance and visibility concerns for private trees. Although property owners are provided notice and timelines requiring that these issues be addressed, response is often slow and Parks Maintenance staff are unable to assist, due to lack of ability to charge the property owner for the work performed.





## PARTNERS

### Pacific Gas and Electric

Tree and utility conflicts are a common source of concern for electric providers. Trees that grow into power lines can cause electrical outages and fires. They can even conduct an electric shock to someone who comes into contact with a tree that is contacting a high-voltage line.

In California, all utility providers are subject to General Order 95; Rule 35 Vegetation Management (California Public Utilities Commission, revised 2012) and FAC-003-2 Transmission Vegetation Management (NERC), which outline requirements for vegetation management in utility easements. These requirements include clearance tolerances for trees and other vegetation growing in proximity to overhead utilities.

Many street trees located under power lines are too large for the site, requiring extreme pruning to maintain clearance. Selecting small-stature tree species that are utility friendly for planting sites in utility rights-of-way can minimize the need for these maintenance activities.

### CAL FIRE

Under the authority of the Urban Forestry Act (PRC 4799.06 - 4799.12), the California Department of Forestry and Fire Protection's Urban & Community Forestry Program works to expand and improve the management of trees and related vegetation in communities throughout California.

The mission of the California Department of Forestry and Fire Protection's Urban Forestry Program is to lead the effort to advance the development of sustainable urban and community forests in California. 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, improve public health, provide wildlife habitat, and increase property values. In short, they improve the quality of life in urban environments, which, increasingly, are where Californians live, work, and play. The program also administers State and Federal grants throughout California communities to advance urban forestry efforts ([fire.ca.gov](http://fire.ca.gov)).

### Yuba City Tree Advisory Group

In 1999, to satisfy the requirements for Tree City USA, the Tree Advisory Group was created. The Tree Advisory Group is made up of members of the Parks and Recreation Commission. Agenda items regarding Tree Advisory Group interests are included in the overall Parks and Recreation Commission Meeting, which occurs quarterly. The Tree Advisory Board helps determine the type of trees recommended for public plantings, disseminate tree-related information, and serve as advocates for tree-related activities.

### Youth Commission

The Yuba City Youth Commission is an active group that advises the City Council, City Manager, and Parks and Recreation Department on policies involving youth recreational programs. This group not only promotes increased youth involvement in municipal government, but also aids in identifying solutions to problems, addressing youth's concerns, and promoting youth activities and community involvement.

### Friends of Yuba City Parks and Recreation

The mission of Friends of Yuba City Parks and Recreation is to raise, distribute, and assist in the management of public and private sector funds for enhancements to the city of Yuba City park facilities and Parks and Recreation program.

### Yuba City Unified School District

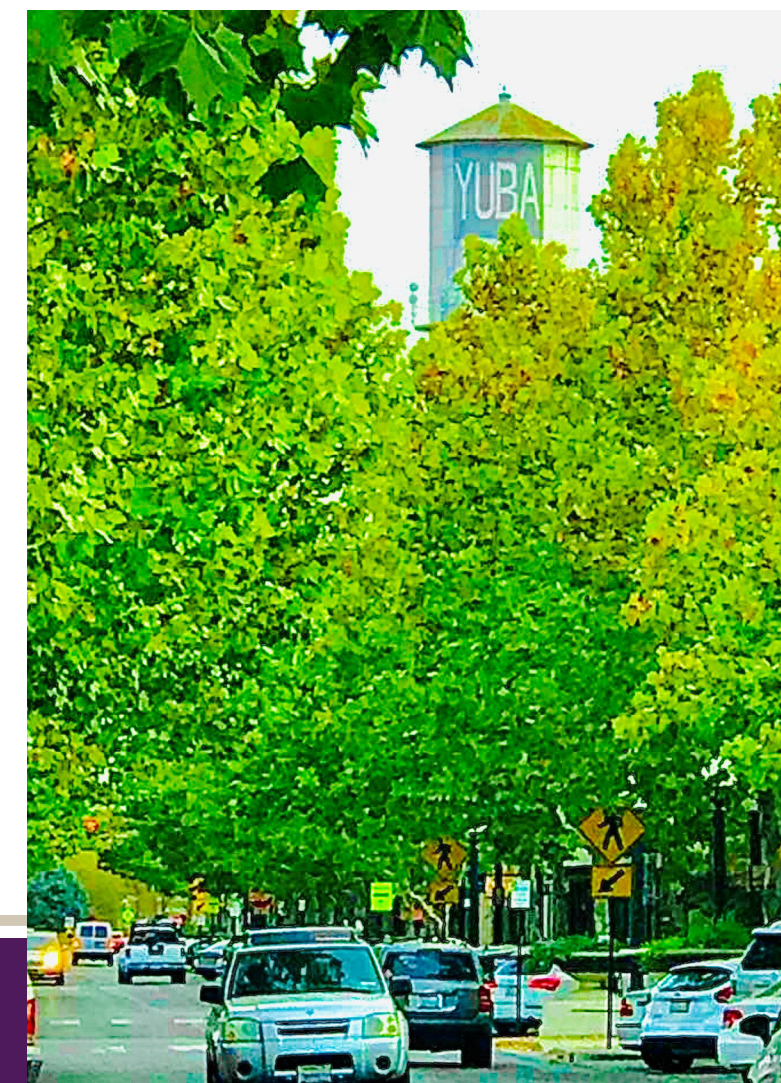
The Yuba City Unified School District has a strong relationship with the city. Parks Maintenance staff coordinate with schools to host Arbor Day events.

### Yuba City Summer at City Hall

Yuba City Summer at City Hall is a program for high school students to shadow professionals for two weeks in the summer to explore a career interest. Through the program there have been students with an interest in Parks and Recreation who have shadowed Parks Maintenance staff and learned about tree care in Yuba City's parks (Yuba City Summer at City Hall Job Shadow Brochure, 2016).

### Shady Creek Summer Camp

Sixth graders, as part of their curriculum, participate in an environmental camp through the Shady Creek Outdoor School every year. Students learn about the environment through this summer program and the city is interested in expanded partnership with the local schools to support this and other environmental programming and education.



## Policy and Regulation

Urban forest management operations are influenced by and subject to regulations, policies, and guidance from federal, state, and local direction. The following section provides a summary of the regulatory and guiding policies explored during the development of this Plan. Additional regulations and policies may also apply.

### FEDERAL AND STATE LAW

#### Endangered Species Act

Signed in 1973, the Endangered Species Act provides for the conservation of species that are endangered or threatened throughout all or within a significant portion of their range, as well as the conservation of the ecosystems on which they depend. The listing of a species as endangered makes it illegal to “take” (i.e., harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to do these things) that species. Similar prohibitions usually extend to threatened species.

#### Migratory Bird Treaty Act (MBTA)

Passed by Congress in 1918, this Act defines that it is unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg of any such bird, unless authorized under a permit issued by the Secretary of the Interior.

The Migratory Bird Treaty Act can impact forestry operations during times when birds are nesting, which may delay work in order to avoid violating the MBTA.

#### California Urban Forestry Act

Section 4799.06-4799.12 of the California Public Resources Code defines a chapter known as the California Urban Forestry Act. The Act defines trees as a “vital resource in the urban environment and as an important psychological link with nature for the urban dweller.” The Act also enumerates the many environmental, energy, economic, and health benefits that urban forests provide to communities.

The purpose of the Act is to promote urban forest resources and minimize the decline of urban forests in the state of California. To this end, the Act facilitates the creation of permanent jobs related to urban forestry, encourages the coordination of state and local agencies, reduces, or eliminates tree loss, and prevents the introduction and spread of pests. The Act grants the authority to create agencies and mandates that urban forestry departments shall provide technical assistance to urban areas across many disciplines (while also recommending numerous funding tools to achieve these goals).

#### Model Water Efficient Landscape Ordinance (MWELO)

To promote the conservation and efficient use of water and to prevent the waste of water, a Model Water Efficient Landscape Ordinance (MWELO) was adopted in 2009 and later revised in 2015. The Ordinance requires increases in water efficiency standards for new and retrofitted landscapes through the use of more efficient irrigation systems, greywater usage, and onsite stormwater capture. It also limits the portion of landscapes that can be covered in turf.

#### California Global Warming Solutions Act

In 2006, the California Global Warming Solutions Act (Assembly Bill 32) was implemented to reduce greenhouse gas emissions. Through this Act, California was the first state in the nation to initiate long term measures to help mitigate the effects of climate change through improved energy efficiency and renewable technology. California approached the goal to reduce emissions to 1990 levels by 2020 through direct regulations, market-based approaches, voluntary measures, policies, and programs. The 2015 update set targets to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030.

#### California Solar Shade Control Act

Passed in 1978, California’s Solar Shade Control Act supported alternative energy devices, such as solar collectors, and required specific and limited controls on trees and shrubs. Revised in 2009, the Act restricted the placement of trees or shrubs that cast a shadow greater than ten percent of an adjacent existing solar collector’s absorption area upon the solar collector surface at any one time between the hours of 10 a.m. and 2 p.m.

The Act exempts trees or shrubs that were:

- Planted prior to the installation of a solar collector.
- On land dedicated to commercial agricultural crops.
- Replacement trees or shrubs that were planted prior to the installation of a solar collector and subsequently died or were removed (for the protection of public health, safety, and the environment) after the installation of a solar collector.
- Subject to city and county ordinance.

#### Yuba City Municipal Code

Yuba City Municipal Code has six Titles that include provisions that impact trees, tree care, or the urban forest:

##### Title 3 Finance

Discourages the use of parking or business improvement area revenues to offset capital improvement projects, some of which may include tree maintenance.

##### Title 4 Public Safety

Outlines visibility requirements and tree obstructions along streets, intersections, and alleys. Prohibits overgrown, diseased, dead, or decayed trees on private property that create an unsightly appearance or are dangerous to public safety and welfare. Defines rubbish to include tree parts.

##### Title 5 Public Welfare, Morals, and Conduct

Requires notice and authorization for any tree maintenance around wires, facilities, or cable equipment.

##### Title 6 Public Works

Requires residents to acquire a permit with Public Works to complete any construction, reconstruction, removal, or demolition of curbs, gutters, sidewalks, or driveways in the public rights-of-way. Defines when tree branches are acceptable in refuse. Prohibits tree or shrub trimmings in the public rights-of-way. Describes circumstances that justify water restrictions.

City has [to] strike a balance between solar and trees.



*Survey Respondent*

## Title 8 Planning and Zoning

*Planning:* Outlines landscape plan requirements for projects. Encourages the preservation of healthy existing trees in lieu of planting new trees. Presents report and map requirements for subdivision developers, which include trees.

Landscape design standards that relate to trees follow:

- Minimum clearance for tree visibility obstructions.
- Type of tree and spacing for public trees.
- Tree and plant material standards.
- Parking lot canopy and design standards.

Allows the city Attorney to enforce tree height, safety, or nuisance violations and designates responsibility for amending the situation.

Addresses tree installation and maintenance requirements for street trees and trees used for screening. Designates property owners responsible for the care of trees in rights-of-way adjacent to private property. Defines required tree maintenance and protection. Recognizes that removal and replacement may be necessary. Prohibits any person from posting signs or posters on trees.

*Zoning:* Regulates the presence and size of trees around airport approach zones and tree ratios in land designated for parking.

## Title 9 Parks and Recreation

Explains the structure and duties of the city's Tree Advisory Board. Defines tree-related terms as they apply to the ordinance.

Designates the responsibility of the city, developers, and property owners for maintenance of rights-of-way trees.

Requires a comprehensive street tree plan. Provides safety and visibility requirements relating to trees. Allows the Director to enter private property to inspect or require the removal of nuisance trees.

Provides tree protections for physical damage and removal. Requires notification and permission for utility work that impacts trees. Explains the permit process and mitigation responsibilities for the removal of street trees adjacent to private property. Outlines the permit requirements to install above-ground containers with tree plantings in the public rights-of-way. Requires plans and permits for rights-of-way trees in new developments.

## YUBA CITY RESOURCE EFFICIENCY PLAN

The Resource Efficiency Plan is a document meant to reduce greenhouse gas emissions by the community and municipal operators in Yuba City. It identifies ten goals to decrease greenhouse gas emissions. Goals 3 and 6 emphasize the importance of the community forest in cooling the urban environment through shading and evapotranspiration, and include the following:

### Goal 3: Increase Efficiency in Community Buildings and Infrastructure

Measure 3.3, Plant Trees for Shade and Carbon Sequestration, recommends the strategic placement of trees around buildings to provide reduced interior temperatures through tree shading effects. Acknowledges the benefit trees provide by sequestering carbon. Realizes that planting new trees, in addition to replacement plantings, will support this goal.

### Goal 6: Decrease Energy Demand through Reducing Urban Heat Island Effect

Measure 6.1, Tree Planting for Shading and Energy Efficiency, recommends the use of vegetation to increase shading in parking lots. Calls to create a community group involved in tree planting and developing a city tree planting program.

Includes an environmental checklist and impact evaluation for discretionary, proposed projects. Calls for the preservation of heritage oak trees and other native trees of substantial size, as well as restrictions on planting trees to protect archaeologically relevant sites.

### Sutter County Climate Action Plan

Similar to the Yuba City Resource Efficiency Plan, the Sutter County Climate Action Plan aims to reduce greenhouse gas emissions in the

community with the end goals of having a more livable community and helping Sutter County reach the emission targets set by the State in the California Global Warming Solutions Act (Assembly Bill 32).

**Section 3: Emissions Inventory** considers the greenhouse gases emitted as a result of the use of landscape equipment, planting, and fertilizing community trees.

**Section 4: GHG Emissions Reduction Programs and Regulations** provides measures meant to decrease energy consumption. Trees are encouraged to reduce energy consumption through shading and evapotranspiration. The plan calls for strategic tree plantings to harness the cooling effects of trees along pedestrian routes and alongside residential and commercial buildings.

Requires new developments to follow Sutter Pointe water conservation measures by planting drought tolerant plants and implementing efficient watering systems. Encourages new developments to implement landscape strategies that reduce the heat island effect, including the incorporation of ornamental shade trees and the deliberate placement of trees for optimal shading of parking lots and buildings.

Evaluates increasing tree planting efforts within the County and the implementation of a forestry program. The forestry program is judged on greenhouse gas reduction criteria. A program would be supported if the net emissions decrease upon the implementation of a program. The emissions associated with tree management and irrigation are taken into consideration.

## Watering Your City Tree

Newly planted trees need to be watered more often than mature trees; two to four times per week in the summer depending on the soil type (sandy soils require more frequent watering than clay soils). Every time a newly planted tree is watered, it should receive 10–20 gallons of water depending on the size of the root ball.

## YUBA CITY GENERAL PLAN

The Yuba City General Plan is a document adopted by the city Council that provides the following:

- Visions for Yuba City's future physical and economic development
- Strategies and specific actions that will allow this vision to be accomplished
- Bases for judging whether specific development proposals and public projects are in harmony with community goals
- Authorizes the design of projects that will enhance the character and safety of the community and preserve environmental resources
- Guides planning and implementing programs (e.g., the Zoning Code, specific plans, impact fee studies, and the Capital Improvements Program)

The General Plan has ten chapters, seven of which pertain to the urban forest, including the following:

**Chapter 3 Land Use Recommends** the development of new parks with increased connectivity to open spaces.

**Chapter 4 Community Design Encourages** and recommends the use of trees and other landscaping be incorporated into designs in public areas to help accomplish the following:

- Distinguish entries into the city and delineate the urban rural edge.
- Enhance community character and delineate themes within the city.
- Provide shade to parking areas with pedestrian walkways, streets, and sidewalks to make roadways and corridors more pedestrian friendly.
- Provide visual buffers from non-residential buildings (e.g., industrial, and commercial developments) and fencing.

**Chapter 5 Transportation** advises the use of tree lined parkways and landscaping as part of frontage improvements in the rights-of-way.

**Chapter 6 Parks, Schools, and Community Facilities** aims for ample parkland with lush landscaping that still maintains visual permeability.

**Chapter 7 Public Utilities Proposes** public education on woody waste recycling.

**Chapter 8 Environmental Conservation** identifies trees as important habitat for wildlife in natural areas. Specifies threats to historic vegetation, including oak woodlands. Provides guidelines to conserve heritage oak trees and other native trees of significant size in specified areas of Feather River habitat. Promotes drought tolerant plants and the use of urban trees to reduce air pollutant levels.

**Chapter 9 Noise and Safety** suggests buffering noise levels through design and landscaping features. Indicates trees can be used to control erosion, as they add structure to the soil and take up moisture.

### Sutter County Multi-Hazard Mitigation Plan

According to a 2007 Sutter County Multi-hazard Mitigation Plan, river bottom areas along the Feather River (approximately 790 acres of land along a six-mile stretch) are the most vulnerable to wildfire. Wildfires have devastated many communities across California, and this is especially true for Yuba City. With the 2018 Camp Fire, which is the deadliest and most destructive wildfire in California history and devastated the neighboring towns of Paradise and Concow, Sutter County and Yuba City are looking for ways to mitigate the risks associated with living in the wildland urban interface (WUI).



# Analysis of Sustainability Indicators

The Sustainability Indicators is a tool based on the *Characteristics of Urban Forest Sustainability* as defined in the 1997 *Journal of Arboriculture* article “A Model of Urban Forest Sustainability”, which describes specific criteria that can be used in conjunction with measurable indicators to evaluate sustainability (Clark et al). Having been designated as a Tree City USA for the last 20 years and with a Parks and Recreation Department responsible for the care and maintenance of park and neighborhood trees in the public rights-of-way, Yuba City has built a strong foundation for an exceptional urban forestry program.

To identify goals and areas where the urban forestry program can be improved, managers can regularly assess, evaluate, and indicate the current performance levels of the urban forest through the Sustainability Indicators. While the Sustainability Indicators is a useful tool for assessing the current status of an urban forest program, it does not necessarily provide a comprehensive review of all the areas in which a program could be improved. The Sustainability Indicators does provide an opportunity for managers to benchmark their current conditions and understand how they can be improved to meet industry recommendations and then establish performance measures to improve the effectiveness of their management approach (Kenney, et al 2011). The criteria for the Sustainability Indicators were used as a reference to assess the current urban forestry practices in the city and provided the framework for describing what current urban forest management looks like and steps to advance urban forest management. Overall, Yuba City’s urban forest program is performing at a medium level and a detailed report of the results of the assessment can be found in Appendix I.

TABLE 7: YUBA CITY SUSTAINABILITY INDICATORS SCORE CARD

Indicators of a Sustainable Urban Forest		Assessed Performance Level		
		Low	Medium	High
The Trees	Urban Tree Canopy		X	
	Equitable Distribution		X	
	Size/Age Distribution		X	
	Condition of Public Trees - Streets, Parks			X
	Condition of Public Trees - Natural Areas		X	
	Trees on Private Property		X	
	Species Diversity		X	
	Suitability		X	
	Soil Volume		X	
The Players	Neighborhood Action	X		
	Large Private & Institutional Landholder Involvement	X		
	Green Industry Involvement		X	
	City Department/Agency Cooperation		X	
	Funder Engagement		X	
	Utility Engagement		X	
	Developer Engagement		X	
	Public Awareness		X	
	Regional Collaboration	X		
The Mgmt Approach	Tree Inventory			X
	Canopy Assessment			X
	Management Plan			X
	Risk Management Program		X	
	Maintenance of Publicly-Owned Trees (ROWS)		X	
	Maintenance of Publicly-Owned Natural Areas		X	
	Planting Program		X	
	Tree Protection Policy		X	
	City Staffing and Equipment		X	
	Funding		X	
	Disaster Preparedness & Response		X	
	Communications		X	
<i>Totals</i>		3	23	4

## THE TREES

Among the three assessment categories, The Trees is the strongest performance area, with most criteria meeting the medium level of performance.

The 2020 Tree Canopy and Land Cover Assessment revealed that currently the community has 19.1% canopy cover, which is an increase from 14.7% canopy cover in 2003, despite ongoing developmental pressures. Like many California communities, development will continue to put pressure on urban forest growth and result in additional competition for space for trees. Some developers are advocating for omitting the use of park strips in new neighborhoods, which would allow for more space for homes, yet, with current set-backs, the amount of space available for a tree in a front yard as an alternative is limited and would likely not support large-stature mature trees. Coupled with potential pest threats and changes in climate, without proactive management existing canopy cover may be greatly reduced.

Community engagement and discussions with city staff resulted in identifying a canopy goal of 25% by 2040. To meet this goal, the city will need to prioritize tree planting and maintaining the current tree canopy throughout the city, both on public and private property. The development and implementation of planting plans will maximize the amount of planting space and funds on public property, as well as target areas with the greatest need for canopy benefits. Whereas targeted engagement will support canopy growth on private property. Furthermore, new and redevelopment projects should emphasize that trees are essential and thereby must be included in landscape plans and replaced if damaged or removed. By conducting a land cover assessment every 10 years, managers can understand the trends in canopy loss and expansion and measure progress on canopy goals.

A review of the community tree resource determined that 16.8% of public trees are represented by red maple (*Acer rubrum*), with 27.6% of all trees being a member of the maple genus (*Acer*). To increase resiliency to both pests and potential changes in climate, managers should work to meet the minimum species rule-of-thumb by increasing diversity over time so that no species represents more than 10% of the overall inventory and no genus represents more than 20%.

## THE PLAYERS

Of the assessment categories, *The Players* is perhaps the area with the greatest opportunity for improvement, as this is the only category determined to have low performance levels.

As a whole, the community has a great appreciation for trees. Most notably, as determined by an online survey, residents value trees' contributions to improving air quality and reducing energy costs. Yet, there is very little community involvement or neighborhood action. While the Parks and Recreation Department engages school children with outreach and education events each Arbor Day, there is an opportunity for the Department to provide additional avenues of community engagement that would benefit both the community and the urban forest. Community members have expressed a desire for a variety of outreach and engagement methods. Because many residents are unaware of the issues and potential influence they have on the success of the urban forest, the incorporation of online resources to the city's website is a clear way to move forward and provide educational materials and engage the community in urban forest stewardship. This would allow collaboration with residents, neighborhoods, large landowners, and community groups to advance for urban forestry.

Among other criteria, the urban forest program is performing at a medium level when it comes to City Department Agency Cooperation. The Parks and Recreation Department collaborates with other city departments on projects that impact the urban forest, but could expand collaborations to state departments, neighboring communities, and regional groups. Further collaboration with the community and external partners on urban forestry efforts would bring management to the next level.

## THE MANAGEMENT APPROACH

Finally, *The Management Approach* is the area identified by the assessment to have the most criteria where the urban forestry program is performing at a high level.

Because the urban forest program has a comprehensive and complete GIS-based community tree inventory, an urban forest canopy assessment based on high-resolution tree canopy imagery, and an urban forest planning document, managers have a strong understanding of the current status of the urban forest and a plan to move forward. Maintaining the inventory, completing a land cover assessment within the next 10 years, and regular review of management goals will be critical to sustaining these high-performance levels.

Currently, approximately 200 trees are planted each year. These plantings are primarily to replace trees that have been removed. Principles of right tree, right place are practiced, and managers continue to explore modifications to the tree planting palette to avoid planting species that require substantial amounts of water and to incorporate a greater variety of species, some of which may be better suited for the current and predicted climate. To further improve planting, managers should take advantage of the 1,181 available planting sites as determined by the 2019 tree inventory, as well as increase species diversity and reduce reliance on overrepresented tree species.

A medium level of performance for Tree Protection Policy was assigned based on the adoption of a tree protection ordinance that was enacted in 1968. To move to the next level, updates to the ordinance are needed to ensure adequate protections for community trees and allow for enforcement to protect the resource and the benefits derived from these trees.

While the current funding level allows for service requests to be resolved within two to eight weeks, dynamic funding that allows for the proactive management of trees is critical to advancing the urban forestry program and allow for the Department to address outstanding service requests and allow staff to conduct proactive annual inspections to assess, document, and abate risks more promptly.



# Conclusions

Yuba City has developed a strong foundation to build upon to establish a robust urban forestry program, considering:

- Level of performance in meeting Sustainability Indicators.
- An established tree protection ordinance.
- A comprehensive tree inventory and inventory management system that tracks urban forest assets.
- A Land Cover Assessment that includes GIS mapping of the location and extent of Yuba City's entire tree canopy (public and private).
- A Resource Analysis that benchmarks the composition, benefits, value of the community tree resource.

The Parks and Recreation Department is responsible for the maintenance of 11,846 community trees within the public rights-of-way, parks, and public places. Currently, pruning is complaint driven, and the level of care can vary greatly based on the individual tree. Responding to tree maintenance needs in the LLMD are where the city struggles the most. In some instances, complaints are for private trees, particularly around clearance and visibility, and it would be beneficial for Parks Maintenance staff to be able to address property owner complaints and bill the property owner for the service after. While not specifically tracked previously, it is estimated that the majority of community trees are on a 3- to 4-year pruning cycle. This exceeds the industry recommendations for a 5- to 7-year cycle. Extending the current

pruning cycles may provide an opportunity to address outstanding service requests in a timelier manner.

Current streetscape designs do consider species selection but may not have always adequately accounted for the mature size of trees. Historically, this has resulted in conflicts between trees and other infrastructure. The city frequently experiences hardscape damage in some of the smaller park strips where surface roots lift the concrete. It is important to recognize that impervious surfaces and canopy cover can co-exist in many instances, especially with appropriate design standards. Canopy that extends over hardscape features, including parking lots, streets, and structures can add to the overall amount of canopy cover and reduce the ratio between canopy cover and impervious surfaces. While historical planting of some species in inappropriate sites has resulted in conflicts with hardscape and other infrastructure and contributed to high maintenance costs, when the right tree species are planted in the right place, the shade provided by tree canopy can demonstrably extend the lifespan of materials used in the construction of hardscape features (McPherson and Muchnick, 2005).

Overall, the community values its trees. In fact, through an online survey, community members expressed a desire for additional tree planting throughout the community. By the same token, requests for the removal of otherwise healthy street trees are common. When requests for removals are denied, it is not uncommon for the resident to remove the tree anyway. Managers estimate that there is one removal per day on average, despite a

Municipal Code that prohibits the removal of street trees without a permit. In some instances, street trees that have been illegally removed are replaced by the resident with palms, which are not included in the city's Recommended Street Trees List or the Yuba City Tree Guide list due to maintenance concerns. Community trees are also commonly removed due to a lack of irrigation. Per Municipal Code, adjacent property owners are responsible for irrigating street trees, but many are likely unaware of these responsibilities, which results in tree mortality. Unfortunately, in both instances, the community is losing a resource. To mitigate these losses and support maintenance and tree planting, fines for violations and replacement fees can be deposited into a Tree Fund.

Along with the responsibility to irrigate adjacent street trees, the current Municipal Code defines resident's responsibilities to include pruning and fertilization. While these responsibilities may seem reasonable, improper fertilizing and pruning practices (e.g., "topping") can damage trees beyond repair and result in death and removal. Amending the Municipal Code to clearly define acceptable maintenance tasks for property owners, outlining consequences for harming street trees, intentionally or accidentally, and requiring the replacement of trees will greatly enhance the protection of this community resource.

Pest management is primarily dictated by complaints. In most instances, concerns could be addressed through education and some level of tolerance for issues that do not actually affect tree health. Community complaints about nuisance pests that rarely cause plant damage to

have historically initiated the use of pesticides. A class of insecticides known to be harmful to non-target insects (e.g., pollinators) has been used as a preventative measure, and is sometimes applied to species of flowering trees. These preventative treatments are not warranted. Rather, the department should begin an integrated pest management program to monitor insect populations before treatments. If populations become problematic, then a toolbox of control tactics can be considered to ensure the best treatment options are chosen. Sometimes alternative products, such as those that are less harmful to pollinators, and natural enemies are similar or more effective than insecticides. It is important for the city and the community to understand that wherever trees are planted, wildlife such as insects, birds, and mammals are soon to follow. The products are used for the control of nuisance pests have a cascading effect and potential impacts to all of the organisms associated with the trees.

As the community grows, the city should begin an in-depth discussion with the community on the preservation of significant trees in areas at risk for development or redevelopment. The General Plan has a goal to preserve and enhance heritage oaks, but Yuba City does not currently have a Heritage Tree Ordinance. A Heritage Tree Ordinance can define what a Heritage Tree is (i.e., specific species, large trees, historically significant) and provide protections for such trees, including during development. A Heritage Tree Ordinance would be an important step in recognizing iconic oaks and riparian tree species in the area and help to mitigate the effects of tree removal.

# What do we want?

To better understand how the community values the benefits of the urban forest resource and to provide residents and other stakeholders an opportunity to express their views about management policy and priorities, the plan development process included an electronic stakeholder survey, in person interviews, a community meeting, and community outreach events.

