

CITY OF THOUSAND
OAKS
FORESTRY MASTER PLAN



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CITY OF THOUSAND OAKS

FORESTRY MASTER PLAN

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EXECUTIVE SUMMARY

Organization of the Master Plan

The overall goal of the *Forestry Master Plan* is to provide the city with a sound basis for the creation and management of its community forest. The Master Plan applies to City-maintained plantings only; it is organized in three separate volumes:

- Volume 1: Background
- Volume 2: Design and Management Plan
- Volume 3: Community Participation and Education

Volume 1: Background

Volume 1 provides background information to set the stage for designing and managing the community forest. It serves as a reference for the concepts of community forestry and the existing cultural and physical conditions of the City of Thousand Oaks, which most impact the community forest.

1. Introduction

As living infrastructure, the community forest transforms Thousand Oaks into a resilient city that can withstand the impacts of climate change and continued urban development. Careful and comprehensive management of this natural resource will ensure its existence for present and future generations.

The term “community forest” generally describes all vegetation – trees, shrubs, grasses, and flowers, growing within an urban or suburban environment, on both public and private property. While this Plan focuses on the City-maintained portion of the

community forest, a healthy community forest in its entirety provides the maximum benefits to the local community and ecology.

Urban trees are impacted by multiple stresses – including those from human actions, the built environment, and climate change. The basic means of overcoming these stresses and restoring the vigor of the community forest is to plant the right tree in the right place and provide it with proper care. Coupled with community education and participation, these are the essential recommendations of the *Thousand Oaks Forestry Master Plan*.

The History of Trees in Thousand Oaks

For the most part, the forest now seen in Thousand Oaks is an artifact of settlement, evolving since the City’s incorporation. Many of the tree species in this forest are originally from all over the world, having been brought here by people as they settled. There are also trees that are native to this region. The oaks, in particular, were significant to the Conejo Valley’s earliest human residents, the Chumash

Between the time of the Chumash and today, the eras of the Spanish ranchero followed by the farmsteads added layers to the valley’s landscape, marked by characteristic species and patterns of trees, and by the prolonged grazing that left the land and surrounding hills covered in introduced grasses rather than native chaparral and abundant oaks.

With the effects of climate change becoming more profound each year, the community forest of Thousand Oaks will act as a living buffer that protects the city and its biodiversity. By caring for

and maintaining Thousand Oaks’ forest, the City will not only improve the quality of life of its residents, but will also ensure a resilient landscape for future generations.

Background of the Forestry Master Plan

In 1989, the City of Thousand Oaks adopted its first *Forestry Master Plan*, with one of the major purposes being the consolidation of the City’s various laws and policies related to trees into one comprehensive statement regarding its community forest. A few years later, the policy framework that was set forth in the *Forestry Master Plan* was incorporated in the City’s *General Plan*, as part of the *Forestry Element*. Much of the content within the original 1989 *Forestry Master Plan* remains relevant and insightful despite the passage of time. However, much has also changed, and for that reason the Public Works Department has invested in updating its *Forestry Master Plan*.

How to Use this Document

The *Forestry Master Plan* is intended to set a vision, while also serving as a practical manual for City staff. The recommendations contained herein have been developed specifically for City-maintained plantings, which in most cases are located along the City’s public streets.

The Plan should be referenced by City decision-makers to guide policy, by the Public Works Department to guide planting and management of the community forest, and by consultants who may be tasked with the design and implementation of new City-maintained plantings. This document is designed to be of interest and use to the general public, as well,



so that they may be involved in the creation and care of the community's forest.

Additional documents and resources that support the *Forestry Master Plan* include: *Thousand Oaks Planting and Maintenance Manual*; *Landscape Construction Standards*; *Thousand Oaks Tree Inventory*; *Thousand Oaks Community Forest Implementation Recommendations*; and *Forestry Master Plan 2016 Outreach*.

2. Planning Context

Relevant Plans and Policies

As the *Forestry Master Plan* is supported by other plans and policies that will help the City achieve its forestry goals, this section provides a list of these documents to serve as a reference. It includes City ordinances, resolutions, and plans that most directly relate to City-maintained community forestry as of 2017.

Roles and Responsibilities

This section provides an overview of the roles of the City, developers, individuals, homeowners' associations, and businesses in the creation and management of the community forest in Thousand Oaks.

3. Existing Conditions

Environmental and social conditions impact the growth of trees and other vegetation, as well as the planting and infrastructural strategies that can provide the greatest benefits. Understanding the context of the community forest helps in developing the most appropriate solutions for its sustainable management. This section highlights the following conditions

within Thousand Oaks: climate and microclimate, topography, soils, groundwater, watersheds, native plant and wildlife communities, land use, urban development, wildland-urban interface, street network, city-maintained street trees, community forest geographic regions, and city gateways.

Volume 2: Design and Management Plan

Volume 2 is the "go-to" document for anyone involved in the design of community forest projects within the public right-of-way, or in the on-going management of the community forest. It provides design and management guidelines for successfully integrating plantings to a site, and recommends a palette of trees and understory plants for local use.

1. Guiding Goals and Recommendations

The *Forestry Master Plan* has been developed as a tool to assist the City in achieving its goals for sustaining the community forest. The following goals and recommendations are the foundation for the Plan.

Goal 1. Establish and maintain a full complement of street trees on every street in the City.

Recommendations:

- Achieve a 25% canopy coverage citywide.
- Replace every tree removed from a street with at least one new tree.
- Use species well adapted to local environmental conditions and design objectives.
- Achieve a diverse and resilient forest by following

the 10-20-30 rule: no one introduced species comprising more than 10% of the whole; no one genus more than 20%; and no one family more than 30%.

Goal 2. Enhance the character of the City and its neighborhoods through streetscape trees and plantings.

Recommendations:

- Continue to plant the City's legacy oak trees in the appropriate spaces.
- Develop a citywide planting identity, as well as distinct identities for regions of the City.

Goal 3. Promote the creation and maintenance of off-street plantings that enhance the public forest resource.

Recommendations:

- Provide ample landscaping of new construction.
- Maximize tree shading of public facility parking areas.
- Encourage new plantings at schools, parks, libraries, and similar sites.

Goal 4. Establish the highest standard of maintenance for public trees.

Recommendations:

- Keep maintenance and planting standards current.
- Provide expert training of City maintenance personnel.

- Require certified tree maintenance contractors.
- Maintain an inventory of the condition of all City street trees.
- Allocate annual funds sufficient for appropriate and timely tree maintenance, exclusive of removals.

Goal 5. Promote public awareness of and involvement in community forestry care and benefits.

Recommendations:

- Encourage collaboration between City departments, local community organizations, and public schools.
- Encourage monetary and other contributions to the community forestry program.
- Promote the community forestry program’s progress and achievements.
- Participate in national programs that support and promote the benefits of the community forest.

2. Participation in National Initiatives

The City can promote public awareness of and involvement in community forestry care and benefits by participating in national initiatives that share similar goals. Participation in national initiatives can also provide the City with resources and support. Two national initiatives that have goals aligned with the City of Thousand Oaks’ are Tree City USA and Bee City USA. The *Forestry Master Plan* recommends continued involvement in these programs.

3. Planting Design Guidelines

This section provides design guidance to be consulted during development of planting designs within public rights-of-way. It begins with an overview of the different planting processes depending on the project type. The following sub-sections are focused on design – from general design principles and universal design guidelines that are widely applicable to planting design throughout the community, to sets of guidelines developed specifically for streetscape plantings. These planting design guidelines should be followed for every City-maintained planting project within public rights-of-way in Thousand Oaks.

Planting Process by Project Type

The process by which trees are selected and sited varies according to the planting situation: new developments, major streets plantings, neighborhood streets plantings, or replacement trees.

Principles of Community Forest Design

Landscape design is the process of altering the environment to meet human needs. A sensitive design enhances the environment and considers the needs of species other than humans. The selection and siting of trees and plants can contribute to the community’s character, and should take into consideration the environmental and human conditions that will impact the trees and plants. Designing with trees can solve a variety of problems – such as reducing cooling costs, reducing air pollution, and enhancing the aesthetics of a site.

Planting Design Guidelines Framework

The design guidelines are provided to assist with the

development of planting designs. They are organized by the following categories: “Universal Planting Design Guidelines,” “Citywide Design Guidelines for Major Streets / Arterials,” “Citywide Design Guidelines for Neighborhood Streets,” and “Regional Character Design Guidelines for Street Plantings.” Guidelines are provided for both street tree and understory plantings.

Universal Planting Design Guidelines

The guidelines in this section have been formulated to direct the design of the community forest as a whole. They have been organized into the following three categories: Enhancing Character & Aesthetics, Increasing Forest Resiliency, and Supporting Maintenance & Safety.

Citywide Design Guidelines for Street Plantings

This section provides design guidelines to ensure street plantings fulfill their potential as major components of the community forest. It is divided into guidelines for major streets or arterials and guidelines for neighborhood streets, based on the differing scale and contexts of these street settings.

Regional Character Design Guidelines for Street Plantings

The guidelines in this section are intended to contribute to regional variation in the character of streetscape plantings throughout the City of Thousand Oaks, for both major streets / arterials and neighborhood streets. The *Forestry Master Plan* organizes the city into five regions – Dos Vientos, Newbury Park, Thousand Oaks West, Thousand Oaks East, and North Ranch / Westlake; and provides for each region a planting concept with design guidelines, suggested plant and tree species, reference



photos, and concept imagery for a representative demonstration project site.

Hidden Design Opportunities

Although the *Forestry Master Plan* is focused on public right-of-way (primarily streetscape) planting conditions, this section highlights some other opportunities for enhancing the community forest. These include: vacant lots, hillsides, stream corridors, schools, corporate and institutional holdings, and parking lots.

4. Species Selection Criteria

This section describes the considerations that impact the suitability of a particular species for the conditions of a planting site. When deciding what species of plant or tree is most appropriate for a site design, the Plan's tree and plant palettes are a primary resource. However, the Species Selection Criteria will assist in determining which species in the palette are the best options for the site conditions and the design concept that was developed with the Planting Design Guidelines.

5. Street Tree Palette

This section provides a palette, or range of choices, of trees for planting in the public rights-of-way in Thousand Oaks. The palette includes recommended tree species, with design and horticultural factors for each one. The palette is intended to serve as a tool to facilitate planting design, and should not be considered an all-inclusive listing of the only tree species and cultivars that are appropriate to plant in the public rights-of-way in Thousand Oaks. Other species and cultivars may be used with approval from the Public Works Director or designee.

6. Understory Planting Palette

The Understory Planting Palette includes small accent trees, shrubs, and groundcovers that are appropriate for use in the public right-of-way; they are primarily low-water-use species, and include numerous native species. It is important that shrubs and groundcovers be selected for the ultimate size, form, and shape that they will achieve without constant pruning. As with the Street Tree Palette, the Understory Planting Palette should not be considered an all-inclusive list; other species and cultivars that are not included may be used with approval from the Public Works Director or designee.

7. Community Forest Management Guidelines

This section outlines the major strategies for managing the community forest, providing city staff with guidelines to assist them in monitoring and managing the rates of planting and removal and the overall composition of the forest. From the perspective of long-term health and appearance of the community forest, maintaining a diversity of tree species and ages is vital.

Volume 3: Community Participation and Education

Volume 3 suggests ways of involving members of the community in forestry issues and practices. Primarily meant for use by city staff, it will also prove useful to citizens interested in promoting community forestry.

1. Introduction

The entire community benefits from a healthy, well-

designed forest, as envisioned in the previous volumes of this plan. Without an informed, involved populace, such a forest is difficult to attain; therefore, community involvement is essential to the life of the forest. A number of stakeholders might be included in this involvement: residents, local businesses, institutions, and organizations.

2. Involving the Community

This section describes some of the ways to bring the community into the process of creating and maintaining the forest, such as: selecting trees, planting trees, maintaining trees, funding tree planting or maintenance, providing land for expansion of the forest, advising the City, and educating others. Suggestions for involvement are provided, organized by the type of stakeholder group.

3. Spreading the Word

The City can instigate a number of programs to increase community awareness of its forest resource. These actions fall into three broad categories: publicizing city policies (including this Master Plan), soliciting community support and enthusiasm, and educating people about trees and the forest as a whole.

4. Conclusion

The adoption and subsequent updates of the *Forestry Master Plan* is an important opportunity to build public awareness and appreciation of the community forest. The undertaking of a comprehensive community forestry program is an important initiative for Thousand Oaks, and as such should receive ample attention. The City should continue to involve residents in the review, implementation, and future updates of the *Forestry Master Plan*.

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MASTER PLAN ORGANIZATION

Objectives & Organization of the Master Plan

The overall goal of the *Forestry Master Plan* is to provide the city with a sound basis for the creation and management of its community forest, and to set guidance that will allow the community forest to provide the greatest number of benefits for residents as well as the environment. To reach these goals, the plan encompasses eight objectives, organized in three separate volumes for ease of use by the various groups responsible for the forest.

The *Forestry Master Plan* applies to City-maintained plantings only.

Volume 1: Background

This volume is for use by city policy-makers and staff, business people, developers, residents and all others involved in community forestry decisions. It provides background information to set the stage for designing and managing the community forest. It will be most useful for those who are less acquainted with the concept of community forestry or the existing cultural and physical conditions of the City of Thousand Oaks, which impact the community forest, but serves as a helpful reference of this information for all.

Objectives:

- To provide a comprehensive rationale and description of the city's forestry program and its context.

- To reference city policies and ordinances relating to publicly-maintained landscapes.
- To set forth the roles of various public jurisdictions and the private sector in creating and managing the community forest, and identify means of effective coordination.

Volume 2: Design and Management Plan

This volume is primarily for use by city staff, business people, developers and their consultants, residents and others involved in selecting species and sites for new City-maintained plantings. It examines design issues for the major streets and neighborhoods, provides design and management guidelines for successfully integrating plantings into a site, and recommends a palette of trees and understory plants for local use.

Objectives:

- To establish community forest management guidelines addressing such issues as species diversification and resource-efficient maintenance.
- To describe the environmental issues that affect tree planting.
- To formulate design criteria to guide the choice of street tree species in the city's various planning areas and along its major streets.
- To compile a palette of street tree and understory species for use in Thousand Oaks, based on the

city's environmental conditions and aesthetic character.

Volume 3: Community Participation and Education

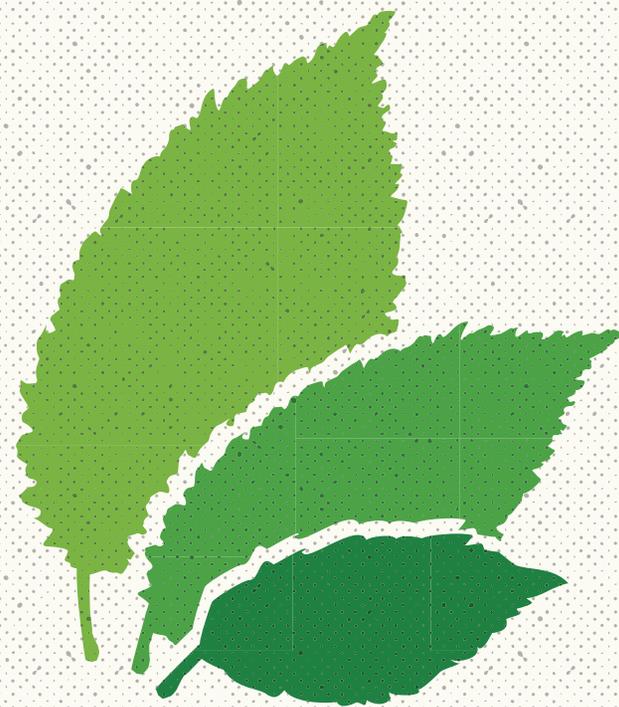
This volume suggests ways of involving members of the community in forestry issues and practices. Primarily meant for use by city staff, it will also prove useful to citizens interested in promoting community forestry.

Objective:

- To provide the framework for public participation in creating and caring for the community forest.



VOLUME 1
BACKGROUND



Volume 1: BACKGROUND

Volume 1 provides background information to set the stage for designing and managing the community forest. It serves as a reference for concepts of community forestry and the existing cultural and physical conditions of the City of Thousand Oaks, which most impact the community forest.

1. Introduction

1.a The Community Forest

The community forest of Thousand Oaks is a vital natural resource. It unites the built environment of our communities with the natural world. Each tree contributes to making our neighborhoods sustainable, verdant, social, active, and beautiful. As living infrastructure, the forest transforms Thousand Oaks into a resilient city that can withstand the impacts of climate change and continued urban development. We must carefully and comprehensively manage this incredible natural resource for the enjoyment of present and future generations.

The *Thousand Oaks Forestry Master Plan* seeks to strengthen the connection between the natural world and people. By creating an ecological thread that binds neighborhood life to the rich ecology of the Thousand Oaks community forest, the Thousand Oaks Forestry Master Plan will inspire new generations of landscape stewardship.

The term “community forest” generally describes all vegetation – trees, shrubs, grasses, and flowers, growing within an urban or suburban environment,



Figure 1.1 The Community Forest

on both public and private property. While this Plan focuses on the City-maintained portion of the community forest, a healthy community forest in its entirety provides the maximum benefits to the local community and ecology.

Urban trees are impacted by biotic and abiotic stress. The built environment covers and compacts soil, vehicles collide with branches, and polluted air damages foliage with particulates, toxins, and acid rain. The acute impacts of climate change—extreme heat, lack of water, intensified wildfire—further challenge the longevity of urban nature. Beset by such

stresses, street trees have an average life expectancy of 19 to 28 years, compared to the hundreds of years a tree might live under ideal conditions. As most species of trees take forty years to mature, urban street trees are often adolescent and rarely reach a size where their full benefits can be enjoyed.

Today, many cities are working across sectors to create public-private partnerships that enhance and protect urban forests. Municipal programs such as Million Trees NYC, Friends of the Urban Forest, and City Plants Los Angeles aim to plant trees along streets, parks, and other public spaces. Although



hundreds of urban street trees are removed annually due to death, declining structure, or storm damage: public-private partnerships between municipalities, local non-profit organizations, community groups, residents, and businesses are working together to promote, protect, and replenish our urban forests with tangible results. In the past, the City of Thousand Oaks was removing more trees than it was planting; however, with the adoption of the *Forestry Master Plan* in 1989, and the resulting selective tree removal and progressive planting program, the City has been replenishing and perpetuating its community forest. The potential benefits of urban street trees include: slowing of climate change, water quality protection, better air quality, lower air temperature, wildlife habitat, increased property value, and improved quality of life.

More than half of the world's population live in urban areas. Subsequent demand for resources and land has left our forests, and community forests, in a state of crisis. Despite the acceleration of climate change, reforestation efforts can help mitigate the acute impacts of global warming and urbanization. The American Forest Association proclaims that while "forest restoration is a global issue, planting a tree is a very local action." Creating and maintaining community forests can help ensure sustainable urbanization and successful development for present and future generations at the local, regional, and global scale.

The basic means of overcoming the stresses that beset urban trees and restoring the vigor of the community forest is to correctly plant the right tree in the right place and provide it with proper care.

Coupled with community education and participation, these are the essential recommendations of the *Thousand Oaks Forestry Master Plan*.

Community forestry combines three professional traditions: that of the arboriculturist, whose focus of concern is the health of the individual tree; that of the landscape architect, who helps find the fit between natural environments and human needs, including

the need for beauty; and that of the forester, whose specialty is the management of the whole forest and its entire life cycle. It is this holistic perspective—treating the community forest as an integrated piece of infrastructure that transcends property lines and political jurisdictions—that makes the *Thousand Oaks Forestry Master Plan* an essential framework for sustainable development in the City of Thousand Oaks.

A Treeless City?



To fully understand the importance of trees to Thousand Oaks, it might be helpful to imagine a completely treeless city. It would be stark, hot, dry and monochromatic. The air would be devoid of fragrance, quiet of the sound of birds and the rustle of leaves. Sidewalks would be hostile places, barren of shade and greenery, and unadorned by the artful play of shadow patterns created by leaf and limb.

The city could be as much as ten degrees hotter than it is now if its forest cover were suddenly gone. Parks would seem empty without the canopy of trees, with few shady spaces to rest or picnic. Stairs would be the only things our children could climb. And without trees, we would have no living clocks marking the passage of time in our lifetimes - and no green monuments to the past.

Benefits of Trees

Community forests can be understood as dynamic systems of green infrastructure that provide cities with environmental, economic, and social benefits. Understanding the economic and cultural value of urban forests and green infrastructure can enable municipalities to improve the quality of life and protect urban biodiversity for future generations.

Trees impart a distinctive character and identity to the city and to its neighborhoods. Thousand Oaks is noted for its environmental beauty, which trees help create. To come home to a green and shaded community establishes a powerful sense of place.

Trees establish visual harmony and continuity along the city's streets. The experience of traveling through the community is immeasurably more pleasurable along tree-lined streets. If a single tree is a thing of beauty, a well-designed street of trees can be a striking kinetic experience. Distinctive plantings on major streets also help with orientation, making the city more "imageable" and therefore easier to navigate.

Trees enrich the aesthetic experience of the city, adding pleasing shapes, colors, fragrance, texture, scale, and seasonal change.

Trees help diffuse noise. Dense foliage helps diffuse sound waves from traffic and other noises, and renders them less intrusive by visually screening their source.

Trees enhance children's play. They are natural playthings, full of life, and as capable of stimulating a child's imagination and sense of wonder as the most expensive toy.

Community forestry adapts such classical forestry concepts as multiple-use, sustained yield, and rotational management to fit the community environment. "Multiple use" means that trees are seen to coexist with and serve a variety of uses—a viewpoint essential to successfully balancing the requirements of trees with the demands of urban settings. "Sustained-yield" traditionally means selectively harvesting trees in a way that assures future harvests. This goal might be achieved through "uneven age management," by which some trees from several age or diameter classes are cut, rather than all trees of a single class. "Rotational management," which can be by uneven age or even age cutting, assures that a certain percentage of the forest will always be in the seedling, sapling, adolescent and mature classes.

The emphasis of traditional forestry on trees as a harvestable resource is transformed in community forestry to the maintenance and enhancement of forest benefits. For instance in an urban context, sustained-yield translates into maintaining a high overall level of forest cover through selective removal and replanting of declining or hazardous trees.

1.b The History of Trees in Thousand Oaks

For the most part, the forest now seen in Thousand Oaks is an artifact of settlement, evolving since the City's incorporation in 1964. It is truly a "community forest," planted to serve uniquely human purposes - from aesthetics to home sales - as the area was developed.



Figure 1.2 Three traditions of community forestry

As might be expected, many of the trees in this forest, like most of the people in the community, have their historical roots not in the Conejo Valley but all over the world. Eucalyptus from Australia, elms from Asia, plane trees from Europe, pines and palms from the Canary Islands, ash trees from Arizona, and sweet gums from the eastern United States number among the species in the City. As people have settled here, they have brought with them a preference for trees like those they knew in their homelands - often places with environmental conditions very different from those of Thousand Oaks. The result is a somewhat eclectic forest, and not always well-rooted in the conditions or traditions of the region.





Figure 1.3 Representation of a Conejo Valley Chumash village, at the Chumash Indian Museum

There were, of course, trees here when the Chumash lived on this land, and some of those species still remain today. For millennia, the tree community was of vital importance to the valley's human community. The Chumash people congregated beneath the oaks each autumn to harvest the rich supply of "mast" or fallen acorns, which were ground by stone mortar and pestle into a flour that was a dietary staple. They also harvested the berries of a variety of chaparral plants, and the seeds of the native bunch grasses and perennials.

Today, oaks in the city serve as reminders of an earlier time and landscape. Along streambeds

and in other protected spots, other native species remain from the Conejo Valley's original landscape - California sycamores, willows, bay laurel, big leaf maples and black walnuts. The oaks are towering and spreading, sometimes reaching a hundred feet up and out. The presence of these species together gives a precise reading of the city's geography - a hot interior valley just within the moderating influence of the ocean. The trees grew widely spaced in the flatlands, with a sparse understory of chaparral, forming a sweeping "oak savannah" community of park-like proportions. The grazing of ranch animals that began with the Spanish greatly affected the character of the oak savannah, as the compaction

Benefits of Trees

Trees increase property value and act as a stimulus to economic development, attracting new businesses and tourism. The beauty of a well-planted property and its surrounding street and neighborhood can raise residential property value by as much as 20 percent. Recent studies have revealed that people will travel farther, pay more for goods and services, and visit commercial districts more frequently—by an average of 12 percent—when trees and landscaping are present.

Trees enhance people's sense of connection to nature and history. Emotionally and symbolically, trees represent people's relation to that which is larger than themselves. They allow us to experience the natural world in a tangible form for which we feel responsible. Since trees, like people, grow and change through time, we identify with them. And since they often live longer than we do, they link us to times beyond our own, spanning past and future generations.

Trees enhance civic pride and involvement. Tree planting programs allow citizens to participate in creating a city they can be proud of.

Trees provide shade and evaporative cooling, helping to combat the effects of urban heat islands, and reducing energy costs and consumption. In urban areas, shaded surfaces may be 20-45 degrees cooler and evapotranspiration can reduce peak summer temperatures by 2-9 degrees.

Trees moderate wind. When trees are planted strategically, they not only reduce wind exposure but can reduce heating bills in the winter by 2 to 8 percent.

Benefits of Trees

Trees curtail global warming by absorbing carbon dioxide through the processes of photosynthesis. During this process, carbon is “sequestered” in the biomass of the tree as long as the tree lives. A single large, healthy tree can remove greater than 300 pounds of carbon dioxide from the atmosphere every year.

Trees produce oxygen and filter airborne particulates, helping to reduce air pollution.

A tree’s production of oxygen replenishes the atmosphere and dilutes pollutants. Airborne particulate pollution is trapped on the surface of leaves, which act as significant “scrubbers” or filters. Trees can reduce hourly ozone by up to 15 percent, sulfur dioxide by 14 percent, and particulate matter by 13 percent. In the United States alone, trees remove some 784,000 tons of pollution annually.

Trees can help reduce soil erosion and surface runoff,

leading to a steadier and cleaner supply of water. Trees protect soil by breaking the fall of raindrops, absorbing water through their roots, covering the ground with protective humus, slowing runoff, and knitting the soil with roots. On the other hand, a square mile of land stripped for development may lose 25,000 to 50,000 tons of soil in a year. The resulting sediment can drastically reduce water quality. Moreover, the loss of vegetation leads to wasteful runoff and flooding, followed by parched drought conditions.

Trees provide habitat for birds and other wildlife.

Trees are a city’s prime medium for attracting wildlife. A single oak, for example, can provide home and food for as many as 300 species of insects, which in turn provide food for numerous species of birds.



Figure 1.4 Oak woodland in Thousand Oaks

of soil and trampling and eating of oak seedlings by cattle reduced the ability of the trees to regenerate adequately. But on the ridges’ north-facing slopes, more favorable environmental conditions allowed oak woodland to cloak the hills.

Between the time of the Chumash and the advent of the freeway, the era of the ranchero and then the farmstead added layers to the valley’s landscape, marked by characteristic species and patterns of trees, and by the prolonged grazing that left the land and surrounding hills covered in introduced grasses rather than native chaparral and abundant oaks. Driving around town, one still encounters densely

planted eucalyptus windbreaks, rows of elms shading former roadways, and billowing masses of California peppers (a misnomer - it’s from Chile) enclosing and protecting old houses from wind. As with the native species, these trees of an agricultural landscape now convey the texture of another time. If trees help us read the history of the city’s landscape, they are also the means to make history.

With the effects of climate change becoming more profound each year—drought, wildfires, higher temperatures—the community forest of Thousand Oaks will act as a living buffer that protects the city and its existing biodiversity. By caring for and



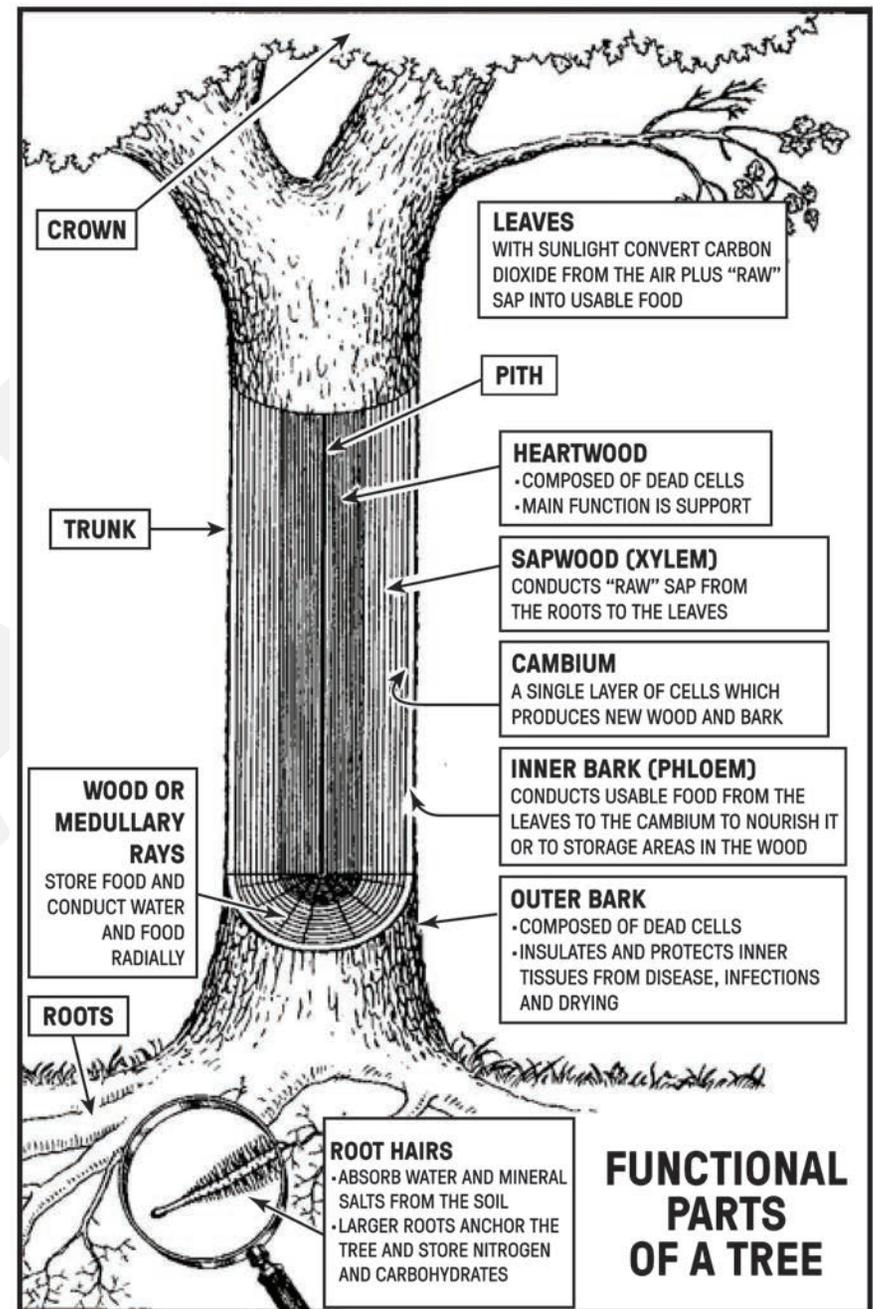
maintaining Thousand Oaks' forest, the City will not only improve the quality of life of its residents, but will also ensure a resilient landscape for future generations. Consequently, selecting trees that perform well with higher temperatures, less water, and the threat of wildfires will help the City of Thousand Oaks continue to promote best practices for urban forestry and sustainable development.

If we choose to keep the long-term health of the planet in mind as we set about expanding and modifying our forest, our connection with the trees of Thousand Oaks will become emblematic of the balanced connection between people and nature that is important for a healthy future. Our role in the continuum of the lifecycle will move us forward in a symbiotic relationship between people and the environment.

1.c Background of the Forestry Master Plan

Since the early 1970s, the concern of Thousand Oaks for its natural environment has resulted in a number of ordinances and other measures relating to trees. Taken together, these documents have successfully guided the City's tree programs over the years. However, since the measures were adopted at different times to address separate concerns, they lacked a sense of overall cohesion. In 1989, the City adopted its first *Forestry Master Plan*, with one of the major purposes being the consolidation of the City's various laws and policies related to trees into one comprehensive statement regarding its community

Figure 1.5 Functional parts of a tree (Courtesy of Maine Forestry Department)



Why Update the Forestry Master Plan?

1. Changing environmental conditions

- Evolving tree pests and diseases
- Increased drought conditions
- Resulting need to revisit street tree palette

2. Changing political conditions

- State mandate for water use reduction
- Updates and additions to related policies and plans
- Community priorities expressed in Visioning 2064

3. New technologies and best practices

4. Desire to address understory plantings in addition to street trees

5. Accessibility/usefulness of the document

- Not suited to digital information age
- Need to streamline content and organization

forest. A few years later, the policy framework that was set forth in the *Forestry Master Plan* was incorporated in the City's *General Plan*, as part of the *Forestry Element*.

The *Forestry Master Plan* has served the City well as a guide for maintaining and enhancing its community forest. Much of the content within the original 1989 Plan remains relevant and insightful despite the passing of decades since it was written. However, much has also changed during that time, and for that reason the Public Works Department has invested in updating its *Forestry Master Plan*.

The primary changes resulting from the update process include:

- Revised tree and plant palettes;
- Increased information for understory plantings, including planting concepts and guidelines and an expanded palette;
- Removal or revision of outdated information and provisions; and
- Removal of sections/volumes that are provided in other City documents. This pertains to policy, which is now found in the *Forestry Element of the General Plan*; the *Planting and Maintenance Manual*, which has been separated as a stand-alone document; and description of the street tree inventory, which has been included separately in the Community Forest Implementation Recommendations.

Through the combined expertise of City Public Works

and Community Development staff, and consultant landscape architects, planners, and arborists, and with input from Thousand Oaks residents, this Plan document is presented as an enhanced and updated version of the original 1989 *Forestry Master Plan*.

1.d How to Use this Document

Since the *Thousand Oaks Forestry Master Plan* was adopted in 1989, the City has been a model in community forest management. The *Thousand Oaks Forestry Master Plan* applies community forestry principles to the management of the City's forest resource, and provides the necessary framework to maintain the social, economic, and environmental benefits of trees. It is intended to establish a vision, while also serving as a practical manual for City staff. The recommendations contained herein have been developed specifically for City-maintained plantings, which in most cases are located along the City's public streets.

The Plan should be referenced by City decision-makers to guide policy, by the Public Works Department to guide planting and management of the community forest, and by consultants who may be tasked with the design and implementation of new City-maintained plantings.

As trees are important to the people of Thousand Oaks, the Forestry Master Plan also seeks to involve individual residents as fully as possible in the creation and care of the community's forest. Therefore, this document is designed to be of interest and use to the general public, as well.



The content is organized as follows:

Volume 1: Background provides the context for understanding Thousand Oaks' community forest and the existing conditions which shape its design, growth, and management.

Volume 2: Design & Management Plan contains the guidelines, criteria, and palettes for designing and managing the City-maintained community forest. This is the "go-to" volume for planning new plantings and making management decisions regarding the community forest.

Volume 3: Community Participation & Education makes recommendations for involving the community in the responsibility of enhancing and maintaining the community forest.

Additional documents and resources that support the *Forestry Master Plan* include: *Thousand Oaks Planting & Maintenance Manual*; *Landscape Construction Standards*; *Thousand Oaks Tree Inventory*; *Thousand Oaks Community Forest Implementation Recommendations*; and *Forestry Master Plan 2016 Outreach*.

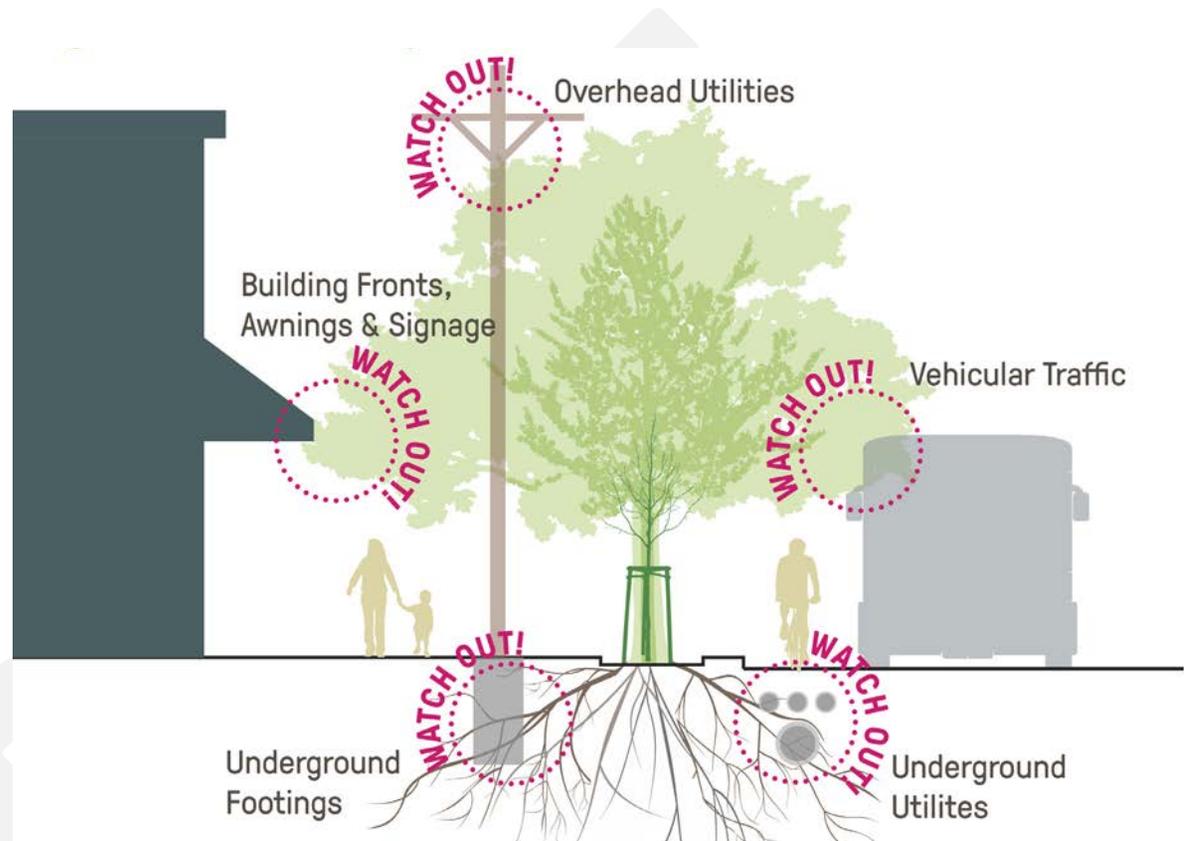


Figure 1.6 Right tree in the right place

2. Planning Context

2.a Relevant Plans & Policies

Support for the Thousand Oaks community forest is a mutual effort of the City Council, business people, developers, residents, City staff and other public agencies. The *Forestry Master Plan* is the document that establishes the vision for the community forest,

and it is supported by other plans and policies that will help the City achieve its goals. Following is a listing of the City's ordinances, resolutions, and plans that most directly relate to City-maintained community forestry as of 2017. Refer to the full text documents to fully understand their requirements and recommendations.

Forestry Element of the General Plan

Scenic Highways Element of the General Plan

Municipal Code & Ordinances

- Title 7 Chapter 2 Article 9 *Landscaping Provisions in the Public Rights-of-Way*
- Title 9 Chapter 3 Article 10 *Street Tree Planting*
- Title 9 Chapter 4, Article 42 *Oak Tree Preservation & Protection*
- Title 9 Chapter 4, Article 43 *Landmark Tree Preservation & Protection*
- Ordinance No. 1610-NA *Amendments to the Municipal Code regarding Oak and Landmark Tree Removals*

Resolutions

- Res. No. 75-246 *Precise Guidelines and Standards for the Landscaping of Highway Medians and Parkways*
- Res. No. 91-172 *Guidelines for Freeway Corridors (101 and 23)*

- Res. No. 93-152 *City Gateways*
- Res. No. 2007-116 *Revised Guidelines & Standards for Landscape Planting & Irrigation Plans*
- Res. No. 2010-014 *Revised Oak Tree Preservation & Protection*

Specific Plans (Contact the Community Development Department for applicable specific plans.)

2. b Roles & Responsibilities

Currently, the City, through its departments of Public Works and Planning and Community Development, oversees the planning and installation of all street trees and other landscaping. Upon completion of development and acceptance of the established trees, the City has authority over maintenance of all trees within the public right-of-way and public service easement. Other public agencies, such as the Conejo Valley Park and Recreation District, Conejo Open Space Conservation Agency, CalTrans, and Southern California Edison have responsibility for trees in many areas of the city.

As with any city, developers have played a major role in the creation of the community forest. Developers should refer to the *Forestry Element* and Municipal Code, and contact the Community Development Department, for the current requirements that may pertain to their projects. The *Forestry Master Plan* only applies to City-maintained plantings, however it may

also be a useful reference for developers and privately maintained plantings.

Individual residents, homeowners' associations, and businesses should also be aware of provisions in the *Forestry Element* and Municipal Code in regards to developing and maintaining their own landscape improvements, as well as preserving oaks and other landmark trees on their properties.

These various responsibilities and the means by which they are carried out are specified in a series of ordinances, resolutions, standards, and planning documents adopted by the City Council. Additional information on responsibilities is also provided in the conditions of approval for individual projects. The list of relevant plans and policies provided in the preceding section may not be comprehensive; contact the Community Development Department to ensure you have the most current information.



3. Existing Conditions

Environmental and social conditions impact the growth of trees and other vegetation, as well as the planting and infrastructural strategies that can provide the greatest benefits. Understanding the context of the community forest helps in developing the most appropriate solutions for its sustainable management.

The City of Thousand Oaks is located within Ventura County. Neighboring cities include Camarillo, Moorpark, Simi Valley, Agoura Hills, and Westlake Village; and downtown Los Angeles is about 35 miles to the southeast. The Santa Monica Mountains separate Thousand Oaks from the coastal area at the Pacific Ocean, about five miles to the southwest. Thousand Oaks' land area is approximately 55 square miles, and the 2015 Census population estimate is 129,339.

3.a Climate & Microclimate

California experiences yearly seasonal drought from mid-spring to mid-fall, as a continental high pressure system keeps moist oceanic weather systems well offshore. When cooler winter temperatures dissipate the high pressure, a stream of winter storms flows down from Alaska and Asia, leaving an average annual precipitation in Thousand Oaks of 11 inches. During years in which the high pressure system lingers, winter storms can be reduced drastically, leading to periods of sustained drought such as occurred in 1975-77 and 1986-89. While drought is part of the typical climate cycle in California, conditions have been intensifying. At the time of this update, the

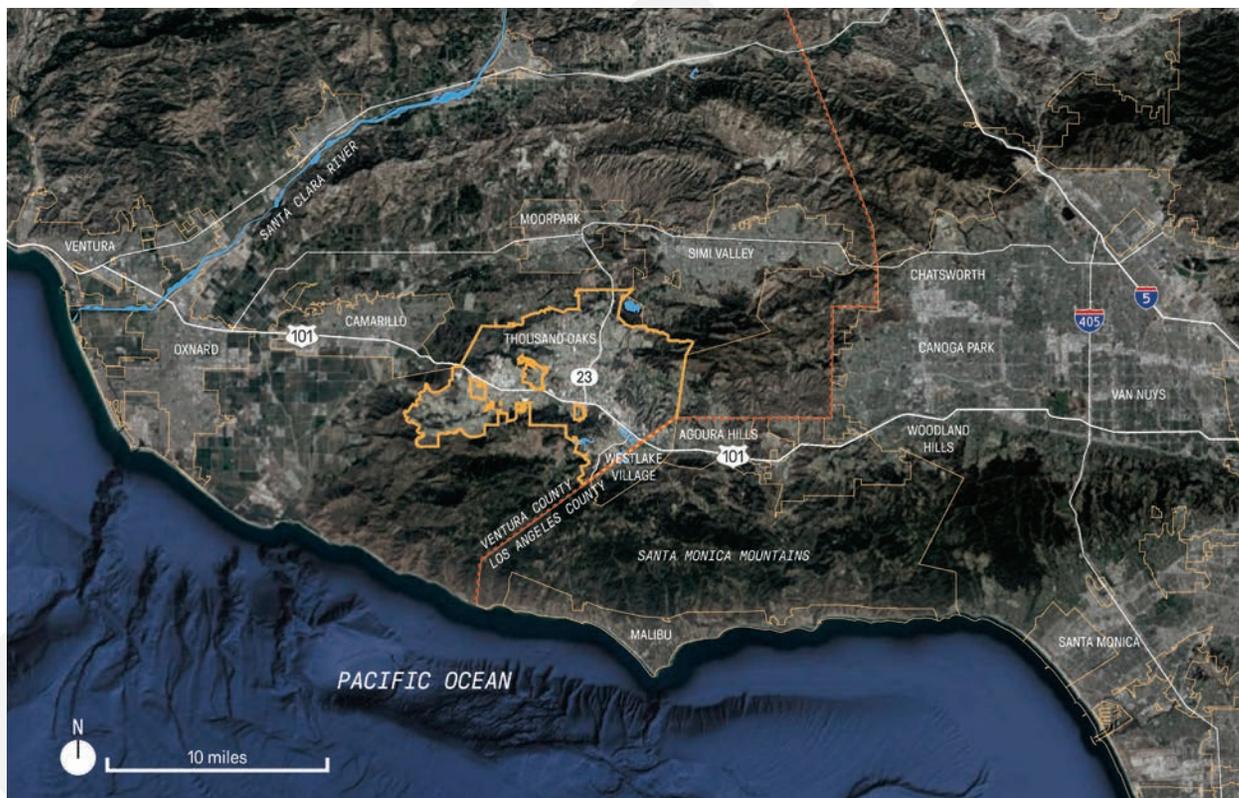


Figure 1.7 Thousand Oaks regional context

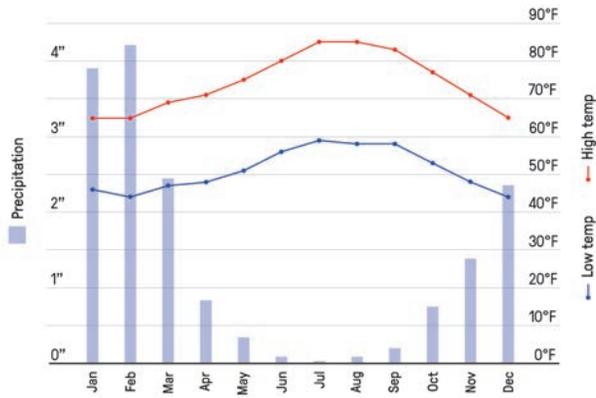


Figure 1.8 Thousand Oaks average rainfall and temperatures

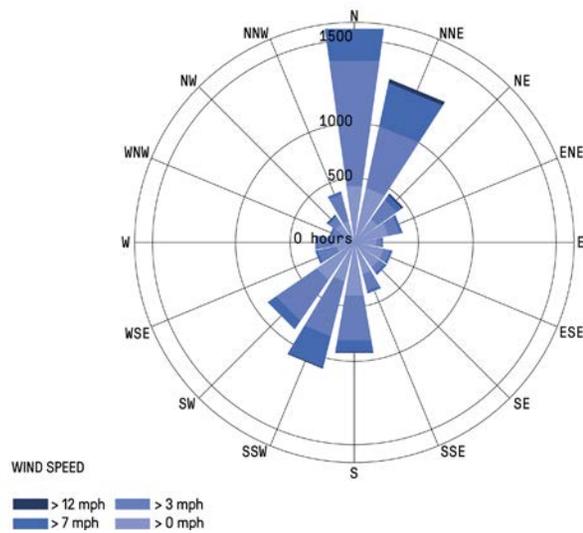


Figure 1.9 Thousand Oaks wind directions

drought that began in 2012 is the most severe to have occurred in recorded history¹. These conditions have understandably put a strain on the community forest.

