San Mateo County Tree Ordinances Update Project
Major Findings from the Tree Ordinance Steering Committee Meetings & Proposed Policy Direction

Purpose

The San Mateo County Planning Department formed the Tree Ordinances Steering Committee in the summer of 2016, to inform staff revisions to the County's Significant and Heritage Tree Removal Ordinances, and Resource Management and Planned Agricultural District Ordinances to improve the tree removal permitting process, better protect important tree resources and conserve tree canopy throughout unincorporated San Mateo County. The Steering Committee is made up of tree care industry professionals, local advocacy group leaders, land managers, and County staff from multiple departments.

As requested by the Steering Committee, this report summarizes the findings from five steering committee meetings, which were held from September 2016 to May 2017. County staff reports and committee input have been distilled into these findings. The County's proposed policy direction is described for each of the major findings. County staff will use these findings and related policy direction to prepare ordinance revisions. We are seeking Steering Committee feedback on this document to ensure that we have the benefit of your insights as we prepare revised ordinances. The revised ordinances will be presented to the steering committee in October and November of 2017, to gather further input and feedback.

Please provide your feedback on this document by August 18, 2017.

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COUNTY OF SAN MATEO
PLANNING AND BUILDING

Findings and Policy Direction

Meeting 1 – Overview of Steering Committee Goal; Project Goal and Objectives; Past, Present & Future Tree Canopy Conditions in SMC

Project Goal: Amend the County's significant and heritage tree removal ordinances, and the Resource Management and Planned Agricultural District zoning ordinances to improve management of individual trees and the tree canopy in the County, and to improve tree removal and pruning permit processes, consistent with the County's General Plan.

Steering Committee Goal: Collaborate with County staff by providing input and guidance that helps shape amendments to the County's ordinances governing tree protection and removal, in a manner consistent with the County's General Plan.

1. **Urban Canopy Cover Goal**
    a. The County currently does not have urban tree canopy goals. Developing canopy goals involves consideration of species diversity, climate, geography, topography, exotics, and total canopy coverage, as well as historical and future conditions, and other factors. Canopy goals and policies can inform tree replacement policies and in-lieu fees, replacement ratios, minimum tree sizes, landowner preference, solar access, right-of-way and utility protection, and parcel level canopy coverage requirements.

2. **Countywide Canopy Goals**
    a. County jurisdiction is distributed in patches on the bayside, with each patch containing a mixed canopy of native and exotic tree species. Large incorporated areas making their own policies and ordinances in between the unincorporated patches complicate bayside urban forest management. With the exception of Daly City, Pacifica, and Half Moon Bay, County jurisdiction covers the entire coastal and central mountainous regions. Rural coastside lands are prized for their agricultural and grazing values, and most of their tree canopy is found in the dense stands of *Eucalyptus*, Monterey pine and Monterey cypress that were planted within the last 150 years. The segment of the Santa Cruz Mountains that extends up the middle of San Mateo County is home to various forested ecosystems that present a number of canopy management issues.

    b. There are a variety public and private land management entities in the County, managing lands for different goals and values. Some entities are engaged in habitat restoration to improve conditions for native plant and animal species. Some entities are trying to preserve their land as it exists today, to protect the unique characteristics and provide public access. Others are managing the land to maximize production of timber or other natural resources of high economic value. All of these goals and values are important and can have cumulatively beneficial outcomes that strengthen the overall tree canopy. Countywide tree canopy assessments will be necessary to develop canopy goals with specific objectives for County jurisdictional areas. A countywide strategic plan for canopy management must include tree ordinance policies that support achieving those goals and help the County adapt to the changing climate.

3. Past Conditions

a. Land management practices of indigenous peoples greatly affected the landscape encountered by the first Europeans to arrive in what is now San Mateo County. The use of fire by tribes like the Amah Mutsun and Awaswas produced patches of land that were maintained at different levels of succession. Each successional stage offered unique access to important food, medicine, and material resources while creating varied habitat types that benefited wildlife (Hannibal, 2016). These practices affected the tree canopy of the middle and later centuries of the second millennium, shaping the landscape found by European colonials.

b. In the 1790's, Missions San Juan Bautista, Santa Cruz, and San Jose were constructed. The Spanish missionaries removed most native tribes from their ancestral lands and established strict rules prohibiting the practice of native customs, thus ending their use of fire as a land management tool (Amah Mutsun Tribal Band, 2017).

