



City of Mountain View

Agenda

Parks and Recreation Commission and Urban Forestry Board

*Commissioners Cornes, Naegele, Wolter,
Vice Chair Hepfer and Chair Herbach*

Wednesday, May 11, 2016

7:00 PM

Senior Center - 266 Escuela Avenue

1. CALL TO ORDER

2. ROLL CALL

Commissioners Thida Cornes, Helen Wolter, Katherine Naegele, Vice Chair Paul Hepfer and Chairperson Jonathan Herbach

3. MINUTES APPROVAL

3.1 [16-504](#) Approval of Minutes

Recommendation: That Parks and Recreation Commission approve the April 13, 2016 minutes.

Attachments: [04-13-2016 PRC Minutes](#)

4. ORAL COMMUNICATIONS FROM THE PUBLIC

This portion of the meeting is reserved for persons wishing to address the Commission on any matter not on the agenda. Speakers are limited to three minutes. State law prohibits the Commission from acting on non-agenda items.

5. UNFINISHED BUSINESS

6. NEW BUSINESS

6.1 [16-507](#) Heritage Tree Appeal-1180 Judson Drive

Recommendation: Deny the appeal and allow the Monterey pine tree to remain.

Attachments: [Staff Report](#)
[ATT 1 - Appeal Packet](#)

[16-505](#) **Update on Fayette Park, Project 13-36**

Recommendation: Note receipt and file.

Attachments: [Staff Report](#)
[ATT 1 - Fayette Park Location Map](#)
[ATT 2 - Tree Removal Plan](#)
[ATT 3 - Park Concept Plan](#)

6.3 [16-506](#) **Annual Water and Sewer Main Replacements, Projects 14-21 and 14-22, Heritage Tree Removal Mitigation**

Recommendation: Review the proposed Heritage tree mitigation for the Annual Water and Sewer Main Replacements, Projects 14-21 and 14-22, and forward a recommendation to the City Council to approve the staff-recommended mitigation for removal of up to eleven (11) Heritage trees with 1-to-1 tree replacements and planting 11 new 24" box trees.

Attachments: [Staff Report](#)
[ATT 1 - Location Map](#)
[ATT 2 - Tree Map](#)
[ATT 3 - Site Plan](#)

6.4 [16-508](#) **Community Services Department Proposed Budget for Fiscal Year 2016-17**

Recommendation: Review and provide input on the Community Services Department's (CSD) proposed budget for Fiscal Year 2016-17.

Attachments: [Staff Report](#)
[ATT 1 - Detailed List of CSD Budget Requests](#)
[ATT 2 - Detailed List of Master Fee Schedule Changes](#)
[ATT 3 - Summary of Park Land Dedication and In-Lieu Fees](#)

7. COMMISSION/STAFF ANNOUNCEMENTS, UPDATES, REQUESTS, AND COMMITTEE REPORTS

No action will be taken on any questions raised by the Commission at this time.

8. ADJOURNMENT

Adjourn to the Special Meeting of Wednesday, June 22, 2016 at 7:00 p.m. in the Senior Center, 266 Escuela Avenue.

AGENDAS FOR BOARDS, COMMISSIONS, AND COMMITTEES

- The specific location of each meeting is noted on the notice and agenda for each meeting which is posted at least 72 hours in advance of the meeting. Special meetings may be called as necessary by the Commission Chair and noticed at least 24 hours in advance of the meeting.
- Questions and comments regarding the agenda may be directed to the Planning Secretary at (650) 903-6306 or community.dev@mountainview.gov.
- Interested persons may review the agenda and staff reports at the Community Development offices, 500 Castro Street, First Floor; the Friday afternoon before each meeting at 4:30 p.m. or soon thereafter; or online at <http://laserfiche.mountainview.gov/Weblink>; and they are available during each Commission meeting.

SPECIAL NOTICE—Reference: Americans with Disabilities Act, 1990

- Anyone who is planning to attend a meeting who is visually or hearing-impaired or has any disability that needs special assistance should call the Community Development Department at (650) 903-6306 48 hours in advance of the meeting to arrange for assistance. Upon request, in advance, by a person with a disability, agendas and writings distributed during the meeting that are public records will be made available in the appropriate alternative format. Also upon request, in advance, an assistive listening device can be made available for use during the meeting.
- The Board, Commission, or Committee may take action on any matter noticed herein in any manner deemed appropriate by the Board, Commission, or Committee. Their consideration of the matters noticed herein is not limited by the recommendations indicated herein.

SPECIAL NOTICE—Any writings or documents provided to a majority of the Environmental Planning Commission regarding any item on this agenda will be made available for public inspection in the Community Development Department, located at 500 Castro Street, during normal business hours and at the meeting location noted on the agenda during the meeting.

ADDRESSING THE BOARD, COMMISSION, OR COMMITTEE

- Interested persons are entitled to speak on any item on the agenda and should make their interest known to the Chair.
- Anyone wishing to address the Board, Commission, or Committee on a nonagenda item may do so during the "Oral Communications" part of the agenda. Speakers are allowed to speak one time on any number of topics for up to three minutes.



City of Mountain View

Senior Center
266 Escuela Avenue

Minutes - Draft

Parks and Recreation Commission and Urban Forestry Board

*Commissioners Cornes, Naegele, Wolter,
Vice Chair Hepfer and Chair Herbach*

Wednesday, April 13, 2016

7:00 PM

Senior Center - 266 Escuela Avenue

1. CALL TO ORDER

Chairperson Herbach called the meeting to order at 7:04 p.m.

2. ROLL CALL

Present 3 - Commissioner Thida Cornes, Commissioner Katherine Naegele, and Chairperson Jonathan Herbach

Absent 2 - Commissioner Helen Wolter, and Vice Chair Paul Hepfer

3. MINUTES APPROVAL

Motion - M/S Naegele/Cornes - To approve the March 9, 2016 minutes as amended.

Motion carried by the following vote:

Yes: 3 - Commissioner Cornes, Commissioner Naegele, and Chairperson Herbach

Absent: 2 - Commissioner Wolter, and Vice Chair Hepfer

4. ORAL COMMUNICATIONS FROM THE PUBLIC - None

5. UNFINISHED BUSINESS - None

6. NEW BUSINESS

Note: The order of the Agenda Items switched.

6.1 Park Land Dedication Fund Recommendations

Senior Administrative Analyst Brady Ruebusch gave a presentation on Park Land Dedication Funds and requested that the Commission review and forward staff's recommendation to the City Council.

Motion - M/S Cornes/Naegele - To forward staff recommended Park Land Dedication Fund Recommendations to the City Council.

Motion Carried by the following vote:

Yes: 3 - Commissioner Cornes, Commissioner Naegele, and Chairperson Herbach

Absent: 2 - Commissioner Wolter, and Vice Chair Hepfer

6.2 Current and Upcoming Parks Projects Update

Community Services Director J.P. de la Montaigne gave an informational presentation on the parks related capital improvement projects that are expected in the coming years.

7. COMMISSION/STAFF ANNOUNCEMENTS, UPDATES, REQUESTS, AND COMMITTEE REPORTS

Community Services Director J.P. de la Montaigne shared the following information:

- April 23 Downtown Family Parade
- Mayor's quarterly meetings with Advisory Bodies
- Registration of summer programs

Commissioner Cornes shared about the discussion of Pickle Ball sport that took place at the Mayor's quarterly meeting.

Commissioner Herbach shared a complaint email, received from a citizen, about Pickle Ball sport. The Commission and staff briefly discussed issues regarding Pickle Ball groups and Tennis groups. Community Services Director suggested that Commission may consider adding this item to next year Work Plan.

Commissioner Herbach requested to change the June 8 meeting to June 22, and the Commission and staff agreed to his request.

8. ADJOURNMENT

At 8:19 p.m., the Chairperson Herbach adjourned the meeting to the next Parks and Recreation Commission and Urban Forestry Board Meeting to be held on Wednesday May 11, 2016, at 7:00 p.m. in the Senior Center, 266 Escuela Avenue.



MEMORANDUM

Community Services Department

DATE: May 11, 2016

TO: Urban Forestry Board

FROM: Jakob Trconic, Parks Section Manager
Bruce Hurlburt, Parks and Open Space Manager

SUBJECT: Heritage Tree Appeal – 1180 Judson Drive

RECOMMENDATION – Deny the appeal and allow the Monterey pine tree to remain.

FISCAL IMPACT – None.

BACKGROUND

Article II, Protection of the Urban Forest, Sections 32.22 through 32.38 of the City Code, was established to preserve large trees within the City which are growing on private or public lands. The preservation program contributes to the welfare and aesthetics of the community and retains the great historical and environmental value of these trees. The Parks and Open Space Manager, under the authority granted in the Code to the Community Services Director, has been designated as the enforcement agent in this matter. Under the Code, there are specific criteria for removal. The determination on each application is based upon a minimum of one of the following conditions. The decision maker shall consider additional criteria, if applicable, in weighing the decision to remove a Heritage tree, with the emphasis on the intent to preserve Heritage trees.

1. The condition of the tree with respect to age of the tree relative to the life span of that particular species, disease, infestation, general health, damage, public nuisance, danger of falling, proximity to existing or proposed structures, and interference with utility services.
2. The necessity of the removal of the Heritage tree in order to construct improvements and/or allow reasonable and conforming use of the property when compared to other similarly situated properties.

3. The nature and qualities of the tree as a Heritage tree, including its maturity, its aesthetic qualities such as its canopy, its shape and structure, its majestic stature, and its visual impact on the neighborhood.
4. Good forestry practices such as, but not limited to, the number of healthy trees a given parcel of land will support, the planned removal of any tree nearing the end of its life cycle, and the replacement of young trees to enhance the overall health of the urban forest.
5. Balancing criteria: In addition to the criteria referenced above which may support removal, the decision maker shall also balance the request for removal against the following which may support or mitigate against removal:
 - a. The topography of land and effect of the requested removal on erosion, soil retention, water retention, and diversion or increased flow of surface waters.
 - b. The effect of the requested removal on the remaining number, species, size, and location of existing trees on the site and in the area.
 - c. The effect of the requested removal with regard to shade, noise buffers, protection from wind damage and air pollution, and the effect upon the historic value and scenic beauty and the health, safety, prosperity, and general welfare of the area and the City as a whole.

Also, within Code Section 32.31, an appeals process has been included that states:

“Any person aggrieved or affected by a decision on a requested removal . . . may appeal the decision by filing a written notice of appeal with the city clerk stating the grounds for the appeal, and paying the requisite appeal fee, as established by council resolution, within ten (10) calendar days after the notice of the decision is posted or mailed.”

HERITAGE TREE REMOVAL REQUEST

An application to remove a Heritage-sized Monterey pine (*Pinus radiata*), was received on March 2, 2016. The application was submitted by Marie-Claude Theriault. The criteria for removal listed on the application was: “ Borer insect activity, die back in branches, recent branch failure on sidewalk/street, signs of pitch canker.” Staff visited the site to observe the tree and its condition. A decision to deny the removal of the tree was posted on March 17, 2016. The denial letter to the owner concluded that the tree did not meet any of the criteria for removal.

An appeal was filed by Marie-Claude Theriault, owner of the property. The appeal letter states in part: “Concern with Borer Beetles. Excessive sap production making it difficult to enjoy that part of the property. Dieback of branches. Signs of rotting wood, a white fungus was observed under the bark of a branch. Pruning does not help remove pitch canker from tree. Tree is at end of its life, three other trees in the area died over 10 years ago indicating this tree is on its last mile. A small oak tree is growing under this tree stating good forestry to allow this tree more room and light to grow. Property has many trees including three heritage trees. Monterey pine is also the single most frequently reported tree in the California Tree Failure Report Program database. Tree is 4-5 feet [sic] from the sidewalk so branches are above a busy residential street (Clark Avenue) and two nearby elementary schools. Risk contamination of other tree by dispersal of infected beetles to nearby trees. Tree shows signs of decline.”

ANALYSIS

When evaluating Heritage Tree Removal Applications, staff looks to see if the reasons for removal on the application match what is observed in the field. If the reasons meet the criteria, staff looks to see if issues regarding the tree or trees can be reasonably mitigated. Based on inspection and evaluation of the Monterey pine, the appeal should be denied.

1. Monterey pine (*Pinus radiata*) is native to three very limited areas located in Santa Cruz, Monterey, and San Luis Obispo counties. Monterey pine is a fast-growing coniferous evergreen tree that reaches between 50' to 100' in height in the wild and slightly less in urban settings. It typically has upward-pointing branches and a rounded top. The needles are bright green, in clusters of three, 3" to 6" long, and with a blunt tip. The cones are 3" to 7" long, brown, and ovoid (egg-shaped).
2. The tree is in fairly good health considering the many challenges Monterey pines face. The tree has a fairly full and green canopy. It has good structure with a balanced distribution of branches and weight around the trunk up to the upper canopy. Branch diameters do not appear to exceed ratios of size compared to the trunk that would increase the likelihood or potential for failure. The canopy does have a few dead branches that could be trimmed out but overall, the tree looks healthy.
3. A branch apparently broke out of this tree fairly recently but it appears to be from a dried dead branch that was likely in need of removal. This tree does not appear to have a history of frequent large branch failures. Fear of a tree falling or branches falling is not a reason to consider a tree for removal. Any tree can lose a

limb or branch and only after a pattern is established that is out of the norm can a tree be considered for removal due to safety concerns and only if the branches are substantial in size.

4. The tree has pitch canker, a disease that affects Monterey pine trees. Most pines native to California are susceptible to pitch canker. Most Monterey pines in the Bay Area are infected to some degree. The fungus causes infections that can encircle branches, exposed roots, and the main stems (trunks) of pine trees. Beetles and other host insects can spread the infection around the tree. The tips of girdled branches wilt as a result of obstructed water flow, causing needles to turn yellow and then brown. The fascicles (needle clusters) eventually fall off, leaving bare branch ends. Multiple branch infections can cause extensive dieback in the crown of the tree and can eventually lead to tree mortality. Trees can live for many years with pitch canker, but often weakened trees are eventually attacked by engraver beetles, which may cause death of additional branches, treetops, or the entire tree. This tree does not show signs of heavy flagging or yellowing of needles and appears to be tolerating the current level of pitch canker within the tree. Pruning and the canker disease will lead to sap production. Almost all conifers produce sap that will fall out of the tree. Trees with pine pitch canker tend to drop a little more sap than trees without this issue.
5. Turpentine beetles are typically the insect that cause the death of Monterey pine trees. This beetle is attracted to stressed trees and bore into the lower portion of the trunk. They leave a very distinctive looking bore hole with a pink exudate of wood and sap at the base. A large infestation of turpentine beetle can kill a tree in a few short months. This tree does not have signs of the turpentine beetle at this time.
6. The appeal letter notes a branch with a white fungus under the bark and concern of a wood rot or decay mechanism in the tree or branch. If this was on an older branch that was dead, damaged, or dying, then this would be a normal occurrence. If this tree were losing large branches frequently, then a consulting arborist could be hired to evaluate the tree and they could perform a complete tree risk assessment and tree health report for the homeowner. A tissue sample could be sent into a lab to determine the specific fungus and if it was potentially a larger issue than an isolated occurrence on a dying or damaged branch; otherwise, it is speculation to consider the tree has an extensive wood rot issue from what is likely an isolated branch issue.

SUMMARY

Staff is of the opinion that this Monterey pine tree is in fairly good health. It does not have significant branch dieback or a history of branch failure. The pine pitch canker infection is minimal and there is no sign of turpentine beetle. Staff recommends the appeal be denied and the tree be allowed to remain.

JT-BH/CV/7/CSD

221-05-11-16M-E

Attachment: 1. Appeal Packet

RECEIVED

MAR 29 2016

CITY CLERK

APPEAL TO REMOVE HERITAGE TREE

I would to appeal of the decision of the City of Mountain View (inspector Jakob Trconic) to deny my request to remove a Monterey pine at 1180 Judson Drive .

The tree is located in the back of the property at about 4 ft from the sidewalk of Clark Ave.

The reasons to appeal of the decisions are:

1. The tree displays symptoms of disease

- Borer Beetles
 - A branch fall and holes from borers were clearly visible (see picture 1).
 - Harder to notice because of the roughness of the bark, holes on the trunk are also visible (see picture 2).
 - When the bark is removed form the branch that fell, tunnel done by the borers are also visible (see picture 3, 4 & 5).
- Excessive Sap production.
 - Sap soaking the wood under the bark giving it an amber color (see picture 4 & 5)
 - Sap dropping from branches making it difficult to enjoy the area under the pine since it's all sticky.
 - If looking at Pitch Canker being the disease the pine is infected with, *these infections (bole cankers) are very conspicuous due to extensive production of resin that can coat lower limbs and several feet of the trunk (...), usually appear after branch dieback has occur¹.* Our pine tree shows a lot of smaller resin production area (see picture 6, 7 & 8).
- Die back of branches (see picture 9 & 10)
- Signs of rotting wood.
 - White fungus found under bark indicating the branch is rotting (see picture 11)
 - Picture 4 & 5 with very dark crumbling under-bark also suggest rotting.
- Pruning
- -Pruning to remove tips infected by pitch canker will usually not eliminate the disease².