Thousand Oaks’ semi-arid Mediterranean climate typically requires plants that are adapted not only to relatively low overall rainfall, but also to the stress of regular summer dryness and occasional long-term drought. In order to increase the resiliency of the community forest, ensure its long term benefits, and reduce maintenance costs, trees and plants that have low to very low water needs should be prioritized. However, even these species need periodic watering during the first two or three summers until their root systems are well developed.

Strong winds sometimes accompany winter storms. In addition, a steady summer wind from the ocean is occasionally drawn in through gaps in the western ridges. Also, dry, powerful Santa-Ana winds come in from desert regions to the east and south. Understanding wind patterns in relation to a particular site will indicate whether a particularly wind-tolerant tree species should be selected.

Winter temperature lows are the most critical factor in limiting the range of ornamental plants. Thousand Oaks is located within Sunset Climate Zone 21 and USDA Plant Hardiness Zones 9b-10b. Described by Sunset as “thermal belts in Southern California’s areas of occasional ocean influences”, the area is under the transitional influence of both maritime air

1 Griffin, D., and K. J. Anchukaitis (2014), How unusual is the 2012–2014 California drought?, *Geophys. Res. Lett.*, 41, 9017–9023, doi:10.1002/2014GL062433

and interior air. Winter temperatures will rarely drop below 30 degrees Fahrenheit, however extreme lows that may occur once every decade average 25-28 degrees Fahrenheit, with all-time records as low as 17 degrees. A strong understanding of microclimate is needed when planting tender plants. Young trees especially need protection.

The conditions at a specific planting site can vary greatly depending on its immediate surroundings. These locational conditions are referred to as the microclimate, and can often affect the choice of trees and plants for a site. The main influences on microclimate are topography (aspect and slope), structures, pavement, and existing vegetation.

Topography. The shape of the land can affect air drainage, resulting in warmer zones on sloped ground and cool areas in basins or where air flow is stilled. In addition, a valley or low point along a ridge may funnel winds, causing greater turbulence and increasing velocity. The angle of the land in relation to the sun is also very important, with south- and west-facing slopes receiving the most direct sunlight and therefore being significantly hotter and dryer than the cool, moist microclimates of north- or east-facing slopes.

Structures. Buildings or other structures act as artificial topography, both funneling and deflecting winds and creating oven-like southern exposures or completely shaded northern areas. Where building forms combine, as along a street or setback line, or where buildings are especially tall or massive, these effects are intensified. As a result, appropriate tree species may differ greatly from one side of a building to another.



Pavement. The reflected heat from street, sidewalks, parking lots and other paved surfaces, as well as roofs, turns cities into heat islands several degrees warmer than surrounding, less intensely developed areas. During hot summers in Thousand Oaks, this effect is especially pronounced. For trees and plants, the result is hotter, drier conditions, shifting the microclimate of a parking lot, for instance, to near-desert intensities.

Other Vegetation. Stands of existing trees near a planting site can block wind or create shade in the same way that buildings do. Large areas of vegetation, including shrubs and groundcover, reverse the effect of heat islands by absorbing sunlight and by releasing moisture into the air by transpiration from the leaves, cooling the surroundings like a huge air conditioner. Airborne moisture from ocean fog or other sources also tends to condense on the surfaces of leaves and needles, causing a wetter, cooler microclimate.

3. b Topography

In addition to the impacts that terrain can have on micro-climate (as described above), slope can also impact the availability of water to vegetation. Quick run-off of water from steep slopes can contribute to excessively dry soil, while low spots collect run-off and may therefore be wetter than the surrounding soil. This phenomena is also impacted by the soil type.

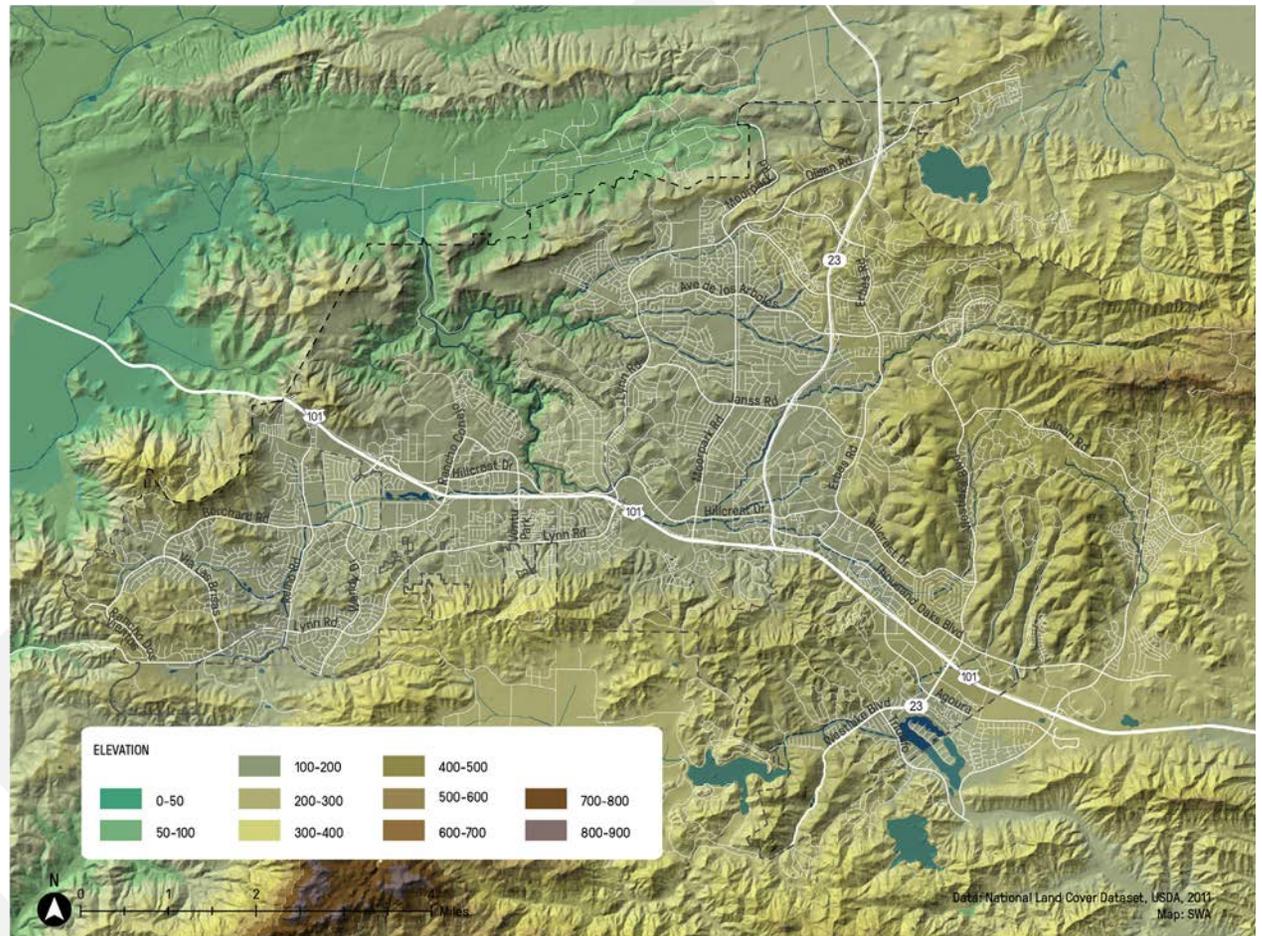


Figure 1.10 Thousand Oaks topography

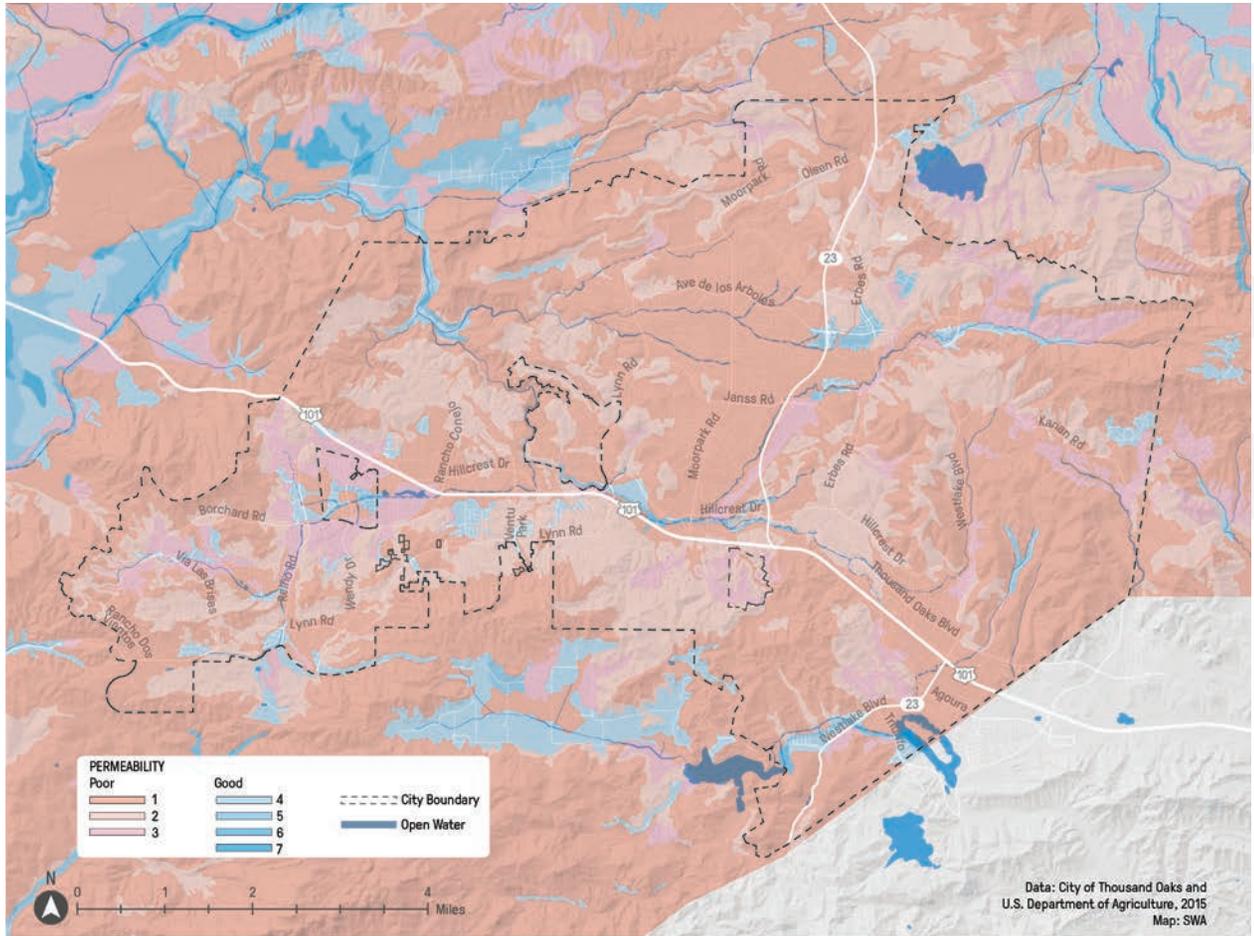


Figure 1.11 Thousand Oaks soil permeability

3.c Soils

Soil type impacts water retention. Sandy soil is very well aerated, but dries out quickly. Clayey or silty soil consists of minute particles which bind tightly together; water is trapped in the small spaces between these particles by capillary action, moving slowly and restricting oxygen to the roots. Absorbing root tips may be killed by this lack of oxygen. Either drought or saturated soil will therefore prevent distribution of moisture and minerals to foliage crowns, reducing vigor or even killing plants. Most trees prefer intermediate soils with good drainage but adequate water retention, such as those found in many valley areas in Thousand Oaks.

The soils map gives a general idea of soil conditions in Thousand Oaks, although it does not accurately reflect post-development levels of compaction or otherwise altered soils. Any type of development causes compaction and mixture of traditional alluvial soils with non-fertile bottom horizons, greatly affecting the tree's ability to survive.



3.d Groundwater

Groundwater reservoirs within reach of a tree's roots can allow some species to thrive in soils that would otherwise be too dry. However, a water table that is too close to the surface will drown the roots of most species.

The groundwater map shows the locations of groundwater basins within Thousand Oaks. Data on the distance to the water table should be requested as needed. Locations of groundwater basins combined with soil type information can help identify potential locations for integrating infiltration best management practices (BMPs), such as bioswales or detention basins, with planting projects.

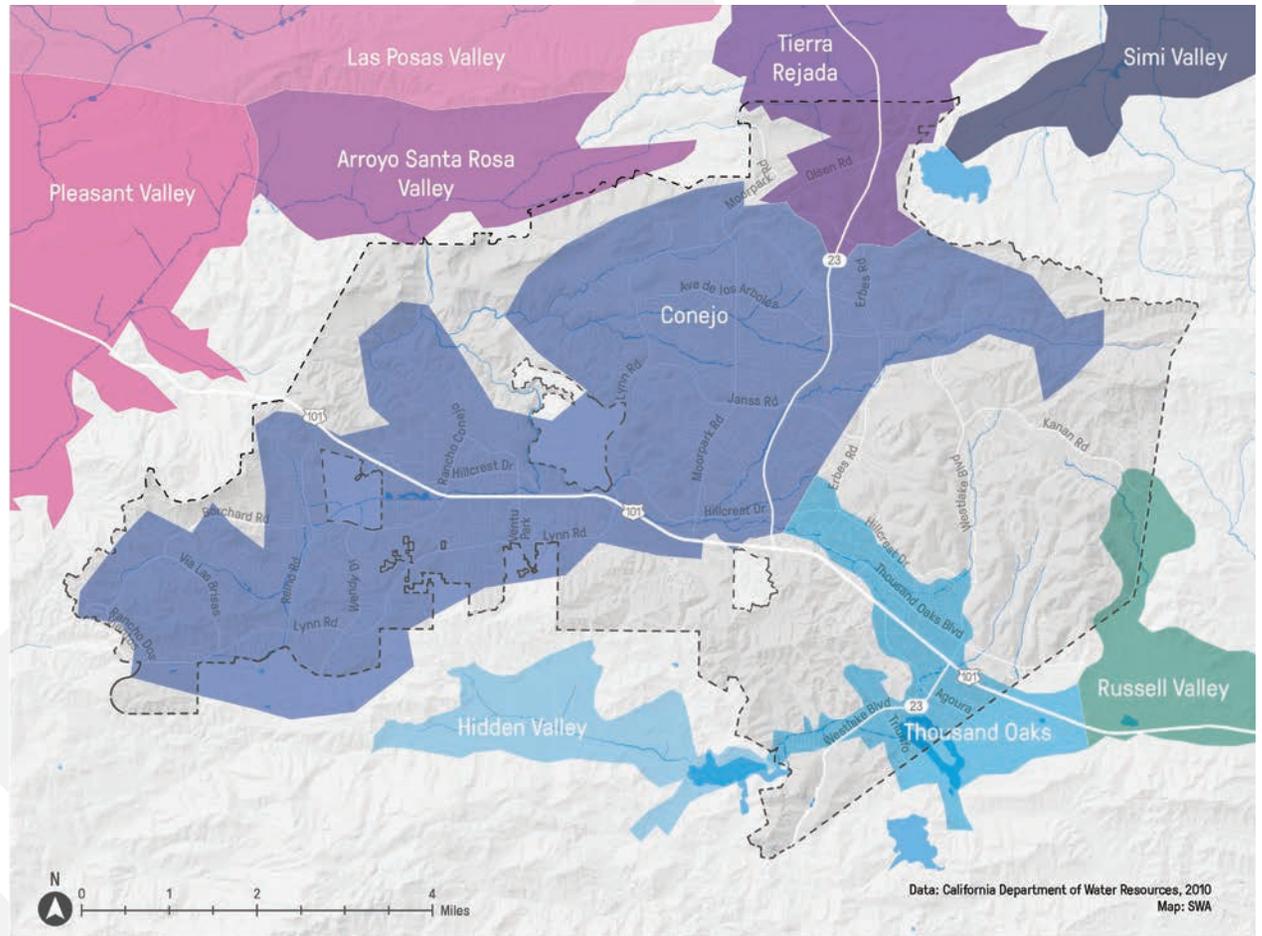


Figure 1.12 Thousand Oaks groundwater basins

3. f Native Plant & Wildlife Communities

Located on the coastal side of the Transverse Ranges, Thousand Oaks is in a region that is dominated by chaparral, and more specifically coastal sage scrub (or soft chaparral), as the native plant community. This community is very well adapted to drought conditions, and shares many characteristics with desert communities. Many plant species are drought-deciduous or are succulents. Above-ground productivity is low, however many species produce large, showy flowers. There is variation in shrub characteristics and species between south- and north-facing slopes. Typical south-facing shrub species include: California sagebrush, California encelia, California buckwheat, monkeyflowers, true sages, prickly-pears, and live-forevers. Common north-facing shrub species are: toyon, laurel sumac, lemonadeberry, sugar bush, poison oak, fuchsia-flowered gooseberry, and coyote brush.

The plant community of hills that approach or exceed 1,000 feet in elevation transition to the lower chaparral. Like the coastal sage scrub plants, species tend to differ between north- and south-facing slopes; most are evergreen (rather than drought-deciduous), have waxy hard leaves, and have woody stems and large root systems which allow them to grow much larger than soft chaparral species. Chamise is the most common species of the lower chaparral; other plants include California lilacs (Ceanothus), deerweed, golden yarrow, California scrub oak, holly-leaved cherry, California coffeeberry, and woody vines, such as honeysuckles and wild peas.



Figure 1.14 Native coastal sage scrub plants, typically on south-facing slopes



Figure 1.15 Native coastal sage scrub plants, typically on north-facing slopes



Figure 1.16 Native lower chaparral and oak woodland



Figure 1.17 Quercus agrifolia, Coast Live Oak



Figure 1.18 Southern oak woodland



Figure 1.19 Western side-blotched lizard



Figure 1.20 California mule deer in Thousand Oaks

Canyons and valleys in this region support the southern oak woodland community, which feature three species of large oaks in Southern California: Coast Live Oak, Canyon Live Oak, and Engelmann Oak. Coast Live Oak is the most common, and it typically occurs in canyon bottoms, north-facing slopes, and as islands within coastal sage scrub. Canyon Live Oak typically occurs at higher elevations, and the Engelmann Oak prefers flat tablelands with deep, clay-rich soils. Shrubs that are commonly associated with southern oak woodlands include: toyon, lemonadeberry, fuchsia-flowered gooseberry, and poison oak.

Scrub communities are dominated by small, cold-blooded animals, such as arthropods (insects, spiders, mites) and reptiles. Several species of lizards are common; snakes are much less common. Birds are the most noticeable of the day-time animals; most mammals are small and nocturnal, and include a number of rodent species and rabbits. Mule deer are the largest mammals, and the mountain lion is the largest predator. Coyotes and bobcats are other common mammals of scrub communities.

Understanding the natural geography of the site and what natively grows in those conditions can serve as a good starting point when developing a planting design. Tree and plant species that are native to the Thousand Oaks region are clearly good options in terms of water efficiency, habitat value, and blending with surrounding open spaces. However, consideration should be given to maintenance and other needs of these native species when planted in a managed, urban setting. Species that thrive in wild settings do not always do as well in the city.

3.g Land Use

Until the 1930s, most of Thousand Oaks was ranchland, including some large holdings dating back to the days of Spanish rule. Even as late as the 1950s, there were two ranches totaling some 25,000 acres of land in the planning area of the city. Today, most neighborhoods consist of a variety of tract-housing styles, a school or two, a park or other type of open space, and occasionally some commercial uses. The age of the oldest trees in a neighborhood usually corresponds to the age of the housing. Planting design and the function it serves should consider the surrounding land use; for example, creating a buffer or screen between the street and residences, or providing shade along a commercial sidewalk without obstructing visibility of the businesses.

3.h Urban Development

The land cover map (Figure 1.22) illustrates the pattern of development and vegetated open space in Thousand Oaks and the immediate surroundings. The map highlights how Thousand Oaks' development exists between large patches of open space. This condition results in the need for caution – to protect open spaces from the impact of development, and to protect development from potential threats from open space (wildfires, in particular). It also offers the opportunity for the benefits of the community forest within development to enhance the benefits provided by the surrounding open space. Plantings at the periphery of development should be designed to extend habitat, resist the threat of wildfires, and complement the natural setting of nearby open space.

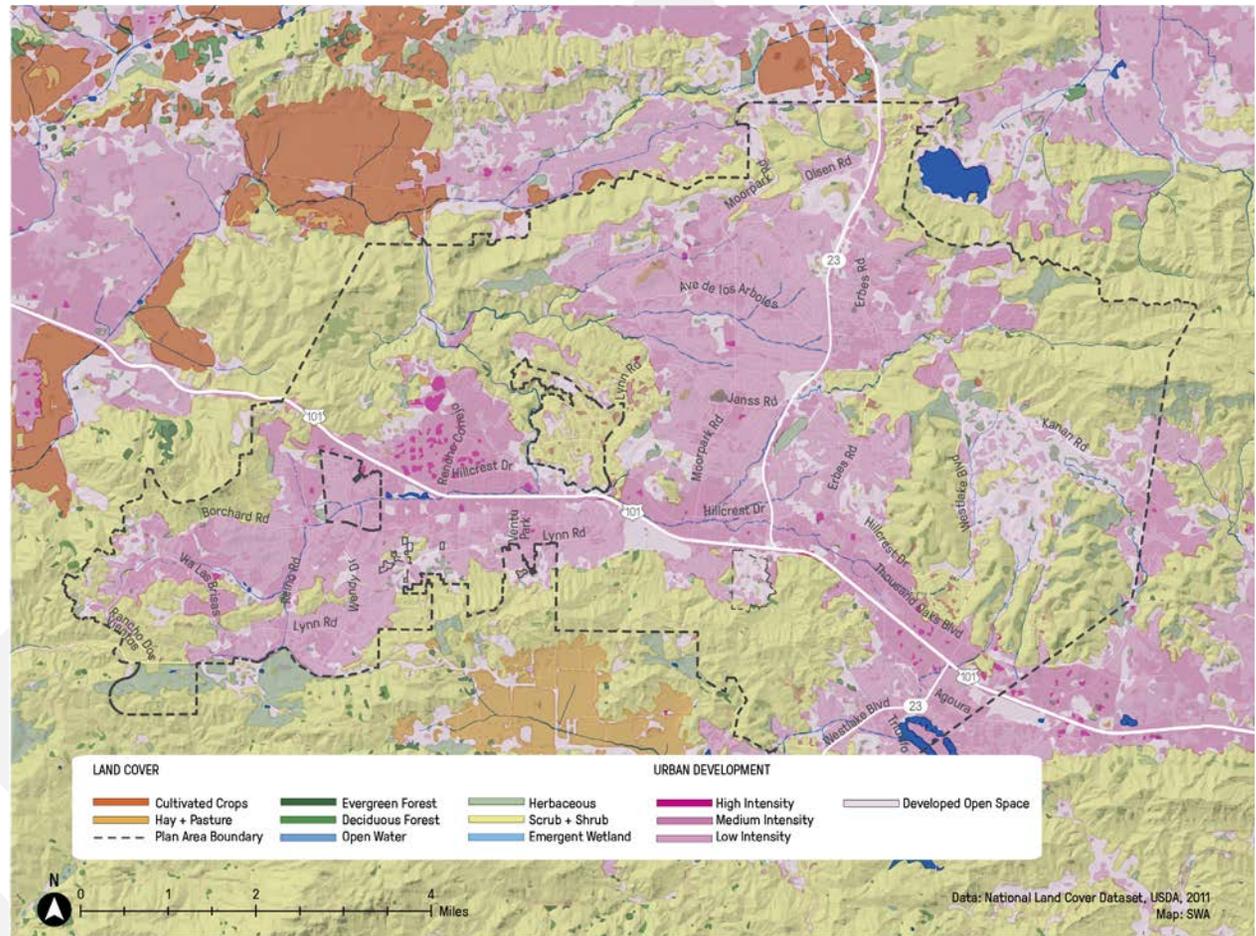


Figure 1.21 Thousand Oaks land cover

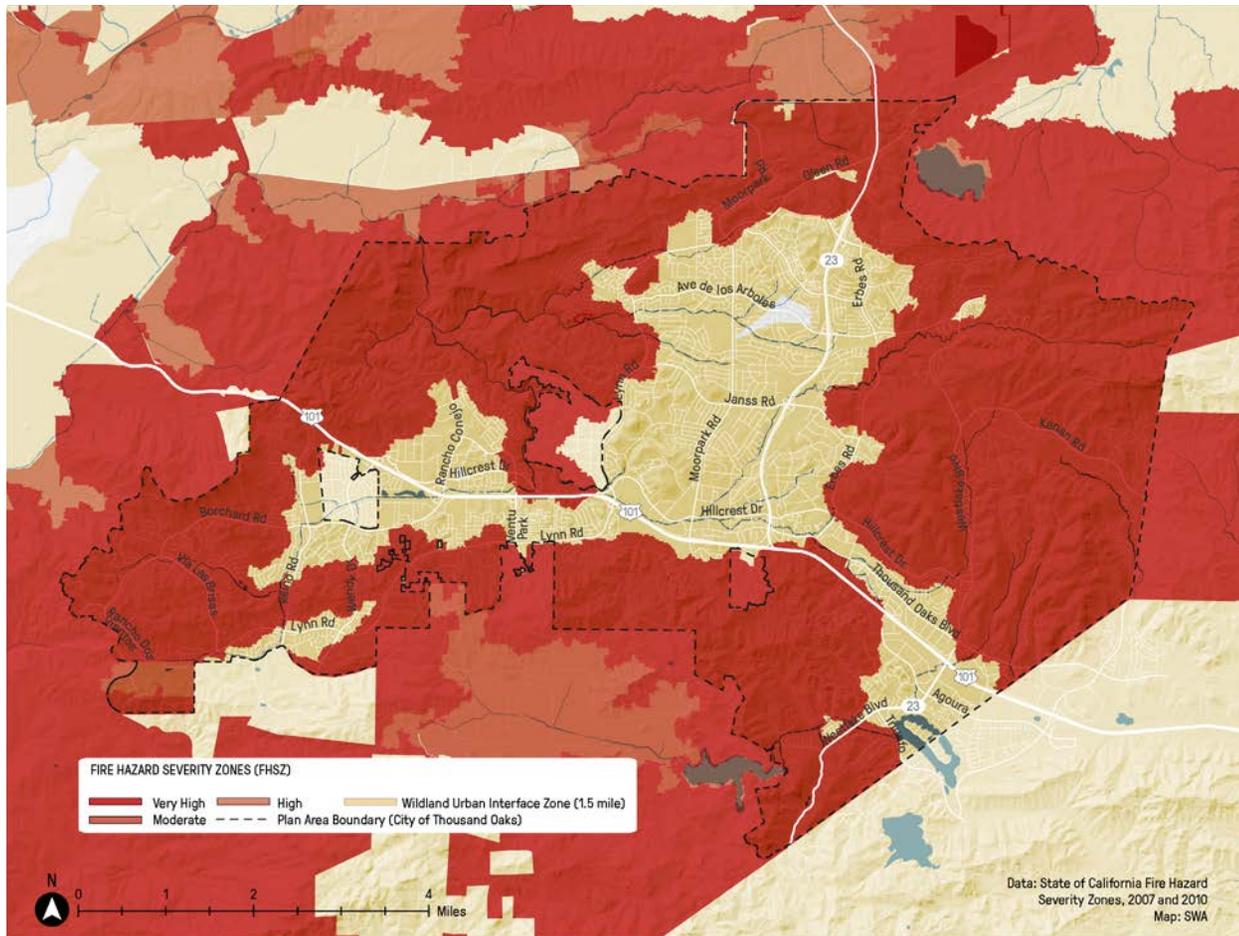


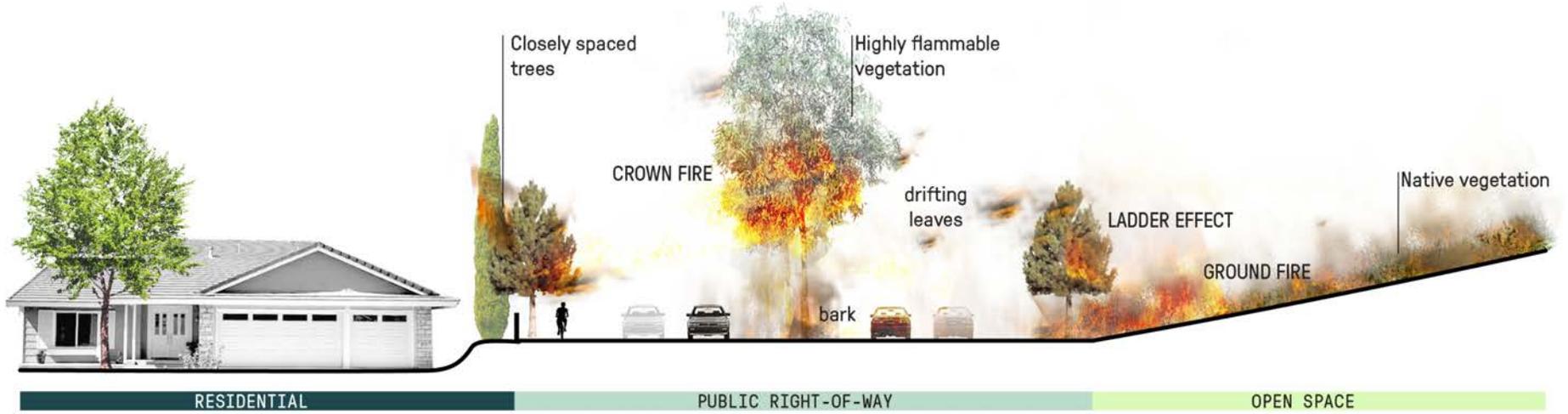
Figure 1.22 Thousand Oaks wildland-urban interface & fire hazard severity zones

3.i Wildland-Urban Interface

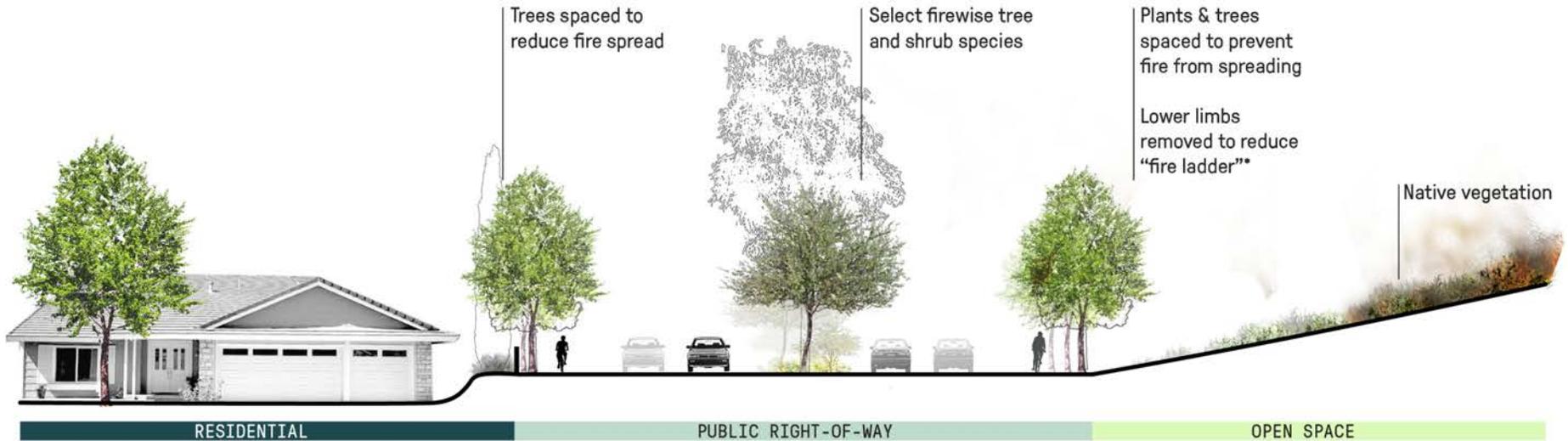
The chaparral plant community, which dominates the natural landscape of Thousand Oaks, is one that has evolved in conjunction with drought and fires; many of the plants rely on periodic burning for growth and reproduction. In autumn, after the dry summer, vegetation is most susceptible to fire. As the land cover map illustrates (Figure 1.21), Thousand Oaks' development is surrounded and interspersed with open space, much of which contains chaparral scrub and oak woodland. Areas where development occurs near or within wildfire-prone lands are known as the wildland-urban interface. Figure 1.22 shows that nearly all of Thousand Oaks is considered wildland-urban interface. The map also illustrates the designation of fire hazard zones within and surrounding Thousand Oaks. Planting design in these areas should follow Cal-Fire and Ventura County Fire Department guidelines for fire hazard reduction.

Figure 1.23 illustrates the importance of considering the role of wildfires in the design and maintenance of the community forest. As roads and the public rights-of-way often serve as boundaries between development and natural open space, they hold the potential to function as either bridges that spread fire, or as firebreaks to stop its spread. If planted and maintained according to fire department recommendations, medians and parkways could become greenbelts that help protect the community from wildfires.





WITHOUT FIRE PREVENTIVE DESIGN + MAINTENANCE



WITH FIRE PREVENTIVE DESIGN + MAINTENANCE

**Refer to Ventura County Fire Department for defensible space practices.*

Figure 1.23 Defensible space zones across private and public properties

3.j Street Network

The network of streets in Thousand Oaks serves a diversity of functions. The primary need for a system of roads is, of course, circulation. The layout of the streets, while designed mostly with circulation needs in mind, also becomes the overriding structure of the city that helps determine character, form, and land uses.

The streets of the city perform a social function as well, for it is on the streets that we come together as a community. Celebratory events - parades, block parties and the hanging of holiday decorations - take the street as their medium. We “hit the streets” to buy goods, disseminate information, run races, and meet our neighbors. Even in the face of the isolating effects of the automobile, the street will continue to be the most public of places in any community.

Streets are usually described in terms of traffic volume, width of roadbed, and connections: freeways provide for rapid movement of large volumes of through-traffic; arterial streets connect with freeways and also provide for through-traffic within the city; collector streets connect arterials with local streets and provide property access, and local streets are intended only for property access. (Figure 1.24)

Streets may also be thought of in terms of their general character. Thousand Oaks’ streets vary considerably, both from street to street, and along the length of individual roads. Some of the variables that determine a street’s character include width of the road, volume and speed of traffic, the primary land use fronting it, connections and intersections along

the way, and the “streetscape” - the overall design of the street, including furniture, width of sidewalks, medians, commercial signage, and trees. To effectively design with street trees, all of these factors must be considered.

3.k City-Maintained Street Trees

Street trees comprise a large percentage of the public trees in the community forest. They are also its most visible members, since it is from the roads of Thousand Oaks that most people form their visual impressions of the city. This “view from the road” element of street plantings, so often overlooked in street design, is integral to the image a city conveys.

Figure 1.25 shows the locations of city-maintained street trees (as of 2003), layered with public sidewalks. Street trees not only provide a nice “view from the road” for drivers, but also contribute to a pleasant environment for pedestrians. The map illustrates that many of the city’s sidewalks benefit from street trees, however there are areas that lack this public amenity.

3.l Community Forest Geographic Regions

The five areas shown in Figure 1.26 are based on a combination of existing neighborhood areas and divisions created by freeways. These regions are identified in the *Forestry Master Plan* as focus areas that are more manageable for human-scale planning. Guidelines provided in Volume 2 of the *Forestry Master Plan* contribute to a planting identity for the city

of Thousand Oaks as a whole, with subtle variation between each of these regions.

3.m City Gateways

The City Council adopted a resolution to establish planning policies and guidelines for city gateways (Resolution No. 93-152), with the intention of providing “focal points of community identity, and to remind residents and introduce visitors to the character of the community.” The *Forestry Master Plan* supports the guidelines set forth by the resolution, primarily by recommending appropriate species to be planted in the public right-of-way at the designated city gateways.

Figure 1.26 shows the locations of the gateways, as identified in the resolution. Gateway designs should follow the policies of the resolution, while also reflecting the character of the city region in which it is located, according to the Regional Character Guidelines provided in Volume 2 of the *Forestry Master Plan*. Gateways can serve as landmarks that identify the general character of Thousand Oaks as well as the particular part of the city in which they are located.



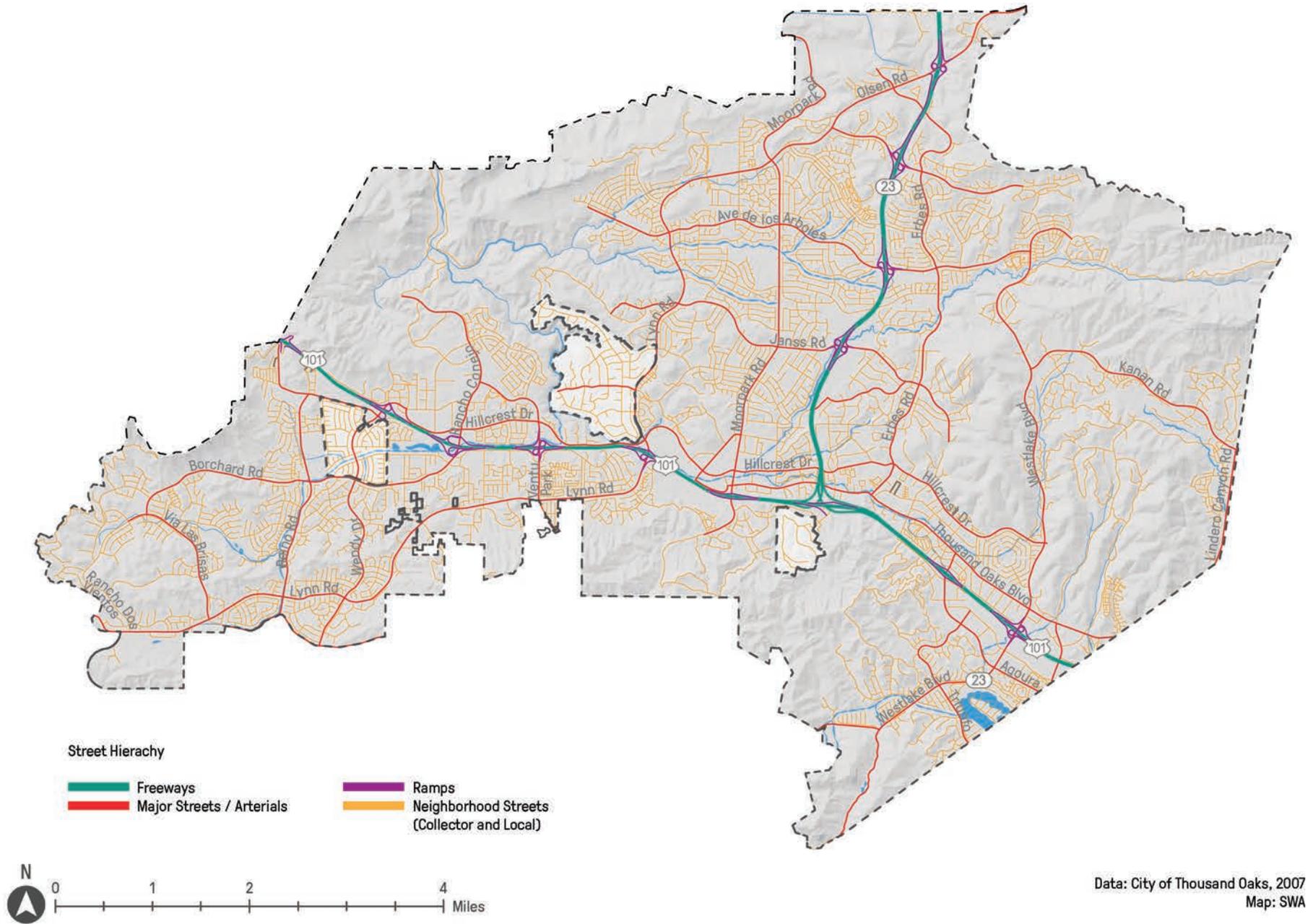
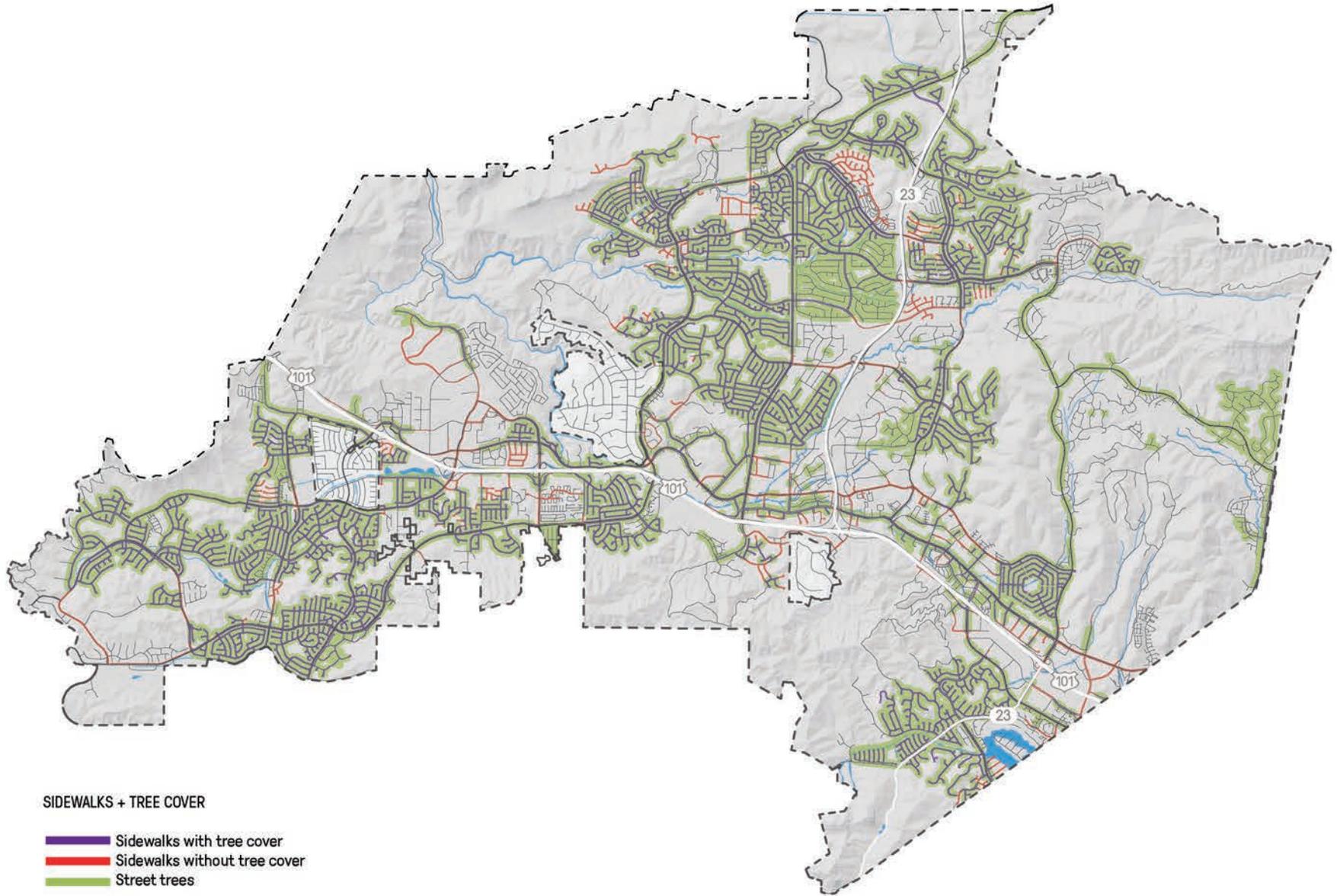
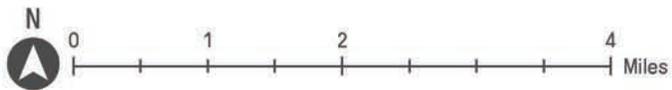


Figure 1.24 Thousand Oaks street network



SIDEWALKS + TREE COVER

- Sidewalks with tree cover
- Sidewalks without tree cover
- Street trees



Data: City of Thousand Oaks
Map: SWA

Figure 1.25 Thousand Oaks streets, sidewalks, & city-maintained street trees



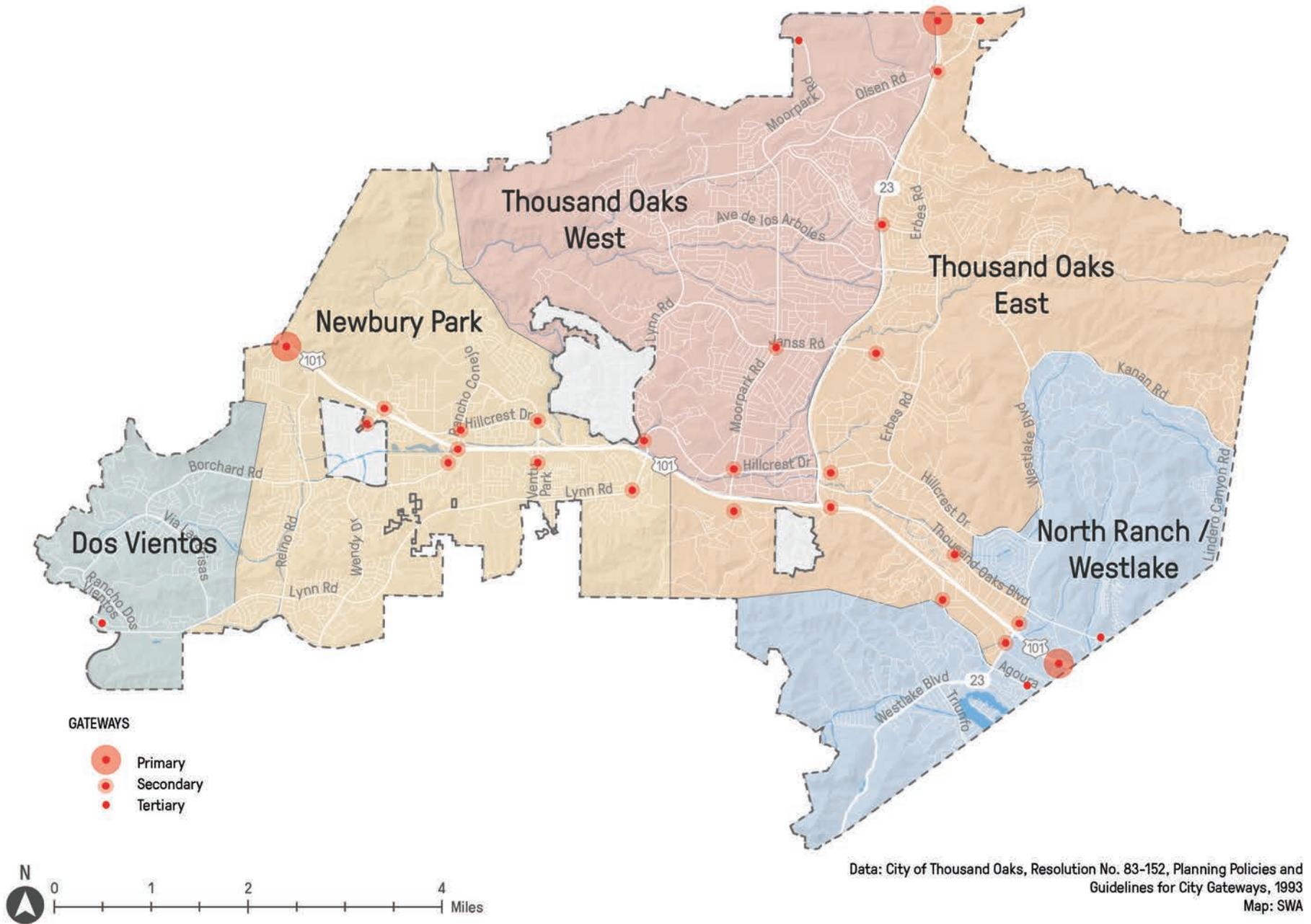
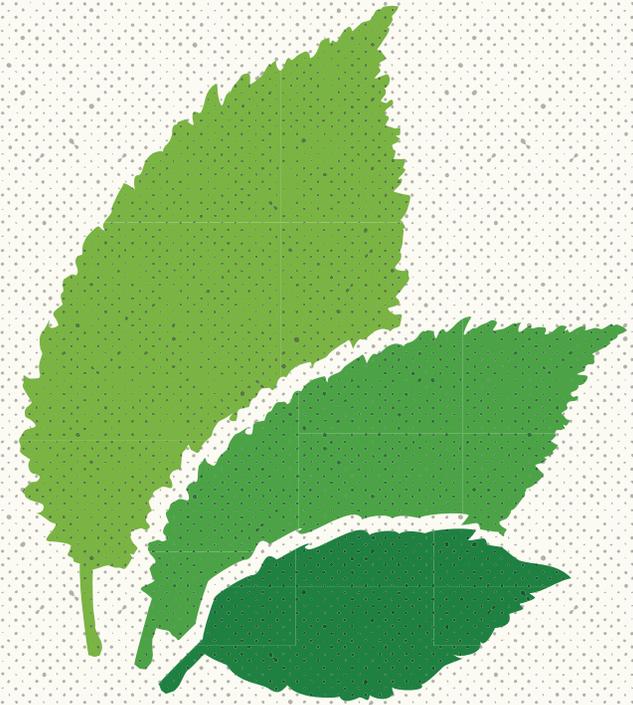


Figure 1.26 Forestry Master Plan geographic regions & city gateways

DRAFT



VOLUME 2
DESIGN AND
MANAGEMENT
PLAN



Volume 2: DESIGN & MANAGEMENT PLAN

Volume 2 is the “go-to” document for anyone involved in the design of community forest projects within the public right-of-way, or in the on-going management of the community forest. It provides design and management guidelines for successfully integrating plantings to a site, and recommends a palette of trees and understory plants for local use.