c. During the Mexican period, approximately from 1834 to 1848, shipping traffic from America's eastern coast brought manufactured goods to California. These goods were traded for the skins of wolverines, fisher martens, mink, beaver, otters and whale oil. The trapping/hunting of these species greatly reduced the populations of native animals, which in turn affected vegetation community dynamics. During this period, native plants such as oak trees were logged for fuel, carts and other purposes. Native plants were eaten by cattle and sheep before they could seed, drastically reducing native plant populations.

d. The 1849 Gold Rush led to rapid landscape changes. Agriculture, ranching, and logging practices altered the tree canopy in different ways. Logging denuded large areas of mature trees, while agriculture and grazing caused widespread removal of young trees and disturbance of grasslands and scrublands by cattle. Domestic ungulate stock and crop farming disturbed top soil and led to accelerated erosion and sedimentation, altering local stream hydrology and nutrient flow.

e. The legacy impacts from successive population and economic expansions between 1790 and 1945 were enormous. The most apparent alteration of the tree canopy in urbanized areas of the County is the overwhelming presence of exotic tree species. As people from around the world flocked to the Bay Area, they brought huge varieties of plants with them; many of those exotic species were planted in San Mateo County from the mid 1800's to the early 1900's. *Eucalyptus* seeds were brought from Australia and Tasmania in the 1850's, and were planted by the thousands because people were enamored with their rapid growth (Farmer, 2013). In the Santa Cruz Mountains, loss of old-growth forest is the unfortunate consequence of past logging operations. After the 1906 earthquake, coast redwood and Douglas fir from the Santa Cruz Mountains were logged to rebuild damaged Bay Area cities. This resulted in the exhaustion of local timber supply by 1913, with the few remaining old-growth trees finally being protected (Payne, 1978). Tanoak was also heavily logged, nearly to the point of extirpation in many watersheds, because the tannins in the bark were used in the County's leather tanneries into the early 20th Century (Farmer, 2013).

4. Present Conditions

a. The spread of urban settlements after World War II led to rapid urbanization on the bayside of the County, causing landscape-scale modifications, including highly altered ecological conditions and species compositions. Natural hydrologic and biotic processes have been affected through widespread removal of trees in certain areas, concentrated planting of trees in other areas, and the continued introduction and distribution of non-native flora and fauna.

b. Examples of landscape-scale modifications include:
    i. Conversion of grassland and oak savannah to densely-wooded residential communities or Eucalyptus plantations
    ii. Conversion of grassland and oak savannah to commercial and industrial complexes
    iii. Conversion of redwood forest and oak woodland to sparsely-vegetated estates, residential communities, and apartment complexes

c. Many riparian corridors have been stripped of vegetation, with stream channels straightened and cutoff from floodplains. These changes have led to channel incision, increased erosion, and increased deposition of sediment and pollutants in San Francisco Bay (EAO, Inc., 2007). The loss of healthy riparian habitat has had adverse effects on native tree canopy (California Native Plant Society, 2014).

d. From 1999 through July of 2016, 3,227 significant tree removal permits and 81 heritage tree removal permits were issued within unincorporated San Mateo County, which means we have been losing an average of more than 200 large trees each year through the County's regulatory program. At the same time, younger trees continue to grow larger and replacement trees are planted, adding to the County's tree canopy. Large tree removal is not always offset by planting replacement trees because they are not always required, and replacement trees are much smaller and sometimes improperly cared for, resulting in both permanent and temporary loss of canopy that can last many years.

e. A study done 10 years ago estimated an average canopy cover of 31.7% for all urbanized areas of San Mateo County, with 46.6% cover in low-density residential areas, 22.6% cover in high-density residential areas, and only 13% cover on industrial and commercial properties (Simpson & McPherson, 2007). We are unable to quantify historic canopy cover in these areas.

f. The advent and rapid expansion of large-scale public ownership of open space lands has had a positive impact on the county's tree canopy. Acquisition of land by a public agency could augment canopy cover or decrease it through direct or indirect management approaches, depending on the short and long-term goals of each agency and the ecological characteristics of different lands under management.

g. The amount of rural lands in the County that are actively managed to effect tree canopy in measurable ways is uncertain. Exotic tree removal is the goal in some areas, typically for the purpose of restoring historic habitats that benefit native wildlife. In other areas, the goal may be to remove dead trees and debris to beautify and reduce fire danger. Past, ongoing, and future restoration projects modify landscapes sometimes to recreate

conditions resembling pre-colonial settlement landscapes, to achieve habitat and species recovery and other ecological goals.

h. Timber production has major implications for tree canopy in the rural County
    i. Forest products made up 1% of the total value of agricultural output from San Mateo County in 2015.
    ii. 31,042 acres of land are zoned Timber Production Zone (TPZ) or TPZ-Coastal Zone (TPZ-CZ) in San Mateo County (about 7 percent of total County area).
    iii. Due to the development of selection timber harvesting in the Santa Cruz Mountains, and the restriction of clear-cutting practices, timber production in the County no longer denudes large areas. Lands zoned for timber production are actively managed to maintain quality tree canopy and successional values. These practices are intended to help the forest to recover from past logging impacts and promote uneven-aged stands with late successional condition.

