

Tree Inventory Summary Report

Flood Park, San Mateo County, California



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Prepared for:
San Mateo County
Department of Parks
455 County Center
Redwood City, CA

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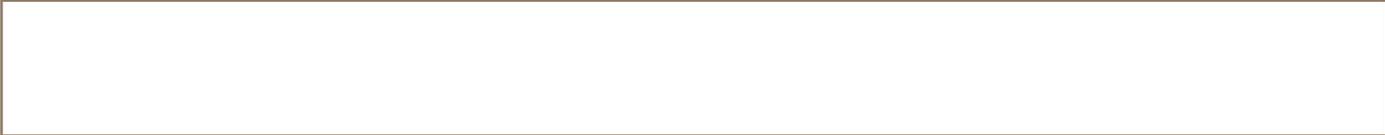


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Tree Inventory Executive Summary

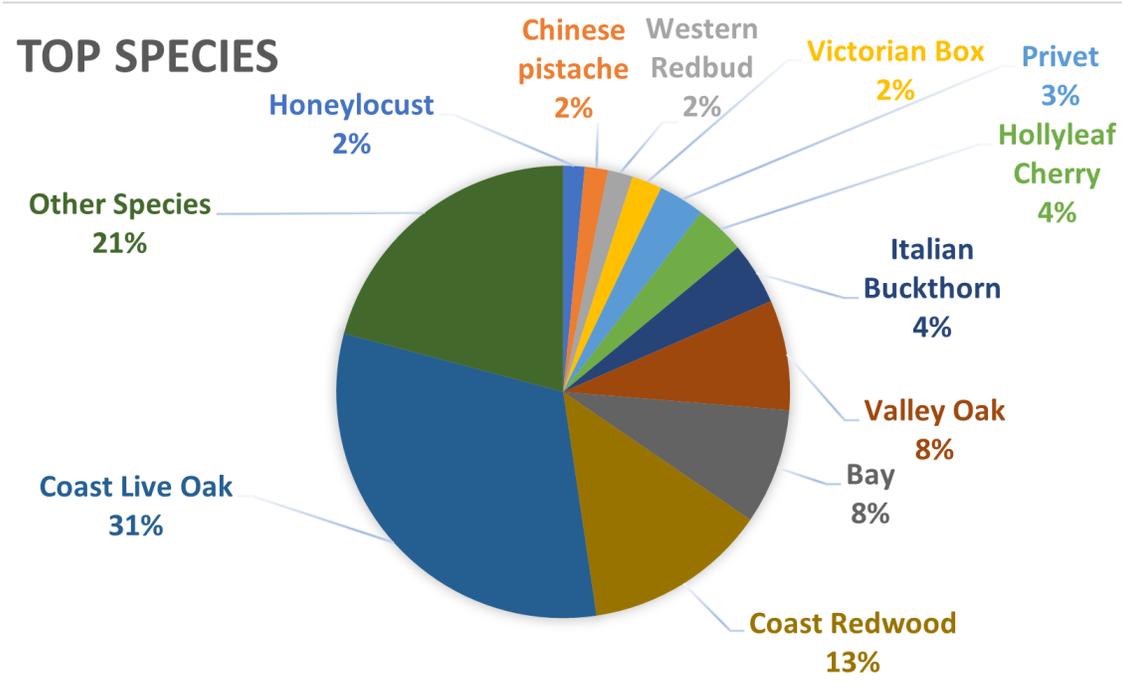
In October of 2021, the County of San Mateo, CA Parks Department contracted with Davey Resource Group, Inc. (DRG) to conduct an inventory of trees, provide maintenance recommendations, and develop a tree protection plan for trees at Flood Park. The results of this assessment are documented in the following inventory summary. The goal of this report is to provide an overview of the inventory, summarize recommendations, and highlight key observations.

A tree inventory is an invaluable tool for managers of public trees. Inventories should be kept current and accessed regularly to develop work assignments and plan strategies to mitigate potential hazards. These trees were inspected for risks to buildings, infrastructure, and public safety. The data set was collected as GIS-based tree inventory and will allow the County of San Mateo Parks Department to better understand, prioritize, and make decisions about the tree population. Analysis of the inventory data showed the following:

- 787 trees were inventoried.
- 53 distinct species were identified.
- The most common species is coast live oak (*Quercus agrifolia*) with 248 trees collected. Followed by coast redwood (*Sequoia sempervirens*, 103 trees), bay laurel (*Umbellularia californica*, 65 trees), valley oak (*Quercus lobata*, 62 trees), Italian buckthorn (*Rhamnus alaternus*, 35 trees), and hollyleaf cherry (*Prunus ilicifolia*, 28 trees).
- 9 trees are dead and should be removed: 6 dead trees have a DBH ranging from 6 to 17 inches and 3 dead trees have a DBH of <6 inches.
- 15 trees are in critical condition and removal should be considered: 10 trees have a DBH ranging from 6 to 22 inches and 5 trees have a DBH of <6 inches.
- 146 trees are in poor condition, while 617 trees (78%) are in fair or better condition.