This volume is divided into sections, based on the process of community forest design and management:

- (1) Guiding Goals and Recommendations, and
- (2) Participation in National Initiatives: to understand the goals of Thousand Oaks' community forestry effort.
- (3) Planting Design Guidelines: to be consulted when developing planting design concepts.
- (4) Species Selection Criteria: to be consulted as a planting project transitions from concept to implementation, when determining the species to be planted to achieve the intended design.
- (5) Street Tree Palette, and
- (6) Understory Planting Palette: to be used in conjunction with the Species Selection Criteria; provides the lists of species that are recommended by the City of Thousand Oaks.
- (7) Community Forest Management Guidelines: to be consulted for the on-going maintenance of implemented planting projects, for the sustainable maintenance of the community forest.



Figure 2.1 Plantings in the Moorpark Road median

1. Guiding Goals & Recommendations

The *Forestry Master Plan* has been developed as a tool to assist the City in achieving its goals for sustaining the community forest. The following goals and recommendations are the foundation for the Plan.

GOALS

Establish and maintain a full complement of street trees on every street in the City.

Enhance the character of the City and its neighborhoods through streetscape trees and plantings.

Promote the creation and maintenance of off-street plantings that enhance the public forest resource.

Establish the highest standard of maintenance for public trees.

Promote public awareness of and involvement in community forestry care and benefits.

RECOMMENDATIONS

Achieve a 25% canopy coverage citywide.

Replace every tree removed from a street with at least one new tree.

Use species well-adapted to local environmental conditions and design objectives.

Achieve a diverse and resilient forest by following the 10-20-30 rule of community forestry.

Continue to plant the City's legacy oak trees in the appropriate spaces.

Develop a citywide planting identity, as well as distinct identities for regions of the City.

Provide ample landscaping of new construction.

Maximize tree shading of public facility parking areas.

Encourage new plantings at schools, parks, libraries, and similar sites.

Keep maintenance and planting standards current.

Provide expert training of City maintenance personnel.

Require certified tree maintenance contractors.

Maintain an inventory of the condition of all City street trees.

Allocate annual funds sufficient for appropriate & timely tree maintenance, exclusive of removals.

Encourage collaboration between City departments, local community organizations, and public schools.

Encourage monetary and other contributions to the community forestry program.

Promote the community forestry program's progress & achievements.

Participate in national programs that support and promote the benefits of the community forest.

2. Participation in National Initiatives

One way for the City to promote public awareness of and involvement in community forestry care and benefits is to participate in national initiatives that share similar goals. These initiatives offer resources and support that can assist the City with its community forestry efforts. Formal participation in the programs communicates to the public the goals, values, and approaches that are shared by the initiative and the City community forestry program; and helps to increase broader understanding of community forestry issues and benefits. Two national initiatives that have goals aligned with the City of Thousand Oaks' are Tree City USA and Bee City USA.

2.a Tree City USA

"Tree City USA" is an Arbor Day Foundation program that works to establish, promote, and celebrate urban tree canopies. In partnership with the USDA Forest Service, Urban and Community Forestry, and the National Association of State Foresters, the status of Tree City USA is awarded to cities who meet the foundation's standards of urban forestry management. The City of Thousand Oaks has been awarded Tree City USA for eighteen years (as of 2016).

In order to achieve Tree City USA status, a community must meet four standards of sound urban forestry management:

- A tree board or department
- A tree ordinance
- A community forestry program with an annual

budget of at least \$2 per capita

- Celebrate Arbor Day

The Tree City USA program provides the City's community forestry program direction, technical assistance, public attention, and national recognition; and places Thousand Oaks within a network of over 3,400 recognized communities.

2.b Bee City USA

Bee City USA is a program, launched in 2012, that invites cities to make commitments for providing sustainable habitats for pollinators. According to the program's website, "85% of flowering plants and trees rely on pollinators for the survival of their species. ... Entire species [of native bees and other pollinators] are disappearing at alarming rates as they battle most of the same enemies as honey bees – loss of habitat essential for food and shelter, inappropriate pesticide use, diseases, and parasites."

The Bee City USA program is intended to raise awareness of these issues and encourage communities to take actions that will support populations of pollinators. Some of the guidelines for pollinator-friendly habitat include:

1. Provide diverse and abundant pollinator food sources (nectar and pollen from blooming plants) that bloom in succession.
2. Provide water for drinking, nest-building and cooling, diluting stored honey, and butterfly "puddling"



Figure 2.2 Tree City USA
Image Credit: Arbor Day Foundation



Figure 2.3 Bee City USA
Image Credit: Bee City USA



3. Avoid the use of pesticides, or carry out the use of pesticide to impart the least ill effects on pollinators.
4. Comprise plantings of mostly, if not all, native species of grasses, perennials, shrubs, and trees. (Many native pollinators prefer or depend on the native plants with which they have co-evolved for millions of years.)
5. Source plants from nurseries that do not treat seeds with neonicotinoid pesticides, which permeate the entire plant and remain active for as much as years. (Some plants may be labeled “bee-friendly” even though they were grown from seeds treated with “neonics”)
6. Provide for safe and humane removal of bees when required.
7. Provide undisturbed spaces (leaf piles, unmowed fields, fallen trees) for nesting and overwintering for native pollinators.

Collectively, the City and private land owners can follow these guidelines to plant and manage landscapes in a manner that will support sustainable habitats for pollinators. The guidelines that are most applicable to publicly maintained landscapes are incorporated in the following Planting Design Guidelines, Species Selection Criteria, and Management Guidelines.

3. Planting Design Guidelines

This section provides design guidance to be consulted during development of planting designs within public rights-of-way. It begins with an overview of the different planting processes depending on the type of project. The following sub-sections are focused on design – from general design principles and universal design guidelines that are widely applicable to planting design throughout the community, to sets of guidelines developed specifically for streetscape plantings. These planting design guidelines should be followed for every City-maintained planting project within public rights-of-way in Thousand Oaks.

3.a Planting Process by Project Type

The process by which trees are selected and sited varies according to the planting situation: whether in new developments, in existing neighborhoods, or along major streets.

In all cases, the guidelines and information contained in this Design and Management Plan should be used to ensure the right trees are planted in the right places to achieve the greatest benefit for the longest time.

New Developments. After consulting regulatory documents and city staff, the developer’s landscape architect submits plans for City review. The City reviews the plans for conformance with current regulations, works with the developer to adjust the plans, and may present to the Planning Commission or City Council as part of the permit approval process.

Major Streets Plantings. Same process as above for



Figure 2.4 Neighborhood street trees

major streets within new developments. For existing streets, the City initiates the plans, either developing them in-house or hiring a consulting landscape architect; in either case the *Forestry Master Plan* guides the process. The plans are presented to the public for comment and approved by City Council as a capital improvement budget item.

Neighborhood Streets Plantings. For city-initiated plantings, the Public Works Director or designee recommends appropriate alternative schemes and species based on the Plan guidelines at a neighborhood meeting, then finalizes plans, taking into account the residents’ preferences and concerns.

Replacement Trees. The Public Works Director or designee selects species and placement in conformance with Master Plan criteria and with prior notification of fronting property owners.

Visual Character of Trees



Scale: The size of the tree, reflected mostly by its height and diameter of the canopy, but also by its limb and trunk size. Choosing an appropriately scaled tree for the site can bring a large building or wide street down to human scale.



Form: The shape of the canopy. Each has uses that best suit it. The most distinctive forms, such as tall pyramidal or narrow columnar trees, must be used carefully, since these forms are not native to the area. Round-headed trees are suited to the hills, as they reflect the landform and the native oaks.



Color: Trees are generally known by the color of their summer foliage, but other strong color effects can be achieved by using trees with colorful bark, or trees with impressive fruit or flower displays. Leaf color can also vary from season to season. Unusual color combinations can create striking effects.



Texture: This refers to the size of the foliage, with large-leafed species (such as magnolias) referred to as coarse-textured, and small-leafed ones (peppers, for example) as fine-textured. The density of foliage must also be evaluated. Extremely dense trees are not appropriate for narrow pedestrian corridors because they can create a box-like feeling. However, they may be appropriate for large areas such as parks when shade is desired.

3. b Principles of Community Forest Design

Landscape design is the process of altering the environment to meet human needs. The changes can be very subtle or quite dramatic. When sensitively carried out, the environment is enhanced, not harmed by such changes. A careful design considers the needs of species other than humans, and reveals hidden natural wonders. Good landscape design finds the balance between human needs and the rest of the natural world. In addition to working well with the natural and developed environments, trees and plants should be chosen and sited to make the highest contribution to the character of the neighborhood or commercial area in which it is planted.

In the case of the community forest, the human needs can vary greatly, as can the environmental conditions. After narrowing down the choice of trees to ones that will work well in the planting environment, the next step is to evaluate the human conditions that will affect the tree. Will cars or trucks be driving under its limbs? Is the tree being planted to reduce the effects of wind? Or maybe the site's nearness to a natural open space area suggests the use of native oaks and other plantings to maintain visual harmony (as well as extend habitat value.) These are just some of the issues to consider when trying to choose a tree that will meet the needs of the people who use the site.

Trees can also be used to solve a variety of problems. Shade trees on the south and west sides of a building can significantly reduce cooling costs. Rows of densely planted trees can reduce wind speeds in the immediate area. Planted along roads, trees can catch

the particulates emitted by cars and reduce pollution of air in adjacent backyards and along sidewalks.

After all these needs and potential uses have been considered, the aesthetic character of the tree must be evaluated. Aesthetics is not an entirely subjective matter. Trees have a number of visual characteristics - such as scale, form, color and texture - that help determine appropriate species selection.

3.c Planting Design Guidelines Framework

The design guidelines are provided to assist with the development of planting designs. When consulting the following planting guidelines, first review the "Universal Planting Design Guidelines," which apply to plantings regardless of their location in the city. For street plantings, refer to the "Citywide Design Guidelines" for the appropriate type of street site, "Major Street / Arterial" or "Neighborhood"; then review the "Regional Character Design Guidelines" for the region in which the site is located (refer to Figure 2.22 for the regional character map). Guidelines are provided for both street tree and understory plantings.

After a general design concept is developed for a planting site, refer to the Species Selection Criteria and Tree and Understory Planting Palettes, provided later in this volume, to determine the most appropriate species to be planted to achieve the intended design.



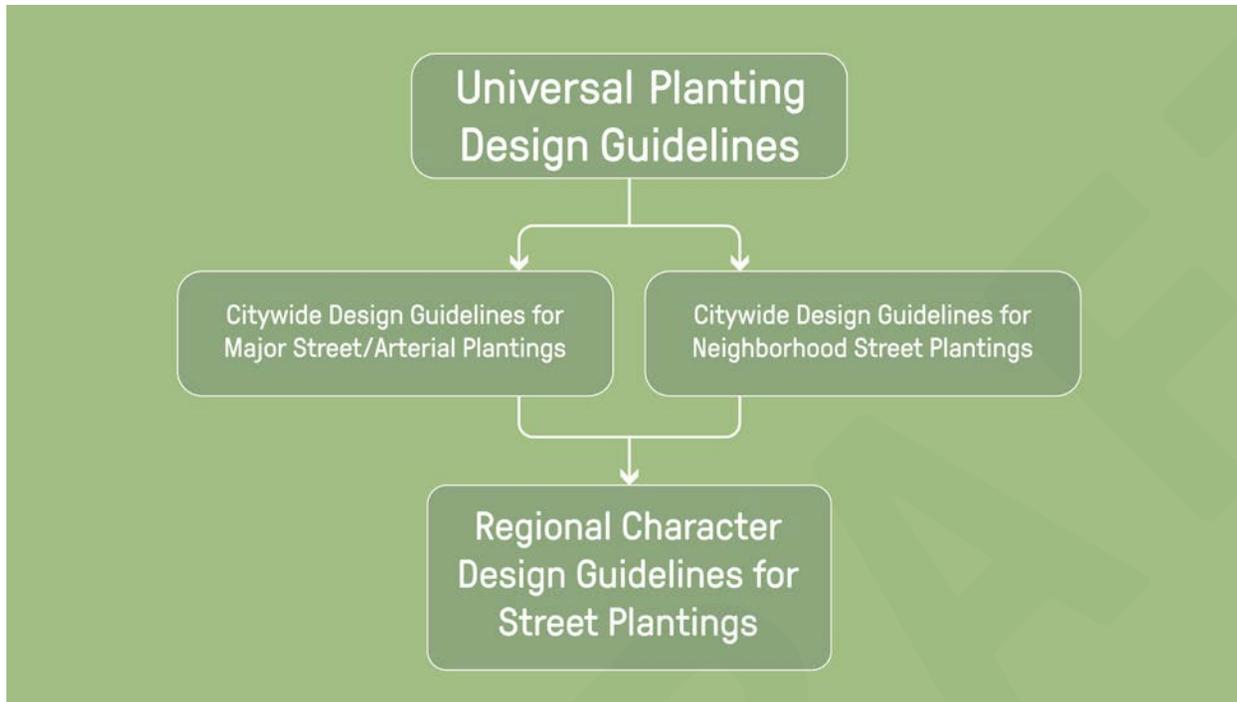


Figure 2.5 Planting design guidelines framework

3.d Universal Planting Design Guidelines (Any Location)

The following guidelines, written to reflect the goals and recommendations at the start of this volume, have been formulated to direct the design of the community forest as a whole. They have been organized into the following three categories: Enhancing Character & Aesthetics, Increasing Forest Resiliency, and Supporting Maintenance & Safety. Guidelines specific to the major streets and neighborhoods appear in the next sections.

It should be noted that the design guidelines can be applied to the renovation of existing areas as well as new construction. Where existing landscaping has been found to conflict with the use of an area or create high maintenance conditions, these guidelines can aid in planning the renovation of those areas, thereby creating a more effective relationship between use and design as well as a corresponding reduction in maintenance problems.

Enhancing Character & Aesthetics

1. **Extend and complement the native tree species of the Conejo Valley.**
 - Use native species where appropriate.
 - Use such species in places where they might naturally occur.
 - Use native species, particularly oaks, to link the city to adjacent oak woodlands in open spaces.
 - Use non-natives of a similar form, texture and color as natives in areas adjacent to or with significant views of open space.
2. **Respect and emphasize the city's geographic setting.**
 - Frame views from the public right-of-way to the surrounding hills and into the city. (Figure 2.6)
 - Consider accent species in the foreground of such views.
 - Screen objectionable views, including large parking lots, with appropriate plantings.
 - Consider vertical species as focal points in valley areas.
3. **Complement the natural topography.**
 - Use round-headed trees in hilly areas.
 - Avoid trees on open ridgelines.
 - Where ridgeline development occurs, use round-headed trees to help blend structures into the ridgeline.

Universal Planting Design Guidelines (Any Location)

Enhancing Character & Aesthetics

1. Extend and complement the native tree species of the Conejo Valley.
2. Respect and emphasize the city's geographic setting.
3. Complement the natural topography.
4. Complement existing trees and other vegetation.
5. Use trees to create a variety of spatial experiences.

Increasing Forest Resiliency

6. Plant to attract and support wildlife.
7. Select trees and plantings adapted to the environmental conditions of the site.
8. Satisfy any functional reasons for the planting.
9. Diversify types and species where possible.



Vertical forms hide views and conflict with hillside features



Round forms allow views and echo hill features

Figure 2.6 Trees accent views

4. Complement existing trees and other vegetation.

- New tree forms, colors, and textures should be compatible.
- Horticultural requirements should be consistent for healthy growth.
- Use special care when modifying conditions near existing natives.

5. Use trees to create a variety of spatial experiences.

- Where appropriate, use trees to enclose space

with allees, bosques, or groves. (Figure 2.7)

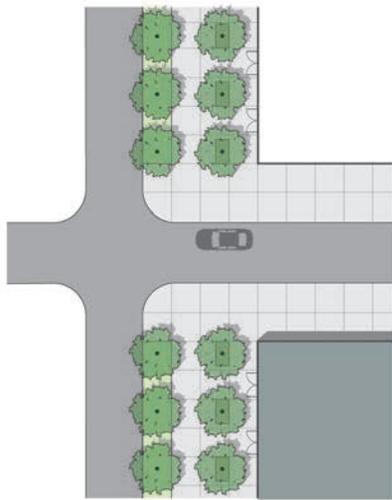
- To emphasize openness, use a single large specimen tree as a focal point within a large open space.

Increasing Forest Resiliency

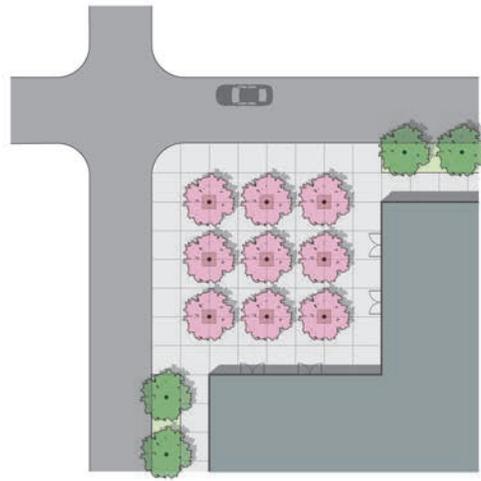
6. Plant to attract and support wildlife.

- Select species that offer food, housing, and water, especially for indigenous fauna. Experts on local wildlife species can recommend





Allee
Double row of trees on a wide sidewalk



Bosque
Geometric grouping of trees at building entrance

Figure 2.7 Allee and bosque plantings

appropriate species to meet these needs.

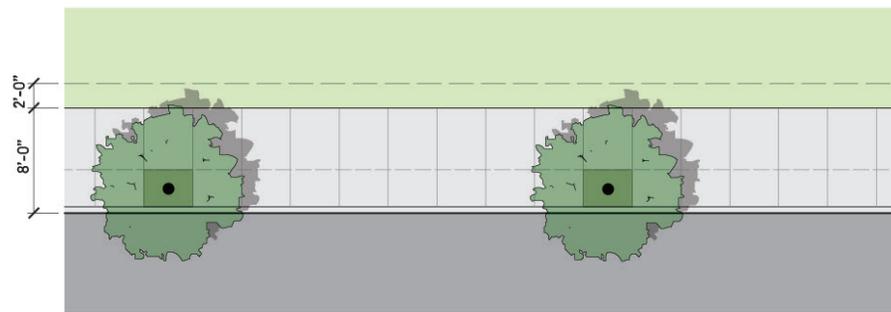
- Develop plantings that bloom in succession, providing pollinator food sources throughout the seasons.
- Plant wildlife-attracting species in sizable numbers and with some continuity throughout the community to mimic natural habitat; isolated patches are less effective.
- A diversity of habitat types throughout the city is best - shrubby edge, woodland, meadow, and chaparral.

- Incorporate native species of grasses, perennials, shrubs, and trees to the greatest extent practical.
 - Enhance stream corridors' natural wildlife value with dense plantings of native trees and understory plants; culverted streams have little wildlife value.
7. **Select trees and plantings adapted to the environmental conditions of the site. Refer to the Species Selection Criteria in the following section for more information.**

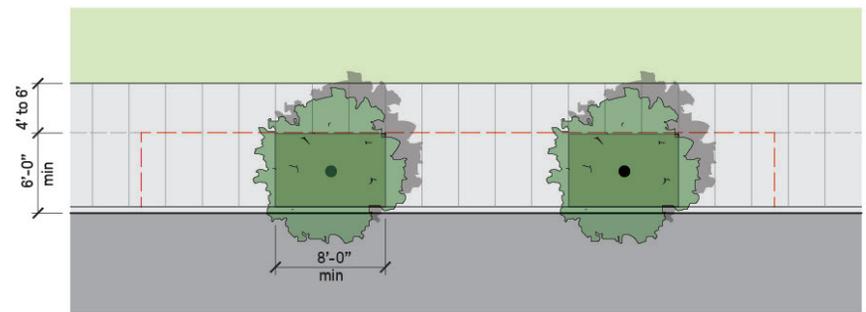
Universal Planting Design Guidelines (Any Location)

Supporting Maintenance & Safety

10. Plant to provide the intended performance and aesthetic with the lowest water usage.
11. Ensure planting designs conform to current local and state regulations.
12. Consider the non-optimum conditions of street tree plantings when designing tree spacing.
13. Design tree, shrub, and groundcover plant spacing based on mature plant sizes.
14. Place trees away from conflicting uses.
15. Locate trees to minimize conflict with overhead utilities.
16. Provide planting spaces that accommodate healthy tree growth.



Existing
Monolithic sidewalk with small tree wells or planting adjacent to sidewalk



Preferred
Optional reinforced paving, monolithic walk with tree wells and soil shaft

Figure 2.8 Tree wells in sidewalks

8. Satisfy any functional reasons for the planting.

- Water conservation
- Energy conservation
- Wind reduction
- Air pollution abatement
- Noise reduction
- Shading pavement to reduce heat island effect
- Screening objectionable views

9. Diversify types and species where possible to avoid monotonous landscapes and overplanting of popular species.

- Alternate planting designs in the neighborhoods on a block-by-block basis.
- Intermix accent species in the dominant tree

grid, as understory species, or to highlight key buildings or intersections.

Supporting Maintenance & Safety

10. Plant to provide the intended performance and aesthetic with the lowest water usage.

- Species with low to very low water use ratings are preferred.
- Group species by similar water needs in hydrozones.
- Minimize the number of hydrozones/irrigation valves per planting area.
- Trees and understory plantings should have compatible water needs.

11. Ensure planting designs conform to current local

and state regulations.

- Do not obstruct sightlines at intersections or traffic signage.
 - Comply with water allowance and irrigation requirements.
 - Refer to Volume 1 of the Forestry Master Plan for a list of relevant local plans and policies. Contact the Community Development Department to determine if other regulations apply to your project.
12. Consider the non-optimum conditions of street tree plantings when designing tree spacing. The following rule of thumb applies to street trees which are to be planted in an even-spacing pattern:

Broad trees: 30 to 40 feet apart



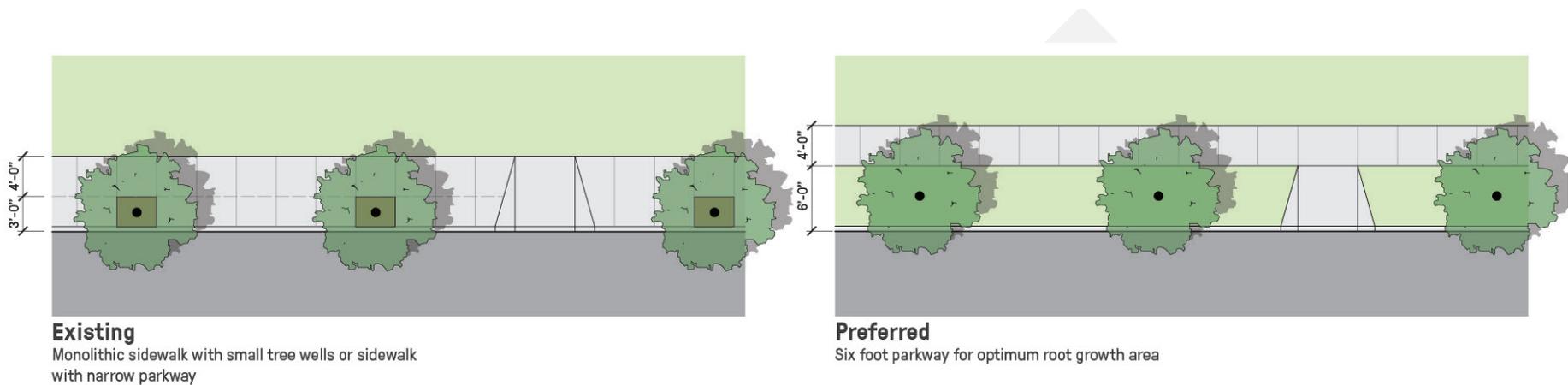


Figure 2.9 Tree well to parkway conversion

Average trees: 20 to 30 feet apart
Narrow trees: 15 to 20 feet apart

13. Design tree, shrub, and groundcover plant spacing based on mature plant sizes. Avoid dense, pot-to-pot spacing, which increases maintenance and irrigation requirements.
14. Place trees away from conflicting uses. The following standards have been established in Resolution 2007-16:

Intersections. Minimum 20 feet from curb return at intersections for sidewalk and median trees to keep traffic sightlines clear.

Traffic and monument signs. Placed far enough away to allow easy visibility, given the speed of traffic on the street.

Parking. For parallel parking, place trees at least 3 feet inside the curb and between stall markings to avoid damage from opening car doors. For diagonal or perpendicular parking, place trees at least 4 feet inside the curb to allow for car overhang.

Driveways. No closer than 10 feet from any driveway.

Bus zones. At least 6 feet inside the curb to allow loading and unloading.

Pedestrian and wheelchair clearances. A minimum of 4 feet of clear sidewalk should be provided to allow comfortable passage.

Street lights. Minimum 20 feet from light standards to prevent light obstruction.

Utility poles. At least 10 feet so as not to obstruct access to the poles.

Fire hydrants. At least 10 feet away to keep accessible.

Meter and valve boxes. Far enough to keep clear of tree wells. At least 5 feet away.

Other street furniture - benches, trash cans, etc. Space in a pleasing, logical and functional composition. Often aligned with trees in a sidewalk amenity zone along the curb. At least 5 feet away.

15. Locate trees to minimize conflict with overhead utilities.
 - Where possible, utilities should be located underground; or, if overhead, aligned to

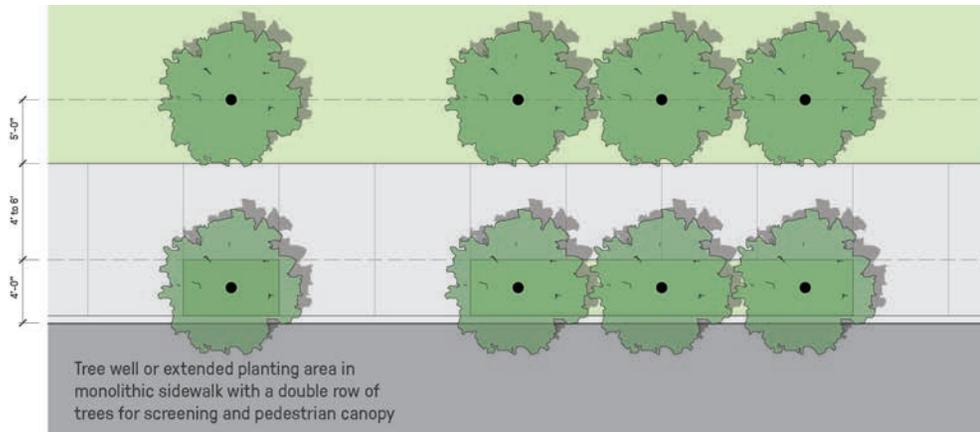


Figure 2.10 Back of sidewalk planting



Figure 2.11 Meandering sidewalks

accommodate street tree planting.

- Where overhead utilities exist, select trees with thin upper canopies and open forms, so pruning will not destroy the form of the tree; or
- Plant small trees that will not reach the height of the wires.

16. Locate trees to minimize conflict with underground utilities.

- Plant trees as far away as possible from utilities, to avoid damage by roots, and to avoid trenching through the root zone when lines are serviced.
- Contact utility companies to locate lines before determining planting location. (Refer to the Planting and Maintenance Manual.)

17. Provide planting spaces that accommodate healthy tree growth. (See Figures 2.8 - 2.13)

- Refer to the planting palette to match planting design to the available planting space size.
- Where possible, enlarge the existing planting areas.
- Under new paving where available space confines planting areas, provide structural soils or cells to increase rooting space.
- To maximize growth and health of trees, provide a minimum of 1,000 cubic feet of loam soil per tree, or aim for the preferred 1.5 to 2 cubic feet of loam soil per square foot of mature tree canopy area.
- **Tree Wells.** At a minimum, should be 4 x 6 x 3 ft. deep, with 6 x 6 or larger recommended. Tree

wells with an opening of less than 8.3-square-feet (2.5 x 2.5) will support only small trees to maturity or medium-sized species for 10 to 15 years. Tree wells with an opening of 48-square-feet (6 x 8), on the other hand, will support large trees to maturity. Use of root barriers on two sides is advised for many species.

- Parkway Strips.** The design of new streets or retrofitting existing streets with a 6-ft.-wide parkway is essential for healthy tree growth. A 2.5-foot-wide planting strip will not support a medium or large sized tree without pavement damage; the minimum recommended width is 4 feet. The benefit of planter strips over tree wells is increased tree vigor, due to the larger surface area of exposed soil.
- Back of Sidewalk.** When planting behind the sidewalk, place the trunk no closer than 5 feet from the pavement. The larger surface area of exposed soil in this configuration allows greater air and water access to the roots. The increased water supply from property owner irrigation can also be a benefit, except in the case of trees that do not tolerate summer watering (coast live oaks, for example).
- Meandering Sidewalk.** Meandering sidewalks create the opportunity for using groups of trees in a single large planting area rather than single trees in smaller spaces. Larger planting areas significantly increase tree health, reduce structural problems and prolong longevity. Design solutions that allow such large planting areas are preferred.

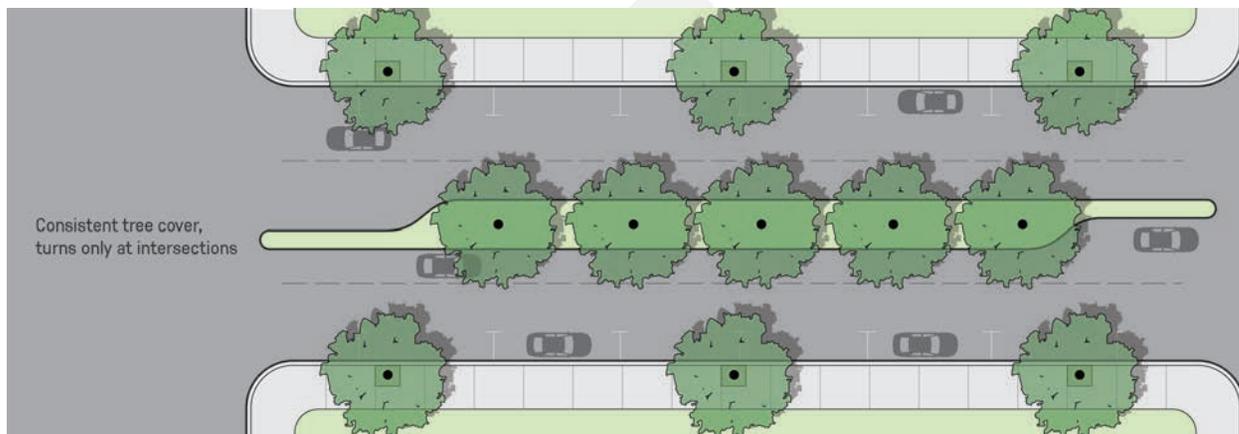


Figure 2.12 Full median planting

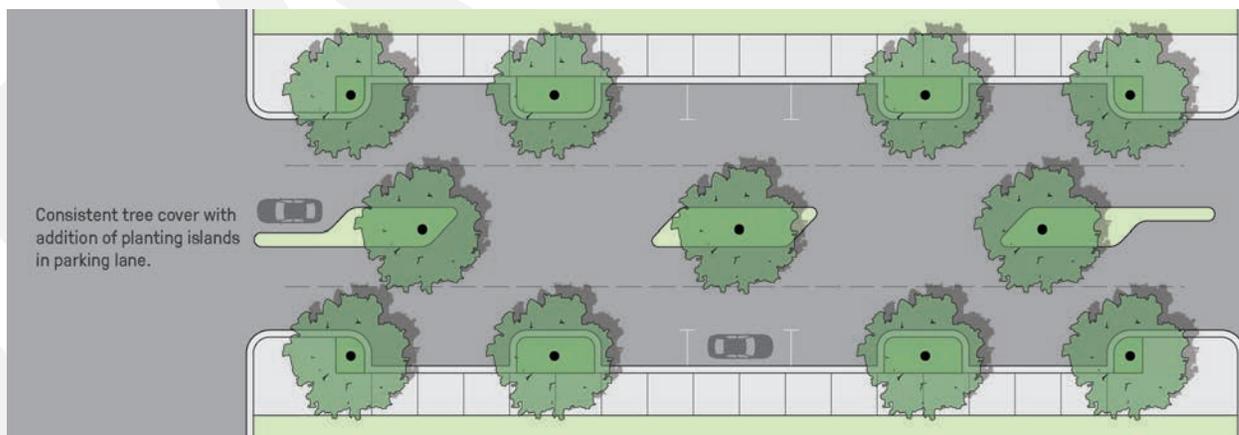


Figure 2.13 Partial Median planting

Ways to Enlarge Planting Areas

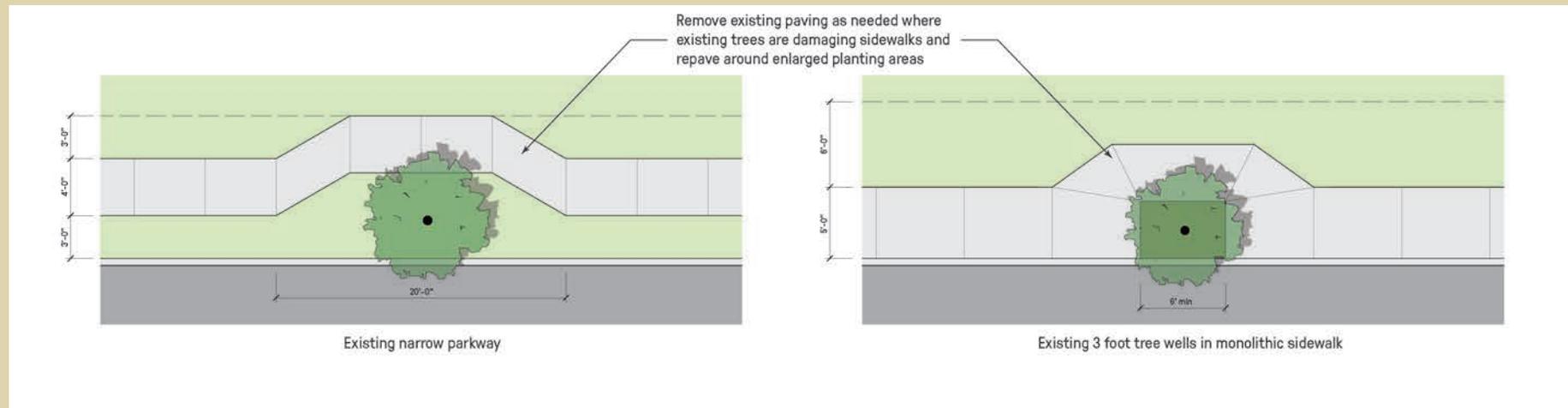


Figure 2.14 Enlarging existing planting areas

Build wider parkway strips (6 feet wide) in new developments to allow the trees to be close to the street. This will provide greater shade canopy over the street.

Use meandering sidewalks, planting area islands in parking lanes, and medians.

Plant behind sidewalks in planting beds or lawn areas. In lawn areas, keep the grass at least 4 feet from the trunk to reduce competition for nutrients.

Use pervious paving materials around tree wells. Interlocking pavers, bricks, and decomposed granite, all of which accommodate wheelchair access, allow greater amounts of air and water to reach the root zone.

Cut larger planting holes in paving for existing trees (minimum 4 x 6 feet).

Use structural soils, silva cells, or similar materials to provide rooting space beneath new paving.

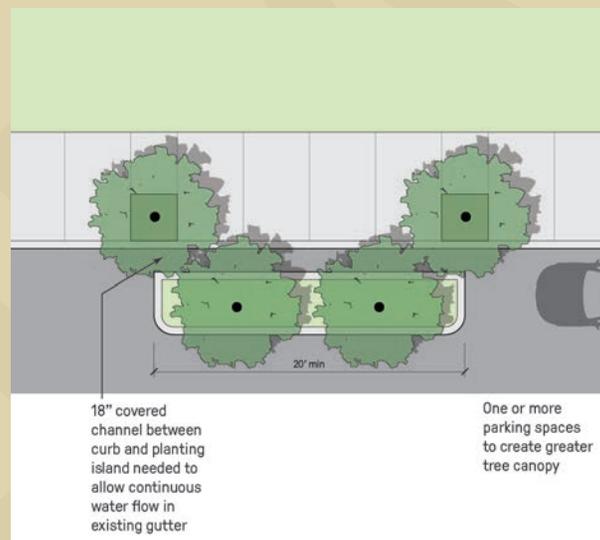


Figure 2.15 Planting islands in parking lanes

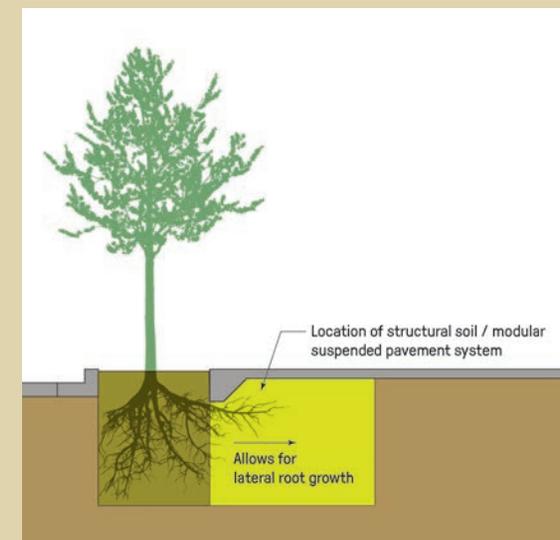


Figure 2.16 Structural soils

3.e Citywide Design Guidelines for Street Plantings

The variety of street types within the community call for a diversity of design treatments, relating to the use of trees. A street of mostly rural character will certainly have different design needs than one primarily devoted to retail establishments. A freeway has completely different connotations than an arterial road in the center of town. Trees are the easiest, most flexible tool to employ in transforming the character of existing streets. This section provides design guidelines to ensure street plantings fulfill their potential as major components of the community forest. Each type of street brings up different design issues:

- Defining entry and welcome.
- Facilitating navigation by using “landmark species.”
- Easing the transition from rural or residential to the central business district.
- Creating enclosure and defining space.
- “Grounding” buildings to the landscape and bringing them down to human scale.

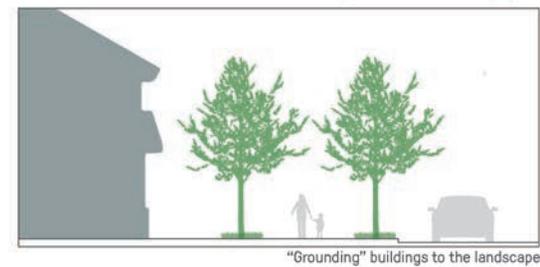
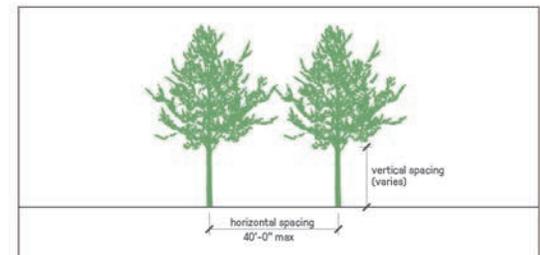
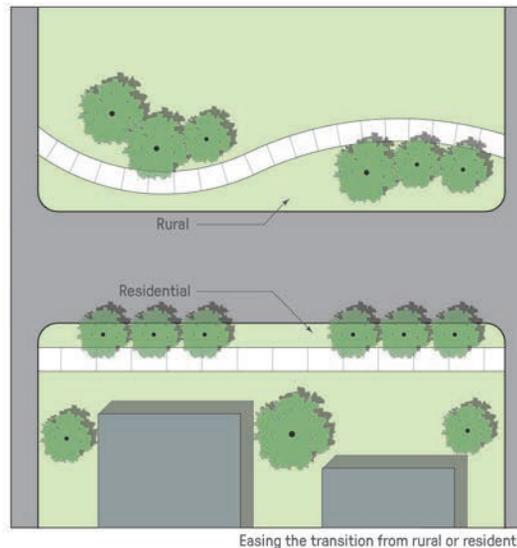
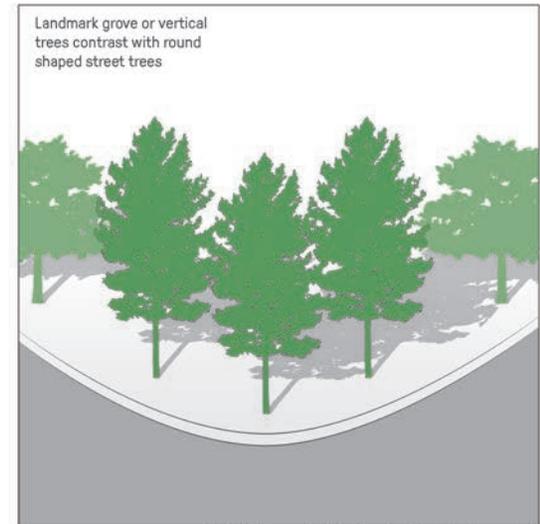
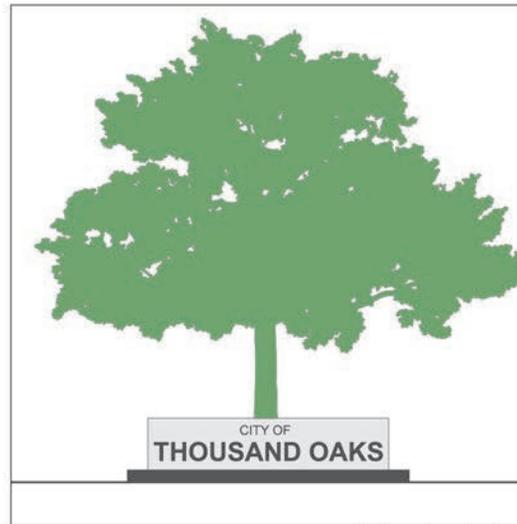


Figure 2.17 Street design issues

Citywide Design Guidelines For Major Streets / Arterials

Enhancing Character & Aesthetics

1. Consider the speed of the automobile when choosing species and determining spacing.
2. Use native oaks where appropriate as a major thematic tree.
3. Feature accent plantings in medians.
4. Create “gateways” to announce the city to those entering on major thoroughfares.
5. Mark major intersections with special plantings.
6. Where conditions are appropriate, include one oak tree behind median street monument signs.
7. Use accent trees to call out commercial areas or add visual interest.
8. Use informal, naturalistic tree groupings along freeway corridors.
9. Create a canopy of foliage overhead to bring wider roads down to human scale.
10. Shade sidewalks and bike lanes where possible.
11. Consider the positive aesthetic effect of massing particular species.
12. Use flowering tree species to provide seasonal accents.

3.e.1 Citywide Design Guidelines for Major Streets / Arterials

The following design guidelines apply specifically to the conditions found along most major (arterial and collector) streets throughout the city. They combine information on urban tree survivability with basic design principles, to give a framework for the design of major streets. The general design information found in the Universal Planting Design Guidelines also applies to the major streets, and should be considered as well. Refer to the “Regional Character Design Guidelines” in the next section for additional guidance related to particular regions of the city.