## Managing Partners

While awareness may vary, many individuals and departments within the city share some level of responsibility for the community urban forest, including planning for, caring for, and/or affecting the policy of urban forest assets. City partners were invited to participate in an interview and discussion about their role and perspective for the urban forest as well as their views, concerns, and ideas for the plan. The input from the surveys and meetings will provide vision and direction for managing community trees.

## STAKEHOLDER INPUT

Yuba City stakeholders were asked to communicate their thoughts about management policy and priorities, the development process for the Urban Forest Master Plan (UFMP) included virtual interviews and electronic surveys.

Ten stakeholders were identified by city staff as valuable contacts for the development process of the UFMP. These stakeholders included city contractors, city staff, and a member of the local Tree Board. Beginning in June 2020, a survey was sent to each of the stakeholders. The survey contained ten questions. Virtual meetings with stakeholders allowed for a more nuanced and in-depth discussion of the urban forest and the urban forest master plan. These interviews provided important information about the current function of the Parks Maintenance program and potential for improvement. Concerns, requests, and suggestions from all stakeholders were of primary interest and were provided full consideration in the development of the plan.

1. There is a need for more education regarding the care of trees planted in the public rights-of-way within residential areas. Not all homeowners realize their responsibility to care for these trees or understand the needs of the tree. As a result, not all trees are receiving adequate care, especially when it comes to proper pruning and watering.
2. Illegal removal of trees in the park strip are common. In some neighborhoods, shade trees are being replaced with palms. Palms are not on the recommended street trees list due to the high maintenance costs and because palms do not provide the same benefits as shade trees.
3. Some of the community's large, iconic trees are aging and becoming public safety concerns. The removal of such trees has triggered a strong response from the community, as many residents are nostalgic for these trees.
4. There are cases of root and grey infrastructure (e.g., hardscape or waterline) conflicts throughout Yuba City. In neighborhoods where trees were planted prior to building, they are competing with utility easements, and are often too close to water meters, fire hydrants, and other infrastructure.
5. Trees have a lot of competition for space. Developers are advocating for the discontinued use of park strips to allow for more space for homes. In areas with existing park strips, some residents request to remove trees to accommodate pavement for additional parking and RV access.
6. Overall, the community appreciates trees and primarily values them for environmental benefits, specifically shade and property value increases. The community would welcome further education on the benefits trees provide, especially air quality improvements.
7. The city has long-standing relationships and high rapport with contractors that provide tree maintenance in LLMDs.
8. Funding shortfalls in LLMD's cause some community trees to receive minimal or no maintenance. There is a strong desire for more proactive tree maintenance and long-term planning to ensure community trees obtain the ideal level of maintenance and are included in cyclical/block maintenance.
9. Updates to street tree ordinance could better define expectations around watering, pruning, and nuisance trees, as well as allow the city to impose enforcement for violations.

## Managing Partners

- Public Works Department
  - Engineering
  - Street Maintenance
  - Water Distribution
- Development Services
  - Planning
  - Code Enforcement
  - Community Services
- City Contractors





# Community Engagement

On August 12<sup>th</sup> and 15<sup>th</sup>, September 19<sup>th</sup>, and September 26<sup>th</sup>, 2020, a canopy tent was set up at the Yuba City Farmers Market to increase public awareness and gain community prospective and input for the development of the plan. DRG and city staff were present to give community members a platform to express what they appreciate about the urban forest and what they would like to see in the future.

Community members were able to access the online survey at the farmers market in several ways including verbally to DRG or city staff, via a personal phone or tablet, or by using the provided tablets.

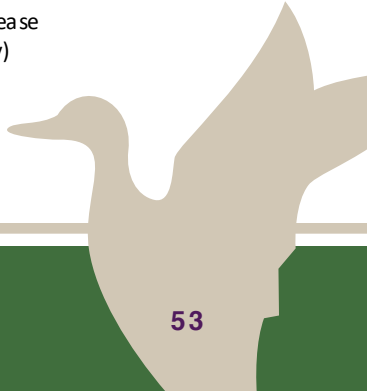
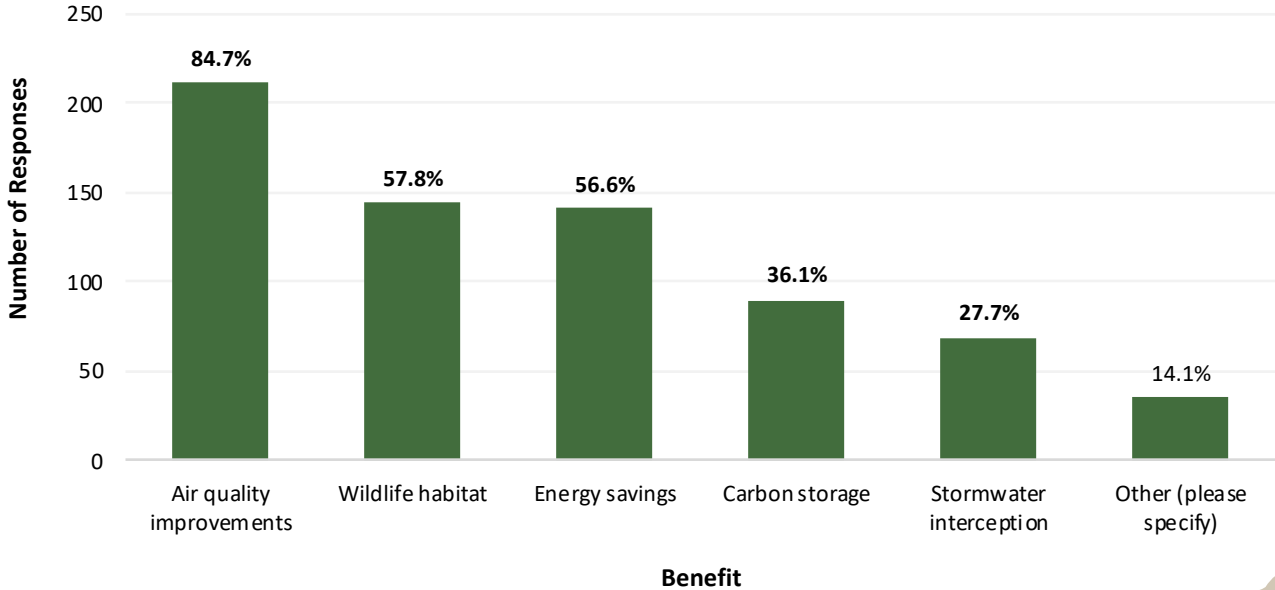
## ONLINE COMMUNITY SURVEY

An online survey, available from July 24 to December 3, 2020 provided additional opportunity for public input into the UFMP development. The survey was available, via a link on Yuba City's website, and promoted at community engagement events such as the Farmers Market. The survey

included a series of 18 questions, including questions about views on tree benefits, education and outreach, urban forestry operations, protection of trees on private property, and collaboration activities. In total, 249 people responded to the survey. The majority of participants (88.4%) were Yuba City residents, but all other participants were frequent visitors of Yuba City and community stakeholders. The complete survey and results (including comments received) are presented in Appendix G.

When asked if trees are important to the quality of life in Yuba City, respondents primarily strongly agree (87.6%). Understanding which benefits are appreciated most by residents can help guide long-term management strategies. In Yuba City, community participants place the most value on the environmental benefits to air quality, wildlife habitat, and energy savings (Figure 8). In addition, the economic, aesthetic and quality of life benefits most appreciated were shaded trails and sidewalks and increased beauty. Also, most respondents (73.5%) were concerned about climate change.

FIGURE 8: TOP 3 ENVIRONMENTAL BENEFITS APPRECIATED BY YUBA CITY RESIDENTS



Awareness of the city's urban forest operations varied, where approximately half were not aware that the city provides care to public trees. Approximately half of participants were satisfied with the current level of maintenance for public trees and preferred the best possible level of maintenance for public trees.

Overall, respondents strongly believe that Yuba City needs more public trees and were supportive of tree planting in all locations (along streets and paths, in parking lots, commercial areas, parks, and open spaces or natural areas).

Survey respondents were interested in a variety of education and public outreach initiatives that could potentially be offered by the urban forest program or volunteer groups, ranging from individual engagement through self-guided nature walks and interpretive displays to in person and online informational programming. When asked about education and outreach events to promote tree planting on private property, respondents indicated that tree giveaways and neighborhood tree planting events were the most appealing, but information resources would also be important.

The top concerns for Yuba City's trees were largely related to canopy loss and the resulting loss of wildlife habitat that could result from the removal of trees for development or other reasons. Participants were also concerned about additional threats (Figure 9).

Currently, city ordinance does not protect trees on private property, except during development. When asked about the potential to develop a city ordinance to encourage protection for oak species or other large or significant trees on private property, more respondents supported the idea (45.2%) than those that did not (23.8%), but 31.1% were neutral or unsure.

Most respondents (82.2%) have at least one tree on their property, but those that did not were largely limited by the amount of space available or are not responsible for maintaining the property.

FIGURE 9: YUBA CITY RESIDENTS' TOP CONCERNS FOR THE URBAN FOREST

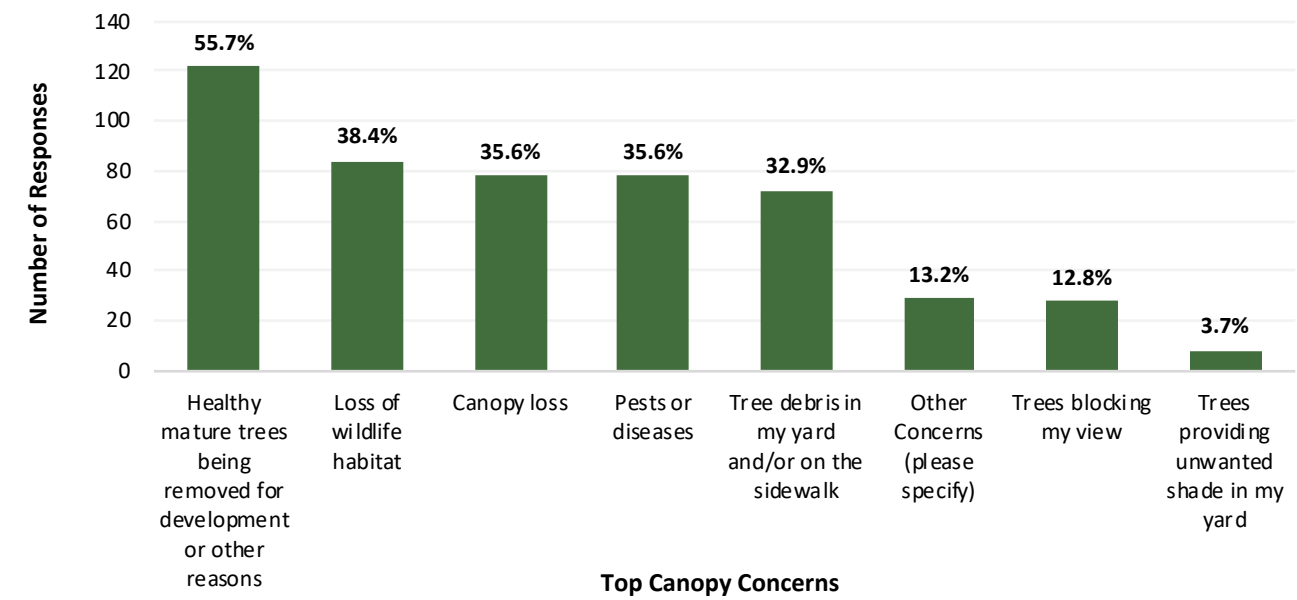
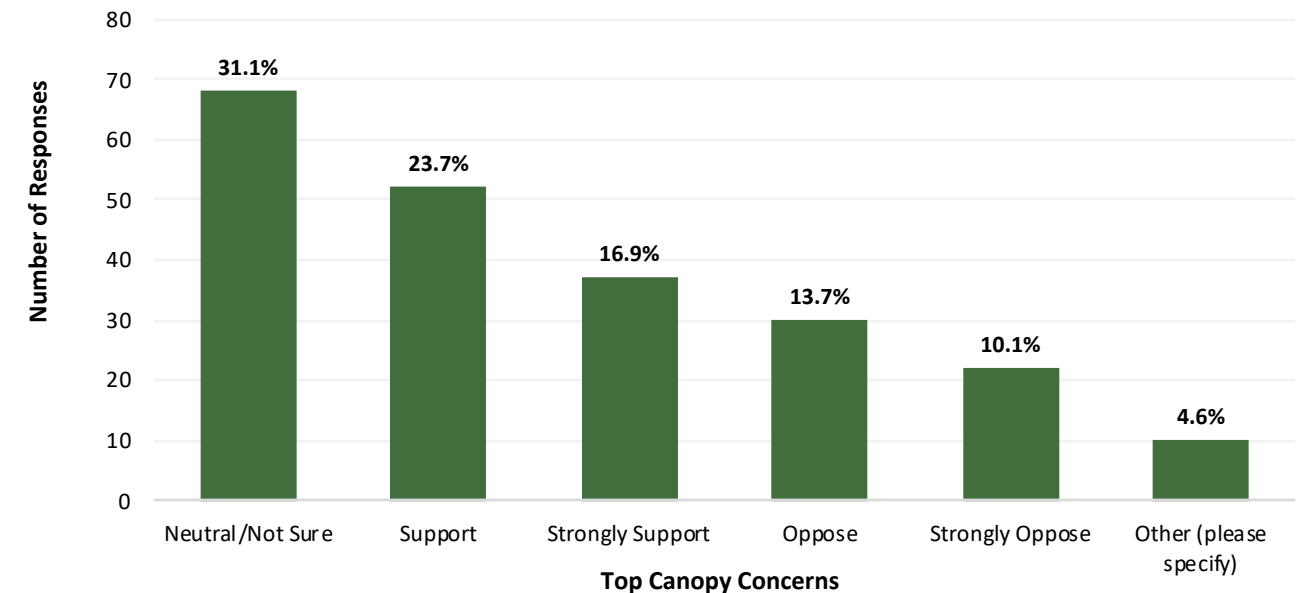


FIGURE 10: YUBA CITY RESIDENTS' OPINIONS ON TREE PROTECTION FOR LARGE OR SIGNIFICANT TREES ON PRIVATE PROPERTY



Retail has cut down many trees due to the crows and chickens making a mess. This should not be allowed. there are other ways to deal with the birds.

  
*Survey Respondent*

If you build the trees and enhance  
the outdoors, they will come!



*Survey Respondent*

To plant trees is to give body and life  
to one's dreams of a better world.



*Russell Page*

## Four-Year Work Plan

To efficiently address maintenance needs of all city-managed trees, over the next four years Parks Maintenance staff will first address priority maintenance needs. Once a priority maintenance task has been addressed, the tree, with the exception of removals, will be reassigned to the applicable maintenance cycle zone rotation (Table 9). During the first years of the 4-year work plan, cycle pruning may be delayed. In fact, in the first two years all zones will require visitation to address higher priority maintenance. All priority work should be complete after four years and all trees should be programmed into a 4-year maintenance cycle, which will ensure all trees receive regular routine care and inspection. Inspections and service requests may warrant heightened maintenance priority, lesser priorities should be organized accordingly. The plan does not include outstanding service requests, although most open service requests correlate with maintenance recommendations identified during the tree inventory. When routine maintenance occurs, the Maintenance Zone Map should be published on the city website to communicate to residents when to expect tree maintenance.

Shaded walkable parks and paths will improve yuba city for residents and visitors.



*Survey Respondent*

**Priority 1 Removal** – These trees have defects that cannot be cost-effectively or practically treated, have a high amount of deadwood, and pose an immediate hazard to property or person. The arborist recommends they be removed as soon as possible.

**Priority 2 and 3 Removal** – These trees are not as great a liability as priority 1 Removals, being smaller and/or far less hazardous, although they are also recommended for removal. Smaller dead trees and failed transplants are in this category. Large trees in this category are generally poorly suited, of inferior quality, and pose little to no threat to the community. Priority 2 Removals should be removed prior to Priority 3 Removals.

**Priority 1 Pruning** – Trees in this category need pruning to remove hazardous deadwood limbs greater than four inches in diameter and/or have broken, hanging, or diseased scaffold limbs.

**Priority 2 Pruning** – These trees need pruning to remove hazardous deadwood limbs greater than two, but less than four inches in diameter.

**Routine Prune** – These trees require routine horticultural pruning to correct structural problems or growth patterns that would eventually obstruct traffic or interfere with signs or buildings.

**Structural Prune** – Trees in this category are young trees that require pruning to aid in the development of proper structure and form.

**Stump Removal** – These sites have stumps which need to be removed before a new tree can be planted.

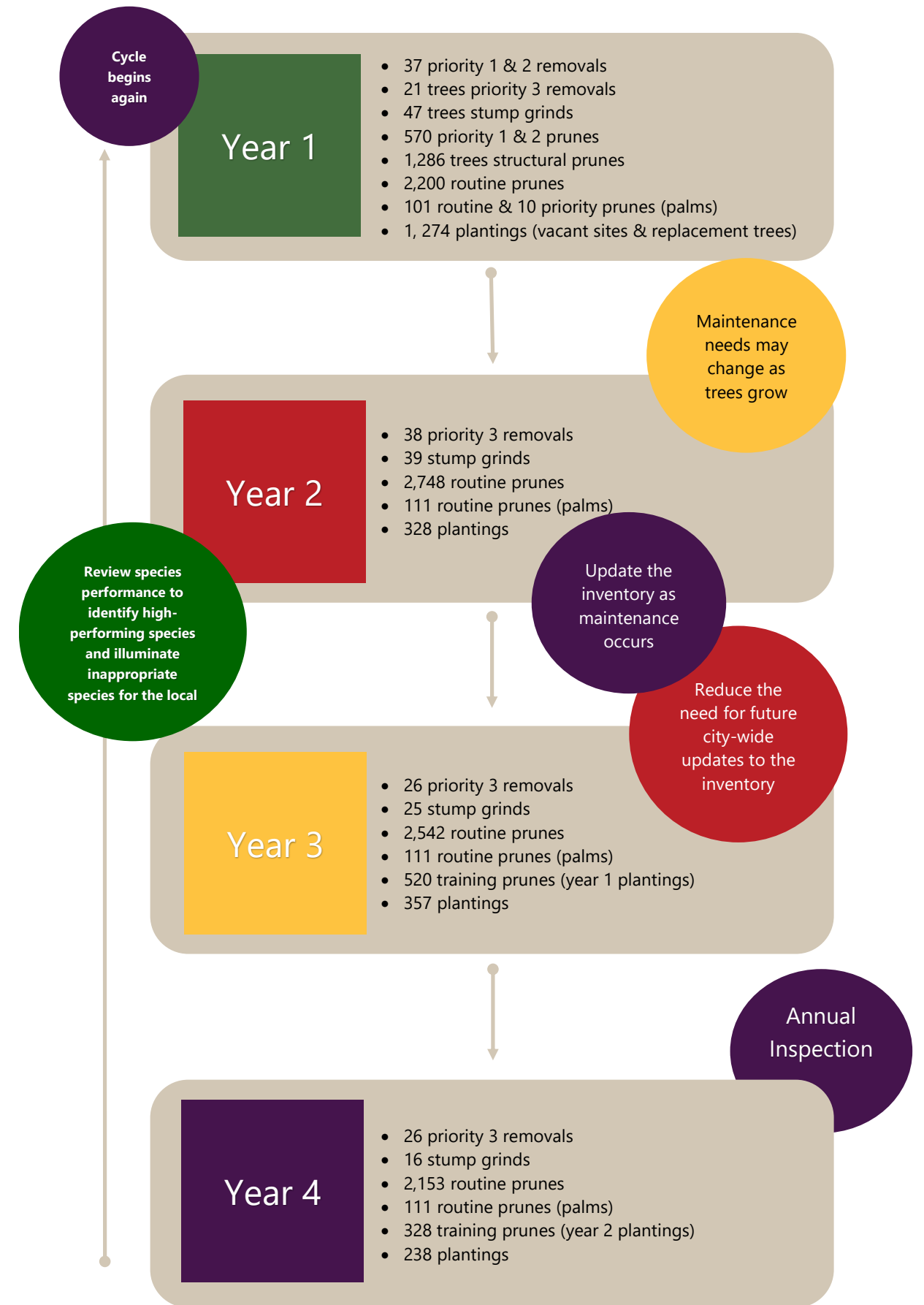
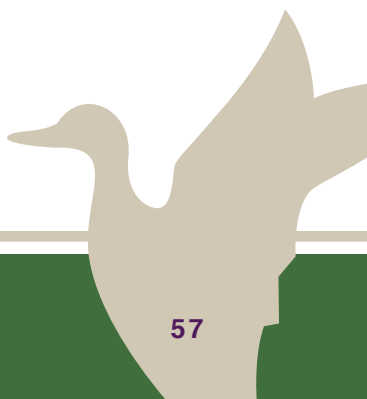


TABLE 8: 4-YEAR MAINTENANCE PLAN

Estimated Costs for Each Activity		Year 1			Year 2			Year 3			Year 4		
Maintenance Activity	Diameter Class (inches)	Cost/tree	# of Trees	Total Cost	Cost/tree	# of Trees	Total Cost	Cost/tree	# of Trees	Total Cost	Cost/tree	# of Trees	Total Cost
Priority Pruning (Priority 1 & 2)	0 - 3	\$40	4	\$160	\$40	0	\$0	\$40	0	\$0	\$40	0	\$0
	4 - 6	\$40	14	\$560	\$40	0	\$0	\$40	0	\$0	\$40	0	\$0
	7 - 12	\$100	117	\$11,700	\$100	0	\$0	\$100	0	\$0	\$100	0	\$0
	13 - 18	\$300	163	\$48,900	\$300	0	\$0	\$300	0	\$0	\$300	0	\$0
	19 - 24	\$300	130	\$39,000	\$300	0	\$0	\$300	0	\$0	\$300	0	\$0
	25 - 32	\$400	90	\$36,000	\$400	0	\$0	\$400	0	\$0	\$400	0	\$0
	33 - 36	\$400	24	\$9,600	\$400	0	\$0	\$400	0	\$0	\$400	0	\$0
	37 - 42	\$400	22	\$8,800	\$400	0	\$0	\$400	0	\$0	\$400	0	\$0
	43 +	\$400	10	\$4,000	\$400	0	\$0	\$400	0	\$0	\$400	0	\$0
<b>Activity Total(s)</b>			574	\$158,720		0	\$0		0	\$0		0	\$0
Priority Removals & Stump Grinding	0 - 3	\$100	11	\$1,100	\$100	18	\$1,800	\$100	10	\$1,000	\$100	15	\$1,500
	4 - 6	\$200	30	\$6,000	\$200	22	\$4,400	\$200	18	\$3,600	\$200	7	\$1,400
	7 - 12	\$400	34	\$13,600	\$400	25	\$10,000	\$400	10	\$4,000	\$400	14	\$5,600
	13 - 18	\$1,000	14	\$14,000	\$1,000	10	\$10,000	\$1,000	5	\$5,000	\$1,000	2	\$2,000
	19 - 24	\$1,500	10	\$15,000	\$1,500	2	\$3,000	\$1,500	5	\$7,500	\$1,500	2	\$3,000
	25 - 32	\$1,900	5	\$9,500	\$1,900	0	\$0	\$1,900	2	\$3,800	\$1,900	1	\$1,900
	33 - 36	\$2,000	1	\$2,000	\$2,000	0	\$0	\$2,000	0	\$0	\$2,000	0	\$0
	37 - 42	\$2,200	0	\$0	\$2,200	0	\$0	\$2,200	0	\$0	\$2,200	0	\$0
	43 +	\$2,500	0	\$0	\$2,500	0	\$0	\$2,500	1	\$2,500	\$2,500	1	\$2,500
<b>Activity Total(s)</b>			105	\$61,200		77	\$29,200		51	\$27,400		42	\$17,900
Routine Pruning 4-Year Cycle	0 - 3	\$40	442	\$17,680	\$40	128	\$5,120	\$40	166	\$6,640	\$40	132	\$5,280
	4 - 6	\$40	489	\$19,560	\$40	537	\$21,480	\$40	774	\$30,960	\$40	547	\$21,880
	7 - 12	\$100	649	\$64,900	\$100	1,368	\$136,800	\$100	1,324	\$132,400	\$100	1,030	\$103,000
	13 - 18	\$300	325	\$97,500	\$300	455	\$136,500	\$300	226	\$67,800	\$300	332	\$99,600
	19 - 24	\$300	169	\$50,700	\$300	145	\$43,500	\$300	34	\$10,200	\$300	70	\$21,000
	25 - 32	\$400	91	\$36,400	\$400	86	\$34,400	\$400	17	\$6,800	\$400	29	\$11,600
	33 - 36	\$400	19	\$7,600	\$400	15	\$6,000	\$400	0	\$0	\$400	9	\$3,600
	37 - 42	\$400	8	\$3,200	\$400	9	\$3,600	\$400	0	\$0	\$400	4	\$1,600
	43 +	\$400	8	\$3,200	\$400	5	\$2,000	\$400	1	\$400	\$400	0	\$0
<b>Activity Total(s)</b>			2,200	\$300,740		2,748	\$389,400		2,542	\$255,200		2,153	\$267,560
<b>Routine Pruning Palms</b>	n/a	\$500	101	\$50,500	\$500	111	\$55,500	\$500	111	\$55,500	\$500	111	\$55,500
<b>Activity Total(s)</b>			101	\$50,500		111	\$55,500		111	\$55,500		111	\$55,500
Training Pruning	0 - 3	\$60	955	\$57,300	\$60	0	\$0	\$60	520	\$31,200	\$60	328	\$19,680
	4 - 6	\$60	292	\$17,520	\$60	0	\$0	\$60	0	\$0	\$60	0	\$0
	7 - 12	\$60	36	\$2,160	\$60	0	\$0	\$60	0	\$0	\$60	0	\$0
	13 - 18	\$100	3	\$300	\$100	0	\$0	\$100	0	\$0	\$100	0	\$0
<b>Activity Total(s)</b>			1,286	\$2,460		0	\$0		520	\$0		328	\$0
<b>Tree Planting</b>	0 - 6	\$160	520	\$83,200	\$160	328	\$52,480	\$160	357	\$57,120	\$160	238	\$38,080
<b>Activity Total(s)</b>			520	\$83,200		328	\$52,480		357	\$57,120		238	\$38,080
<b>All Maintenance Activity Total</b>			4,786			3,264			3,581			2,872	
<b>Annual Maintenance Cost</b>				\$656,820			\$526,580			\$395,220			\$379,040
<b>Annual Budget</b>				\$375,000			\$375,000			\$375,000			\$375,000
<b>Annual Budget Shortfall</b>				-\$281,820			-\$151,580			-\$20,220			-\$4,040

TABLE 9: MAINTENANCE ZONES

	Zone 1	Zone 2	Zone 3	Zone 4
<b>Boundaries</b>	North of B Street, East of Hwy 99	South of B Street, East of Hwy 99	West of Hwy 99, South of Colusa Hwy with the exception of along and West of Royo Rancho Drive	West of Hwy 99, East of Royo Rancho Drive, North of Coulsa Hwy
<b>Total Sites</b>	3,006	3,715	3,168	3,172
<b>Total Trees</b>	2,544	3,370	2,947	2,906
<b>Priority 1 Removal</b>	0	5	1	0
<b>Priority 2 Removal</b>	6	17	6	2
<b>Priority 3 Removal</b>	21	26	38	26
<b>Priority 1 Prune</b>	54	29	3	7
<b>Priority 2 Prune</b>	149	250	34	54
<b>Total Priority Maintenance Tasks</b>	230	327	82	89



## Plan Goals

Based upon a review of the current Parks Maintenance Division program, resources, and collaborative input from the community and other stakeholders, the UFMP identifies 16 goals that support and represent what Yuba City residents, stakeholders, and staff want for the future of the urban forest. These goals, and the strategies that support them, are intended to optimize the management of the city's community forest in an efficient, cost-effective, sustainable, and safe manner. The plan identifies four major areas of focus:

### MANAGEMENT AND PLANNING

This focus area aims to increase cost-efficiency for managing the resource through efficient record keeping and planning. The urban forest provides numerous benefits to the community. Although it might be tempting to plant as many trees as possible, it is important to ensure they can be maintained throughout their lifetimes. Proactive and consistent management of this resource will ensure sustainability, safety, and a stable flow of benefits now and for future generations.



### Goal 1: Consider trees as integral infrastructure

When proper consideration is given to planting trees, future removals are potentially avoided. Selecting the right tree for the right place and considering trees as green infrastructure increases the ability for a tree to reach maturity and ensure that it has ample space for canopy and root growth.

Objectives for this goal include planting the right tree in the right place and mitigating conflicts between trees and other utilities.

### Goal 2: Promote the efficient use of planting funds

Funding for trees is often limited. Thoughtful planning for where trees will be placed and how many will be planted can maximize available funding to address areas of greatest need and support a greater return on investment.

Objectives for this goal involve creating and following planting plans.