2. Good Forestry Practice

- Near end of its life.
 - There were at least 4 of those trees lining the back of the property. Three of them died over 10 years ago, indicating that this pine had reached its last mile.
- Promoting young trees
 - Right under the pine is growing a Coast Live Oak Tree, now reaching about 25 ft. In order to grow big, tall and strong with a nice shape for many years, this tree will need space to expands its canopy and the pine is making obstruction.
 - About 10 feet from the pine tree is also growing a small native buckeye tree.

¹ Pitch Canker Disease in California.-Tree Notes California Department of Forestry and Fire Protection by K Camilli, J.Marshall, D.Owen, T.Gordon & D.Wood, 2013, p.3.

² Pitch Canker Disease in California.-Tree Notes California Department of Forestry and Fire Protection by K Camilli, J.Marshall, D.Owen, T.Gordon & D.Wood, 2013, p.7.

- Healthy urban forest

- There is already many big and small trees species growing on the property. As big species, there is 3 heritage trees, a mature Ash tree (street tree), a tree looking like a larch tree, a mature mulberry and a small buckeye. As smaller species, there is 5 different species of Manzanita, a hedge of toyons, a row of ceanothus, 2 fremontodendron californicum, a young hedge of rhamnus californica and some more natives.

3. Limb Failure/Liability

- Monterey Pine is also the single most frequently reported tree in the CTFRP (California Tree Failure Report Program) database³. Monterey pines are growing here out of their natural habitat. Due to weather and soil, their lifespan is much shorter and structure is drastically different making the Monterey Pine more prone to limb braking³.
- As mentioned in the introduction, the tree is located about 4-5 ft from the sidewalk so about half of its braches are above a busy residential street (Clark Ave), nearby 2 schools: Almond Elementary School and Los Altos High School. Many students and their parents walk up and down the street each day to get to school and back home. Clark Ave has a lot of vehicular traffic form the High School, from delivery services, from construction trucks (and others) because the street has a direct access to El Camino Real.

A limb falling on a pedestrian would cause serious injury, or could cause a serious accident if it'd fall on a car/truck/motorcycle.

4. Risk of Contamination to very nearby Heritage Trees

- The dispersal of infected beetle may carry the disease to new location. There are other big pine trees of different species in the vicinity that are within reach of those infected bugs.

Conclusion

Monterey pines are indeed impressive and majestic trees and taking the decision of removing one is never easy.

But because the Monterey pine on our property shows clear sign of decline (insects/disease, end of life, weak structure), because the removal of the tree would be good forestry practice (young heritage trees already growing on the property, close to pine) and because this tree is a menace to pedestrians (specie prone to breakage), the city should reconsider its decision and grant us the permission to remove the Monterey pine.

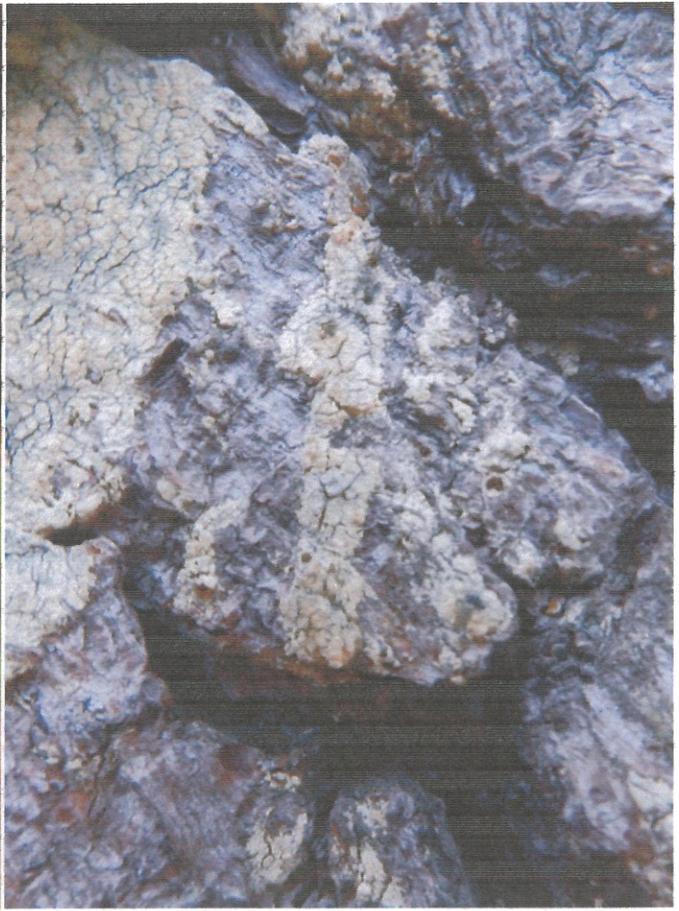


MARIE-CLAUDE THERIAULT
(650-919-3866)

³ Patterns of Structural Failure in Monterey Pine.- Journal of Arboriculture, Nov.1994, pp297-304.



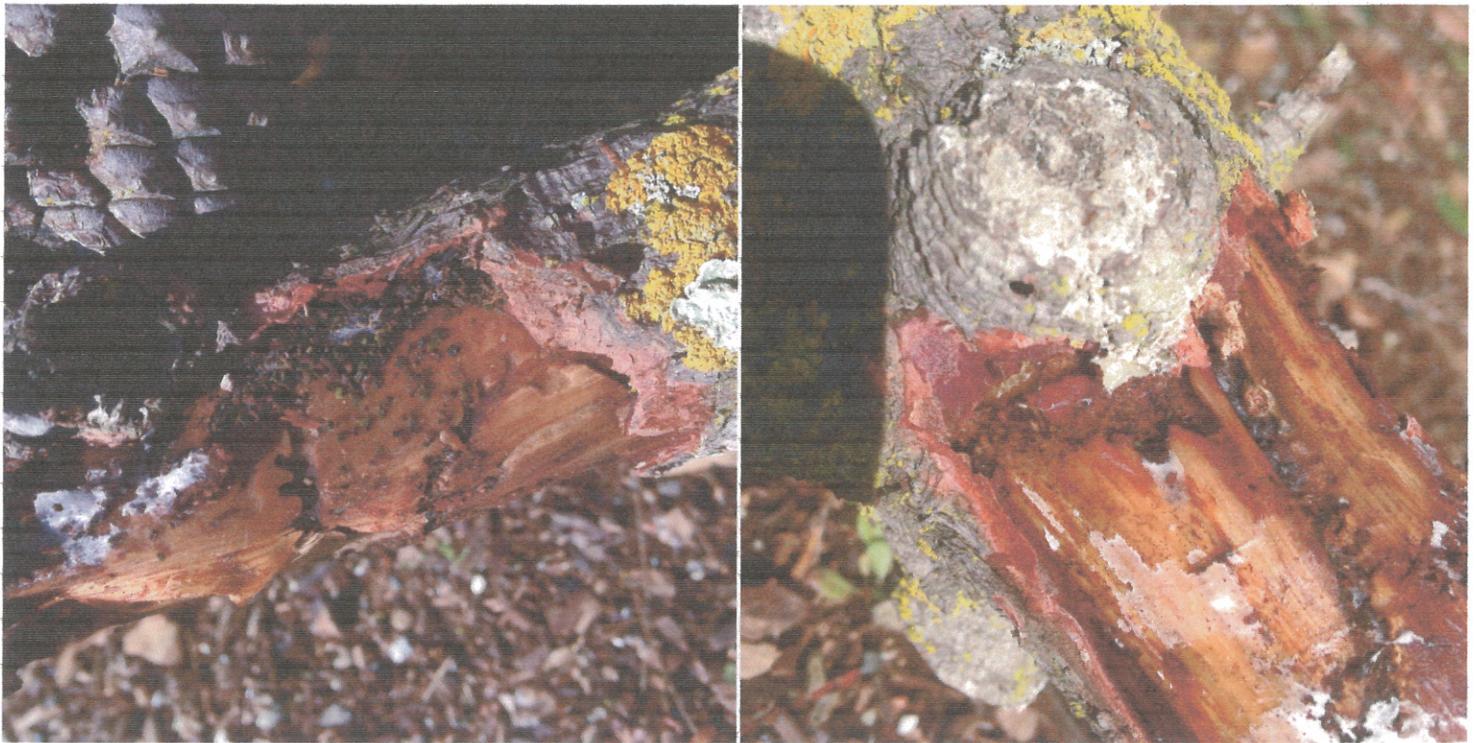
Picture 1.- Borers' holes on branch.



Picture 2.- Borers' holes on trunk.



Picture 3.- Tunnel made by borer insects.



Picture 4 & 5.- Wood soaked with sap (and borers' tunnels).



Picture 6: Resin at the trunk base
(~1.5 ft long)

Picture 7 & 8.- Resin patches on the trunk.



Picture 9 & 10.-Die back



Picture 11.- White fungus suggesting rotting wood



TREE NOTES

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

Edmund G. Brown
Governor
State of California

Ken Pimlott
Director
Dept. of Forestry &
Fire Protection

John Laird
Secretary for Resources
Natural Resources Agency



NUMBER: 32

September 2013

Pitch Canker Disease in California

Kim S. Camilli¹, Jack Marshall¹, Don Owen¹, Tom Gordon² and David Wood³
¹Forest Pest Management Specialists, San Luis Obispo, Ukiah, and Redding, CA,
respectively (kim.camilli@fire.ca.gov, jack.marshall@fire.ca.gov,
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²Professor of Plant Pathology, University of California, Davis, CA

³Professor of Entomology, University of California, Berkeley, CA

Introduction

Pitch canker, an introduced disease of pines caused by the fungus *Fusarium circinatum* Nirenberg O'Donnell (formerly *F. subglutinans* [Wollenweb and Reinking] Nelson, Toussoun and Marasas f. sp. *pini*) was first identified on Monterey pines, *Pinus radiata* D. Don, in California in the summer of 1986. Some of the most severe impacts have been to Monterey pine planted along roadway right-of-ways and in landscape settings: Monterey pine Christmas tree plantations have likewise been impacted in numerous locations. Pitch canker also occurs in California's three native populations of Monterey pine: Point Año Nuevo and the Monterey Peninsula since 1992 and Cambria since 1994.

Outside of California pitch canker also occurs in the southeastern United States from Virginia to Florida and west to Texas, and in Haiti, Mexico, Japan, South Korea, Spain, France, Italy, Chile and South Africa. Genetic analyses of pathogen populations from around the world indicate that the pathogen may have originated in Mexico and that its recent introduction into California came by way of the southeastern United States.

Impacts of the disease include crown dieback and mortality of trees of all sizes. Insects have a significant role in both disease spread and tree mortality.

Tree Species Affected by Pitch Canker

Monterey and bishop Pine (*Pinus muricata*) are the tree species most commonly infected in California. However, 18 pine species plus Douglas-fir, either native or planted, are susceptible to this pathogen in greenhouse and field settings (Table 1).

Table 1: Tree species observed to be infected with the pitch canker fungus in nature, and species found to be resistant or susceptible in greenhouse tests.

Species	Common Name	Status ¹	Susceptibility	
			Field ²	Greenhouse ³
<i>Pinus attenuata</i>	Knobcone pine	Native	S	S
<i>P. canariensis</i>	Canary Island Pine	Exotic	R	R
<i>P. contorta</i> spp. <i>contorta</i>	Shore Pine	Native	S	S
<i>P. contorta</i> spp. <i>murrayana</i>	Lodgepole Pine	Native	N	S
<i>P. coulteri</i>	Coulter Pine	Native	S-	S
<i>P. eldarica</i>	Eldarica Pine	Exotic	N	S
<i>P. halepensis</i>	Aleppo Pine	Exotic	S	S
<i>P. jeffreyi</i>	Jeffrey Pine	Native	N	S
<i>P. lambertiana</i>	Sugar Pine	Native	N	S
<i>P. monophylla</i>	Pinyon Pine	Native	N	S-
<i>P. muricata</i>	Bishop Pine	Native	S	S
<i>P. pinea</i>	Italian Stone Pine	Exotic	R	R
<i>P. ponderosa</i>	Ponderosa Pine	Native	S-	S
<i>P. radiata</i>	Monterey Pine	Native	S	S
<i>P. sabiniana</i>	Gray Pine	Native	S-	S
<i>P. sylvestris</i>	Scotch Pine	Exotic	N	S
<i>P. thunbergii</i>	Japanese Black Pine	Exotic	N	R
<i>P. torreyana</i>	Torrey Pine	Native	S-	S
<i>Pseudotsuga menziesii</i>	Douglas-Fir	Native	S-	S-

1) Greenhouse tests of susceptibility were based on the results of artificial inoculations. Species are rated as susceptible (S) if they sustained definite lesions at the site of inoculation, or resistant (R) if there was little or no lesion development. For species rated as S-, most tested individuals were resistant, but a small percentage appeared moderately susceptible.

2) Field susceptibility is based on observations of natural infections. Species are rated as susceptible (S) if numerous trees are known to be infected and/or some trees have sustained severe damage from pitch canker. Species that have frequently been observed in otherwise infested areas and for which few or no trees are known to have sustained natural infections and none have been heavily damaged by pitch canker are rated as resistant (R); the level of resistance differs within this group. For species rated as S-, one or more infected trees have been observed, but the number of observations is too limited to provide a meaningful estimate of their relative susceptibility. For species rated as N, no infected trees have been observed, but the occurrence of this species in proximity to natural inoculum is too infrequent to conclude that the lack of disease is indicative of resistance.

Wilker, K., T.R. Gordon, A.J. Storer, D.L. Wood. 2003. Pitch Canker. Pest Note: UC ANR Publication. Publication Number 74107, <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn74107.html>.

Symptoms of Pitch Canker

The signature symptom of pitch canker on pines is a resinous canker that can occur on any woody portion of the tree, including branches, bole, and roots. Resin is copious on the outside of the canker and penetrates deep into the wood, giving it an amber or honey color. Each canker represents a separate infection and multiple infections typically occur on a tree over time. Cankers girdle small diameter stems such as branch tips, tree tops, and the main stem of seedlings and young trees, causing the distal portion of the stem to die. Susceptibility to the disease, and hence symptoms, vary considerably from one tree to the next.

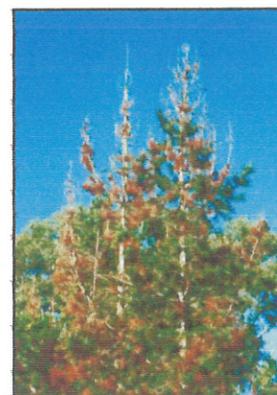


Photo 1: Branch dieback on Monterey Pine.

Typically, the first symptom noticed on mature trees is branch dieback (Photo 1) which results from infections usually within one or two whorls of a branch tip. As the tip dies foliage distal to the infection initially turns lime green, then progresses to yellow, then reddish brown, and eventually falls from the branch (Photo 2). Red needles are often reflexed.

Photo 2:
Progressive
symptomatic
color change
of foliage on
girdled
stems.



Pine cones abort before or after reaching full size and typically remain closed on infected whorls. The disease intensifies through repeated infections that can lead to extensive dieback in the canopy.

Crown symptoms initially are common in the upper third of the tree canopy. Preferential feeding on suitable branch tips by insect vectors carrying the pitch canker pathogen may explain this observation. As the disease intensifies, dieback spreads throughout the canopy.

Bole cankers are frequently found on trees with severe canopy symptoms. **These infections are very conspicuous due to extensive production of resin that can coat lower limbs and several feet of the trunk below the infection** (Photo 3). Bole cankers are slightly sunken, up to approximately 8 inches in diameter and usually appear after branch dieback has occurred. In some cases, diseased trees are severely weakened and may suffer top kill due to girdling of the trunk and/or attack by engraver beetles. Death of mature trees is often due to bark beetle attack.

Infections on Douglas-fir are characterized by tip tieback without copious resin exudation; callous tissue may form at infection sites.

In young Monterey pines, including Christmas trees, resinous cankers often occur at the root crown; the entire tree subsequently wilts and dies. Christmas tree branch infections will occasionally occur in the absence of root crown cankers. Tree death does not follow as rapidly in these cases.



Photo 3: Canker on bole of Monterey Pine.

Pitch Canker Fungus Transmission

The progression of pitch canker in California differs somewhat from what has been reported in the southeastern United States, where disease outbreaks are more sporadic in time and space, and epidemics subside rather quickly as a recovery phase begins. Disease incidence in the SE US has been related to weather events and human activities that cause wounds. Insects appear to be much more important to disease spread and infection in California, where outbreaks are characterized by a high level of disease incidence and progression that can last for many years before subsiding.

The fungus is capable of producing both asexual and sexual spores, but only asexual spores have been observed in nature. Spore deposition studies indicate that sporulation is enhanced during cool-wet conditions, does not occur in cold-wet conditions when average minimum temperatures approach 0°C, and may occur in warm conditions in the absence of rainfall if high humidity is caused by coastal fog. The spores of *F. circinatum* need an opening in the bark to initiate infection. Such openings can be created by wind, hail, silvicultural practices (pruning, limbing, wounding the tree, etc.), insects, etc. Spore germination and growth both proceed very slowly at 10 °C and more rapidly as temperature increases up to 20 °C. For this reason, infection rates tend to be lower in winter than during warmer periods. However, higher temperatures will favor infections only if wounds are deep enough to reach moisture within the plant or if ambient humidity is high and/or free moisture is present. Thus, infections mediated by twig beetles (*Pityophthorus* spp.), which create only very shallow wounds on healthy branches, occur at a higher frequency when relative humidity is at or close to 100%. In contrast, where inoculum is delivered to deeper wounds, the effect of ambient humidity on infection frequency is greatly diminished.