Enhancing Character & Aesthetics

1. Consider the speed of the automobile when choosing species and determining spacing. For example, in tree wells and parkway strips, use repetition of a dominant tree species to make a strong, lasting impression on motorists, who see the street more quickly and peripherally than pedestrians or cyclists. Consistent use of a species for each of the major streets will also reinforce the distinct character of each.
2. Planting design of major streets should seek to create spaces where native oak trees can be used as a major thematic tree.
3. Median planting locations can be used to feature accents plantings with variety and visual interest.
4. Create “gateways” to announce the city to those entering on major thoroughfares. Refer to current regulations and specific plans for gateway plantings.

5. Mark major intersections with special plantings. Do not obstruct sight lines or signage.
6. Where conditions, and in particular space, are appropriate, include one oak tree (*Quercus agrifolia*) ten feet (10') behind each street monument sign in street medians. Refer to the Guidelines and Standards for Landscape Planting and Irrigation Plans for additional requirements.
7. Accent trees may be used to call out commercial areas, highlight building facades, or add visual interest. These are usually smaller than the dominant species. Accent trees can also be used as part of the dominant theme, found regularly along the street.
8. Use informal, naturalistic tree groupings along freeway corridors rather than straight-line plantings. (See Landscape Planting Guidelines for Freeway Corridors, in Resolution Number 91-172, for more detail.)
9. Create a canopy of foliage overhead to bring wider roads down to human scale.
10. Shade sidewalks and bike lanes where possible. Enhance pedestrian activity through the use of street trees that enclose and shade the pedestrian corridor but are not so aggressive or densely foliated as to create a claustrophobic environment.
11. Consider the positive aesthetic effect of massing particular species, such as the profuse blooms of jacarandas. Fall color and attractive branching



patterns of deciduous trees are two special effects that are particularly appropriate for the higher speeds of these streets.

- 12. Use flowering tree species to provide seasonal accents.

Increasing Forest Resiliency

- 13. Revise the grading and drainage of medians to retain and infiltrate or filter stormwater, where conditions are appropriate (do not regrade within existing tree driplines).

Supporting Maintenance & Safety

- 14. Where conditions allow, within median planting areas provide a width of approximately 12-18" along the length of the curb that is free of planting. This space facilitates maintenance and helps prevent overgrowth of plant material into the street. The clear space may be paved or covered with an appropriate non-vegetative ground cover material; maintain permeability, or slope impermeable surfaces to drain into the planting area.



Figure 2.18 Arterial streetscape in Thousand Oaks

Citywide Design Guidelines For Major Streets / Arterials

Increasing Forest Resiliency

- 13. Revise the grading and drainage of medians to retain and infiltrate or filter stormwater, where conditions are appropriate

Supporting Maintenance & Safety

- 14. Provide a width of approximately 12-18" along the length of the curb that is free of planting, within median planting areas where conditions allow.

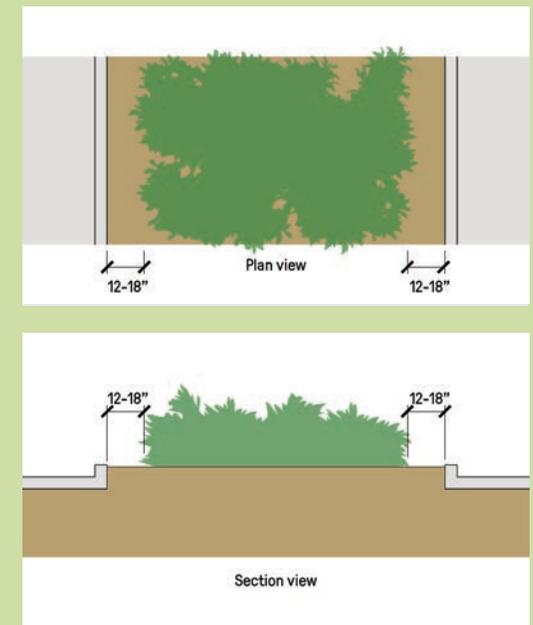


Figure 2.19 Median planting perimeter

Citywide Design Guidelines For Neighborhood Streets

Enhancing Character & Aesthetics

1. Create a distinctive planting palette and design approach for each region.
2. Fit the planting palette to match the scale and image of the area.
3. Vary tree spacing and type by block to create a richer streetscape.
4. Consider alternatives to traditional tree-lined streets.
5. Involve the residents in the decision making as much as possible.
6. Consider the impact of existing trees and vegetation.
7. Emphasize special effects that might be lost on a larger-scale street.

3.e.2 Citywide Design Guidelines for Neighborhood Streets

Guidelines specific to neighborhood design comprise this section. It is in the neighborhoods where the finer points of a particular tree can be showcased: details that would be lost on the motorist traveling at 40 miles per hour become important at the pedestrian's pace. Fragrance, texture, shadow patterns, and unusual bark can be used to full effect on the local-street scale. And it is in the neighborhoods where the ecological diversity so important to the health of the forest can be realized.

The following guidelines will direct the planting of the neighborhoods throughout the city. Like the guidelines for major streets, these should be used in conjunction with the general design information found in the Universal Planting Design Guidelines, and the Regional Character Design Guidelines in the following section.

Enhancing Character & Aesthetics

1. Create a distinctive planting palette and design approach for each region. Refer to the Regional Character Design Guidelines in the next section.
2. Fit the planting palette to match the scale and image of the area.
3. Vary tree spacing and type by block to create a richer streetscape.
4. Consider alternatives to traditional tree-lined streets (e.g., woonerf-like plantings).
5. Involve the residents in the decision making as much as possible.
6. Consider the impact of existing trees and vegetation. Existing, privately planted trees can have a huge influence on the character of a neighborhood and should be considered when prioritizing the street-tree planting schedule.

Diverse Spatial Experiences

Trees can be used to create a diversity of spatial experiences in the quiet streets of the neighborhoods. In areas where some parking space can be sacrificed, small groves can be established. Plantings and thoughtful street design can also be used to make streets safer and multi-functional. In the Netherlands, for example, a move to create safer streets for children has resulted in the creation of neighborhood pedestrian

streets, called “woonerfs”, or living street. The amount of road available to cars is significantly narrowed in the woonerf through the use of planting beds, benches, and mounds. The entire street becomes usable for people. Huge amounts of space are opened up for planting trees, and the social nature of the street is intensified. Drivers are inclined by the design of the street to maintain a safe speed and drive with caution.



Citywide Design Guidelines For Neighborhood Streets

Increasing Forest Resiliency

8. Plant the neighborhoods with species not found in abundance along the major streets.
9. Make use of public land in neighborhoods for groves of trees.

Supporting Maintenance & Safety

10. Site trees to avoid shading existing solar collectors.

7. Emphasize special effects that might be lost on a larger-scale street: fragrance, unusual bark, leaf patterns and textures, shadow patterns, and the expression of wind.

Increasing Forest Resiliency

8. Ensure the natural diversity of the community forest by planting the neighborhoods with species not found in abundance along the major streets or elsewhere in the area.
9. Make use of public land in neighborhoods for groves of trees to enhance habitat value and break up the linearity of street trees. (See Figures 2.20 and 2.21.)

Supporting Maintenance & Safety

10. California state law mandates that all new trees be carefully sited to avoid shading existing solar collectors. For this same reason, evergreen trees with dense winter foliage should be avoided on neighborhood streets with an east-west axis.

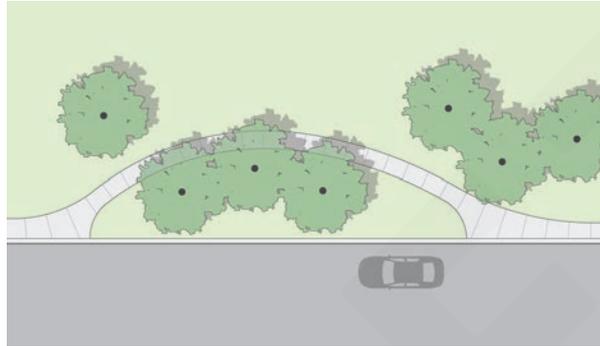


Figure 2.20 Clustering trees

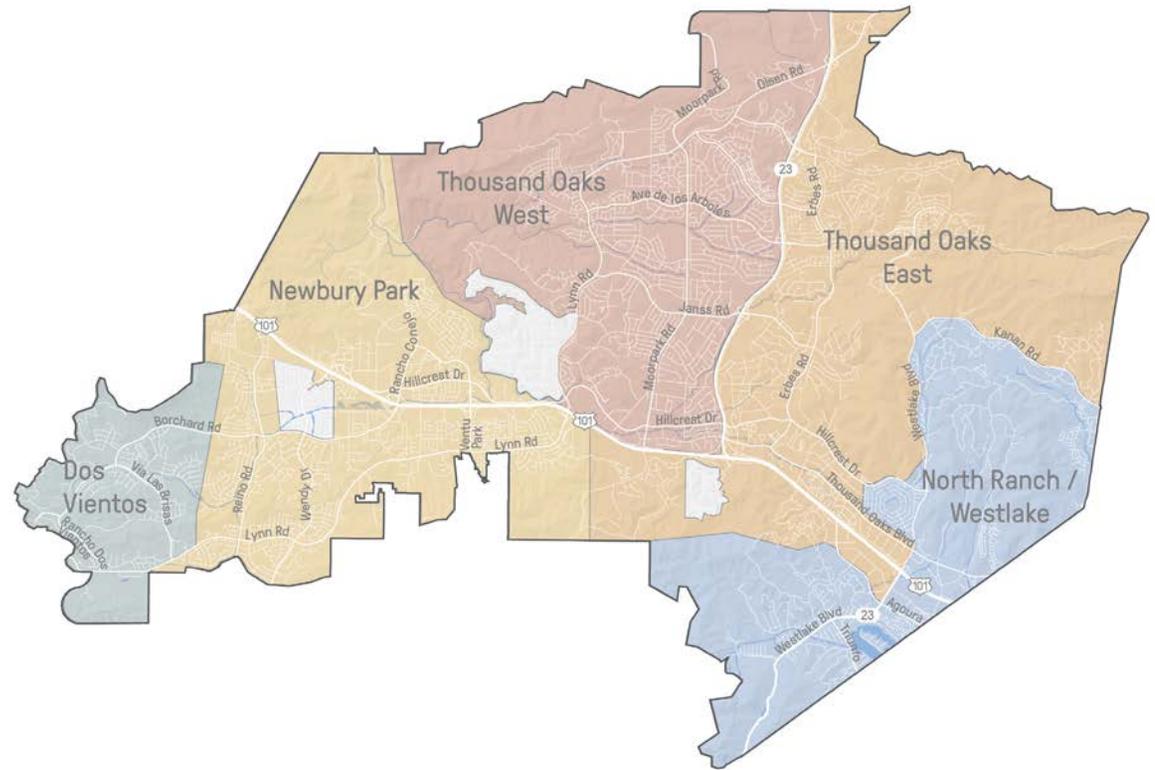


Figure 2.21 Residential park streetscape in Thousand Oaks

3.f Regional Character Design Guidelines for Street Plantings

The following guidelines are intended to contribute to regional variation in the character of streetscape plantings throughout the City of Thousand Oaks. Refer to the map at right for the organization of the city into five regions, then follow the guidelines that are listed for the region where the particular planting site under design is located. The section for each region includes an example demonstration project concept to illustrate how the Regional Character Design Guidelines can be implemented in median planting designs.

Note that if a planting site is on the boundary of two regions, follow the regional character guidelines for the region that is more closely associated with the site. For example, if there is open space on one side of the road and neighborhood on the other, follow the regional guidelines for the region where the neighborhood is located. Consult with the Public Works Director or designee to confirm the dominant regional planting concept for locations that border two regions.



Data: City of Thousand Oaks, 2015
Map: SWA

Figure 2.22 Forestry Master Plan geographic regions



3.f.1 Dos Vientos Regional Character Design Guidelines

The Dos Vientos region planting concept is “California Native Garden.” The plantings should evoke a garden composed of predominately native plants that provide visual interest and seasonal variety.

1. Tree and understory plant species should complement the surrounding natural landscape (chaparral plant community) in color, form, and texture.
2. Avoid non-native species that may hybridize with native species or naturalize in the surrounding open space.
3. Maintain open views to adjacent open space / natural hillsides.
4. Within medians, plant large canopy trees as accent features, with wide spacing between them to provide views.
5. For curbside plantings, plant large canopy trees in clusters with wide spacing between clusters to provide views.
6. Intersperse inconspicuous understory planting species with special habitat/wildlife value amongst showier, dominant species.
7. Use deciduous or broadleaf evergreen trees, preferably native, within medians of adequate size.
8. Use broadleaf evergreen trees, preferably native oaks, in parkway strips or tree wells of adequate size.

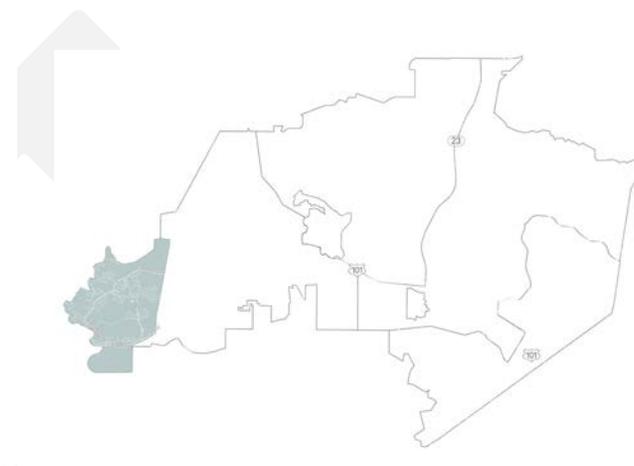
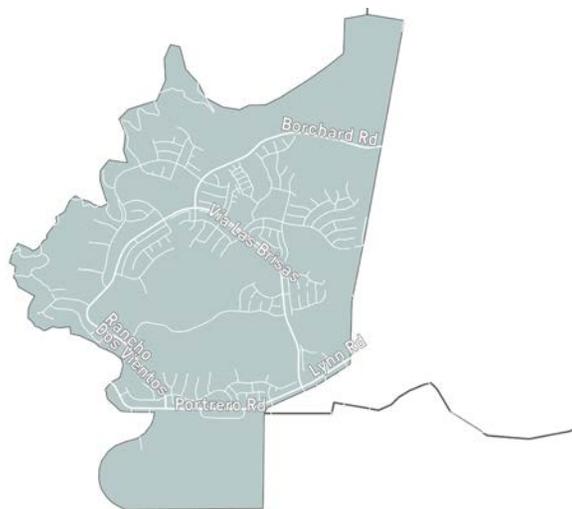


Figure 2.23 Dos Vientos Region

9. Provide variation of species along the length of arterial or collector roads with clusters or groupings of the same species. For example, use one dominant species of canopy tree for a median planting area; use a second dominant species of canopy in the next median planting area.
10. Avoid planting turf grass; remove existing turf grass plantings and replace with more water- and maintenance-efficient plantings.
11. Prioritize the use of riverstones where non-vegetative groundcover material is needed.
12. For understory plantings, prioritize flowering shrubs, small accent trees, low shrubs, agave, and drought tolerant grasses.
13. For tree planting sites at residential properties,

the Public Works Director or designee will present an assortment of tree species to the property owner for their selection.

14. The Public Works Director or designee should develop the list of species for selection by the property owner based on the most recent tree inventory (current ratio and distribution of species) and the regional recommendations in the street tree palette.
15. It is preferred to have a consistent type of tree per block, although the species of that type may vary.
16. Refer to the selection guidelines and suggested species chart for additional direction.

Dos Vientos Regional Character: California Native Garden Design Guidelines

PLANT CATEGORY	SELECTION GUIDELINES	SUGGESTED SPECIES
Understory Plants		
Flowering Shrubs and Herbaceous Plants	<ul style="list-style-type: none"> • Select species with vivid, showy flowers. • Use three to five species per median planting. • Select small to medium species that will not block views to open space. • Select species that will provide seasonal variety and year-round blooms. 	<i>Cistus</i> species / Rockrose <i>Epilobium/Zauschneria</i> species / California Fuchsia <i>Eriogonum</i> species / Buckwheat <i>Eschscholzia californica</i> / California Poppy <i>Heuchera</i> species / Coral Bells <i>Mimulus/Diplacus</i> species / Monkeyflower <i>Penstemon</i> species / Penstemon <i>Salvia</i> species / Sage <i>Santolina</i> species / Lavender Cotton <i>Scabiosa</i> species / Pincushion Flower <i>Verbena lilacina</i> / Lilac Verbena
Small Accent Trees	<ul style="list-style-type: none"> • Select a flowering accent tree with a light and airy structure. • Use only one species per median planting. 	<i>Aesculus californica</i> / California Buckeye <i>Cercis</i> species / Redbud <i>x Chitalpa tashkentensis</i> / Chitalpa
Low Shrubs	<ul style="list-style-type: none"> • Plant low shrubs around signage; select species with mature height that will not be a visual obstruction. • Select shrubs that will provide a consistent dark green background. • Use one to two species per median planting. 	<i>Arctostaphylos groundcover</i> species / Manzanita <i>Baccharis pilularis</i> 'Pigeon Point' or 'Twin Peaks' / Dwarf Coyote Brush <i>Iva hayesiana</i> / San Diego Marsh-elder <i>Mahonia repens</i> / Creeping Mahonia <i>Myoporum parvifolium</i> / Creeping Myoporum
Agave / Succulents	<ul style="list-style-type: none"> • Use one to two species per median planting. • Select medium-size species that will serve as accents. 	<i>Agave attenuata</i> / Foxtail Agave <i>Agave ocahui</i> / Ocahui <i>Agave parryi</i> / Artichoke Agave <i>Yucca whipplei</i> / Our Lord's Candle
Ornamental Grass	<ul style="list-style-type: none"> • Select grasses that will provide a neutral groundcover/foreground planting. • Use one to two species per median planting. 	<i>Aristida purpurea</i> / Purple Three-awn <i>Bouteloua gracilis</i> / Blue Grama <i>Carex</i> species / Sedge <i>Festuca californica</i> / California Fescue <i>Sesleria autumnalis</i> / Autumn Moor Grass <i>Stipa/Nassella</i> species / Native Needlegrasses



Dos Vientos Regional Character: California Native Garden
Design Guidelines

PLANT CATEGORY	SELECTION GUIDELINES	SUGGESTED SPECIES
Trees		
Curbside Canopy Trees	<ul style="list-style-type: none"> Plant broadleaf evergreen trees. Prioritize native oaks that are appropriate for the available planting area. Prioritize fire resistant species where the right-of-way is adjacent to open space. Plant trees in clusters or groups of the same species. 	<i>Acer paxii</i> / Evergreen Maple <i>Laurus nobilis</i> / Sweet Bay <i>Quercus agrifolia</i> / Coast Live Oak <i>Quercus chrysolepis</i> / Canyon Live Oak <i>Quercus engelmannii</i> / Engelmann Oak <i>Quercus ilex</i> / Holly Oak <i>Quercus suber</i> / Cork Oak <i>Quercus tomentella</i> / Island Oak <i>Tristania conferta</i> / Brisbane Box
Median Canopy Trees	<ul style="list-style-type: none"> Plant deciduous or broadleaf evergreen trees. Prioritize fire resistant species where the right-of-way is adjacent to open space. Use one species per median planting. Alternate between medians with evergreen and deciduous species. 	<i>Acer macrophylla</i> / Big Leaf Maple <i>Quercus kelloggii</i> / California Black Oak <i>Quercus lobata</i> / Valley Oak <i>Sophora japonica</i> / Pagoda Tree See also above listed species for Curbside Canopy Trees
Groundcover Material		
Riverstones	<ul style="list-style-type: none"> Use riverstones as an inorganic groundcover material. Select stones that are consistent in color and texture with the surrounding natural context. Color and texture should be consistent throughout the Dos Vientos region. 	

Dos Vientos Regional Character: California Native Garden
Suggested Species - Understory Plants



California Poppy



Buckwheat



Sage



Monkeyflower



Penstemon



Lavender Cotton



Pincushion Flower



California Fescue



Ocahui



Artichoke Agave



San Diego Marsh-elder



Dwarf Coyote Brush



Dos Vientos Regional Character: California Native Garden
Suggested Species - Trees



Coast Live Oak



Brisbane Box



Sweet Bay



Big Leaf Maple
Image Credit: Oregon State



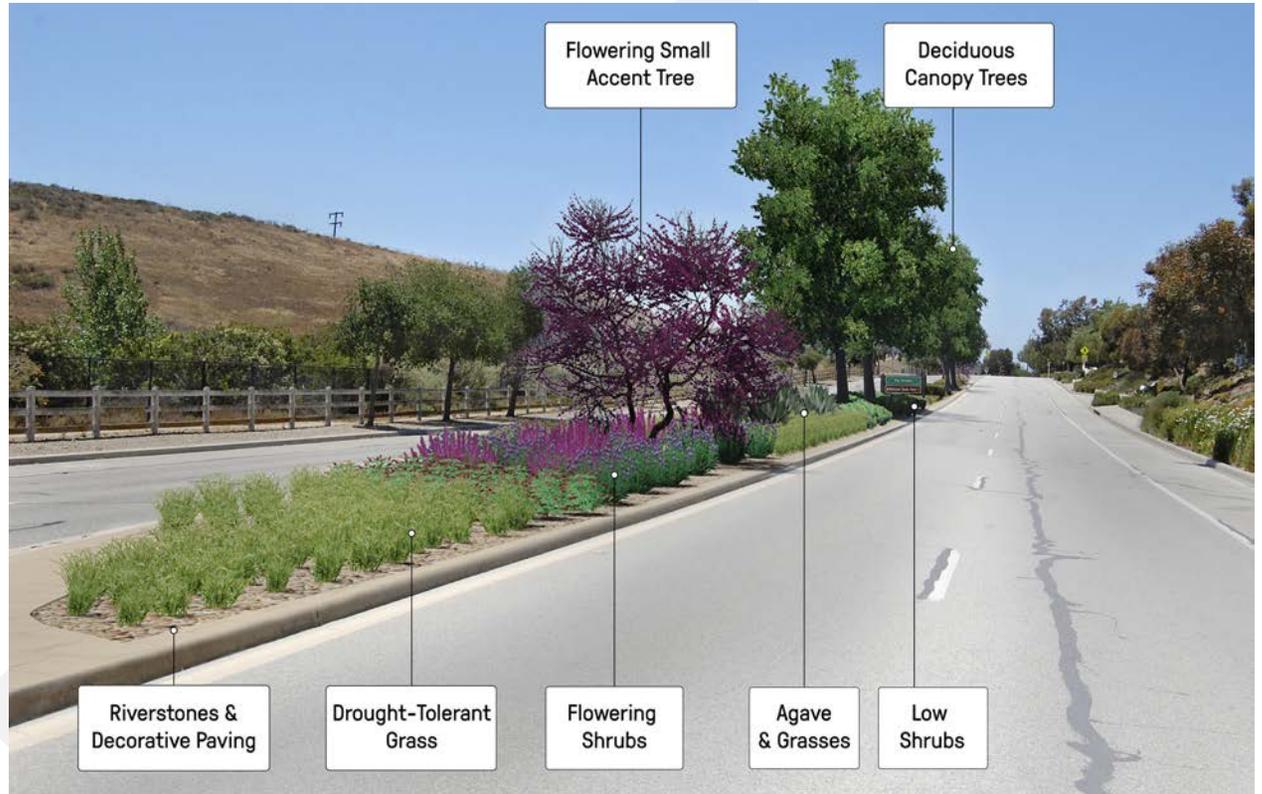
Pagoda Tree



Chitalpa (Small Accent)



Figure 2.24 Dos Vientos demonstration project
 Above: Existing conditions
 Right: “California Native Garden” median
 concept rendering



Dos Vientos Demonstration Project Concept

The Dos Vientos demonstration project site is the Lynn Road median between Via Las Brisas and Via Goleta (figure 2.24). The site offers views to the surrounding open space.

Transition median canopy trees to native and/or fire resistant broadleaf evergreen or deciduous species, per the Dos Vientos Regional Character Design Guidelines.

Emphasize the surroundings with California native trees and plants, and maintain the open views to the surrounding hills.



3.f.2 Newbury Park Regional Character Design Guidelines

1. The Newbury Park region planting concept is “Colorful Garden.” California-friendly plantings should feature a complementary variety of colors, forms, and textures that offer visual interest.
2. For street segments that have medians, design curbside plantings to serve as a simple backdrop for colorful accent plantings in the median.
3. Provide a variety of tree types (flowering, non-flowering, evergreen, deciduous) within medians of adequate size. Use only one to two species of each type within a median planting or along a stretch of road.
4. Simplify curbside tree plantings (in parkway strips or tree wells.) Mirror plantings on each side of the road, and use only one to two species per stretch or block of road. Provide variety of tree types throughout the region.
5. For streets that do not have medians, design curbside plantings as colorful accent features.
6. Avoid planting turf grass; remove existing turf grass plantings and replace with more water- and maintenance-efficient plantings.
7. Prioritize the use of decorative paving (permeable preferred) and riverstones where non-vegetative groundcover material is needed.
8. For understory plantings, prioritize flowering shrubs, small accent trees, ornamental grasses,

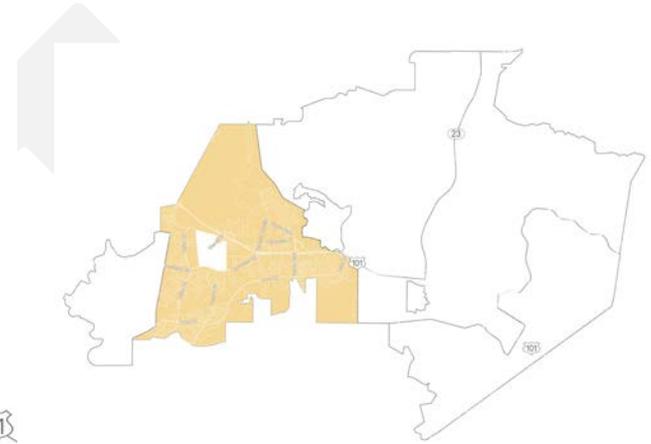
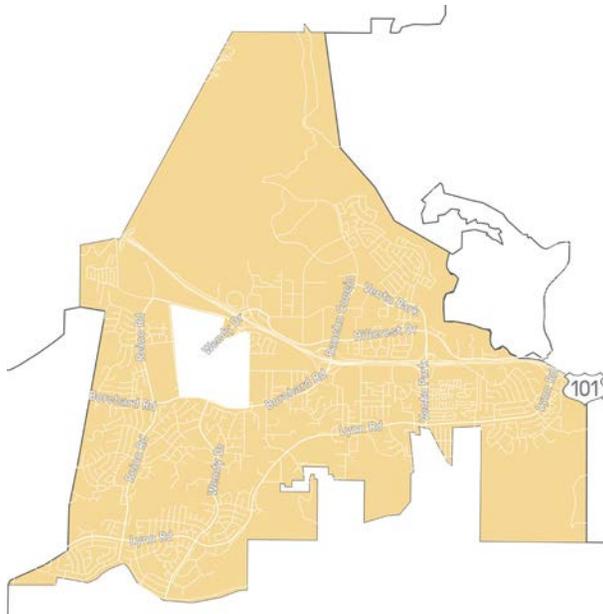


Figure 2.25 Newbury Park Region

9. low shrubs, and small succulents.
9. For flowering trees and shrubs, select species that will collectively provide blooms throughout the year.
10. Use boulders as accents within median plantings.
11. For tree planting sites at residential properties, the Public Works Director or designee will present an assortment of tree species to the property owner for their selection.
12. The Public Works Director or designee should develop the list of species for selection by the property owner based on the most recent

tree inventory (current ratio and distribution of species) and the regional recommendations in the street tree palette.

13. It is preferred to have a consistent type of tree per block, although the species of that type may vary.
14. Refer to the selection guidelines and suggested species chart for additional direction.

Newbury Park Regional Character: Colorful Garden Design Guidelines

PLANT CATEGORY	SELECTION GUIDELINES	SUGGESTED SPECIES
Understory Plants		
Flowering Shrubs and Herbaceous Plants	<ul style="list-style-type: none"> Select two to three species for planting beneath non-flowering deciduous trees. 	<i>Cistus</i> species / Rockrose <i>Heuchera</i> species / Coral Bells <i>Mahonia 'Golden Abundance'</i> / Oregon Grape <i>Monardella villosa</i> / Coyote Mint <i>Rosa californica</i> / California Wildrose <i>Rosa 'Flower Carpet'</i> / Flower Carpet Rose <i>Salvia chamaedryoides</i> / Germander Sage <i>Salvia 'Dara's Choice'</i> / Dara's Choice Creeping Sage
Small Accent Trees	<ul style="list-style-type: none"> Select one species per median planting. 	<i>Arbutus unedo</i> / Strawberry Tree <i>Ceanothus 'Ray Hartman'</i> / Ray Hartman Ceanothus <i>Cercis occidentalis</i> / Western Redbud <i>x Chitalpa tashkentensis</i> / Chitalpa
Ornamental Grasses	<ul style="list-style-type: none"> Select one to two species for planting beneath broadleaf evergreen trees. 	<i>Aristida purpurea</i> / Purple Three-awn <i>Muhlenbergia capillaris</i> / Pink Muhlygrass <i>Pennisetum rubrum</i> / Purple Fountain Grass
Low Shrubs	<ul style="list-style-type: none"> Select one to two species for planting beneath flowering canopy trees. Flowering species are preferred. 	<i>Abelia grandiflora prostrata</i> / Prostrate White Abelia <i>Achillea</i> species / Yarrow <i>Arctostaphylos groundcover species</i> / Manzanita <i>Correa 'Carmine Bells'</i> / Australian Fuchsia <i>Mahonia repens</i> / Creeping Mahonia <i>Rosmarinus</i> groundcover species / Rosemary <i>Trachelospermum jasminoides</i> / Star Jasmine <i>Vinca minor</i> / Periwinkle
Succulents	<ul style="list-style-type: none"> Select low-growing species that provide visual interest & variety with color and form. Use three to five species per median planting. 	<i>Aeonium</i> species / Aeonium <i>Dudleya</i> species / Dudleya <i>Echeveria</i> species / Echeveria <i>Sedum</i> species / Stonecrop
Boulders	<ul style="list-style-type: none"> Select stones that are consistent in color and texture with the natural context of Thousand Oaks. 	



Newbury Park Regional Character: Colorful Garden
Design Guidelines

PLANT CATEGORY	SELECTION GUIDELINES	SUGGESTED SPECIES
Trees		
<p>Curbside Canopy Trees (for streets with medians)</p>	<ul style="list-style-type: none"> • Select one species or two alternating species per stretch or block of road. • Select evergreen and/or deciduous species, without conspicuous flowers. 	<p>Evergreen <i>Cupaniopsis anacardioides</i> / Carrotwood <i>Laurus nobilis</i> / Sweet Bay <i>Melaleuca quinquenervia</i> / Paperbark <i>Quercus</i> species / Oak</p> <p>Deciduous <i>Ginkgo biloba</i> / Ginkgo <i>Platanus</i> species / Sycamore, Plane Tree <i>Pistacia chinensis</i> / Chinese Pistache <i>Quercus</i> species / Oak <i>Zelkova serrata</i> / Japanese Zelkova</p>
<p>Median Canopy Trees or Curbside Canopy Trees for Streets without Medians</p>	<ul style="list-style-type: none"> • Use flowering trees of the same species at intersections or the ends of plantings. • Plant a variety of non-flowering evergreen and/or deciduous trees per stretch or block of road (use two species for curbside plantings, and two to four species for median plantings). 	<p>Flowering <i>Albizia julibrissin</i> / Silk Tree <i>Chorisia speciosa</i> / Floss Silk Tree <i>Jacaranda mimosifolia</i> / Jacaranda <i>Koelreuteria bipinnata</i> / Chinese Flame Tree</p> <p>Deciduous <i>Liquidambar styraciflua</i> / American Sweetgum</p> <p>Conifer <i>Pinus eldarica</i> / Afghan Pine <i>Pinus torreyana</i> / Torrey Pine</p> <p>See also above listed species for Curbside Canopy Trees</p>
Groundcover Material		
<p>Decorative Paving</p>	<ul style="list-style-type: none"> • Use a consistent color, pattern, and material throughout the region. 	
<p>Riverstones</p>	<ul style="list-style-type: none"> • Use riverstones as an inorganic groundcover material where decorative paving is not appropriate. • Select stones that coordinate with decorative paving material and decorative boulders in the region. • Color and texture should be consistent throughout the region. 	

Newbury Park Regional Character: Colorful Garden
Suggested Species - Understory Plants



Rockrose



Carpet Rose



Dara's Choice Sage

Image Credit: Theodore Payne Foundation



Germander Sage



Coral Bells



Coyote Mint



Pink Muhlygrass



Purple Three-Awn Grass



Sedum



Echeveria



Creeping Mahonia



Yarrow



Newbury Park Regional Character: Colorful Garden
Suggested Species - Trees



Holly Oak



Plane Tree



Torrey Pine
Image Credit: Theodore Payne Foundation



Chinese Flame Tree



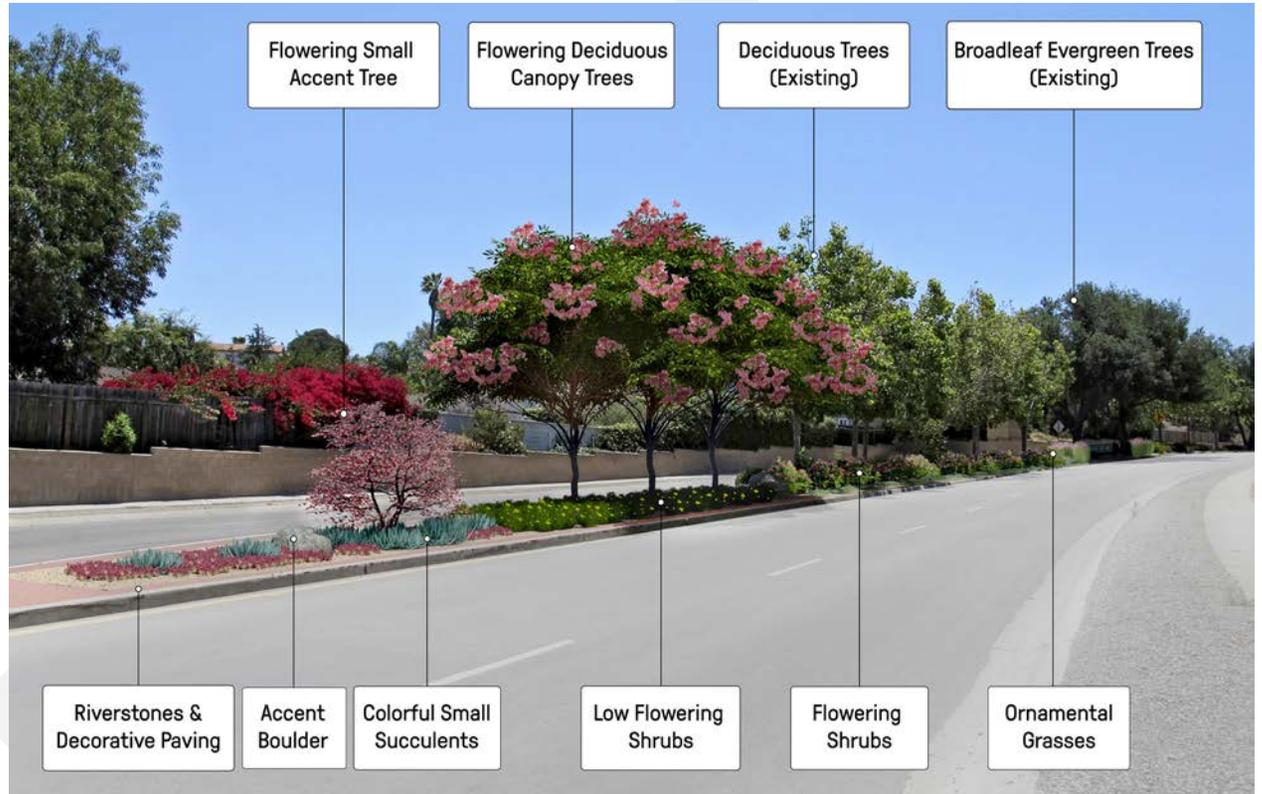
Jacaranda



Redbud (Small Accent)



Figure 2.26 Newbury Park demonstration project
 Above: Existing conditions
 Right: “Colorful Garden” median concept rendering



Newbury Park Demonstration Project Concept

The Newbury Park demonstration project site is the median at South Reino Road, between Borchard Road and Teardrop Court (figure 2.26).

The current median tree species are appropriate and should remain as long as they are in a healthy and safe condition. The painted concrete area should be removed, to extend the planting area of the median

without impeding safe sight distances. The expanded planting area should support new flowering trees, to match the existing flowering trees at the opposite end, as well as colorful small succulents, a flowering accent tree, accent boulders, and low flowering shrubs. If conditions are appropriate, the decorative paving can extend in strips along the side of the planting area. Throughout the rest of the median, plant flowering shrubs and ornamental grasses, which are compatible as understory for the existing trees.



3.f.3 Thousand Oaks West Regional Character Design Guidelines

1. The Thousand Oaks West planting concept is “Adaptive Arroyo”. The plantings should reflect a blend of California native and California-friendly species, planted in naturalistic groupings among boulders and riverstones.
2. Simplify curbside tree plantings (in parkway strips or tree wells.) Mirror plantings on each side of the road, and use only one to two species per stretch or block of road. Provide a variety of tree types throughout the region.
3. Space median trees to provide a consistent canopy, with natural breaks where appropriate for visual interest and safety.
4. Avoid planting turf grass; remove existing turf grass plantings and replace with more water- and maintenance-efficient plantings.
5. Prioritize the use of riverstones and/or mulch where non-vegetative groundcover material is needed.
6. For understory plantings, prioritize flowering shrubs, small accent trees, ornamental grasses, low shrubs, and strap-leafed plants.
7. Use boulders as accents within median plantings.
8. For tree planting sites at residential properties, the Public Works Director or designee will present an assortment of tree species to the property owner for their selection.
9. The Public Works Director or designee should develop the list of species for selection by the property owner based on the most recent tree inventory (current ratio and distribution of species) and the regional recommendations in the street tree palette.
10. It is preferred to have a consistent type of tree per block, although the species of that type may vary.
11. Refer to the selection guidelines and suggested species chart for additional direction.

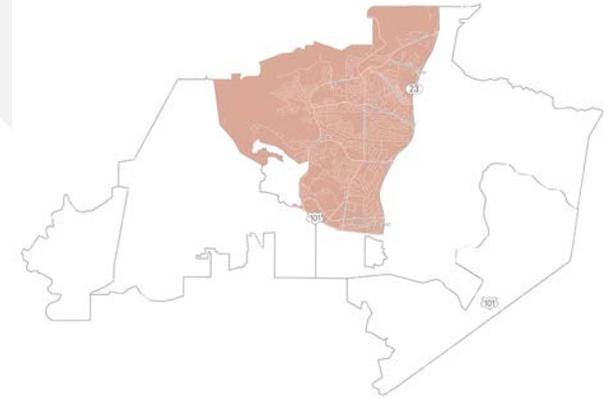
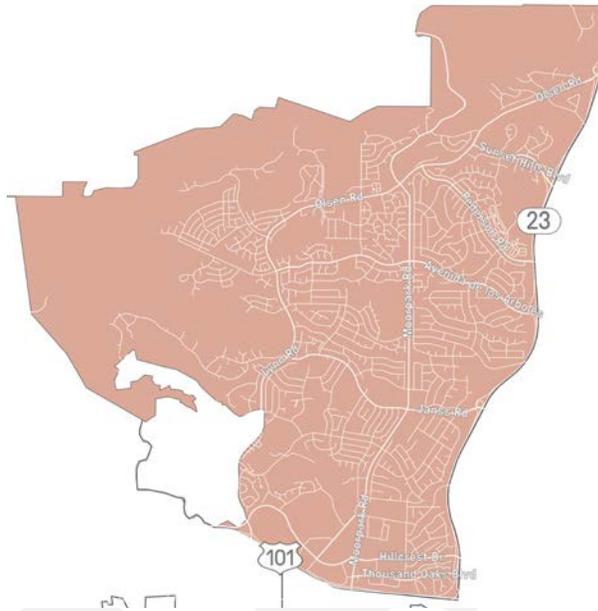


Figure 2.27 Thousand Oaks West Region

Thousand Oaks West Regional Character: Adaptive Arroyo Design Guidelines

PLANT CATEGORY	SELECTION GUIDELINES	SUGGESTED SPECIES
Understory Plants		
Flowering Shrubs and Herbaceous Plants	<ul style="list-style-type: none"> • Select large species to serve as accents. • Select species with showy, vivid flowers. • Select one species per median planting. 	<i>Abutilon palmeri</i> / Indian Mallow <i>Carpenteria californica</i> / Bush Anemone <i>Dendromecon</i> species / Bush Poppy <i>Grevillea 'Canberra'</i> / Spider Flower <i>Lavatera</i> species / Tree Mallow <i>Ribes speciosum</i> / Fuchsia-flowered Gooseberry
Small Accent Trees	<ul style="list-style-type: none"> • To serve as accents at median ends. • Select a second species of large flowering shrub (listed above), or one species of flowering accent tree. • Select a species that provides visual interest and complements the other median plantings. 	<i>Arbutus unedo</i> / Strawberry Tree <i>Arctostaphylos glauca</i> / Big Berry Manzanita <i>Arctostaphylos 'Dr. Hurd'</i> / Dr. Hurd Manzanita <i>Lagerstroemia indica</i> / Crape Myrtle
Ornamental Grasses	<ul style="list-style-type: none"> • Select one to two species per median planting. • Plant beneath evergreen trees. 	<i>Muhlenbergia rigens</i> / Deer Grass <i>Muhlenbergia 'White Cloud'</i> / White Awn Muhly <i>Pennisetum rubrum</i> / Purple Fountain Grass
Low Shrubs	<ul style="list-style-type: none"> • Select one to two species per median planting. • Plant beneath deciduous trees. • Plant around signage within median; select a species with a mature height that will not be a visual obstruction. 	<i>Arctostaphylos</i> groundcovers / Manzanita <i>Cotoneaster</i> groundcovers / Cotoneaster <i>Juniperus</i> groundcovers / Juniper <i>Mahonia repens</i> / Creeping Mahonia
Strap-leafed Plants	<ul style="list-style-type: none"> • Select species with vivid, showy flowers. • Use two to three species per median planting. • Select species that will provide seasonal variety. • Plant in groupings to accent median ends. 	<i>Anigozanthus flavidus</i> varieties / Kangaroo Paw <i>Dietes</i> species / Fortnight Lily <i>Hemerocallis</i> species / Daylily <i>Iris douglasiana</i> / Douglas Iris
Boulders	<ul style="list-style-type: none"> • Select boulder material and color that complement the natural environment of Thousand Oaks. • Use as accents throughout median plantings, placed to reflect a natural arroyo setting. 	



Thousand Oaks West Regional Character: Adaptive Arroyo Design Guidelines

PLANT CATEGORY	SELECTION GUIDELINES	SUGGESTED SPECIES
Trees		
Curbside Canopy Trees	<ul style="list-style-type: none"> Select one to two species per stretch or block of road. Select evergreen and/or deciduous species, without conspicuous flowers. 	<p>Evergreen</p> <p><i>Eucalyptus</i> species / Eucalyptus <i>Geijera parviflora</i> / Australian Willow <i>Melaleuca</i> species / Paperbark <i>Podocarpus gracilior</i> / Fern Pine <i>Quercus</i> species / Oak <i>Tristania conferta</i> / Brisbane Box</p> <p>Deciduous</p> <p><i>Platanus acerifolia</i> cultivars / London Plane Tree <i>Pistacia chinensis</i> / Chinese Pistache <i>Quercus</i> species / Oak</p>
Median Canopy Trees	<ul style="list-style-type: none"> Plant non-flowering canopy trees in groupings within the median, alternating with groupings of flowering trees. Select one species of non-flowering evergreen, one species of non-flowering deciduous, and one species of flowering tree for median plantings. 	<p>Flowering</p> <p><i>Hymenosporum flavum</i> / Sweet Shade <i>Koelreuteria bipinnata</i> / Chinese Flame Tree <i>Liriodendron tulipifera</i> / Tulip Tree <i>Pyrus calleryana</i> / Callery Pear <i>Pyrus kawakamii</i> / Evergreen Pear</p> <p>Deciduous</p> <p><i>Liquidambar styraciflua</i> / American Sweetgum</p> <p>See also above listed species for Curbside Canopy Trees</p>
Groundcover Material		
Mulch	<ul style="list-style-type: none"> Use as a groundcover outside of the arroyo bed. Blend edges with riverstones at arroyo edge. 	
Riverstones	<ul style="list-style-type: none"> Use riverstones as a groundcover within the arroyo bed. Blend edges with surrounding areas of mulch. Select stones that are consistent in color and texture with the natural context of Thousand Oaks. Color and texture should be consistent throughout the region. 	

Thousand Oaks West Regional Character: Adaptive Arroyo
Suggested Species - Understory Plants



Bush Poppy



Bush Anemone



Spider Flower



Fuchsia-Flowered
Gooseberry



Kangaroo Paw



Daylily



Deer Grass



Purple Fountain Grass



Fortnight Lily



Douglas Iris



Manzanita Groundcover



Cotoneaster Groundcover



Thousand Oaks West Regional Character: Adaptive Arroyo
Suggested Species - Trees



Fern Pine



Eucalyptus



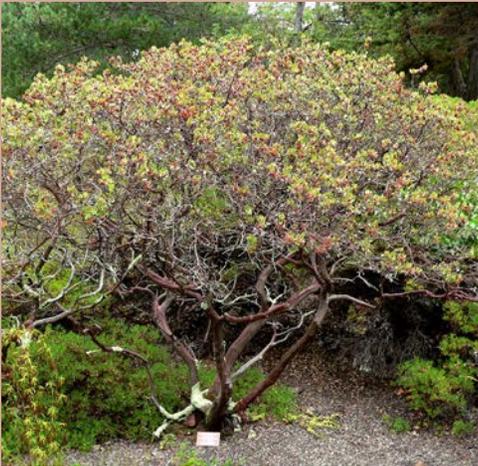
Pin Oak



Chinese Flame Tree



Callery Pear



Manzanita (Small Accent)



Figure 2.28 Thousand Oaks West demonstration project
 Above: Existing conditions
 Right: “Adaptive Arroyo” median concept rendering



Thousand Oaks West Demonstration Project Concept

The Thousand Oaks West demonstration project site is the Lynn Road median between Hillcrest Drive and Calle Laredo (figure 2.28).

Where site conditions are appropriate, integrate stormwater treatment (biofiltration and/or infiltration) with the median plantings. While grading should not be modified under existing trees, the benefits of improving

water quality may justify the removal of immature or inappropriate trees in order to implement swales and/or detention basins in the median. Where appropriate, maintain existing trees and continue the planting design of broadleaf evergreen and deciduous canopy trees. Provide accents with smaller flowering accent trees and large, boldly flowering shrubs. Integrate flowering strap-leaf plants with boulders and riverstones in a naturalistic arroyo arrangement at the ends of the median. Provide ornamental grasses and low shrubs throughout the

median. The faded painted concrete at the median end should be removed and replaced with either planting or decorative paving per site conditions.