### Goal 3: Provide proactive maintenance for the community tree resource to reduce costs and promote efficiency

When trees are well-maintained throughout their lifetimes, the risks trees pose to the public are reduced. Promoting tree health and good structure decreases the chances of having hazardous trees in the community and decreases the demand for reactive and emergency tree care.

Objectives for this goal include providing proactive management of the community tree resource that aligns with industry standards and creating a risk management policy.

### Goal 4: Promote the safe management of the community tree resource

When all City staff share core values and behaviors that promote safety related to trees, everyone, including the community, is safer.

Objectives for this goal are to continue prioritizing safety.

### Goal 5: Predictable and stable funding for the community tree resource

Parks Maintenance staff are responsible for providing quality, efficient, and cost-effective services for community trees. This level of service is influenced by available funding. Currently, funding for the maintenance of community trees along streets (through LLMDs and the Street Tree Fund) is variable and some LLMDs are consistently underfunded.

Objectives for this goal focus on attaining adequate funding in LLMDs to ensure the care of all community trees.

### Goal 6: Enhance the livability and character of the community

Trees enhance the aesthetics of the community and improve the urban environment for the residents and visitors. Furthermore, tree-lined streets encourage greater economic development and business success.

Objectives for this goal include sustaining or growing tree canopy to achieve greater environmental benefits.

### Goal 7: Follow integrative pest management (IPM) protocols and best management practices when addressing pests and diseases

Pests and disease will always be a threat to the urban forest. Implementing a pest management strategy that incorporates the use of multiple tools will make the urban forest more resilient and able to withstand pest pressures.

Objectives for this goal include implementing a variety of pest control strategies in order to reduce pest pressures.

## PROTECTION AND REGULATION

The community tree resource is a publicly owned asset that provides critical benefits to health, economic, social, aesthetic, and quality of life for residents and visitors. The replacement value of the existing resource is nearly \$33.6 million. Annually, the community tree resource provides \$1.8 million in benefits to Yuba City. Protecting this resource ensures the community will continue to receive these benefits and more from the urban forest.

### Goal 8: Promote tree preservation and protection

It is important to promote the protection of community trees. In addition to updating the current tree removal and protection guidelines, the Municipal Code should be periodically reviewed and revised to refine and identify requirements to support the urban forest and canopy cover goals.

Objectives for this goal focus on amending and clarifying language in existing Municipal Code and exploring community values on the addition of an ordinance that protects significant or large trees on private property.

### Goal 9: Support consistency in guiding documents

Uniformity across guiding documents promotes strong and efficient policy that aligns with community expectations.

Objectives for this goal include further unifying guiding documents.

## RESILIENCE AND SUSTAINABILITY

This focus area aims to promote management strategies that increase the resiliency of the urban forest. Many stressors can negatively impact trees, therefore working toward a diverse, climate-ready tree resource will help to preserve the environmental, social, economic, and public health benefits provided by trees.

### Goal 10: Promote species diversity in the urban forest

Currently, Yuba City relies heavily on several maple species (*Acer spp.*), increasing vulnerability to pests, diseases, and other stressors. Striving to meet or exceed industry accepted tree diversity rules can increase resilience in the urban forest.

Objectives for this goal include setting species diversity goals for the community tree resource.

### Goal 11: Expand canopy cover and the resulting environmental benefits

Yuba City's current canopy cover is 19.1% and there is potential for increased canopy cover. Community members and urban forest managers support increasing canopy cover and identified a goal of 25% canopy cover by 2040.

Objectives for this goal include increasing the canopy cover and tree planting efforts within Yuba City.

### Goal 12: Establish a more water-wise urban forest

All trees, especially newly planted trees, need water to thrive. As Yuba City experiences droughts, it is important that tree species are adapted, and irrigation systems are in place to withstand dry periods.

Objectives for this goal include ensuring water limitations are considered in new tree plantings.

### Goal 13: Repurpose woody materials resulting from removals whenever possible

Using woody materials that result from tree removals reduces waste and allows managers to recover value from felled community trees. Repurposing woody material into wood products and mulch can provide revenue and prevent the need to purchase wood mulch used to care for the urban forest.

Objectives for this goal include expanding upon the current wood utilization efforts.

### Goal 14: Reduce the risk of wildfire in Feather River Parkway

Over the last decade, California has experienced catastrophic losses as a result of wildfire. With prolonged periods of drought and a changing climate, wildfire is likely to continue to be a threat to communities that neighbor the wildland urban interface.

Objectives of this goal are to reduce the risk of living in a fire prone area through wildfire mitigation strategies.

## EDUCATION AND ENGAGEMENT

This focus area aims to foster a greater connection between the urban forest and the community. The urban forest is more likely to be preserved, maintained, and promoted by an engaged community that understands the benefits it provides.

### Goal 15: Engage community members in stewardship of the urban forest

Education and outreach can encourage community members to recognize the value of trees and learn the best management practices to support the wellness and benefits of the urban forest. Building partnerships with community organizations gives the urban forest a voice, greater capacity to care for trees, and a broader audience. Partners can help plant, maintain, and advocate for the urban forest.

Objectives for this goal include developing materials for urban forest outreach and education and providing opportunities for the community to become involved.

### Goal 16: Celebrate the importance of urban trees

Activities recognizing and celebrating the community's commitment to the care of trees help promote the urban forest.

Objectives for this goal include maintaining Tree City USA designation and continuing to recognize the urban forest.

I would love a tree in my backyard. We had a mulberry we had to remove and it's so hot and dry so no one wants to use our backyard



*Survey respondent*

I wish properties had more room to have trees planted, for shade, and health benefits.



*Survey respondent*



# How do we get there?

The goals and existing policies and actions proposed by the Urban Forest Master Plan are organized by four focus areas:

1. Management and Planning
2. Protection and Regulation
3. Resilience and Sustainability
4. Education and Engagement

Each area of focus is supported by measurable goals and specific actions that are intended to guide Yuba City's urban forest programming over the next 40 years, providing the foundation for annual work plans and budget forecasts. Many goals and actions support more than one focus area.

For each action, the UFMP identifies a priority, a suggested timeframe for accomplishing the action, an estimated cost range, and potential partners. Priority is identified as:

- High: An action that is critical to protecting existing community assets, reducing/managing risk, or requires minimal resources to accomplish
- Medium: An action that further aligns programming and resource improvements that have been identified as desirable by the community, partners, and/or urban forest managers, but that may require additional investment and financial resources over and above existing levels
- Low: An action that is visionary, represents an increase in current service levels, or requires significant investment

The estimated cost is categorized in the following ranges:

- \$ (<\$25,000)
- \$\$ (\$25,000-\$50,000)
- \$\$\$ (>\$50,000)

The UFMP is intended to be a dynamic tool that can and should be adjusted in response to accomplishments, new information and changes in community expectations, and available resources. In addition to serving as a day-to-day guide for planning and policy making, the UFMP should be reviewed regularly for progress and to ensure that the actions and sub actions are integrated into the annual work plan.

With appropriate care and planning, the urban forest is an asset that has the potential to increase in value over time. As young trees mature and their leaf surface and canopies grow, so too will the overall benefits and value from the community's urban forest. The objectives and strategies of the UFMP are intended to support this process in an appropriate manner that encourages the sustainable stewardship of community trees with consideration for safety, cost efficiency, and community values. The UFMP includes strategies for measuring the success of the UFMP over time.



# FOCUS AREA: MANAGEMENT AND PLANNING

## Goal: Consider trees as integral green infrastructure

**Performance Measure:** Greater health and longevity of individual trees, as measured through condition and reduced mortality/tree removals and level of maintenance.

**Rationale:** If a tree is planted in a space that is not conducive or the species is not well suited for the local climate and soil conditions, the potential benefits that the tree could have provided to the community are lost.

**Risk:** Trees and other infrastructure conflicts may result in undesirable pruning or tree removals and therefore premature death.

**Benefit:** Fewer removals resulting in greater benefits.

## Objective: Set emphasis on planting the right tree in the right place.

### Actions:

- Review and update Yuba City Tree Guide as needed every five years
- Revise/expand list to incorporate recommendations for:
  - a. Native and well-adapted tree species
    - i. Species that mitigate flooding issues
    - ii. Species with minimal leaf drop and litter creation
    - iii. Species and varieties that are pest and disease resistant, and avoid planting species with similar vulnerabilities to existing trees
  - b. Define sites the trees are most suitable for:
    - i. Rights-of-way
    - ii. Flood zones
    - iii. Parking lots
- Provide consideration for the following:
  - a. Soil and water conditions
  - b. Planter size and intended use
  - c. Mature crown spread
- Optimize shade and environmental benefits by planting large stature trees where feasible
- Revise Title 9 of Municipal Code to prohibit the planting of palm tree species in the public rights-of-way
- Ensure planters have adequate space for trees
  - a. Establish standards for minimum site and soil volumes for planters
  - b. Reduce hardscape and utility conflicts
    - i. Provide recommendations for small stature tree species that can be planted under utility lines to prevent future conflicts
    - ii. Formalize planting distances from above ground utilities (water meters, fire hydrants, etc.)
    - iii. Define minimum distances from underground utilities (water, electric, sewer, etc.)
    - iv. Consider moving overhead utilities to underground and placing them to avoid conflicts with trees
    - v. Evaluate planter and pavement design options to reduce conflicts between trees and infrastructure
    - vi. Avoid planting species of trees that have historically resulted in hardscape damage or whose debris create a slipping hazard
    - vii. Plant small-statured species under utility lines

**Cost:** \$-\$\$

**Timeframe:** Ongoing

**Priority:** High

## Objective: Recognize trees as green infrastructure to mitigate conflicts between trees and other utilities and promote tree longevity.

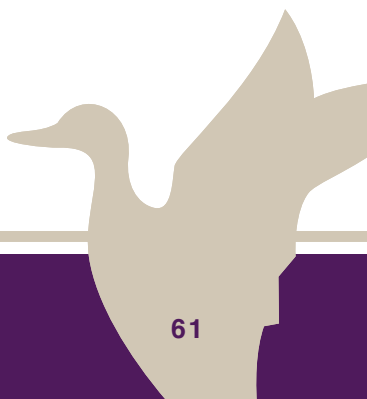
### Actions:

- Revise Title 9 of Municipal Code to designate trees as green infrastructure
- Prohibit the encroachment of other utilities to prevent future conflict
  - a. Consider tree-utility conflicts when installing utilities and other infrastructure
  - b. Develop tree removal policies around conflicts with sewer and water lines
  - c. Consider the use of shared neighborhood solar gardens to allow for greater tree planting on individual parcels

**Cost:** \$

**Timeframe:** 1-5 Years

**Priority:** High



# FOCUS AREA: MANAGEMENT AND PLANNING

**Goal:** Promote the efficient use of tree planting funds

**Performance Measure:** A planting plan.

**Rationale:** Planting plans allow for a better understanding of planting needs, provide direction for maintenance, and allow managers to track canopy goals.

**Risk:** Although tree plantings would still occur, efforts may not be focused on areas that would provide the most benefits to the community.

**Benefit:** Planting plans optimize available resources and planting space to provide the most benefit to the community.

**Objective:** Create and follow planting plans to allow for increased impact and success of tree plantings.

**Actions:**

- Determine a planting plan as called for in the Yuba City Resource Efficiency Plan
- Use planting priority analyses to determine potential planting sites that provide the maximum benefit
  - a. Prioritize planting sites that would have the greatest impact of reducing urban heat islands and stormwater runoff
  - b. Prioritize planting sites that would provide more equitable distribution of tree canopy cover
  - c. Plant trees in parks based on planting priority
- Implement rights-of-way planting cycles to prioritize tree planting
  - a. Promote the use of large and medium statured trees in rights-of-way wherever possible in order to maximize the benefits
  - b. Include potential tree planting sites to guide and prioritize new tree plantings
  - c. Prioritize available planting sites based on:
    - i. Trees that have been removed
    - ii. Space and minimum planting setbacks
    - iii. Soil characteristics
    - iv. Irrigation infrastructure
    - v. Landscape goals and tree density
    - vi. Site constraints
- Use available planting sites to increase species and genus diversity
- Use available planting sites to incorporate well adapted and low water use species and use biochar to improve soil fertility, infiltration, and water retention
- Consider successional plantings of species with high relative performance, as identified in the Resource Analysis
- Monitor trees for successful establishment after planting
- Maintain inventory data and change trees that have been removed to potential planting sites
- Explore grant opportunities to fund tree planting in LLMDs with inadequate funding
- Organize neighborhood tree planting events

**Cost:** \$

**Timeframe:** 10 Years, Ongoing

**Priority:** High

**Goal: Provide proactive maintenance for the community tree resource to reduce costs and promote efficiency**

**Performance Measure:** Known duration between maintenance activities for every tree in the inventory.

**Rationale:** The community tree resource is made up of living organisms, and therefore a dynamic asset. The community tree resource requires mechanisms in place to track maintenance needs and provide direction to ensure all trees are given adequate care.

**Risk:** Although preventative maintenance and tree plantings would still occur, efforts may not be targeted to areas that would provide the community with the maximum benefits.

**Benefit:** A better understanding of the planting and maintenance needs of the community tree resource enables staff caring for trees to prioritize tasks and improve efficiency.

**Objective: Develop maintenance cycles and work plans to guide the care of the community tree resource.**

**Actions:**

- Develop an annual work plan
  - a. Include estimated number of the following:
    - i. Removals
    - ii. Priority Pruning
    - iii. Routine Pruning
    - iv. Training Pruning
    - v. Stump Grinding
    - vi. Planting
  - b. Establish pruning grids to efficiently group routine maintenance
    - i. Publish grid pruning map and schedule on city-website to provide residents with information on when to expect routine service
    - ii. Expand contracted tree work to include grid pruning
- Revise contractor agreements for tree maintenance
  - a. Require adherence to ANSI Standards and Best Management Practices
  - b. Include cost per tree projections for performing routine maintenance by grid
  - c. Consider requiring contractor to be a Certified ISA Arborist
- d. Require contractor to regularly update inventory records in TreeKeeper 8 as work is performed
- Maintain and regularly update inventory of all trees in parks, open space, trails, city facilities, and public rights-of-way as work occurs
  - a. After trees are removed, convert sites to potential planting sites to guide future planting plans
  - b. Consider updating tree inventory data specification to include tree distance and direction from buildings in order to project energy benefits in a future Resource Analysis
  - c. Update diameter measurements and tree condition
- Consider redistributing funds to address outstanding service requests and shift more promptly to proactive maintenance rather than retroactive
- Continue to provide training pruning to young trees through landscape contractor
- Evaluate the feasibility of restructuring and condensing the current 84 LLMDs into 12-16 geographic areas
- Annually review progress on goals of the Urban Forest Master Plan

**Cost:** \$                      **Timeframe:** 1-5 Years, Ongoing                      **Priority:** High

**Objective: Establish a risk management policy.**

**Actions:**

- Develop a Risk Management Plan
  - a. Regularly inspect trees to identify and mitigate structural and age-related defects to manage risk and reduce the likelihood of tree and branch failure
    - i. Train all Parks Maintenance staff to recognize common tree issues and communicate those concerns so they can be addressed.
  - b. Set risk tolerance thresholds for trees where the risk cannot be mitigated
  - c. Consider having a Certified Arborist with a Tree Risk Assessment Qualified (TRAQ) Certification assess risk and recommend mitigation measures
  - d. Coordinate inspection of all trees with pruning cycles
  - e. Update inventory accordingly
  - f. Train staff on how to complete limited visual assessments
  - g. Familiarize staff on tree defects and conditions that affect likelihood of failure
  - h. Establish a reporting protocol for staff to report recognized and observed hazards
  - i. Implement mitigation options based on level of risk and conditions present
  - j. Removals should be prioritized and performed as soon as possible
  - k. Consider moving targets (e.g., tables, benches, etc.) to reduce risk
  - l. Consider diverting use around trees identified with risk
  - m. Install structural support systems where recommended
  - n. Retain and monitor trees identified for moderate to low risk

**Cost:** \$                      **Timeframe:** 1-5 Years, Ongoing                      **Priority:** High

# FOCUS AREA: MANAGEMENT AND PLANNING

**Goal: Promote the safe management of the community tree resource**

**Performance Measure:** Reduction in tree-related claims against the city.

**Rationale:** When all City staff share values and behaviors that promote safety, there are fewer workplace related accidents.

**Risk:** Tree work is dangerous, but this risk is exacerbated if unsafe practices are used, or safety policies are not fully understood.

**Benefit:** Fewer accidents and claims against the city, resulting from improved public safety.

**Objective: Implement policies and procedures that make tree work as safe as possible.**

**Actions:**

- Provide updated materials in safety training
  - a. Use current ANSI and BMPs
  - b. Formalize an emergency response plan to standardize procedures/policies around responding to tree emergencies
- Consider the city becoming a member of Tree Care Industry Association (TCIA)
- Provide training for staff to help recognize/report hazards, along with basic pruning/proper maintenance
- Continue to encourage employees to engage in professional development
  - a. Continue to promote, support employee ISA certified arborist credentials and other professional development opportunities

**Cost:** \$\$-\$\$      **Timeframe:** 1-5 Years      **Priority:** High

**Goal: Predictable and stable funding for the community tree resource**

**Performance Measure:** Sustainable and adequate funding to sustain the street tree resource.

**Rationale:** An appropriate level of funding allows managers to implement more proactive and holistic tree maintenance.

**Risk:** If minimum funding levels are not met, the services needed cannot be performed or are delayed which can result in more costly fixes.

**Benefit:** Appropriate funding allows managers to perform the maintenance needs of the urban forest in a way that meets community expectations.

**Objective: Secure funding for the care of all community trees.**

**Actions:**

- Strive to obtain stable and sustainable funding for all LLMDs
  - a. Audit the LLMDs to analyze the cost per tree
  - b. Explore inequities and opportunities to equalize funding levels
- Establish a Tree Fund
  - a. Clearly define the intent and purpose of the use of funds
  - b. Divert fines for violations of Title 9, Chapter 3: Street Trees of Municipal Code and replacement fees to the Tree Fund

**Cost:** \$\$-\$\$\$      **Timeframe:** Ongoing      **Priority:** Medium

**Goal: Enhance the livability and character of the community**

**Performance Measure:** Increased number of environmental benefits.

**Rationale:** Aesthetically pleasing environments, with sufficient canopy cover, are valued by community members and result in increased activity and pride.

**Risk:** Less tree canopy as a result of removals or a lack of planted trees, which could have been avoided through alternative design and planning.

**Benefit:** Aesthetically pleasing atmospheres foster livelier and more engaged communities.

**Objective: Plant and retain trees to sustain environmental benefits.**

**Actions:**

- Plant trees to promote wildlife habitat along the Feather River (per General Plan, Chapter 8)
  - a. Support land use that increases connectivity between parks, urban centers, and neighborhoods to decrease habitat fragmentation and promote wildlife corridors
- Incorporate trees along streetscapes to reduce air pollutant levels and buffer noise (per General Plan, Chapters 8 and 9)
- Promote the planting of trees to shade buildings to reduce energy consumption (per Yuba City Resource Efficiency Plan and Sutter County Climate Action Plan)
- Reduce the effects of urban heat islands and enhance air quality by planting trees in parking lots (per Yuba City Resource Efficiency Plan and Sutter County Climate Action Plan)
- Encourage the inclusion of trees in development and improvement projects
  - a. Implement tree-lined parkways and landscaping as part of frontage improvements in the rights-of-way (General Plan, Chapter 5)
  - b. Plant trees alongside other vegetation to decrease erosion following construction (per General Plan, Chapter 9)
- Promote landscaping to provide visual buffers from non-residential buildings (per General Plan Chapter 4)
- Expand the use of alternative sidewalk designs to minimize tree stress from hardscapes
  - a. See Appendix E
- Implement alternative planter designs when feasible
  - a. See Appendix E

**Cost:** \$      **Timeframe:** Ongoing      **Priority:** High

**Goal: Follow integrative pest management (IPM) protocols and best management practices when addressing pests and diseases**

**Performance Measure:** Reduced impact from pests and pathogens.

**Rationale:** Being aware of and able to identify pests and diseases allows managers to approach management and prevention in a way that fits the community's resources.

**Risk:** Pest and pathogen management activities can harm non-target organisms and can leave toxins in the environment.

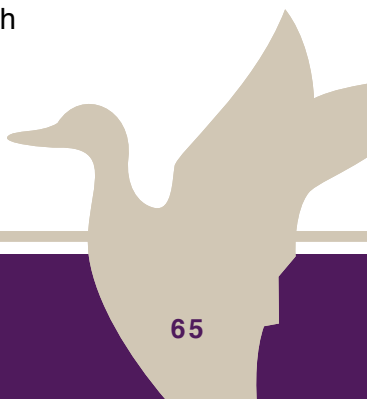
**Benefit:** Using comprehensive information to outline best management strategies to manage pest species can lessen the detrimental impacts they have on the urban forest and allow managers to choose the most suitable options for the situation.

**Objective: Use integrated pest management practices (IPM) when controlling pests.**

**Actions:**

- Place a greater emphasis on monitoring for population thresholds and threshold-based treatments
  - a. Set up a monitoring program and ensure population thresholds are met before chemical treatments are used to manage pests
  - b. Choose plants that are resistant to pests of concern
- Implement strategies such as biological control and cultural control
  - a. Expand IPM for boxelder bugs to include cultural control tactics
  - b. Expand IPM for aphids to include biological and cultural control tactics
- Explore the use of less toxic products
- Consider creating habitats attractive to the beneficial predatory insects near routinely infested trees to help control pests
- Engage in educational programs on integrated pest management of key pests
- Prevent dense plantings of host species for known pests
  - a. Explore implementing species diversity standards for neighborhoods
- Use best management practices if pesticides are used
  - a. Always follow label directions
  - b. Avoid using pesticides on flowering plants
  - c. Prevent the recurring use of the same pesticide and mode of action to control pest issues
  - d. Monitor weather conditions to avoid impacts from drifting chemicals
  - e. Monitor environmental conditions and match them to the product guidelines to maximize efficacy
- Publish articles and fact sheets about common pest issues in the community on the city website

**Cost:** \$      **Timeframe:** Ongoing      **Priority:** High



# FOCUS AREA: PROTECTION AND REGULATION

**Goal: Promote tree preservation and protection**

**Performance Measure:** Reduction in removals and no net loss of canopy.

**Rationale:** Trees take a long time to grow. Preserving and protecting existing trees ensures that the stream of benefits provided by community trees is not lost or disrupted and has the opportunity to increase this stream of benefits over time.

**Risk:** Loss of tree canopy cover, the investment made in the community tree resource, and the associated environmental benefits.

**Benefit:** Preservation of community trees ensures the environmental benefits are sustained and the trees have potential to provide more benefits to the community over the course of their lifetimes.

**Objective: Revise and amend Municipal Code to promote the protection of community trees.**

**Actions:**

- Amend Municipal Code as it pertains to tree removal
  - a. Require written application to and obtainment of permission from the Parks Director or the Director of Community Services to remove or perform any work that may impact public trees
    - i. Consider a general fee for tree removal applications
  - b. Prohibit the removal of trees due to inconvenience or hardship
  - c. Prohibit the removal of trees due to nuisance pests that do not negatively impact tree health
  - d. Require homeowners to pay for the removal of trees that die from lack of watering
  - e. Create a Tree Fund for tree removal mitigation
- Amend Municipal Code to provide more clear direction on penalties/fines for harming/poor pruning, or otherwise damaging trees in park strips
  - a. Divert penalties or fines collected to the Tree Fund
  - b. Define and prohibit “topping”
  - c. Remove property owner responsibilities to fertilize trees
  - d. Clarify that property owners need permission to prune trees
- Amend Municipal Code to designate property owner responsibility in maintaining the planting strip and cleaning up leaf litter or other debris
- Amend Municipal Code to require application for a tree planting permit to ensure trees planted in the rights-of-way comply with the Yuba City Tree Guide and best management practices
- Amend Municipal Code to reference the Yuba City Tree Guide to allow for regular review and revisions of species
  - a. Allow to exceptions to the Yuba City Tree Guide if the species promote the desired character (e.g., palms)
- Make desired changes in other sections of Municipal Code that cross-reference Chapter 3 Street Trees
- Amend the parking lot shade ordinance to reference the Yuba City Tree Guide to provide clear direction on tree species that will provide the amount of shade required
  - a. Include shade calculator to assist developers with selecting the appropriate statured species that will provide the required 50% shade requirement

**Cost:** \$

**Timeframe:** 1-5 Years

**Priority:** High

**Objective: Preserve heritage oak trees and other native trees of substantial size through the development of a Heritage Tree Ordinance (per Yuba City Resource Efficiency Plan, Goal 6).**

**Actions:**

- Engage the community in the development of the ordinance to encourage compliance and support
  - a. Define heritage tree
    - i. Consider existing guidelines to conserve and heritage oak trees and other native trees of significant size in specified areas of Feather River habitat (Yuba City General Plan, Chapter 8)
    - ii. Consider including significant tree species other than oaks or native species
    - iii. Set a minimum diameter
  - b. Outline protections for heritage trees
    - i. Require the acquisition of tree permits to perform work on Heritage Trees
  - c. Develop a process for applications for tree permits and review
    - i. Consider the requirement for Tree Protection Plans
- d. Require the review of a Tree Protection Plan by Parks Maintenance staff
- e. Include provision for the retention of the services of a certified arborist for periodic monitoring of the project site and the health of protected trees
  - i. Include other provisions as deemed necessary by the city Arborist to preserve the protected tree and ensure compliance with those provisions
    - 1. Set fines for violations of the Heritage Tree Ordinance
- f. Define mitigation in the event a Tree Permit is not acquired
- g. Consider a public notification and review period for tree removals
- h. Develop an Appeals Process for Tree Permit denials

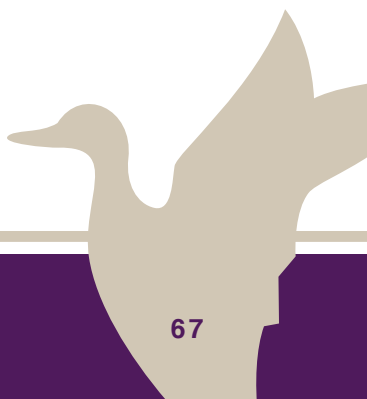
**Cost:** \$      **Timeframe:** 1-5 Years      **Priority:** High

**Objective: Enhance methods for cost recovery in the case of tree removals or improper tree maintenance.**

**Actions:**

- Enhanced enforcement and mitigation measures for trees that are removed without a permit
- Explore an alternative tree removal appraisal value process
- Explore altering the fee increments
- Enforce mitigation when trees are harmed from poor pruning, or otherwise damaged

**Cost:** \$      **Timeframe:** 1-5 Years      **Priority:** High



# FOCUS AREA: PROTECTION AND REGULATION

**Goal:** Support consistency in guiding documents

**Performance Measure:** Number of policies, documents, and departments that cross reference the UFMP and BMPs for tree care.

**Rationale:** Uniform policies reduce confusion between departments and community members and transcend departmental changes.

**Risk:** When policies have inconsistencies, setting a high standard of care is difficult.

**Benefit:** Strong and efficient policy that aligns expectations.

**Objective:** Strive for uniformity between city policies, guiding documents, and departments.

**Actions:**

- Continue to communicate and coordinate with other departments in the development of City policies and guiding documents
- Update guiding documents to provide uniformity and clarity
  - a. Ensure UFMP goals are considered in overarching planning and visionary documents as revisions and updates occur
- Review Urban Forest Master Plan goals every 5 to 10 years, and report progress via The State of the Urban Forest Report

**Cost:** \$

**Timeframe:** Ongoing

**Priority:** High





# FOCUS AREA: RESILIENCE AND SUSTAINABILITY

**Goal:** Promote species diversity in the urban forest

**Performance Measure:** Increased tree diversity at the species and genus levels.

**Rationale:** Increasing genus and species diversity in new and replacement tree plantings will reduce reliance on abundant groups and make the urban forest more resilient to changes in the climate or pest and disease pressures.

**Risk:** A high reliance on certain species or genera creates challenges in responding to pests and pathogens and likely increases the costs and implications.

**Benefit:** Diversity allows for greater adaptability and response to changes in the environment, increasing the chances of sustaining the current tree resource.

**Objective:** Set species diversity goals for the community tree resource.

**Actions:**

- At a minimum, pursue species diversity goals that meet the 10-20-30 rule, but strive for even greater diversity among genera
- Revise and consolidate the Recommended Street Trees and the Yuba City Tree Guide lists into the Yuba City Tree Guide, which would include a broader range of species and define appropriate planting sites for each species (i.e., street trees, under utilities, etc.)
  - a. Consider incorporating language that prohibits the planting of palms in the rights-of-way
  - b. Introduce tree species that are suitable for the current and predicted future climatic condition
  - c. Monitor and phase out species that are poorly adapted
- Reduce monoculture plantings in neighborhoods and along main corridors
  - a. Adopt designs that promote tree diversity
- Select species which are not hosts for major pests and diseases
- Conduct a Resource Analysis every 5-10 years to monitor progress on diversity goals
- Use pest and disease resistant species and cultivars when available

**Cost:** \$

**Timeframe:** 1-5 Years, Ongoing

**Priority:** High

**Goal: Expand canopy cover and the resulting environmental benefits**

**Performance Measure:** Increased canopy cover.

**Rationale:** The benefits that the urban forest provides are directly related to the amount of tree canopy cover and leaf surface area.