5. Future Conditions

a. Human land management practices will continue to impact tree canopy throughout the county, with different effects being realized in different areas based on zoning and other policies, climate, community values, and a host of other variables. The development of canopy goals would help guide tree removal and replacement policies and practices and large-scale vegetation management.

b. Increasing population growth and development pressure will affect existing tree canopy and the potential for maintaining or increasing canopy in some locations in the future. Urban forest planning will become more important as population density grows, the number of tree removal permit applications increases, and green infrastructure policies are adopted and implemented.

c. Climate scientists have made projections of changing precipitation and temperature patterns that may cause shifts in potential plant and animal habitat, affecting the viability of certain species (Point Blue Conservation Science, 2016). Some species ranges may expand and others may contract, while new species may migrate into the area. These changes could have impacts on the variety of species that are able to persist in the County's urban and rural forests. Mindful species selection when planting new trees on public and private lands will be important. Certain native or exotic tree species could become more viable/desired for planting in the urban forest, due to increasing importance of drought-tolerance or pest-resistance.

d. The changing climate could increase potential insect pest problems, including new or unknown pests, which could threaten trees on a large scale (Parker, 1999). Drought could also significantly affect the County's tree canopy by weakening trees and making them more susceptible to infestation and disease.

e. Climate change will increasingly shape the County's management practices and canopy goals. The services provided by trees and tree canopy can help mitigate the effects of climate change.

6. **Summary Findings From Meeting 1**
    a. The pace and scale of anthropogenic landscape alteration have increased over time, resulting in significant changes to the County's tree canopy. The vast majority, if not all of San Mateo County's land area has been changed by human activity.
    b. The growing need for healthy urban and rural forests, for air quality and other benefits means that successful management of tree canopy has become even more imperative. Quality of life for many of the residents of San Mateo County will more greatly depend on the quality of their community's tree canopy.
    c. Making urban forest management decisions on a piecemeal basis limits our ability to effectively manage the urban forest. Creating canopy cover goals for the County along with the revised ordinances could improve efficacy and maximize canopy benefits.
    d. Canopy management strategies include the implementation of clear policies that define tree removal permit requirements and tree replacement requirements. Revised policies will provide protection for significant and heritage trees and guidance to County residents on for new and replacement plantings that will improve long-term canopy quality.

7. **General Policy Direction**
    a. In order to strengthen our understanding of the changing canopy and climate conditions in the County, we must attempt to fill in knowledge gaps through various means. The County should develop quantifiable, fact-based canopy goals.[1]
    b. The County should consider the information summarized in the preceding past, present and future sections when developing revisions to the Significant and Heritage tree, Resource Management and Planned Agricultural District ordinances.
    c. The Significant and Heritage tree categories are effective policy tools for evaluating tree removal permit requests in the County and will be retained in a combined ordinance.

Meeting 2 – Policy Options: Geography, Tree Retention, Heritage and Significant Tree Sizing, and Pruning Regulations

1. **Geographic Applicability of Policies**

    Findings

    a. Distinct County regions necessitate different policy approaches to protect trees based on varied development patterns and intensities, natural factors, and historic and present canopy conditions.
    b. Fire safety may affect tree replacement requirements in areas of the County with high fire hazards.

    Policy Direction

    a. Policies that address the varied geographic and landscape conditions in different regions in the County should guide decision-making on tree replacement, including species quantity and size.

[1] Developing County-wide canopy goals and a strategic canopy management plan is beyond the scope of this project, but such goals would be valuable, and would benefit future ordinance revision efforts and inform individual permit decisions.

b. Continue to use RM/PAD zoning in rural areas to manage tree removals, except within 100 feet of authorized structures. Use the updated tree ordinance in urbanized areas, and within 100 feet of authorized structures in the RM and PAD zones to manage tree removals.
c. Extend the Residential Hillside Design Review (RH/DR) policies regarding trees to other areas of the County.
d. RM policies should be revised to better protect native species.