Temperature and moisture requirements for infection are consistent with the widespread occurrence of pitch canker in the SE US, where rainfall during warm periods is common. Conversely, in California, precipitation occurs primarily during the coolest months of the year and pitch canker is restricted to the central coast, where moderate temperatures coincide with high humidity and/or condensation provided by moist marine air. Although the present distribution of pitch canker implies a climatic limitation on the geographic range of the disease, whether or not such limitations remain effective may be contingent on the activity of insect vectors and wounding agents. Whereas twig beetles create shallow wounds on healthy branches, which they find unsuitable for colonization, the cone beetle (*Conophthorus radiatae*) will move the pathogen deeply into host tissue wherein spore germination will not be dependent on ambient moisture. Therefore, if the range of *C. radiatae* expands or other wounding agents with similar feeding/breeding habitats develop an association with *F. circinatum*, pitch canker may become problematic for susceptible trees over a much wider area. In California this could include coastal areas north of 39°N latitude, where the absence of pitch canker in stands of susceptible species (planted *P. radiata* and native *P. muricata* (bishop pine)) presumably reflects the fact that temperatures are relatively cool during periods when moisture is available, which limits opportunities for infection of shallow wounds.

Pitch canker can spread from infected to uninfected trees by wind-driven dispersal of airborne spores. In addition, many species of insects native to California have been shown to carry *F. circinatum*, including: twig beetles, and cone beetles and engraver beetles (*Ips* spp.) all in the family Curculionidae; as well as the deathwatch beetle (*Ernobius punctulatus*, Family Anobiidae) and cylindrical bark beetles (*Lasconotus* spp., Family Zopheridae) (Table 2).

- ∞ **Engraver beetles** can cause infections on tree branches and boles by their tunneling activities.
- ∞ **Twig beetles**, *Pityophthorus* spp. colonize small branches and cone tissue in the upper canopy. Wounds created by exploratory feeding can lead to infection.
- ∞ **Monterey pine cone beetles** are more likely to feed in the upper canopy due to the increased availability of cones.
- ∞ **The deathwatch beetle** adults may enter the galleries of cone or twig beetles and contribute fungal inoculum (e.g. spores) that leads to infection.
- ∞ **Spittlebug**, *Aphrophora canadensis* is a wounding agent capable of initiating infections on succulent shoots during late winter and early spring.

Dispersal of insect vectors may spread pitch canker disease to new locations. Most of the beetle species inhabit recently fallen tree material as well as live trees. Many utilize more than one host tree species and have wide geographic ranges.

Seed coats of Monterey pine can carry the pitch canker fungus and produce infected seedlings. Any seed from a generally infested area can be host to the fungus, including seed from pines with few or no symptoms of disease. Movement of seeds and seedlings of *Pinus* spp. and Douglas-fir is a mechanism by which the pathogen can be introduced into uninfested areas.

Monterey pine engraver	<i>Ips mexicanus</i>
Four-spined engraver	<i>Ips plasotgraphus maritimus</i>
California five-spined ips	<i>Ips paraconfusus</i>
Monterey pine cone beetles	<i>Conophthorus radiatae</i>
Twig beetles	<i>Pityophthorus carmeli</i> , <i>P. pulchellus tuberculatus</i> , <i>P. nitidulus</i> , <i>P setosus</i>
Cylindrical bark beetles	<i>Lasconotus pertenuis</i> , <i>L. nucleatus</i>

There are a number of insects, diseases, and environmental conditions that cause symptoms that may be confused with pitch canker (Table 3). Positive diagnosis requires laboratory isolation and culture of the pitch canker fungus from symptomatic tree tissue.

Table 3: Comparison of pitch canker symptoms with other conditions of Monterey pine.

Key: X: Symptom usually occurs, O: Symptom occasionally occurs.

	Streaming pitch	Yellow to red wilted tip needles	Yellow to red unwilted tip needles	Dead tips, needles fallen	Cone or conelet abortion	Swelling on branch	Lumpy or tubular pitch masses
Pitch canker fungus	X	X	O	X	X		
Western gall rust		O	X	O	O	X	
Dwarf Mistletoe			O	O		X	
Diplodia Needle Blight		X		X			
Monterey pine scale		X		X			
Pitch moth	O						X
Monterey pine tip moth			X	X			
Weevils		O	X	X			
Red turpentine beetle							X
Ips bark beetles		O	O	O			
Cone beetles					X		O
Twig beetles		O	X	X	O		
Tree pruning or wounding	X					O	
Salt and wind dieback			X	X			
Suppressed branches		O	X	O			

Disease Management

No effective controls for pitch canker, using either chemical or biological agents, are currently available. However, disease progression is quite variable and not all trees will be severely damaged by pitch canker. Even in very susceptible species, such as Monterey pine, it is possible for heavily infected trees to recover. Recovery appears to be due primarily to the occurrence of systemic induced resistance, which has been documented to occur in both native and planted stands of Monterey pine. Consequently, the occurrence of pitch canker is not, by itself, a good reason for removal of a tree. Pruning out of diseased branches (see below) may be justified if this restores the aesthetic value of tree and thus avoids the cost of removal and replacement.



Available Disease Management Measures

- ∞ **Restricted movement of infested timber out of the Coastal Pitch Canker Zone of Infestation (ZOI)** - Passed in 1997 by the Board of Forestry and Fire Protection, the ZOI encompasses all or parts of 21 counties along the coast of CA, (Figure 1). Logs from diseased trees harvested on private timberlands cannot be transported out of the ZOI unless mitigations are in place to prevent disease spread.
- ∞ **Limit movement of wood with bark attached** – Logs and firewood cut from infected trees should not be moved from the region of origin. To prevent the buildup of destructive beetles, firewood can be seasoned beneath tightly sealed 6 mil UV resistant clear plastic tarp. See CAL FIRE Tree Note #3 for more information on tarping wood and other methods to control insects.
- ∞ **Chipping of infested wood** – Chipping will reduce but not necessarily eliminate insects that carry the pathogen; it will have little impact on pathogen survival. Chipped material is best left on site and spread in a thin layer as ground mulch. Composting chips will eliminate the pathogen if the pathogen is exposed to 50°C (120°F) or higher for 10 days.
- ∞ **Pruning to remove infected tips will usually not eliminate the disease.** However, if a lightly infected tree is relatively isolated from other diseased trees, removal of infected tips may slow the development of a new disease center. Cut woody material may contain or become infested with insects that carry the pathogen. Burn, cover with a tarp, or chip pruned material. Infected Christmas trees should be treated similarly.
- ∞ **Sterilization of pruning tools** with Lysol[™] or 10% chlorine bleach [10/90 mixture bleach to water] should be performed before and after pruning operations. A two-minute soak time is required for the bleach solution.
- ∞ **Do not collect pine seed** in areas where pitch canker is present. The pitch canker fungus can remain viable even after seeds are surface sterilized. Nurseries should destroy infected seedlings.
- ∞ **Plant resistant tree species.** Planting susceptible tree species in areas with pitch canker disease is likely to result in new infections. Such plantings should be avoided in the vicinity of native populations of Monterey, Bishop, shore and Torrey pines, as these species have very limited geographic distributions. New ornamental plantings of Monterey are not recommended at this time in California. Resistant Monterey pines have been identified, but generally are not available for planting.
- ∞ **High value trees** – Monterey and other pines vary greatly in their susceptibility to pitch canker. Most lightly to moderately susceptible trees recover. It is best to monitor diseased trees before deciding on a course of action. Treating the bole with a pesticide registered to prevent bark beetle attack may help keep lightly to moderately diseased trees alive, especially during periods of drought stress. Information on registered pesticides can be found at the California Department of Pesticide Regulation.

New occurrences of pitch canker should be reported to the county's agricultural department or the California Department of Forestry and Fire Protection.

Future Implications

The potential for pitch canker to spread is significant considering the susceptibility of most pine species and the efficiency of the associated insect vectors in finding suitable host material. Native Monterey pine and bishop pine stands are at risk, as are landscape plantings of these and numerous other conifers.

The appearance of pitch canker in ornamental plantings of Douglas-fir and ponderosa pine has raised concern that native and commercial stands of these species in nearby coastal forests and the Sierra Nevada may become impacted by this disease. Native and landscape stands of these and other conifers in central coastal California are being monitored for symptoms of pitch canker.

The limited native ranges of Monterey pine, Torrey pine, and bishop pine heightens concern for the effect of pitch canker on these tree species. Monterey pine is the most widely planted timber species in the world, and California's native populations represent a global resource for breeding programs. While the long term impact of pitch canker is uncertain, the potential for the disease to reduce the genetic diversity of these species and the integrity of their native populations continues to be a concern.

Pitch Canker Task Force Website: http://www.ufe.org/pitch_canker/index.html

For information on bark beetles:

- ∞ CAL FIRE Tree Note #3: Controlling bark beetles in wood residue and firewood.
- ∞ CAL FIRE Tree Note #19: Managing bark beetles in urban and rural trees.

For information on diseases and insects spread by firewood:

- ∞ <http://www.firewood.ca.gov/>

Acknowledgements and Disclaimer:

Thanks to the staff of the California Department of Forestry and Fire Protection, the University of California at Davis and the University of California at Berkeley for reviewing this manuscript. These guidelines are for use on state and private lands but are not intended to be a substitute for the California Forest Practice Rules or any related policies of the California Department of Forestry and Fire Protection.

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PATTERNS OF STRUCTURAL FAILURE IN MONTEREY PINE

by Roger J. Edberg, Alison M. Berry and Laurence R. Costello

Abstract. The California Tree Failure Report Program database was established in 1987 to collect data on tree branch, trunk, and root breakage or uprooting. The database for the CTRFP is compiled from failure evaluation reports filled out by statewide cooperating arborists, tree assessors, and other horticultural professionals. Compilation of 186 reports for Monterey pine (*Pinus radiata*) has permitted development of a "failure profile" - a characterization of failure location, structural defects, decay, climatic conditions, and other factors associated with structural failure of Monterey pine. Monterey pine was found to be particularly failure prone compared to other tree species in Golden Gate Park, San Francisco, CA. Close to 60% of Monterey pine failures reported in the CTRFP database were limb failures, rather than trunk or root failures, and most of these were considered to be heavy lateral limbs - a structural defect. The majority of limb breakage occurred away from, rather than at the point of attachment, suggesting a wood strength problem. Decay was not frequently associated with Monterey pine failures at any location on the tree. Tree spacing, nutrition, and genetic strain are likely to be major factors influencing heavy lateral limb development. Closer tree spacing, low nitrogen input, and genetic selection offer hope for reducing Monterey pine branch failure.

The California Tree Failure Report Program (CTFRP) was established in 1987 to collect reliable data on tree branch, trunk and root breakage or uprooting. The ultimate goal of this program is to provide systematic information that will aid in more accurately assessing tree hazard potential in the landscape, and will improve management practices to prevent failures in the future (5). The database for the CTRFP originates from failure evaluation reports filled out by statewide cooperating arborists, tree assessors, and other horticultural professionals who deal with tree failures as part of their work. The failure report form deals with structural aspects of the failure, site conditions, damage resulting from the failure, and the costs of the damage and tree cleanup (see reference 5 for a copy of the report form).

One valuable way the data may be used is to develop "failure profiles" for urban tree species - that is, the most common patterns of tree failure

for a given species, including site conditions and structural problems associated with the failure patterns. The purpose of this paper is to present a failure profile for Monterey pine (*Pinus radiata*). This is the first profile of this type to be assembled. In addition to having direct value for tree care professionals in California, this profile is an example of what is possible using a database approach to failure assessment for an individual species. The methods presented here may therefore be applicable in other regions and for other common species.

Monterey pine is a commonly planted landscape tree in California (9,11). It is also the single most frequently reported tree in the CTRFP database. These trees may live up to 150 years and may reach over 100 feet in hospitable climates. Monterey pine is native to the slopes and bluffs along the central California coastline in closed cone pine forests below 1000 feet (10). This climate is highly ocean influenced. Winters are cool, mild, and wet, averaging 50°F, with 12-20 inches of rain. Summers are cool, windy and foggy, with high temperatures reaching an average of 60-70°F and rainfall averaging 2" a month, supplemented by fog drip (8).

In the planted landscape of coastal California, Monterey pine is popular due to its impressive stature and rapid establishment. Sapling growth may be 4-8 feet a year under good conditions with trees reaching over 50 feet by age 15 (8). Monterey pine is often planted in climates where it is not well adapted, such as in California's interior valleys. In these regions, the summers are dry and daily high temperatures may range from 90-110°F. Growth may be rapid initially but tree size and lifespan are greatly reduced. Trees here will often decline after 20-30 years, resulting in major landscape disruption and removal costs. Monterey pine is an important commercial timber tree in New Zealand,

Australia, and Africa. Although the wood is described as generally inferior, it provides domestic wood in these countries for quality pulp, plywood, particleboard, and adequate structural timber (2).

Methods

The California Tree Failure Report Program survey form and the data categories were described previously (5). The data were compiled with dBaseIV database software. Monterey pine failure reports were analyzed using dBStats and SPSS statistical packages. Missing information was screened from individual fields and removed from statistical analysis. For general data descriptions, frequency tables (% of population) were used directly or in combination with sorting features to establish additional categories (examples: height classes; or "all other conifers"; etc.). Crosstabulation of fields (i.e. windspeed vs. failure location) was analyzed using the chi-squared test.

Results

Reported Monterey pine failures were largely (95%) planted trees. Almost all of the failures reported were from three site categories: park failures accounted for 65%, residential tree failures made up 14%, and 14% occurred on school grounds. The mean tree height for all failures reported was 71 feet, and the mean dbh was 34". One hundred fifteen of the 186 Monterey pine failures in the database (62%) were reported from Golden Gate Park in San Francisco, where the tree has been heavily planted.

Failure rate in the landscape. The CTFRP has accumulated 1216 failure reports on urban landscape species including 144 different species (September, 1993). Monterey pine was reported the most frequently, accounting for 15% of all failures. The next three most frequent species, *Cupressus macrocarpa*, *Quercus agrifolia*, and *Quercus lobata*, made up 12%, 9%, and 5% of the database, respectively. The remaining 140 species contributed less than 4% of the total each.

The high percentage of Monterey pine in the database prompted us to ask whether this was a failure prone tree, or whether this was simply a reflection of the popularity of Monterey pine in the

landscape. To judge the failure susceptibility of a tree, its percentage occurring in the failure database may be compared to its percentage occurring in the population. We would expect the species mix of a region reporting failures to be reflected in the species mix for that region in the failure database. If tree X made up 30% of the landscape, for example, and failed at an average rate, then tree X should also make up 30% of the species in the failure database for that landscape. A general species population survey is necessary to determine if a particular tree is failing at a rate above, below, or equal to that present in the landscape. San Francisco's Golden Gate Park maintains inventory records of tree species in the park, and using this information, we were able to compare the failure rate of Monterey pine to its population percentage within that system.

Monterey pines made up 23% of the Golden Gate Park tree population (1980 survey), yet 44% of all reported failures from Golden Gate Park were Monterey pine, substantially higher than the percentage in the park population (Fig. 1). Monterey cypress (*Cupressus macrocarpa*) failed at a rate somewhat higher than its percentage in the park population, while eucalyptus and oak species were reported to fail at a rate approximately equal to, or below their percentage in the population. When additional categories were created, i.e. "other conifers" (all conifers excluding

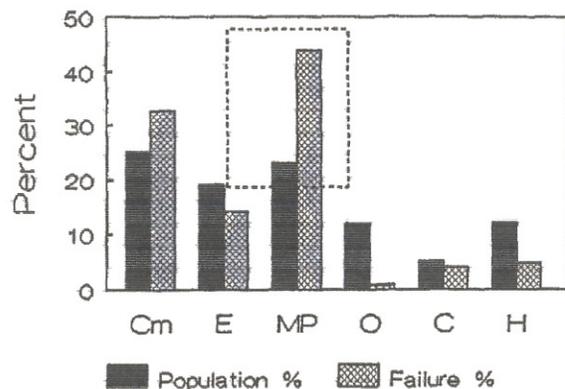


Figure 1. Comparison of tree failure frequency and population composition in Golden Gate Park, San Francisco, CA (CM = *Cupressus macrocarpa*, E = Eucalyptus species, MP = Monterey pine, O = oak species, C = conifers, H = other hardwoods).

Monterey pine and *Cupressus macrocarpa*) and "other hardwoods" (all hardwoods excluding eucalyptus and oaks), failures also occurred in proportion to their population.

Characteristics of failure - branch. Monterey pine failures (Golden Gate Park and other combined) occurred most frequently at the branch (59%; Figure 2). Branch failures also form the largest category for all other species ("all other"). However, the frequency of branch failure for Monterey pine is significantly greater than for other species (chi-squared, $P=.00$). The sample population was greatly influenced by the predominance of reports from Golden Gate Park trees. Still, the branch failure rate for Monterey pine trees reported from other areas outside the park was significantly higher than that for all other trees in the database grouped together (51% vs 42%, chi-squared, $P=.03$) (Table 1).