**Risk:** No net loss or reduction in canopy cover.

**Benefit:** Increased canopy cover results in greater benefits.

**Objective: Achieve 25% canopy cover by 2040.**

**Actions:**

- Define sustainable annual planting goals and the necessary funding required to achieve desired levels of planting on public property and promote planting of trees on private property
- Establish a formal request channel for residents to request trees to be planted in park strips, or alternatively (in areas with no park strip or large enough rights-of-way) to plant a tree elsewhere on a property
  - a. Explore creating or designating an account for tree donations
    - i. Allow donors to have input in the species or location of tree plantings
- Promote tree planting efforts throughout the community
  - a. Consider providing trees to residents in neighborhoods where there is no park strip and/or there is limited space in the rights-of-way to support a tree, so that property owner may plant a tree elsewhere on the property
  - b. Consider a program that would provide reduced cost trees for private property owners to plant trees on their property
  - c. Conduct a Land Cover Assessment every 10 years to review and report progress toward meeting canopy goals

- Revisit the tree canopy cover goal after 2040
- Revise Title 8 of Municipal Code
  - a. Include requirements for developers to demonstrate how design will support 50% canopy cover goal after 15 years
  - b. Include a calculator for developers to estimate canopy cover for the installation of trees in parking lots to reach 50% canopy cover after 15 years (See Appendix J for sample canopy calculator)
  - c. Include standards for maintenance, including prohibiting topping
  - d. Include replacement requirements for trees that are removed/die
  - e. Allow for solar or solar gardens in parking lot in lieu of trees
  - f. Require a minimum canopy cover for different zoning classifications to maintain existing canopy

**Cost:** \$

**Timeframe:** 20 Years

**Priority:** High

**Objective: Help to increase tree planting efforts within the County (per Sutter County Climate Action Plan).**

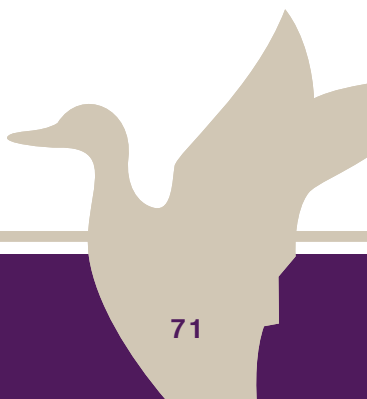
**Actions:**

- Promote tree planting to reach community canopy goals
  - a. Encourage the expansion of the urban forest through tree plantings on private property
  - b. Expand the urban forest through extensive tree plantings on public property (per General Plan)
- Promote tree planting in new development projects
  - a. Subdivisions
  - b. New parks (per General Plan Chapter 3)
  - c. New Activity Centers (per General Plan Chapter 4)

**Cost:** \$

**Timeframe:** Ongoing

**Priority:** High



# FOCUS AREA: RESILIENCE AND SUSTAINABILITY

## Goal: Establish a more water-wise urban forest

**Performance Measure:** Minimized tree losses following periods of drought.

**Rationale:** Yuba City is located in a naturally arid environment where droughts are known to occur. With climate change, periods of drought are likely to be more frequent and severe.

**Risk:** If a tree is not well suited for the local environment or not given adequate water, it may require more resources to sustain long-term health.

**Benefit:** Fewer tree removals and maximized benefits from community trees.

## Objective: Ensure tree plantings are climate adapted and low water use species.

### Actions:

- Continue to choose species suited to the local climate
- Incorporate native species into planting palettes
- Select drought tolerant species (per General Plan)
- Promote drought tolerant species in addition to shade trees for new developments (per Sutter County Climate Action Plan)
- Promote efficient irrigation systems (per Sutter County Climate Action Plan)
- Ensure trees receive adequate water even during periods of drought
  - a. Increase awareness of property owner responsibilities for watering street trees per Municipal Code

**Cost:** \$

**Timeframe:** Ongoing

**Priority:** High

## Goal: Repurpose woody materials resulting from removals whenever possible

**Performance Measure:** Reduced amount of woody material entering the waste management center.

**Rationale:** Tree removals result in woody materials that are composted at the city waste management center. Alternatively, woody materials can be repurposed into wood products and wood mulch.

**Risk:** Tree removals generate a substantial amount of woody material that could be treated as waste.

**Benefit:** Repurposing felled trees is one way to recover the costs of removal and divert woody material from the landfill.

## Objective: Identify a wood reutilization policy.

### Actions:

- Identify wood utilization needs
- Continue to partner with contracting arborists to recycle/reuse wood from large removals
- Expand partnerships
- Expand the practice of generating and using wood chips from tree removals
  - a. Use wood chips in tree plantings and park maintenance projects
  - b. Provide the community with an opportunity to pick up wood chips for landscaping needs
- Plan for wood waste material storage
  - a. Determine the capacity for wood mulch storage in the Yuba City Corporation Yard
  - b. Explore partnerships for wood mulch storage

**Cost:** \$

**Timeframe:** 10 Years

**Priority:** Low-Moderate

**Goal: Reduce the risk of wildfire in the Feather River Parkway**

**Performance Measure:** Improved defensible spaces around structures and reduction in ladder fuels.

**Rationale:** Wildfires are a naturally occurring phenomenon, but the community can play a role in mitigating the risks associated with living in the Wildland Urban Interface.

**Risk:** Wildfires can result in the loss of property and life. Recovery from wildfires can have negative economic impacts for years following fire.

**Benefit:** Taking steps to mitigate the spread of fire reduces the likelihood of losses to property and life.

**Objective: Become a more wildfire-prepared community.**

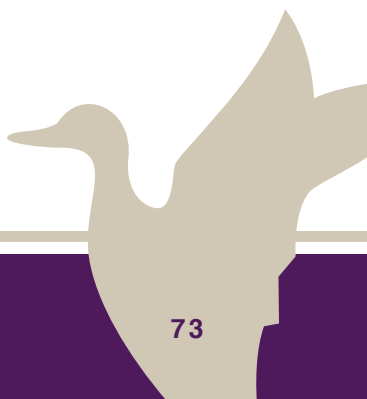
**Actions:**

- Reduce the risk of fire in the wildland urban interface as identified in the Sutter County Multi-Hazard Mitigation Plan
  - a. Mitigate the potential fire hazards that exist
    - i. Reduce ladder fuels and create defensible space in proximity to structures
    - ii. Ensure clearance standards are met where trees are planted near utility poles and powerlines
    - iii. Plant trees to not interfere with emergency response, such as, planting too close to fire hydrants and too close to fire escapes
  - b. Develop a Community Wildfire Protection Plan

**Cost:** \$

**Timeframe:** Ongoing

**Priority:** High



# FOCUS AREA: EDUCATION AND ENGAGEMENT

**Goal: Engage community members in stewardship of the urban forest**

**Performance Measure:** Participation in urban forestry programming.

**Rationale:** An educated community is more likely to support and advocate for the urban forest.

**Risk:** Apathy toward the urban forest may result in less care and support for the urban forest resulting in fewer benefits provided by the urban forest.

**Benefit:** A community that supports the urban forest protects the urban forest and therefore, the benefits that it provides.

**Objective: Support community engagement and stewardship of the urban forest.**

**Actions:**

- Provide targeted education to residents about the watering needs of trees and their responsibilities for watering city trees
  - a. Present the true cost of watering trees
    - i. Provide calculations for watering based on current watering rates and fees
- Increase engagement with external partners/stakeholders that play a role in urban forest
  - a. Explore partnerships with local nonprofit organizations and environmental advocacy groups to distribute urban forestry educational materials and promote urban forestry events
  - b. Engage green industry members, state agencies, and utility providers
- Interact with community members through a variety of outlets
  - a. Create a community group to help with tree planting and developing a city tree planting program (per Yuba City Resource Efficiency Plan)
  - b. Engage the Yuba City Tree Advisory Board on key issues impacting the urban forest
- Update the city website to have a dedicated page for tree information
  - a. Provide and regularly update responses to Frequently Asked Questions (FAQ)
  - b. Summarize relevant Municipal Code
- c. Provide important tree-related information in multiple languages
- d. Summarize maintenance responsibilities of adjacent property owners for city-planted trees
  - i. Provide links for proper tree-care resources
    1. How to plant a tree
    2. How to prune a tree
    3. How to fertilize and mulch
    4. How to irrigate
    5. How to hire an arborist or tree care company
- e. Share the Urban Forest Master Plan and Story map through the city website
- f. Provide downloadable fact sheets such as the boxelder bug homeowners guide and guides for other common pests
- g. Share and maintain the Yuba City Tree Guide
- h. Communicate the benefits of trees and tree canopy including environmental, social, and economic
- i. Publish grid pruning maps and schedules (when available) on the website
- j. Host neighborhood tree planting events and tree giveaways

**Cost:** \$      **Timeframe:** 1-5 Years, Ongoing      **Priority:** High

**Goal: Celebrate the importance of urban trees**

**Performance Measure:** Number of years recognizing the importance of the urban forest.

**Rationale:** Observing and recognizing the benefits provided by the urban forest encourages community engagement and promotes appreciation for trees.

**Risk:** When community members are unaware of the benefits of the urban forest, people are likely going to be less supportive of programming and the resources needed to care for it.

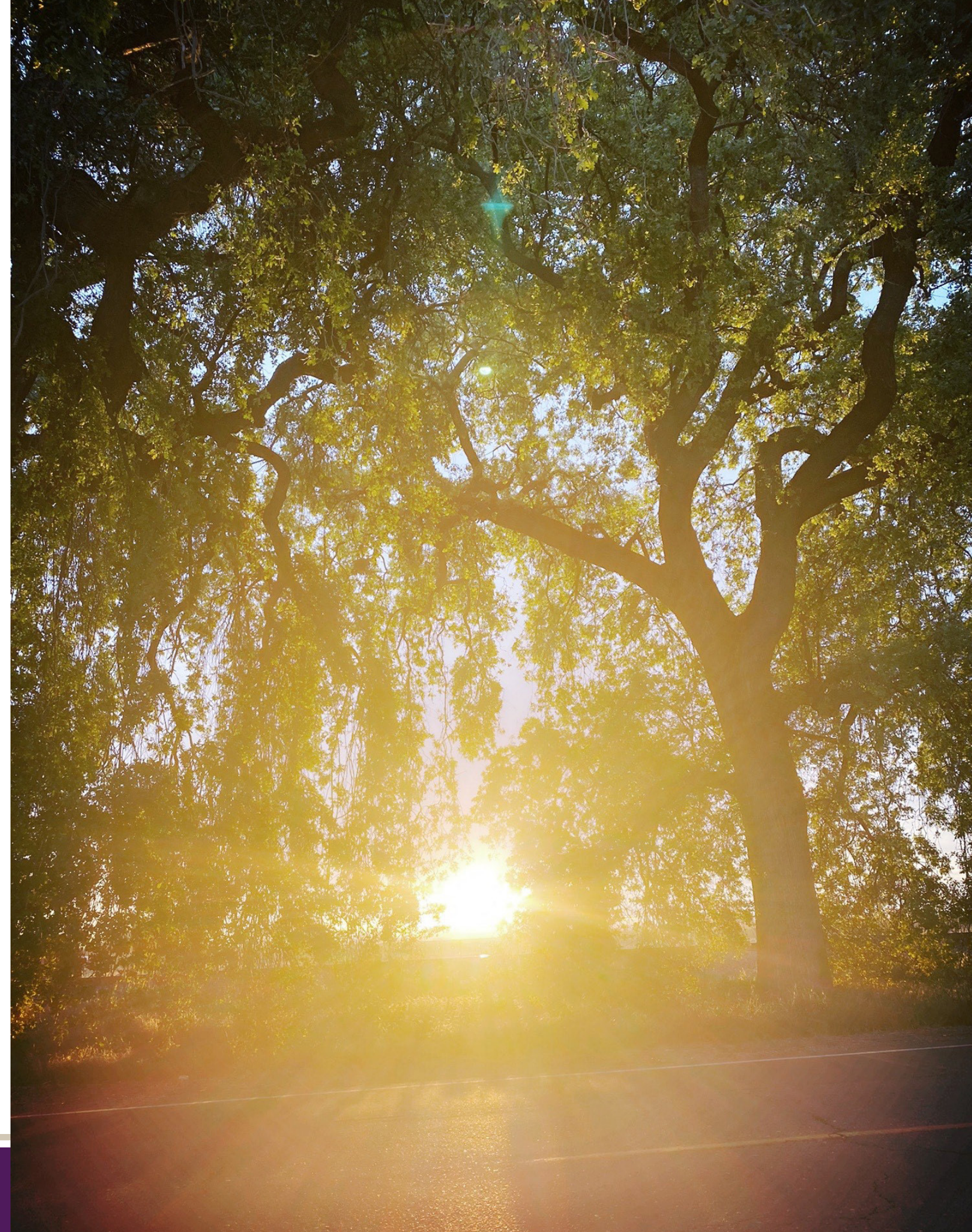
**Benefit:** Community awareness and appreciation of the urban forest promotes support for the necessary resources to maintain it.

**Objective: Maintain Tree City USA status.**

**Actions:**

- Continue to meet all requirements to maintain Tree City USA designation
- Continue to celebrate Arbor Day

**Cost:** \$      **Timeframe:** Ongoing      **Priority:** High





# How are we doing?

With appropriate care and planning, the urban forest is an asset that has the potential to increase in value over time. As young trees mature and their leaf surface and canopy grow, so too will the overall benefits and value of the community's urban forest. The objectives and strategies of the UFMP are intended to support this process in an appropriate manner that encourages the sustainable stewardship of community trees with consideration for safety, cost efficiency, and community values. The UFMP includes strategies for measuring the success of the plan over time.

## Monitoring and Measuring Results

Through talking with community partners and those within the urban forestry program, a set of goals were created to meet the strong demand for protecting and enhancing the urban forest. The success of these goals is largely dependent on creating objectives and strategies to meet the targets outlined in the UFMP as well as monitor the progress of these action steps.

### ANNUAL REVIEW

The UFMP is an active tool that will guide management and planning decisions over the next 40 years. Its goals and actions will be reviewed annually for progress and integration into an internal work plan. The UFMP presents a long-range vision and target dates are intended to be flexible in response to emerging opportunities, available resources, and changes in community expectations. Therefore, each year, specific areas of focus should be identified, which can inform budget and time requirements for urban forest managers.

### RESOURCE ANALYSIS

With a Resource Analysis, Yuba City can identify quantitatively the value of the composition of public trees, the annual benefit provided to the community, replacement value, and benefit versus investment ratios. With this information, Yuba City can improve health (condition), species diversity, annual benefits, and overall resource value of its tree resource. When a resource analysis is conducted every five years, the city can illustrate progress and success towards plan goals. A five-year Resource Analysis review is a possible way to monitor progress on efforts to increase diversity through a list of tree species appropriate for a variety of different spaces and landscapes.

### CANOPY ASSESSMENT

With the recent Tree Canopy & Land Cover Assessment, Yuba City has a baseline tree canopy for the entire urban forest, which allows for continued monitoring of trends in the canopy cover on private property.

### COMMUNITY SATISFACTION

Plan results will be measurable through increased benefits and value in the community tree resource and the preservation and eventual increase in canopy cover over time. Attainment of the objectives and strategies will support better tree health, greater longevity, and a reduction in tree failures. However, one of the greatest measurements of success for the UFMP will be its level of success in meeting community expectations for the care and preservation of the community tree resource. Community satisfaction can be measured through surveys and will be evidenced by public support for realizing the objectives of the plan. Community satisfaction can also be gauged by the level of engagement and support for forestry programs.

## Reporting

Completion of this plan is the first step towards achieving the vision for Yuba City's urban forest. Continual monitoring, analysis, and revisions will help forest managers keep stakeholders informed and engaged. By organizing data into specific components (for example, Urban Forest Reports, Community Satisfaction Surveys), it will be possible to revise specific areas of weakness and buttress areas of strength. Revisions to the plan should occur with major events, such as newly discovered pests or diseases, or significant policy and regulation changes. A complete formal revision should occur in unison with major municipal projects, such as the comprehensive Master Plan. It is important to remember that the Yuba City Urban Forest Master Plan is a living document that should adapt to new conditions.

### STATE OF THE COMMUNITY FOREST REPORT

The purpose of the report is to provide structural and functional information about the urban forest (including the municipal forest) and recommend strategies for its proactive management, protection, and growth.

I love trees because they  
give me air and fruit



*Gaberial*

7 1/2 years





# Appendix A: Dictionary

## **ADAPTIVE MANAGEMENT**

A framework commonly used for resource planning and management, which follows the process of What do we have, What do we want, How do we get there, and How are we doing.

## **AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)**

A Federation of United States industry sectors (e.g., businesses, professional societies and trade associations, standards developers, government agencies, institutes, and consumer / labor interest groups) that coordinates the development of the voluntary consensus standards system.

## **AMERICAN PUBLIC WORKS ASSOCIATION (APWA)**

An organization that supports professionals who operate, improve, or maintain public works infrastructure by advocating to increase awareness, and providing education, credentialing, as well as other professional development opportunities.

## **ARBORICULTURE**

The science, art, technology, and business of tree care.

## **BEST MANAGEMENT PRACTICES (BMP)**

Management practices and processes used when conducting forestry operations, implemented to promote environmental integrity.

## **CAPITAL IMPROVEMENT PROJECTS (CIP)**

Infrastructure projects and equipment purchases identified by a government in order to maintain or improve public resources. Projects such as (1) constructing a facility, (2) expanding, renovating, replacing, or rehabilitating an existing facility, or (3) purchasing major equipment are identified, and then purchasing plans and development schedules are developed.

## **CLIMATE ACTION PLAN (CAP)**

Government lead initiatives to decrease greenhouse gas emissions and prepare for the impacts of climate change.

## **COMMUNITY URBAN FOREST**

The collection of publicly owned trees within an urban area, including street trees and trees in parks and other public facilities.

## **DRIP LINE AREA**

The area measured from the trunk of the tree outward to a point at the perimeter of the outermost branch structure of the tree.

## **DUTCH ELM DISEASE (DED)**

A wilt disease of elm trees caused by plant pathogenic fungi. The disease is either spread by bark beetles or tree root grafts.

## **EMERALD ASH BORER (EAB)**

The common name for *Agrilus planipennis*, an emerald green wood boring beetle native to northeastern Asia and invasive to North America. It feeds on all species of ash.

## **GREENHOUSE GAS (GHG)**

A gas that traps heat in Earth's atmosphere.

## **GEOGRAPHIC INFORMATION SYSTEM (GIS)**

Computer-based tools designed to increase the organization and understanding of spatial or geographic data. Many different kinds of data can be displayed on one map for visualization and interpretation.

## **HEAT ISLAND EFFECT**

A phenomenon where temperatures in urban areas are higher than that of their surrounding rural areas due to human activities.

## **HONEYDEW**

A sweet sticky substance, high in sugars and amino acids, that is excreted by various insects.

## **INTEGRATED PEST MANAGEMENT (IPM)**

Using pest and environmental information to determine if pest control actions are warranted. Pest control methods (e.g., biological control, habitat manipulation, cultural control, plant resistance, and chemical control) are chosen based on economic and safety considerations.

## **I-TREE**

A computer program with tools used to determine the costs and benefits of urban trees based on inventory data, operations costs, and other factors.

## **INTERCEPTION**

Refers to the precipitation that does not reach the soil, but instead is intercepted or stopped by the leaves, branches, and bark of trees.

## **INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA)**

An international nonprofit organization that supports professionals in the field of arboriculture by providing professional development opportunities, disseminating applicable research findings, and promoting the profession.

## **INVENTORIED TREES**

Includes all public trees collected in the inventory as well as trees that have since been collected by city staff.

## **MAJOR MAINTENANCE**

Includes major trimming or pruning or cabling, and any other similar act, which promotes the life, growth, health, or beauty of trees, excepting watering and minor pruning.

## **MAJOR TRIMMING AND PRUNING**

The removal of branches of three inches in diameter or greater.

## **MIGRATORY BIRD TREATY ACT (MBTA)**

A United States federal law adopted to protect migratory birds.

## **NATURAL AREA**

A defined area where native trees and vegetation are allowed to grow and reproduce naturally with little or no management except for control of undesirable and invasive species.

## **OPEN SPACE**

A defined area of undeveloped land that is open to the public. The land can include native or naturalized trees and vegetation.

## **PLANT HEALTH CARE (PHC)**

A program that consists of (1) routinely monitoring landscape plant health and (2) individualized plant management recommendations in order to maintain or improve the vitality, appearance, and safety of trees and other plants.

## **PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Equipment worn to enhance workplace safety and minimize the risk to physical hazards (e.g., gloves, hard hats, bodysuits, and foot, eye, or ear protection).

## **PRIVATE TREE**

Any tree located on private property, including residential and commercial parcels.

## **PUBLIC TREE**

Any tree located in the public ROW, city park, and/or city facility.

### **RIGHT TREE RIGHT PLACE**

The practice of installing the optimal species for a particular planting site. Considerations include existing and planned utilities and other infrastructure, planter size, soil characteristics, water needs as well as the intended role and characteristics of the species.

### **STREET TREE**

Any tree growing within the tree maintenance strip whether or not planted by the city.

### **STRUCTURAL AND TRAINING PRUNING**

Pruning to develop a sound and desirable scaffold branch structure in a tree and to reduce the likelihood of branch failure.

### **TRANSPIRATION**

The process of water movement through a plant and its evaporation through its leaves.

### **TREE**

Any live woody plant having one or more well-defined perennial stems with a diameter at maturity of six inches or more measured at fifty-four inches above ground level (breast height).

### **TREE CANOPY**

The layer of leaves, branches, and stems of trees that cover the ground when viewed from above.

### **TREE CITY USA**

A program through the Arbor Day Foundation that advocates for green urban areas through enhanced tree planting and care

### **TREE IN PROXIMITY TO TRAILS/FACILITIES**

A tree that, as a result of size and location, has the potential to impact or interfere with the use, safety, and/or condition of a defined trail, structure, or facility (e.g., picnic table, bench, parking area, etc.)

### **TREE RISK ASSESSMENT QUALIFIED (TRAQ)**

An International Society of Arboriculture qualification. Upon completion of this training, tree care professionals demonstrate proficiency in assessing tree risk.

### **URBAN FOREST**

The collection of privately owned and publicly owned trees and woody shrubs that grow within an urban area.

### **URBAN FOREST MASTER PLAN (UFMP)**

A document that provides comprehensive information, recommendations, and timelines to guide for the efficient and safe management of a city's tree canopy. The plan uses adaptive management model to provide reasoned and transparent calls to action from an inventory of existing resources.

### **URBAN FORESTRY**

The cultivation and management of native or introduced trees and related vegetation in urban areas for their present and potential contribution to the economic, physiological, sociological, and ecological well-being of urban society.

### **URBAN TREE CANOPY ASSESSMENT (UTC)**

A document based off of GIS mapping data that provides a birds-eye view of the entire urban forest and establishes a tree canopy baseline of known accuracy. The UTC helps managers understand the quantity and distribution of existing tree canopy, potential impacts of tree planting and removal, quantified annual benefits trees provide to the community, and benchmark canopy percent values.

### **WILDFIRE URBAN INTERFACE (WUI)**

A transition zone where homes are located on the edge of fire prone areas and are at an increased risk of personal injury or property damage resulting from a wildfire.

### **10-20-30 RULE**

A well accepted rule that states that no species should represent more than 10%, no genus represent more than 20%, and no family should represent more than 30% of a population.

I knew trees were important to our town and that there are public trees that are maintained.



*Survey Respondent*



# Appendix B: References

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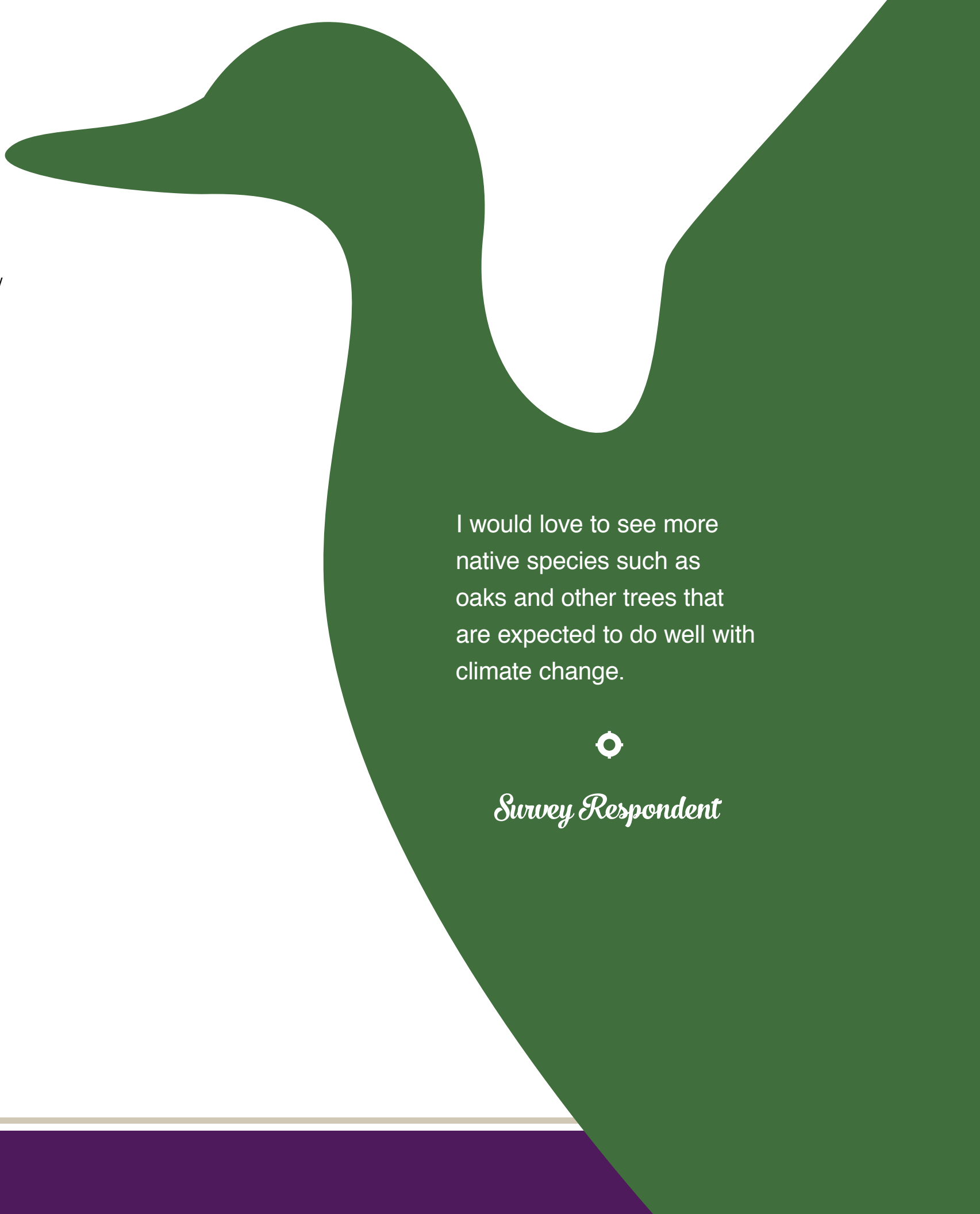
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I would love to see more native species such as oaks and other trees that are expected to do well with climate change.

*Survey Respondent*



# Appendix C: Industry Standards

## ANSI Z133 Safety Standard, 2017

Reviews general safety, electrical hazards, use of vehicles and mobile equipment, portable power hand tools, hand tools and ladders, climbing, and work procedures.

### ANSI A300

ANSI A300 standards represent the industry consensus on performing tree care operations. The standards can be used to prepare tree care contract specifications.

ANSI A300 Pruning Standard-Part 1, 2017

ANSI A300 Soil Management-Part 2, 2011

ANSI A300 Support Systems Standard-Part 3, 2013

ANSI A300 Construction Management Standard-Part 5, 2012

ANSI A300 Transplanting Standard-Part 6, 2012

ANSI A300 Integrated Vegetation Management Standard-Part 7, 2012

ANSI A300 Root Management Standard-Part 8, 2013

ANSI A300 Tree Risk Assessment Standard a Tree Failure-Part 9, 2017

ANSI A300 Integrated Pest Management-Part 10, 2016

Includes guidelines for implementing IPM programs, including standards for Integrated Pest Management, IPM Practices, tools and equipment, and definition.