Species Composition

- The majority of the tree population (60%) is represented by 4 native species: coast live oak (*Quercus agrifolia*), valley oak (*Q. lobata*), coast redwood (*Sequoia sempervirens*), and bay laurel (*Umbellularia californica*).



- The remaining 40% of the population is comprised of 49 species.

Botanical Name	Common Name	Tree Count	Frequency (%)
<i>Quercus agrifolia</i>	Coast live oak	248	31.8
<i>Sequoia sempervirens</i>	Coast redwood	103	13.2
<i>Umbellularia californica</i>	Bay laurel	65	8.3
<i>Quercus lobata</i>	Valley oak	62	7.9
<i>Rhamnus alaternus</i>	Italian buckthorn	35	4.5
<i>Prunus ilicifolia</i>	Hollyleaf cherry	28	3.6
<i>Ligustrum ovalifolium</i>	Privet	26	3.3
<i>Pittosporum undulatum</i>	Victorian box	17	2.2

Botanical Name	Common Name	Tree Count	Frequency (%)
<i>Cercis occidentalis</i>	Western redbud	14	1.8
<i>Pistacia chinensis</i>	Chinese pistache	13	1.7
<i>Aesculus californica</i>	California buckeye	12	1.5
<i>Arbutus 'Marina'</i>	'Marina' strawberry tree	12	1.5
<i>Gleditsia triacanthos</i>	Honeylocust	12	1.5
<i>Pinus radiata</i>	Monterey pine	11	1.4
<i>Quercus ilex</i>	Holly oak	10	1.3
<i>Prunus spp</i>	Plum	9	1.2
<i>Arbutus unedo</i>	Strawberry tree	8	1.0
<i>Juglans regia</i>	English walnut	7	0.9
<i>Photinia glabra</i>	Chinese photinia	7	0.9
<i>Laurus nobilis</i>	Sweet bay	6	0.8
<i>Acer platanoides</i>	Norway maple	5	0.6
<i>Acacia melanoxylon</i>	Black acacia	4	0.5
<i>Arctostaphylos manzanita</i>	Common manzanita	4	0.5
<i>Koelreuteria bipinnata</i>	Goldenrain tree	4	0.5
<i>Magnolia grandiflora</i>	Southern magnolia	4	0.5
<i>Prunus cerasifera</i>	Cherry plum	4	0.5
<i>Quercus douglasii</i>	Blue oak	4	0.5
<i>Albizia julibrissin</i>	Mimosa	3	0.4
<i>Ginkgo biloba</i>	Ginkgo	3	0.4
<i>Juglans nigra</i>	Black walnut	3	0.4
<i>Liquidambar styraciflua</i>	Sweetgum	3	0.4
<i>Maytenus boaria</i>	Mayten tree	3	0.4
<i>Platanus x hispanica</i>	London plane tree	3	0.4
<i>Acer macrophyllum</i>	Bigleaf maple	2	0.3
<i>Calocedrus decurrens</i>	Incense cedar	2	0.3
<i>Fraxinus ornus</i>	Flowering ash	2	0.3

Botanical Name	Common Name	Tree Count	Frequency (%)
<i>Malus ioensis</i>	Crabapple	2	0.3
<i>Melaleuca styphelioides</i>	Prickly melaleuca	2	0.3
<i>Quercus rubra</i>	Red oak	2	0.3
<i>Schinus molle</i>	Pepper tree	2	0.3
<i>Triadica sebifera</i>	Chinese tallow tree	2	0.3
<i>Acer buergerianum</i>	Trident maple	1	0.1
<i>Acer saccharum</i>	Sugar maple	1	0.1
<i>Araucaria bidwillii</i>	False monkey puzzle tree	1	0.1
<i>Juniperus californica</i>	California juniper	1	0.1
<i>Lagerstroemia indica</i>	Crape myrtle	1	0.1
<i>Malus pumila</i>	Apple	1	0.1
<i>Pittosporum tobira</i>	Japanese pittosporum	1	0.1
<i>Prunus domestica</i>	Plum	1	0.1
<i>Pseudotsuga menziesii</i>	Douglas-fir	1	0.1
<i>Pyracantha coccinea</i>	Scarlet firethorn	1	0.1
<i>Sambucus nigra ssp. canadensis</i>	Blue elderberry	1	0.1
<i>Taxodium distichum</i>	Bald cypress	1	0.1

Condition Breakdown

Tree condition affects value, benefits, and budget. Trees were evaluated for health, structure, and form using categories from a rating system established by the International Society of Arboriculture and defined in Table 4.1 in the Council of Tree and Landscape Appraisers Guide for Plant Appraisal 10th Edition. Tools used in data collection include standard diameter tape for trunk measurement and rangefinder for tree height and canopy radius measurements.