Tree structural defects are potentially important factors contributing to a failure event. The California Tree Failure Report form includes a category for recording up to three structural defects noted for the failed tree (Figure 3). If more than one structural defect is associated with a failure, they are recorded in order of importance. The following results involve the primary structural defect (listed as most important by failure reporter).

Heavy lateral limbs (HLL) were associated with 75% of all Monterey pine branch failures (MP, in Figure 4). This is nearly double the rate of association of heavy lateral limbs with branch failures for all other species as a group, excluding Monterey pine (43%, A-MP). Other pine species (P-MP) and other conifers in general as a group (C-MP) also

Table 1. Comparison of location of failure and structural defects associated with branch failure for urban Monterey pines within and from outside Golden Gate Park.

	Inside park	Outside park
Location of failure		
Trunk	24%	18%
Branch	64%	51%
Root	12%	31%
Structural defect		
Heavy lateral limbs	72%	81%

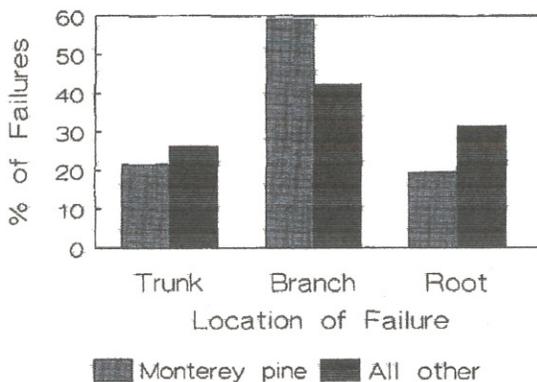


Figure 2. Type of failure by location on the tree (trunk, branch, or root). Comparison of Monterey pine and all other trees in the database.

TREE STRUCTURAL DEFECTS

- (7) Choose up to three, in the order of importance
- 1-Failed portion dead
 - 2-Multiple trunks/stems
 - 3-Dense crown
 - 4-Heavy lateral limbs
 - 5-Uneven branch distribution: one-sidedness
 - 6-Uneven branch distribution: top-heavy
 - 7-Branches at same point
 - 8-Embedded bark in crotch
 - 9-Crook or sweep
 - 10-Leaning trunk
 - 11-Cracks or splits (describe p. 2)
 - 12-Kinked or girdling roots
 - 13-None apparent
 - 14-Other (describe p. 2)

Figure 3. Structural defect categories included in the California Tree Failure Report Program form.

had lower rates of association (47% and 61% respectively). The high association of heavy lateral limbs with Monterey pine branch failure was consistent for failure reports from Golden Gate Park, and from other locations (Table 1). Surprisingly, the average branch diameter for HLL-associated failures was only 12". Long branches, branches with a heavy foliage load, and branches with a heavy cone load may have been included in this category for Monterey pine.

The second most frequently reported structural defect (10% of all branch failures) was that of multiple trunks/codominant stems. The average diameter of branch failures associated with this structural defect was 19", considerably larger than the HLL-associated branch diameter. Tree professionals familiar with Monterey pine in the landscape report that large codominant stems or branches are characteristic of mature trees of this

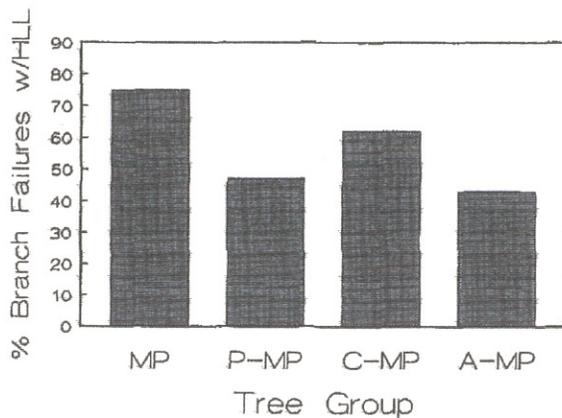


Figure 4. Heavy lateral limbs (HLL) as a structural defect associated with failure. Comparison of Monterey pine (MP) with other pines (P-MP), all conifers except Monterey pine (C-MP), and all other trees in the database (A-MP).

species.

The location of branch failure ranged from the point of attachment with the main trunk to 25 feet out on the branch (Figure 5). Failure occurred flush with the trunk in 26% of all Monterey pine (MP) branch failure reports, while 74% occurred away from the point of attachment. **This pattern suggests that most Monterey pine branch failures are not the result of a weak attachment but rather arise from some problem with wood strength or load distribution.** Branch failures for all other species (A-MP) in the database grouped together occurred at the attachment in 39% of the reports and out on the branch 61% of the time. A cross-tabulation of branch failures at the attachment or not between Monterey pine and all other species as a group results in a chi-squared probability of .05.

Root failures. Root failures made up 20% of Monterey pine reports. Decay was reported to be associated with only 25% of root failures. By comparison, hardwoods as a class had a significantly higher incidence of decay associated with root failures, 74% (P chi-squared = .000). Leaning trunks were associated with 28% of root failures. By comparison, a leaning trunk was associated with 20% of other pine root failures, 7% of other conifer root failures, and 10% of root failures for hardwoods in the database.

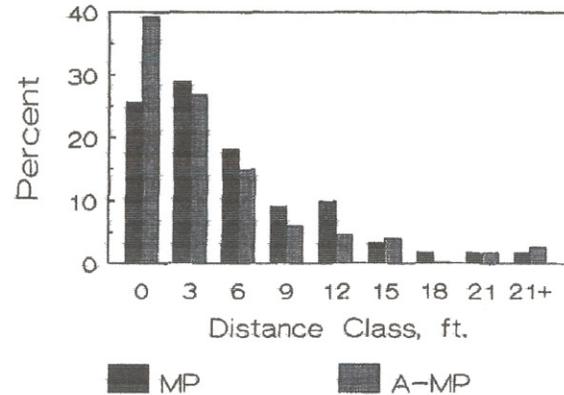


Figure 5. Branch failures: Distance of break site from point of attachment to trunk (attachment = 0 ft., 1-3 ft. class = 3, 4-6 ft class = 6, etc.). Frequency of branch failures per distance class for Monterey pine (MP) and all other species combined (A-MP).

Trunk failures. Monterey pine trunk failures occurred relatively higher on the trunk than was typical for other trees in the database. The ratio of the height of trunk failure to the height of the tree for Monterey pine (.30) was greater than the mean for all other species combined as a group (.22, Figure 6). The ratio of the height of trunk failure to the height of the tree was used rather than failure height alone to compensate for the fact that Monterey pine is, on the average, a taller tree than most other landscape species in the database. The difference was significant at the 5% level for Monterey pine vs. all other species in an unpaired t-test.

Dense crowns were the most frequent structural defect associated with trunk failure in Monterey pine at 19% (of all trunk failures). For other pines, a dense crown was associated with trunk failure in 14% of reports; for conifers and hardwoods, 7%. Crooks and sweeps were the next most frequently reported defect associated with Monterey pine trunk failure at 17%. This type of structural defect was unusually common in Monterey pine, with other pines having 5%, other conifers having 0%, and hardwoods reporting 3% crooks and sweeps associated with trunk failure. Multiple trunks/stems and leaning trunks were other major structural defects associated with trunk failure at 14% and 12% respectively.

Leaning trunks were frequently associated with

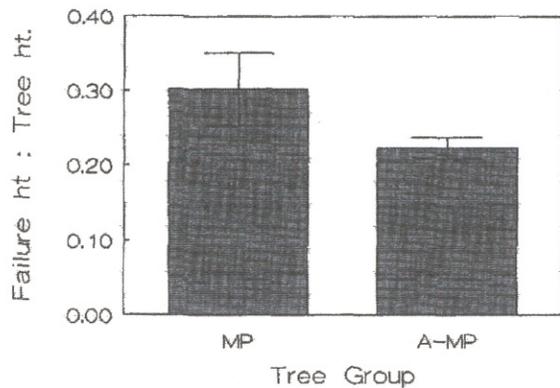


Figure 6. Ratio of trunk failure height (height above ground where failure occurred) to total height of tree. Comparison of Monterey pine (MP) with all other trees in the database (A-MP).

trunk and root failure in Monterey pine, and in other pines as well: some 12% of Monterey pine failures and 14% of other *Pinus* species trunk failures were associated with a leaning trunk as the primary structural defect noted. This was not



Figure 7. Typical limb architecture of Monterey pine from native stand in Monterey, CA.

a structural defect reported as frequently for other conifers (8%), or for the entire database excluding pines (7%).

Native Monterey Pine Stand Architecture

The native stands of Monterey pine in the City of Monterey Forest Preserve system and in other areas outlying the city were studied in order to determine the unmanipulated structure of this tree. These trees have not been pruned, irrigated, or fertilized. The soils in most of these native stand regions are shallow, over a sandstone or shale base. Photographs and observations of the architecture of trees in these stands were compared with similar observations of managed trees in Golden Gate Park.

Canopies with branches high on the trunk were common to both groups. Branches of trees in native stands had typical upper canopy branch diameters approximately one-half that of the trunk (Figure 7). In contrast, park trees commonly had



Figure 8. Heavy lateral limb of Monterey pine from Golden Gate Park, CA.

one to several lateral limbs (or codominant stems) whose diameter approached or exceeded that of the trunk diameter (Figure 8). The foliage appeared to be less dense in the native stands, possibly due to the shallow soil system, intermittent drought, and less nutrient availability. In both native stands and urban plantings, branch breakage seemed to occur most often out on the limb rather than at the trunk. Stubs left along the trunk were plentiful in both groups, generally 1 to 4 feet long. Several of those examined were broken at a dead secondary branch insertion point.

The lower trunk of the native Monterey pines had few branches (Figure 7), apparently as a result of shading out from earlier high stand densities. Park trees often had large diameter scaffold limbs (Figure 8) originating along the lower trunk (or pruning wounds indicating their previous presence).

Discussion

Analysis of the Monterey pine failures reported to the California Tree Failure Report Program revealed the most common failure to be breakage of "heavy lateral limbs", usually at some distance from the branch-trunk junction. The location of the breaks away from the point of branch attachment, and the fact that average branch diameter for this class of failures was relatively small, suggest that the main source of branch failure in Monterey pine is some problem with wood strength or branch architecture. Visual observation of limb breakage in both native stands and park plantings often showed stubs of long, horizontal type branches. It was noted in several failure reports that a common point for branch failure was where one or several old, dead secondary branch stubs remained embedded in the limb wood and created a weak point. It was also noted in failure reports that HLL branch failure often occurred at a point where an arching limb became horizontal. Branching architecture, as well as branch strength, apparently contribute to failure potential. Changes in wood structure or grain along the length of large or failed branches of urban Monterey pines would be useful to document.

The second most frequently reported branch failure type was breakage of a multiple trunk or codominant stem of a larger diameter than the HLLs. Monterey pine is known to grow vigorously and rapidly, and is often fertilized in the landscape to enhance growth. Vigorous growth may produce heavy lateral limbs and codominant stems, and may result in decreased wood strength relative to weight for all types of branches - both HLL and codominant stems (2,6).

Trunk failures occurred relatively high in the tree in Monterey pine. The nature of crown development in the urban population, where trees are not usually planted in close stands, may contribute to this pattern: mature trees tend to produce large, codominant laterals with a resulting high canopy structure. Branches with a diameter approaching that of the trunk may be insufficiently supported by trunk wood surrounding the branch base (13). If such large, codominant stems occur in the mid to upper regions of the trunk, a weak zone would be created there with resulting failure potential. In addition, wood lignin content has been reported to vary with tree height in Monterey pine, being lowest at 30-40% of trunk height (7).

It is clear that Monterey pine has a high failure rate compared to its population percentage in Golden Gate Park. The park has a climate similar to that of the native range of Monterey pine, which should provide an adequate environment for the tree. Soils in the park are different compared with native stand locations (deep sand vs. shallow soil overlying shale or sandstone). The high failure rate under suitable conditions in the park suggests either that Monterey pine is a failure prone tree, that soil type is an important factor in crown development, and/or that the standard management techniques used for this tree are not appropriate. While conclusions based on comparisons made at one location should be interpreted with some caution, our data are consistent for all regions reporting to the CTRFP with respect to the higher than average proportion of branch failures and the frequent association of heavy lateral limbs with branch failure that characterize the main failure profile for Monterey pine.

An Evaluation of Monterey Pine Management in the Urban Landscape

Findings from this study, together with results from research conducted by forestry institutions in Australia, New Zealand, and South Africa, point to the need for changes in management practices that may reduce the frequency of failure in Monterey pine. Management begins by recognizing climatic, soil, and stand density influences on performance in the landscape. Fertilization and pruning practices may also play an important role in the development of tree structure and wood strength.

Stand characteristics. The spacing of Monterey pine in the urban landscape may be a factor influencing the likelihood of branch failure. *Wide spacing of this species has been shown to increase branch diameter by as much as 46% (2).* Closer tree spacing, even in an open woodland, can result in shading, higher competition among trees, slower growth, and consequently a reduced proportion of juvenile or weak wood core in the trunk (2). Use of Monterey pine as a specimen tree may therefore encourage large limbs and weaker wood, especially if fertilization is present for turf or other ground covers.

Fertilization. Fertilization or rich soil results in vigorous growth of Monterey pine, an increased tendency to produce large branches (2), and several other factors influencing wood strength. Trees growing on fertile ex-pasture sites in Australia had a high incidence of stem deformation and thick, heavy branching in the juvenile (6 years) stage. Forest plantations on poorer soil did not show the same tendency (1). Fertile ex-pasture sites were associated with trunk sweeps, heavy branching, multiple leaders, and numerous forks in 90% of the plantation trees in another Australian study. A high level of nitrogen and possibly boron deficiency were suspected factors for development of poor form (3). High nitrogen levels and copper deficiency in sandy soils with high organic matter content have also been linked to stem deformation, reduced cell lignification, and tracheal collapse (7). The lignin content varied most in the earlywood formed on fertile sites, and was lowest at 30-40% of tree height (7). The decrease in lignin content at this height correlates well with reported height of trunk failure in the California Tree Failure

database (30% of tree height). Finally, nitrogen fertilization has been reported to decrease wood density from 3 - 17%, directly influencing wood strength (2,6).

Arborists may reduce the incidence of heavy lateral limbs, codominant stems, and deformed trunks through careful attention to soil nutrition, particularly avoidance of excessive nitrogen (12). Interestingly, during the early years of tree establishment in Golden Gate Park, situated on a sand dune based soil, there was extensive use of "street sweepings" — including manure from the horse population in San Francisco at the time — as a soil amendment (4). This may have created site conditions conducive to development of large limbs and weak wood.

Selection. There are five natural populations of Monterey pine. Three are from the mainland northern California coast (Monterey, Año Nuevo, and Cambria) and two from islands off the coast of California and Baja California (Guadalupe and Cedros). Early California landscape plantings were generally propagated from wild collected mainland seed. Monterey pine seed from Monterey and Año Nuevo populations was also exported to New Zealand in the late 1800's. A "land race" was developed in New Zealand from this parentage. Seed from various stages in the development of New Zealand timber and pulp selections began to return to California around 1940. This seed was intended for christmas tree growers and was either unselected, collected from obsolete selections, or from culled trees of undesirable form. However, trees grown from this seed found their way into forestry and landscape use. The current California landscape population then, consists of native trees, displaced native trees, various by-products in the development of New Zealand land race trees, and intermediate hybrids. Growers and urban foresters are beginning to emphasize native seed purity as well as the use of a positively selected New Zealand land race selection GF17. Further improvements in the selection of Monterey pine for desirable crown architectures and wood properties have been made by forestry institutes in Australia and New Zealand, and this genetic material offers the potential to reduce poor tree structure. In cases where stem deforming crooks

or sweeps, codominant leaders, and heavy branching were linked to fertile ex-pasture sites for example, certain genetic selections were substantially less affected (1,12). Thus, selections with improved crown architecture (i.e. smaller branch diameter), especially under conditions of relatively high soil fertility may result in fewer failures in an urban setting as well.

Acknowledgments. The authors would like to thank the many cooperators of the California Tree Failure Report Program for their invaluable assistance in providing the accurate and complete tree failure data that makes this study possible. Special recognition is given to the Urban Forestry division of San Francisco Recreation and Parks Department for cooperation in tree failure reporting and sharing Golden Gate Park population data. We would also like to thank Robert Reid, forester for the city of Monterey, Dr Marie Connet, FIRO NZ, and Dr. William Libbey, U.C. Berkeley Forest & Resource Management.

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and
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University of California
Cooperative Extension
San Mateo, San Francisco Counties*

Résumé. La banque de référence de données sur le Programme de recherche sur la chute d'arbres de la Californie a été établie en 1987 pour emmagasiner des données sur les bris de branches, de troncs ou de racines et sur les déracinements. La banque de données est alimentée par les rapports d'évaluation de chutes en provenance d'arboriculteurs, d'évaluateurs et d'autres professionnels du domaine horticole à la grandeur de l'état. La compilation de 186 rapports concernant le pin de Monterey (*Pinus radiata*) a permis de développer un «profil de chute», c'est-à-dire une caractérisation du site de chute, des défauts structuraux, de la carie présente, des conditions climatiques et d'autres facteurs associés avec la faiblesse structurale du pin de Monterey. Près de 60% des cas de chutes pour le pin de Monterey sont attribuables aux branches, plutôt qu'à une faiblesse structurale du tronc ou des racines, et la plupart de ces cas de branches étaient généralement associés à de grosses branches latérales comportant des défauts structuraux. La majorité des bris de branches se produisaient au-delà du point d'attache de celles-ci avec le tronc, laissant supposer dès lors à des problèmes de résistance du bois. La carie n'était pas fréquemment mentionnée dans les rapports de chutes sur le pin de Monterey.