3.f.4 Thousand Oaks East Regional Character Design Guidelines

1. The Thousand Oaks East planting concept is “Flowering Highlights.” The plantings should be composed of neutral shrubs and grasses accented by shrubs and small trees that have boldly colored blooms.
2. Simplify curbside tree plantings (in parkway strips or tree wells.) Mirror tree plantings on each side of the road, and use the same one or two tree species as in the median, where medians exist.
3. Per length or segment of road, provide one species of broadleaf, non-flowering evergreen tree and one species of flowering deciduous trees. Provide variety of tree species throughout the region.
4. Space median trees to provide a consistent canopy, with natural breaks where appropriate for visual interest and safety.
5. Avoid planting turf grass; remove existing turf grass plantings and replace with more water- and maintenance-efficient plantings.
6. Prioritize the use of mulch where non-vegetative groundcover material is needed.
7. For understory plantings, prioritize flowering shrubs, small accent trees, non-flowering shrubs (or with inconspicuous flowers), and ornamental grasses.
8. For flowering tree and shrubs within a planting

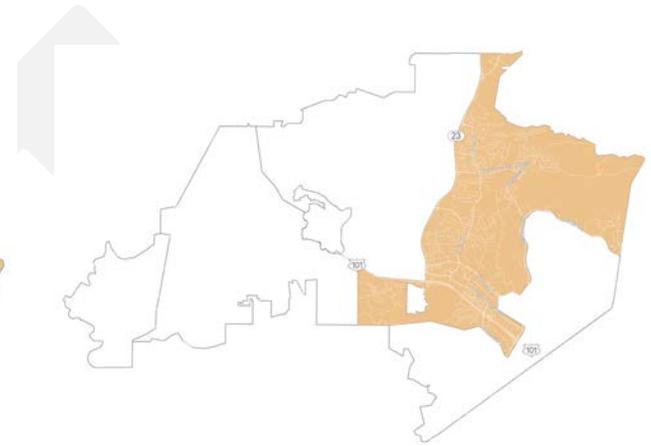
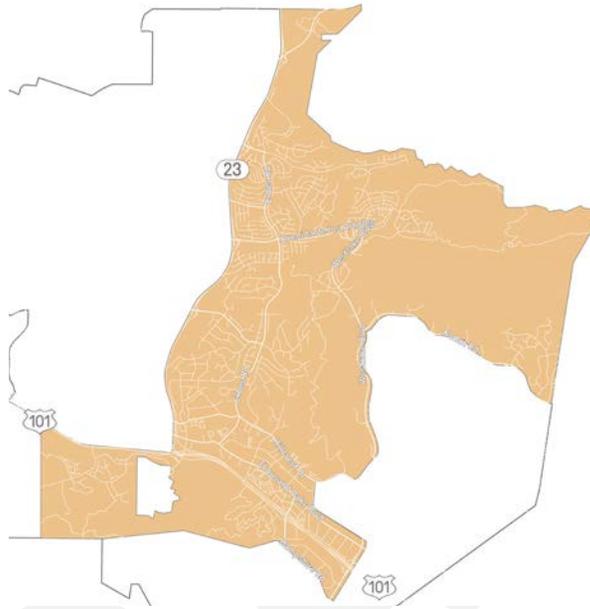


Figure 2.29 Thousand Oaks East Region

area, select species that bloom concurrently, or have overlapping blooming periods. Maximum seasonal impact will be achieved by having periods with no blooms in contrast to periods with multiple species in bloom.

9. Use boulders as accents within median plantings.
10. For tree planting sites at residential properties, the Public Works Director or designee will present an assortment of tree species to the property owner for their selection.
11. The Public Works Director or designee should develop the list of species for selection by

the property owner based on the most recent tree inventory (current ratio and distribution of species) and the regional recommendations in the street tree palette.

12. It is preferred to have a consistent type of tree per block, although the species of that type may vary.
13. Refer to the selection guidelines and suggested species chart for additional direction.

Thousand Oaks East Regional Character: Flowering Highlights Design Guidelines

PLANT CATEGORY	SELECTION GUIDELINES	SUGGESTED SPECIES
Understory Plants		
Flowering Shrubs and Herbaceous Plants	<ul style="list-style-type: none"> • Select medium size flowering shrubs with profuse and boldly colored blooms to serve as accents. • Use one to two species per median planting. Vary species throughout the region. 	<i>Caesalpinia pulcherrima</i> & cultivars / Pride of Barbados <i>Calliandra</i> species / Fairy Duster <i>Chaenomeles</i> cultivars / Flowering Quince <i>Russelia equisetiformis</i> / Coral Fountain, Firecracker Plant
Small Accent Trees	<ul style="list-style-type: none"> • Select a small, flowering accent tree that complements the flowering canopy trees and flowering shrubs within the median. • Use only one species per median planting. Vary species throughout the region. 	<i>Arbutus unedo</i> / Strawberry Tree <i>Caesalpinia mexicana</i> / Mexican Bird of Paradise <i>Cordia boissieri</i> / Texas Wild Olive <i>Fremontodendron</i> species / Flannelbush <i>Tecoma stans</i> and cultivars / Yellow Bells
Ornamental Grasses	<ul style="list-style-type: none"> • Select one species per median planting. • Select a species that provides visual interest with neutral tones, such as soft green to golden beige. • Plant beneath flowering canopy trees. 	<i>Leymus condensatus</i> 'Canyon Prince' / Canyon Prince Wild Rye <i>Muhlenbergia capillaris</i> 'White Cloud' / White Awn Muhly <i>Muhlenbergia rigens</i> / Deer Grass
Non-flowering Shrubs (or inconspicuous flowering)	<ul style="list-style-type: none"> • Select one to two species per median planting. Vary species throughout the region. • Plant beneath evergreen trees. • Plant around signage within median; select a species with a mature height that will not be a visual obstruction. • Select a species with medium to bright green foliage. 	<i>Baccharis pilularis</i> 'Twin Peaks' or 'Pigeon Point' / Dwarf Coyote Brush <i>Iva hayesiana</i> / San Diego Marsh-elder <i>Ribes viburnifolium</i> / Evergreen Currant <i>Symphoricarpos albus</i> var. <i>laevigatus</i> / Common Snowberry (deciduous)



Thousand Oaks East Regional Character: Flowering Highlights Design Guidelines

PLANT CATEGORY	SELECTION GUIDELINES	SUGGESTED SPECIES
Boulders	<ul style="list-style-type: none"> Select material and color that complement the natural environment of Thousand Oaks. Use as accents at median ends. 	
Trees		
Curbside Canopy Trees	<ul style="list-style-type: none"> Where palm trees need to be removed, replace with one species of deciduous flowering canopy tree per median or stretch/block of street. Select flowering species with white or bright, bold bloom color. Select non-flowering (or inconspicuous flowers), broadleaf evergreen species, per the existing tree planting scheme, where appropriate. 	<p>Flowering</p> <p><i>Brachychiton acerifolius</i> / Australian Flame Tree <i>Chionanthus retusus</i> / Chinese Fringe Tree <i>Koelreuteria paniculata</i> / Goldenrain Tree <i>Parkinsonia floridum</i> / Palo Verde <i>Pyrus calleryana</i> / Callery Pear</p> <p>Evergreen</p> <p><i>Geijera parviflora</i> / Australian Willow <i>Quercus</i> species / Oak <i>Tristania conferta</i> / Brisbane Box <i>Trinstania laurina</i> / Watergum</p>
Median Canopy Trees	<ul style="list-style-type: none"> See above listed guidelines for Curbside Canopy Trees. 	See also above listed species for Curbside Canopy Trees
Groundcover Material		
Mulch	<ul style="list-style-type: none"> Use as groundcover material throughout the median planting. 	

Thousand Oaks East Regional Character: Flowering Highlights
Suggested Species - Understory Plants



Coral Fountain /
Firecracker Plant



Pride of Barbados



Fairy Duster



Monkeyflower



Bush Poppy



California Fuchsia



Sage



Flowering Quince



Canyon Prince Wild Rye



Deer Grass



Evergreen Currant



Dwarf Coyote Brush



Thousand Oaks East Regional Character: Flowering Highlights
Suggested Species - Trees



Coast Live Oak



Australian Willow



Watergum



Goldenrain Tree



Palo Verde



Texas Wild Olive (Small Accent)



Figure 2.30 Thousand Oaks East demonstration project
 Above: Existing conditions
 Right: “Flowering Highlights” concept median rendering



Thousand Oaks East Demonstration Project Concept

The Thousand Oaks East demonstration project site is the median in Sunset Hills Boulevard, between California State Route 23 and Erbes Road (figure 2.30).

Introducing bold and bright flowering trees and shrubs will provide colorful contrast within the “canyon” setting of this site. As palm trees need to be removed, replace them with flowering canopy trees. Live oaks should

replace existing oak trees that need to be removed, unless site conditions that cannot be corrected are leading to the poor health of this species at this location. Plant brightly flowering small accent trees at each end of the median, and provide large boldly flowering shrubs as accents throughout the median. Plant low shrubs and ornamental grasses, which are compatible with the canopy trees, as background planting.



3.f.5 North Ranch / Westlake Regional Character Design Guidelines

1. The North Ranch / Westlake region planting concept is “California Meadow.” The plantings should evoke a native grassland accented by California native flowering shrubs and perennials.
2. Tree and understory plant species should complement the surrounding natural landscape (chaparral plant community) in color, form, and texture.
3. Avoid non-native species that may hybridize with native species or naturalize in the surrounding open space.
4. Maintain open views to adjacent open space / natural hillsides.
5. Within medians, plant large canopy trees in groups, with wide spacing between groups.
6. Where views exist along parkways, plant large canopy trees in clusters with wide spacing between clusters to provide views.
7. Use a mix of deciduous and broadleaf evergreen trees, preferably native, for curbside and median plantings.
8. Use flowering canopy trees as focal highlights in the medians.
9. Avoid planting turf grass; remove existing turf grass plantings and replace with more water- and maintenance-efficient plantings.

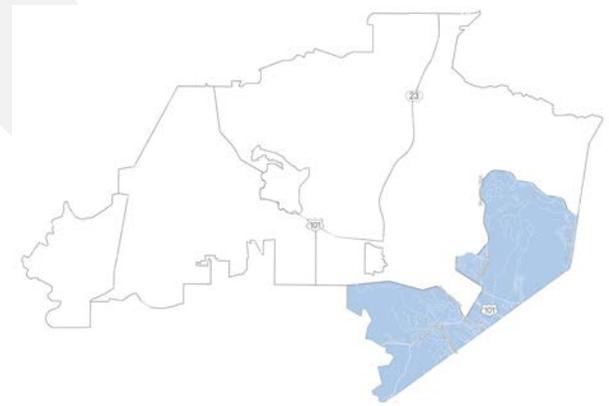
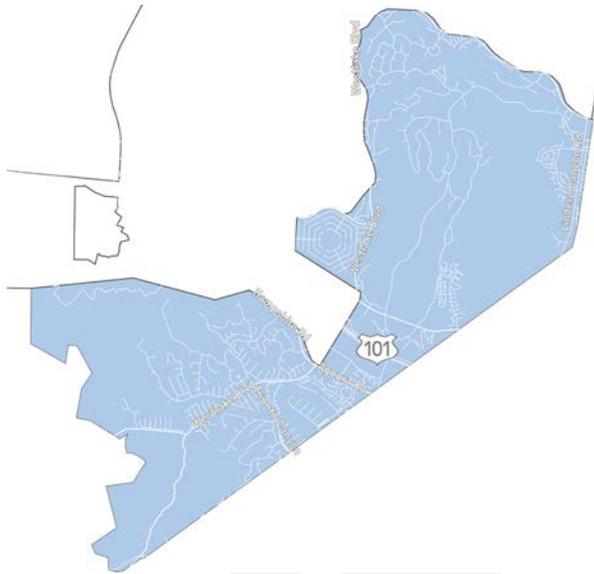


Figure 2.31 North Ranch / Westlake Region

10. Plant drought-tolerant grass or low bunchgrasses for groundcover.
11. Prioritize the use of riverstones where non-vegetative groundcover material is needed.
12. For understory plantings, prioritize low-growing bunchgrasses and native wildflowers throughout the planting area, with groupings of ornamental grasses, flowering shrubs, and/or strap-leafed plantings as accents. Plant predominately native species.
13. Intersperse inconspicuous understory planting species with special habitat/wildlife value amongst showier, dominant species.

14. For tree planting sites at residential properties, the Public Works Director or designee will present an assortment of tree species to the property owner for their selection.
15. The Public Works Director or designee should develop the list of species for selection by the property owner based on the most recent tree inventory (current ratio and distribution of species) and the regional recommendations in the street tree palette.
16. It is preferred to have a consistent type of tree per block, although the species of that type may vary.
17. Refer to the selection guidelines and suggested species chart for additional direction.

North Ranch / Westlake Regional Character: California Meadow
Design Guidelines

PLANT CATEGORY	SELECTION GUIDELINES	SUGGESTED SPECIES
Understory Plants		
Flowering Shrubs and Herbaceous Plants	<ul style="list-style-type: none"> • Create groupings of flowering shrubs and perennials as accents at median ends. • Repeat groupings where breaks in canopy trees occur, or use groupings of ornamental grasses as an alternative. • Select species that have low to medium mature height. • Use a consistent design for each grouping (or type of grouping) in a median planting. 	<i>Asclepias</i> species / Milkweed <i>Cistus</i> species / Rockrose <i>Eriogonum</i> species / Buckwheat <i>Gaillardia grandiflora</i> / Blanket Flower <i>Penstemon</i> species / Beardtongue <i>Mimulus</i> species / Monkeyflower <i>Salvia</i> species / Sage
Ornamental Grasses	<ul style="list-style-type: none"> • As an alternative to flowering shrubs and perennials, create groupings of ornamental grasses where breaks in canopy trees occur. 	<i>Muhlenbergia</i> species / Deer Grass, Muhly Grass
Strap-leafed Plants	<ul style="list-style-type: none"> • Integrate strap-leafed plants as desired in the accent plantings. • Select species that complement native plant communities. 	<i>Iris douglasiana</i> / Douglas Iris <i>Yucca whipplei</i> / Our Lord's Candle



North Ranch / Westlake Regional Character: California Meadow
Design Guidelines

PLANT CATEGORY	SELECTION GUIDELINES	SUGGESTED SPECIES
Trees		
Curbside Canopy Trees	<ul style="list-style-type: none"> Plant broadleaf evergreen or deciduous trees. Prioritize native oaks that are appropriate for the available planting area. Prioritize fire resistant species where right-of-way is adjacent to open space. Plant trees in clusters or groups of the same species. 	<p>Evergreen <i>Quercus</i> species / Oak</p> <p>Deciduous <i>Pistacia chinensis</i> / Chinese Pistache <i>Quercus</i> species / Oak <i>Zelkova serrata</i> / Japanese Zelkova</p>
Median Canopy Trees	<ul style="list-style-type: none"> Select up to four species per median planting. Select broadleaf evergreen and deciduous species as the dominant canopy trees. Select flowering tree species for accents. 	<p>Deciduous <i>Fraxinus oxycarpa</i> 'Raywood' / Raywood Ash</p> <p>Flowering <i>Chitalpa x tashkentensis</i> / Chitalpa <i>Jacaranda mimosifolia</i> / Jacaranda</p> <p>See also above listed species for Curbside Canopy Trees</p>
Groundcover Material		
Ornamental Grass	<ul style="list-style-type: none"> Use drought-tolerant bunchgrasses as the primary planting material throughout the median planting. Provide uniform spacing/coverage. 	<p><i>Bouteloua gracilis</i> / Blue Grama <i>Carex pansa</i> / Dune Sedge <i>Festuca californica</i> / California Fescue <i>Melica californica</i> / California Melic</p>
Mulch	<ul style="list-style-type: none"> Use organic mulch as appropriate with bunchgrass planting and maintenance. 	
Riverstones	<ul style="list-style-type: none"> Use riverstones as an inorganic groundcover material where the groundcover will be most visible. Select stones that are consistent in color and texture with the surrounding natural context. Color and texture should be consistent throughout the North Ranch / Westlake region. 	

North Ranch / Westlake Regional Character: California Meadow
Suggested Species - Understory Plants



California Poppy



Buckwheat



Mexican Sage



Monkeyflower



Penstemon



Milkweed



Blanket Flower



Pink Muhly



Our Lord's Candle



Douglas Iris



California Fescue



California Melic
Image Credit: Intermountain Nursery



North Ranch / Westlake Regional Character: California Meadow
Suggested Species - Trees



Coast Live Oak



Black Oak



Japanese Zelkova



Raywood Ash
Image Credit: UFEI Selectree



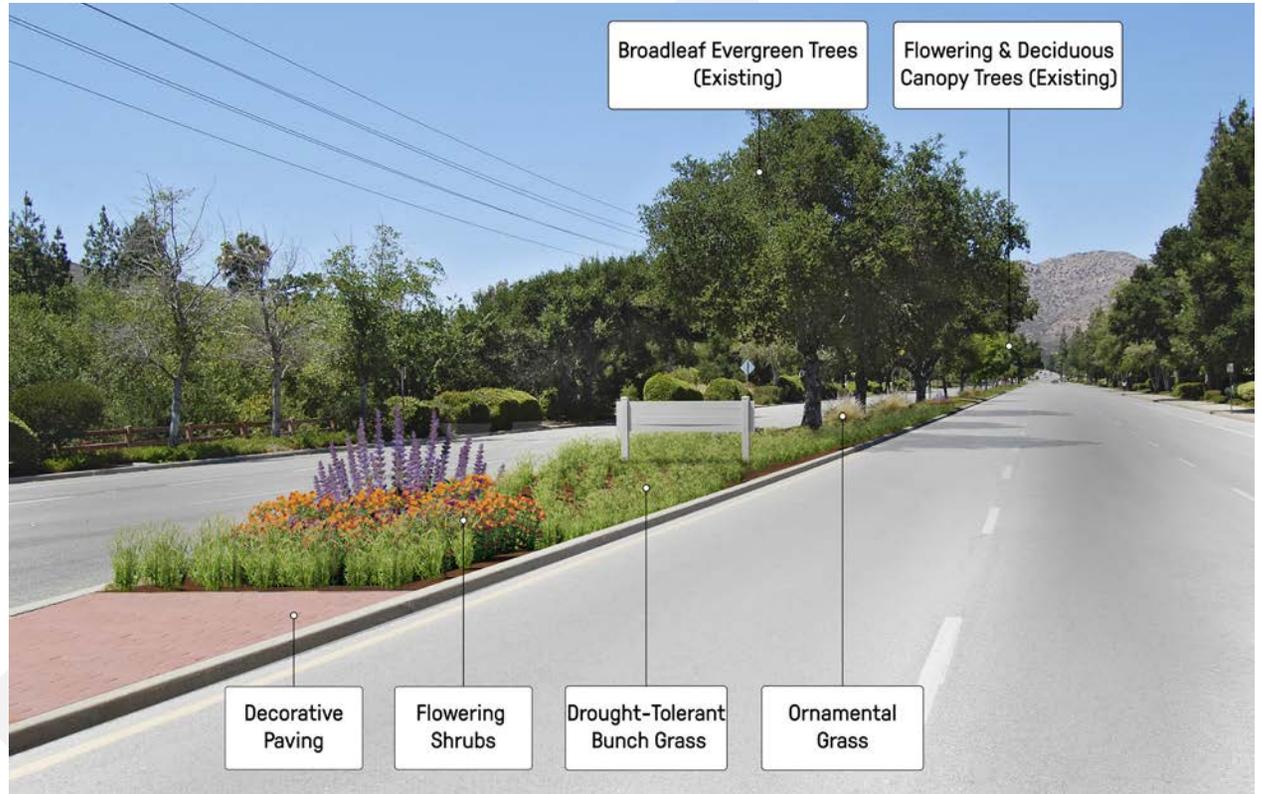
Jacaranda



Chitalpa (Small Accent)



Figure 2.32 North Ranch / Westlake demonstration project
 Above: Existing conditions
 Right: “California Meadow” median concept rendering



North Ranch / Westlake Demonstration Project Concept

The North Ranch / Westlake demonstration project site is the Lindero Canyon Road median between Bowfield and Rockfield (figure 2.32).

Over time, as trees require replacement, the tree species selection should be simplified with a focus on trees that are native to and complementary with the oak

woodland and chaparral plant communities. Turf should be removed and replaced with native or California friendly bunchgrasses. Groupings of flowering shrubs and perennials, as well as ornamental grasses, should be placed to provide accents in wide openings between trees. If conditions allow, regrade the median to provide stormwater detention.



3.g Hidden Design Opportunities

Street-tree planting is only one way to help reforest a city. Besides other predictable places to plant trees, such as parks and schools, there are many other innovative ways to extend the community forest.

Vacant lots or other types of undeveloped and unused land can be turned from community eyesores into pocket parks, mini-forests, or food-producing fruit and nut groves.

Hillsides, often “leap-frogged” over by development, can be restored to their natural landscape pattern of oak woodland on the north and east facing slopes.

Stream corridors are another neglected resource for extending the forest, restoring habitat for riparian species (flora and fauna), and creating a network of walking paths throughout the community. Where they haven't been culverted, they can become linear parks linking neighborhoods; native riparian species, such as willow, bay, and big leaf maple, attract wildlife to these mostly undervalued wild places.

Schools in particular present an ideal place to expand the community forest. The educational and play value of groves of oaks and other species should be considered in the design of school yards, which traditionally are barren places. Imagine a high school that boasts of having a productive grove of fruit trees that acts as a hands-on science lab as well as providing money for other school activities from the sale of its produce. Teaching tomorrow's citizens about the community forest makes the job of expanding and maintaining this resource much easier in the long run.

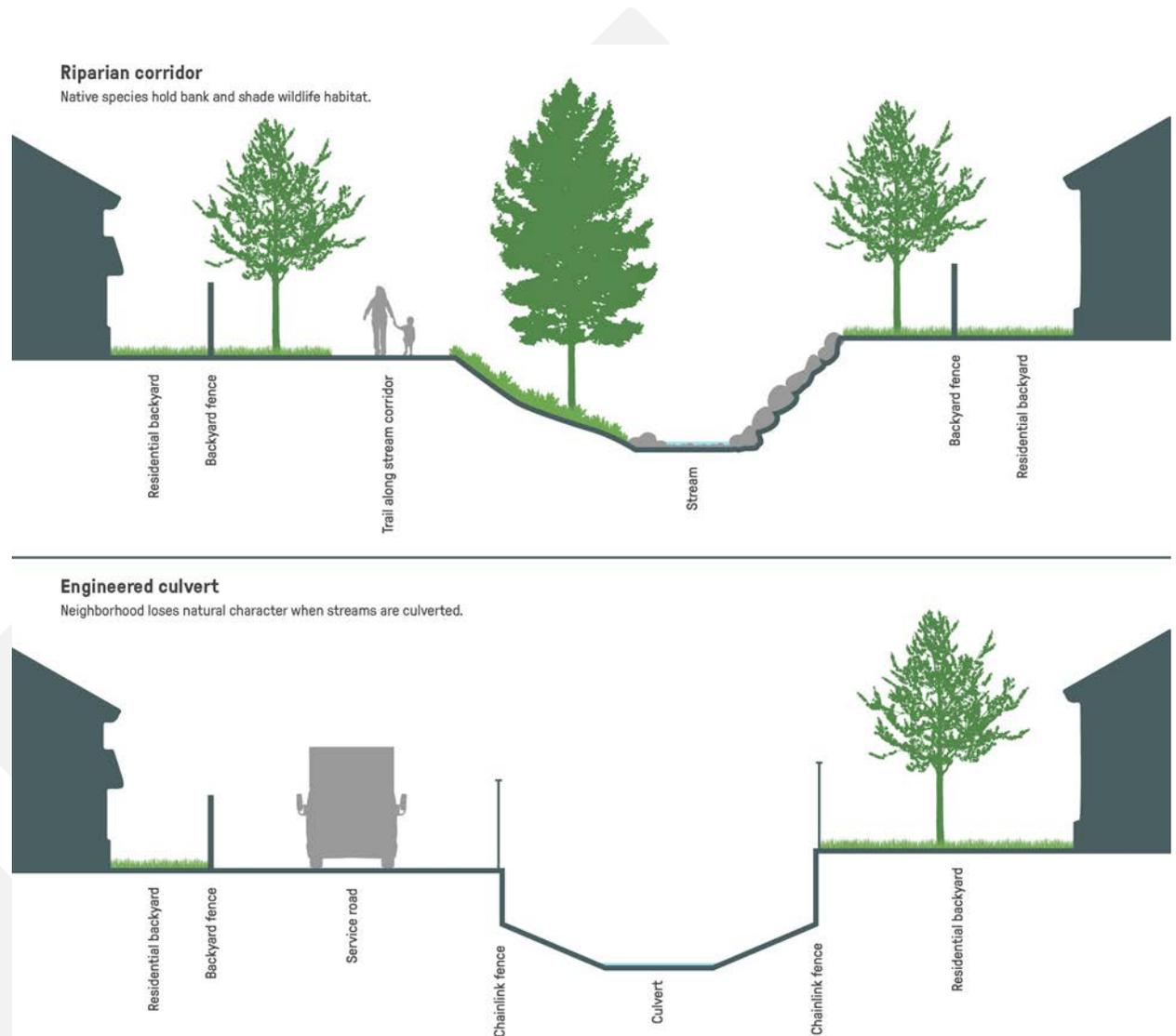


Figure 2.33 Stream corridors

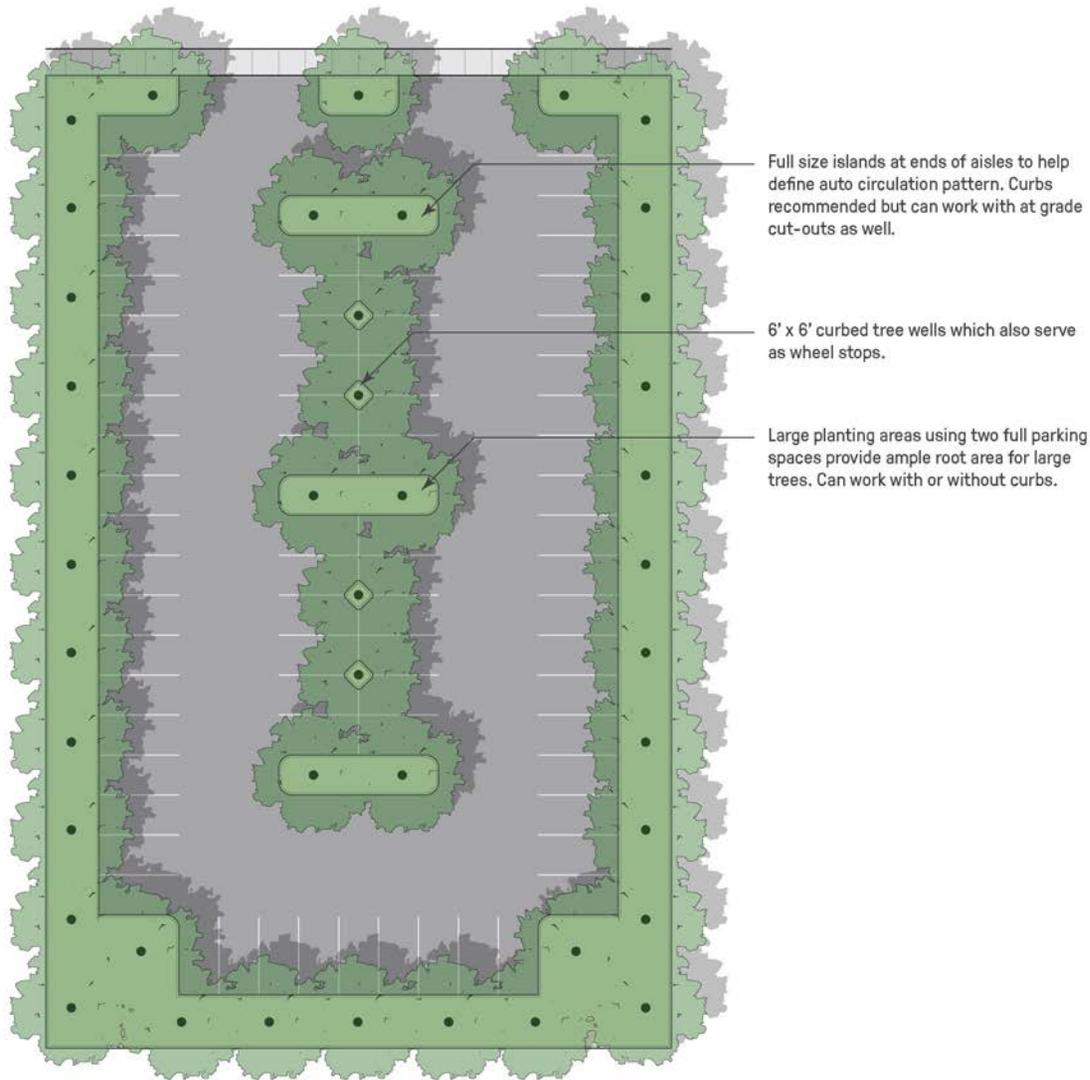


Figure 2.34 Parking lot design options for canopy coverage

Corporate and institutional holdings are another situation where screening and a good public image can be accomplished with groves of trees, sometimes at substantially reduced costs in maintenance compared to traditional lawn. Portions of some large corporate campuses could consider incorporating habitat areas, in which trees figure prominently, for wildlife uses. (See Volume 3 for more information.)

Parking lots are generally unsightly, cover acres of land and contribute substantially to the heat island effect. This phenomenon, universal to urban areas throughout the world, is caused by the ability of paving materials to absorb more heat more quickly than natural surfaces. The result is an increase in temperature compared to the surrounding countryside, usually higher by 10 degrees or more. Increased ambient air temperature consequently leads to higher energy costs for cooling in the surrounding buildings.

Planting trees to provide coverage of parking lots reverses the heat island effect and reduces heat damage to cars and their contents (cars exposed to summer sun can reach temperatures in excess of 200 degrees.)

4. Species Selection Criteria

This section describes the considerations that impact the suitability of a particular species for the conditions of the planting site. The adaptability of various tree species to environmental conditions is indicated in the Planting Palette section of the Plan. By using these two sections together, city staff, local business people, developers and individual residents can select the trees best adapted to their particular surroundings.

The tree and plant palettes included later in this volume are composed of species and cultivars that are generally acceptable to plant in the public right-of-way within Thousand Oaks. When deciding what species of plant or tree is most appropriate for a particular site design, the palettes are a primary resource. However, the following Species Selection Criteria, combined with the Planting Design Guidelines in the previous section, will assist in determining which species in the palette are the best options for the site conditions and design concept.

In the event that a suitable plant or tree species from the palettes cannot be acquired, these criteria should also be followed to determine the most appropriate substitute species of tree or plant.

The Species Selection Criteria are organized into three categories: Enhancing Character & Aesthetics, Increasing Forest Resiliency, and Supporting Maintenance & Safety.

Enhancing Character & Aesthetics

1. Maintain Thousand Oaks' identity with native oak trees. Where space and conditions allow, major

streets should feature native oaks as a major thematic tree. Refer to the Revised Guidelines and Standards for Landscape Planting and Irrigation Plans (Res. 2007-116).

2. Select species with form and color that are compatible with the existing or intended design concept. Compatible forms and colors help to maintain a sense of order within diversity.

Increasing Forest Resiliency

3. Follow the 10-20-30 rule to maintain a diverse and healthy community forest. Consult the most recent street tree inventory to determine the prevalence of the species within the region and citywide. Do not plant a tree species if it is nearing or at 10% or more of the community forest population. Also ensure that the genus is not 20% or more of the total population, and that the family is not 30% or more of the total population. Exceptions apply to species that are native to the area, which may be planted up to 20% citywide.
4. Introduce new species or cultivars at a small scale for their initial planting. If successful, they may be used in wider applications.
5. Use species which are hardy in the temperature extremes of local climate zones. All of the species listed in the tree and plant palettes are suitable for Thousand Oaks' climate in general, however, consideration of a site's microclimate should be made on a case-by-case basis (see next criterion), as should long-term impacts of climate change.

Species Selection Criteria

Enhancing Character & Aesthetics

1. Maintain Thousand Oaks' identity with native oak trees, where space and conditions allow.
2. Select species with form and color that are compatible with the existing or intended design concept.

Increasing Forest Resiliency

3. Follow the 10-20-30 rule to maintain a diverse and healthy community forest.
4. Introduce new species or cultivars at a small scale for their initial planting.
5. Use species which are hardy in the temperature extremes of local climate zones.
6. Fine-tune plant selection to the microclimate of the planting site.
7. Consider planting the sidewalks and medians of major streets with different species.
8. Match species to the site's soil type and composition.
9. Select trees and plants adapted to the soil's drainage characteristics.
10. Select species adapted to the soil's chemistry.
11. Where soil penetration is limited, select trees that can survive in shallow soils.

Species Selection Criteria

Supporting Maintenance & Safety

12. Consider the vertical clearance to the lowest limbs that will be required.
13. Consider the planting site's relationship to wildfire-prone areas.
14. Select species that will provide the intended performance and aesthetic with the lowest water usage.
15. Use strong-branched and wind-tolerant trees.
16. Size trees to the space they will grow into.
17. If there are overhead utilities at the planting site, select tree species that will minimize conflict.
18. Match the tree's root behavior to the planting space.

6. Fine-tune plant selection to the microclimate of the planting site. The main influences on microclimate are topography (aspect and slope), structures, pavement and existing vegetation. Refer to Volume 1 for more information.
7. Consider planting the sidewalks and medians of major streets with different species. The different planting conditions in these two situations often suggest different species, either of which would provide a planted presence on the street should the other fail. (See Figure 2.35.)
8. Match species to the site's soil type and composition. The soils map and legend in Volume 1 gives a general idea of soil conditions in Thousand Oaks, although they do not accurately reflect post-development levels of compaction or otherwise altered soils. The map can be used as a general reference, but the planting site's soil conditions should also be assessed.
9. Select trees and plants adapted to the soil's drainage characteristics. Too little soil moisture can desiccate trees and plants, but too much water can suffocate roots for lack of air or increase susceptibility to pests or diseases. Consider water retention, water table, and slope.

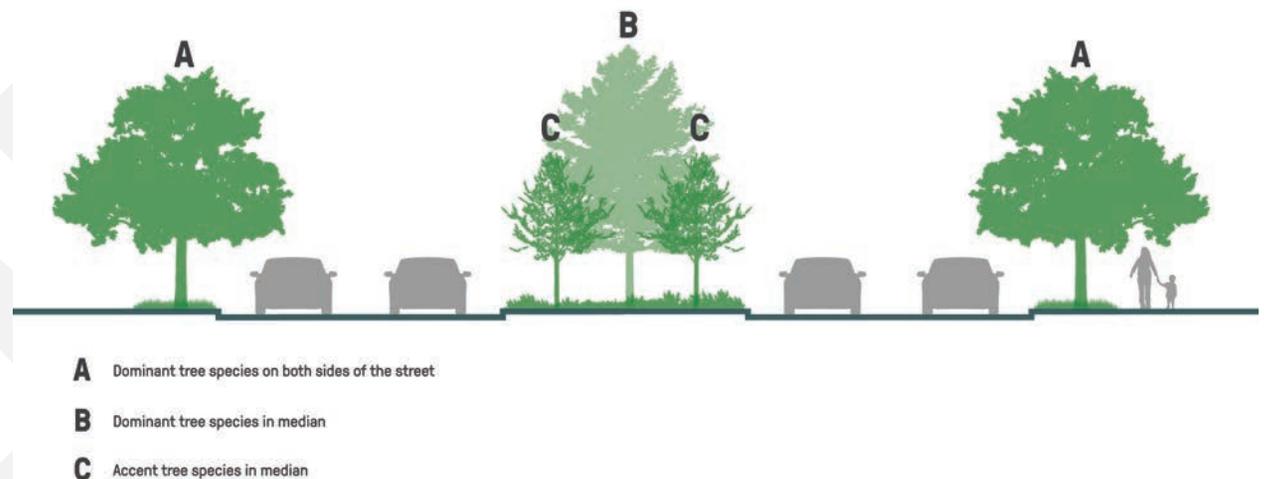


Figure 2.35 Species diversification

10. Select species adapted to the soil's chemistry. While the planting palette generally consists of trees adapted to poor soil conditions, the following conditions may require special attention: nutrient levels, soil pH, salinity, and iron.
11. Where soil penetration is limited, select trees that can survive in shallow soils. Consider soil modifications if necessary.

Supporting Maintenance & Safety

12. Consider the vertical clearance to the lowest limbs that will be required. Use species which can be pruned as they mature above the height of trucks and service vehicles and commercial signs. A vertical clearance of 14 feet above street level and 9 feet above sidewalks will generally not interrupt deliveries or visibility of storefronts.
13. Consider the planting site's relationship to wildfire-prone areas. Fire resistant species are preferable in wildland-urban interface areas. Refer to Ventura County Fire Department's Fire Hazard Reduction Program for the latest information on plant species and fire safety.
14. Select species that will provide the intended performance and aesthetic with the lowest water usage. Irrigation water budgets must meet current regulations. If plants or trees with higher water needs must be planted, offset their needs with other species that require much less water. Consider that the water allowances of today could be restricted in the future; and the typical rainfall averages of today may be lower in the future.

To ensure long term health and survival, it is recommended to plant species that require less water than the current water allowances.

15. Use strong-branched and wind-tolerant trees, in particular near structures, streets, and activity areas. Trees with strong branching habits are the best insurance against breakage from wind. Species which are genetically predisposed to breakage usually cannot be pruned frequently enough to prevent all breakage.
16. Size trees to the space they will grow into. Species should be chosen that will comfortably fit the space available to them, both above and below ground, when full grown. This growing space is usually defined by surrounding buildings, streets, sidewalks, and other trees.

Most standards for the height and spread of trees are for optimum growing conditions. Since most street-tree planting conditions are not optimum,

most street trees will not grow to their full range. A tree planted in a standard sidewalk tree well will not grow as large as the same species planted in a 15-foot-wide median. Therefore, when selecting tree species, evaluate the species' expected growth in relation to the constraints of the site.

17. If there are overhead utilities at the planting site, select tree species that will minimize conflict. Select a species with a thin upper canopy so that pruning it will not destroy the form of the tree. Another alternative is to plant small, closely spaced trees that will not reach the height of the wires.
18. Match the tree's root behavior to the planting space. The planting palette lists the minimum size of space that each species should be planted in to reduce the threat of roots uplifting adjacent pavement.

Soil Chemistry & Species Selection

Nutrients. Unless corrected, serious deficiencies of the elements necessary for plant life will limit species to those able to withstand the particular deficiency.

Soil pH. The soils in Thousand Oaks tend to be alkaline, a condition typical of low-rainfall areas. The visible presence of calcium carbonate indicates especially high alkalinity in many areas. In such soils, roots will not be able to absorb the broad range of balanced minerals needed for normal growth and will develop chlorosis, which limits growth and produces unhealthy foliage. Low pH conditions (acidic soils) are unlikely

in the city, so species preferring these conditions, such as rhododendrons, azaleas and redwoods, should be avoided.

Salinity. High salt content is another soil problem characteristic of dry areas, or areas using recycled water for irrigation. Concentrate of salts near the ground's surface, stunts plant growth by desiccating the root system. Brown or withered leaves sometimes indicate salt burn.

Iron. Chlorosis caused by iron deficiency, indicated by a yellowing of leaves between the veins, is commonly observed in Thousand Oaks. Species especially subject to chlorosis should be avoided where iron is low.

5. Street Tree Palette

This section provides a palette, or range of choices, of trees for planting in the public rights-of-way in Thousand Oaks. The palette includes recommended tree species, with design and horticultural factors for each one.

The recommended trees in the street tree palette are either proven performers in the city or new species and cultivars of trees which are suited to the conditions found in the area. These new species replace some old recommendations which have proven to have serious problems and therefore cannot be recommended. There may also be other tree types which are growing in the city but are not on the recommended list. These trees were not included in the palette because they are not good choices for the street's restrictive growing environment, or have insect or pest problems. Also, all the trees in the palette will do well if their environmental requirements are met, but they will not necessarily do well in every location.

The palette is intended to serve as a tool to facilitate planting design, and should not be considered an all-inclusive listing of the only tree species and cultivars that are appropriate to plant in the public rights-of-way in Thousand Oaks. Other species and cultivars may be used if they meet the intent of the Planting Design Guidelines and Species Selection Criteria, and are approved by the Public Works Director or designee.

Using the Street Tree Palette

The tree palette is used to narrow down choices. It should be used in conjunction with the inventory database and recommendations in previous sections of this Plan to make individual site-specific tree selections. Photographs, sketches and additional horticultural, functional, or aesthetic descriptions found in supplementary materials (such as *Sunset Western Garden Book* or nursery websites), as well as current availability from nurseries, can also help in this decision making.

The trees are listed alphabetically by botanic name, and the most widely used common name is also included. Following is a description of the information provided in the tree palette.

Planting Area Width: Since a primary factor which limits the growth of a tree is the size of the available planting area, the palette identifies for each species the following categories based upon the minimum distance from paving required for healthy growth without breaking up sidewalks and paving. Note that smaller areas may be acceptable if the planting site utilizes structural soils or cells. Consult with the Public Works Director or designee in these instances.

Restrictive Planting Sites: Existing spaces less than 4 feet wide which cannot be enlarged. Root barriers required.

Small Planting Sites: 4 to 6 feet wide tree wells and parkways. Root barriers recommended at the edge of the planting area.

Medium Planting Sites: Parkways, tree wells,

medians, and other openings between 6 and 10 feet wide. Root barriers recommended at the edge of the planting area.

Large Planting Sites: Planting spaces that are greater than 10 feet wide. Root barriers are recommended where the pavement edge is 5 feet or nearer to trees.

Type: Evergreen trees hold their leaves all year while deciduous trees lose their leaves each year, usually in the fall or winter. For the purposes of the Master Plan, evergreen trees are divided into broadleaf evergreens, a tree with leaves, or a conifer, a tree with seed cones and evergreen needles. Deciduous trees are identified as trees which drop leaves all at once.

Height: Three heights are used, based on expected growth for trees in restrictive street tree environments. Sizes are smaller than in references where sizes reflect optimum growing conditions.

Small: Under 20 feet tall

Medium: 20 to 40 feet tall

Tall: More than 40 feet tall

Spread: Horizontal width of the tree canopy is identified as:

Narrow: Less than 20 feet wide

Average: 20 to 40 feet wide

Broad: More than 40 feet wide

Spacing: The typical distance trees should be planted



from each other to achieve canopy coverage without overcrowding.

Narrow trees: 15 to 20 feet apart

Average trees: 20 to 30 feet apart

Broad trees: 30 to 40 feet apart

Growth rate:

Slow: Will take many years to develop its mature form.

Moderate: Will begin to acquire mature characteristics within 20 years.

Fast: Will begin to develop a tree canopy after the first five years, if planted from a 15 gallon can or larger size.

Life span: Useful life expectancy under the stressful conditions of the street.

Form: The shape of the crown of the tree.

Bloom: Indicates if the tree provides a showy display of blooms, and if so, the color and season of flowering.

Ecology:

Water: Provides the WUCOLS water use rating, or “plant factor” (PF), specific to Thousand Oaks, for each species; categories are “VL” very low, “L” low, “M” moderate, and “H” high.

CA Native: Indicates whether a species is a California native.

Habitat Value: Notes if the species offers special habitat value. Refer to the tree species’ “notes” section for details.

Special Use Notes: This category identifies particular conditions in which the species may be particularly well-suited to be planted. These include: bioswale plantings, planting under utilities, and planting in fire-prone areas.

Cautions: Characteristics that may make the tree a poor choice under particular circumstances, such as produces debris (abundant seeds or fruit fall from the tree periodically) or susceptibility to a particular pest or disease; refer to the species’ “notes” section for details. If a species should not be used in parkway strips or tree wells, it is indicated here.

Tolerances: Horticultural conditions which a tree tolerate, such as drought, alkaline soil, wind, frost, and pests/diseases.

ISA Species Classification: Refers to a tree’s relative rating compared to other species in the area, based on a variety of factors, including longevity, structural integrity, pest and disease resistance, and pruning needs as determined by the International Society of Arboriculturists. Ratings are from “1” to “4”; “1” is the most favorable rating.

Recommended Region: Identifies the region(s) of the city where the species satisfies the design guidelines as described in the Regional Character

Design Guidelines for Street Plantings, provided earlier in this volume.

Notes: On the pages following the palette chart, additional details for the species, which may be helpful during the species selection process, are provided.