Table 4.1 Assessment of plant condition considers health, structure, and form. Each may be described in rating categories that can be translated into a percent rating.

Rating category	Condition components			Percent rating
	Health	Structure	Form	
Excellent	High vigor and nearly perfect health with little or no twig dieback, discoloration, or defoliation.	Nearly ideal and free of defects.	Nearly ideal for the species. Generally symmetric. Consistent with the intended use.	81% to 100%
Good	Vigor is normal for the species. No significant damage due to diseases or pests. Any twig dieback, defoliation, or discoloration is minor.	Well-developed structure. Defects are minor and can be corrected.	Minor asymmetries/deviations from species norm. Mostly consistent with the intended use. Function and aesthetics are not compromised.	61% to 80%
Fair	Reduced vigor. Damage due to insects or diseases may be significant and associated with defoliation but is not likely to be fatal. Twig dieback, defoliation, discoloration, and/or dead branches may comprise up to 50% of the crown.	A single defect of a significant nature or multiple moderate defects. Defects are not practical to correct or would require multiple treatments over several years.	Major asymmetries/deviations from species norm and/or intended use. Function and/or aesthetics are compromised.	41% to 60%
Poor	Unhealthy and declining in appearance. Poor vigor. Low foliage density and poor foliage color are present. Potentially fatal pest infestation. Extensive twig and/or branch dieback.	A single serious defect or multiple significant defects. Recent change in tree orientation. Observed structural problems cannot be corrected. Failure may occur at any time.	Largely asymmetric/abnormal. Detracts from intended use and/or aesthetics to a significant degree.	21% to 40%
Very poor	Poor vigor. Appears to be dying and in the last stages of life. Little live foliage.	Single or multiple severe defects. Failure is probable or imminent.	Visually unappealing. Provides little or no function in the landscape.	6% to 20%
Dead				0% to 5%

*From *Guide for Plant Appraisal, 10th Edition, Revised*, Council of Plant and Landscape Appraisers, International Society of Arboriculture, Atlanta, GA, 2019.

- The overall condition of each tree was assigned using the lowest assessed rating (Health, Structure, or Form). The overall condition of the tree population was:

Condition	Count	Frequency (%)
Excellent (81-100%)	0	0
Good (61-80%)	248	31.5
Fair (41-60%)	369	46.9
Poor (21-40%)	146	18.6
Critical (6-20%)	15	1.9
Dead (0-5%)	9	1.1

- Over 78% of the tree population is in fair or better condition.

- 9 trees are dead and should be removed:

Tree #	Species	DBH (in)	Height
1708	Unknown	6	20
1792	<i>Rhamnus alaternus</i>	4	20
1793	<i>Rhamnus alaternus</i>	4	20
1992	Unknown	9	35
2279	Unknown	4	10
2415	Unknown	12, 12	20
2417	Unknown	12	18
2464	Unknown	17	20
2477	Unknown	7, 8	8

- 15 trees are in critical condition and removal should be considered:

Tree #	Species	DBH (in)	Height
1589	<i>Prunus</i> sp (plum)	4, 4, 5	20
1702	<i>Prunus</i> sp (plum)	5, 4, 4	18
1709	<i>Rhamnus alaternus</i>	4, 4	20
1726	<i>Prunus</i> sp (plum)	4, 2, 2, 2	16
1788	<i>Pinus radiata</i>	16	16
1911	<i>Arbutus unedo</i>	8	12
1960	<i>Sequoia sempervirens</i>	12, 7	35
1990	<i>Pittosporum undulatum</i>	9	30
1991	<i>Pittosporum undulatum</i>	15	30
2008	<i>Pittosporum undulatum</i>	7, 9	30
2104	<i>Sequoia semperviren</i>	8, 8	35
2171	<i>Ligustrum ovalifolium</i>	16	35
2173	<i>Ligustrum ovalifolium</i>	22	35
2238	<i>Rhamnus alaternus</i>	1	6
2418	<i>Sequoia sempervirens</i>	12	20

Tree Size and Classification

Diameter Breakdown of Tree Population

Trunk DBH class size ranged from 1 inch up to 70 with an average DBH of 12.9 inches. Over one half of the Flood Park tree inventory is less than 13-inch DBH, indicating the majority of trees inventoried are young to semi-mature.