Zusammenfassung. Die Datenbank des kalifornischen Programms zur Aufzeichnung von Baumversagen wurde 1987 eingerichtet, um Daten zu sammeln über Bruchschäden von Ästen, Stämmen und Wurzeln, sowie Entwurzelung. Die Datenbank ist zusammengesetzt aus Bewertungsberichten über Baumversagen, die von bundesweit kooperierenden Arboristen, Baumgutachtern und anderen Gartenbaufachleuten ausgefüllt wurden. Die Zusammenstellung von 186 Berichten über die Monterey-Kiefer (*Pinus radiata*) hat zur Entwicklung eines Versagenprofils beigetragen - eine Charakterisierung des örtlichen Auftretens von Versagen, strukturellen Defekten, Fäulnis, klimatische Bedingungen und andere Faktoren, die mit dem strukturellen Versagen der Monterey-Kiefer in Verbindung gebracht werden. Nahezu 60% der Fehler der Monterey-Kiefer waren eher Astbruch als Stamm- oder Wurzelversagen und die meisten dieser Äste waren schwere laterale Äste - ein struktureller Defekt. Die Mehrheit der Astbrüche traten eher am äußeren Ende als am Anfang auf, was auf ein Holzstärkeproblem hindeutet. Fäulnis wurde gewöhnlich nicht in Verbindung gebracht mit dem Versagen der Monterey-Kiefer.



HERITAGE TREE REMOVAL

ACTION PENDING

Location: 1180 JUDSON DR.

Property Owner: MARIE-CLAUDE THERIAULT

Type of Tree: MONTEREY PINE

Upon the completion of a field inspection, Forestry Division staff has determined that the request to have the tree/trees removed be:

 APPROVED X DENIED

The following reason(s) are cited in rendering this decision:

CONDITION OF TREE: TREE DOES NOT MEET CRITERIA FOR REMOVAL

Any person wishing to appeal this action must file an appeal (Fee \$50) with the City Clerk's Office, 500 Castro Street, Mountain View, by 5:00 p.m., March 29, 2016 as outlined in Section 32.31 of the City of Mountain View City Code.

For further information regarding this Heritage Tree Removal Notice, contact the Forestry Division Office at (650) 903-6273

Date Posted: March 17, 2016



Parks Section Manager

HERITAGE TREE APPLICATION PROCEDURE/CHECKLIST

not a street tree
street tree?
check

Tree Address: 1180 Judson Dr.

Applicant Name: Marie-Claude Theriault

Date Received: 3-2-16

Application Fee \$119 Cash Check _____
 Visa/Mastercard REG # 442111

** Check last time they applied for removal of this tree*

Field Inspection by Arborist
 Arborist Report Required Received
 Homeowners Association Letter Required Received

ARBORIST APPROVAL:

1. (Check box for reason to be used in dictating letter & state precisely below)

- (1) Condition of tree, i.e., disease, tree's health, utility service interference
- (2) Construction, economic or other enjoyment of property
- (3) Good forestry practices, including # of healthy trees on land

2. (State exact words to be placed on posting notice) _____

ARBORIST DENIAL:

1. (Reason to be used in dictating letter) TREE DOES NOT MEET CRITERIA FOR REMOVAL

2. (State exact words to be placed on posting notice) _____

Replant requirement: Yes # of replants _____ No
Size: 15 gal. can 24" box Other _____
Owner's discretion as to choice and location
City requirement as to choice and/or location Specifics _____

CITY OF MOUNTAIN VIEW, FORESTRY DIVISION
231 NORTH WHISMAN ROAD
POST OFFICE BOX 7540
MOUNTAIN VIEW, CA 94039-7540
(650) 903-6273 M-F 8:00 AM - 4:00 PM

Fee: \$116, each additional tree, same site \$58

APPLICATION FOR HERITAGE TREE REMOVAL PERMIT

The undersigned owner of the property at 1180 JUDSON DRIVE

Phone No. (Home) 650 919 3866 (Work) 650 919 3866

hereby applies for permission to remove Heritage tree(s) as follows:

Common Name of Tree MONTEREY PINE Number of Trees 1

Circumference of tree 54" above ground: 114 inches

REASON FOR REMOVAL: Check applicable box(es) below. There may be more than one reason.

Comments: borer insects activity, die back branches, branch fall recently on sidewalk/street, show signs of pitch canker

- The condition of tree with respect to age of the tree relative to the life span of that particular species, disease, infestation, general health, damage, public nuisance, danger of falling, proximity to existing or proposed structures and interference with utility services.
- The necessity of the removal of the Heritage tree in order to construct improvements and/or allow reasonable and conforming use of the property when compared to other similarly situated properties.
- The nature and qualities of the tree as a Heritage tree, including its maturity, its aesthetic qualities such as its canopy, its shape and structure, its majestic stature and its visual impact on the neighborhood.
- Good forestry practices such as, but not limited to, the number of healthy trees a given parcel of land will support and the planned removal of any tree nearing the end of its life cycle and the replacement of young trees to enhance the overall health of the urban forest.
- BALANCING CRITERIA.** In addition to the criteria referenced above which may support removal, the decision-maker shall also balance the request for removal against the following which may support or mitigate against removal:
 - The topography of land and effect of the requested removal on erosion, soil retention, water retention and diversion or increased flow of surface waters.
 - The effect of the requested removal on the remaining number, species, size and location of existing trees on the site and in the area.
 - The effect of the requested removal with regard to shade, noise buffers, protection from wind damage and air pollution and the effect upon the historic value and scenic beauty and the health, safety, prosperity and general welfare of the area and the City as a whole.

RECEIVED

MAR 02 2016

OWNER'S PRINTED NAME MARIE-CLAUDE THERIAULT

OWNER'S SIGNATURE Marie-Claude Theriault

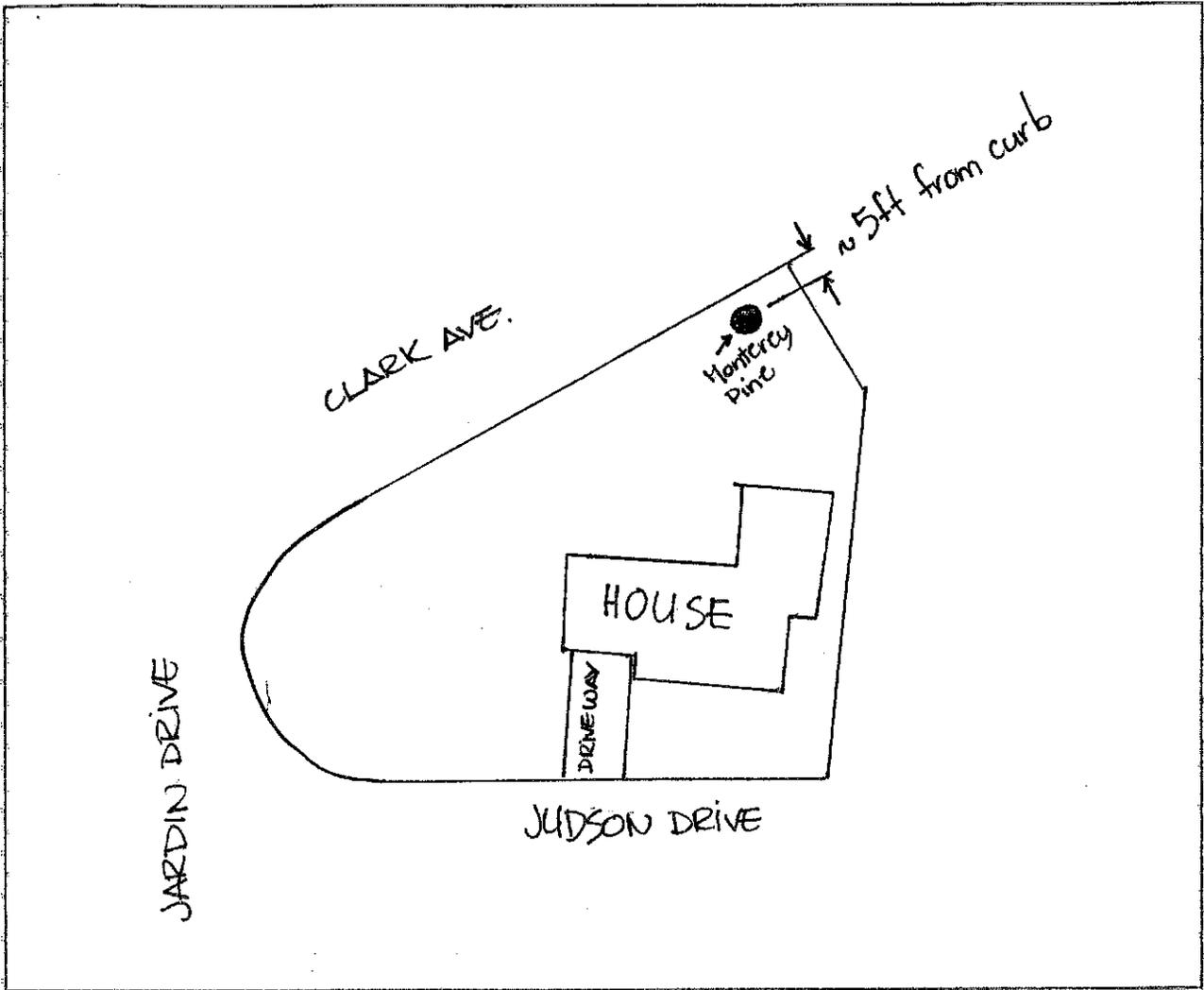
MAILING ADDRESS 1180 Judson Drive

CITY Mountain View STATE CA ZIP 94040

NOTE: This form must be returned to the Forestry and Roadway Landscape Division in its entirety upon completion by the applicant. The applicant has read and is familiar with Article II, Chapter 32 of the Mountain View City Code (copy attached). In providing the information on this form, please be aware that this information is public record subject to disclosure upon request.

(OVER)

LOCATION: Please include sketch or attach a separate piece of paper.



FOR OFFICE USE ONLY

This permit must be available at the work site at all times when the work is being done.

RECOMMEND APPROVAL

RECOMMEND DENIAL

Arborist

Date

3/15/16

APPROVED

DENIED

Forestry and Roadway Landscape Manager

Date

3/15/16

OBSERVATIONS/EVALUATION:

EFFECTIVE DATE:

(Permit expires two years from effective date.)

ACTION

DATE

CLERK

1. Applicant notified of decision by mail.
2. Notice posted on tree.
3. If no appeals, approved/denied application mailed.

_____	_____
_____	_____
_____	_____

1180 JUDSON DR.
TREE: MONTEREY PINE

APPEAL NOTICE

HERITAGE TREE

The decision to deny the removal of this Heritage Tree(s) has been appealed. An appeal shall automatically stay issuance or denial of the Heritage Tree Notice to remove or deny removal of the tree(s) identified on the notice (Mountain View City Code Section 32.31). An appeal hearing will be set before the Urban Forestry Board at a later time. Notice of the date and time will be posted here when known.

This notice shall be posted until a final decision has been rendered. For information regarding the appeal, please contact the Forestry Division Office at 650-903-6273.



Posted By

3/30/16
Date

City of Mountain View
Forestry Division
231 North Whisman Road
P.O. Box 7540
Mountain View, CA 94039-7540



CITY OF MOUNTAIN VIEW

MEMORANDUM

Public Works Department

DATE: May 11, 2106

TO: Parks and Recreation Commission

FROM: *Anne Marie Starr*
Anne Marie Starr, Senior Civil Engineer
J.P. de la Montaigne, Community Services Director

SUBJECT: Update on Fayette Park, Project 13-36

RECOMMENDATION – Note receipt and file.

BACKGROUND AND ANALYSIS

This report provides a status update for Fayette Park, Project 13-36.

The Fayette Park project was created as a midyear capital improvement project in September 2012. This project involves the construction of a linear park on approximately 1.3 acres of San Francisco Public Utilities Commission (SFPUC) property just west of San Antonio Road, running from El Camino Real to Fayette Drive. Attachment 1 is a map showing the location of the proposed park.

Although the property currently appears to be unused open space, the SFPUC has two very large underground pipelines running through the site. These pipelines deliver drinking water to the City of Mountain View and other cities. Before the City can construct the park, a license agreement is required from the SFPUC. This license agreement would grant the City permission to construct improvements on SFPUC property and to maintain the property as a public park.

Because the SFPUC's primary goal is to protect their water system, they have been hesitant to issue a license agreement for the Fayette Park project. Even though the SFPUC has issued license agreements to the City in the past for the construction of similar improvements on other SFPUC properties, the SFPUC has recently updated their Right-of-Way Use Policy and this policy has tightened restrictions for property use.

City staff in Public Works and the City Attorney's Office have spent over three years working with the SFPUC to find a way to move the project forward while meeting the

SFPUC's requirements. On February 2, 2016, Council authorized the City Manager to enter into a Memorandum of Agreement (MOA) with the SFPUC for the use of certain SFPUC properties for public open space upon the SFPUC's approval of the City's license application for Fayette Park. The SFPUC has agreed to allow the City to utilize the Fayette property as a public park subject to both the City and SFPUC executing the MOA. The MOA will do the following:

- Grant the City a license agreement for Fayette Park.
- Update all current license agreements between the City and the SFPUC.
- Grant the SFPUC easements for a number of parcels with public street rights-of-way to affirm their easement rights for the existing pipelines.
- Require the City to remove approximately twenty-nine (29) trees located on SFPUC properties throughout the City that the SFPUC has determined pose hazards or unacceptable risks to SFPUC facilities (the SFPUC is exempt from the City's Heritage Tree Ordinance). A map showing the approximate location of all trees to be removed is included as Attachment 2.
- Allow the City to use all SFPUC licensed areas without requiring the City to pay rent.
- Require the City to pay property taxes on all licensed properties.
- Require the City to maintain one (1) SFPUC property within the City limits that the City currently does not have a license for.

Although some of the requirements in this agreement are not ideal, the City Council decided to authorize the City Manager to execute the MOA in order to proceed with the Fayette Park project.

Fayette Park Conceptual Design

In 2013, the City entered into an agreement with The Guzzardo Partnership, Inc. (Guzzardo), to provide landscape architecture services for the Fayette Park project. Staff originally expected Guzzardo to follow the City's standard park design process to develop a final park concept. This process usually includes several public meetings where we gather public input and present possible park concepts before a final concept is presented to the Parks and Recreation Commission (PRC) and then the City Council. However, it became apparent, once staff began working with the SFPUC, that the

design process for this park would need to be different due to all of the SFPUC's property use restrictions.

The SFPUC made it very clear that they would only allow a park with very passive uses. This meant no structures or trees were allowed anywhere on the property and any site furniture had to be placed at least 20' from the edge of their pipelines. Because these restrictions were so limiting, staff determined that public meetings would not be appropriate for this project since all park design elements are heavily regulated by the SFPUC.

Over the past three years, the City has submitted several conceptual designs (developed by Guzzardo) to the SFPUC in an effort to obtain approval for using their property. The original designs included amenities such as lights, fitness equipment, and a large decomposed granite area that could be used as a petanque court, but the SFPUC stated these park amenities were not allowed. They also stated any park design they approve must prohibit bicycles within the park and must be completely fenced off to prevent bicycles from entering the property. The City was not happy with some of these restrictions, especially restricting bicycle use in the park, but ultimately the City agreed to the restriction in order to move the project forward.

After many discussions and negotiations with the SFPUC, City staff submitted a conceptual plan to the SFPUC's Project Review Committee on January 8, 2016. At this meeting, the SFPUC concurred with the City's conceptual design and encouraged the City to proceed with the design of this concept. The SFPUC will not give an official approval of the conceptual design until they review the 65 percent plans and specifications.

The conceptual design was reviewed by the City Council at the February 2, 2016 meeting as part of the MOA discussions (see Attachment 3). This design includes new fencing around the entire park site (including the entrances), park benches, trash receptacles, and large potted trees located at least 20' from the edge of the SFPUC's pipelines, gates that must be opened to enter the park, signs stating no bicycles allowed at each entrance to the park and passive landscaping throughout the site, including low shrubs and some natural and/or artificial turf.

NEXT STEPS

The following is a list of next steps for proceeding with the park design and construction:

- Amend Guzzardo's landscape architecture design contract to include not only the conceptual plan development but also the design of the construction documents and technical support during and after construction.
- Begin design of 65 percent plans and specifications for the park so these documents can be submitted to the SFPUC for final park design approval.
- Complete the review of the MOA once we receive the final draft from the SFPUC.
- Obtain the SFPUC's approval of the 65 percent plans and specifications for the park.
- City executes the MOA.
- SFPUC and the City and County of San Francisco Board of Supervisors execute the MOA.
- Proceed with final design for construction of the project.