2. Tree Sizing Standards For Protection

Findings

a. Heritage trees are defined by minimum diameter at breast height (DBH) and by species with only certain native species included. Significant tree are defined as all trees above a certain size with no species differentiation. These standards need to be re-assessed to specify smaller diameters to protect younger trees with greater longevity and growth potential, and to improve protections for native species.
b. Large trees are viewed by the community as the most valuable trees and the most worthy of protection. Current policies protect these large trees. However, the size of a tree is not necessarily the most important indicator of its value to the property on which it is located or to the surrounding community. Some trees are very large and healthy, but directly interfere with existing or planned utility lines or solar access. Some large trees are in poor health or have poor structure. Tree location, health, and structure are indicators of value, longevity and growth potential. A mixed canopy made up of trees with varying sizes and ages can create a more resilient forest.

Policy Direction

a. The revised tree ordinance should contain policy language that makes it easier for County staff to preserve high value trees, and allows discretion to approve the removal of trees that should be replaced.
b. The minimum size requirements for heritage tree protection should be reduced to better protect native trees and large trees should continue to be protected.
c. *Aesculus californica* (California buckeye), *Platanus racemosa* (California sycamore), *Populus trichocarpa* (black cottonwood), and *Calocedrus decurrens* (incense cedar) should be added to the list of native species that are granted heritage protection.
d. The minimum size requirement for significant tree protection should be reduced, perhaps to 10 inches.

3. Tree Retention on Development Sites

Findings

a. The County needs to employ several different approaches to requiring tree retention on development sites in order to advance tree protection and increase canopy in certain locations while still allowing for appropriate removals for development.
b. Discretion to relax setback standards or reduce house size could be important tools for the County when new construction threatens to cause significant or heritage tree removal. Currently, design review policies in some geographic areas of the County provide for certain types of design changes to protect trees. These will be evaluated for

broader application in urbanized areas of the County. However, limiting development potential of sites with high land value for the sake of tree retention can be unpopular.

Policy Direction

a. When trees are retained on a development site, those trees should be protected from potential damages caused by construction activities. The American National Standards Institute's (ANSI) standard "A300" outlines best practices to promote successful tree retention, from critical root zone and limb protection to advanced site planning and recommended arborist report elements. The recently adopted County tree protection policies will be evaluated and strengthened where appropriate to incorporate elements from ANSI A300.
b. The County should expand application of design review policies that require tree retention, which can include requiring developers to redesign their project.

4. Pruning of Protected Trees

Findings

a. Pruning more than 25% of a live tree crown is considered serious damage and generally should not be done. The County currently does not require a permit for pruning significant trees outside of the RH/DR zoning district. Permits are required for all pruning of heritage trees. In order to increase protection of significant trees, it may be necessary to require permits for pruning any protected tree in County jurisdiction. Also, standards for appropriate pruning for both significant and heritage trees are needed.
b. Planting the right tree in the right place can prevent the need for excessive future pruning.

Policy Direction

a. Develop enforceable pruning requirements for protected trees to help ensure their survival and longevity.
b. ANSI A300 standards define best arboricultural practices for tree pruning, and will be incorporated into the revised ordinances to promote tree health and aesthetic quality.
c. The County should require submission of a pruning plan before approving the pruning of any protected tree. Pruning more than 25% of the trees limbs or roots may be prohibited.
d. County policies should guide requirements for landscaping plans and tree replacement to reflect the principle of "right tree for the place"

Meeting 3 – Policy Options: Exotic Tree Management and Vegetation Management Plan Permitting

1. Exotic Tree Management

Findings

a. Hundreds of non-native tree species have been planted, transplanted or have created here through hybridization since the late 18th Century. Many have become naturalized and contribute to the character and ecology of the area. Some have become invasive and controversial due to costly and adverse environmental impacts.