STREET TREE PALETTE	FAMILY	TYPE	PLANTING AREA WIDTH			ECOLOGY	HEIGHT	SPREAD	GROWTH RATE	LIFE- SPAN	SPECIAL USE	CAUTIONS	TOLERANCES	FORM	BLOOM					RECOMMENDED REGIONS				
		Deciduous Evergreen / Broadleaf Evergreen / Conifer	Less than 4' Wide 4-6' Wide 6-10' Wide More than 10' Wide	Water Needs (PF) CA Native Habitat Value	Small, Under 20' Medium, 20-40' Tall, More than 40'	Narrow, Under 20' Average, 20-40' Broad, Over 40'	Fast Moderate Slow 30-60 Yrs Over 60 Yrs	Stormwater BMP Good Under Utilities Fire Rating - Resistant	DO NOT USE in parkway strips or tree wells Pests/Diseases Produces Debris Drought / Little or No Water Frost (below 25 degrees)	Wind Alkaline Soil Pests/Diseases	Rounded Oval Columnar Pyramidal Vase	Conspicuous Flowering Color Spring Summer Fall Winter	ISA Species Classification Dos Vientos Newbury Park Thousand Oaks West Thousand Oaks East North Ranch / Westlake											
<i>Fraxinus oxycarpa</i> 'Raywood' Raywood Ash	Oleaceae	X	X	X	M	X	X	X	30	X	X	X	X	X	X	N/A	X			2			X	X
<i>Geijera parviflora</i> Australian Willow	Rutaceae	X	X	X	L	X	X	X	25	X	X		X	X	X	X	white	X		2		X	X	
<i>Ginkgo biloba</i> and cultivars Maidenhair Tree	Ginkgoaceae	X	X	X	M	X	X	X	25	X	X		X	X	X	N/A	X		2		X	X	X	
<i>Gleditsia triacanthos</i> and cultivars Honey Locust	Fabaceae	X	X	X	M	X	X	X	25	X	X		X	X	X	N/A	X	X		NA		X	X	
<i>Hymenosporum flavum</i> Sweetshade Tree	Pittosporaceae	X	X	X	M	X	X	X	20	X	X		X	X		X	yellow	X		1		X	X	X
<i>Jacaranda mimosifolia</i> and cultivars Jacaranda	Bignoniaceae	X	X	X	M	X	X	X	25	X	X			X		X	purple	X		2		X	X	X
<i>Koelreuteria bipinnata</i> Chinese Flame Tree	Sapindaceae	X	X	X	M		X	X	25	X	X			X	X	X	orange / red	X		3		X	X	X
<i>Koelreuteria elegans</i> Taiwanese Rain tree	Sapindaceae	X	X	X	M		X	X	25	X	X			X	X	X	yellow		X	3		X	X	
<i>Koelreuteria paniculata</i> Goldenrain Tree	Sapindaceae	X	X	X	L		X	X	25	X	X		X	X	X	X	yellow	X		2		X	X	
<i>Lagerstroemia indica</i> and cultivars Crape Myrtle	Lythraceae	X	X	X	M	X	X	X	20	X	X	X	X	X	X	X	purple / pink / red / white	X		2	X	X	X	X
<i>Laurus nobilis</i> Sweet Bay	Lauraceae	X	X	X	L	X	X	X	20		X	X	X	X	X	X	green / white / yellow	X		2	X	X	X	
<i>Ligustrum confusum</i> Privet	Oleaceae	X	X	X	X	X	X	X	20	X	X	X	X	X	X	X	white	X		NA		X	X	
<i>Liquidambar styraciflua</i> and cultivars American Sweet Gum	Hamamelidaceae	X	X	X	M	X	X	X	25	X	X	X	X	X	X	N/A	X		3		X	X		
<i>Liriodendron tulipifera</i> Tulip Tree	Magnoliaceae	X	X	X	M	X	X	X	35	X	X		X	X	X	X	green / orange / yellow	X	X	3	X	X	X	X
<i>Lophostemon confertus</i> (<i>Tristania conferta</i>) Brisbane Box	Myrtaceae	X	X	X	M		X	X	25	X	X		X	X	X	X	white / cream	X		3		X	X	
<i>Magnolia grandiflora</i> and cultivars Southern Magnolia	Magnoliaceae	X	X	X	M	X		X	35		X	X	X	X	X	X	white	X	X	3		X	X	
<i>Magnolia grandiflora</i> 'Little gem' Little Gem Dwarf Southern	Magnoliaceae	X	X	X	M	X	X	X	20		X	X	X	X	X	X	white	X	X	3		X	X	
<i>Markhamia hildebrandtii</i> Nile Tulip Tree	Bignoniaceae	X	X	X	M		X	X	20		X		X	X		X	yellow	X		NA		X	X	
<i>Melaleuca linariifolia</i> Flaxleaf Paperbark	Myrtaceae	X	X	X	L	X	X	X	25	X	X	X	X	X	X	X	white	X		2		X	X	X



STREET TREE PALETTE	FAMILY	TYPE			PLANTING AREA WIDTH			ECOLOGY	HEIGHT	SPREAD			GROWTH RATE			LIFE- SPAN	SPECIAL USE	CAUTIONS	TOLERANCES				FORM				BLOOM				RECOMMENDED REGIONS																		
		Deciduous	Evergreen / Broadleaf	Evergreen / Conifer	Less than 4' Wide	4-6' Wide	6-10' Wide			More than 10' Wide	Water Needs (PF)	CA Native	Habitat Value	Small, Under 20'	Medium, 20-40'				Tall, More than 40'	Narrow, Under 20'	Average, 20-40'	Broad, Over 40'	Minimum Spacing	Fast	Moderate	Slow	30-60 Yrs	Over 60 Yrs	Stormwater BMP	Good Under Utilities	Fire Rating - Resistant	DO NOT USE in parkway strips or tree wells	Pests/Diseases	Produces Debris	Drought / Little or No Water	Frost (below 25 degrees)	Wind	Alkaline Soil	Pests/Diseases	Rounded	Oval	Columnar	Pyramidal	Vase	Conspicuous Flowering	Color	Spring	Summer	Fall
<i>Rhus lancea</i> African Sumac	Anacardiaceae	X			X	X	X	L		X	X	X			15	X		X	X				X			X										X	yellow		X				2			X		X	
<i>Sapium sebiferum</i> Chinese Tallow Tree	Euphorbiaceae	X			X	X	X	M		X	X				20	X		X						X											X	yellow	X					2		X		X			
<i>Sophora japonica</i> Japanese Pagoda Tree	Fabaceae	X					X	X	M			X			35	X		X								X								X	white / yellow		X					2	X		X	X			
<i>Spathodea campanulata</i> African Tuliptree	Bignoniaceae	X				X	X	L		X		X	X		25	X		X								X	X						X	orange / red	X		X				2		X		X				
<i>Stenocarpus sinuatus</i> Firewheel Tree	Proteaceae		X		X	X	X	M		X		X			15		X	X								X								X	yellow / red		X					1		X		X			
<i>Tabebuia chrysostricha</i> (<i>Handroanthus chrysostrichus</i>)	Bignoniaceae	X			X	X	X	M			X	X			30	X		X								X							X	yellow	X							1		X		X			
<i>Tabebuia impetiginosa</i> (<i>Tabebuia avellanedae</i>) (<i>Handroanthus impetiginosus</i>) Pink Trumpet Tree	Bignoniaceae	X			X	X	X	M			X	X			30	X		X															X	white / pink / purple	X			X				NA		X		X			
<i>Tipuana tipu</i> Tipu Tree	Fabaceae	X				X	X	L			X				30	X		X								X	X						X	apricot / yellow	X	X						3		X		X			
<i>Tristania conferta</i> (<i>Lophostemon confertus</i>) Brisbane Box	Myrtaceae		X		X	X	X	M			X				20	X		X								X	X						X	white / cream		X					NA		X		X				
<i>Tristaniopsis laurina</i> Watergum	Myrtaceae	X			X	X	X	M			X				15		X	X								X	X						X	yellow	X	X					NA		X		X				
<i>Ulmus parvifolia</i> 'Drake' or 'Brea' Chinese Elm	Ulmaceae	X				X	X	M				X			35	X		X																N/A		X	X					3		X		X			
<i>Zelkova serrata</i> Japanese Zelkova	Ulmaceae	X				X	X	L				X			35	X		X								X	X							N/A							2		X			X			

STREET TREE PALETTE	NOTES
<i>Acer macrophyllum</i> Bigleaf Maple	prefers monthly watering; adapts to many soil types, but prefers good drainage; attracts birds, bees and butterflies; resistant to oak root fungus; susceptible to beetle borers, california flathead borer, caterpillars, sudden oak death, root rot, oak root rot, annousus root disease, white mottled roat, leaf spot and Verticillium; high root damage potential
<i>Acer paxii</i> Evergreen Maple	susceptible to aphids, root rot, verticillium; low root damage potential
<i>Acrocarpus fraxinifolius</i> Pink Cedar	weak branches; moderate root damage potential
<i>Agathis robusta</i> Queensland Kauri Pine	drought sensitive, water loving; high root damage potential
<i>Agonis flexuosa and cultivars</i> Peppermint Tree	attracts birds; needs frequent pruning to relieve weight; susceptible to phytophthora and root rot; weeps to the ground; moderate root damage potential
<i>Albizia julibrissin and cultivars</i> Silk Tree	prefers occasional deep watering; attracts birds; susceptible to caterpillars, fusarium and root rot, moderate root damage potential
<i>Arbutus unedo and cultivars</i> Strawberry Tree	attracts birds; wildlife use fruit; resistant to oak root fungus; susceptible to scale and thrip, anthracnose, phytophthora, root rot and rust; low maintenance needs; low root damage potential; strong branch strength
<i>Bauhinia variegata (purpurea) and cultivars</i> Purple Orchid Tree	requires good drainage; attracts birds; susceptible aphids; low root damage potential
<i>Bauhinia x blakeana</i> Hong Kong Orchid Tree	attracts birds; does not produce fruit; susceptible to aphids; low root damage potential
<i>Bauhinia forficata</i> Brazilian Orchid Tree	attracts birds; has thorns; susceptible to aphids; low root damage potential
<i>Bischofia javanica</i> Javanese Bishopwood	high potential root damage; susceptible to scale, root rot and sooty mold; high root damage potential
<i>Brachychiton acerifolius</i> Australian Flame Tree	produces large seedpods / fruits; susceptible to root rot; moderate root damage potential
<i>Brachychiton populneus</i> Kurradjong Bottle Tree	produces large seedpods / fruits; resistant to oak root fungus; susceptible to root rot; moderate root damage potential
<i>Callistemon citrinus</i> Lemon Bottlebrush	low care - regular pruning needed less frequently with age; attracts birds and bees; susceptible to chlorosis; low root damage potential
<i>Callistemon viminalis and cultivars</i> Weeping Bottlebrush	best with moderate watering; does not tolerate strong winds; attracts birds and bees; susceptible to oak root rot & root rot; low root damage potential
<i>Calodendrum capense</i> Cape Chestnut	water in summer until established; self-seeding; low root damage potential
<i>Cassia excelsa / fistula</i> Crown of Gold Tree, Cassia Carnival	drops dried fruit pods; wildlife use fruit; susceptible to caterpillars, root rot, mildew and leaf spot; low root damage potential
<i>Cassia leptophylla</i> Gold Medallion Tree	prune to shape; tendency to weep; drops large seedpods; low root damage potential



STREET TREE PALETTE	NOTES
<i>Casuarina cunninghamiana</i> River She-Oak	little pruning required; attracts birds; susceptible to phytophthora and root rot; low root damage potential
<i>Cedrela fissilis</i> Argentine Cedar	moderate root damage potential
<i>Cedrus deodara and cultivars</i> Deodar Cedar	attracts squirrels; needs space for roots; needles can kill undergrowth; resistant to verticillium, susceptible to beetle borers, phytophthora, root rot and sooty mold; moderate root damage potential
<i>Cercidium floridum</i> Palo Verde	intolerant of regular watering; has thorns; attracts birds, bees and butterflies; low root damage potential
<i>Cercis canadensis and cultivars</i> Eastern Redbud	best w/some summer irrigation; attracts birds; susceptible to caterpillars and scale, anthracnose, crown rot, oak root rot, phytophthora, root rot and verticillium; low root damage potential
<i>Cercis occidentalis</i> Western Redbud	best to deep water while establishing; attracts birds and butterflies; resistant to oak root fungus; susceptible to caterpillars and scale, crown rot, phytophthora and root rot; low root damage potential
<i>Chionanthus retusus</i> Chinese Fringe Tree	best with consistent summer watering; attracts birds; needs to be trained as tree; low root damage potential
<i>Chitalpa x tashkentensis and cultivars</i> Chitalpa	best with regular, deep watering; wildlife use fruit; regular pruning/staking while establishing; susceptible to aphids, root rot and verticillium; low root damage potential
<i>Chorisia speciosa</i> Floss Silk Tree	plant in fast-draining soil; spines are a hazard to public; use in center median only; moderate root damage potential
<i>Cinnamomum camphora</i> Camphor Tree	attracts birds; susceptible to anthracnose, oak root rot, phytophthora, root rot and verticillium; high root damage potential
<i>Cryptocarya rubra</i> Cryptocarya	moderate root damage potential
<i>Cupaniopsis anacardioides</i> Carrot Wood	drops fruit but does not stain; resistant to oak root rot fungus; susceptible to root rot and verticillium; moderate root damage potential
<i>Eriobotrya deflexa</i> Bronze Loquat	attracts birds and bees; susceptible to fire blight; low root damage potential
<i>Eucalyptus citriodora</i> Lemon Gum	attracts birds and bees; resistant to Texas root rot, verticillium; susceptible to beetle borers and thrip; oak root rot, phytophthora and root rot; moderate root damage potential
<i>Eucalyptus delgupta</i> Rainbow Eucalyptus	resistant to Texas root rot and verticillium; susceptible to beetle borers, oak root rot and root rot; moderate root damage potential
<i>Eucalyptus ficifolia</i> Red-Flowering Gum	attracts birds and bees; resistant to Texas root rot and verticillium; susceptible to beetle borers and thrip, oak root rot, phytophthora and root rot; moderate root damage potential
<i>Eucalyptus leucoxydon</i> White Ironbark	attracts birds and bees; resistant to Texas root rot and verticillium; susceptible to beetle borers, oak root rot and root rot; moderate root damage potential
<i>Eucalyptus sideroxydon 'Rosea'</i> Pink Ironbark	attracts birds and bees; resistant to Texas root rot and verticillium; susceptible to beetle borers and thrip, chlorosis, oak root rot, phytophthora and root rot; high root damage potential

STREET TREE PALETTE	NOTES
<i>Eucalyptus torquata</i> Coral Gum	attracts birds; resistant to Texas root rot and verticillium; susceptible to beetle borers, oak root rot, rhytophthora and root rot; low root damage potential
<i>Firmiana simplex</i> Chinese Parasol Tree	suceptible to scale; moderate root damage potential
<i>Fraxinus oxycarpa 'Raywood'</i> Raywood Ash	resistant to oak root fungus; susceptible to beetle borers, scale, white fly, root rot, sooty mold and verticillium; moderate root damage potential
<i>Geijera parviflora</i> Australian Willow	attracts bees; resistant to oak root fungus; wildlife use fruit; low root damage potential
<i>Ginkgo biloba and cultivars</i> Maidenhair Tree	male grafted or male cutting stock only; attracts squirrels; resistant to oak root fungus; susceptible to anthracnose; moderate root damage potential
<i>Gleditsia triacanthos and cultivars</i> Honey Locust	attracts birds and bees; leaf litter can be an issue on pavement, use thornless cultivars only; resistant to verticillium; susceptible to caterpillars, insect galls, pod gall, midge, spider mites, mistletoe, phytophthora and root rot; moderate root damage potential
<i>Hymenosporum flavum</i> Sweetshade Tree	attracts birds and bees; requires good drainage; low root damage potential
<i>Jacaranda mimosifolia and cultivars</i> Jacaranda	needs little pruning once established; wildlife use fruit; resistant to oak root fungus, susceptible to aphids, phytophthora and root rot; thrives in heat; low root damage potential
<i>Koelreuteria bipinnata</i> Chinese Flame Tree	best with moderate watering; prune to develop high branching; susceptible to beetle borers and scale; low root damage potential
<i>Koelreuteria elegans</i> Taiwanese Rain tree	benefits from regular deep watering; susceptible to scale, root rot, canker and verticillium; branches droop and are susceptible to breakage; low root damage potential
<i>Koelreuteria paniculata</i> Goldenrain Tree	benefits from regular deep watering; susceptible to beetle borers, plant bug, scale, root rot and verticillium; low root damage potential
<i>Lagerstroemia indica and cultivars</i> Crape Myrtle	attracts birds and bees; resistant to Texas rot; susceptible to aphids, powdery mildew and sooty mold; low root damage potential
<i>Laurus nobilis</i> Sweet Bay	attracts birds; susceptible to psyllid, scale, phytophthora and root rot; moderate root damage potential
<i>Ligustrum confusum</i> Privet	attracts birds; susceptible to oak root rot, root rot, sooty mold and verticillium; low root damage potential
<i>Liquidambar styraciflua and cultivars</i> American Sweet Gum	needs little-no pruning when mature; wildlife use fruit; resists oak root fungus and verticillium; susceptible to aphids, caterpillars, scale, spider Mites, anthracnose, chlorosis and sooty mold; high root damage potential
<i>Liriodendron tulipifera</i> Tulip Tree	attracts birds; resistant to oak root fungus; susceptible to aphids, scale, anthracnose, chlorosis, fusarium, oak root rot, root rot, sooty mold and verticillium; does not bloom until 12-15 years old; moderate root damage potential
<i>Lophostemon confertus (Tristania conferta)</i> Brisbane Box	suceptible to scale, phytophthora and root rot; moderate root damage potential
<i>Magnolia grandiflora and cultivars</i> Southern Magnolia	attracts birds; resistant to oak root fungus; susceptible to aphids, scale, spider mites, root rot and verticillium; high root damage potential



STREET TREE PALETTE	NOTES
<i>Magnolia grandiflora</i> 'Little gem' Little Gem Dwarf Southern Magnolia	attracts birds; resistant to oak root fungus; susceptible to aphids, scale, spider mites, root rot and verticillium; low root damage potential
<i>Markhamia hildebrandtii</i> Nile Tulip Tree	low root damage potential
<i>Melaleuca linariifolia</i> Flaxleaf Paperbark	attracts birds; susceptible to chlorosis, phytophthora and root rot; low root damage potential
<i>Melaleuca quinquenervia</i> Cajeput Tree	attracts birds; susceptible to phytophthora and root rot; low root damage potential
<i>Melaleuca styphelioides</i> Prickly Paperbark	attracts birds; resistant to oak root fungus; susceptible to phytophthora and root rot; low root damage potential
<i>Metrosideros excelsa</i> NZ Christmas Tree	attracts birds; susceptible to phytophthora and root rot; moderate root damage potential
<i>Morus alba</i> 'Fruitless' Fruitless Mulberry	heavy surface roots; resistant to Texas root rot and verticillium; susceptible to beetle borers, spider mites, white fly, chlorosis, fusarium, mistletoe, oak root rot, phytophthora and root rot; high root damage potential
<i>Olea europea and cultivars</i> Olive	plant where fruit will not stain pavement, or specify fruitless variety; attracts birds; resistant to Texas root rot; susceptible to scale, anthracnose oak root rot; phytophthora; root rot, sooty mold and verticillium; low root damage potential
<i>Parkinsonia floridum</i> (see <i>Cercidium floridum</i>) Palo Verde	intolerant of regular watering; has thorns; value for birds, bees, hummingbirds, and butterflies; low root damage potential
<i>Parkinsonia/Cercidium</i> 'Desert Museum' Desert Museum Palo Verde	intolerant of regular watering; thornless variety; value for birds, bees, hummingbirds, and butterflies; low root damage potential
<i>Parkinsonia/Cercidium</i> species and cultivars Palo Verde	intolerant of regular watering; has thorns; value for birds, bees, hummingbirds, and butterflies; low root damage potential
<i>Pinus eldarica</i> Mondell Pine	attracts birds and squirrels; resistant to Texas root rot and verticillium; susceptible to aphids; moderate root damage potential
<i>Pinus torreyana</i> Torrey Pine	do not prune large branches; prefers well-draining soils; attracts birds and squirrels; resistant to oak root fungus, texas root rot and verticillium; susceptible to aphids, beetle borers, spider mites, and pitch canker; moderate root damage potential
<i>Pistacia chinensis</i> Chinese Pistache	attracts birds; resistant to oak root fungus; susceptible to root rot and verticillium; low root damage potential
<i>Pittosporum phillyraeoides</i> Willow Pittosporum	attracts birds; susceptible to aphids, scale and sooty mold; low root damage potential
<i>Pittosporum undulatum</i> Victorian Box	attracts birds; susceptible to aphids, scale and sooty mold; low root damage potential
<i>Platanus acerifolia</i> 'Columbia' London Plane Tree	attracts birds; resistant to verticillium; susceptible to scale, spider mites, anthracnose and powdery mildew; high root damage potential
<i>Platanus acerifolia</i> 'Yarwood' London Plane Tree	attracts birds; resistant to powdery mildew and verticillium; susceptible to scale, spider mites and anthracnose; high root damage potential

STREET TREE PALETTE	NOTES
<i>Platanus mexicana</i> Mexican Sycamore	attracts birds; resistant to Texas root rot and verticillium; susceptible to beetle borers, scale, spider mites, anthracnose and powdery mildew; moderate root damage potential
<i>Platanus racemosa</i> Western Sycamore	attracts birds; resistant to verticillium; susceptible to leaf miner, scale, spider mites, anthracnose, oak root rot, phytophthora, mistletoe, apignomonina venata and root rot; moderate root damage potential
<i>Platanus x acerifolia</i> and cultivars London Plane Tree	attracts birds; resistant to verticillium; susceptible to scale, spider mites, anthracnose and powdery mildew; high root damage potential
<i>Podocarpus gracilior</i> (<i>Afrocarpus gracilior</i>) African Fern Pine	Needs good drainage; low root damage potential
<i>Podocarpus henkelii</i> Long Leaf Yellowwood	needs regular watering; low root damage potential
<i>Podocarpus macrophyllus</i> and cultivars Yew Pine	susceptible to mites, scale and sooty mold; low root damage potential
<i>Pyrus calleryana</i> and cultivars Callery Pear	attracts birds; resistant to fire blight, oak root fungus and verticillium; susceptible to thrip, white fly, phytophthora, root rot and sooty mold; moderate root damage potential
<i>Pyrus kawakamii</i> Evergreen Pear	attracts birds; resistant to verticillium; susceptible to aphids, whitefly, fire blight and sooty mold; low root damage potential
<i>Quercus agrifolia</i> Coast Live Oak	drops leaves in spring; attracts birds and squirrels; resistant to verticillium; susceptible to goldspotted oak borer, beetle borers, aphids; beetle grubs; caterpillars, codling moths, insect galls, scale, whitefly, sudden oak death, crown rot, mistletoe, oak root rot, phytophthora, powdery mildew, root rot and sooty mold; high root damage potential
<i>Quercus chrysolepis</i> Canyon Live Oak	most adaptable of CA oaks to varying conditions; prefers well drained soil; attracts birds and squirrels; resistant to verticillium; susceptible to goldspotted oak borer, aphids, caterpillars, codling moths, insect galls, california oak moth, pacific oak teig girdler, white fly, sudden oak death, crown rot, mistletoe, oak root rot and root rot; moderate root damage potential
<i>Quercus coccinea</i> Scarlet Oak	attracts birds and squirrels; resistant to verticillium; susceptible to caterpillars and scale
<i>Quercus douglasii</i> Blue Oak	good in dry, hot situations; attracts birds and squirrels; resistant to verticillium; susceptible to caterpillars, insect galls, california oak moth, gall wasp, scale, crown rot, mistletoe, oak root rot, brown rot, powdery mildew, and root rot; moderate root damage potential
<i>Quercus engelmannii</i> Mesa Oak	best with occasional deep watering; attracts birds and squirrels; resistant to verticillium; susceptible to codling moths, insect galls, scale, crown rot, mistletoe and root rot; let soil dry between waterings; low root damage potential
<i>Quercus ilex</i> Holly Oak	best with regular watering; attracts birds and squirrels; resistant to oak root fungus and verticillium; susceptible to scale, spider mites, anthracnose and root rot; low root damage potential
<i>Quercus kelloggii</i> California Black Oak	prefers acidic soil, attracts birds, squirrels and butterflies; resistant to verticillium; susceptible to goldspotted oak borer, insect galls, carpenterworm, california oak moth, pacific oak teig girdler, oak pit scales, gall wasp, scale, sudden oak death, anthracnose, oak root rot, brown rot, annosus root disease, mistletoe, powdery mildew and root rot; moderate root damage potential
<i>Quercus lobata</i> Valley Oak	possibly the largest North American oak; debris may be a nuisance; susceptible to beetle borers, caterpillars, insect galls, scale, crown rot, mistletoe and root rot; attracts birds and squirrels; moderate root damage potential
<i>Quercus palustris</i> 'Village Green' Pin Oak	less tolerant of dry conditions than most oaks; resistant to verticillium; susceptible to scale; attracts birds and squirrels; low root damage potential
<i>Quercus rubra</i> Red Oak	needs regular moisture; attracts birds and squirrels; resistant to verticillium; susceptible to aphids, caterpillars; insect galls; anthracnose; phytophthora, root rot and rust; moderate root damage potential



STREET TREE PALETTE	NOTES
<i>Quercus suber</i> Cork Oak	best with deep, infrequent irrigation; resistant to verticillium; susceptible to beetle borers, phytophthora and root rot; attracts birds and squirrels; moderate root damage potential
<i>Quercus tomentella</i> Island Oak	needs deep soaking every 2-3 weeks; attracts birds and butterflies; moderate root damage potential
<i>Quercus virginiana</i> Southern Live Oak	Best w/regular watering; attracts birds and squirrels; resistant to verticillium; susceptible to insect galls, oak root rot, phytophthora and root rot; moderate root damage potential
<i>Quercus wislizenii</i> Interior Live Oak	prefers monthly watering, well drained soil; susceptible to caterpillars, codling moths; insect galls; white fly, crown rot, mistletoe; powdery mildew and root rot; attracts birds, squirrels and butterflies; moderate root damage potential
<i>Radermachera sinica</i> Serpent Tree	susceptible to aphids and spider mites; low root damage potential
<i>Rhus lancea</i> African Sumac	best with regular watering; susceptible to root rot and verticillium; fruit can be messy; attracts birds; low root damage potential
<i>Sapium sebiferum</i> Chinese Tallow Tree	tendency to sucker, easily trained to single trunk; resistant to oak root fungus; self-seeding; attracts birds; moderate root damage potential
<i>Sophora japonica</i> Japanese Pagoda Tree	flower/seed pod drop may stain paving; attracts bees; resistant to oak root fungus; susceptible to spider mites and canker; low root damage potential
<i>Spathodea campanulata</i> African Tuliptree	moderate root damage potential
<i>Stenocarpus sinuatus</i> Firewheel Tree	best with regular watering; prune to shape in early years; wildlife use fruit; dislikes being planted in close proximity to street lamps; low root damage potential
<i>Tabebuia chrysostricha</i> (<i>Handroanthus chrysostrichus</i>) Golden Trumpet Tree	best with regular watering; benefits from training in early years; moderate root damage potential
<i>Tabebuia impetiginosa</i> (<i>Tabebuia avellanedae</i>) (<i>Handroanthus impetiginosus</i>) Pink Trumpet Tree	does not bloom as young tree; best with regular watering; benefits from training in early years; low root damage potential
<i>Tipuana tipu</i> Tipu Tree	susceptible to premature leaf drop; psyllid and sooty mold; moderate root damage potential
<i>Tristania conferta</i> (<i>Lophostemon confertus</i>) Brisbane Box	susceptible to scale, phytophthora, and root rot; tolerates heat; moderate root damage potential
<i>Tristaniaopsis laurina</i> Watergum	susceptible to scale; low root damage potential
<i>Ulmus parvifolia</i> 'Drake' or 'Brea' Chinese Elm	careful pruning; resistant to oak root fungus; susceptible to aphids, beetle borers, beetle leaves, caterpillars, scale, dutch elm disease, oak root rot, phytophthora, root rot, sooty mold and verticillium; relatively few pests and diseases compared to other elms; moderate root damage potential
<i>Zelkova serrata</i> Japanese Zelkova	young trees may need to be trained/pruned; tolerates wind; susceptible to beetle leaves, spider mites; somewhat resistant to dutch elm disease; moderate root damage potential

6. Understory Planting Palette

The palette of shrubs and groundcovers included here was specifically chosen as appropriate for use in the public right-of-way with the trees recommended in the Street Tree Palette. Like the tree palette, they are primarily low-water-use species, and weighted toward the native end of the spectrum. The list is long to cover a wide variety of situations, from large open-space areas to more restrictive urban situations.

The plants are grouped by recommended planting area, just as with trees. Here, however, the categories are more general: parkways and small medians are restricted to the smallest shrubs and groundcovers, while large medians and slopes can handle the larger sized plants. **It is important that shrubs and groundcovers be selected for the ultimate size, form, and shape that they will achieve without consistent pruning.** For example, if a 3-foot-tall shrub is desired in a certain location, don't use *Abelia grandiflora*, which will reach 5 to 6 feet in height. You could, however, use *Abelia grandiflora* 'Sherwoodi', which grows to a height of 3 feet.

The palette is intended to serve as a tool to facilitate planting design, and should not be considered an all-inclusive listing of the only plant species and cultivars that are appropriate to plant in the public rights-of-way in Thousand Oaks. Other species and cultivars may be used if they meet the intent of the Planting Design Guidelines and Species Selection Criteria, and are approved by the Public Works Director or designee.

Using the Understory Planting Palette

The Understory Planting Palette should be used in conjunction with the Planting Design Guidelines and Species Selection Criteria to make selections for shrub, groundcover, and accent tree species. Photographs, sketches and additional horticultural, functional, or aesthetic descriptions found in supplementary materials (such as *Sunset Western Garden Book* or nursery websites), as well as current availability from nurseries, can also help in this decision making.

Following is a description of the information provided in the planting palette. The species are listed alphabetically by botanic name, and the most widely used common name is also included.

Type: The plants are categorized based on the general growth and appearance characteristics of the species. Refer to the plant type, size, and bloom information to select species according to the planting design guidelines and intended design concept.

- Accent Tree (Small)
- Shrubs
- Herbaceous
- Strap-leafed Plants
- Succulents
- Ornamental Grasses
- Vines

Planting Area Width: Plants should be selected for the ultimate size, form and shape that they will achieve without consistent pruning. The palette

identifies for each species the categories for the most appropriate planting area width.

Small Planting Areas: Spaces less than 4 feet wide.

Medium Planting Areas: Spaces that are 4 to 9 feet wide.

Large Planting Areas: Spaces that are 10 to 15 feet wide.

Very Large Planting Areas: Planting spaces that are greater than 10 feet wide.

Height: Typical industry standards for mature plant height. The actual height a plant will mature to could vary based on the conditions of the site.

Low: Under 2 feet tall

Medium: 2 to 4 feet tall

Tall: More than 4 feet tall

Spread: Horizontal width of the mature plant growth, based on industry standards. The actual width a plant will reach in maturity could vary based on the site conditions.

Narrow: Less than 4 feet wide

Average: 4 to 8 feet wide

Broad: More than 8 feet wide



Spacing: Spacing refers to the typical on-center distance plants should be placed from each other to achieve full coverage without overcrowding and increased maintenance, based on the plant's spread at maturity. A recommended distance is generally 25% greater than the individual plant's mature spread. For example, if a shrub's mature width is 24 inches, when planting, provide 30 inches between the centers of each plant.

Narrow plants: up to 5 feet apart

Average plants: 5 to 10 feet apart

Broad plants: at least 10 feet apart

Bloom: Indicates if the plant provides a showy display of blooms, and if so, the color and season of flowering.

Ecology:

Water: Provides the WUCOLS water use rating, or "plant factor" (PF), specific to Thousand Oaks, for each species; categories are "VL" very low, "L" low, "M" moderate, and "H" high.

Exposure: Indicates the species' sun and shade requirements for optimal growth.

CA Native: Indicates whether a species is a California native.

Habitat Value: Notes if the species offers special habitat value. Refer to the tree species' "notes" section for details.

Special Use Notes: This category identifies particular conditions in which the species may be particularly

well-suited to be planted. These include: bioswale plantings, parkways, slopes, and planting in fire-prone areas.

Tolerances: Horticultural conditions which a plant can tolerate, such as drought, alkaline soil, frost, and pests/diseases.

Notes: On the pages following the palette chart, additional details for the species, which may be helpful during the species selection process, are provided.

UNDERSTORY PLANTING PALETTE		TYPE					PLANTING AREA WIDTH				ECOLOGY					HEIGHT			SPREAD			SPECIAL USE		TOLERANCES			BLOOM									
		Accent Tree (Small)	Shrubs	Herbaceous	Strap-leaved Plants	Succulents	Ornamental Grasses	Vines	Small Planting Areas Less than 4' Wide	Medium Planting Areas 4-9' Wide	Large Planting Areas 10-15' Wide	Very Large Planting Areas Over 15' Wide	Water Needs (PF)	Sun	Partial Sun/Shade	Shade	CA NATIVE	Habitat Value	Low (<2')	Medium (2'-4')	Tall (5'+)	Narrow (<4')	Average (4'-8')	Broad (9'+)	MINIMUM SPACING	Stormwater BMP	Slopes	Fire Rating - Resistant	Drought / Little or No Water	Frost (below 25 degrees)	Alkaline Soil	Conspicuous Flowering	Color	Spring	Summer	Fall
<i>Abelia grandiflora</i>	Glossy Abelia	X							X	X	M	X	X						X		X				X					X	White, pink		X			
<i>Abelia grandiflora</i> 'Prostrata'	Prostrate White Abelia		X					X	X	X	M	X	X					X				X			X				X	White		X				
<i>Abutilon palmeri</i>	Indian Mallow		X					X	X	X	L	X	X	X	X	X		X	X			X					X			X	Gold		X	X		
<i>Acacia cultriformis</i>	Knife Acacia	X							X	X	L	X								X			X		X				X	Yellow		X				
<i>Acacia redolens</i>	Prostrate Acacia		X						X	X	VL	X						X	X			X			X				X	Yellow		X				
<i>Achillea millefolium</i> (CA Native cultivars)	Yarrow			X			X	X	X	X	L	X			X	X		X		X				X	X	X			X	White, pink		X	X			
<i>Achillea millefolium</i> (non-native hybrids)	Yarrow			X			X	X	X	X	M	X			X	X		X		X						X?	X		X	varies		X	X			
<i>Achillea</i> 'Moonshine'	Yellow Yarrow			X			X	X	X	X	-	X			X	X		X	X		X					X?	X		X	Yellow		X				
<i>Achnatherum</i> (<i>Stipa</i>) <i>hymenoides</i>	Indian Ricegrass					X	X	X	X	X	VL	X			X	X		X			X						X						X			
<i>Aeonium arboreum</i> 'Zwartkop'	Black Rose Aeonium				X		X	X	X	X	L		X					X		X							X		X	Yellow		X				
<i>Aeonium</i> 'Sunburst'	Copper Pinwheel				X		X	X	X	X	L		X					X			X								X	White		X			X	
<i>Aesculus californica</i>	California Buckeye	X						X	X	X	VL	X			X	X		X		X			X				X		X	Cream		X				
<i>Agapanthus africanus</i> / <i>A. orientalis</i>	Lily of the Nile			X			X	X	X	X	M		X					X		X				X					X	Blue		X				
<i>Agave americana</i> and cultivars	Century Plant				X		X	X	X	X	VL	X	X						X		X	X					X		X	Yellow		X	X			
<i>Agave attenuata</i>	Foxtail Agave				X		X	X	X	X	L	X	X	X				X	X		X						X		X	Yellow-green						
<i>Agave deserti</i>	Desert Century Plant				X		X	X	X	X	VL	X						X		X							X		X	yellow						
<i>Agave desmettiana</i> and cultivars	Smooth Agave				X		X	X	X	X	VL	X	X					X		X							X		X	yellow						
<i>Agave filifera</i>	Thread-Leaf Agave				X		X	X	X	X	VL	X	X					X		X							X		X	White			X	X		
<i>Agave geminiflora</i>	Twin-flowered Agave				X		X	X	X	X	L		X					X	X		X						X		X	Yellow						
<i>Agave ocahui</i>	Ocahui				X		X	X	X	X	VL	X						X		X							X		X	Yellow		X	X			
<i>Agave parryi</i> and var.	Artichoke Agave				X		X	X	X	X	L	X						X	X		X						X		X	Pale Yellow						
<i>Agave salmiana ferox</i>	Pulque Agave				X		X	X	X	X	L	X						X	X		X						X		X	Red, Yellow						
<i>Agave species</i> and cultivars					X																															
<i>Aloe brevifolia</i>	Short-leaved Aloe				X		X	X	X	X	L/VL	X						X		X							X		X	Orange-red				X	X	
<i>Aloe marlothii</i>	Mountain Aloe				X		X	X	X	X	L/VL	X							X		X							X		Orange-red				X	X	



UNDERSTORY PLANTING PALETTE		TYPE						PLANTING AREA WIDTH				ECOLOGY					HEIGHT			SPREAD			SPECIAL USE			TOLERANCES			BLOOM											
		Accent Tree (Small)	Shrubs	Herbaceous	Strap-leaved Plants	Succulents	Ornamental Grasses	Vines	Small Planting Areas Less than 4' Wide	Medium Planting Areas 4-9' Wide	Large Planting Areas 10-15' Wide	Very Large Planting Areas Over 15' Wide	Water Needs (PF)	Sun	Partial Sun/Shade	Shade	CA NATIVE	Habitat Value	Low (<2')	Medium (2'-4')	Tall (5+')	Narrow (<4')	Average (4-8')	Broad (9+')	MINIMUM SPACING	Stormwater BMP	Slopes	Fire Rating - Resistant	Drought / Little or No Water	Frost (below 25 degrees)	Alkaline Soil	Conspicuous Flowering	Color	Spring	Summer	Fall	Winter			
<i>Anigozanthus 'Harmony'</i>	Red-Yellow Kangaroo Paw			X				X	X	X	M	X				X		X	X		X						X				X	yellow w/red	X	X	X					
<i>Anigozanthus species</i>	Kangaroo Paw			X							M																			X										
<i>Aquilegia formosa</i>	Western Columbine		X				X	X	X	X	L	X	X	X	X	X		X		X										X	Red with yellow	X	X							
<i>Arbutus unedo</i>	Strawberry Tree	X							X	X	L	X	X						X			X							X	White, pink				X	X					
<i>Arbutus unedo 'Compacta'</i>	Compact Strawberry Tree	X						X	X	X	L	X	X						X		X	X							X	White, pink				X	X					
<i>Arctostaphylos densiflora 'Howard McMinn'</i>	Howard McMinn Manzanita		X					X	X	X	L	X	X		X	X		X	X		X								X	White, pink	X									
<i>Arctostaphylos edmundsii</i>	Edmunds Manzanita, Little Sur Manzanita		X					X	X	X	L	X	X		X	X	X	X		X	X								X	White	X									
<i>Arctostaphylos edmundsii 'Carmel Sur'</i>	Carmel Sur Manzanita		X					X	X	X	L	X	X		X	X	X				X								X	Pink	X									
<i>Arctostaphylos 'Emerald Carpet'</i>	Manzanita		X					X	X	X	M	X	X		X	X	X			X	X								X	White, pink	X									
<i>Arctostaphylos glauca</i>	Bigberry Manzanita	X							X	X	VL	X			X	X			X			X							X	White	X									
<i>Arctostaphylos hookeri</i>	Hooker Manzanita, Monterey Manzanita		X						X	X	L	X	X		X	X		X	X		X	X							X	White, pink	X									
<i>Arctostaphylos hookeri 'Monterey Carpet'</i>	Monterey Carpet Manzanita		X						X	X	L	X	X		X	X	X				X								X	White	X									
<i>Arctostaphylos 'John Dourley'</i>	John Dourley Manzanita		X						X	X	L	X	X					X			X								X	Pink	X									
<i>Arctostaphylos 'Lester Roundtree'</i>	Lester Roundtree Manzanita		X						X	X	L	X							X	X		X							X	Pink	X									
<i>Arctostaphylos manzanita 'Dr. Hurd'</i>	Manzanita	X							X	X	L	X			X	X			X			X							X	White										
<i>Arctostaphylos 'Pacific Mist'</i>	Pacific Mist Manzanita		X						X	X	L	X	X	X	X			X			X	X								X	White									
<i>Arctostaphylos 'Sunset'</i>	Sunset Manzanita		X						X	X	L	X			X	X		X	X		X									X	Pink	X								
<i>Arctostaphylos uva ursi 'Green Supreme'</i>	Green Supreme Manzanita		X						X	X	M	X			X	X	X				X	X								X	White	X	X							
<i>Arctostaphylos uva ursi 'Pt. Reyes'</i>	Point Reyes Manzanita		X						X	X	L	X			X	X	X				X									X	Pink	X								
<i>Aristida purpurea</i>	Purple Three-Awn					X	X	X	X	X	L	X			X	X		X		X									X	Purple	X	X								
<i>Artemisia californica 'Canyon Gray'</i>	Prostrate California Sagebrush		X					X	X	X	L	X			X	X	X				X	X																		
<i>Artemisia californica 'Montara'</i>	Montara California Sagebrush		X				X	X	X	X	L	X			X	X	X	X			X								X	Pale Yellow										
<i>Artemisia 'Powis Castle'</i>	Wormwood		X					X	X	X	M	X	X		X			X			X						X		X	yellow			X							
<i>Artemisia pycnocephala 'David's Choice'</i>	David's Choice Sandhill Sage		X					X	X	X	-	X			X	X	X				X								X	yellow			X							
<i>Asclepias fascicularis</i>	Narrow-leaf Milkweed		X				X	X	X	X	VL	X			X	X		X		X									X	Pink	X	X								

UNDERSTORY PLANTING PALETTE		TYPE					PLANTING AREA WIDTH				ECOLOGY					HEIGHT		SPREAD		SPECIAL USE	TOLERANCES			BLOOM												
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<i>Asclepias speciosa</i>	Showy Milkweed		X				X	X	X	X	VL	X			X	X		X		X										X	Pink		X	X		
<i>Baccharis pilularis</i> 'Pigeon Point'	Dwarf Coyote Brush		X						X	X	L	X			X	X		X							X											
<i>Baccharis pilularis</i> 'Twin Peaks'	Dwarf Coyote Brush		X					X	X	X	L	X			X	X	X					X	X		X											
<i>Baccharis pilularis</i> var. <i>pilularis</i>	Prostrate Coyote Brush		X						X	X	L	X			X	X		X	X						X					X	White				X	
<i>Baccharis salicifolia</i>	Mule Fat		X						X	X	H	X			X	X			X					X					X	White			X			
<i>Baccharis sarothroides</i>	Broom Baccharis		X					X	X	X	VL	X	X		X	X			X								X		X	yellow			X			
<i>Baileya multiradiata</i>	Desert Marigold			X			X	X	X	X	VL	X			X	X	X			X									X	Yellow			X			
<i>Berberis thunbergii</i>	Japanese Barberry		X					X	X	X	L	X						X	X						X				X	yellow		X				
<i>Bougainvillea species</i>	Bougainvillea		X				X	X	X	X	L	X						X	X										X	varies						
<i>Bouteloua gracilis</i>	Blue Grama					X	X	X	X	X	M	X			X	X	X			X				X		X			X	Wheat			X			
<i>Buddleja species</i>	Butterfly Bush		X								L-M	X	X			X		varies											X							
<i>Caesalpinia mexicana</i>	Mexican Bird of Paradise Bush	X							X	X	L	X	X						X			X	X						X	Yellow			X			
<i>Caesalpinia pulcherrima</i> and cultivars	Red Bird of Paradise Bush	X						X	X	X	L	X							X			X	X						X	Red, orange,			X	X		
<i>Calliandra californica</i>	Baja Fairy Duster		X					X	X	X	VL	X			X	X		X	X			X	X		X				X	Red						
<i>Calliandra eriophylla</i>	Pink Fairy Duster		X					X	X	X	VL				X	X	X	X				X	X		X				X	Pink						
<i>Calliandra peninsularis</i>	Red Fairy Duster		X								UNK	X	X		X			X	X										X	Red		X			X	
<i>Calycanthus occidentalis</i>	Spice Bush		X					X	X	X	M		X	X	X	X		X	X					X					X	Maroon		X				
<i>Calystegia macrostegia</i> 'Anacapa Pink'	Anacapa Pink Morning Glory						X	X	X	X	L	X	X		X	X					X				X	X			X	Pink-White		X	X			
<i>Carex pansa</i>	Dune Sedge					X	X	X	X	X	M				X	X	X					spreading		X												
<i>Carex praegracilis</i>	California Field Sedge					X	X	X	X	X	M				X	X		X						X												
<i>Carex testacea</i>	Orange Sedge					X	X	X	X	X	M	X	X				X					X														
<i>Carpenteria californica</i> and cultivars	Bush Anemone		X					X	X	X	L	X	X	X	X	X				X					X		X		X	White		X	X			
<i>Ceanothus</i> 'Concha'	Concha Ceanothus		X					X	X	X	L	X			X	X		X	X					X	X				X	Dark Blue		X				
<i>Ceanothus</i> 'Dark Star'	Dark Star Ceanothus		X					X	X	X	L	X			X	X		X	X					X					X	Dark Blue		X				
<i>Ceanothus</i> 'Frosty Blue'	Frosty Blue Lilac		X					X	X	X	L	X				X		X						X					X	Blue			X			



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<i>Ceanothus gloriosus</i> 'Anchor Bay'	Point Reyes Ceanothus	X						X	X	X	L	X			X	X		X			X				X					X	Dark Blue	X					
<i>Ceanothus griseus</i> 'Hurricane Point'	Carmel Creeper	X						X	X	X	L	X						X			X	X							X	Blue	X	X					
<i>Ceanothus griseus</i> var. <i>horizontalis</i>	Carmel Creeper	X						X	X	X	L	X			X			X			X								X	Blue	X	X					
<i>Ceanothus griseus</i> 'Yankee Point'	Carmel Creeper	X							X	X	L	X	X			X		X			X	X		X		X			X	Blue	X						
<i>Ceanothus</i> 'Joyce Coulter'	Joyce Coulter Ceanothus	X						X	X	X	L	X			X	X		X	X		X	X		X					X	Blue	X	X					
<i>Ceanothus leucodermis</i>	Chaparral Whitethorn Ceanothus	X							X	X	VL	X			X	X		X			X	X		X					X	White	X						
<i>Ceanothus</i> 'Ray Hartman'	Ray Hartman Ceanothus	X							X	X	L	X	X		X	X		X			X	X		X					X	Blue		X					
<i>Ceanothus ridigus</i> 'Snowball'	White Monterey Lilac	X							X	X	L	X	X					X			X	X		X					X	White	X						
<i>Ceanothus</i> 'Sierra Blue'	Sierra Blue Ceanothus	X							X	X	VL	X			X	X		X			X	X		X					X	Blue	X						
<i>Ceanothus thyrsoiflorus</i> 'Snow Flurry'	Snow Flurry Ceanothus	X							X	X	L	X			X	X		X			X	X		X					X	White	X						
<i>Ceanothus</i> 'Wheeler Canyon'	Wheeler Canyon Ceanothus	X						X	X	X	L	X	X	X	X			X	X		X								X	Dark Blue	X						
<i>Centaurea cineraria</i>	Dusty Miller		X					X	X	X	M	X	X					X			X			X					X	Purple, silver		X					
<i>Centaurea gymnocarpa</i>	Velvet Centaurea		X					X	X	X	M	X						X			X								X	Purple		X					
<i>Cercis occidentalis</i>	Western Redbud	X							X	X	L	X	X	X	X	X			X				X		X				X	Magenta	X	X					
<i>Cercocarpus betuloides</i>	Mountain Mahogany	X							X	X	VL	X	X		X	X		X			X	X		X					X	Yellow	X						
<i>Cercis canadensis</i>	Eastern Redbud	X							X	X	M					X		X			X																
<i>Chaenomeles cultivars</i>	Flowering Quince	X						X	X	X	M	X	X					X			X	X		X					X	Red		X					
<i>Chrysanthemum frutescens</i>	Marguerite		X				X	X	X	X	M	X						X			X			X					X	Pink, yellow, white							
<i>Cistus hybridus</i>	White Rockrose	X						X	X	X	L	X	X					X	X	X	X			X					X	White	X						
<i>Cistus salvifolius</i>	Sageleaf Rockrose	X						X	X	X	L	X						X			X			X					X	White	X	X					
<i>Cistus skanbergii</i>	Sageleaf Rockrose	X						X	X	X	L	X						X			X			X					X	Pink	X	X					
<i>Cistus</i> 'Victor Reiter'	Victor Reiter Rockroes	X						X	X	X	L	X						X	X	X	X								X	Pink	X						
<i>Cistus x pulverulentus</i> 'Sunset'	Magenta Rockrose	X						X	X	X	L	X						X			X	X							X	Pink, magenta	X						
<i>Cistus x purpureus</i>	Orchid Rockrose	X						X	X	X	L	X						X	X	X	X								X	Pink	X						
<i>Clytostoma callistegioides</i>	Lavender Trumpet Vine					X		X	X	X	M	X	X		X						X			X					X	violet	X	X					