FISCAL IMPACT

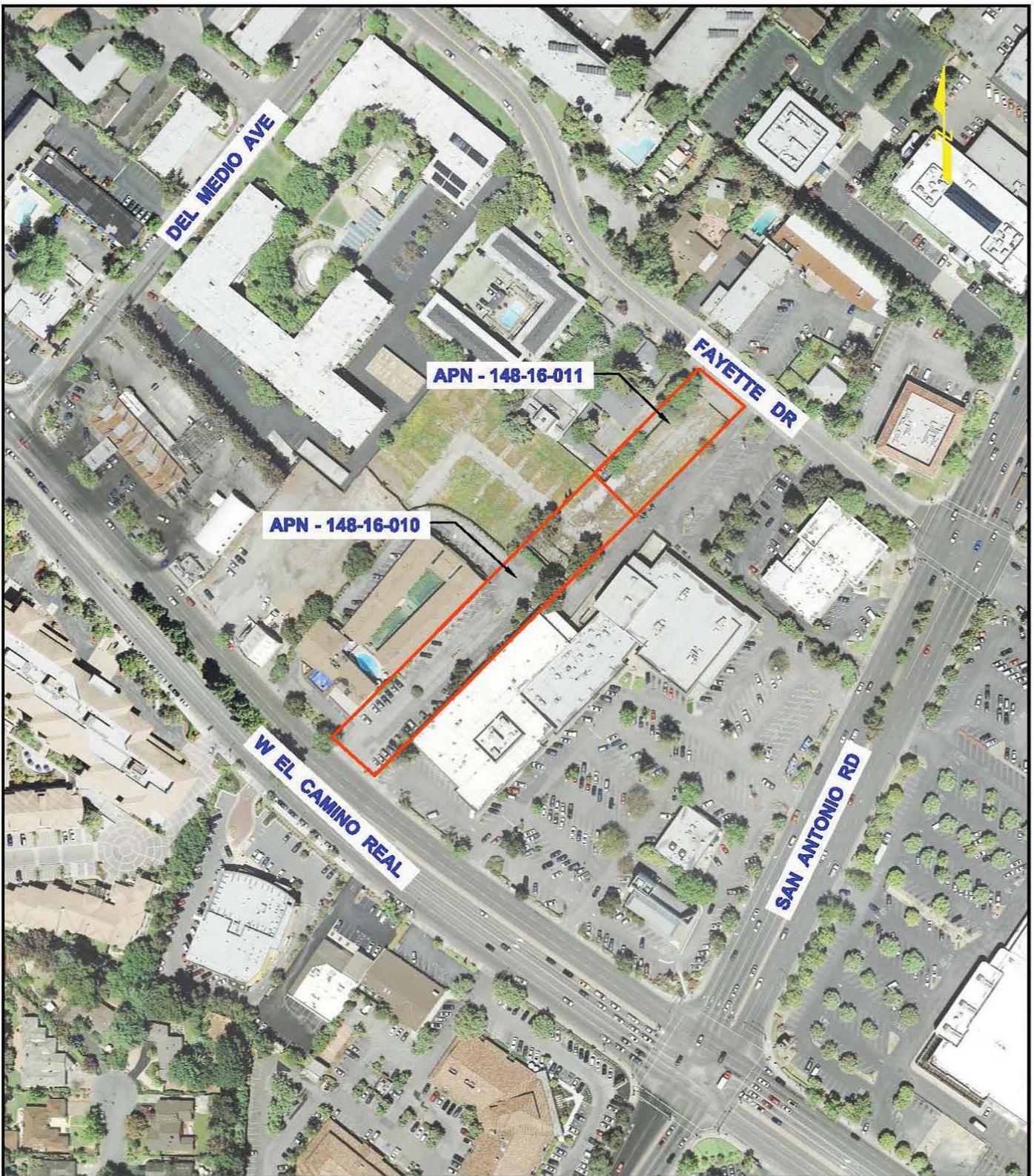
Fayette Park, Design, Project 13-36, is funded with \$560,000 from the Park Land Dedication Fund and Fayette Park, Construction, Project 16-32, is funded with \$1,650,000 from the Park Land Dedication Fund. With the current design and understanding of the SFPUC MOA, sufficient funding is available to complete the design and construction of the park.

AMS-JPdIM/7/PWK

924-05-11-16M-E

Attachments: 1. Location Map
2. SFPUC Tree Removal Plan
3. Fayette Park Conceptual Design

cc: CSD, POSM, PWD, APWD – Solomon, PCE – Au, RPPA, SCE – Starr, CA, SACA – Chopra, Project File



LEGEND:

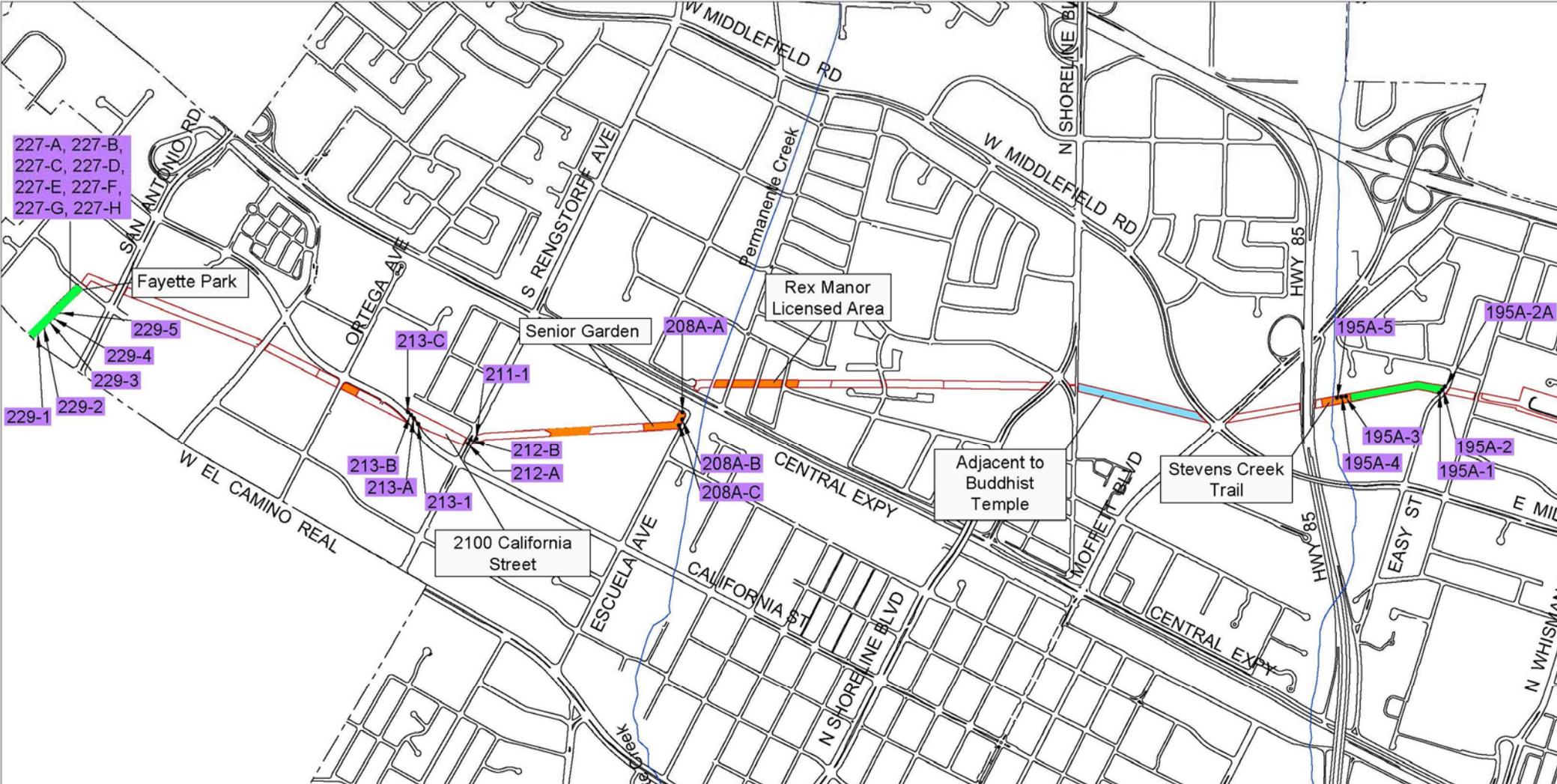


PROPOSED FAYETTE PARK ON SFPUC PROPERTY
(PARCELS 227, 228, 229)



CITY OF MOUNTAIN VIEW

PROPOSED FAYETTE PARK LOCATION MAP



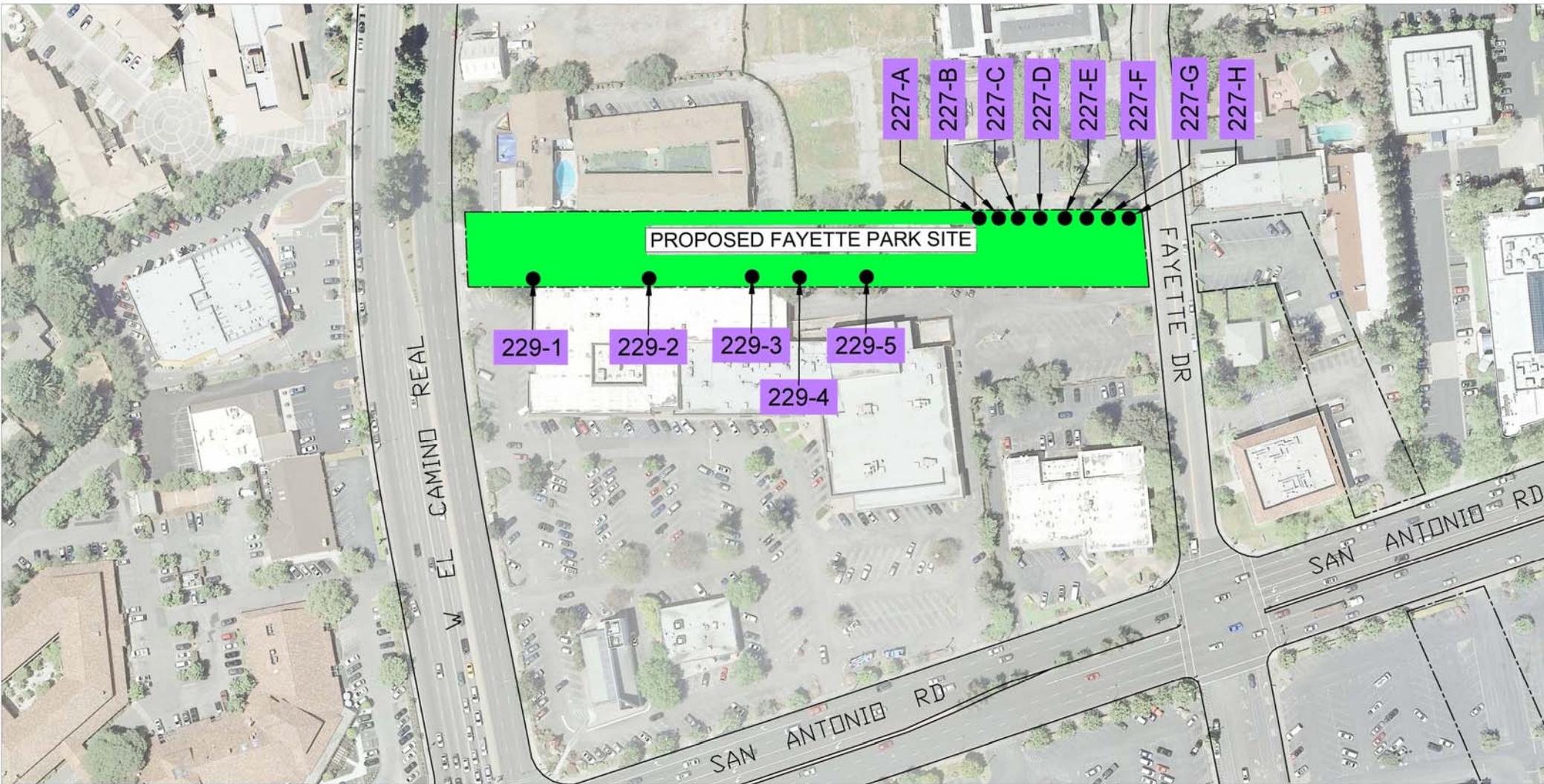
LEGEND:

- PARCEL WITH CURRENT LICENSE
- OBTAINING LICENSE
- MOUNTAIN VIEW TO MAINTAIN PARCEL WITHOUT A LICENSE
- TREE TO BE REMOVED - SFPUC TREE NUMBER
- SFPUC ROW - NO CITY USE

SCALE: 1" = 1000'



SFPUC's Tree Removal Plan



SCALE: 1" = 100'

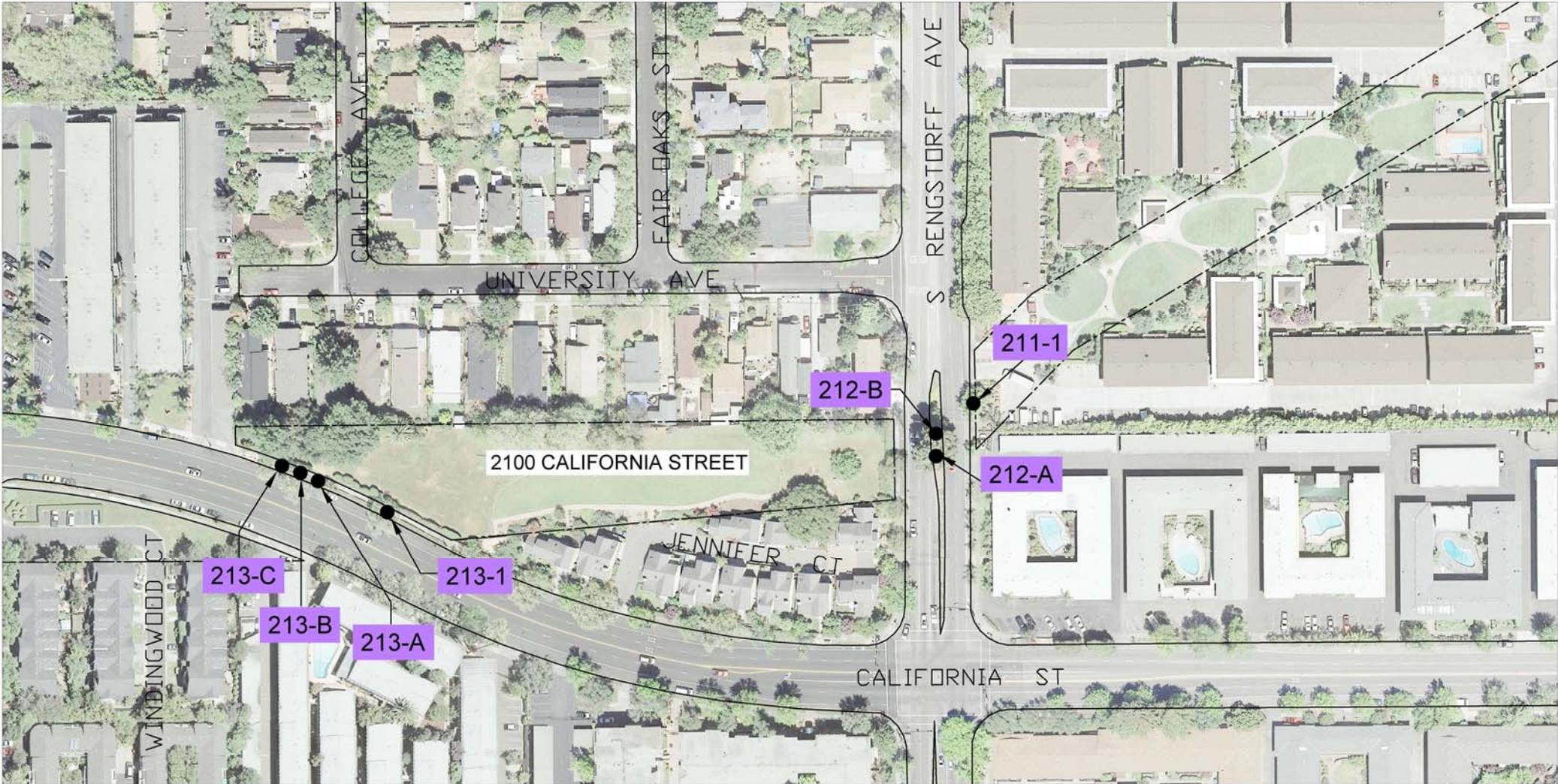
LEGEND:

- PARCEL WITH CURRENT LICENSE
- OBTAINING LICENSE
- MOUNTAIN VIEW TO MAINTAIN PARCEL WITHOUT A LICENSE

- TREE TO BE REMOVED - SFPUC TREE NUMBER
- SFPUC ROW - NO CITY USE



SFPUC's Tree Removal Plan



SCALE: 1" = 100'