b. *Eucalyptus globulus,* commonly called Tasmanian blue gum, makes up approximately 90% of the eucalypt plantations in California (Farmer, 2013). There are potentially 100 eucalypt species now growing in San Mateo County, but blue gum is by far the most prevalent and the most environmentally problematic. In March of 2015, the California Invasive Plant Council (Cal IPC) conducted a new assessment of the ecosystem impacts associated with blue gum. IPC found that adverse impacts from blue gum are greatest where stands are dense and the local habitat conditions are favorable to the species. The most notable impacts include alteration of fire regime through drastically increased fuel loading, decreased groundwater availability, and displacement of native plant communities. Some blue gum stands provide nesting habitat for large roosting birds, overwintering sites for monarch butterflies, and a source of nectar for bees and hummingbirds. However, many of the County's native bird species make little or no use of *Eucalyptus* (California Invasive Plant Council, 2015).
c. Tasmanian blue gum is known for its high water demand, toppling and branch-drop hazards, and invasive properties in some areas of the County. Removal of individual exotic trees from the urban forest, especially certain species of *Eucalyptus* and *Acacia,* could benefit the county if native drought-tolerant species, or desirable exotics are required for replacement plantings. Some exotic trees are well suited to urbanized areas of the County and can be useful in urban landscapes for meeting canopy goals.
d. There are dense *Eucalyptus* plantations on the coastside of the County that are growing in favorable environmental conditions and have become invasive. Many of those plantations have displaced native habitat, such as grasslands and coastal scrub and have been identified by land managers as desirable locations for restoration projects.
e. 62.5% of the steering committee approved of a streamlined, over-the-counter permit for removing individual trees of certain species of Eucalyptus and certain other exotic trees in urban areas of the County. 70.6% of the committee believes that such a permit should contain ecosystem appropriate tree replacement requirements.
f. 76.5% of the steering committee approved of the removal of large numbers of exotic trees from rural lands for fire safety, to achieve habitat restoration goals, or for other public benefits. Committee members stressed the importance of establishing rigorous standards for success and monitoring before such large-scale removals are undertaken. 66.7% of committee members indicated that County policy should define and acknowledge novel ecosystems that are made up of a mix of exotic and native tree and shrub species, and that policies should protect novel ecosystems where they have become self-sustaining and exhibit desirable habitat values.

<u>Policy Direction</u>

a. A streamlined permit should be created for the removal of certain exotic tree species, especially *Eucalyptus globulus* and *Acacia sp.* Exotic trees removed should be replaced with native species or desirable non-natives that are well suited to the local environment and probable future climate conditions, and provide habitat to native fauna.
b. The County should develop policy to facilitate the removal of blue gum stands for fire safety and habitat restoration goals. A thorough vegetation management plan should be a required by such policies.

c. Removal of blue gum stands for the restoration of native perennial grasslands should be permitted without tree replacement requirements.
d. RM policies should allow for the protection of novel ecosystems where they have become self-sustaining and exhibit desirable habitat values, and where their preservation aligns with the land manager's goals.
e. There is much debate over how to define terms such as exotic trees, native trees, cultural value, ecological value, beneficial use, and economic enjoyment. These terms should be clearly defined to avoid confusion or misinterpretation when implementing the revised ordinances.

2. Vegetation Management Plans & Rural Tree Management

Findings

a. *Eucalyptus globulus* was planted in dense stands in San Mateo County over 100 years ago. It was believed that hardwood timber could be produced at an extraordinary pace, due to the fast growing nature of the eucalypts (and the Bay Area). However, many of the blue gum stands were abandoned in the early 20th century because the young wood proved to be of low quality when it warped and cracked during the curing process. Coastside plantations have slowly expanded their footprints over time, reducing native habitats. Many public and private land managers target the plantations for removal as part of habitat restoration projects. Eucalyptus stands on the Bayside in rural areas are also targeted for removal by land managers to facilitate restoration with native plant species.
b. Current County policies make it difficult and expensive to manage or remove invasive exotic species. If the County creates streamlined permitting options for exotic tree removal, land managers would be better able to carry out habitat restoration projects.
c. Vegetation Management Plans (VMPs) would have to function within Local Coastal Program policies in the rural coastside region. Outside of the Coastal Zone, the County could certify plans in a more streamlined fashion and require ongoing reporting of activities pursuant to an approved plan. The Mid-Peninsula Regional Open Space District and the San Mateo County Resource Conservation District support development of a streamlined general permit that would expedite VMP approval and implementation.
d. Current County policies require property owners on lands zoned Resource Management (RM) or Planned Agricultural District (PAD) to apply for RM or PAD permits to remove trees from their properties. The RM and PAD permits can be expensive and take longer to obtain than a tree removal permit.