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<i>Comarostaphylis diversifolia</i>	Summer Holly	X						X	X	X	VL	X							X		X				X					X	White		X					
<i>Cordia boissieri</i>	Texas Olive	X							X	X	L	X	X							X										X	White	X	X	X				
<i>Cordia parvifolia</i>	Little-leaf Cordia		X					X	X	X	L	X	X					X	X		X									X	White	X	X	X				
<i>Coreopsis auriculata 'Nana'</i>	Dwarf Coreopsis			X			X	X	X	X	L	X	X			X	X				X									X	Yellow	X						
<i>Coreopsis gigantea</i>	Giant Coreopsis			X				X	X	X	VL	X						X	X		X									X	Yellow	X						
<i>Coreopsis grandiflora</i>	Large Flower Tickseed			X			X	X	X	X	M	X				X	X				X								X	Yellow		X						
<i>Coreopsis species</i>				X			X	X	X	X	VL-N	X				X	X	X	X	X	X			X					X	Yellow	X				X			
<i>Cornus sericea (stolonifera)</i>	Creek Dogwood	X							X	X	H	X	X		X				X		X								X	White	X							
<i>Correa 'Carmine Bells'</i>	Australian Fuchsia		X					X	X	X	L	X	X	X	X	X	X	X			X	X			X	X			X	Pink, Red				X				
<i>Cosmos sulphureus</i>	Yellow Cosmos			X			X	X	X	X	-	X			X			X	X		X				X				X	yellow		X	X					
<i>Cotoneaster congestus 'Likiang'</i>	Pyrenees Cotoneaster		X				X	X	X	X	M	X						X	X		X				X				X	Pink		X						
<i>Cotoneaster dammeri 'Lowfast'</i>	Lowfast Bearberry Cotoneaster		X				X	X	X	X	L	X						X			X				X				X	White	X							
<i>Cotoneaster horizontalis</i>	Rockspray Cotoneaster		X				X	X	X	X	L	X	X						X			X			X				X	Pink, tan	X							
<i>Cotoneaster lacteus</i>	Red Clusterberry		X						X	X	L	X	X						X		X	X			X				X	White	X	X						
<i>Crocsmia crocosmiliflora</i>	Montbretia			X			X	X	X	X	L	X						X			X				X				X	orange		X						
<i>Dasylium wheeleri</i>	Desert Spoon			X			X	X	X	X	VL	X	X		X			X	X		X								X	Tan		X						
<i>Dendromecon harfordii</i>	Island Bush Poppy		X						X	X	VL	X	X		X				X		X	X			X					Yellow	X	X						
<i>Dendromecon rigida</i>	Bush Poppy		X				X	X	X	X	VL	X			X				X		X	X			X				X	Yellow	X							
<i>Deschampsia cespitosa</i>	Tufted Hair Grass					X	X	X	X	X	M		X		X	X		X			X				X													
<i>Dianella revoluta & cultivars</i>	Flax Lilly			X			X	X	X	X	L	X	X	X	X	X	X	X			X									X	Blue	X	X					
<i>Dianella tasmanica & cultivars</i>	Tasman Flax Lilly			X			X	X	X	X	M	X	X					X			X								X	Dark Blue	X							
<i>Dietes bicolor</i>	Fortnight Lily			X			X	X	X	X	L	X	X					X			X								X	Light Yellow	X	X						
<i>Dietes iridioides</i>	Fortnight Lily			X			X	X	X	X	L	X	X					X			X				X				X	White		X	X					
<i>Diplacus longiflorus</i>	Conejo Monkeyflower		X				X	X	X	X	L	X	X	X	X	X	X	X	X		X								X	Yellow	X	X						
<i>Diplacus/Mimulus aurantiacus</i>	Sticky Monkeyflower		X				X	X	X	X	VL	X	X		X			X			X					X			X	Orange	X	X						



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<i>Diplacus/Mimulus hybrids</i>	Sticky Monkeyflower	X						X	X	X	X	L	X	X	X	X		X	X						X	X					X	various	X	X		
<i>Distictis buccinatoria</i>	Blood Red Trumpet Vine					X		X	X	X		M	X	X	X			climbing			spreading					X					X	Orange-red	X	X		
<i>Dudleya brittonii</i>	Britton Dudleya				X		X	X	X	X		VL																								
<i>Dudleya candelabrum</i>	Candleholder Dudleya				X		X	X	X	X		VL																								
<i>Dudleya pulverulenta</i>	Chalk Dudleya				X		X	X	X	X		VL																								
<i>Dudleya virens subs. Hassei</i>	Catalina Island Dudleya				X		X	X	X	X		VL																								
<i>Dymondia margaretae</i>	Dymondia		X				X	X	X	X		L	X	X				X			X									X	Yellow		X			
<i>Echeveria 'Afterglow'</i>	Hens and Chicks				X		X	X	X	X		L	X	X				X			X								X	Red, orange		X				
<i>Echinocactus grusonii</i>	Golden Barrel Cactus				X		X	X	X	X		VL	X			X		X		X	X								X	Yellow	X	X				
<i>Echium candicans (fastuosum)</i>	Pride of Madeira	X					X	X	X	X		L	X		X			X	X		X			X					X	Blue-violet	X	X				
<i>Elaeagnus pungens</i>	Thorny Eleagnus	X							X			L	X	X	X	X			X			X			X				X	White			X			
<i>Encelia californica</i>	California Sunflower	X					X	X	X	X		VL	X		X	X		X	X	X	X			X					X	Yellow	X	X	X			
<i>Encelia farinosa</i>	Incienso	X					X	X	X	X		VL	X		X	X		X		X				X					X	Orange, Yellow	X					
<i>Epilobium/Zauschneria californicum</i>	California Fuchsia		X				X	X	X	X		VL	X	X	X			X		X				X	X	X			X	Red		X				
<i>Eriogonum arborescens</i>	Santa Cruz Island Buckwheat	X					X	X	X	X		VL	X	X	X	X		X	X	X	X			X					X	White, pink		X	X			
<i>Eriogonum cinereum</i>	Ashleaf Buckwheat	X					X	X	X	X		VL	X		X	X		X	X	X	X			X					X	White, pink		X				
<i>Eriogonum crocatum</i>	Sulphur Buckwheat	X					X	X	X	X		VL	X		X	X	X			X				X					X	Yellow		X				
<i>Eriogonum fasciculatum and cultivars</i>	California Buckwheat	X					X	X	X	X		VL	X		X	X		X		X				X					X	Pink		X				
<i>Eriogonum giganteum</i>	Saint Catherine's Lace	X					X	X	X	X		VL	X		X	X		X	X	X	X			X					X	Cream and pink		X	X			
<i>Eriogonum grande var. rubescens</i>	Red Buckwheat	X					X	X	X	X		VL	X		X	X	X			X				X					X	Pink		X				
<i>Eriogonum species</i>	Wild Buckwheat	X					X	X	X	X		VL-L												X					X							
<i>Escallonia dwarf forms</i>	Dwarf Escallonia	X					X	X	X	X		M	X	X				X		X				X					X	Pink		X				
<i>Escallonia 'Fradesii'</i>	Pink Princess Escallonia	X					X	X	X	X		M	X	X				X	X	X	X			X					X	Red		X				
<i>Eschscholzia californica</i>	California Poppy		X				X	X	X	X		VL	X		X	X	X			X				X					X	Orange	X					
<i>Euphorbia characias wulfenii</i>	Spurge		X				X	X	X	X		VL	X	X	X			X	X	X	X			X		X			X	yellow-green	X					X

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<i>Euphorbia milii</i> and cultivars	Crown of Thorns		X				X	X	X		L	X	X					X		X										X	Pink	X	X			
<i>Euryops pectinatus</i> 'Virdis'	Golden Shrub Daisy		X					X	X	X	M	X						X	X		X				X				X	Yellow	X	X	X			
<i>Fallugia paradoxa</i>	Apache Plume		X					X	X	X	VL	X			X	X		X	X		X			X					X	White, pink	X	X	X			
<i>Feijoa sellowiana</i>	Pineapple Guava	X						X	X	X	L	X	X						X		X			X				X	White, red	X	X					
<i>Festuca californica</i>	California Fescue					X	X	X	X	X	L	X	X	X	X	X		X		X				X				X	Pink		X					
<i>Festuca ovina glauca</i>	Blue Fescue					X	X	X	X	X	L	X	X				X			X				X				X	Tan		X					
<i>Fragaria chiloensis</i>	Beach Strawberry		X				X	X	X	X	M	X	X		X	X	X								X			X	White		X					
<i>Fremontodendron species</i>	Flannel Bush	X						X	X	VL	X				X	X			X				X					X	Yellow	X	X					
<i>Gaillardia grandiflora</i>	Blanket Flower		X				X	X	X	X	L	X				X	X			X				X				X	Red, yellow	X						
<i>Galvezia (Gambelia) speciosa</i>	Island Snapdragon		X					X	X	X	VL	X			X	X		X			X			X				X	Red	X	X					
<i>Galvezia juncea</i> and cultivars	Baja Bush Snapdragon		X					X	X	X	VL	X			X	X		X			X			X				X	Red	X	X					
<i>Garrya elliptica</i> and cultivars	Coast Silktassel		X					X	X		L	X			X	X			X									X	Yellow, gray					X		
<i>Gazania species and hybrids</i>			X				X	X	X	X	L	X					X			X				X				X	various	X	X	X				
<i>Gelsemium sempervirens</i>	Carolina Jessamine					X	X	X	X		M	X	X	X									X		X			X	Yellow	X						
<i>Grevillea "Canberra"</i>	Spider Flower		X					X	X		L	X				X		X	X					X				X	Red	X				X		
<i>Grevillea 'Noellii'</i>	California Grevillea		X					X	X	X	L	X	X			X		X			X			X				X	pink & white	X						
<i>Hazardia (Haplopappus) squarrosus</i>	Yellow Squirrel Cover		X				X	X	X	X	VL?				X	X	X			X				X				X	Yellow		X					
<i>Helianthus gracilentus</i>	Slender Sunflower		X					X	X	X	JNK	X	X		X	X		X	X	X	X			X		X		X	Yellow		X					
<i>Helichrysum italicum</i>	Curry Plant, Chamomile Sunray		X				X	X	X	X	L	X					X				X							X	Yellow		X					
<i>Helichrysum petiolatum (petiolare)</i>	Perennial Strawflower		X				X	X	X	X	M	X	X					X		X				X				X	Cream		X	X				
<i>Helictotrichon sempervirens</i>	Blue Oat Grass					X	X	X	X	X	M	X	X	X			X			X												X				
<i>Hemerocallis species</i>	Daylilies			X			X	X	X	X	M	X			X	X				X				X				X	various		X					
<i>Hesperaloe funifera</i>	Giant Hesperaloe				X		X	X	X	VL	X						X	X		X								X	Cream		X					
<i>Hesperaloe parviflora</i>	Red Yucca				X		X	X	X	VL	X				X		X		X	X	X							X	Salmon/coral		X	X	X			
<i>Heteromeles arbutifolia</i>	Toyon	X	X					X	X	VL	X				X	X		X		X				X	X			X	White		X					



UNDERSTORY PLANTING PALETTE		TYPE						PLANTING AREA WIDTH				ECOLOGY					HEIGHT			SPREAD			SPECIAL USE			TOLERANCES			BLOOM							
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<i>Heuchera maxima</i>	Island Alumroot		X					X	X	X	X	L	X		X	X		X		X										X	Pink	X				
<i>Heuchera species</i>	Alum Root, Coral Bells		X					X	X	X	X	L-M	X				X	X		X					X				X	various	X					
<i>Hypericum calycinum</i>	St. John's Wort		X					X	X	X	X	M	X				X			X					X				X	Yellow		X				
<i>Iris douglasiana and cultivars</i>	Douglas Iris			X				X	X	X	X	L	X	X		X	X		X		X				X				X	Purple	X					
<i>Isomeris (Peritoma) arborea</i>	Bladderpod	X						X	X	X	X	VL	X	X		X	X	X	X	X	X			X		X			X	Yellow		X				
<i>Iva hayesiana</i>	Haye's Iva, Poverty Weed	X						X	X	X	X	VL	X	X		X	X		X		X	X		X			X									
<i>Jasminum polyanthum</i>	Pink Jasmine					X		X	X	X	X	M	X	X							X	X			X				X	White, pink	X	X				
<i>Juncus effusus and cultivars</i>	Soft Rush					X		X	X	X	X	M	X	X		X	X		X		X			X	X											
<i>Juncus mexicanus</i>	Mexican Rush					X		X	X	X	X	M	X	X		X	X	X			spreading			X	X							X				
<i>Juncus patens</i>	Wire Grass					X		X	X	X	X	L	X	X	X	X	X	X		X				X				X	brown	X	X					
<i>Juniperus californica</i>	California Juniper	X						X	X		VL	X			X	X			X		X															
<i>Juniperus chinensis 'Mint Julep'</i>	Mint Julep Juniper	X						X	X	X	L	X						X	X		X				X		X									
<i>Juniperus chinensis 'Parsonii'</i>	Prostrate Juniper	X						X	X	X	L	X						X			X				X											
<i>Juniperus virginiana 'Silver Spreader'</i>	Silver Spreader Juniper	X						X	X	X	L	X						X			X				X											
<i>Justicia californica</i>	Chuparosa	X						X	X		VL	X			X	X			X		X								X	Red	X	X	X			
<i>Keckiella antirrhinoides</i>	Yellow Bush Snapdragon	X						X	X	X	X	L	X	X		X	X		X		X					X			X	Yellow	X	X				
<i>Keckiella cordifolia</i>	Heartleaf Penstemon	X						X	X	X	X	VL		X	X	X		X		X	X					X			X	Orange Red, orange,	X	X				
<i>Kniphofia uvaria</i>	Red Hot Poker		X					X	X	X	X	L	X					X		X					X			X								
<i>Lantana montevidensis</i>	Trailing Lantana		X					X	X		L	X			X	X				X	X				X			X	purple	X	X	X	X			
<i>Lavandula angustifolia</i>	English Lavender	X						X	X	X	L	X			X			X		X					X			X	Purple		X					
<i>Lavandula dentata</i>	French Lavender	X						X	X	X	X	L	X					X		X	X				X			X	Lavender		X					
<i>Lavandula 'Goodwin Creek Grey'</i>		X						X	X	X	X	L	X					X		X								X	Purple		X					
<i>Lavandula stoechas and cultivars</i>	Spanish Lavender	X						X	X	X	X	L	X					X		X								X	Purple		X					
<i>Lavatera (Malva) assurgentiflora</i>	Malva Rosa, Tree Mallow	X						X	X	X	L	X			X	X			X		X	X						X	Pink	X	X					
<i>Lavatera 'Purisima'</i>	Purisima Mallow	X						X	X		L	X	X		X	X			X		X	X						X	magenta-purple	X	X	X	X			

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<i>Leonotis leonurus</i>	Lion's Tail	X						X	X	X	L	X				X		X	X	X	X				X					X	Orange		X			
<i>Leptospermum laevigatum</i>	Australian Tea Tree	X							X	X	L	X	X						X						X				X	White		X	X			
<i>Leptospermum scoparium</i> cultivars	New Zealand Tea Tree		X					X	X	X	M	X	X						X		X	X			X				X	White, pink		X				
<i>Leucophyllum candidum and cultivars</i>	Texas Silverleaf, Silverleaf Ranger, Cenizo 'Thunder	X						X	X	X	L	X						X	X		X							X	Violet, Lavender		X	X	X	X		
<i>Leucophyllum frutescens and cultivars</i>	Texas Sage	X						X	X		L	X	X	X				X	X	X								X	Pink		X					
<i>Leymus (Elymus) cinereus</i>	Gray Wild Rye					X		X	X	X	L	X			X	X			X	X				X				X	Wheat		X					
<i>Leymus (Elymus) condensatus</i>	Giant Wild Rye					X		X	X	X	L	X			X	X			X	spreading				X	X			X	Wheat		X					
<i>Leymus condensatus 'Canyon Prince'</i>	Canyon Prince Wild Ryegrass					X		X	X	X	L	X			X	X		X		spreading				X	X			X	Wheat		X					
<i>Ligustrum japonicum 'Texanum'</i>	Waxleaf Privet	X						X	X	X	M					X																				
<i>Linum grandiflorum</i>	Flowering Flax, Scarlet Flax		X				X	X	X	X	L	X					X	X		X								X	Pink		X					
<i>Lobularia maritima</i>	Sweet Alyssum		X				X	X	X	X	-	X	X				X			X					X			X	White, Lavender,		X	X				
<i>Lonicera periclymenum</i>	Woodbine, Honeysuckle					X		X	X	X	JNK	X	X			X		climbing					X					X				X	X			
<i>Lotus scoparius</i>	Deerweed		X				X	X	X	X	VL	X			X	X		X		X						X		X	Yellow		X	X				
<i>Lupinus bicolor</i>	Pigmy Lupine		X				X	X	X	X	-		X		X	X	X			X								X	Purple & White		X					
<i>Lupinus excubitus</i>	Grape Soda Lupine		X				X	X	X	X	L				X	X	X	X		X				X				X	Lavender		X					
<i>Lupinus nanus</i>	Sky Lupine		X				X	X	X	X	-	X			X			X		X								X	Blue, White							
<i>Lupinus species</i>	Lupine		X				X	X	X	X	UN	X			X			X		X	X			X				X	Blue, Purple, White, Blue, Purple/Violet			X				
<i>Lupinus succulentus</i>	Yellow Trumpet Vine, Cat's Claw		X				X	X	X	X	-	X			X	X		X		X	X							X	Yellow		X					
<i>Macfadyena unguis-cati</i>	Compact Oregon Grape	X					X	X	X	X	M	X	X		X	X		X		X								X	Yellow		X					
<i>Mahonia (Berberis) aquifolium 'Compacta'</i>	Golden Abundance	X					X	X	X	X	L	X	X		X	X			X		X							X	Yellow		X					
<i>Mahonia (Berberis) fremontii</i>	Desert Barberry	X					X	X	X	X	-	X			X	X		X	X	X								X	Yellow		X					
<i>Mahonia (Berberis) nevinii</i>	Nevin's Barberry	X					X	X	X	X	VL	X	X		X	X			X		X							X	Yellow							
<i>Mahonia (Berberis) repens</i>	Creeping Barberry	X					X	X	X	X	L	X	X		X		X			X	X							X	Yellow		X				X	
<i>Mahonia pinnata</i>	California Holly Grape	X					X	X	X	X	L	X						X	X	X				X				X	Yellow		X					



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<i>Malacothamnus fasciculatus</i>	Chaparral Mallow, Bush Mallow		X					X	X	X	VL	X	X		X	X		X	X		X					X				X	Pink		X				X			
<i>Malosma laurina</i>	Laurel Sumac	X	X							X	VL	X			X	X			X			X				X														
<i>Melica californica</i>	California Melic						X	X	X	X	L	X	X		X	X		X		X	X				X		X				X	Silver Pink, Purple, Violet,		X						
<i>Mirabilis multiflora</i>	Four O'Clock			X				X	X	X	JNK	X			X	X		X	X		X	X								X				X						
<i>Miscanthus sinensis and cultivars</i>	Silvergrass, Eulalia Grass					X		X	X	X	M	X	X		X			X	X																					
<i>Monardella villosa</i>	Coyote Mint		X				X	X	X		VL	X	X		X	X		X		X										X	Light purple		X							
<i>Muhlenbergia capillaris</i>	Pink Muhly					X	X	X	X	X	M	X	X					X		X						X			X	Pink				X						
<i>Muhlenbergia dubia</i>	Mexican Muhly					X	X	X	X	X	L	X						X	X		X			X					X	Tan			X	X						
<i>Muhlenbergia rigens</i>	Deer Grass					X	X	X	X	X	L	X	X	X	X	X		X		X		X		X					X	Silver		X								
<i>Muhlenbergia 'White Cloud'</i>	White Awn Muhly					X	X	X	X		-	X						X		X	X					X	X		X	White				X	X					
<i>Myoporum parvifolium</i>	Myoporum		X				X	X	X		L	X	X	X			X					X							X	White										
<i>Myrtus communis (not 'Compacta')</i>	True Myrtle		X					X	X		L	X	X	X					X		X	X				X			X	White			X							
<i>Nandina domestica 'Nana'</i>	Dwarf Heavenly Bamboo		X				X	X	X	X	L	X	X	X			X	X		X		X				X														
<i>Nassella / Stipa cernua</i>	Nodding Needlegrass					X	X	X	X	X	VL				X	X		X		X						X														
<i>Nassella / Stipa lepida</i>	Foothill Needlegrass					X	X	X	X	X	VL				X	X		X		X						X														
<i>Nassella / Stipa pulchra</i>	Purple Needle Grass					X	X	X	X	X	VL	X	X		X	X		X	X		X					X			X	Seedhead		X								
<i>Nerium dwarf forms</i>	Dwarf Oleander		X				X	X	X		L	X	X					X		X	X					X			X	Pink		X	X	X						
<i>Nerium oleander and cultivars</i>	Oleander		X				X	X	X		L	X							X	X	X					X			X	Magenta		X	X	X						
<i>Oenothera bertlandieri (speciosa)</i>	Mexican Evening Primrose			X			X	X	X	X	L	X	X				X			X						X			X	Pale Pink to Pink		X	X	X						
<i>Oenothera californica</i>	Evening Primrose			X			X	X	X	X	VL	X			X	X			X	X									X	White-Pink		X	X							
<i>Opuntia basilaris</i>	Beavertail Cactus				X			X	X		VL	X	X		X	X		X		X									X	White-Pink Magenta, Rose- Orange, Red-		X	X							
<i>Opuntia ficus-indica</i>	Indian Fig				X			X	X		VL	X						X				X					X							X						
<i>Opuntia occidentalis</i>	Prickly Pear Cactus				X			X	X		VL				X																									
<i>Opuntia robusta</i>	Giant Prickly Pear				X			X	X		VL	X							X							X			X	Pale to bright yellow		X								
<i>Pachycereus marginatus</i>	Mexican Fence Post Cactus				X			X	X	X	VL	X						X	X		X	X				X			X	Red		X								X

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<i>Rhamnus crocea</i>	Redberry	X						X	X	X	VL	X	X		X	X		X	X	X	X			X						X	White, green	X									
<i>Rhaphiolepis dwarf forms</i>	Dwarf Indian Hawthorn	X						X	X	X	L							X		X	X			X					X	Pink	X										
<i>Rhaphiolepis indica</i>	India Hawthorn	X						X	X	X	L	X	X		X			X	X	X	X			X							White, pink	X									
<i>Rhaphiolepis umbellata</i>	Yeddo Hawthorn	X						X	X	X	L	X			X			X	X	X	X			X		X			X	White	X	X									
<i>Rhus integrifolia</i>	Lemonade Berry	X								X	VL	X	X	X	X	X			X			X			X				X	Pink	X										
<i>Rhus ovata</i>	Sugar Bush	X							X	X	VL	X	X	X	X	X			X		X	X			X				X	Pink	X										
<i>Ribes malvaceum</i>	Chaparral Currant	X						X	X	X	VL	X	X		X	X			X		X	X			X				X	Pink		X									
<i>Ribes sanguineum</i>	Flowering Currant	X						X	X	X	L	X	X		X	X			X		X				X				X	Pink, Red	X										
<i>Ribes speciosum</i>	Fuchsia-flowered Gooseberry	X						X	X	X	VL	X	X	X	X	X			X	X	X	X			X					Red	X						X				
<i>Ribes viburnifolium</i>	Evergreen Currant	X						X	X	X	VL	X	X	X	X		X	X		X	X			X					X	Pink	X						X				
<i>Romneya coulteri</i>	Matilja Poppy		X					X	X	X	VL	X			X			X	X	X	X			X					X	White	X	X									
<i>Rosa banksiae</i>	Lady Banks' Rose					X		X	X	X	M	X							X		X			X				X	Light yellow, White	X	X										
<i>Rosa 'Blaze'</i>	Climbing Rose					X		X	X		M	X	X	X					X			X						X	Medium Red	X	X	X									
<i>Rosa californica</i>	California Rose	X						X	X		L	X	X		X	X			X		spreading			X					X	White, pink	X	X									
<i>Rosa 'Cecile Brunner'</i>	Cecile Brunner Rose					X		X	X	X	M	X							X	X	X			X					X	Light pink	X	X	X								
<i>Rosa 'Flower Carpet'</i>	Carpet Rose	X						X	X	X	M																														
<i>Rosa nutkana var. nutkana</i>	Nootka Rose	X						X	X	X	-		X		X	X			X		X			X					X	Rose-pink	X	X									
<i>Rosa woodsii var. ultramontana</i>	Interior Rose	X						X	X	X	JNK	X	X		X	X			X	X	X			X					X	Pink	X	X									
<i>Rosmarinus officinalis</i>	Rosemary	X						X	X	X	VL	X			X			X	X	X	X								X	blue-white		X									
<i>Rosmarinus officinalis cultivars</i>	Trailing Rosemary	X						X	X	X	L	X			X	X	X		X	X	X			X					X	White, Purple,		X									
<i>Rosmarinus officinalis 'Lockwood de Forest'</i>	Prostrate Rosemary	X						X	X	X	L	X			X	X	X				X								X	Blue							X				
<i>Rosmarinus officinalis 'Prostratus'</i>	Creeping Rosemary	X						X	X	X	L	X			X				X		X								X	Blue								X			
<i>Rudbeckia hirta</i>	Gloriosa Daisy		X					X	X	X	M	X			X			X		X				X					X	yellow to orange			X	X							
<i>Ruellia brittoniana and cultivars</i>	Mexican Petunia		X					X	X	X	L	X	X				X	X		X									X	Blue	X	X									
<i>Ruellia peninsularis</i>	Desert Ruellia	X						X	X	X	VL	X	X					X		X									X	purple	X	X	X								

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<i>Ruscus aculeatus</i>	Butcher's Broom	X					X	X	X	X	L	X	X					X		X										X	white, green								
<i>Rusellia equisetiformis</i>	Firecracker Plant	X						X	X	X	M	X	X			X		X		X	X									X	Red	X	X						
<i>Salvia 'Allen Chickering'</i>	Allen Chickering Sage	X						X	X	X	VL	X			X	X		X	X	X	X			X	X				X	lilac	X	X							
<i>Salvia apiana</i>	White Sage	X						X	X	X	VL	X			X	X		X	X	X	X			X	X				X	White	X	X							
<i>Salvia 'Bee's Bliss'</i>	Bee's Bliss Sage	X						X	X	X	L	X			X	X	X				X			X	X				X	Blue	X	X							
<i>Salvia brandegei</i>	Santa Rosa Island Sage	X						X	X	X	VL	X				X		X	X	X	X			X	X				X	Blue	X								
<i>Salvia chamaedryoides</i>	Gerander Sage, Blue Sage	X					X	X	X	X	L	X	X			X	X	X	X		X	X					X		X	Blue	X	X	X						
<i>Salvia clevelandii and cultivars</i>	Cleveland Sage	X					X	X	X	X	VL	X			X	X		X		X				X	X				X	Lavender	X	X							
<i>Salvia 'Dara's Choice'</i>	Dara's Choice Sage	X						X	X	X	L	X	X		X	X	X	X	X	X	X			X	X				X	Lavender	X	X							
<i>Salvia leucantha and cultivars</i>	Mexican Sage		X					X	X	X	L	X						X		X	X			X	X				X	Purple	X	X	X	X					
<i>Salvia leucophylla</i>	Purple Sage	X						X	X	X	VL	X			X	X		X		X	X			X	X				X	Pink, Lavender	X	X							
<i>Salvia leucophylla 'Figueroa'</i>	Figueroa Sage	X						X	X	X	VL	X			X	X			X		X			X		X			X	Purple		X							
<i>Salvia leucophylla 'Point Sal Spreader'</i>	Point Sal Spreader Sage	X							X	X	VL	X			X	X		X			X	X			X	X			X	Pink, Purple	X								
<i>Salvia mellifera</i>	Black Sage	X						X	X	X	VL	X			X	X			X		X			X		X	X		X	White- Lavender	X	X							
<i>Salvia mellifera 'Terra Seca'</i>	Prostrate Black Sage	X						X	X	X	VL	X	X		X	X	X	X			X			X	X				X	White	X								
<i>Salvia somensis</i>	Creeping Sage		X					X	X	X	L	X	X		X	X	X				X	X			X	X			X	Purple	X	X							
<i>Salvia somensis 'Mrs. Beard'</i>	Mrs. Beard Sage		X					X	X	X	L	X	X		X	X	X	X			X	X			X	X	X		X	Blue	X								
<i>Salvia spathacea</i>	Hummingbird Sage		X					X	X	X	L		X		X	X	X				X	X			X	X			X	Pink creamy white	X	X							
<i>Sambucus mexicana</i>	Elderberry	X							X	X	L	X	X		X	X			X		X	X		X		X			X			X	X						
<i>Santolina chamaecyparissus</i>	Lavender Cotton		X					X	X	X	L	X						X	X		X								X	yellow Blue, Lavender,		X							
<i>Scabiosa species</i>	Pincushion Flower		X					X	X	X	M	X			X		X	X		X									X			X							
<i>Scilla peruviana</i>	Peruvian Scilla			X				X	X	X	L	X	X					X			X			X					X	Blue violet	X								
<i>Sedum pachyphyllum</i>	Jelly-bean				X			X	X	X	L	X						X			X					X	X		X	yellow		X							
<i>Sedum species</i>	Stonecrop				X			X	X	X	L							X																					
<i>Sedum x rubrotinctum</i>	Pork and Beans				X			X	X	X	L	X						X		X						X			X	Pale yellow	X								



UNDERSTORY PLANTING PALETTE		TYPE					PLANTING AREA WIDTH				ECOLOGY					HEIGHT			SPREAD			SPECIAL USE			TOLERANCES			BLOOM											
		Accent Tree (Small)	Shrubs	Herbaceous	Strap-leaved Plants	Succulents	Ornamental Grasses	Vines	Small Planting Areas Less than 4' Wide	Medium Planting Areas 4-9' Wide	Large Planting Areas 10-15' Wide	Very Large Planting Areas Over 15' Wide	Water Needs (PF)	Sun	Partial Sun/Shade	Shade	CA NATIVE	Habitat Value	Low (<2')	Medium (2'-4')	Tall (5'+)	Narrow (<4')	Average (4'-8')	Broad (9'+)	MINIMUM SPACING	Stormwater BMP	Slopes	Fire Rating - Resistant	Drought / Little or No Water	Frost (below 25 degrees)	Alkaline Soil	Conspicuous Flowering	Color	Spring	Summer	Fall	Winter		
<i>Senecio cineraria</i>	Dusty Miller				X		X	X	X	X	L	X	X					X		X										X	cream to yellow								
<i>Senecio greyi</i> (Brachyglottis 'Sunshine')					X			X	X	X	M	X						X	X		X							X		X	Flower		X						
<i>Senecio mandraliscae</i>	Blue finger				X		X	X	X	X	L	X						X	X		X									X	White			X					
<i>Senecio serpens</i>	Blue chalksticks				X		X	X	X	X	L	X						X			X									X	White			X					
<i>Senecio species</i>					X		X	X	X	X	V/L-N	X	X					X	X		X																		
<i>Senecio viravira</i>	Dusty Miller				X		X	X	X	X	L	X						X			X									X	White - cream								
<i>Senna phyllodinea</i>	Silvery Cassia	X						X	X	X	L	X	X					X			X	X								X	Yellow		X	X					
<i>Sesleria autumnalis</i>	Autumn Moor Grass					X	X	X	X	X	M	X	X	X				X			X													X					
<i>Sesleria caerulea</i>	Blue Moor Grass				X		X	X	X	X	M	X	X	X				X			X						X							X					
<i>Sisyrinchium bellum</i>	Blue-eyed Grass		X				X	X	X	X	L	X	X		X	X		X			X									X	Purple		X				X		
<i>Sphaeralcea ambigua</i> and cultivars	Apricot Mallow		X					X	X	X	L	X	X		X	X		X			X	X			X				X	Pink, orange, Red			X						
<i>Sporobolus airoides</i>	Alkali Sacaton					X	X	X	X	X	L	X			X	X		X	X		X							X		X	purplish			X					
<i>Stachys byzantina</i>	Lamb's Ears		X					X	X	X	M	X	X	X				X			X	X								X	Magenta			X					
<i>Symphoricarpos albus</i> var. <i>laevigatus</i> 'Tilden Park'	Tilden Park Snowberry	X						X	X	X	L			X	X			X	X		X	X								X	Pink			X					
<i>Symphoricarpos mollis</i>	Creeping Snowberry	X						X	X	X	L			X	X	X		X			spreading			X						X	Pink		X						
<i>Tecoma stans</i> and cultivars	Yellow Bells	X						X	X		L	X							X		X	X							X	Yellow		X	X	X					
<i>Tecoma x 'Orange Jubilee'</i>	Orange Trumpet Bush	X						X	X		L	X			X				X		X						X		X	Orange orange-yellow		X	X	X					
<i>Tecoma x 'Sunrise'</i>	Sunrise Esperanza	X						X	X		L	X	X		X				X		X								X	Yellow		X	X	X					
<i>Teucrium chamaedrys</i> (x <i>lucidrys</i>)	Germander		X				X		X	X	L	X			X	X				X					X				X	Magenta			X						
<i>Teucrium fruticans</i>	Bush Germander		X					X	X	X	L				X			X	X	X	X	X																	
<i>Teucrium fruticans</i> 'Compactum'			X					X	X	X	L	X	X		X			X			X								X	Bright blue		X	X	X					
<i>Thalictrum fendleri</i>	Mountain Meadow Rue		X				X	X	X	X	M		X	X	X	X		X	X	X	X				X		X		X	Yellow		X							
<i>Thalictrum polycarpum</i>	Meadow Rue		X					X	X	X	M		X	X	X			X	X	X	X								X	Yellow		X							
<i>Trachelospermum jasminoides asiaticum</i>	Jasmine					X		X	X	X	M	X	X					X	X	X	X			X					X	creamy white			X						
<i>Trichostema lanatum</i>	Wooly Blue Curls	X						X	X	X	VL	X			X	X		X	X		X				X				X	Blue		X	X	X					

UNDERSTORY PLANTING PALETTE		TYPE					PLANTING AREA WIDTH				ECOLOGY					HEIGHT			SPREAD			SPECIAL USE		TOLERANCES			BLOOM											
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<i>Tulbaghia violacea</i>	Society Garlic			X			X	X	X	X	L																											
<i>Verbena lilacina</i>	Lilac Verbena		X					X	X	X	L	X	X		X	X		X			X	X					X			X	Light purple		X	X	X			
<i>Verbena rigida</i>	Sandpaper verbena			X				X	X	X	L	X					X				X	X							X	Lilac-blue			X					
<i>Viburnum suspensum</i>	Sandankwa Viburnum		X						X	X	M	X	X						X			X	X		X				X	White; light pink.			X					
<i>Viburnum tinus</i>	Laurustinus		X						X	X	M	X	X						X			X	X		X				X	Pinkish White		X			X			
<i>Vinca minor</i>	Dwarf Periwinkle			X			X	X	X	X	M	X	X	X			X				spreading				X				X	Blue-lavender		X	X	X				
<i>Vitis californica 'Roger's Red'</i>	Roger's Red California Grape					X			X	X	L		X		X	X	climbing						X		X				X	Greenish-White		X						
<i>Vitis vinifera</i>	Grape					X			X	X	M	X						X	X			X	X		X				X	Greenish			X					
<i>Westringia rosmariniformis</i>	Rosemary Bush Westringia		X					X	X	X	L	X						X	X			X	X		X				X	White		X						
<i>Woodwardia fimbriata</i>	Giant Chain Fern			X				X	X	X	M		X	X	X					X	X	X																
<i>Xylosma congestum</i>	Shiny Xylosma		X						X	X	L	X	X	X					X			X	X		X				X	yellow-green				X				
<i>Yucca (Hesperoyucca) whipplei</i>	Our Lord's Candle			X				X	X	X	VL	X			X	X		X			X	X		X		X			X	pale yellow		X	X					
<i>Yucca baccata</i>	Banana Yucca			X					X	X	VL	X			X	X		X				X				X			X	White			X					
<i>Zantedeschia aethiopica</i>	Calla Lilly			X			X	X	X	X	M	X	X					X			X				X				X	White			X					



UNDERSTORY PLANTING PALETTE		NOTES
<i>Abelia grandiflora</i> Glossy Abelia	Glossy Abelia	
<i>Abelia grandiflora</i> 'Prostrata' Prostrate White Abelia	Prostrate White Abelia	
<i>Abutilon palmeri</i>	Indian Mallow	Attracts hummingbirds and butterflies
<i>Acacia cultriformis</i>	Knife Acacia	
<i>Acacia redolens</i>	Prostrate Acacia	
<i>Achillea millefolium</i> (CA Native cultivars)	Yarrow	Attracts songbirds and butterflies
<i>Achillea millefolium</i> (non-native hybrids)	Yarrow	Attracts songbirds and butterflies
<i>Achillea</i> 'Moonshine'	Yellow Yarrow	Attracts butterflies
<i>Achnatherum (Stipa) hymenoides</i>	Indian Ricegrass	Attracts songbirds
<i>Aeonium arboreum</i> 'Zwartkop'	Black Rose Aeonium	
<i>Aeonium</i> 'Sunburst'	Copper Pinwheel	
<i>Aesculus californica</i>	California Buckeye	Attracts hummingbirds, songbirds, and butterflies
<i>Agapanthus africanus</i> / <i>A. orientalis</i>	Lily of the Nile	
<i>Agave americana</i> and cultivars	Century Plant	
<i>Agave attenuata</i>	Foxtail Agave	
<i>Agave deserti</i>	Desert Century Plant	
<i>Agave desmettiana</i> and cultivars	Smooth Agave	
<i>Agave filifera</i>	Thread-Leaf Agave	
<i>Agave geminiflora</i>	Twin-flowered Agave	
<i>Agave ocahui</i>	Ocahui	
<i>Agave parryi</i> and var.	Artichoke Agave	
<i>Agave salmiana ferox</i>	Pulque Agave	
<i>Agave species</i> and cultivars		
<i>Aloe brevifolia</i>	Short-leaved Aloe	
<i>Aloe marlothii</i>	Mountain Aloe	
<i>Anigozanthus</i> 'Harmony'	Red-Yellow Kangaroo Paw	Prolong flowering w/summer water Performs best in sandy soil; attracts hummingbirds
<i>Anigozanthus species</i>	Kangaroo Paw	
<i>Aquilegia formosa</i>	Western Columbine	Attracts hummingbirds and butterflies
<i>Arbutus unedo</i>	Strawberry Tree	
<i>Arbutus unedo</i> 'Compacta'	Compact Strawberry Tree	
<i>Arctostaphylos densiflora</i> 'Howard McMinn'	Howard McMinn Manzanita	Attracts hummingbirds, songbirds, and butterflies

UNDERSTORY PLANTING PALETTE		NOTES
<i>Arctostaphylos edmundsii</i>	Edmunds Manzanita, Little Sur Manzanita	Attracts hummingbirds and butterflies
<i>Arctostaphylos edmundsii</i> 'Carmel Sur'	Carmel Sur Manzanita	Attracts hummingbirds, songbirds, and butterflies
<i>Arctostaphylos</i> 'Emerald Carpet'	Manzanita	Valued for dense, deep green foliage & rapid growth; attracts hummingbirds, songbirds, and butterflies
<i>Arctostaphylos glauca</i>	Bigberry Manzanita	Attracts hummingbirds, songbirds, and butterflies
<i>Arctostaphylos hookeri</i>	Hooker Manzanita,	Attracts hummingbirds, songbirds, and butterflies
<i>Arctostaphylos hookeri</i> 'Monterey Carpet'	Monterey Manzanita	Attracts hummingbirds, songbirds, and butterflies
<i>Arctostaphylos</i> 'John Dourley'	John Dourley Manzanita	
<i>Arctostaphylos</i> 'Lester Roundtree'	Lester Roundtree Manzanita	
<i>Arctostaphylos manzanita</i> 'Dr. Hurd'	Manzanita	Attracts hummingbirds, songbirds, and butterflies
<i>Arctostaphylos</i> 'Pacific Mist'	Pacific Mist Manzanita	
<i>Arctostaphylos</i> 'Sunset'	Sunset Manzanita	Attracts hummingbirds, songbirds, and butterflies
<i>Arctostaphylos uva ursi</i> 'Green Supreme'	Green Supreme Manzanita	Attracts hummingbirds, songbirds, and butterflies
<i>Arctostaphylos uva ursi</i> 'Pt. Reyes'	Point Reyes Manzanita	Attracts hummingbirds, songbirds, and butterflies
<i>Aristida purpurea</i>	Purple Three-Awn	Attracts songbirds
<i>Artemisia californica</i> 'Canyon Gray'	Prostrate California Sagebrush	Attracts songbirds and butterflies
<i>Artemisia californica</i> 'Montara'	Montara California Sagebrush	Attracts songbirds and butterflies
<i>Artemisia</i> 'Powis Castle'	Wormwood	
<i>Artemisia pycnocephala</i> 'David's Choice'	David's Choice Sandhill Sage	Becomes "unkempt" after ~2 yrs, recommended to replace; attracts songbirds and butterflies
<i>Asclepias fascicularis</i>	Narrow-leaf Milkweed	Attracts butterflies
<i>Asclepias speciosa</i>	Showy Milkweed	Attracts butterflies
<i>Baccharis pilularis</i> 'Pigeon Point'	Dwarf Coyote Brush	Attracts songbirds and butterflies
<i>Baccharis pilularis</i> 'Twin Peaks'	Dwarf Coyote Brush	Attracts songbirds and butterflies
<i>Baccharis pilularis</i> var. <i>pilularis</i>	Prostrate Coyote Brush	Attracts songbirds and butterflies
<i>Baccharis salicifolia</i>	Mule Fat	Use at perimeter of swale; attracts songbirds and butterflies
<i>Baccharis sarothroides</i>	Broom Baccharis	Seeds and looks unfavorable in Fall; attracts songbirds and butterflies
<i>Baileya multiradiata</i>	Desert Marigold	Attracts butterflies
<i>Berberis thunbergii</i>	Japanese Barberry	Deciduous
<i>Bougainvillea species</i>	Bougainvillea	
<i>Bouteloua gracilis</i>	Blue Grama	Attracts songbirds and butterflies
<i>Buddleja species</i>	Butterfly Bush	Attracts butterflies
<i>Caesalpinia mexicana</i>	Mexican Bird of Paradise Bush	Pods/seeds are poisonous

UNDERSTORY PLANTING PALETTE		NOTES
<i>Caesalpinia pulcherrima</i> and cultivars	Red Bird of Paradise Bush	Deciduous, may be evergreen in mild winters
<i>Calliandra californica</i>	Baja Fairy Duster	Attracts hummingbirds, songbirds, and butterflies
<i>Calliandra eriophylla</i>	Pink Fairy Duster	Attracts hummingbirds, songbirds, and butterflies
<i>Calliandra peninsularis</i>	Red Fairy Duster	Semi-deciduous
<i>Calycanthus occidentalis</i>	Spice Bush	Deciduous; attracts songbirds and butterflies
<i>Calystegia macrostegia</i> 'Anacapa Pink'	Anacapa Pink Morning Glory	Trim back in winter to increase spring lushness Drought deciduous; attracts hummingbirds, songbirds, and butterflies
<i>Carex pansa</i>	Dune Sedge	Evergreen Lawn alternative
<i>Carex praegracilis</i>	California Field Sedge	Highly adaptable; attracts songbirds
<i>Carex testacea</i>	Orange Sedge	Low maintenance
<i>Carpenteria californica</i> and cultivars	Bush Anemone	Attracts butterflies
<i>Ceanothus 'Concha'</i>	Concha Ceanothus	Attracts hummingbirds, songbirds, and butterflies
<i>Ceanothus 'Dark Star'</i>	Dark Star Ceanothus	Attracts hummingbirds, songbirds, and butterflies
<i>Ceanothus 'Frosty Blue'</i>	Frosty Blue Lilac	Attracts hummingbirds, songbirds, and butterflies
<i>Ceanothus gloriosus</i> 'Anchor Bay'	Point Reyes Ceanothus	Attracts hummingbirds, songbirds, and butterflies
<i>Ceanothus griseus</i> 'Hurricane Point'	Carmel Creeper	
<i>Ceanothus griseus</i> var. <i>horizontalis</i>	Carmel Creeper	
<i>Ceanothus griseus</i> 'Yankee Point'	Carmel Creeper	Spreads quickly; attracts deer which feed on it (hinders growth)
<i>Ceanothus 'Joyce Coulter'</i>	Joyce Coulter Ceanothus	Attracts hummingbirds, songbirds, and butterflies
<i>Ceanothus leucodermis</i>	Chaparral Whitethorn Ceanothus	Attracts hummingbirds, songbirds, and butterflies
<i>Ceanothus 'Ray Hartman'</i>	Ray Hartman Ceanothus	Attracts hummingbirds, songbirds, and butterflies
<i>Ceanothus rigidus</i> 'Snowball'	White Monterey Lilac	Tolerates deer better than other Ceanothus varieties
<i>Ceanothus 'Sierra Blue'</i>	Sierra Blue Ceanothus	Attracts hummingbirds, songbirds, and butterflies
<i>Ceanothus thyrsiflorus</i> 'Snow Flurry'	Snow Flurry Ceanothus	Attracts hummingbirds, songbirds, and butterflies
<i>Ceanothus 'Wheeler Canyon'</i>	Wheeler Canyon Ceanothus	
<i>Centaurea cineraria</i>	Dusty Miller	
<i>Centaurea gymnocarpa</i>	Velvet Centaura	
<i>Cercis occidentalis</i>	Western Redbud	Attracts hummingbirds, songbirds, and butterflies
<i>Cercocarpus betuloides</i>	Mountain Mahogany	Attracts songbirds and butterflies
<i>Cercis canadensis</i>	Eastern Redbud	Attracts butterflies
<i>Chaenomeles cultivars</i>	Flowering Quince	
<i>Chrysanthemum frutescens</i>	Marguerite	