## Best Management Practices (BMPs)

### Integrated Pest Management, Second Edition, P. Eric Wiseman, and Michael J. Raupp, 2016

Provides a comprehensive overview of the basic definitions, concepts, and practices that pertain to landscape Integrated Pest Management (IPM). The publication provides specific information for designing, planning, and implementing an IPM program as part of a comprehensive Plant Health Care (PHC) management system, including topics such as:

- IPM Concepts and Definitions
- Action Thresholds
- Monitoring Tools and Techniques
- Preventive Tactics
- Control Tactics
- Documentation and Recordkeeping

### Integrated Vegetation Management, Second Edition, Randall H. Miller, 2014

A guide to the selection and application of methods and techniques for vegetation control for electric rights-of-way projects and gas pipeline rights-of-way. Topics included: safety, site evaluations, action thresholds, evaluation, and selection of control methods, implementing control methods, monitoring treatment and quality assurance, environmental protection, tree pruning and removal, and a glossary of terms.

### Managing Trees During Construction, Second Edition, Kelby Fite and E. Thomas Smiley, 2016

Describes tree conservation and preservation practices that help to protect selected trees throughout the construction planning and development process so that they will continue to provide benefits for decades after site disturbance, including planning phase, design phase, pre-construction phase, construction phase, and post-construction phase.

### Root Management, Larry Costello, Gary Watson, and Tom Smiley, 2017

Recommended practices for inspecting, pruning, and directing the roots of trees in urban environments to promote their longevity, while minimizing infrastructure conflicts.

Special companion publication to the ANSI A300 Part 8: Tree, Shrub, and Other Woody Plant Management—Standard Practices (Root Management)



**Tree Planting, Second Edition, Gary Watson, 2014**

Provides processes for tree planting, including site and species selection, planting practices, post-planting pruning, and early tree care. Other topics included are time of planting, nursery stock: types, selection, and handling, preparing the planting hole, planting practices, root loss and new root growth, redevelopment of root structure, pruning, palms, after planting, final inspection, and a glossary of terms.

**Tree Inventories, Second Edition, Jerry Bond, 2013**

Provides considerations for managing large numbers of trees considered as individuals rather than groups and serves as a guide for making informed decisions that align with inventory goals with needs and resources, including inventory goals and objectives, benefits and costs, types, work specifications, and maintaining inventory quality.

**Tree Risk Assessment, Second Edition, E. Thomas Smiley, Nelda Matheny, and Sharon Lilly, 2017**

A guide for assessing tree risk as accurately and consistently as possible, to evaluate that risk, and to recommend measures that achieve an acceptable level of risk, including topics: risk assessment basics, levels and scope of tree risk assessment, assessing targets, sites, and trees, tree risk categorization, risk mitigation: preventive and remedial actions, risk reporting, tree related conflicts that can be a source of risk, loads on trees, structural defects and conditions that affect likelihood of failure, response growth, description of selected types of advanced tree risk assessments.

**Tree Shrub Fertilization, Third Edition, E. Thomas Smiley, Sharon Lilly, and Patrick Kelsey, 2013**

Aides in the selection and application of fertilizers for trees and shrubs, including: Essential elements, determining goals and objectives of fertilization, soil testing and plan analysis, fertilizer selection, timing, application, application area, rates, storage and handling of fertilizer, sample fertilizer contract for commercial/ municipal clients.

**Soil Management, Bryant Scharenbroch, E. Thomas Smiley, and Wes Kocher, 2014**

Focuses on the protection and restoration of soil quality that support trees and shrubs in the urban environment, including goals of soil management, assessment, sampling, and analysis, modifications and amendments, tillage, conservation, and a glossary of terms.

**Utility Pruning of Trees, Geoffrey P. Kempter, 2004**

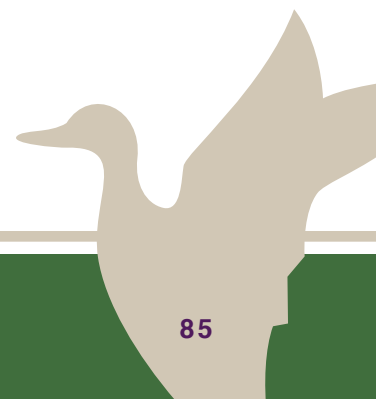
Describes the current best practices in utility tree pruning based on scientific research and proven methodology for the safe and reliable delivery of utility services, while preventing unnecessary injury to trees. An overview of safety, tools, and equipment, pruning methods and practices, and emergency restoration are included.



A tree has roots in the soil yet reaches to the sky. It tells us that in order to aspire we need to be grounded and that no matter how high we go it is from our roots that we draw sustenance.

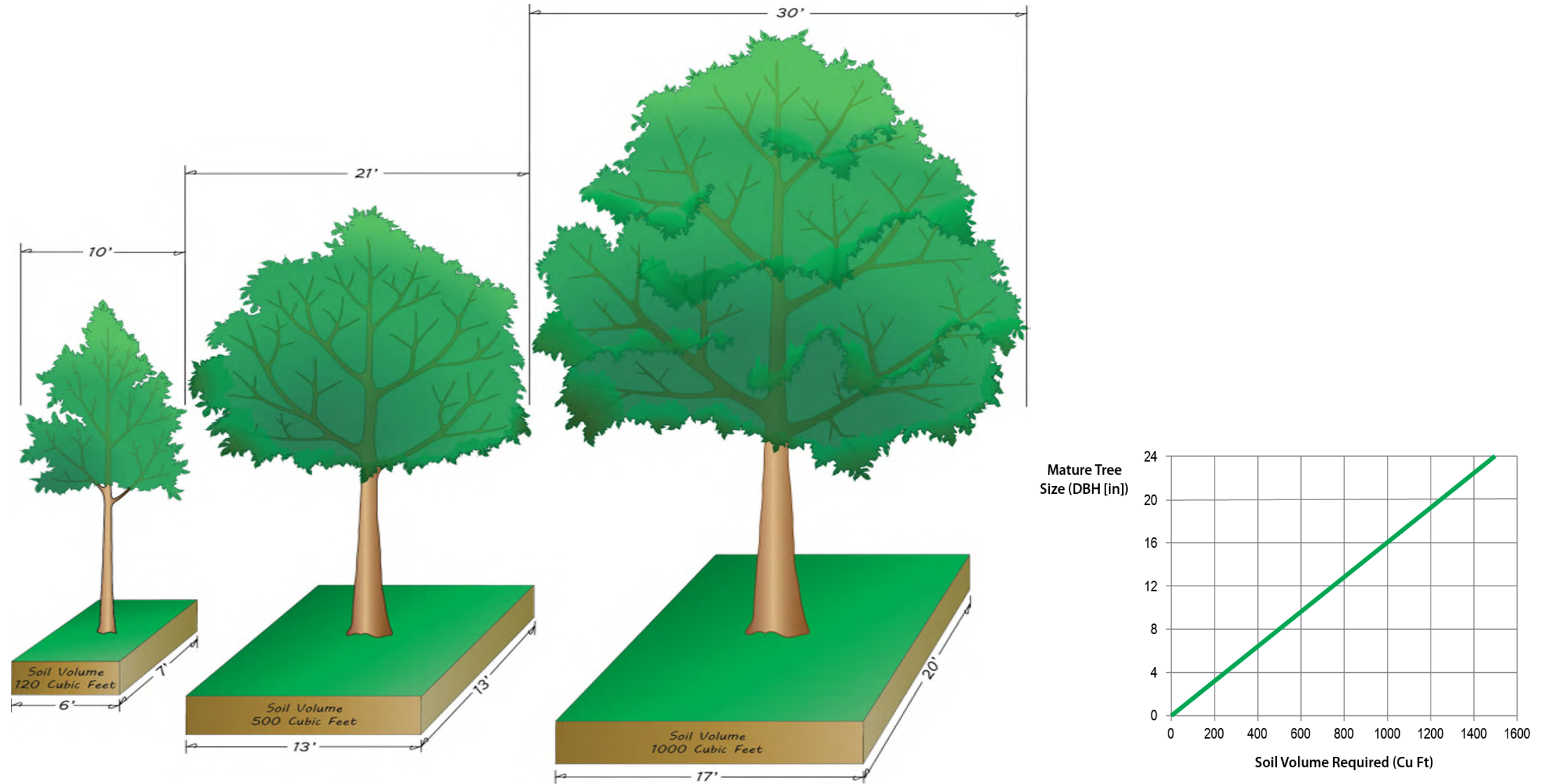


*Wangari Maathai*

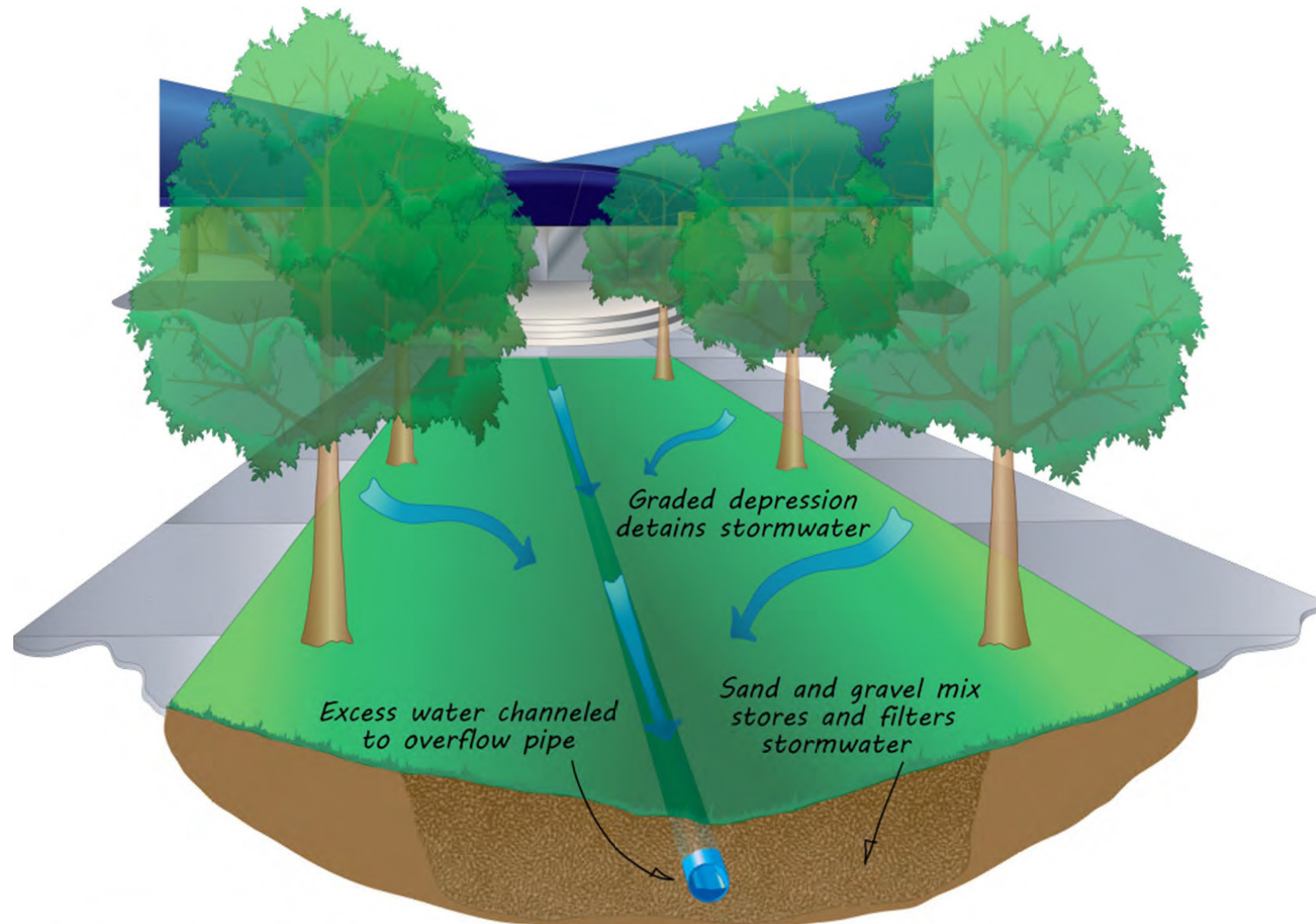


# Appendix D: Soil Volume and Tree Stature

Tree growth is limited by soil volume. Larger stature trees require larger volumes of uncompacted soil to reach mature size and canopy spread (Casey Trees, 2008).

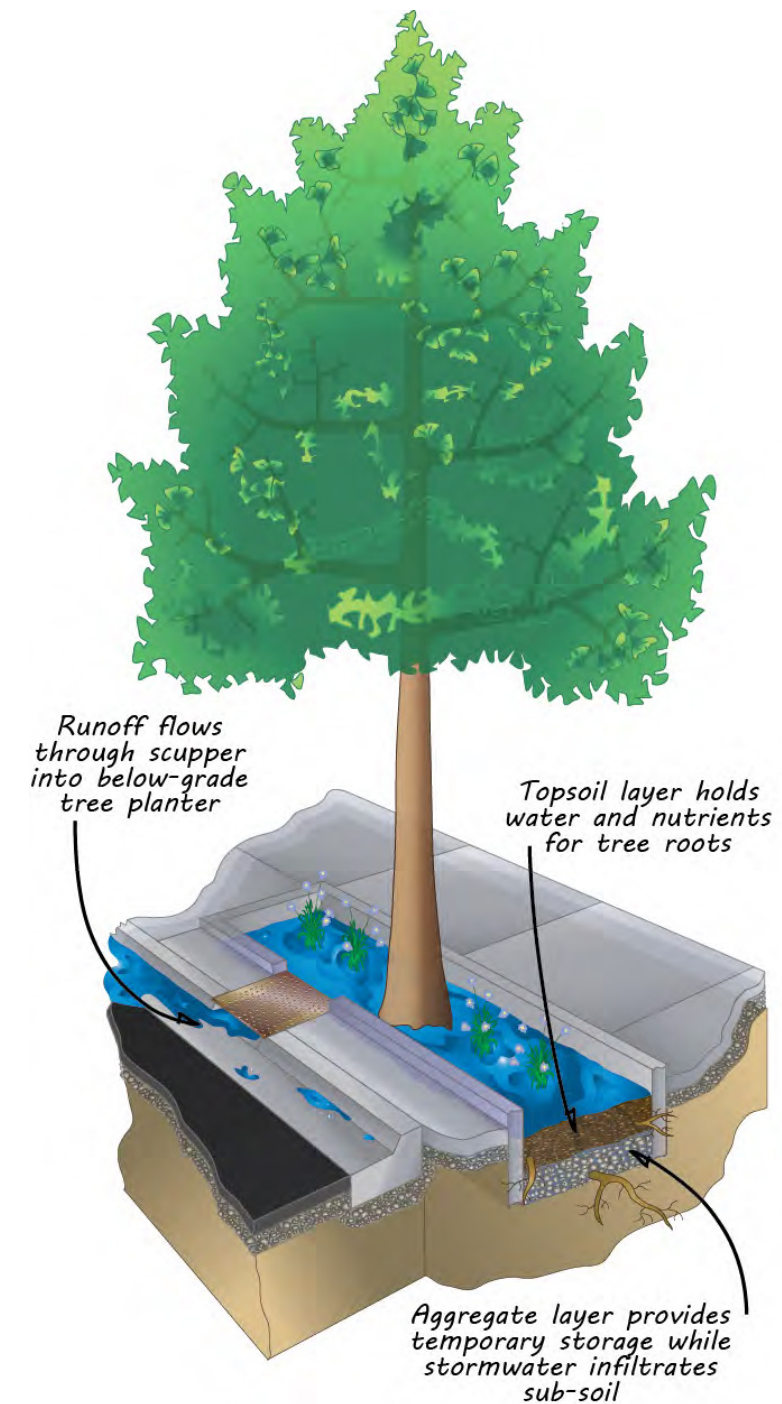


# Appendix E: Alternative Planter Designs

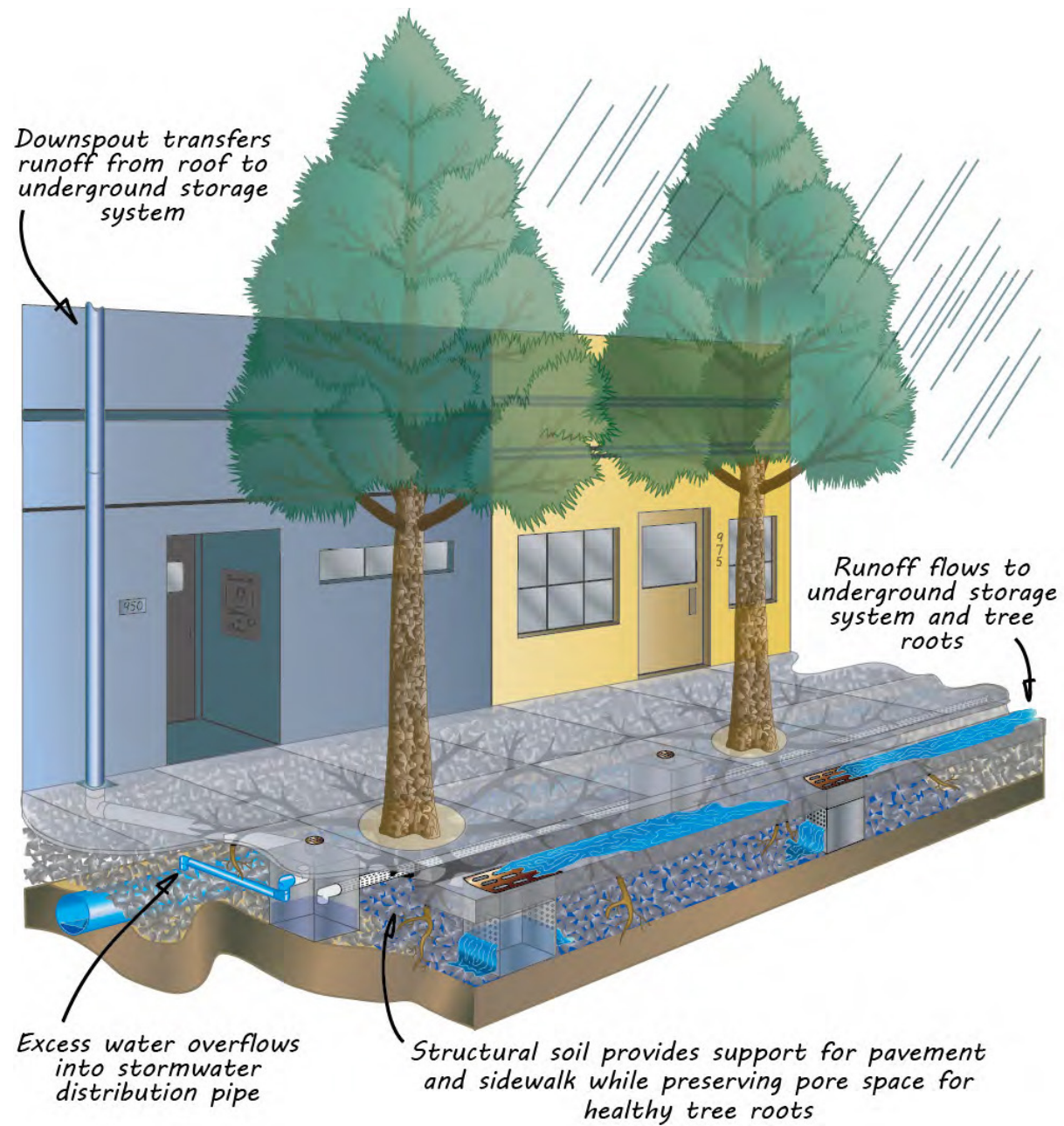


*Increased soil volume and vegetation, including trees, maximizes potential for absorption, bioremediation, and phytoremediation*

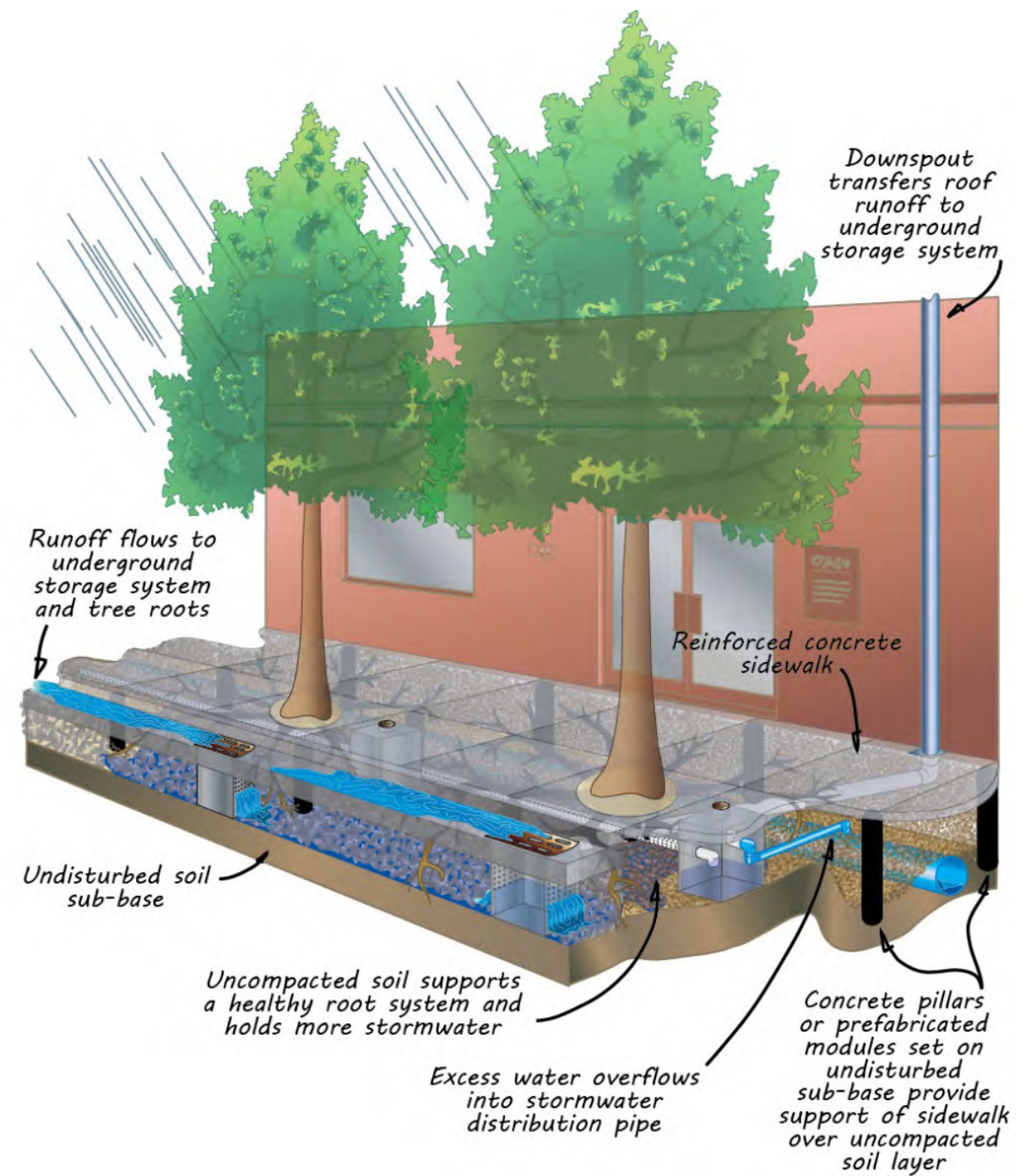
**Above:** Bioswales are landscaped drainage areas with gently sloped sides designed to provide temporary storage while runoff infiltrates the soil. They reduce off-site runoff and trap pollutants and silt.



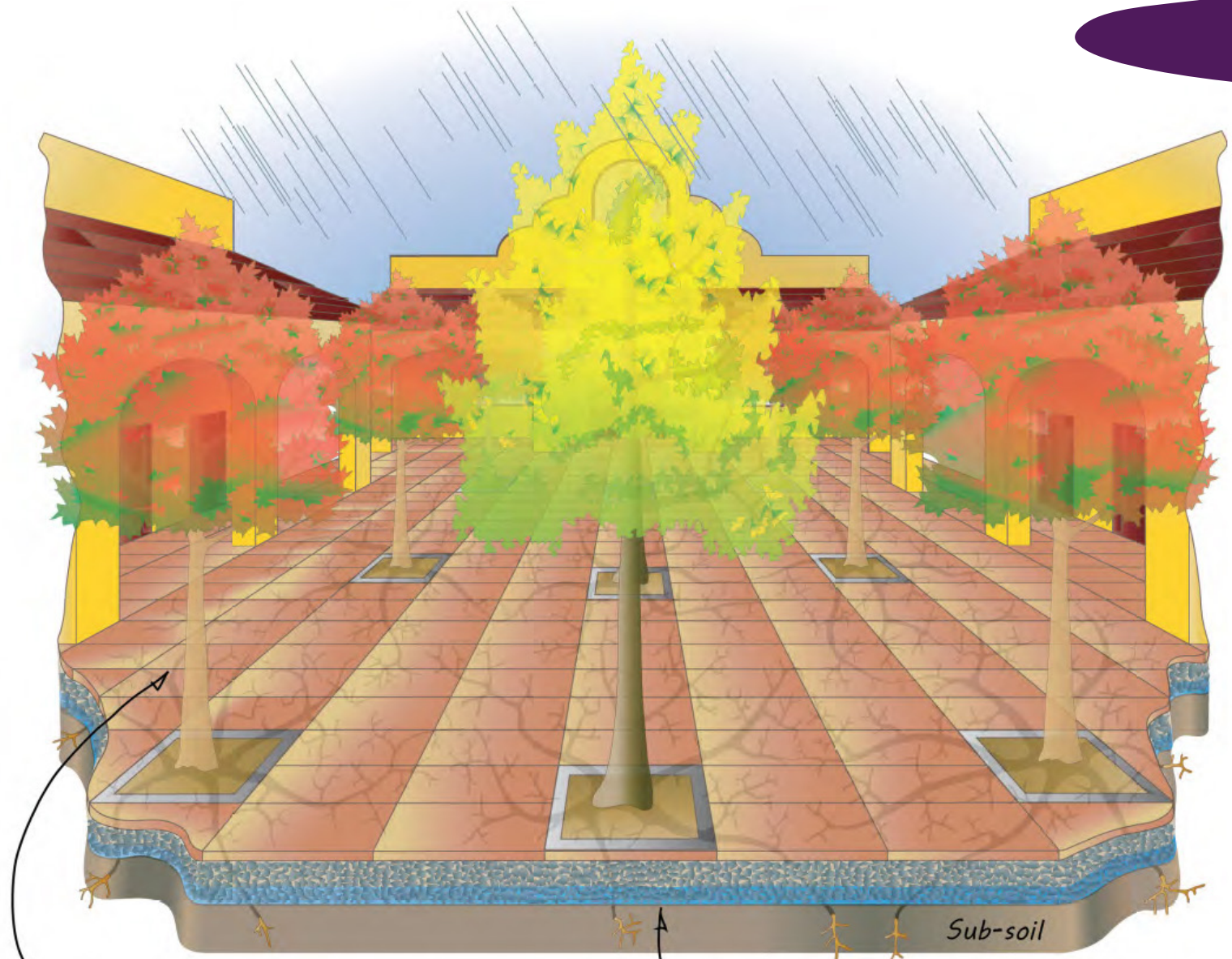
**Above:** Stormwater tree pits are designed to collect runoff from streets, parking lots, and other impervious areas. Stormwater is directed into scuppers that flow into below-grade planters that then allow stormwater to infiltrate soils to supplement irrigation.



**Above:** Structural soil is a highly porous, engineered aggregate mix, designed for use under asphalt and concrete as a load-bearing and leveling layer. The created spaces allow for water infiltration and storage, in addition to root growth.



**Above:** Suspended sidewalks use pillars or structured cell systems to support reinforced concrete, increasing the volume of uncompacted soil in subsurface planting areas and enhancing both root growth and stormwater storage.