Policy Direction

a. County policies should distinguish between individual tree removals in urban areas or rural areas, and stand removal in rural areas.
b. The County should create a VMP ordinance to facilitate highly beneficial habitat restoration and fire safety projects, and continue to require RM permits for tree removals more than 100 ft. from authorized structures.
c. Property owners on rural lands should be required to obtain tree removal permits in-lieu of RM permits when removing small numbers of trees from within 100 ft. of

authorized structures. RM permits should still be required for other removals and the policies clarified, including increased protection for native trees.

d. Preparation of a VMP should follow a rigorous process and include the following steps, as needed, based on site conditions and desired outcomes:
   - Compile and assess data that includes:
     -Physical site conditions
     -Vegetation assessment (formal stand exam or informal inventory)
     -Disease and insect site visits
     -Hazard tree surveys
     -History of vegetation management
     -Physical improvements and uses
     -Fuels and defensible space
   - Describe desired future conditions.
   - Compare existing conditions to desired future conditions.
   - Identify alternative methods to achieve future conditions.
   - Select an alternative and outline actions.
   - Implement actions.
   - Monitor actions.

   Rigorous plans should be subject to a streamlined permit process to reduce costs of restoration projects.

Meeting 4 – Policy Options: Arborist Reports and Defensible Space

1. Arborist Report Requirements

Findings

a. Arborist reports serve as a key evidentiary resource for County staff, the Planning Commission or the Board of Supervisors when considering applications for protected tree removal or pruning and for tree protection measures on development sites. Clear standards for the preparation, format, and content of these reports will help ensure that reliable information is used in decision making. These standards could include required arborist credentials, conditions that trigger arborist report requirements, specific report requirements tailored to varying types of tree permits, and defined levels of risk that will guide Planning staff in the decision to approve or deny removal permits.

b. Three member-based, professional organizations offer credentials in the field of arboriculture: the American Society of Consulting Arborists (ASCA), the Tree Care Industry Association (TCIA), and the International Society of Arboriculture (ISA). These are the most prominent organizations that oversee certification programs for arboricultural professionals and businesses in the United States. These organizations provide ongoing training for professional development and skill maintenance. Ongoing training is critical for all arborists.

c. Arborists registered by the ISA and tree companies certified by TCIA commit to follow a code of ethics. ASCA created similar ethical guidelines called Standards of Professional Practice, to which all ASCA members are expected to adhere. This can help ensure the honest reporting of tree health, structure and safety conditions to clients and regulatory

bodies that must make decisions on applications for significant and heritage tree removal. These codes of ethics can also provide some potential guidance for policy. For example, ethical requirements to "Assure that a conflict of interest does not compromise legitimate interests of a client, employer, employee, or the public and does not influence or interfere with professional judgments" (International Society of Arboriculture, 2014), and "report … conclusions, opinions and recommendations in a manner that makes them clear, unambiguous and usable" (American Society of Consulting Arborists, 2011), can be reflected in policy objectives and requirements to ensure unbiased information is provided.

d. ASCA also states that "The results of members' Arboricultural Consulting assignments should always be objective, that is, based upon what the member perceives to be relevant facts and reasonable assumptions, and independent of the desires, needs or wishes of the client or employer and of the interests of the member" (American Society of Consulting Arborists, 2011). Unbiased arborist reports are the foundation for sound tree removal or retention decisions.
e. Tree Risk Assessment Qualification (TRAQ) is an ISA qualification program that trains arborists how to perform credible tree risk assessments (International Society of Arboriculture, 2017). This qualification is important in the County as many of the tree removal applications received characterize the tree proposed for removal as a hazard. Currently, some arborist reports lack the rigor called for in the TRAQ process.
f. In some cases, technology can improve the quality of information available in tree removal or protection decisions, such as tomography and resistance drilling.

<u>Policy Direction</u>

a. The revised County policies will define standards for hazard trees to assist in their identification and removal.
b. The County should require TRAQ certification for arborists who are submitting arborist reports that recommend the removal of a protected tree based on level of risk or potential hazard.
c. The County should require arborists submitting reports that will be used for tree removal decisions to be certified by ISA or ASCA, or to work for an arboricultural firm that is certified by TCIA.
d. The County should clearly define which reporting format is required in different situations and what the required report contents are for each of the reporting formats. The letter report format should be satisfactory for most cases, but the booklet report format will be required in certain extenuating circumstances or when a large development project is proposed.
e. Arborist reports should be required for all heritage or significant tree removal or pruning permit applications, and for all exterior development on sites where protected trees are located. Specific requirements will be established for arborist reports that accompany planning or building permit applications if the development site has existing

protected trees that will be removed or retained. Tree protection practices during construction must be clearly indicated in the report before permits will be granted.

f. Arborist reports must contain at least the following components:
    a. Assignment details
    b. Observations
    c. Annotated photos
    d. Analysis or testing methods
    e. Discussion of findings
    f. Conclusion and recommendations
    g. Supporting information and assessment limitations
    h. Health care suggestions that could remediate probable tree health issues
    i. Completed ISA Tree Hazard Form

g. To remove heritage trees a level 3 assessment should be required, in which the County may require the use of sonic tomography, a resistance-recording drill, or other technical wood evaluation techniques and equipment to substantiate a diagnosis that a tree is diseased or has structural deficiencies that pose a hazard.
h. The County could create and maintain a list of certified arborists to help property owners find capable and trustworthy arborists.
i. The County will require that tree removal work be done by a different arborist or company than the one who prepared the report.
j. The County Arborist should support tree removal application and arborist report review processes and help ensure ethical and professional conduct.