UNDERSTORY PLANTING PALETTE		NOTES
<i>Cistus hybridus</i>	White Rockrose	
<i>Cistus salvifolius</i>	Sageleaf Rockrose	
<i>Cistus skanbergii</i>	Sageleaf Rockrose	
<i>Cistus 'Victor Reiter'</i>	Victor Reiter Rockroses	
<i>Cistus x pulverulentus</i> 'Sunset'	Magenta Rockrose	
<i>Cistus x purpureus</i>	Orchid Rockrose	
<i>Clytostoma callistegioides</i>	Lavender Trumpet Vine	Attracts pollinators including bees, hummingbirds, butterflies
<i>Comarostaphylis diversifolia</i>	Summer Holly	
<i>Cordia boissieri</i>	Texas Olive	
<i>Cordia parvifolia</i>	Little-leaf Cordia	
<i>Coreopsis auriculata</i> 'Nana'	Dwarf Coreopsis	Attracts butterflies
<i>Coreopsis gigantea</i>	Giant Coreopsis	
<i>Coreopsis grandiflora</i>	Large Flower Tickseed	Attracts butterflies
<i>Coreopsis species</i>		Attracts butterflies
<i>Cornus sericea</i> (stolonifera)	Creek Dogwood	
<i>Correa 'Carmine Bells'</i>	Australian Fuchsia	Attracts birds and butterflies
<i>Cosmos sulphureus</i>	Yellow Cosmos	Attracts butterflies
<i>Cotoneaster congestus</i> 'Likiang'	Pyrenees Cotoneaster	
<i>Cotoneaster dammeri</i> 'Lowfast'	Lowfast Bearberry Cotoneaster	
<i>Cotoneaster horizontalis</i>	Rockspray Cotoneaster	Deciduous
<i>Cotoneaster lacteus</i>	Red Clusterberry	
<i>Crococsmia crocosmiliflora</i>	Montbretia	
<i>Dasylyrion wheeleri</i>	Desert Spoon	Attracts bees, butterflies, and other insects when flowering
<i>Dendromecon harfordii</i>	Island Bush Poppy	
<i>Dendromecon rigida</i>	Bush Poppy	
<i>Deschampsia cespitosa</i>	Tufted Hair Grass	Prefers moist, rich soils Attracts songbirds and butterflies
<i>Dianella revoluta</i> & cultivars	Flax Lilly	
<i>Dianella tasmanica</i> & cultivars	Tasman Flax Lilly	
<i>Diets bicolor</i>	Fortnight Lily	
<i>Diets iridioides</i>	Fortnight Lily	
<i>Diplacus longiflorus</i>	Conejo Monkeyflower	Native to Thousand Oaks Synonym: <i>M. aurantiacus</i> var. <i>aridus</i> ; Attracts hummingbirds



UNDERSTORY PLANTING PALETTE		NOTES
<i>Diplacus/Mimulus aurantiacus</i>	Sticky Monkeyflower	
<i>Diplacus/Mimulus hybrids</i>	Sticky Monkeyflower	
<i>Distictis buccinatoria</i>	Blood Red Trumpet Vine	
<i>Dudleya brittonii</i>	Britton Dudleya	
<i>Dudleya candelabrum</i>	Candleholder Dudleya	
<i>Dudleya pulverulenta</i>	Chalk Dudleya	
<i>Dudleya virens subs. Hassei</i>	Catalina Island Dudleya	
<i>Dymondia margaretae</i>	Dymondia	
<i>Echeveria 'Afterglow'</i>	Hens and Chicks	
<i>Echinocactus grusonii</i>	Golden Barrel Cactus	Attracts honeybees
<i>Echium candicans (fastuosum)</i>	Pride of Madeira	
<i>Elaeagnus pungens</i>	Thorny Eleagnus	Attracts birds
<i>Encelia californica</i>	California Sunflower	Attracts songbirds and butterflies
<i>Encelia farinosa</i>	Incienso	Attracts songbirds and butterflies
<i>Epilobium/Zauschneria californicum</i>	California Fuchsia	
<i>Eriogonum arborescens</i>	Santa Cruz Island Buckwheat	Attracts songbirds and butterflies
<i>Eriogonum cinereum</i>	Ashleaf Buckwheat	Attracts songbirds and butterflies
<i>Eriogonum crocatum</i>	Sulphur Buckwheat	Attracts songbirds and butterflies
<i>Eriogonum fasciculatum and cultivars</i>	California Buckwheat	Attracts songbirds and butterflies
<i>Eriogonum giganteum</i>	Saint Catherine's Lace	Attracts songbirds and butterflies
<i>Eriogonum grande var. rubescens</i>	Red Buckwheat	Attracts songbirds and butterflies
<i>Eriogonum species</i>	Wild Buckwheat	
<i>Escallonia dwarf forms</i>	Dwarf Escallonia	
<i>Escallonia 'Fradesii'</i>	Pink Princess Escallonia	
<i>Eschscholzia californica</i>	California Poppy	Attracts butterflies
<i>Euphorbia characias wulfenii</i>	Spurge	
<i>Euphorbia milii and cultivars</i>	Crown of Thorns	
<i>Euryops pectinatus 'Virdis'</i>	Golden Shrub Daisy	
<i>Fallugia paradoxa</i>	Apache Plume	Attracts songbirds and butterflies
<i>Feijoa sellowiana</i>	Pineapple Guava	
<i>Festuca californica</i>	California Fescue	Attracts songbirds and butterflies

UNDERSTORY PLANTING PALETTE		NOTES
<i>Festuca ovina glauca</i>	Blue Fescue	
<i>Fragaria chiloensis</i>	Beach Strawberry	Attracts songbirds and butterflies
<i>Fremontodendron species</i>	Flannel Bush	Attracts songbirds and butterflies
<i>Gaillardia grandiflora</i>	Blanket Flower	Attracts birds and butterflies
<i>Galvezia (Gambelia) speciosa</i>	Island Snapdragon	Attracts hummingbirds, songbirds, and butterflies
<i>Galvezia juncea and cultivars</i>	Baja Bush Snapdragon	Winter hardy to 25-30F; attracts hummingbirds, songbirds, and butterflies
<i>Garrya elliptica and cultivars</i>	Coast Silktassel	Attracts songbirds
<i>Gazania species and hybrids</i>		G. linearis can be invasive
<i>Gelsemium sempervirens</i>	Carolina Jessamine	
<i>Grevillea "Canberra"</i>	Spider Flower	Attracts nectar-feeding birds
<i>Grevillea 'Noellii'</i>	California Grevillea	Attracts nectar-feeding birds
<i>Hazardia (Haplopappus) squarrosus</i>	Yellow Squirrel Cover	Great for butterflies Needs good drainage
<i>Helianthus gracilentus</i>	Slender Sunflower	Tough plant; attracts songbirds and butterflies
<i>Helichrysum italicum</i>	Curry Plant, Chamomile Sunray	
<i>Helichrysum petiolatum (petiolare)</i>	Perennial Strawflower	Annual in Thousand Oaks May rot in heavy soils, esp. if overwatered
<i>Helictotrichon sempervirens</i>	Blue Oat Grass	Bluer color in dryer soils
<i>Hemerocallis species</i>	Daylilies	Attracts butterflies
<i>Hesperaloe funifera</i>	Giant Hesperaloe	
<i>Hesperaloe parviflora</i>	Red Yucca	Attracts hummingbirds
<i>Heteromeles arbutifolia</i>	Toyon	Attracts songbirds and butterflies
<i>Heuchera maxima</i>	Island Alumroot	Attracts hummingbirds
<i>Heuchera species</i>	Alum Root, Coral Bells	
<i>Hypericum calycinum</i>	St. John's Wort	
<i>Iris douglasiana and cultivars</i>	Douglas Iris	Attracts hummingbirds
<i>Isomeris (Peritoma) arborea</i>	Bladderpod	Drought deciduous; attracts hummingbirds and butterflies
<i>Iva hayesiana</i>	Haye's Iva, Poverty Weed	Deer resistant; attracts songbirds
<i>Jasminum polyanthum</i>	Pink Jasmine	
<i>Juncus effusus and cultivars</i>	Soft Rush	Spreads fast, can be invasive; attracts songbirds
<i>Juncus mexicanus</i>	Mexican Rush	Spreads vigorously in wet conditions; attracts songbirds
<i>Juncus patens</i>	Wire Grass	Attracts songbirds
<i>Juniperus californica</i>	California Juniper	Attracts songbirds and butterflies

UNDERSTORY PLANTING PALETTE		NOTES
<i>Juniperus chinensis</i> 'Mint Julep'	Mint Julep Juniper	
<i>Juniperus chinensis</i> 'Parsonii'	Prostrate Juniper	
<i>Juniperus virginiana</i> 'Silver Spreader'	Silver Spreader Juniper	
<i>Justicia californica</i>	Chuparosa	Attracts hummingbirds
<i>Keckiella antirrhinoides</i>	Yellow Bush Snapdragon	Drought deciduous; Attracts hummingbirds
<i>Keckiella cordifolia</i>	Heartleaf Penstemon	Drought deciduous; attracts hummingbirds and butterflies
<i>Kniphofia uvaria</i>	Red Hot Poker	
<i>Lantana montevidensis</i>	Trailing Lantana	Attracts butterflies
<i>Lavandula angustifolia</i>	English Lavender	Attracts butterflies
<i>Lavandula dentata</i>	French Lavender	
<i>Lavandula</i> 'Goodwin Creek Grey'		
<i>Lavandula stoechas</i> and cultivars	Spanish Lavender	
<i>Lavatera (Malva) assurgentiflora</i>	Malva Rosa, Tree Mallow	Attracts hummingbirds, songbirds, and butterflies
<i>Lavatera</i> 'Purissima'	Purissima Mallow	Attracts hummingbirds, songbirds, and butterflies
<i>Leonotis leonurus</i>	Lion's Tail	Attracts birds, bees, and butterflies
<i>Leptospermum laevigatum</i>	Australian Tea Tree	
<i>Leptospermum scoparium</i> cultivars	New Zealand Tea Tree	
<i>Leucophyllum candidum</i> and cultivars	Texas Silverleaf, Silverleaf Ranger, Cenizo Thunder	
<i>Leucophyllum frutescens</i> and cultivars	Texas Sage	
<i>Leymus (Elymus) cinereus</i>	Gray Wild Rye	Habitat for small animals and birds, nesting cover for upland birds
<i>Leymus (Elymus) condensatus</i>	Giant Wild Rye	Attracts songbirds and butterflies
<i>Leymus condensatus</i> 'Canyon Prince'	Canyon Prince Wild Ryegrass	Attracts songbirds and butterflies
<i>Ligustrum japonicum</i> 'Texanum'	Waxleaf Privet	Attracts bees
<i>Linum grandiflorum</i>	Flowering Flax, Scarlet Flax	
<i>Lobularia maritima</i>	Sweet Alyssum	will self-seed
<i>Lonicera periclymenum</i>	Woodbine, Honeysuckle	Similar to Japanese honeysuckle, but less invasive; attracts birds and hummingbirds
<i>Lotus scoparius</i>	Deerweed	Adds nitrogen to soil; attracts hummingbirds, songbirds, and butterflies
<i>Lupinus bicolor</i>	Pigmy Lupine	Attracts butterflies
<i>Lupinus excubitus</i>	Grape Soda Lupine	Do not water after the 1st summer; attracts songbirds and butterflies
<i>Lupinus nanus</i>	Sky Lupine	
<i>Lupinus species</i>	Lupine	

UNDERSTORY PLANTING PALETTE		NOTES
<i>Lupinus succulentus</i>		Attracts butterflies
<i>Macfadyena unguis-cati</i>	Yellow Trumpet Vine, Cat's Claw	
<i>Mahonia (Berberis) aquifolium</i> 'Compacta'	Compact Oregon Grape	Attracts hummingbirds, songbirds, and butterflies
<i>Mahonia (Berberis) aquifolium</i> 'Golden Abundance'	Golden Abundance Barberry	Attracts hummingbirds, songbirds, and butterflies
<i>Mahonia (Berberis) fremontii</i>	Desert Barberry	Attracts hummingbirds, songbirds, and butterflies
<i>Mahonia (Berberis) nevinii</i>	Nevin's Barberry	Attracts hummingbirds, songbirds, and butterflies
<i>Mahonia (Berberis) repens</i>	Creeping Barberry	
<i>Mahonia pinnata</i>	California Holly Grape	
<i>Malacothamnus fasciculatus</i>	Chaparral Mallow, Bush Mallow	Spreads by underground roots Attracts butterflies, hummingbirds, songbirds
<i>Malosma laurina</i>	Laurel Sumac	Attracts songbirds
<i>Melica californica</i>	California Melic	Attracts songbirds
<i>Mirabilis multiflora</i>	Four O'Clock	Attracts birds, butterflies, hummingbirds, and quail
<i>Miscanthus sinensis</i> and cultivars	Silvergrass, Eulalia Grass	May be invasive; attracts birds
<i>Monardella villosa</i>	Coyote Mint	Attracts hummingbirds and butterflies
<i>Muhlenbergia capillaris</i>	Pink Muhly	
<i>Muhlenbergia dubia</i>	Mexican Muhly	
<i>Muhlenbergia rigens</i>	Deer Grass	Attracts birds and butterflies
<i>Muhlenbergia</i> 'White Cloud'		
<i>Myoporum parvifolium</i>	Myoporum	
<i>Myrtus communis</i> (not 'Compacta')	True Myrtle	
<i>Nandina domestica</i> 'Nana'	Dwarf Heavenly Bamboo	
<i>Nassella / Stipa cernua</i>	Nodding Needlegrass	Attracts songbirds
<i>Nassella / Stipa lepida</i>	Foothill Needlegrass	Attracts songbirds
<i>Nassella / Stipa pulchra</i>	Purple Needle Grass	Attracts songbirds
<i>Nerium dwarf forms</i>	Dwarf Oleander	Do not burn prunings Poisonous
<i>Nerium oleander</i> and cultivars	Oleander	Do not burn prunings Poisonous
<i>Oenothera berlandierii</i> (speciosa)	Mexican Evening Primrose	
<i>Oenothera californica</i>	Evening Primrose	Attracts songbirds and butterflies
<i>Opuntia basilaris</i>	Beavertail Cactus	Attracts large numbers of native bees
<i>Opuntia ficus-indica</i>	Indian Fig	
<i>Opuntia occidentalis</i>	Prickly Pear Cactus	



UNDERSTORY PLANTING PALETTE		NOTES
<i>Opuntia robusta</i>	Giant Prickly Pear	
<i>Pachycereus marginatus</i>	Mexican Fence Post Cactus	
<i>Parthenocissus tricuspidata</i>	Boston Ivy	May be difficult to remove once attached to buildings/walls
<i>Passiflora caerulea</i>	Passion Vine, Blue Passion Flower	Attracts butterflies
<i>Pedilanthus macrocarpus</i>	Lady's Slipper, Slipper Plant	Attracts hummingbirds
<i>Pennisetum x advena 'rubrum'</i>	Red Fountain Grass	
<i>Penstemon eatonii</i>	Firecraker Penstemon	Attracts hummingbirds and butterflies
<i>Penstemon eatonii</i>	Foothill Penstemon	Attracts hummingbirds and butterflies
<i>Penstemon spectabilis</i>	Showy Penstemon	Attracts hummingbirds and butterflies
<i>Perovskia atriplicifolia</i>	Russian Sage	
<i>Philadelphus lewisii and cultivars</i>	Wild Mock Orange, Lewis Mockorange	Attracts songbirds and butterflies
<i>Phormium tenax and cultivars</i>	New Zealand Flax	
<i>Photinia serrulata (serratifolia)</i>	Chinese Photinia, Chinese Hawthorn	
<i>Pittosporum eugenioides</i>	Tarata, Lemonwood	
<i>Pittosporum tenuifolium</i>	Kohuhu	
<i>Pittosporum tobira 'Wheeleri'</i>	Dwarf Mock Orange	
<i>Plumbago scandens</i>	Plumbago	
<i>Plumbago auriculata (P. capensis)</i>	Cape Plumbago	
<i>Prunus caroliniana</i>	Carolina Laurel Cherry	Attracts birds
<i>Prunus ilicifolia (ssp. Ilicifolia)</i>	Holly Leaf Cherry	Attracts songbirds and butterflies
<i>Prunus ilicifolia lyonii</i>	Catalina Cherry	
<i>Prunus lusitanica</i>	Portugal Laurel	
<i>Punica granatum 'Wonderful'</i>	Pomegranate	Attracts hummingbirds
<i>Ranunculus californica</i>	California Buttercup	Attracts butterflies
<i>Rhamnus (Frangula) californica cultivars</i>	Coffeeberry	Attracts songbirds and butterflies
<i>Rhamnus (Frangula) californica 'Eve Case'</i>	California Coffeeberry	Attracts songbirds and butterflies
<i>Rhamnus alaternus</i>	Italian Buckthorn	
<i>Rhamnus crocea</i>	Redberry	Attracts songbirds and butterflies
<i>Rhaphiolepis dwarf forms</i>	Dwarf Indian Hawthorn	
<i>Rhaphiolepis indica</i>	India Hawthorn	Attracts birds
<i>Rhaphiolepis umbellata</i>	Yeddo Hawthorn	Attracts birds

UNDERSTORY PLANTING PALETTE		NOTES
<i>Rhus integrifolia</i>	Lemonade Berry	Attracts songbirds
<i>Rhus ovata</i>	Sugar Bush	Attracts songbirds
<i>Ribes malvaceum</i>	Chaparral Currant	Attracts hummingbirds, songbirds, butterflies
<i>Ribes sanguineum</i>	Flowering Currant	Attracts hummingbirds, songbirds, butterflies
<i>Ribes speciosum</i>	Fuchsia-flowered Gooseberry	Attracts hummingbirds and songbirds
<i>Ribes viburnifolium</i>	Evergreen Currant	
<i>Romneya coulteri</i>	Matilja Poppy	
<i>Rosa banksiae</i>	Lady Banks' Rose	
<i>Rosa 'Blaze'</i>	Climbing Rose	Prune after flowering Shade tolerant
<i>Rosa californica</i>	California Rose	Attracts songbirds and butterflies
<i>Rosa 'Cecile Brunner'</i>	Cecile Brunner Rose	
<i>Rosa 'Flower Carpet'</i>	Carpet Rose	
<i>Rosa nutkana var. nutkana</i>	Nootka Rose	Attracts songbirds and butterflies
<i>Rosa woodsii var. ultramontana</i>	Interior Rose	Attracts songbirds and butterflies
<i>Rosmarinus officinalis</i>	Rosemary	Attracts butterflies
<i>Rosmarinus officinalis cultivars</i>	Trailing Rosemary	Attracts butterflies
<i>Rosmarinus officinalis 'Lockwood de Forest'</i>	Prostrate Rosemary	Attracts butterflies
<i>Rosmarinus officinalis 'Prostratus'</i>	Creeping Rosemary	Becomes woody and bare in center with age; attracts butterflies
<i>Rudbeckia hirta</i>	Gloriosa Daisy	Attracts butterflies
<i>Ruellia brittoniana and cultivars</i>	Mexican Petunia	
<i>Ruellia peninsularis</i>	Desert Ruellia	
<i>Ruscus aculeatus</i>	Butcher's Broom	
<i>Rusellia equisetiformis</i>	Firecracker Plant	Attracts butterflies and hummingbirds
<i>Salvia 'Allen Chickering'</i>	Allen Chickering Sage	Attracts hummingbirds, songbirds, and butterflies
<i>Salvia apiana</i>	White Sage	Attracts hummingbirds, songbirds, bees, and butterflies
<i>Salvia 'Bee's Bliss'</i>	Bee's Bliss Sage	Attracts hummingbirds, songbirds, and butterflies
<i>Salvia brandegei</i>	Santa Rosa Island Sage	Attracts hummingbirds, songbirds, and butterflies
<i>Salvia chamaedryoides</i>	Gerander Sage, Blue Sage	Blooms more with more water; attracts hummingbirds
<i>Salvia clevelandii and cultivars</i>	Cleveland Sage	Attracts hummingbirds, songbirds, and butterflies
<i>Salvia 'Dara's Choice'</i>	Dara's Choice Sage	Attracts hummingbirds, songbirds, and butterflies
<i>Salvia leucantha and cultivars</i>	Mexican Sage	

UNDERSTORY PLANTING PALETTE		NOTES
<i>Salvia leucophylla</i>	Purple Sage	Attracts hummingbirds, songbirds, and butterflies
<i>Salvia leucophylla</i> 'Figueroa'	Figueroa Sage	Attracts hummingbirds, songbirds, and butterflies
<i>Salvia leucophylla</i> 'Point Sal Spreader'	Point Sal Spreader Sage	Attracts hummingbirds, songbirds, and butterflies
<i>Salvia mellifera</i>	Black Sage	Attracts hummingbirds, songbirds, and butterflies Easy to grow, likes poor soils
<i>Salvia mellifera</i>	Black Sage	Attracts hummingbirds, songbirds, and butterflies
<i>Salvia mellifera</i> 'Terra Seca'	Prostrate Black Sage	Attracts hummingbirds, songbirds, and butterflies
<i>Salvia sonomensis</i>	Creeping Sage	Attracts hummingbirds, songbirds, and butterflies
<i>Salvia sonomensis</i> 'Mrs. Beard'	Mrs. Beard Sage	Attracts hummingbirds, songbirds, and butterflies Best with cool sun/light shade; attracts hummingbirds, songbirds, and butterflies
<i>Salvia spathacea</i>	Hummingbird Sage	Looks better w/moderate water Deciduous
<i>Sambucus mexicana</i>	Elderberry	
<i>Santolina chamaecyparissus</i>	Lavender Cotton	Smaller cultivars exist
<i>Scabiosa species</i>	Pincushion Flower	Attracts butterflies
<i>Scilla peruviana</i>	Peruvian Scilla	
<i>Sedum pachyphyllum</i>	Jelly-bean	
<i>Sedum species</i>	Stonecrop	
<i>Sedum x rubrotinctum</i>	Pork and Beans	
<i>Senecio cineraria</i>	Dusty Miller	
<i>Senecio greyi</i> (Brachyglottis 'Sunshine')		
<i>Senecio mandraliscae</i>	Blue finger	
<i>Senecio serpens</i>	Blue chalksticks	
<i>Senecio species</i>		
<i>Senecio viravira</i>	Dusty Miller	
<i>Senna phyllodinea</i>	Silvery Cassia	
<i>Sesleria autumnalis</i>	Autumn Moor Grass	Low maintenance Does not reseed
<i>Sesleria caerulea</i>	Blue Moor Grass	Does not like to dry out - needs more water than most Seslerias
<i>Sisyrinchium bellum</i>	Blue-eyed Grass	Attracts butterflies
<i>Sphaeralcea ambigua</i> and cultivars	Apricot Mallow	Attracts songbirds and butterflies
<i>Sporobolus airoides</i>	Alkali Sacaton	Attracts songbirds and butterflies
<i>Stachys byzantina</i>	Lamb's Ears	
<i>Symphoricarpos albus</i> var. <i>laevigatus</i> 'Tilden Park'	Tilden Park Snowberry	
<i>Symphoricarpos mollis</i>	Creeping Snowberry	Attracts hummingbirds, songbirds, and butterflies

UNDERSTORY PLANTING PALETTE		NOTES
<i>Tecoma stans</i> and cultivars	Yellow Bells	
<i>Tecoma x 'Orange Jubilee'</i>		Attracts hummingbirds
<i>Tecoma x 'Sunrise'</i>		Attracts hummingbirds
<i>Teucrium chamaedrys</i> (x <i>lucidrys</i>)	Germander	Attracts bees and butterflies
<i>Teucrium fruticans</i>	Bush Germander	Attracts bees
<i>Teucrium fruticans</i> 'Compactum'		Attracts bees, hummingbirds
<i>Teucrium x lucidrys</i> and cultivars	Wall Germander	
<i>Thalictrum fendleri</i>	Mountain Meadow Rue	Attracts songbirds and butterflies
<i>Thalictrum polycarpum</i>	Meadow Rue	Suitable under oaks
<i>Trachelospermum jasminoides asiaticum</i>	Jasmine	
<i>Trichostema lanatum</i>	Woolly Blue Curls	No irrigation needed after established Needs good drainage; attracts hummingbirds, songbirds, and
<i>Tulbaghia violacea</i>	Society Garlic	
<i>Verbena lilacina</i>	Lilac Verbena	Attracts hummingbirds, songbirds, and butterflies
<i>Verbena rigida</i>	Sandpaper verbena	
<i>Viburnum suspensum</i>	Sandankwa Viburnum	
<i>Viburnum tinus</i>	Laurustinus	
<i>Vinca minor</i>	Dwarf Periwinkle	
<i>Vitis californica</i> 'Roger's Red'	Roger's Red California Grape	Attracts songbirds
<i>Vitis vinifera</i>	Grape	
<i>Westringia rosmariniformis</i>	Rosemary Bush Westringia	
<i>Woodwardia fimbriata</i>	Giant Chain Fern	
<i>Xylosma congestum</i>	Shiny Xylosma	
<i>Yucca (Hesperoyucca) whipplei</i>	Our Lord's Candle	Attracts songbirds
<i>Yucca baccata</i>	Banana Yucca	Attracts hummingbirds, songbirds, and butterflies
<i>Zantedeschia aethiopica</i>	Calla Lilly	



7. Community Forest Management Guidelines

This section outlines the major strategies for managing the community forest, many of which have been adapted from classical forestry for use in the urban environment. It provides city staff with guidelines to assist them in monitoring and managing the rates of planting and removal and the overall composition of the forest. Policy makers, business people, developers and residents will find these strategies of interest since they set the context for day-to-day decisions affecting the forest.

From the perspective of the long-term health and appearance of the community forest, maintaining a diversity of tree species and ages is vital. A diverse forest, like a diverse natural ecosystem or a diversified economy, is likely to be more stable than a simple one. Should a pest, disease, climatic occurrence or other problem cause the removal of an entire species, diversity provides insurance against the kind of wholesale denuding of the forest cover that took place in many eastern communities with the invasion of Dutch elm disease.

1. Monitor overall species and age diversity.

The city staff must keep track of the percentages of each species in the city and assess where imbalances may be developing. This monitoring will be a primary use of the city's tree inventory, with assessments made periodically.

2. Encourage planting a variety of species and cultivars.

When a species begins to be over-planted, the City should discourage its

use and recommend alternative species. A variety of cultivars of a single species might also be appropriate, if each is known to possess tolerances to certain conditions not found in the others. Although environmental stresses that are predictable will be selected against, a range of adaptability in the tree stock ensures against unanticipated problems. In general, the city as a whole should contain no more than 10% of any species, no more than 20% of any genus, and no more than 30% of any family. Species native to this area may be planted at 20% city-wide.

3. Test new species and cultivars for wider application.

The City should actively seek to expand its palette of acceptable trees by test-planting species not widely planted here and monitoring their performance. Since availability is often a limiting factor to the use of new species, the City could contract with nurseries both to provide experimental stock and to supply usable quantities once a species is proven. The city might also contract to have nurseries provide oaks and other native species grown from local genetic stock rather than those developed elsewhere in California.

4. Monitor pests and diseases within Thousand Oaks and other communities.

To prepare for problems which may entail largescale removal and replacement of trees, the City should actively monitor all major pest and disease populations, both locally and regionally, that could adversely affect its forest. Preparations should then include special preventative health care of targeted tree

Community Forest Management Guidelines

1. Monitor overall species and age diversity.
2. Encourage planting a variety of species and cultivars.
3. Test new species and cultivars for wider application.
4. Monitor pests and diseases within Thousand Oaks and other communities.
5. Foster age diversity by immediately replacing trees as they are removed.
6. Anticipate removals and plan for plantings accordingly.
7. Use the inventory to reduce operations and maintenance costs.
8. Keep the inventory current.
9. Inform the residents of the horticultural needs of trees fronting their property.

species to help them withstand the disease, pest or other threat.

5. **Foster age diversity by immediately replacing trees as they are removed.** Replacement at removal will create a staggered-age new generation providing more or less continuous tree cover.
6. **Anticipate removals and plan for plantings accordingly.** To properly monitor age diversity, a useful life expectancy must be established for each species. This describes approximately how long the tree can be expected to remain in a healthy and vigorous condition, before serious decline sets in. At that point, the expense of maintaining the tree in a pleasing and non-hazardous condition may exceed the benefits it provides. Its removal should then be considered, although the final decision should be subject to the removal evaluation process per the latest City policies.
7. **Use the inventory to reduce operations and maintenance costs.** Refer to the *Thousand Oaks Community Forest Implementation Recommendations* for more information on how to utilize the inventory for:
 - Efficient scheduling
 - Accurate annual budgets
 - Preventative maintenance
 - Decreased liability
 - Timely removals
 - Balanced species composition



Figure 2.36 Street tree plantings in Thousand Oaks

8. **Keep the inventory current.** In order to gain the full benefits of the inventory, it is essential that each servicing of a tree be recorded in the inventory, together with an updating of the information about the tree to reflect any change in its status or condition. An accurate inventory will serve as the nerve center of a forestry effort which maximizes both program efficiency and forest benefits.
9. **Inform the residents of the horticultural needs of trees fronting their property,** especially for drought-tolerant species in parking strips in front of houses.

Removing Trees

Tree removal is perhaps the most sensitive decision to be made regarding the community forest. The depth of people's attachment to trees and the benefits associated with them become clear when one is slated for removal. However, when seen in the context of the lifecycle of the forest, and when complemented

by vigorous efforts to preserve and replant trees, removals are an essential part of the overall care of the forest. Establishing clear criteria and a well-defined process for determining removals will help ensure that this aspect of forest management is accepted by the community.

In general, trees in a city should be allowed to grow to the maximum age possible. Unlike traditional forestry management, where value is measured by monetary return when harvested, the value of city trees comes from their ability to grow old and large, providing shade and beauty. As a part of routine maintenance, all trees will be monitored for hazardous conditions.

The relationship between timely removals and the long-term health of the forest cannot be overemphasized. Educating the community about the benefits of a managed forest is essential to avoid problems later on. Meeting with environmental groups to explain city management policies, as well as informing the public about tree removal criteria, will help the tree removal process proceed more smoothly.



VOLUME 3
COMMUNITY
PARTICIPATION
AND EDUCATION



Volume 3: COMMUNITY PARTICIPATION & EDUCATION

Volume 3 suggests ways of involving members of the community in forestry issues and practices. Primarily meant for use by city staff, it will also prove useful to citizens interested in promoting community forestry.

1. Introduction

The community forest is inextricably linked to the people of Thousand Oaks - the residents, business people, institutional employees, and city staff whose collective decisions have a cumulative impact on the viability of the forest. Involving as many people as possible in the processes of creating and maintaining the forest increases its visibility to all people in the community, thus ensuring its long term health and growth.

This volume suggests ways to involve the people of Thousand Oaks in the creation and maintenance of their community forest. It is primarily intended for use by city staff, but anyone interested in promoting the community forest will find it useful.

Who to Involve in the Community Forest

The entire community benefits from an extensive, healthy, well-designed forest, as envisioned and described in the previous volumes of this plan. Yet without an informed, involved populace, such a forest is difficult to attain. Each individual tree requires



Figure 3.1 Community workshop during the Forestry Master Plan update process

proper care to thrive, while the forest as a whole needs long-term planning and support to assure its growth. Community involvement is therefore essential to the life of the forest.

The following paragraphs describe who might be involved in the decisions regarding the community forest.

Residents of Thousand Oaks are perhaps most emotionally affected by decisions regarding the forest. Those who call the city home are apt to feel somewhat proprietary about its public amenities, of

which the community forest is among the most visible elements.

In regards to the forest, residents will have particular interest in their immediate neighborhood or street. But as the City's commitment to its forest grows, there will also be increasing numbers who are passionately interested in citywide tree issues.

Contact with residents can be on an individual basis, as in City-initiated newsletters delivered to all households, or through groups such as homeowners' associations or neighborhood-improvement



organizations. The formation of such groups should be encouraged, in order to help disseminate information and enlist support for the forest. Organizations also create social bonds that help build community spirit.

Local business of all kinds, including large corporations with local offices, benefit from the community forest. A community full of trees makes the city a more attractive place to do business, helps attract and keep workers, and reduces energy costs. Trees planted on or near business sites have a positive impact on the image of the business as well as the city as a whole. Treelined commercial districts draw more customers than treeless ones. Corporate campuses with impressive groves to relax in with clients or during lunch are far more memorable than corporate landscapes of grass berms and shrubs. Industrial sites are often improved by the screening effects of trees. Shade trees in parking lots and near buildings can greatly reduce cooling costs. It should be noted that the enhanced public image resulting from the private sector's involvement in the community forest is also an effective marketing strategy.

The type of involvement depends on the type of business. Developers play a major role in the community forest's growth, of course, but so can other businesses if given the opportunity and inspiration. As with residents, interaction may be between the City and individual business people or groups of businesses. Such groups can be particularly influential in the expansion of the forest, especially when their intent is to make commercial districts more attractive and humane.

Institutions - schools, hospitals and libraries offer many opportunities for the community forest. Their grounds provide room to expand the forest, and their strong connections to the community create a natural interest in the forest. Schools and libraries are especially invaluable in their role as community teachers, but will need city support and advice to fully develop this function.

Organizations such as Girl Scouts, Boy Scouts, community volunteer groups, civic organizations, and environmental groups can be encouraged to play an active role in the creation and maintenance of the forest. These groups will assist with community education as well as participating in the physical needs of the forest. Outreach programs aimed at these groups will ensure their ongoing interest and participation.

2. Involving the Community

This section describes some of the many ways to bring the community into the process of creating and maintaining the forest.

2.a Types of Participation

The primary avenues for community participation in the forest fall into the following categories:

Selecting trees. Residents usually have a strong notion of how their neighborhood should look and what its character should be. In addition, having a hand in the design process will result in a more



Figure 3.2 Child's sketch from Thousand Oaks' 1989 Forestry Master Plan

personal connection between residents and their neighborhood, engendering greater pride of place. Citizens should therefore be brought into this process as much as possible to review planting plans for their areas.

Planting trees. While all work associated with the forest is important, perhaps the most satisfying job is planting trees. This is where people develop emotional attachments and a lifelong interest in the forest. The more individuals who personally plant a tree in the city, the greater the long term support for the forest.

This axiom is especially applicable to the children of Thousand Oaks. Setting a goal of having each child plant a tree ensures that the ideals of the community forest will be carried into the next generation.

Maintaining trees. Residents already play a hand in the maintenance of the neighborhood street trees - many people at least water the tree fronting their house, and some go beyond this to include fertilizing, minor pruning and the like. Providing residents with standards for care will result in healthier trees. In addition, residents as well as businesses should be alerted to signs of poor tree health or maintenance. Having all eyes focused on the forest will increase the ability of the forestry staff to engage in preventive maintenance, possibly saving trees in the early stages of ill-health and eliminating potential accidents.

Funding tree planting or maintenance. Providing the mechanism for citizens, including businesses and institutions, to donate money earmarked for this work is an important avenue of participation, particularly for people with time or physical constraints.

Providing land for expansion of the forest. Landowners with room to spare can be brought into the forestation process without sacrificing property rights. The benefits of trees to the community - and to the planet - provide convincing reasons to join the effort.

Advising the City on forestry decisions. As particular issues arise, the City may consider forming ad hoc advisory committees to provide a connection between the city bureaucracy and citizens, as well as a way for both sides to exchange information

and voice concerns. The city forestry staff cannot be expected to handle every decision about every tree in the forest without such help. Encouraging citizen input will give weight to the term “community forest.”

Educating others about the forest. The community’s teachers, biologists, naturalists, historians, artists, landscape architects, and horticulturists all have a great deal to offer toward this worthy endeavor.

2.b Ways for Residents to Participate

- Encourage neighborhood tree associations to ensure a close relationship between residents and their part of the forest. Activities could include planting parties and maintenance workshops, as well as celebratory events, all of which help build ties between neighbors.
- A participatory process should be used when city staff begin planning for tree plantings or removals in a neighborhood. This process might include community meetings, preference surveys, or design charrettes. It is advisable to seek the needs and preferences of residents in the case of neighborhood parks as well.
- Residents interested in planting trees community-wide might form a nonprofit organization based on San Francisco’s “Friends of the Urban Forest” or Los Angeles’ “Tree People.” However, while such groups can play an invaluable role in the community forest, they should not be expected to substitute for city support and forestry resources. If such a group is formed, and depending on

the available resources, the City should offer assistance and legitimization by way of seed money, grant-writing assistance, technical advice, meeting space and staff assistance.

2.c Getting the Participation of Business

- Inform businesses of options for supporting the forest. A pamphlet describing the benefits of trees could be distributed to the business community.
- Inform retail businesses of the decision-making process regarding street trees. Involve those interested in the process as much as possible.
- Businesses with large reserves of land in Thousand Oaks should be encouraged to join the growing ranks of companies nationwide that are converting portions of their holdings to wildlife habitat. Some ways this can be done:
 - Convert standard turf to native grasses, which have a higher wildlife value (and require no summer water).
 - Create shrubby edges to allow hiding and nesting places for wildlife.
 - Include as many native species of plants as possible.
 - Include plants that provide sources of food for a variety of creatures. A single oak, for example, can support more than 300 species of insects, which in turn support dozens of species of birds. Acorns from oaks also feed a wide variety of



creatures.

- Set up nesting boxes for various birds (owls and other raptors adjust particularly well to these manmade homes). The local Audubon Society is one source of information for the specifics of this project.

2.d The Role of Institutions

Schools offer perhaps the greatest opportunity for participation in community forest programs. Our youngest citizens are tomorrow's caretakers of the forest, so concentrating outreach efforts on them will have important long term benefits.

The outdoor environment of most American schools consists of equal parts asphalt and grass, with a scattering of trees (often in street-tree-like rows), some play or recreation equipment, and lunch tables. This type of schoolyard is usually a sterile place, not conducive to outdoor learning or creative play. The extension of the community forest into the schoolyards of Thousand Oaks can help remedy this situation.

There are many creative ways to bring the community forest to the schools, such as:

- The oak-woodland ecosystem has particularly high value for both play and learning. Its place in the city's natural and social histories lends itself to a variety of lessons, while the playfulness comes from bringing a bit of the wild into the schoolyard. Oaks combined with appropriate understory plants provide a rich environment for fantasy

play, hide and seek, building forts, and all the other kinds of play not generally provided for in standard schoolyards. Elementary schools should include such places on their campuses.

- Plant groves of fruits, nuts, or hardwoods to act as hands-on educational labs as well as potential sources of revenue for the schools. Such groves would be best suited to high schools or colleges, where classes in the life sciences, agriculture, community forestry and woodworking could all have a hand in care and planting.
- School groups could help plant heritage oaks in open space or parks. Such efforts could be used both to express community pride and to provide living science lessons and a source of ongoing experiments in wildlife biology, botany, and similar subjects.
- Involve students of all ages in tree planting, particularly plantings at schools. Personal involvement in the process will reduce the likelihood of vandalism and damage due to carelessness (a potential problem with young children unschooled in the ways of newly planted trees).
- Use the Master Plan in the classroom. The subject is a natural for civics classes as well as the sciences. Additionally, the California Department of Education provides resources for environmental education curriculum. A wide variety of topics are covered, including forestry and fire protection.

- Sponsor a workshop bringing together city staff and local teachers to brainstorm other ways to bring the community forest into the classroom.

Libraries are symbols of the community's commitment to lifelong learning. The library should act as the prime repository for books and publications on trees and community forestry, since it is accessible to the entire community. The Center for Oak Tree Studies should be re-established and expanded to include all available resources on the community forest.

In addition to the indoor possibilities, a grove of trees on the grounds of the main library could act as a shady reading and resting spot as well as reflect the bookish contents of the building. Trees with literary associations could be used to create the structure for a Great Books Garden, for example.

Hospitals are the community's place for healing. As such, they are appropriate places to represent the overall health of the community as symbolized by the planting of trees. A grove of trees with medicinal value would make an appropriate "outdoor room" for patients, visitors and staff to use. One quarter of prescribed drugs in the U.S. pharmacopea contain plant derivatives; examples of species include *Salix alba* and the native *Rhamnus pershiana*.

2.e How Organizations Can Help

Environmental groups need no convincing about the benefits of trees. Some tasks that might be carried out with their help:

- Planting parking lots to reduce the heat-island effect in the city.
- Replanting native oak woodlands in the area's appropriate open lands.
- Restoring creeks to their native state through tree planting and, in the case of culverted creeks, replacing concrete ditches with more natural forms of flood control, such as rock gabions or willow wattling.
- Establishing "Clean Air Groves."
- Join the California ReLeaf network for statewide support of community forestry projects.
- Helping businesses convert company land to wildlife habitat.

3. Spreading the Word

The City can instigate a number of programs to increase community awareness of its forest resource. These actions fall into three broad categories: publicizing city policies (including this Master Plan), soliciting community support and enthusiasm, and educating people about trees and the forest as a whole. This section suggests ways to do this, organized in these categories.

3.a Publicizing City Policies

- Publicize the Master Plan on the City website, in local newspapers (both online and print), and flyers posted at local nurseries.
- Invite citizens to a community forestry open house, attended by all city staff members involved in the forest's creation and care. This could be a special focus during Public Works Week.
- Make the Master Plan easily available; keep a digital file posted for public access on the City website.

3.b Soliciting Community Support

- Publish a pamphlet that illustrates the steps a citizen needs to take to plant a tree. Include horticultural basics as well as bureaucratic steps. Include a reference to the detailed planting and maintenance information found in the Thousand Oaks Planting and Maintenance Manual. The pamphlet can be posted digitally to the City's website, as well as distributed to homeowner's associations and other community organizations. Printed copies can be made available at city libraries and other public facilities.
- Continue to support the Arbor/Earth Day celebration in April. Use this event as a venue for interaction between city staff, environmental groups, and the general community to build support for forestry efforts.

3.c Providing Education

- Produce pamphlets that give residents guidance on tree planting and care. Pamphlet topics could include: proper tree pruning and reasons to not top trees, the benefits of deep-watering street trees, keeping a two-foot circle around the trunk free of other plantings, and keeping a minimum 4' x 6' planting area around street trees if installing pavement near them. These maintenance efforts will greatly enhance the health of the city's street trees.
- Offer hands-on tree-care workshops, either free or with fees going to support the community forest.
- Continue to engage the public during Public Works Week as an opportunity for the community to learn about community forestry.

4. Conclusion

The adoption and subsequent updates of the *Forestry Master Plan* is an important opportunity to build public awareness and appreciation of the community forest. The undertaking of a comprehensive community forestry program is an important initiative for Thousand Oaks, and as such should receive ample attention. The City should continue to involve residents in the review, implementation, and future updates of the *Forestry Master Plan*.



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ADDITIONAL RESOURCES

American Forests

1220 L Street, NW
Suite 750
Washington, DC 20005

Phone: 202 737 1944

Web: www.americanforests.org

Summary: Our mission is to restore threatened forest ecosystems and inspire people to value and protect urban and wildland forests.

The Arbor Day Foundation

100 Arbor Avenue
Nebraska City, NE 68410

Phone: 1 888 448 7377

Web: www.arbordayfoundation.org

Summary: The Arbor Day Foundation is a 501(c)(3) nonprofit conservation and education organization. A million members, donors, and partners support our programs to make our world greener and healthier.

Tree City USA Summary: The Tree City USA program has been greening up cities and towns across America since 1976. It is a nationwide movement that provides the framework necessary for communities' to manage and expand their public trees. Tree City USA is an Arbor Day Foundation Program in cooperation with U.S. Forest Service, U.S. Department of Agriculture's Urban and Community Forest, and the National Association of State Foresters.

California Oaks

428 13th Street, Suite 10A
Oakland, CA 94612

Phone: 510 763 0211

Web: www.californiaoaks.org

Summary: California Oaks is a project of the California Wildlife Foundation.

California Urban Forests Council

Phone: 415 479 8733

Web: www.caufc.org

Summary: The California Urban Forests Council (CaUFC) was founded in 1968 as the first urban forest council in the nation. We are professionals associated with municipalities and public works, urban planning and design, arboriculture and the nursery industry, and community-based and public health organizations. Together, as a coalition, we are dedicated to the expansion and perpetuation of sustainable urban and community forests to enhance the quality of life for all Californians.

Cal Poly San Luis Obispo Department of Forestry & Natural Resources (NRES)

Cal Poly San Luis Obispo
San Luis Obispo, CA 93407

Phone: 805 756 2702

Web: <http://nres.calpoly.edu/fnr/index.html>

Summary: The Society of American Foresters accredits the Forestry & Natural Resources (NRES) program. Graduates are employed throughout the world: establishing, managing and sustaining forests and urban wildland areas; providing opportunities for a full range of uses; teaching; extension; research; and protecting the environment.

Cal Poly Urban Forestry Ecosystems Institute

Urban Ecosystems Institute
NRES Department
California Polytechnic State University
San Luis Obispo, CA 93407

Web: <http://ufe.calpoly.edu/index.lasso>

Summary: The Urban Forest Ecosystems Institute addresses the in creating need for improved management of the urban forests in California.

TreePeople

12601 Muholland Drive
Beverly Hills, CA 90210

Phone: 818 753 4600

Web: www.treepeople.org

Summary: TreePeople inspires and supports the people of LA to come together to plant and care for trees, harvest the rain, and renew depleted landscapes. We unite with communities to grow a greener, shadier, and more water-secure city at homes, neighborhoods, schools and in the local mountains. We work with volunteer leaders using our unique Citizen Forester model, and we influence government agencies for a healthy, thriving Los Angeles. We have involved more than 2 million people in planting and caring for more than 2 million trees.

State of California Governor's Office of Planning and Research: Urban Forestry

Web: https://www.opr.ca.gov/s_urbanforestry.php

Summary: Office of Planning and Research

(OPR) provides the following information for local governments to plan for a healthy urban forest that optimizes the benefits urban forests can provide to the environment, public health, economy and more.

- CAL FIRE Urban Forestry Program, Regional Staff, and Grants
- California Urban Forestry Act of 1978
- Strategic Council Urban Greening Grants
- USDA Forest Service Urban and Community Forestry
- CA Urban Forests Council Management Plan Toolkit
- ISA Tree Ordinance Guidelines
- US EPA Heat Island Mitigation Strategies
- US Forest Service Pacific Southwest Research Station
- US Forest Service Urban Forests and Climate Change
- University of Illinois, Landscape and Human Health Laboratory
- University of Washington, Green Cities

California ReLeaf

2115 J Street, Suite 213
Sacramento, CA 95815

Phone: 916 497 0034

Web: www.californiareleaf.org

Summary: California ReLeaf works statewide to promote alliances among community-based groups, individuals, and encouraging each to contribute to the livability of our cities and the protection of our environment by planting and caring for trees.

International Society of Arboriculture

PO Box 3129

Champaign, IL 61826

Phone: 217 355 9411

Web: www.isa-arbor.com

Summary: Through research, technology, and education, the ISA promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees. Includes a Western Chapter.

Society of Municipal Arborists

Phone: urbanforestry@prodigy.net

Web: www.urban-forestry.com

Summary: SMA is an organization of municipal arborists and urban foresters, and consultants, commercial firms and citizens who actively practice or support some facet of municipal forestry.

Wildlife Habitat Council

8738 Colesville Road, Suite 800

Silver Spring, MD 20910

Phone: 301 588 8994

Web: www.wildlifehc.org

Summary: The Wildlife Habitat Council promotes and certifies habitat conservation and management on corporate lands through partnership and education.

National Tree Benefit Calculator

Developed by Casey Trees, Washington, D.C.

Web: www.treebenefits.com/calculator/

ASLA Health Benefits of Nature

American Society of Landscape Architects,
Professional Practice

Web: <https://www.asla.org/healthbenefitsofnature.aspx>

Summary: Webpage contains links to research that proves what we all know to be true: nature is good for us and has both long and short term mental and physical health benefits. Here, hundreds of free research studies, news articles, and case studies are organized by adult and children health topic.