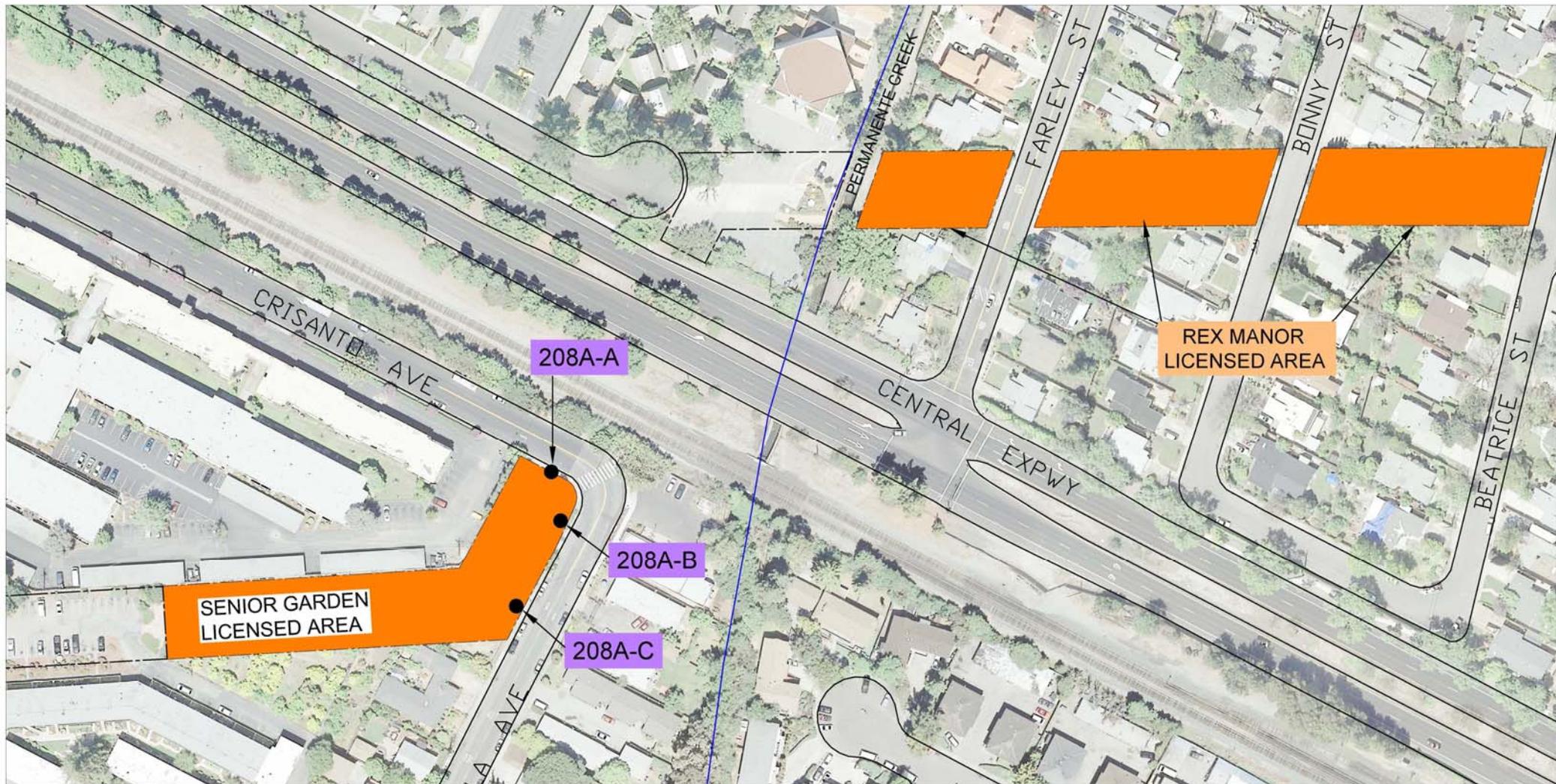
LEGEND:

- PARCEL WITH CURRENT LICENSE
- OBTAINING LICENSE
- MOUNTAIN VIEW TO MAINTAIN PARCEL WITHOUT A LICENSE

- TREE TO BE REMOVED - SFPUC TREE NUMBER
- SFPUC ROW - NO CITY USE



SFPUC's Tree Removal Plan



SCALE: 1" = 100'

LEGEND:

- PARCEL WITH CURRENT LICENSE
- OBTAINING LICENSE
- MOUNTAIN VIEW TO MAINTAIN PARCEL WITHOUT A LICENSE
- TREE TO BE REMOVED - SFPUC TREE NUMBER
- SFPUC ROW - NO CITY USE



SFPUC's Tree Removal Plan



LEGEND:

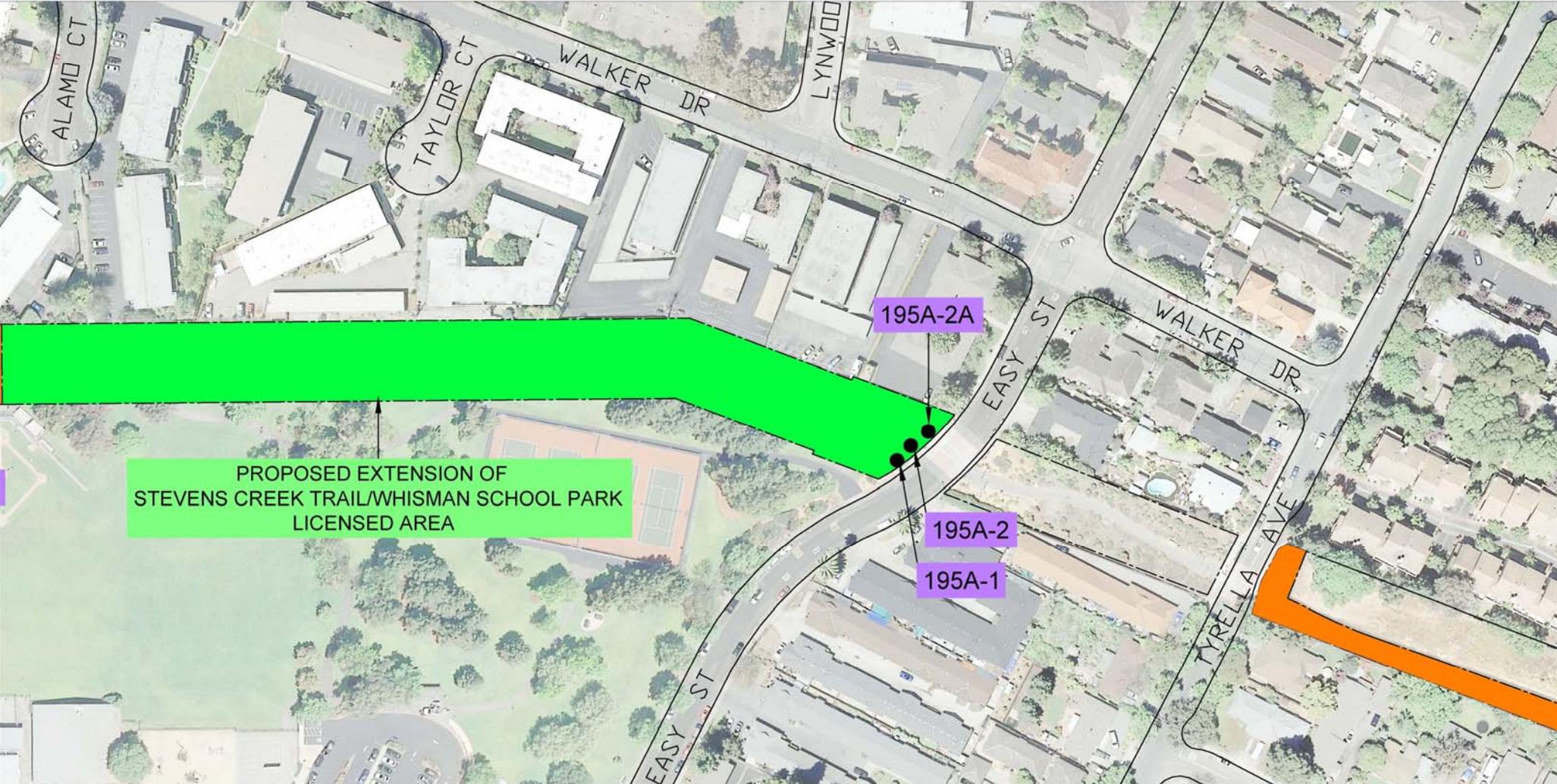
- PARCEL WITH CURRENT LICENSE
- OBTAINING LICENSE
- MOUNTAIN VIEW TO MAINTAIN PARCEL WITHOUT A LICENSE

- TREE TO BE REMOVED - SFPUC TREE NUMBER
- SFPUC ROW - NO CITY USE

SCALE: 1" = 100'



SFPUC's Tree Removal Plan



SCALE: 1" = 100'

LEGEND:

- PARCEL WITH CURRENT LICENSE
- OBTAINING LICENSE
- MOUNTAIN VIEW TO MAINTAIN PARCEL WITHOUT A LICENSE
- TREE TO BE REMOVED - SFPUC TREE NUMBER
- SFPUC ROW - NO CITY USE



SFPUC's Tree Removal Plan



Integral Color Concrete Paving



Bench



Asphalt Walkway



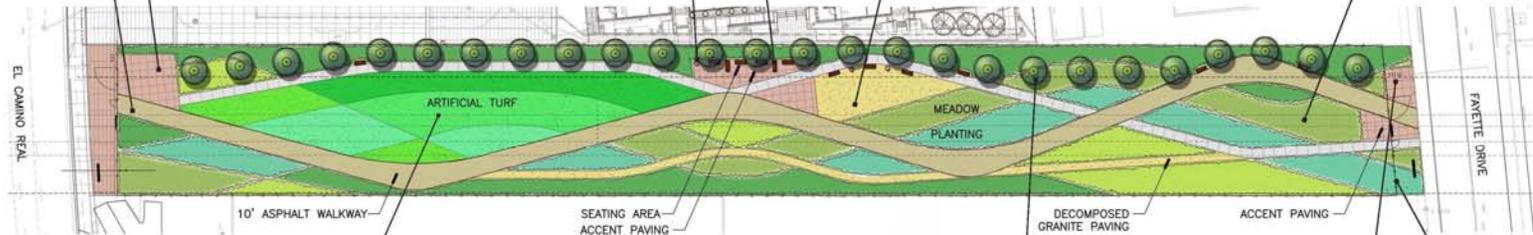
Receptacle



Decomposed Granite Paving



Meadow Planting



Artificial Turf with Pattern



Movable Planter Pots w/ Trees



Bike Racks



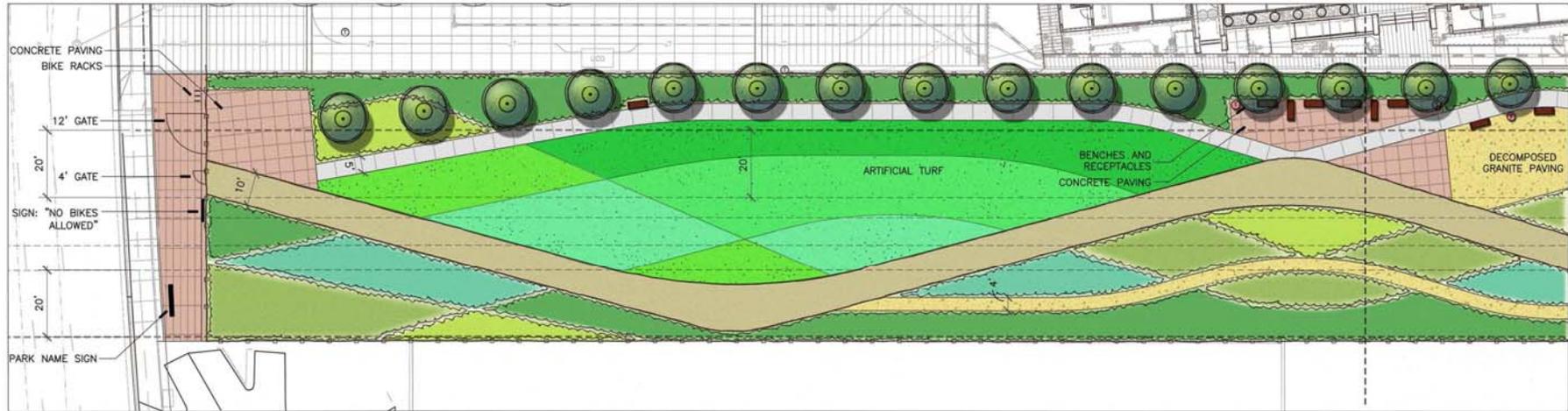
Wrought Iron Fence

THE GUZZARDO PARTNERSHIP INC. Landscape Architects • Land Planners 181 Greenwich Street San Francisco, CA 94111 T 415 433 4672 F 415 433 5003

DRAFT PRELIMINARY PLAN FOR FAYETTE PARK MOUNTAIN VIEW, CA

ENLARGED PLAN 0 16 32 64

L1 DEC 21, 2015



ENLARGED PLAN



0 8 16 32



MEMORANDUM

Public Works Department

DATE: May 11, 2016

TO: Parks and Recreation Commission and Urban Forestry Board

FROM: Arlynn A. Bumanglag, Associate Engineer
Lisa Au, Principal Civil Engineer

SUBJECT: **Annual Water and Sewer Main Replacements, Projects 14-21 and 14-22,
Heritage Tree Removal Mitigation**

RECOMMENDATION

Review the proposed Heritage tree mitigation for the Annual Water and Sewer Main Replacements, Projects 14-21 and 14-22, and forward a recommendation to the City Council to approve the staff-recommended mitigation for removal of up to eleven (11) Heritage trees with 1-to-1 tree replacements and planting 11 new 24" box trees.

BACKGROUND

The Annual Sewer Main Replacement, Project 14-22, will involve the installation of a new 18" sewer main to replace an existing 15" main that crosses under both Stevens Creek and Highway 85. Due to the age and poor condition of the existing 15" sewer main, a new 18" replacement is needed.

The Annual Water Main Replacement, Project 14-21, will involve the installation of a new 12" water main to replace an existing 10" main on Leong Drive in anticipation of serving the development at the 750 Moffett Boulevard site. The project will also install two new 12" water services for 750 Moffett Boulevard, which currently does not have water service.

See Attachment 1 – Location Map, for general project locations.

ANALYSIS

Underground drilling methods, as required by the Santa Clara Valley Water District and the California Department of Transportation (Caltrans), will be used to install the water and sewer mains across Stevens Creek, Highway 85, and Moffett Boulevard. This

will require the formation of “bore pits” approximately 36’x15’ to allow room for construction equipment.

For the Annual Sewer Main Replacement, the proposed location of one bore pit near Stevens Creek Trail will affect three non-Heritage trees, including one already-deceased 18” eucalyptus. For the Annual Water Main Replacement, the proposed locations of two bore pits affect 15 trees (11 Heritage).

Staff held a field meeting with the Parks and Open Space Manager to assess Heritage tree impacts, and it was determined that the 11 Heritage trees will need to be removed in order to provide room for the bore pits. Ten (10) of these same Heritage trees are also planned for removal by the proposed private development at 750 Moffett Boulevard.

The size and types of the 11 Heritage trees proposed for removal are summarized in the table below:

Table 1 – Heritage Tree Summary

Tree No.	Trunk Diameter	Type
6	19”	Canary Island Pine
7	20”	Canary Island Pine
8	22”	Canary Island Pine
11	21”	Canary Island Pine
12	21”	Canary Island Pine
13	23”	Canary Island Pine
14	9”	Coast Live Oak
15	16”	Canary Island Pine
16	18”	Canary Island Pine
29	17”	Canary Island Pine
71	30”, 10”	California Pepper

As mitigation for removal of 11 Heritage trees, staff recommends to replant at a 1-to-1 ratio with 9 sycamores (*Platanus racemosa*) and 2 California buckeyes (*Aesculus californica*). Staff is recommending a 1-to-1 replacement ratio as the private development at 750 Moffett Boulevard has plans to replace Heritage trees at a 2-to-1 ratio as part of their project.

The Parks and Open Space Manager recommends planting the 11 new trees along Stevens Creek Trail. The Urban Forestry Board's recommendation for mitigation will be forwarded to the City Council.

See Attachment 2—Tree Map, for tree removal and tree planting locations, and Attachment 3—Heritage Trees Planned for Removal, for the 11 affected Heritage trees.

FISCAL IMPACT

The Annual Water Main Replacement, Project 14-21, is funded with \$1,688,000 from the Water Fund. The Annual Storm and Sanitary Sewer Main Replacement, Project 14-22, is funded with \$1,335,000 from the Wastewater Fund.

Tree removal will be included in the construction documents and funded from the construction budget. Tree mitigation will be funded from the construction budget of Projects 14-21 and 14-22, and constructed with the Calderon Avenue Bike Lane Improvements, Project 16-39, which will also be planting trees as part of its mitigation requirements on the Stevens Creek Trail.

PUBLIC NOTICING

In addition to the standard agenda posting, staff posted notices on the Heritage trees identifying them for removal and provided information for attending this meeting. Information related to the tree removal was also posted on the City's Urban Forestry website.