Permeable pavement allows stormwater to infiltrate surface, recharging sub-soil and irrigating trees

Aggregate layer provides temporary storage while stormwater infiltrates sub-soil

Sub-soil

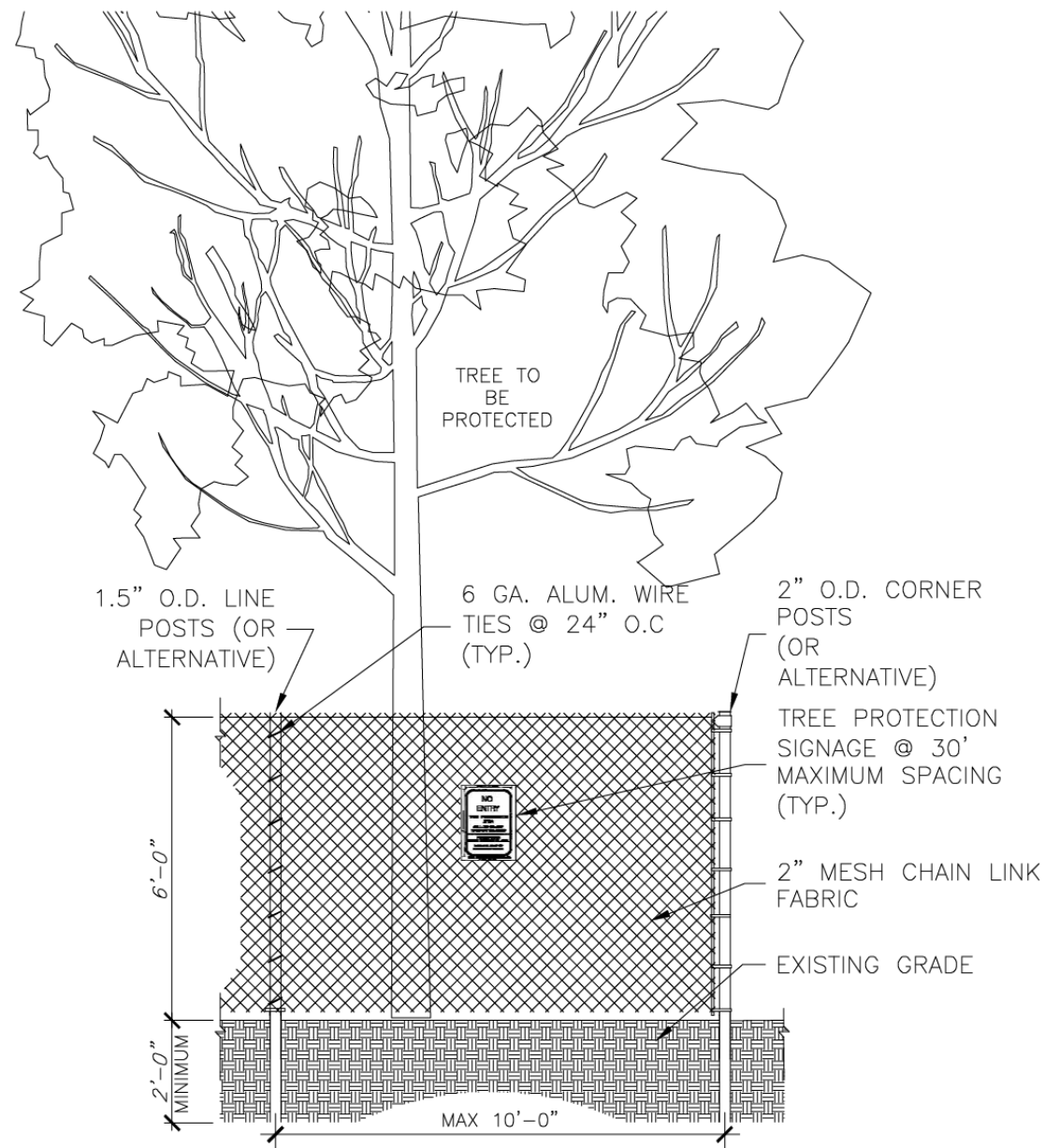
**Above:** Permeable pavements allow stormwater and oxygen to infiltrate the surface, promoting tree health and groundwater recharge.

I have spent time in many nearby cities and see how areas such as Chico have worked so hard to incorporate many trees into much of their town. It relaxes me and puts me in a more positive headspace. And I can't understate their many more practical applications, like helping save residents from the often dangerous heat levels.



*Survey Respondent*

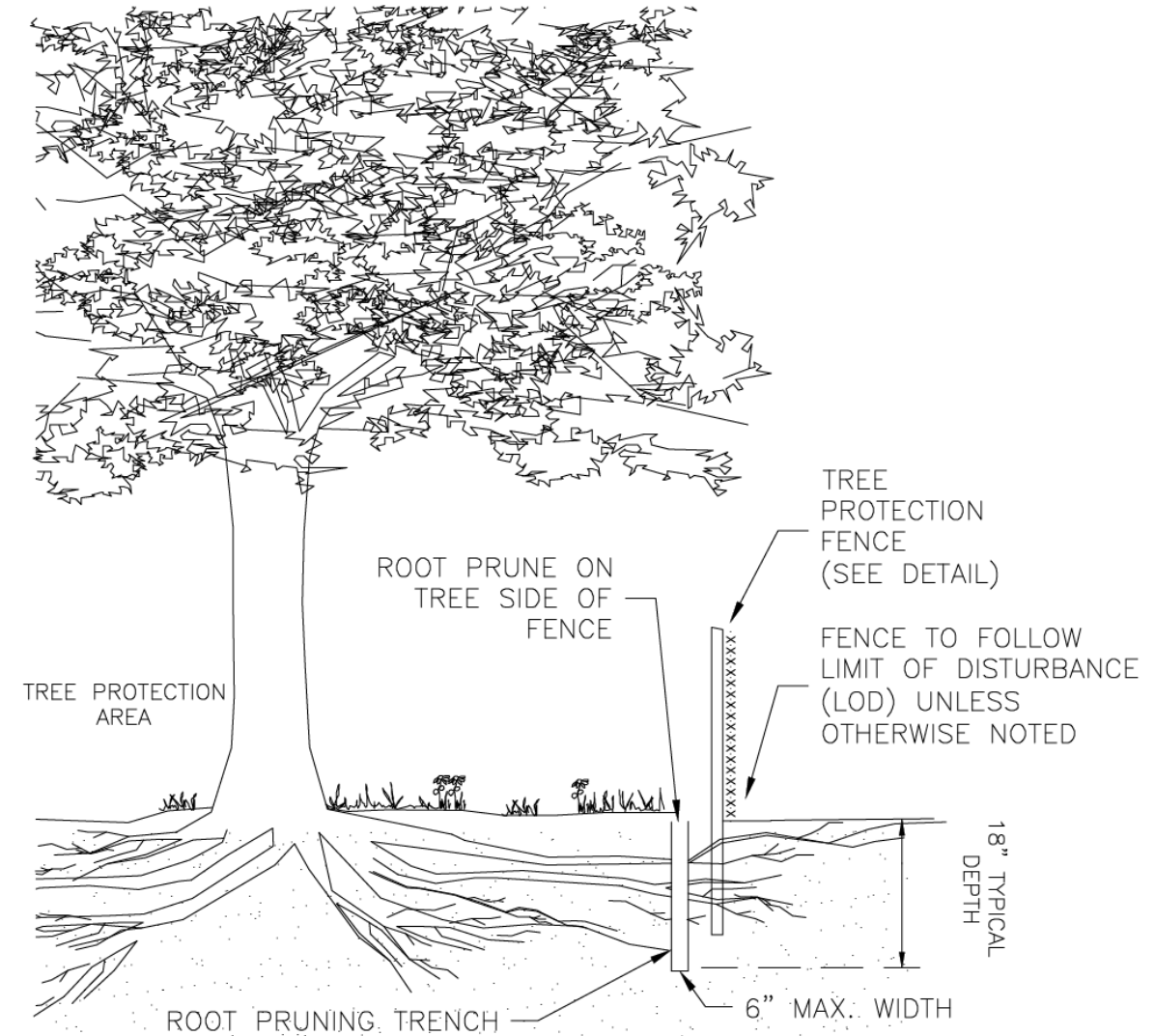
# Appendix F: Tree Protection Zones



**NOTES:**

1. TREE PROTECTION FENCE SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION.
2. SUPER SILT FENCE MAY BE USED IN LIEU OF WELDED WIRE FOR TREE PROTECTION PROVIDED IT IS INSTALLED AND MAINTAINED AS A TREE PROTECTION MEASURE AND IS POSTED WITH TREE PROTECTION SIGNS.
3. TREE PROTECTION FENCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. REMOVE FENCE ONLY WITH APPROVAL AND AFTER ALL SITE WORK HAS BEEN COMPLETED.

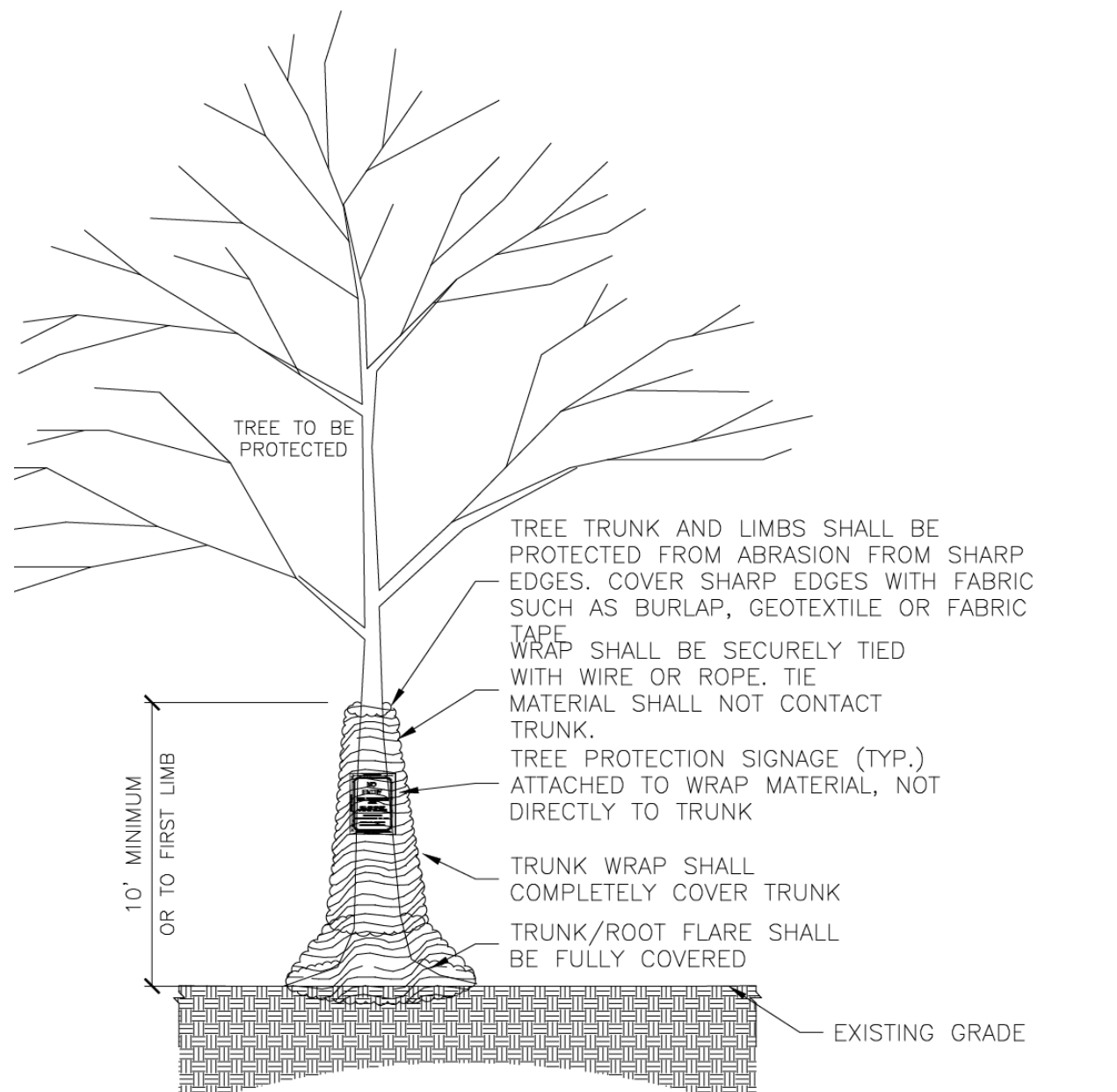
1  
TP1 CHAIN LINK TREE PROTECTION FENCE (TYPICAL)  
SCALE: NTS



**NOTES:**

1. TREE PROTECTION AREA WILL BE DETERMINED AS PART OF THE PLAN REVIEW PROCESS. EXACT LOCATION, DEPTH AND METHODS OF ROOT PRUNING TO BE DETERMINED IN THE FIELD BY PROJECT ARBORIST.
2. EXACT LOCATION OF TREE PROTECTION AREAS SHALL BE STAKED OR FLAGGED PRIOR TO TRENCHING.
3. TRENCH SHOULD BE BACKFILLED IMMEDIATELY OR INCORPORATED WITH SILT FENCE INSTALLATION.
4. ROOTS SHOULD BE SEVERED BY TRENCHER, VIBRATORY PLOW OR APPROVED EQUIVALENT. ROOTS OVER 1.5" DIAMETER SHOULD BE CLEANLY CUT BY HAND. ROOT PRUNING ADJACENT TO SPECIMEN TREES MAY REQUIRE SOIL REMOVAL BY SUPERSONIC AIR TOOL TO MINIMIZE TREE AND ROOT IMPACTS.

2  
TP1 ROOT PRUNING (TYPICAL)  
SCALE: NTS



NOTES:

1. TRUNK WRAP MATERIAL SHALL BE DOUBLE SIDED GEOCOMPOSITE, GEONET CORE WITH NON-WOVEN COVERING (SUCH AS TENAX TENDRAIN 770/2) OR EQUIVALENT.
2. WRAP SHALL BE INSTALLED BY A CERTIFIED ARBORIST.
3. WRAP SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION.
4. WRAP SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. REMOVE WRAP ONLY WITH APPROVAL AND AFTER ALL SITE WORK HAS BEEN COMPLETED.
5. WRAP SHALL BE REMOVED PROMPTLY AFTER CONSTRUCTION.
6. MAJOR SCAFFOLD LIMBS MAY ALSO REQUIRE THIS PROTECTION AS DIRECTED BY THE PROJECT ARBORIST.

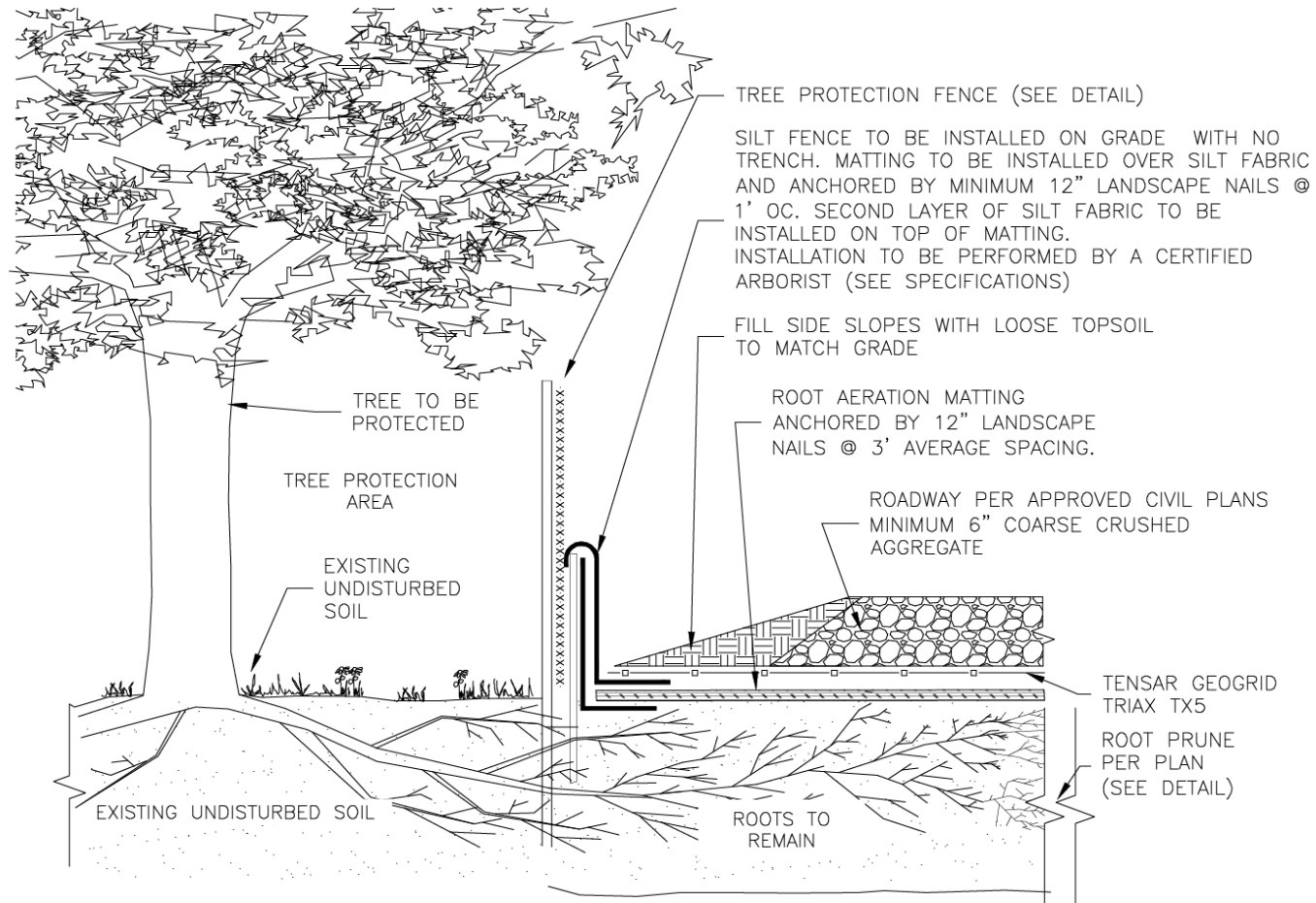
3 TREE TRUNK & LIMB PROTECTION WRAP (TYP)  
 TP1 SCALE: NTS

Love note to trees. How do I love trees let me count the ways: your varieties from fruit to palm. What you provide to all creatures great and small. Your beauty is pleasing to the sighted and comfort to the blind and sight impaired. How do I love thee (trees), I can't count the ways. The ways are innumerable but just know this: I love you.

*Survey respondent*

Yuba City needs to become more about "outdoor spaces" - things like outdoor dining and entertainment not only attract tourism and business, but it also provides a reason to stay local

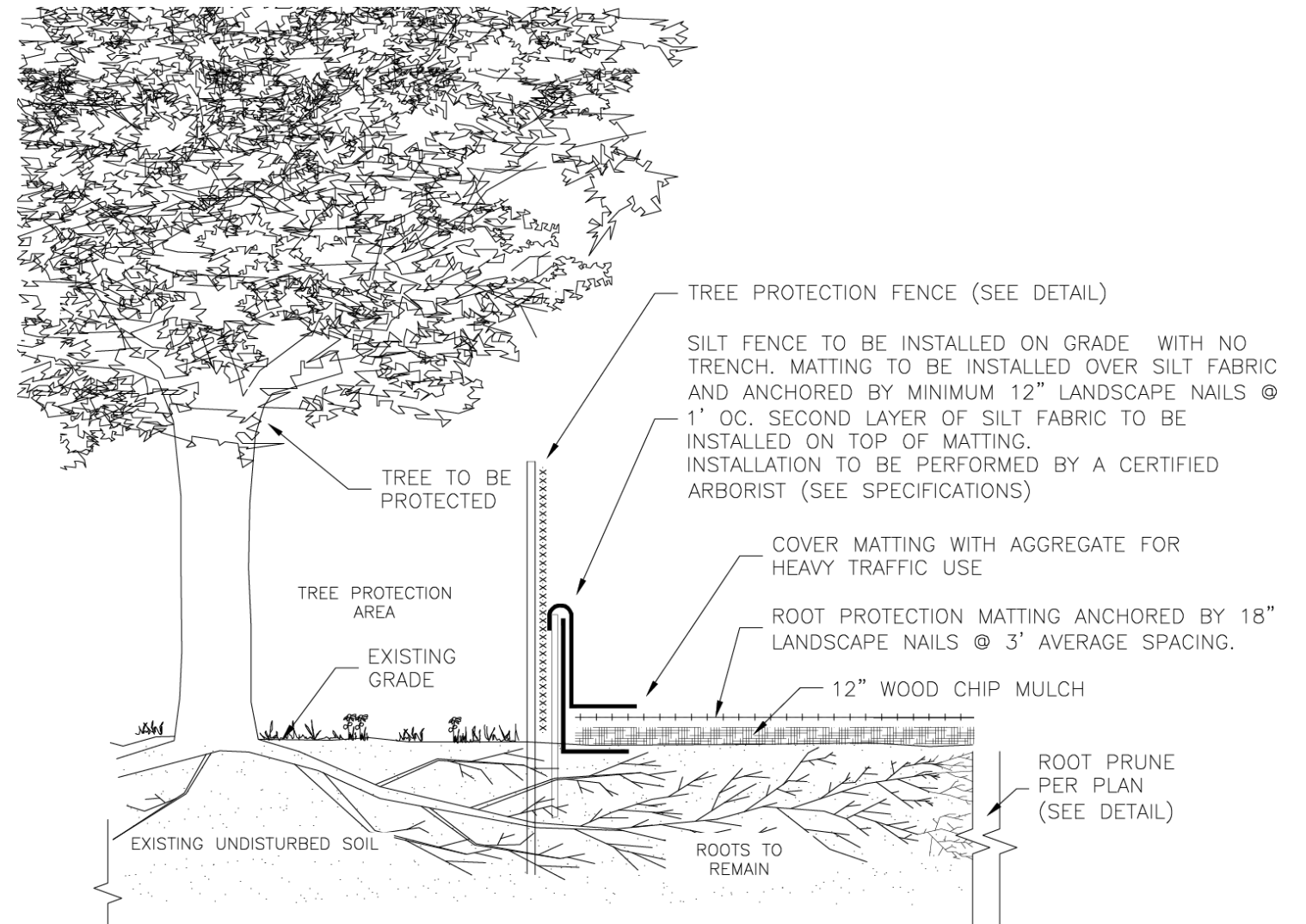
*Survey respondent*



NOTES:

1. MATTING MATERIAL SHALL BE DOUBLE SIDED GEOCOMPOSITE, GEONET CORE WITH NON-WOVEN COVERING (SUCH AS TENAX TENDRAIN 770/2) OR APPROVED EQUIVALENT.
2. RAM SHALL BE ANCHORED BY 12" LANDSCAPE NAILS @ 3' AVERAGE SPACING.
3. RAM SHALL BE INSTALLED BY A CERTIFIED ARBORIST EXPERIENCED WITH THESE SYSTEMS.
4. ANY REQUIRED SITE PREPARATION/GRADING TO BE DONE USING SSAT TO MINIMIZE ROOT DAMAGE.
5. ALL ADJACENT WORK SHALL BE SUPERVISED BY CERTIFIED ARBORIST
6. GEOGRID SHALL BE TENSAR TRIAX TX5 OR APPROVED SUPERIOR.
7. AGGREGATE FILL SHALL BE TAPERED TO MATCH EXISTING GRADE WHOLLY ON RAM MATERIAL.
8. GEOGRID AND RAM PLACEMENTS SHALL BE OVERLAPPED BY 2'.
9. TOPSOIL MAY BE PLACED LOOSELY ON SIDE SLOPES AS REQUIRED TO MATCH GRADE. TOPSOIL SHALL NOT BE COMPACTED. RAM MUST EXTEND TO DAYLIGHT AND MAY BE TRIMMED AT FINAL TOE OF SLOPE.
10. SILT FENCE SHALL NOT BE TRENCHED AND MUST BE COORDINATED WITH ARBORIST FOR INSTALLATION.
11. EQUIPMENT/TRAFFIC SHALL NOT TRAVEL DIRECTLY ON RAM/GEOGRID. TRAFFIC MAY TRAVEL ON FINAL FILL ONLY.

4 ROOT AERATION MATTING WITH GEOGRID FOR ROADWAY (TYP)  
 TP1 SCALE: NTS

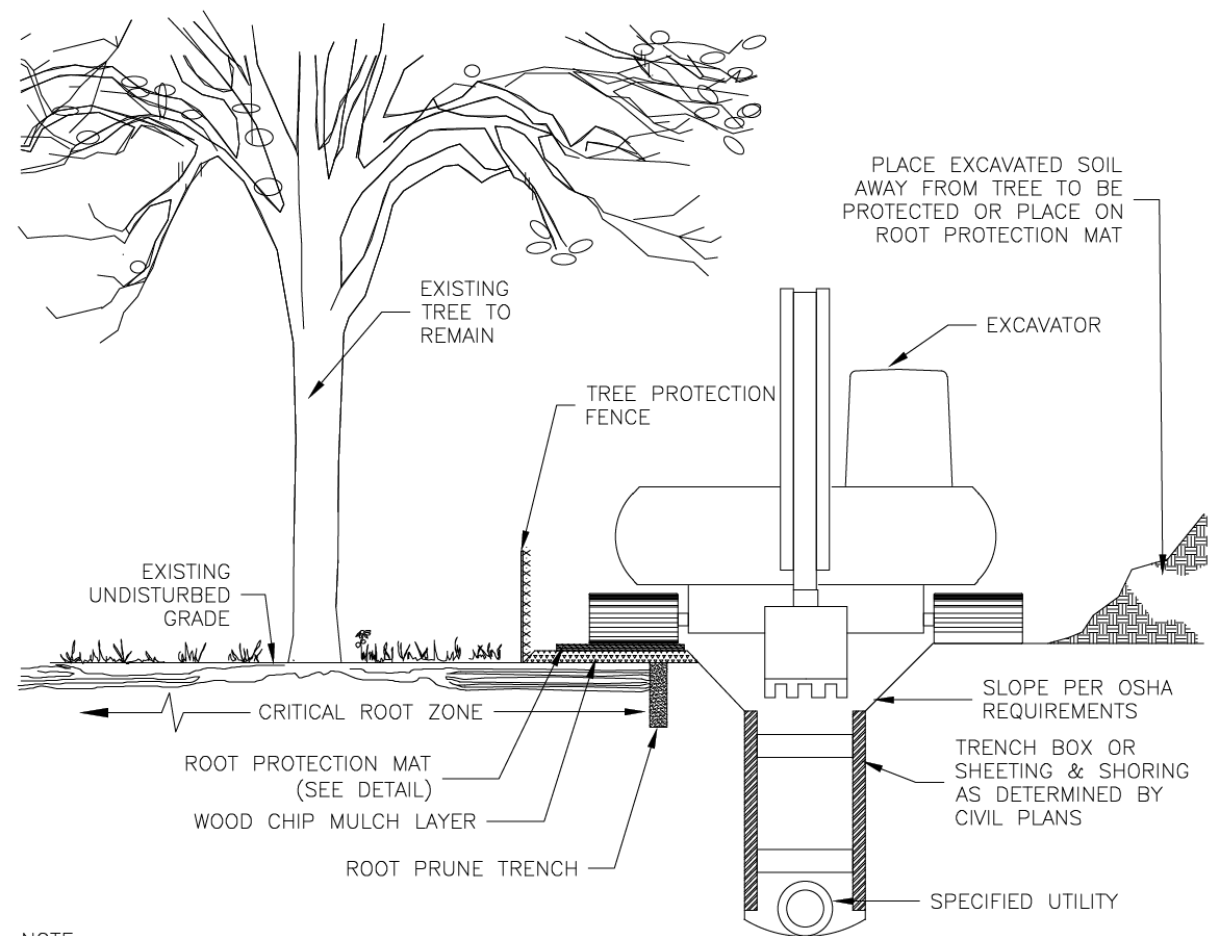


NOTES:

1. MATTING MATERIAL SHALL BE DOUBLE SIDED GEOCOMPOSITE, GEONET CORE WITH NON-WOVEN COVERING (SUCH AS TENAX TENDRAIN 770/2) OR APPROVED EQUIVALENT.
2. RPM SHALL BE INSTALLED BY A CERTIFIED ARBORIST.
3. TO BE USED FOR DESIGNATED TEMPORARY CONSTRUCTION ACCESS AND STOCKPILE AREAS.
4. MATTING SHALL BE PLACED ON 12" WOOD CHIP MULCH UNLESS OTHERWISE DIRECTED.
5. FOR HEAVY TRAFFIC AREAS, MATTING SHALL BE COVERED WITH 6-8" WELL GRADED CRUSHED AGGREGATE. ADDITIONAL LAYERS OF GEOTEXTILE MAY BE NEEDED.