2. Defensible Space

Findings

a. Defensible space is a buffer between a building and any flammable plants or adjacent wildland area; it is essential for protecting buildings from wildfire. Defensible space is also important for the protection of firefighters.
b. Clear definitions of defensible space and fire safety will be necessary in County ordinances, to provide County staff and residents with a common understanding of appropriate vegetation management around homes and ancillary structures.
c. Certain tree species are not safe to have growing near a home, especially in certain parts of the county during drought conditions, due to highly combustible leaf litter collecting on the ground, on roofs, and in rain gutters. In the event of a fire, trees like Tasmanian Blue Gum and Monterey Pine are highly susceptible to ignition and transmitting embers and flames. Removal of such tree species in high fire hazard areas of the County could be expedited when deemed appropriate by CalFire or local Fire Protection Districts, and could be supported by policy.
d. Balancing defensible space goals with tree canopy protection is a key issue to consider. If homeowners are required to remove trees from their yards for the creation of defensible space, it could cause a considerable loss of canopy cover and associated benefits, unless replacement plantings are required that meet defensible space standards.

e. Often, careful management of ladder fuels, appropriate tree species selection, and management through pruning can greatly reduce fire hazard. It is highly desirable that new tree plantings be limited to fire-resistant species in the very high fire hazard areas, and that they are carefully located and maintained.

Policy Direction

a. The County should enforce defensible space standards to promote fire safety.
b. County policy should support the expedited removal of Tasmanian Blue Gum and Monterey Pine and other fire hazard-prone tree species in high fire hazard areas when deemed appropriate by CalFire or local Fire Protection Districts.
c. New tree and replacement tree plantings should be limited to fire-resistant species in the high fire hazard areas of the County and be located based on defensible space criteria.

Meeting 5 – Policy Options: Replacement Plantings

1. **Replacement Requirements**

Findings

a. When protected trees deteriorate and present risks to the public, or when they cause damage to private property or interfere with development projects, people frequently seek permits to have them removed. Planting replacement trees when significant or heritage trees are removed can prevent long-term net reduction of tree canopy in the County.
b. It may be desirable to create tree replacement policies that are tailored to specific zoning districts or geographical areas, to align planting requirements with ecological and aesthetic goals. Replacing removed trees on RM and PAD lands might only be appropriate in areas developed with structures, and only when it doesn't interfere with maintenance of defensible space or agricultural uses. In undeveloped areas, vegetation management plans or other applicable permits can regulate the large-scale or ongoing removal and replacement of trees.
c. Tree replacement requirements currently do not apply to the removal of dead trees, and it may be appropriate to require replacement plantings. While dead trees provide certain local benefits to wildlife, they also create unnecessary risk and should be removed from the urban environment.
d. The size and number of replacement trees planted are important to consider as part of a protected tree removal permit. Homeowners generally want to minimize costs and the County policies are aimed at replacing the lost canopy as quickly as possible. Replacement with one 15 gallon size tree is a reasonable standard because they are affordable and often smaller trees grow more quickly. However, it could be more appropriate to plant acorns in certain situations to avoid the spread of destructive phytophthoras through contaminated nursery soil or plant materials (Bartholomew, 2016).
e. Large development projects can result in the removal of many protected trees from a property. If large, healthy trees are proposed for removal to accommodate new

buildings or parking lots, higher levels of required mitigation would help to offset the associated environmental impacts of those removals. This can be achieved by requiring larger replacement trees, provided the replacements are not root-bound.