AAB-LA/7/PWK
908-05-11-16M-E

Attachments: 1. Location Map
2. Tree Map
3. Site Plan—Heritage Trees Planned for Removal

cc: PWD, APWD—Solomon, POSM, PCE—Au, SP—Williams, ACE—Gunn,
AE—Bumanglag, File (14-21, 14-22)



CITY OF MOUNTAIN VIEW

ANNUAL WATER AND SEWER MAIN REPLACEMENTS, PROJECTS 14-21 AND 14-22

ATTACHMENT 1 - LOCATION MAP



750 MOFFETT
BOULEVARD

A

B

C

TO BE REMOVED:
A. 3 TREES (NO HERITAGE)
B. 2 TREES (1 HERITAGE)
C. 13 TREES (10 HERITAGE)

SEE ATTACHMENT 3 FOR
HERITAGE TREE LOCATIONS

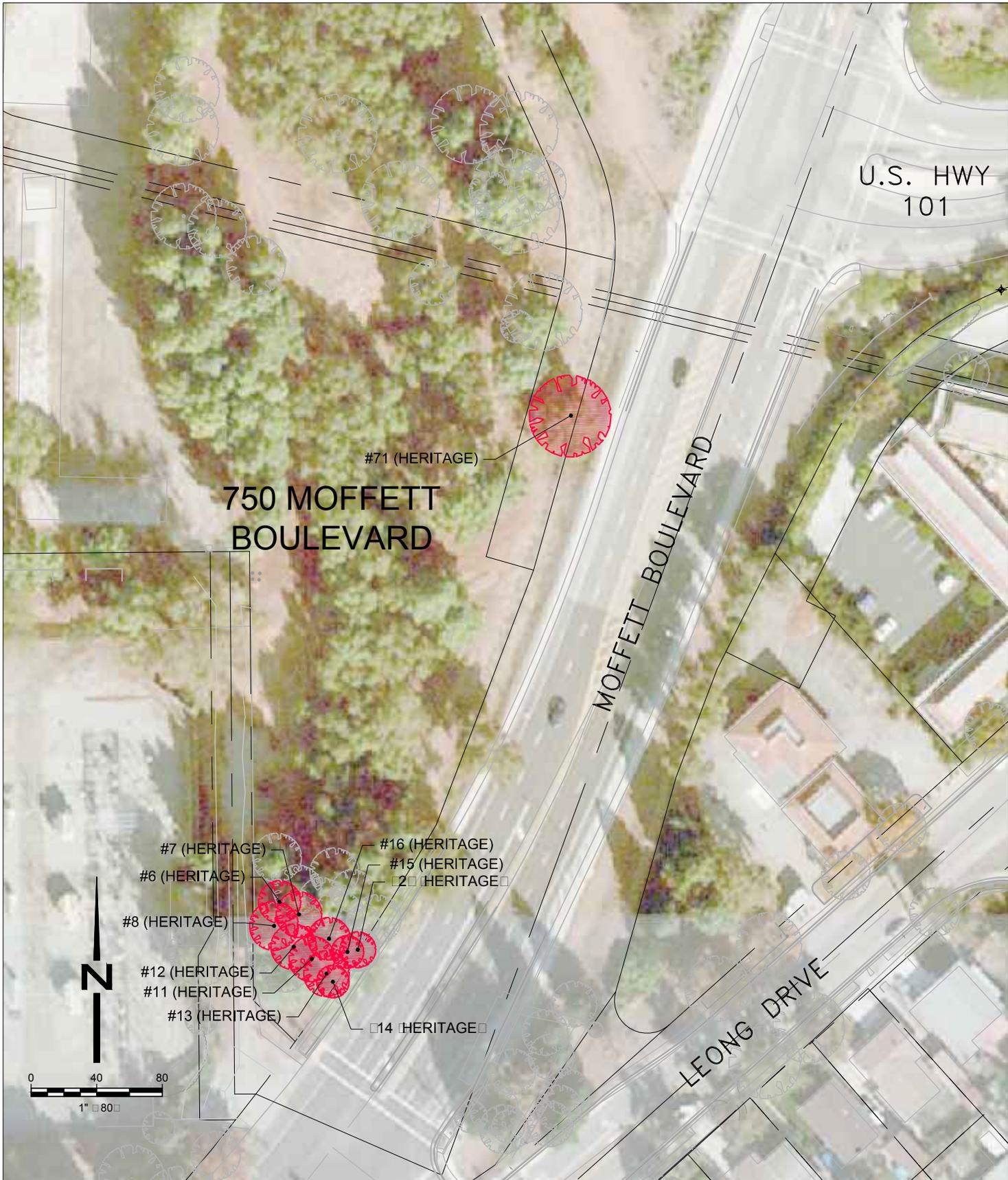
11 NEW TREES



CITY OF MOUNTAIN VIEW

ANNUAL WATER AND SEWER MAIN REPLACEMENTS, PROJECTS 14-21 AND 14-22

ATTACHMENT 2 - TREE MAP



LEGEND

 HERITAGE TREES TO BE REMOVED

**ATTACHMENT 3
SITE PLAN - HERITAGE TREES PLANNED FOR REMOVAL**





MEMORANDUM

Community Services Department

DATE: May 11, 2016

TO: Parks and Recreation Commission

FROM: Brady Ruebusch, Senior Administrative Analyst
J.P. de la Montaigne, Community Services Director

SUBJECT: **Community Services Department Proposed Budget for Fiscal Year 2016-17**

RECOMMENDATION

Review and provide input on the Community Services Department's (CSD) proposed budget for Fiscal Year 2016-17.

BACKGROUND

The CSD provides an annual update to the Parks and Recreation Commission (Commission) on the department's proposed budget. This update contains proposals for CSD's budget for Fiscal Year 2016-17.

On April 26, 2016, the City Council held a Study Session for the Fiscal Year 2016-17 Narrative Budget Report, where the City Manager presented CSD's requests along with all other recommendations. The City Council did not provide additional direction for any of CSD's requests.

ANALYSIS

City Budget

Due to the fiscally responsible actions taken in prior years and the current state of the economy, City staff did not need to submit budget reductions for Fiscal Year 2016-17. Furthermore, staff estimates that Citywide revenues will exceed budget projections while expenditures will be below budget at the end of the current fiscal year. The Narrative Budget Report projects the City will end the year with an \$8.7 million balance in the General Operating Fund. From this balance, the City Manager is recommending to contribute an additional \$1.0 million to each of the following: the Public Employees Retirement System (PERS), Retirees' Health Other Post-Employment Benefits (OPEB),

and the Strategic Property Acquisition Reserve (SPAR). The remaining balance, up to \$4.0 million, is recommended to supplement the Capital Improvement Reserve.

The Narrative Budget Report forecast for the Fiscal Year 2016-17 General Operating Fund indicates that revenues will continue to grow and exceed projected expenditures, creating a preliminary \$3.4 million projected operating balance.

Department Budget

The CSD was provided direction that budget increases be limited to those needed for new regulations, safety, providing operational efficiencies, or further a Council priority. Any request for new positions must be of the highest priority based on workload and need to support Council Major Goals.

The CSD is requesting an ongoing budget increase of \$195,260, which will be offset by revenues and interfund transfers totaling \$31,500. This equates to an ongoing net increase of \$163,760. The CSD is also requesting \$262,500 in one-time funding. Attachment 1 provides a detailed list of the ongoing and one-time budget requests. Requests are listed for each type of request by each division’s priority order.

Ongoing Increases		One-Time Funding	
Total Requests:	\$195,260	Total Requests:	\$262,500
Revenue Offsets:	<u>31,500</u>	Revenue Offsets:	<u>1,500</u>
Net Request:	\$163,760	Net Request:	\$261,000

Fee Modifications:

The CSD is requesting fee modifications for Performing Arts, Recreation, and Shoreline Golf Links (SGL). Performing Arts is establishing a new fee structure for web sales in order to align with charges and purchases through a new ticket vendor, ShoWare. Recreation’s fee modifications are modest increases to tennis and modifying language to address a wider range of sports for leagues and drop-in programs. SGL is requesting increases to Green Fees and Frequent Player Fees in order to cover increasing costs. SGL has not increased these fees since Touchstone took over management in 2012. The Advisory Greens Committee reviewed and approved the increases to golf fees on February 24, 2016. Attachment 2 provides a detailed list of the fee modifications being requested.

NEXT STEPS

The CSD's budget has been reviewed by the City Manager and will be submitted for review by the City Council at a public hearing on June 14, 2016 and adoption on June 21, 2016.

PUBLIC NOTICING – Agenda posting.

BR-JPdIM/2/CSD
240-05-11-16M-E

- Attachments:
1. Detailed List of CSD Budget Requests
 2. Detailed List of Master Fee Schedule Changes
 3. Summary of Park Land Dedication and In-Lieu Fees

DISCRETIONARY REQUESTS

Div	Request	Recommended Amount	Offset?	Fund
Parks	Park Maintenance Worker I/II for Roadways Crew - .25FTE	\$29,230		General
Parks	Park Maintenance Worker I/II for So. Parks - .25FTE	\$29,230		General
Parks	Materials for Pesticide Control (Organic Switch + Cost)	\$7,000		General
Parks	Supplies for No Neighborhoods/Parks (reestablish edger's, blowers, hand tools)	\$3,000		General
Parks	Supplies for Rengstorff Park (reestablish edger's, blowers, hand tools)	\$2,000		General
Parks	Supplies for Furlough Program (string & hedge trimmers, blowers)	\$2,500		General
Parks	Overtime - Furlough Program	\$3,000		General
Parks	Qualified Applicators Certification for No. Parks (6 employees)	\$1,500		General
Parks	Overtime - Urban Forest Program (storms, emergencies)	\$3,000		General
	Parks Total	\$80,460		
Shoreline	Shoreline Athletic Field Maint-New Costs (materials, water, utilities)	\$12,000		Shoreline
Shoreline	Contract for Park Rangers (putting whole request into Shoreline)	\$25,000		Shoreline
Shoreline	Shoreline PG&E - Gas and Electricity	\$27,000		Shoreline
	Shoreline Total	\$64,000		
Rec	Recreation Activity Guide (assume printing from CMO, licensing)	\$10,500	\$17,000	General
Rec	Aquatics Slide Inspection and Permit	\$2,400		General
Rec	Operation of Senior Center (janitorial supplies)	\$6,000		General
Rec	Aquatic Fitness Classes Contracts	\$10,000	\$14,500	General
Rec	Aquatics Operation - (majority for chemicals and some janitorial)	\$10,000		General
Rec	Afterschool Program Staff Wage Increase (compete w/ schools pay)	\$11,900		General
	Recreation Total	\$50,800		
	DISCRETIONARY TOTAL	\$195,260	\$31,500	

LIMITED PERIOD

Div	Request	Recommended Amount	Recovery?	Fund
Parks	Homeless Encampment Cleanup Contract	\$20,000		General
Parks	Maintenace for Roadway Landscaping (Downtown Light Strands)	\$10,000		General
	Parks Total	\$30,000		
Rec	Milk Room/Goat Barn Remodel (MROSD perform labor)	\$18,400		General
Rec	Senior Center 10 Year Anniversary	\$3,000	\$1,500	General
Rec	Tennis Supplies (nets and screens)	\$5,000		General
	Recreation Total	\$26,400		
CPA	Position Allocation Request	\$71,000		General
	Performing Arts Total	\$71,000		
	LIMITED PERIOD TOTAL	\$127,400	\$1,500	

CAPITAL OUTLAY

Div	Request	Recommended Amount	Recovery?	Fund
Parks	Downtown Trash Cans (replace all after 20 yrs of use)	\$116,000		General
	Parks Total	\$116,000		
Rec	Senior Center Exerice Equipment (3 Treadmills)	\$12,000		General
Rec	Special Event Trailer	\$7,100		General
	Recreation Total	\$19,100		
	CAPITAL OUTLAY TOTAL	\$135,100		
	TOTAL ONE-TIME FUNDING (Limited Period and Capital Outlay)	\$262,500		
	TOTAL BUDGET REQUEST	\$457,760		

Div	Title of Fee	Current Fee	Proposed Fee
Performing Arts	Ticket Services:		
	Consignment (Renter-Sold Tickets)	\$1.00	\$1.50
	Fax/Mail/Phone	\$2.50	\$3.00
Performing Arts	Subscriptions:		
	Fixed Package - all subscriptions except for those series whose highest ticket value does not exceed \$15	N/A	\$2.00
	Flex Package - all subscriptions except for those series whose highest ticket value does not exceed \$15	N/A	\$2.00
Performing Arts	Ticket Purchase (web sale):		
	All Tickets	\$0.50	Eliminate
	\$0.00-\$10.00	N/A	No Charge
	\$10.01-\$15.00	N/A	\$2.50
	\$15.01-\$25.00	N/A	\$3.00
	\$25.01-\$45.00	N/A	\$4.00
	>\$45.00	N/A	\$5.00
	Transaction (web sale)	\$5.00	\$5.00
Recreation	Adult Sports Leagues:		
	Basketball	\$67.00	Eliminate
	Flag Football	\$67.00	Eliminate
	Softball (Coed)	\$69.00	Eliminate
	Softball (Men's)	\$69.00	Eliminate
	Volleyball	\$49.00	Eliminate
	Various Sports	N/A	\$50.00-\$70.00
Recreation	Drop-In Sports (athletic fields, gyms):		
	10 visits	\$15.00	\$15.00
	20 visits	\$30.00	\$30.00
	Drop-In Sports	\$3.00	\$3.00
Recreation	Tennis:		
	Cuesta Courts Lessons		
	Adult	\$14.75-\$26.00	\$15.25-\$30.00
	Junior	\$13.75-\$26.00	\$13.75-\$30.00
	Rengstorff Courts		
	Youth Camp	\$10.00-\$26.00	\$10.00-\$30.00
Shoreline Golf	Frequent Player		
	Junior (Annual)	\$372.00	\$380.00
	Regular Play (Annual)	\$2,508.00	\$2,560.00
	Regular Play (Annual Family)	\$3,768.00	\$3,845.00
	Regular (M-Th/ Annual)	\$1,644.00	\$1,675.00
	Regular (M-Th/Quarterly)	\$550.00	\$560.00
	Regular (M-Th/ Annual Family)	\$2,148.00	\$2,190.00
	Seniors (M-Th/ Annual)	\$1,260.00	\$1,285.00

	Seniors (M-Th/Quarterly)	\$400.00	\$410.00
	Seniors (M-Th/ Annual Family)	\$1,824.00	\$1,860.00
	Twilight (Annual)	\$996.00	\$1,015.00
	Twilight (Annual Family)	\$1,644.00	\$1,675.00
Shoreline Golf	Green Fees		
	Weekday M-F		
	Afternoon (Mar-Oct, 2 hours prior to twilight)	Up to \$25.00	Up to \$27.00
	Regular	Up to \$38.00	Up to \$40.00
	Resident	Up to \$31.00	Up to \$33.00
	Senior (>/=60)	Up to \$28.00	Up to \$30.00
	Senior Resident (>/=60)	Up to \$21.00	Up to \$23.00
	Twilight/Back 9 Regular	Up to \$25.00	Up to \$27.00
	Twilight/Back 9 Resident	Up to \$18.00	Up to \$20.00
	All Others	Up to \$32.00	Up to \$34.00
	Super Twilight		
	Regular	Up to \$17.00	Up to \$19.00
	Resident	Up to \$10.00	Up to \$12.00
	Weekends/Holidays		
Regular	Up to \$54.00	Up to \$56.00	
Resident	Up to \$47.00	Up to \$49.00	
Twilight/Back 9 Regular	Up to \$28.00	Up to \$30.00	
Twilight/Back 9 Resident	Up to \$21.00	Up to \$23.00	

UNCOMMITTED PARK LAND DEDICATION FEES												
PROJECTS	UNRESTRICTED	CENTRAL	GRANT	MIRAMONTE	RENGSTORFF	SAN ANTONIO	STIERLIN	SYLVAN-DALE	THOMPSON	WHISMAN	N BAYSHORE	TOTAL
Current FY:	\$470,357.51	\$0.00	\$0.00	\$1,187,250.00	\$348,100.00	\$26,100.00	\$17,250.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,213,350.00
TOTAL UNCOMMITTED:	\$470,357.51	\$0.00	\$0.00	\$1,187,250.00	\$348,100.00	\$4,244,300.00	\$17,250.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5,431,550.00
COMMITTED AND OPEN SPACE PARK LAND DEDICATION FEES												
PROJECTS	CITY WIDE ASSET	CENTRAL	GRANT	MIRAMONTE	RENGSTORFF	SAN ANTONIO	STIERLIN	SYLVAN-DALE	THOMPSON	WHISMAN	N BAYSHORE	TOTAL
Total Committed:	\$562,821.00	\$0.00	\$0.00	\$4,250,000.00	\$1,531,068.46	\$13,728,000.00	\$330,000.00	\$0.00	\$165,000.00	\$3,456,151.00	\$0.00	\$23,937,529.46
Open Space Acquisition:	\$478,080.11	\$2,139,720.00	\$0.00	\$0.00	\$136,800.00	\$2,863,105.09	\$4,390,757.00	\$2,718,000.00	\$761,414.00	\$0.00	\$0.00	\$13,487,876.20
ACTIVE PROJECTS FUNDED WITH PARK LAND DEDICATION FEES												
ACTIVE PROJECTS	CW Asset/ Unrestricted	CENTRAL	GRANT	MIRAMONTE	RENGSTORFF	SAN ANTONIO	STIERLIN	SYLVAN-DALE	THOMPSON	WHISMAN	N BAYSHORE	TOTAL
TOTAL ACTIVE PROJECTS:	\$738,012.50	\$360,000.00	\$280,750.00	\$63,250.00	\$4,495,000.00	\$8,239,676.00	\$2,090,377.31	\$148,500.00	\$0.00	\$63,250.00	\$0.00	\$16,478,815.81