5 TEMPORARY ROOT PROTECTION MATTING (TYPICAL)  
 TP1 SCALE: NTS

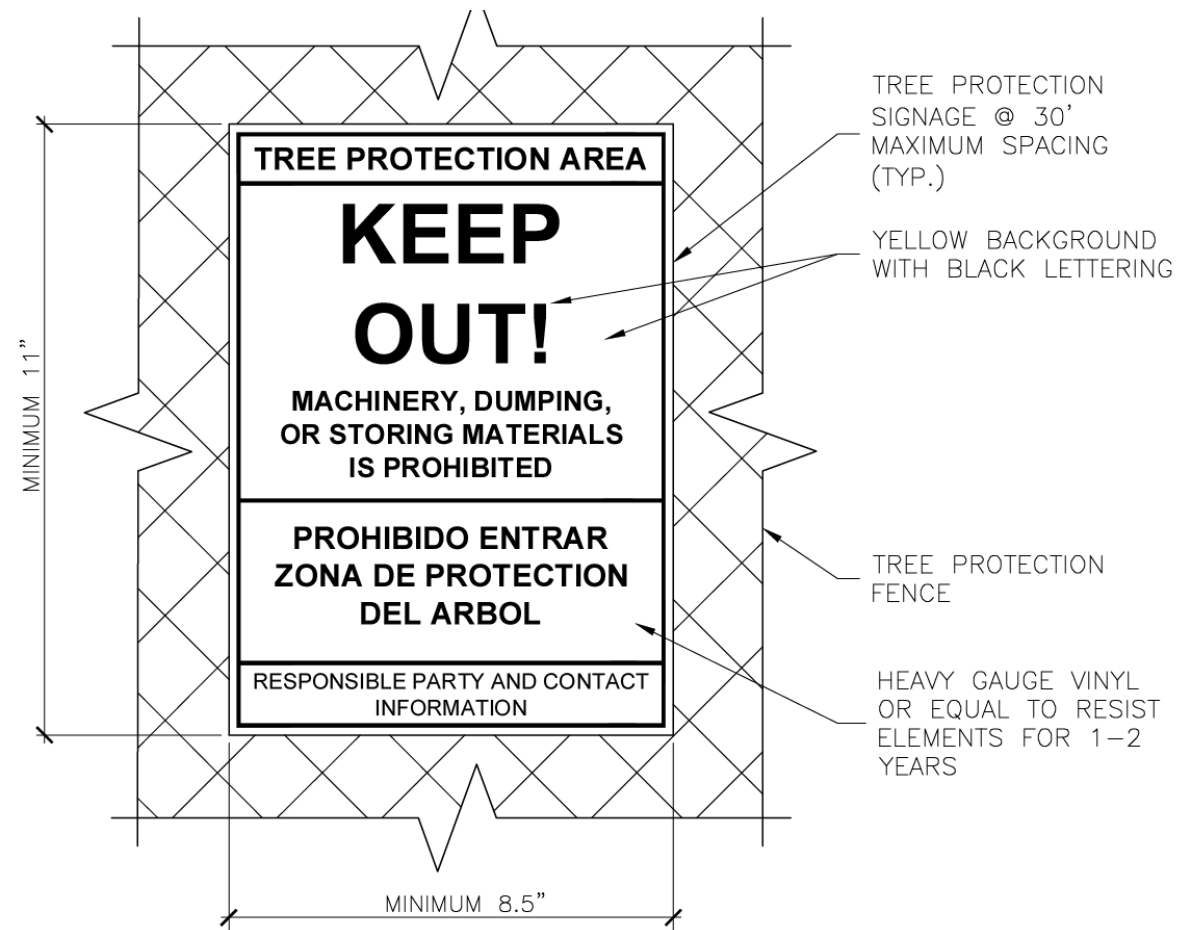




**NOTE:**

1. EXACT RPM DIMENSIONS TO BE DETERMINED BY PROJECT ARBORIST
2. ARBORIST TO COORDINATE WITH SITE SUPERINTENDENT FOR PIPE LAYOUT, DEPTH, SIZE OF EQUIPMENT, WIDTH OF TRENCH, AND OVERDIG TO DETERMINE LOCATION AND LAYOUT OF TREE PROTECTION.
3. ARBORIST TO COORDINATE WITH SITE SUPERINTENDENT FOR OVERHEAD CLEARANCE ISSUES. MAY REQUIRE SELECT PRUNING OR TEMPORARY GUYING.
4. ARBORIST TO MONITOR BACK FILL AND RESTORATION ADJACENT TO PROTECTED TREES.

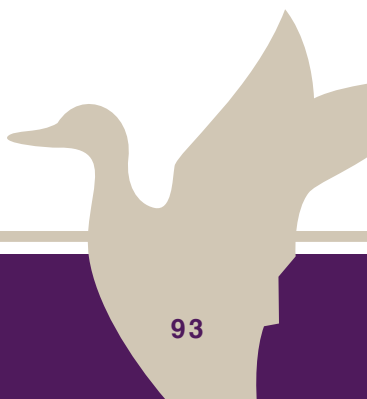
6 TREE PROTECTION FOR UNDERGROUND UTILITY (TYP)  
 TP1 SCALE: NTS



**NOTES:**

1. SIGNS TO BE ATTACHED TO TREE PROTECTION FENCE OR POSTS AT READABLE LEVEL.
2. 30' MINIMUM SPACING AVERAGE ADJUSTED FOR MAXIMUM READABILITY.
3. MINIMUM ONE SIGN FOR SMALL TREE PROTECTION AREAS.
4. SIGNS MAY BE REMOVED FROM RESIDENTIAL LOTS UPON ISSUANCE OF USE AND OCCUPANCY.
5. SIGNS TO REMAIN ON NON RESIDENTIAL SITES FOR MAINTENANCE PERIOD.

7 TREE PROTECTION AREA SIGN (TYPICAL)  
 TP1 SCALE: NTS



# Appendix G: Community Survey

## 1. Trees are important to the quality of life in Yuba City.

	Response %	Response Count
Strongly Agree	87.55	218
Agree	11.24	28
Disagree	0	0
Strongly Disagree	0.4	1
Not Sure	0.8	2
Other (please specify)	0	0
Total		249 (0 skipped)



## 2. Understanding which benefits are most appreciated by residents can help guide long-term management strategies. Please select your top 3.

	Response %	Response Count
Carbon storage	36.14	90
Energy savings	56.63	141
Air quality improvements	84.74	211
Stormwater interception	27.71	69
Wildlife habitat	57.83	144
Other (please specify)	14.06	35
a sense of place - restoration of the native plants that were originally here		
Aesthetics		
Beautification		
Beautification Efforts		
Beautification/Aesthetics		
Beauty		
beauty		
beauty		
Beauty		
Beauty		
Beauty scenery		
Creates a more "Hometown America" feel		
General appearance		
Get rid of the homeless		
Helping the people more		
Maintenance		
Mental health and joy		
Mood and general aid to mental well-being. No one wants a bleak concrete wasteland.		
More Controlled burns!!! The problem with all these fires is we aren't burning anymore!		
N/A		
Nice wide roads		
prevents urban heat effect (higher temps from infrastructure)		
Reducing urban heat island		
Regenerative farming		
Religious together eco system		
Safe evacuation plans		
security, maintenance, laundry room, forest fires, sanitation, rodent		
shade		
Shade		
Shade		
Shade		
Shade		
Shade, aesthetics		
Shade, temperature control.		
Tourism		
Total		

## 3. Trees also provide economic, aesthetic, and quality of life benefits. Please select your top 3.

	Response %	Response Count
Increased property value	19.28	48
Beauty/Aesthetics	59.84	149
Supports human health	49	122
Promotes a walkable community	46.18	115
Shaded trails, sidewalks, and bike trails	68.27	170
Shaded parking lots	24.9	62
Improve retail areas and neighborhoods	19.28	48
Passive recreation	8.43	21
Total		249 (0 skipped)

## 4. How concerned are you about climate change?

	Response %	Response Count
Very concerned	49.8	124
Slightly concerned	23.69	59
Unsure	10.04	25
Not concerned	9.64	24
Not concerned at all	6.83	17
Total		249 (0 skipped)

## 5. Optional. Use this space to provide additional comments on the benefits of Yuba City's trees.

- Clean up the city from homelessness and their garbage, especially along Highway 20. Trees are definitely needed but are going to do no good when the city is being rundown from abandoned buildings and the growing homeless population leaving trash everywhere.
- Come up with a solution for the "parkway" trees in front of people's homes. If they are forced to have the trees by the city, then the city needs to be responsible for the broken water and sewer pipes caused by the city's trees. If the city won't pay for the repairs, the don't force or fine residents for removing trees causing damage.
- Great opportunity to fill in useless lawn areas with trees and low growing native ground cover to conserve water and highlight the local flora. Trees along areas known for speeding can slow traffic (as well as times lights, but that's a different subject). Having shaded shared spaces makes it a welcoming community environment.
- I am deeply appreciate this being brought up! I have spent time in many nearby cities and see how areas such as Chico have worked so hard to incorporate many trees into much of their town. It relaxes me and puts me in a more positive headspace. And I can't understate their many more practical applications, like helping save residents from the often dangerous heat levels.
- I believe trees are one of the most important things on our planet and I've always appreciated the large amount and variety of beautiful trees in this town.
- I enjoy trees, thought that Yuba City was a Tree City through Arbor Day Society. It's hot here, trees provide shade. Birds love them, too! Good for us, good for the environment!
- I grew up in Paradise CA, and know, despite the dangers of forests and tons of trees, there are so many benefits. The quality of air Paradise had compared to Yuba City was noticeable just by getting out of your car and taking a breath. With more trees, we have more fresh oxygen, better physical AND mental states of health. We feel better throughout the day and it's much more pleasant to look at, if you want to get into cosmetics. I grew up watching all the Dogwoods bloom each year, rose bushes, pine trees, oaks, and so many more I don't even know the name of. It was so beautiful and refreshing to see and smell. Trees are essential to human life, not concrete, not oil. Mother nature tells us each year that we need to help her, not destroy her, and the Camp Fire was the final straw for me. I cannot just sit and watch all these warning signs of climate change happening. Please, plant the trees and let them grow into what was here before.
- I hope you protect trees, not like what city has handled COVID! City has strike a balance between Solar & Trees.... Remember how the city dragged its feet with Solar projects....
- I know they are messy but incorporating edibles and encouraging the community to pick and eat ripe fruit would have the added benefit/output of providing nutrition
- I love that YC is making this a beautiful city.
- I loved Chico for all of its trees and love that Yuba City is thinking about a future with more trees!
- I strongly believe in maintaining and absolutely adding more trees to the Yuba City community. They provide the necessary shade to balance out the hot and long summers in this area. They encourage people to be outside more, improve air quality, and beautify the area. Ask residents to serve the community by helping plant trees. We would be happy to!
- I would love to see more native species such as oaks and other trees that are expected to do well with climate change.
- I've always wondered why Yuba City looks like a giant parking lot. It's all concrete, asphalt, and some shrubs here and there. Meanwhile an hour south is Sacramento, "The City of Trees," and an hour north is Chico, with one of the country's largest city parks. Not to mention YC sits at the intersection of two rivers and rests atop fertile farmland. Where are all the trees????
- In an area that becomes hot during the summertime, trees provide welcome shade. That is more important as the effects of climate change become more pronounced.
- In scheme of things, trees are important to creatures big and small
- Make sure it can be properly maintained from fire, homeless encampments, and vandalism.
- Male trees are major pollen producing trees and contribute to allergies, unlike female trees. Sycamores would not be my choice for a park tree because of the "leaf fuzz" and the summer blight they get that disfigures the leaves. Trees are essential for our city and our health, especially shade produced in our 100+ degree summers.
- More trees and bike paths please our town is so small I can bike across town faster than I can drive. Due to limited bike space and heavy traffic I am unable to bike as often. Let's make biking safe and fun and not just for homeless people.
- More trees in public places are better.
- More trees make a better community
- N/A
- Nasty trees in parking lots drip on cars. Use correct trees
- Native oaks are best trees!
- No Thanks
- plant more, cut fewer down!! Little stick trees that don't develop a large crown are not worth having. Crepe Myrtle trees are decorative, but don't provide shade or the energy saving qualities needed for neighborhoods.
- Please add lots of native trees
- Please consider planting trees and additional plants on Tulley Parkway.
- Please don't take down trees, they help with my anxiety and feel very down in places where there are few trees. Please plant more and ask the community to volunteer. I would love to volunteer in this task.
- Please keep street trees and not eliminate them due to developers not wanting to pay or maintain them.
- Please plant more around the city!! They really help in the beauty of the city and also the very hot summers
- Please plant more trees where appropriate, but make sure you use a tree that uproot sidewalks, parking areas, etc.
- Shade
- Shade from tree canopies significantly lowers the average temperature compared to non-tree lined cities
- Street trees are great for the city but must have a well-trained staff of arborists to properly maintain the trees. This is currently not the case and it shows.
- The city is focusing on trees in the wrong areas. Trees in row as by stabler and hwy 20 looks terrible. Just west of that spot on the 20 where cool hand Luke's is at has so many trees you can't see any of the businesses. 4 sites have never been filled there because you can't see anything. Trees down Plumas is good and also on Bridge would be fantastic. Having trees along Franklin would be great as well to hide some of the trashy houses in the area as well
- The city should have a unique look, something beautiful where other cities would follow
- The city would be a lot better if the people in charge weren't so determined to rip them out.
- The most appealing neighborhoods and business districts in California are those with mature & interesting trees. Carmel, Calif, Colusa Ca, 2nd St in Yuba City, Parts of Hillcrest in Yuba City, etc.
- The trees in Yuba City are beautiful. The more there are the better!
- The trees make the city beautiful, and cooler. Just take a walk down Plumas St. on a summer afternoon and you will see the benefit. Just, PLEASE manage them better than the state does in the forests!
- The trees you take away the more DESOLATE everything looks! Like It's Dying! We all need TREES to SURVIVE!
- The worst problem with the city's trees are they tear up the sidewalks making it hazardous to walk on. They are filthy and shed stuff 3 times a year. They harbor flying beetle like bugs by the thousands. Homeowners are not permitted to remove the trees as they belong to the city yet are responsible for the clean-up of the horrific mess they create. I am talking about the trees on Mariposa Dr, Arbor, Courtyard and Twins streets. Go look for yourself at the sidewalk issue alone! I dare you! These are extremely messy trees with very invasive roots! Why would anyone plant those type trees is beyond comprehension! Please go look for yourself, take a stroll down those sidewalks They are Dangerous!! Also, they have destroyed countless sprinkler lines costing the homeowner hundreds to repair!! Will the city reimburse us for that??
- This state is in serious trouble. The governor ignores the safety and needs of California residents. I fear the only thing left to do is move. Northern California used to be primarily Republican. It seems we are becoming more and more like LA, San Francisco, etc. God help California...
- Trees also absorb sound waves which can create a more relaxing environment
- Trees are critical to Yuba City. Not only do they provide shade in the devastating heat, they improve air quality and the beauty of this town, which will improve tourism.
- Trees are important everywhere. Climate change is happening quickly and we need to do something.
- Trees are key ingredient to fight climate change. They are not only beautiful but are the solution
- Trees are such a vital way to welcome people to our community.
- Trees are the lungs of our planet. Not only do they improve air quality but they also create new habitats for wildlife and provide shade & beauty for members of the community.
- Trees are very important but understanding the difficulties regarding the crows is also important. Detering the crows would be helpful while still maintaining as many trees, especially large trees, as possible.
- Trees will always benefit the area greatly in numerous ways, this area has pretty hot summers and it's not close to cheap to air condition homes here so more shaded communities are a big help. I am from South Carolina originally where people complain about a \$100 utility bill. I'd throw a party if I got a bill that low from PG&E during the summer. Without trees we'll also see drastic effects of increased greenhouse gases and climate change. Trees are essentially keeping us alive, no doubt about it.
- Trees will always filter the air and promote a sense of comfort, health, and beauty. It promotes curiosity and education. Shade and coolness.
- Yuba City has beautiful trees. Don't change
- Until we are able to have reliable, cost effective, CONSISTENT ENERGY sources, promoting ample space for drought resistant trees and vegetation should at least help with the increased heat temperatures that impact the valley.
- We don't need an urban forest For when it comes to maintaining and long-term windy days safety hazard. But let's keep min amount of trees
- We need trees in front of my house on B St and Robinson Yc
- We need a resource to go to for suggested trees for our site to meet area goals. What trees are best and where to buy maybe at a discount and when to plant. A youth organization could provide planting help for seniors.
- We need more trees to shade bike routes and walking paths.
- We need to diversify the type of trees being planted that will provide shade, not make a mess, and survive for at least fifty years.
- We need to move away from the strip mall, bedroom community for Sacramento mentality and make nice outdoor spaces to enjoy instead of having to drive everywhere and only have indoor dining and entertainment
- We need trees that don't damage sidewalks, and don't block views of oncoming traffic.
- We need an overall plan to save the trees that would normally be cut down by PG&E because they are in the way of the power lines. Put the lines underground!
- Yuba City could benefit greatly from incorporating more native plants into its residential, commercial, and street plantings.
- Yuba City needs to become more about "outdoor spaces" - things like outdoor dining and entertainment not only attract tourism and business, but it also provides a reason to stay local

6. What is your current awareness of the city's urban forest operations? Please check all that apply.

	Response %	Response Count
I was not aware that the city provides care to public trees	51.93	121
I have visited the city's website for information about public tree and/or the urban forest	16.31	38
I have read a newspaper article that discussed public trees and/or Yuba City's urban forest	14.59	34
I have participated/volunteered at tree related events in Yuba City	3.43	8
Other (please specify)	19.31	45
Aware		
Aware not interacted		
Aware that Yuba City is a designated Tree City USA community		
Aware, but not active		
City is involved with nuisance tree removal, to my understanding		
City maintains trees in public right of way		
Did not know		
Have witnessed Park employees grooming park areas		
I am aware but don't hear any details about it		
I am new to the area and am not aware of the city's urban forest operations, but am learning.		
I am not aware of any tree-related events in the city		
I did not know.		
I do not live in the vicinity of Yuba City		
I expect pit city should have more trees and trails since we lived several cities in the past.		
I have developed MWELo landscape required plans for residential development		
I have planted trees at schools to enhance shade and aesthetics		
I just graduated with a 4 year degree from Humboldt State University with a BS in Forestry restoration.		
I just know		
I knew trees were important to our town and that there are public trees that are maintained.		
I know every city has a plan for trees		
I know that the city provides care to public trees, but I was not aware that there was an Urban Master Plan.		

	Response %	Response Count
I know the city cares little for the damage their tress due to the streets and sidewalks		
I know the city provides care to public trees		
I know the city prunes street trees		
I know the city sends out professionals to tend to trees because they do not coordinate well with the residents. They send people out to trim trees and block them in driveways and remove our garbage bins from the street so we miss pick ups		
I live close to Bogue Park and saw city workers managing trees, trimming, and cutting them.		
I live close to public park and saw city workers managing trees, trimming, and cutting down the trees.		
I see the trees planted along Franklin Ave years ago and they are now an eye sore. They don't get water or any care. Most have died. Between Wilbur and Garden Hwy.		
I was aware		
I was aware of city care but have not researched		
I was aware that the city provided care to public trees		
I was aware that the city provides care to public trees		
I'm aware		
Live north Yuba City Regency Park area where city maintains .		
None		
None		
none . didn't know there was a master plan of course you care for them		
None of the above		
Spoken to park maintenance and watched tree trimming events by city employees.		
Talked to a City employee		
The trees on south Walton need care and are left to die if a neighborhood needs trees, it's that one		
They can choose better looking trees		
They maintain trees on my street		
Tree maintenance needs improvement.		
Wasn't aware of this plan		
Total		233 (16 skipped)

**7. What is your satisfaction with the current level of maintenance provided for public trees?**

	Response %	Response Count
Completely satisfied	13.30	31
Somewhat satisfied	39.06	91
Neutral	36.91	86
Somewhat dissatisfied	9.01	21
Completely dissatisfied	1.72	4
Total		233 (16 skipped)

**8. What level of maintenance do you prefer for public trees?**

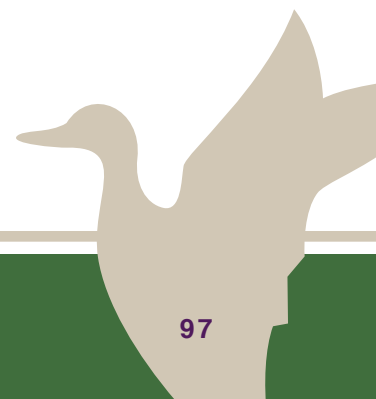
	Response %	Response Count
None - Keep them natural	2.15	5
Best possible care	50.21	117
Clearance only - for pedestrians and vehicles	6.01	14
As needed - manage hazardous conditions only	22.32	52
Holistic Plant Health Care - Improve the overall urban forest but not necessarily every tree	19.31	45
Total		233 (16 skipped)

**9. Yuba City needs more public trees.**

	Response %	Response Count
Strongly agree	62.66	146
Agree	26.61	62
Disagree	3.86	9
Strongly disagree	1.29	3
Not sure	5.58	13
Total		233 (16 skipped)

**10. Where would you like to see more public trees planted? Please check as many as apply.**

	Response %	Response Count
Parks	72.1	168
Open spaces and/or natural areas	70.82	165
Streetscapes	71.24	166
Commercial areas	55.36	129
Paths	59.66	139
Parking lots	57.08	133
Yuba City has enough public trees	4.29	10
Other (please specify)	6.44	15
40+ years of crow roosting along all Colusa Ave. at a great cost to remediate.		
A bike path with trees through the city! More along the river		
Along residential streets		
Anywhere and everywhere!! Retail has cut down many trees due to the crows and chickens making a mess. This should not be allowed. There are other ways to deal with the birds.		
Cemeteries		
Everywhere		
Fine people who top trees		
Houses backyards around firehouses there should be victory gardens		
I am not familiar with the area		
I would love to see many more trees planted along the Yuba-Sutter bike path, especially on the south side. Also at other outdoor recreation areas where there isn't much shade. If you build the trees and enhance the outdoors, they will come!		
My house		
Our parks and parking lots desperately need more shade.		
Surrounding downtown area, side, and adjoining streets.		
The empty lots owned by the city in Tierra Buena on Jefferson		
wherever water is already available.		
Total		233 (16 skipped)



**11. What types of education and public outreach would you like to see offered by the urban forest program or volunteer groups? Please check all that apply.**

	Response %	Response Count
Seminars and workshops	33.05	77
Interpretive trails and displays	53.22	124
Website resources	47.21	110
Online videos (e.g., YouTube)	27.47	64
Self-guided nature/tree walks	65.24	152
Informational brochures	23.61	55
Collaboration with schools for volunteer drives	55.36	129
Other (please specify)	4.29	10
4H		
AmeriCorps programs		
better education for property owners who have trees		
Coordination with residents that will be affected, as well as listening to those residents. Stop giving fires more kindling		
just get it done and stop talking about it		
N/A		
None		
none		
reforestation campaign; interpretive trail, but where?		
WE need our own nonprofit similar to Roseville, Chico, and Sacramento		
Total		233 (16 skipped)



**12. Optional. Please use this space for any additional comments about the care of public trees.**

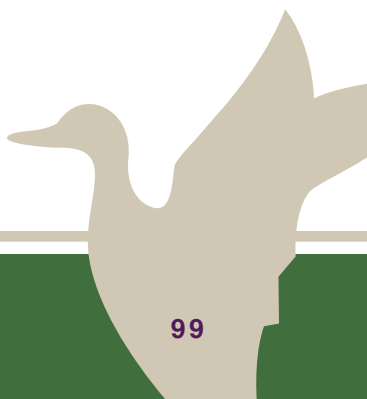
- don't get fancy with ideas that will not be maintained when the money runs out. be sensible. Add them to what you've already got going
- Funds must be allocated for an adequate budget for the trees, as well as ongoing maintenance and public education.
- I think more care needs to be taken into placement and choice of trees, especially in relation to sitting areas and pathways. I see a lot of parks where trees are planted along the exterior perimeter, leaving a large grassy area that's exposed to the sun. It's nice to have a handful of parks like that, but it would also be nice to have a handful of parks where there are lots of trees and paths criss-crossing through them with sitting nooks.
- I think there should be more information given to the youths about trees they should be given more knowledge
- Long term cost benefit? Trees become a big problem if not properly maintained.
- Long term, permaculture practices should be embraced. Food forests in particular are great for our community and wildlife residents when proper volunteer or paid groups are planned well. Even small food forests with the option for advertising for sponsorship could be a self-maintained opportunity for a community gathering area, and a learning opportunity for local children.
- More trees in areas that'll provide shade, habitat
- N/A
- No trees in commercial areas. It is blocks opportunities for marketing
- Not fond of the trees that line Plumas St. The city does not do enough to keep sidewalks and gutters free of leaves when they start falling, they also clog storm drains
- Plant fruit trees around public schools for children and teachers to take advantage of kids can also learn tree care and maintenance by taking care of their schools' trees. Fruit trees can also be planted in out of the way areas for the homeless to eat. You can hire homeless like a temp job to clean up the trees area. Planting more trees should create jobs , any leaking tress like the ones on plumas near the old hospital should be cleaned up around on the sidewalks.
- Please fine people who top trees
- Please remove the trees on Arbor,Courtyard,twins, and mariposa they are a hazard
- Shaded walkable parks and paths will improve yuba city for residents and visitors.
- State funding reduction has definitively affected tree care. City tree and landscape care could definitely be improved. Railroad Avenue needs attention, as does Bogue Road east of 99.
- Thank you
- This would be a great fresh look that our community could use greatly. It would be much better than trash and needles. Thank you :)
- Trees in Yuba city make our town look green and pleasing g to the eye. Bringing in nature into our daily lives
- Trees need water most of all, so the city needs a plan to keep them watered so they stay healthy. There must be a way to water trees with gray water, or recycled water, so as to not impact our drinking water so much
- Trees provide a more welcoming and calming effect. They aid in cleaner air and help wildlife flourish.
- We need help for property owners in choosing the right trees and how to maintain them in off seasons.
- We need trees. Please do this. Especially along the bike trail in Tierra Buena
- What this city is lacking is an urban park like the ones along the Sac river in Sacramento or Bidwell Park in Chico
- without trees we won't be able to breath so get it done let's make this city beautiful
- You can never have enough trees :)

13. What is/are your top concerns for Yuba City's trees? Choose all that apply.

	Response %	Response Count
Trees blocking my view	12.79	28
Trees providing unwanted shade in my yard	3.65	8
Tree debris in my yard and/or on the sidewalk	32.88	72
Healthy mature trees being removed for development or other reasons	55.71	122
Canopy loss	35.62	78
Loss of wildlife habitat	38.36	84
Pests/disease	35.62	78
Other Concerns (please specify)	13.24	29
Neighbors not addressing tree issues on their property		
Deferred maintenance or poor maintenance		
Dropping trees		
Fire hazards!		
Fire or electrical hazards if not tended properly		
Hazardous tree removal, even on private property.		
Improper/lack of pruning of young trees to develop structure		
Left		
Maintenance of trees that have been neglected		
N/a		
N/a		
No concerns		
No concerns		
None		
None		
none		
None		
None		
None		
None		
None		
Only a couple of concerns, would there be lack of upkeep? The other concern, will the drug users trash them?		
Road safety issues and the negative impact on trees from "topping"		
root systems messing with sidewalks		
roots breaking through sidewalks etc.		
Shade available for the heat		
Shading solar		
Topping		
Tree debris on the road; trees blocking the road or road signs		
Trees coming in contact with power lines		
Total		219 (30 skipped)

14. Currently, city ordinance does not protect trees on private property, except during development. Do you support the adoption of tree protection for oak species or other large or significant trees on private property?

	Response %	Response Count
Strongly support	16.89	37
Support	23.74	52
Neutral/Not sure	31.05	68
Oppose	13.7	30
Strongly oppose	10.05	22
Other (please specify)	4.57	10
During development or private land purchase process, this should be discussed and agreed upon prior to completion of sale/development (whether it's keep certain significant trees, a certain percentage, etc.). Once an owner owns a property privately, I am not sure the city should have a say as to what the owner does with the property.		
I support it but I'm county		
I'm		
Left		
Only if tree maintenance is performed by certified arborists or under the supervision of an arborist.		
Reasonable		
Support for mature oak trees only.		
Support with certain criteria being allowed for removal		
Support, but only when intervention is needed for health of significant trees or to prevent hazards.		
Support, with the understanding that if protected, city will assist with maintenance of desired.		
Total		219 (30 skipped)

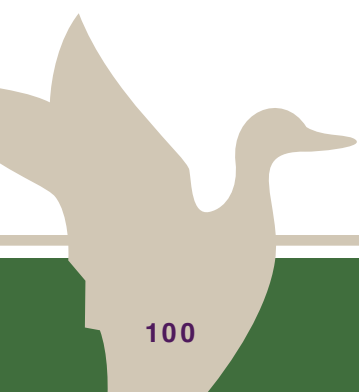


15. What types of education and outreach are most effective at encouraging tree preservation and tree planting on private property? Please select all that apply.