f. On-site replacement is generally preferred over off-site plantings because the tree canopy and associated benefits to the community may not be replenished if replacement planting occurs elsewhere. It is important to select appropriate species and location for replacement plantings. Careful selection of species and location can prevent interference with utility lines or damage to property, and ensure trees will thrive.
g. Some tree removals occur where on-site replacement is not feasible. Establishing an in-lieu fee program would allow the County to mitigate the loss of canopy on such properties. While the tree removal site will sustain net canopy reduction, payment of an in-lieu fee into a Tree Planting Fund will help the County to plant trees in areas that are most in need of increased canopy cover, or to accomplish other canopy improvement goals.
h. One of the most important criteria to determine if a site can accommodate replacement trees is the site's remaining tree density. Quantitative assessment of tree density is not widely used for this purpose but cities like Portland, Oregon have been able to successfully employ this method to minimize thinning of their urban forest. This tactic relies on parcel-level canopy requirements.
i. When significant or heritage trees are removed and replaced, care must be taken to ensure the survivability of the replacement trees. If the replacement plantings fail to survive, the planting site and the surrounding community will not recoup the associated benefits that were lost from removal of the original trees.
j. Small native plants and shrubs do not interfere with utilities and they allow full sun to enter a yard area, which makes them preferable to trees for some people. There is tension between property owners' desires to create or maintain yard areas open to the sky and County policies that protect trees and require replacements for those removed.
k. There are plant species which have been introduced to San Mateo County from other parts of the State and from other countries. Many of these species are now considered to be invasive and ecologically deleterious. Some species like Monterey pine and Tasmanian blue gum have been over planted and should not be protected in most cases. Due to the over-abundance of these species, among others, it may be beneficial to prohibit or discourage their use as replacement trees.
l. The Federal Migratory Bird Treaty Act (MBTA) and the California State Code have clear regulations against disturbing nesting birds. The majority of bird species in San Mateo County nest in the spring and summer months. Tree removal that disturbs nests of protected migratory birds is a violation of the MBTA.

Policy Direction

a. The new tree ordinance should contain clear standards for what constitutes a dead tree and when replacement planting is required.

b. When protected trees are removed from the urban forest or near authorized structures on rural lands, the removal permit should clearly specify the quantity and size of replacement trees to be planted. Based on County staff research and steering committee input, replacement with one 15 gallon size tree should be the general standard, unless planting larger trees is warranted under certain circumstances. When planting from seed, higher planting numbers may be required. If a property owner is allowed to plant an acorn instead of a 15 gallon size replacement tree, they should be required to also pay an in-lieu fee to make up for the slower canopy replenishment.
c. Higher tree replacement ratios should be required, such as 2:1 or 3:1, for development projects that result in protected tree removals. If the development site cannot accommodate 2:1 or 3:1 replacement due to lack of planting space or other considerations, the permittee should pay in-lieu fees for planting trees off site.
d. When on-site replacement is feasible, the property owner should plant an appropriate species in an appropriate location. The replacement tree's dimensions at maturity should be considered to avoid interference with any utilities or damage to public or neighboring properties, aboveground or belowground. If a native species is removed it should be replaced with a native species. Planting should be timed to reduce plant stress, e.g. avoid planting in summer months.
e. The County could develop parcel-level canopy cover requirements to use in deciding if a property can accommodate replacement plantings.
f. The County should establish an In-lieu Fee Program to facilitate the mitigation of impacts that result from large tree removal without on-site replacement. In-lieu fees should be held in a Tree Planting Fund that is maintained separately from the County's General Fund. The money should be used for a variety of projects that aim to increase canopy cover in communities that need it, or projects that aim to improve the quality of canopy in areas that are adversely affected by invasive species.
g. Young trees that are planted to replace removed significant or heritage trees should be defined in the new ordinance as protected trees that must be maintained and replanted if they die. A monitoring program should be developed to enforce replanting requirements and ongoing protection of mitigation trees. The approved removal permit should also contain specific requirements for planting procedures, such as how big the planting hole should be and what soil amendments might be necessary.
h. If a property owner removes a diseased or high risk tree and does not want to replace it because they prefer to have open space, they could have the option of planting native shrubs or paying an in-lieu fee. Planting native shrubs as replacement plantings should be acceptable in areas with abundant or over-abundant tree cover, or where large trees would interfere with solar panels. Areas with insufficient canopy that may benefit from specialized requirements and mitigations should be identified in the new urban canopy goals.
i. A list of "Don't Plant" species should be included in the revised ordinance. A list of low fire-risk, drought-tolerant, native and exotic species should be created to help property owners and others choose appropriate replacement trees. These lists should be region-

specific and provide details about size, root habit, and other characteristics to promote the planting of the right trees in the right places.

j. In order to minimize impacts to birds, tree removals should be conducted in a manner that avoids impacts to migratory birds unless there is imminent hazard. The County's tree ordinances should incorporate policies regarding tree removals that are consistent with the Migratory Bird Treaty Act.

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