Size class breakdown:

- 1-2 inch DBH: 28 trees (3.6%)
- 3-6 inch DBH: 214 trees (27.2%)
- 7-12 inch DBH: 182 trees (23.1%)
- 13-20 inch DBH: 151 trees (19.2%)
- 21-29 inch DBH: 102 trees (12.9%)
- 30-36 inch DBH: 65 trees (8.3%)
- Over 36 inch DBH: 46 trees (5.8%)

Tree Classification

Trees were classified as Significant, Heritage, or N/A using the San Mateo County Ordinance Sections 11,000 and 12,000.

- 394 trees were considered Significant trees (50.1%)
- 387 trees were considered N/A (49.2%)
- 6 trees were considered Heritage trees (0.8%)

Maintenance Prioritization

Tree maintenance was prescribed based on the health and structure of each tree, and a prioritization rating was assigned on a scale of 1 to 5 to address the urgency of prescribed work and the potential benefit of the maintenance based on tree location and value. The likelihood of tree failure based on obvious defects combined with the occupancy rate within the immediate area around the tree was taken into account when assigning priority. Prioritizing work provides the county with a wide range of options for establishing a maintenance schedule, budget planning and negotiation.

Prioritization Rating	Count	Frequency (%)
● 1 - Immediate Action/High Value	59	7.5
● 2 - Near Term (1-3 years)/Fair Value	127	16.1
● 3 - Mid Term (3-5 years)/Moderate Value	305	38.8
● 4 - Long Term (5-10 years)/Poor Value	144	18.3
● 5 - No management recommended at time of inspection/No Value	152	19.3

Maintenance Recommendations

A maintenance task was recommended for each tree.

- Crown cleaning was prescribed for 503 trees (63.9%)
- No maintenance was recommended for 152 trees (19.3%)
- Remove was recommended for 85 trees (10.8%)
- End weight reduction was recommended for 29 trees (3.7%)
- Structural pruning for young trees was recommended for 12 trees (1.5%)
- Structural restoration pruning was recommended for 3 trees (0.4%)
- Tree risk assessment was recommended for 2 trees (0.3%)
- Remove stakes/hardware was recommended for 1 tree (0.1%)

Maintenance Task and Priority Ratings

Priority 1 Ratings-Immediate Action/High Value

- Clean 52 trees
- Remove 7 trees

Priority 2 Ratings-Near Term (1-3 years)/Fair Value

- Clean 97 trees
- Remove 13 trees
- Reduce end weight 8 trees
- Structural prune 5 trees
- Tree risk assessment 2 trees
- Structural restoration 1 tree
- Remove stakes/hardware 1 tree

Priority 3 Ratings-Mid Term (3-5 years)/Moderate Value

- Clean 265 trees
- Remove 16 trees
- Reduce end weight 18 trees
- Structural prune (young tree) 6 trees

Priority 4 Ratings-Long Term (5-10 years)/Poor Value

- Clean 89 trees
- Remove 49 trees
- Reduce end weight 3 trees
- Structural restoration 2 trees
- Structural prune 1 tree

Priority 5 Ratings-No management recommended at time of inspection/No Value

- None (no maintenance recommended) 152 trees

Tree Removals

- Eighty-five trees were listed for removal:

Tree #					
13	92	161	268	491	586
16	95	164	270	495	597
22	104	178	282	500	644
29	110	182	291	501	671
32	113	194	300	510	692
42	115	197	310	516	708
51	121	208	313	521	741
57	123	209	314	533	750
58	124	214	328	538	753
61	127	239	346	542	755
74	133	246	365	555	759
81	143	254	370	563	770
82	150	261	471	571	773
84	153	264	482	579	778
					792

Trees Identified for a Tree Risk Assessment

- Two trees were identified as having potential for a tree risk assessment:
 - Tree 166 is in poor condition with large deadwood
 - Tree 170 is in fair condition with decay in the trunk and roots, and has excessive lean

Project Limitations

Many factors can limit specific and accurate data when performing evaluations of trees, their conditions, and potential for failure or response to site disturbances. No soil or tissue testing was performed. All observations were made from the ground on September 23-29, 2021, and no soil excavation to expose roots was performed. The determinations and recommendations presented here are based on current data and conditions that existed at the time of the evaluation and cannot be a predictor of the ultimate outcome for the evaluated trees in the future. No physical inspection of the upper canopy, sounding, root crown excavation, resistance drilling or other technologies were used in the evaluation of the trees.

A tree inventory is an invaluable tool for property managers. It should be kept current and accessed regularly to develop work assignments and plan strategies to mitigate potential hazards. These trees were inspected for health and condition concerns, with an interest in safety mitigations, in addition to long term sustainability. The trees should be assessed on an annual or bi-annual cycle by an ISA certified arborist.