	Response %	Response Count
Seminars and workshops	30.59	67
Interpretive trails and displays	29.22	64
Website resources	48.86	107
Online videos (e.g., YouTube)	33.33	73
Guided nature/tree walks	31.96	70
Informational brochures	33.33	73
Collaboration with schools for volunteer drives	36.07	79
Tree giveaways	58.9	129
Neighborhood tree planting projects	63.47	139
Other (please specify)	5.02	11
A list of trees that are good for the area and non-aggressive		
Explanation of what grows better in the area and how much debris a tree makes		
I would love a tree in my backyard. We had a mulberry we had to remove and it's so hot and dry, so no one wants to use our backyard (tear emoji)		
Involving young children in planting and education of importance of trees is huge.		
It used to be that the city planted (I'm from Bay Area) a tree in the park strip in front of every house in a development. That meant that after a few years, all streets were tree lined. Does that happen here?		
Left		
N/a		
None. Waste of money		
Private property should be determined by the owner of the property. It's ridiculous to even ask this question because private property is controlled(as it should be) by the owner		
require ISA cer for all tree and landscape maintenance business prior to granting business licenses		
SMUD has provided free trees for decades, (sunglass emoji)		
Total		219 (30 skipped)

16. If you don't have at least 1 tree on your property, what is the reason? Please select as many as apply.

	Response %	Response Count
Not enough room	7.76	17
Damage to sidewalk/driveway	2.28	5
Obstruction from underground/overhead utilities	1.83	4
I don't want large trees on my property	0.91	2
Drought/irrigation limitations	1.83	4
Unsure how to provide tree care	3.65	8
Does not apply, I have at least one tree on my property	82.19	180
Other (please specify)	9.59	21
Currently renting.		
Have lots		
How do I choose a replacement tree for a 50-year-old tree? It is a big job to dig up roots. stump and then dig a new hole for replacement. ITrees are important but not sure how to chose and replace old trees on my property.		
I am a renter and have no yard space.		
I have 30 healthy trees on my property .		
I have at least one tree this does not apply		
I have lots of trees		
I have tree want more		
I just bought a house and haven't planted any yet. I will be planting many.		
i live in mobile home park and have two trees		
I rent, no control of landscape		
Left		
N/A		
N/A		
Old trees, took them down, will replant		
Trees were diseased and had to remove them		
Upstairs apartment		
We bought it that way and septic lines prohibit.		
We have a large one in front but would love one for our backyard		
We have several mature trees. We are completely shaded, to the point that the solar guys said they all had to come down so we can get solar. We opted for the trees. That is another thing, if new homes have to have solar panels, then they are discouraged from having large trees. They are made to fear the shade. That shouldn't be. The tree gives more to the home and environment than the panel does.		
We live in a condo		
Total		219 (30 skipped)





**17. Optional. Please use this space for any additional comments about trees on private property.**

- Educational material given to all owners or prospective buyers of options for tree care.
- fruit trees for homeless to grab
- I used to have trees in my yard, but they grew too large for my yard. Backyard tree had bugs that weakened it, had to remove all of them. Wish I had more space. I have no shade
- I wish properties had more room to have trees planted, for shade, and health benefits.
- I've always loved trees and honestly wondered why Yuba City doesn't have many. I'm very glad to be filling out this survey, at least it's on your radar.
- It would be great for care of oak trees on private property would be help maintain them if seniors live in the home
- Large branches hanging out on my property that need to be cut but are too high to reach. Nervous about. Them breaking and falling
- My parents are approaching sixty. They have lived in their home for 30 years. New neighbors moved in behind them and cut down a tree that had been providing shade for their yard and house for :0 years. Now they have to re insulate their roof, replace their overloaded air conditioner, replant their landscape, and their back yard is unusable during the afternoon on the summer just because their neighbors wanted a "new tree" that they "liked better". Do something about this please.
- N/A
- please lets plant trees everywhere
- Some trees need to be replaced like palms. They spread so much damage and seed everywhere
- Streetscape planning! Please! General public is unaware of the importance and need for native trees, and when planted hapazardly among other plantings in the area, it can cause long term visually displeasing views, if not destruction. Guidance is needed.
- Suggestions are fine, but do not "require" anything. Private property rights are a real thing
- We specifically bought our property with trees on it and refused other properties. We love our trees!
- What to do if there is an extremely large tree that is a danger to the neighborhood by very large limbs falling, but it is on neighbor's property being unmanaged?
- When they are planted on the property line they intrude into neighbor's property. The city needs to enforce the ability for such neighbor to have said trees completely removed

Walking on willow tree roads by a river dappled  
with peach blossoms, I look for spring light, but am  
everywhere lost. Birds fly up and scatter floating catkins.  
A ponderous wave of flowers sags the branches.



*Wang Wei*

**18. Please provide any additional comments or feedback (Optional)**

- I appreciate that YC is reaching out to the end user to help create the vision for our future.
- I live in Marysville and do almost all of my shopping in Yuba City.
- I need a tree planted in the front of my sidewalk B st and Robinson st
- I would like to volunteer and help the tree project
- Thank you for creating this study and considering our trees.
- Please be much wiser about the type of tree you force people to take care of by planting them on their front yard next to the street. They are destroying the sidewalks and sprinkler lines!
- The Sacramento Tree Foundation has an excellent urban tree program and educates homeowners before they select and plant residential trees there.
- This is great. I love being a part of this.
- Thx for the info
- we have told our neighbor to trim his trees because the branches are damaging my house... he doesn't care.... more neighbor options for neighbors that don't listen...
- Yuba City would benefit with a mandatory weed abatement program enforced annually. General appearance and fire management would benefit the city and general public.



# Appendix H: Tree Applications



City of Yuba City  
 1201 Civic Center Blvd., Yuba City, CA, 95993  
 Parks Maintenance Division (530) 822-5330 | [yubacity.net](http://yubacity.net)

## Tree Removal Request

Permit # \_\_\_\_\_

### INSTRUCTIONS AND INFORMATION

1. The City of Yuba City Municipal Code Title 9 Parks and Recreation regulates the removal of a publicly owned trees. Valid reasons for tree removal may include, but are not limited to the list in the request justification below.
2. Parks Maintenance may inspect the tree(s). By requesting a removal, you are consenting to an on-site inspection.

### PROJECT INFORMATION

Tree Site Address: \_\_\_\_\_ Submittal Date: \_\_\_\_\_  
 Owner Name: \_\_\_\_\_ Phone #: \_\_\_\_\_  
 Mailing Address: \_\_\_\_\_ City: \_\_\_\_\_ State/Zip: \_\_\_\_\_  
 Applicant Name: \_\_\_\_\_ Phone #: \_\_\_\_\_  
 Mailing Address: \_\_\_\_\_ City: \_\_\_\_\_ State/Zip: \_\_\_\_\_  
 Email (Optional): \_\_\_\_\_

### REQUEST JUSTIFICATION

Mark the reason for your tree removal request:

- Concern for public safety that cannot be mitigated by other means
- Poor health, including disease and/or decay
- Structural issues that cannot be corrected
- Invasive species
- Other, please justify: \_\_\_\_\_

Arborist Report (attach if available) Yes:  No:

### REQUEST DETAILS

State the number of trees and species requested for removal

Species: \_\_\_\_\_ Number: \_\_\_\_\_  
 Species: \_\_\_\_\_ Number: \_\_\_\_\_

Signature of Applicant: \_\_\_\_\_ Printed Name: \_\_\_\_\_

### FOR DEPARTMENT OF PARKS AND RECREATION USE ONLY

Approval Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Approval Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Time: \_\_\_\_\_ Fee: \$ \_\_\_\_\_

APPROVAL STAMP





# Appendix I: Indicators of a Sustainable Urban Forest

THE TREES				
Indicators of a Sustainable Urban Forest	Overall Objective or Industry Standard	Performance Levels		
		Low	Medium	High
Urban Tree Canopy	Achieve the desired tree canopy cover according to goals set for the entire city and neighborhoods.  Alternatively, achieve 75% of the total canopy possible for the entire city and in each neighborhood.	Canopy is decreasing.  - and/or -  No canopy goals have been set.	Canopy is not dropping, but not on a trajectory to achieve the established goal.	Canopy goal is achieved, or well on the way to achievement.
Location of Canopy (Equitable Distribution)	Achieve low variation between tree canopy and equity factors citywide by neighborhood. Ensure that the benefits of tree canopy are available to all, especially for those most affected by these benefits.	Tree planting and public outreach and education is not determined by tree canopy cover or benefits.	Tree planting and public outreach and education is focused on neighborhoods with low tree canopy.	Tree planting and public outreach and education is focused in neighborhoods with low tree canopy and a high need for tree benefits.
Age of Trees (Size and Age Distribution)	Establish a diverse-aged population of <b>public</b> trees across the entire city and for each neighborhood. Ideal standard: 0-8" DBH: 40% 9-17" DBH: 30% 18-24" DBH: 20% Over 24" DBH: 10%	No current information is available on size.  - OR -  Age distribution is not proportionally distributed across size classes at the city level.	Size classes are evenly distributed at the city level, though unevenly distributed at the neighborhood level.	Age distribution is generally aligned with the ideal standard diameter classes at the neighborhood level.
Condition of Publicly Owned Trees ( <i>trees managed intensively</i> )	Possess a detailed understanding of tree condition and potential risk of all intensively-managed, publicly-owned trees. This information is used to direct maintenance actions.	No current information is available on tree condition or risk.	Information from a partial or sample or inventory is used to assess tree condition and risk.	Information from a current, GIS-based, 100% complete public tree inventory is used to indicate tree condition and risk.
Condition of Publicly-Owned Natural Areas ( <i>trees managed extensively</i> )	Possess a detailed understanding of the ecological structure and function of all publicly-owned natural areas (such as woodlands, ravines, stream corridors, etc.), as well as usage patterns.	No current information is available on tree condition or risk.	Publicly-owned natural areas are identified in a sample-based "natural areas survey" or similar data.	Information from a current, GIS-based, 100% complete natural areas survey is utilized to document ecological structure and function, as well as usage patterns.
Trees on Private Property	Possess a solid understanding of the extent, location and general condition of trees on private lands.	No data is available on private trees.	Current tree canopy assessment reflects basic information (location) of both public and private canopy combined.	Detailed information available on private trees. Ex. bottom-up sample-based assessment of trees.
Diversity	Establish a genetically diverse population of publicly-owned trees across the entire city and for each neighborhood. Tree populations should be comprised of no more than 30% of any family, 20% of any genus, or 10% of any species.	No current information is available on species.  - OR -  Fewer than five species dominate the entire tree population citywide.	No species represents more than 20% of the entire tree population citywide.	No species represents more than 10% of the entire tree population citywide.
Climate Resilience/Suitability	Establish a tree population suited to the urban environment and adapted to the overall region. Suitable species are gauged by exposure to imminent threats, considering the "Right Tree for the Right Place" concept and invasive species.	No current information is available on species suitability.  - OR -  Less than 50% of trees are considered suitable for the site.	50% to 75% of trees are considered suitable for the site.	More than 75% of trees are considered suitable for the site.
Space and Soil Volume	Establish minimum street tree soil volume requirements to ensure there is adequate space and soil for street trees to thrive. Minimum soil volumes by mature size: 1000 cubic feet for large trees; 600 cubic feet for medium trees; 300 cubic feet for small trees.	Minimum street tree soil volumes have not been established.	Minimum street tree soil volume has been established based on mature size of tree.	Minimum street tree soil volumes have been established and are required to be adhered to for all new street tree planting projects.

THE PLAYERS				
Indicators of a Sustainable Urban Forest	Overall Objective or Industry Standard	Performance Levels		
		Low	Medium	High
<b>Neighborhood Action</b>	Citizens understand, cooperate, and participate in urban forest management at the neighborhood level. Urban forestry is a neighborhood-scale issue.	Little or no citizen involvement or neighborhood action.	Some active groups are engaged in advancing urban forestry activity, but with no unified set of goals or priorities.	The majority of all neighborhoods are organized, connected, and working towards a unified set of goals and priorities.
<b>Large Private &amp; Institutional Landholder Involvement</b>	Large, private, and institutional landholders embrace citywide goals and objectives through targeted resource management plans.	Large private land holders are unaware of issues and potential influence in the urban forest. No large private land management plans are currently in place.	Education materials and advice is available to large private landholders. Few large private landholders or institutions have management plans in place.	Clear and concise goals are established for large private land holders through direct education and assistance programs. Key landholders and institutions have management plans in place.
<b>Green Industry Involvement</b>	The green industry works together to advance citywide urban forest goals and objectives. The city and its partners capitalize on local green industry expertise and innovation.	Little or no involvement from green industry leaders to advance local urban forestry goals.	Some partnerships are in place to advance local urban forestry goals, but more often for the short-term.	Long-term committed partnerships are working to advance local urban forestry goals.
<b>City Department and Agency Cooperation</b>	All city departments and agencies cooperate to advance citywide urban forestry goals and objectives.	Conflicting goals and/or actions among city departments and agencies.	Informal teams among departments and agencies are communicating and implementing common goals on a project-specific basis.	Common goals and collaboration occur across all departments and agencies. City policy and actions are implemented by formal interdepartmental and interagency working teams on all city projects.
<b>Funder Engagement</b>	Local funders are engaged and invested in urban forestry initiatives. Funding is adequate to implement citywide urban forest management plan.	Little or no funders are engaged in urban forestry initiatives.	Funders are engaged in urban forestry initiatives at minimal levels for short-term projects.	Multiple funders are fully engaged and active in urban forestry initiatives for short-term projects and long-term goals.
<b>Utility Engagement</b>	All utilities are aware of and vested in the urban forest and cooperates to advance citywide urban forest goals and objectives.	Utilities and city agencies act independently of urban forestry efforts. No coordination exists.	Utilities and city agencies have engaged in dialogues about urban forestry efforts with respect to capital improvement and infrastructure projects.	Utilities, city agencies, and other stakeholders integrate and collaborate on all urban forestry efforts, including planning, site work, and outreach/education.
<b>State Engagement</b>	State departments/agencies are aware of and vested in the urban forest and cooperates to advance citywide urban forest goals and objectives.	State departments/agencies and City agencies act independently of urban forestry efforts. No coordination exists.	State department/agencies and City agencies have engaged in dialogues about urban forestry efforts with respect to capital improvement and infrastructure projects.	State departments/agencies, City agencies, and other stakeholders integrate and collaborate on all urban forestry efforts, including planning, site work, and outreach/education.
<b>Public Awareness</b>	The general public understands the benefits of trees and advocates for the role and importance of the urban forest.	Trees are generally seen as a nuisance, and thus, a drain on city budgets and personal paychecks.	Trees are generally recognized as important and beneficial.	Trees are seen as valuable infrastructure and vital to the community's well-being. The urban forest is recognized for the unique environmental, economic, and social services it provides to the community.
<b>Regional Collaboration</b>	Neighboring communities and regional groups are actively cooperating and interacting to advance the region's stake in the city's urban forest.	Little or no interaction between neighboring communities and regional groups.	Neighboring communities and regional groups share similar goals and policy vehicles related to trees and the urban forest.	Regional urban forestry planning, coordination, and management is widespread.

THE MANAGEMENT				
Indicators of a Sustainable Urban Forest THE MGMT APPROACH	Overall Objective or Industry Standard	Performance Levels		
		Low	Medium	High
<b>Tree Inventory</b>	Comprehensive, GIS-based, current inventory of all intensively-managed public trees to guide management, with mechanisms in place to keep data current and available for use. Data allows for analysis of age distribution, condition, risk, diversity, and suitability.	No inventory or out-of-date inventory of publicly-owned trees.	Partial or sample-based inventory of publicly-owned trees, inconsistently updated.	Complete, GIS-based inventory of publicly-owned trees, updated on a regular, systematic basis.
<b>Canopy Assessment</b>	Accurate, high-resolution, and recent assessment of existing and potential city-wide tree canopy cover that is regularly updated and available for use across various departments, agencies, and/or disciplines.	No tree canopy assessment.	Sample-based canopy cover assessment, or dated (over 10 years old) high resolution canopy assessment.	High-resolution tree canopy assessment using aerial photographs or satellite imagery.
<b>Management Plan</b>	Existence and buy-in of a comprehensive urban forest management plan to achieve city-wide goals. Re-evaluation is conducted every 5 to 10 years.	No urban forest management plan exists.	A plan for the publicly-owned forest resource exists but is limited in scope, acceptance, and implementation.	A comprehensive plan for the publicly owned forest resource exists and is accepted and implemented.
<b>Risk Management Program</b>	All publicly-owned trees are managed for maximum public safety by way of maintaining a city-wide inventory, conducting proactive annual inspections, and eliminating hazards within a set timeframe based on risk level. Risk management program is outlined in the management plan.	Request-based, reactive system. The condition of publicly-owned trees is unknown.	There is some degree of risk abatement thanks to knowledge of condition of publicly-owned trees, though generally still managed as a request-based reactive system.	There is a complete tree inventory with risk assessment data and a risk abatement program in effect. Hazards are eliminated within a set time period depending on the level of risk.
<b>Maintenance Program of Publicly-Owned Trees</b> <i>(trees managed intensively)</i>	All intensively-managed, publicly-owned trees are well maintained for optimal health and condition in order to extend longevity and maximize benefits. A reasonable cyclical pruning program is in place, generally targeting 5 to 7 year cycles. The maintenance program is outlined in the management plan.	Request-based, reactive system. No systematic pruning program is in place for publicly-owned trees.	All publicly-owned trees are systematically maintained, but pruning cycle is inadequate.	All publicly-owned trees are proactively and systematically maintained and adequately pruned on a cyclical basis.
<b>Maintenance Program of Publicly-Owned Natural Areas</b> <i>(trees managed extensively)</i>	The ecological structure and function of all publicly-owned natural areas are protected and enhanced while accommodating public use where appropriate.	No natural areas management plans are in effect.	Only reactive management efforts to facilitate public use (risk abatement).	Management plans are in place for each publicly-owned natural area focused on managing ecological structure and function and facilitating public use.
<b>Planting Program</b>	Comprehensive and effective tree planting and establishment program is driven by canopy cover goals, equity considerations, and other priorities according to the plan. Tree planting and establishment is outlined in the management plan.	Tree establishment is ad hoc.	Tree establishment is consistently funded and occurs on an annual basis.	Tree establishment is directed by needs derived from a tree inventory and other community plans and is sufficient in meeting canopy cover objectives.
<b>Tree Protection Policy</b>	Comprehensive and regularly updated tree protection ordinance with enforcement ability is based on community goals. The benefits derived from trees on public and private property are ensured by the enforcement of existing policies.	No tree protection policy.	Policies are in place to protect trees, but the policies are not well-enforced or ineffective.	Protections policies ensure the safety of trees on public and private land. The policies are enforced and supported by significant deterrents and shared ownership of city goals.
<b>City Staffing and Equipment</b>	Adequate staff and access to the equipment and vehicles to implement the management plan. A high level urban forester or planning professional, strong operations staff, and solid certified arborist technicians.	Insufficient staffing levels, insufficiently-trained staff, and/or inadequate equipment and vehicle availability.	Certified arborists and professional urban foresters on staff have some professional development, but are lacking adequate staff levels or adequate equipment.	Multi-disciplinary team within the urban forestry unit, including an urban forestry professional, operations manager, and arborist technicians. Vehicles and equipment are sufficient to complete required work.
<b>Funding</b>	Appropriate funding in place to fully implement both proactive and reactive needs based on a comprehensive urban forest management plan.	Funding comes from the public sector only, and covers only reactive work.	Funding levels (public and private) generally cover mostly reactive work. Low levels of risk management and planting in place.	Dynamic, active funding from engaged private partners and adequate public funding are used to proactively manage and expand the urban forest.
<b>Disaster Preparedness &amp; Response</b>	A disaster management plan is in place related to the city's urban forest. The plan includes staff roles, contracts, response priorities, debris management and a crisis communication plan. Staff are regularly trained and/or updated.	No disaster response plan is in place.	A disaster plan is in place, but pieces are missing and/or staff are not regularly trained or updated.	A robust disaster management plan is in place, regularly updated and staff is fully trained on roles and processes.
<b>Communication</b>	Effective avenues of two-way communication exist between the city departments and between city and its citizens. Messaging is consistent and coordinated, when feasible.	No avenues are in place. City departments and public determine on an ad-hoc basis the best messages and avenues to communicate.	Avenues are in place, but used sporadically and without coordination or only on a one-way basis.	Avenues are in place for two way communication, are well-used with targeted, coordinated messages.

# Appendix J: Gantt Chart

	Cost	2020–2024	2025–2029	2030–2034	2035–2039	2040–2044	2045–2049	2050–2054	2055–2060	Timeframe	Priority
<b>Management &amp; Planning</b>											
Consider trees as integral infrastructure											
Set emphasis on planting the right tree in the right place.	\$									Ongoing	High
Recognize trees as green infrastructure to mitigate conflicts between trees and other utilities and promote tree longevity.	\$–\$\$									1–5 Years	High
Provide proactive maintenance for the community tree resource to reduce costs and promote efficiency											
Create and follow planting plans to allow for increased impact and success of tree plantings.	\$									High	Medium
Promote the safe management of the community tree resource											
Develop maintenance cycles and work plans to guide the care of the community tree resource.	\$									1–5 Years, Ongoing	High
Establish a risk management policy.	\$									1–5 Years, Ongoing	High
Implement policies and procedures that make tree work as safe as possible.	\$									1–5 Years	High
Predictable and stable funding for the community tree resource											
Secure funding for the care of all community trees.	\$\$–\$\$\$									Ongoing	Medium
Enhance the livability and character of the community											
Plant and retain trees to sustain environmental benefits.	\$									Ongoing	High
Follow integrative pest management (IPM) protocols and best management practices when addressing pests and diseases											
Use integrated pest management practices (IPM) when controlling pests.	\$									Ongoing	High
<b>Protection &amp; Regulation</b>											
Promote tree preservation and protection											
Revise and amend Municipal Code to promote the protection of community trees.	\$									1–5 Years	High
Preserve heritage oak trees and other native trees of substantial size through the development of a Heritage Tree Ordinance (per Yuba City Resource Efficiency Plan, Goal 6).	\$									1–5 Years	High
Enhance methods for cost recovery in the case of tree removals or improper tree maintenance.	\$									1–5 Years	High
Support consistency in guiding documents											
Strive for uniformity between city policies, guiding documents, and departments.											
<b>Resiliency &amp; Sustainability</b>											
Promote species diversity in the urban forest											
Set species diversity goals for the community tree resource.	\$									Ongoing	High
Expand canopy cover and the resulting environmental benefits											
Achieve 25% canopy cover by 2040.	\$									20 Years	High
Help to increase tree planting efforts within the County (per Sutter County Climate Action Plan).	\$									Ongoing	High
Establish a more water-wise urban forest											
Ensure tree plantings are climate adapted and low water use species.	\$									Ongoing	High
Repurpose woody materials resulting from removals whenever possible											
Identify a wood reutilization policy.	\$									10 Years	Medium–Low
Reduce the risk of wildfire in the Feather River Parkway											
Become a more wildfire-prepared community.	\$									Ongoing	High
<b>Education &amp; Engagement</b>											
Engage community members in stewardship of the urban forest.											
Support community engagement and stewardship of the urban forest.	\$									Ongoing	High
Celebrate the importance of urban trees											
Maintain Tree City USA status.	\$									Ongoing	High

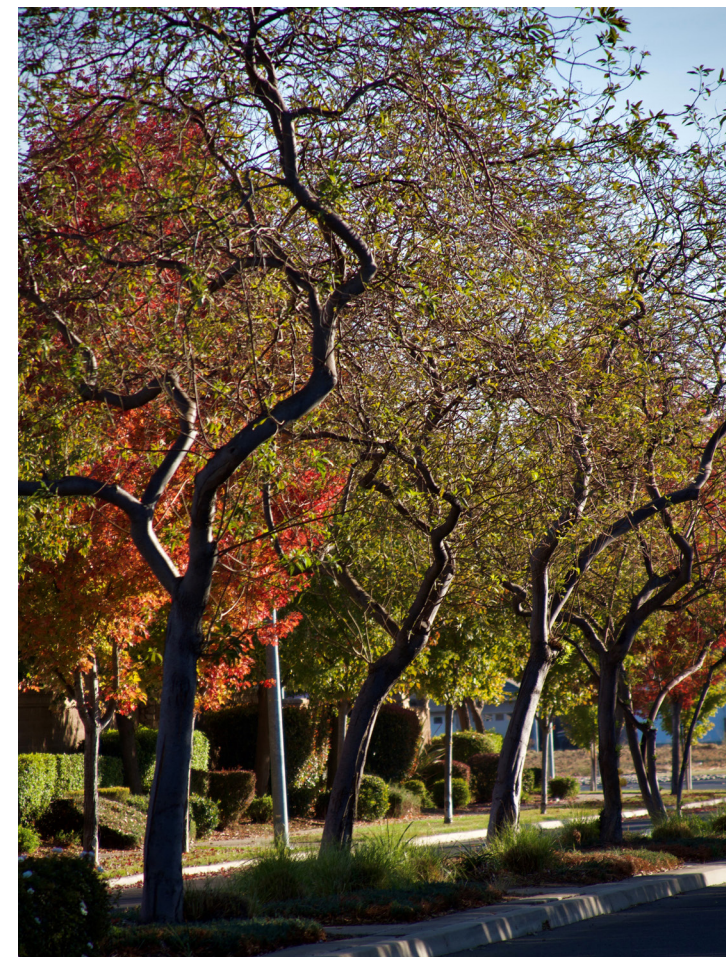
# Appendix K: Sample Canopy Cover Calculator for Parking Lots

Tree Type	Mature Crown Width (diameter)	Mature Crown Estimated Area (ft <sup>2</sup> )	Number of Trees	Estimated Tree Canopy Coverage (ft <sup>2</sup> )
Small-stature	15	175	2	350
Medium-stature	30	700	3	2,100
Large-stature	40	1,260	6	7,560
Total Tree Canopy Area at Crown Maturity (ft <sup>2</sup> )				10,010
Surfaced Area:	Parking Lot	20,000	Total Surfaced Area (ft <sup>2</sup> )=	20,000
	Covered Stalls	0		
Shade Area Required (50% by 15 years post parking lot construction)				10,000
Total Auxiliary Shade (shade provided by covered stalls)				0
Total Shade Provided				10,010
Estimated % Shade at Crown Maturity (%)				50%

Crape myrtle trees are decorative, but don't provide shade or the energy saving qualities needed for neighborhoods



*Survey Respondent.*





# Appendix L: Photo Contest Credits

As part of the development of the UFMP, the city organized the “Tree Photo Contest” to highlight the different ways that Yuba City’s community celebrates the city’s urban forest. In total, 60 photo entries were submitted to the photo contest by 10 participants. These photos are included in this document.



PAGE 2  
Manual Cook



PAGE 3  
Manual Cook



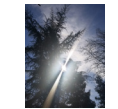
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Corrina LaBonte



PAGE 5  
Manual Cook



PAGE 6  
Miranda Rolfe



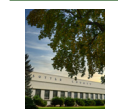
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PAGE 10  
Manual Cook



PAGE 10  
Manual Cook



PAGE 10  
Miranda Rolfe



PAGE 11  
Rhonda Cuddy



PAGE 12  
Manual Cook



PAGE 13  
Jen Mcfall



PAGE 17  
Miranda Rolfe



PAGE 18  
Manual Cook



PAGE 19  
Amber



PAGE 21  
Corrina LaBonte



PAGE 23  
Manual Cook



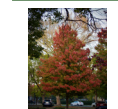
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PAGE 25  
Rhonda Cuddy



PAGE 26  
Manual Cook



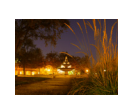
PAGE 31  
Rhonda Cuddy



PAGE 34  
Manual Cook



PAGE 36  
Miranda Rolfe



PAGE 37  
Manual Cook



PAGE 37  
Manual Cook



PAGE 38  
Glynis Buschman



PAGE 44  
Maria Gonzales



PAGE 44  
Manual Cook



PAGE 44  
Rhonda Cuddy



PAGE 45  
Miranda Rolfe



PAGE 45  
Krista Higdon



PAGE 48  
Jasmine Sawyer



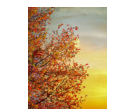
PAGE 48  
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PAGE 49  
Rhonda Cuddy



PAGE 50  
Corrina LaBonte



PAGE 53  
Miranda Rolfe



PAGE 58  
Manual Cook



PAGE 60  
Manual Cook



PAGE 69  
Manual Cook



PAGE 69  
Corrina LaBonte



PAGE 69  
Rhonda Cuddy



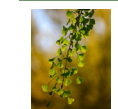
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PAGE 75  
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PAGE 75  
Corrina LaBonte



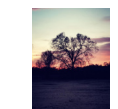
PAGE 76  
Miranda Rolfe



PAGE 77  
Corrina LaBonte



PAGE 79  
Rhonda Cuddy



PAGE 79  
Corrina LaBonte



PAGE 83  
Manual Cook



PAGE 85  
Manual Cook



PAGE 94  
Rhonda Cuddy



PAGE 98  
Rhonda Cuddy



PAGE 101  
Manual Cook



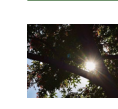
PAGE 102  
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PAGE 102  
Manual Cook



PAGE 103  
Manual Cook



PAGE 108  
Brooklyn Martin



PAGE 108  
Rhonda Cuddy



PAGE 45  
Miranda Rolfe

# 2021

URBAN FOREST MASTER PLAN

