



**San Francisco Recreation & Park Department
Capital Improvement Program**

**Tree Report and Risk Assessment
Lafayette Park**

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Tree Report and Risk Assessment

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San Francisco CA

Table of Contents

	Page
Introduction and Overview	1
Survey Methods	1
Description of Trees	1
Suitability for Preservation	4
Tree Risk Assessment	5
Evaluation of Impacts	18
Tree Preservation Guidelines	34
Summary and Recommendations	35

List of Tables

Table 1. Tree condition & frequency of occurrence.	2
Table 2. Suitability for preservation.	5
Table 3. Tree risk ratings.	7
Table 4. Proposed action.	19

Attachments

Tree Location Map

Tree Survey Form

Introduction and Overview

The City of San Francisco is in the process of renovating Lafayette Park, located at the intersection of Sacramento, Washington, Laguna and Gough Streets. The park was established in 1867 but was not acquired by the City until 1936. Current site use consists of a children's playground, tennis courts, lawn and restrooms. The Recreation and Park Department requested that HortScience, Inc. assess existing trees located within the playground. This report presents the following information:

1. Evaluation of tree health and structural condition.
2. Assessment of the risk of tree failure.
3. Evaluation of proposed project plans and impacts to trees.
4. Recommendations for action.

Survey Methods

Trees were evaluated in September 2010. The survey method consisted of the following steps:

1. Identifying the species.
2. Measuring the diameter of the trunk at 54" above grade. Where trees had more than one stem, the diameter of each stem was measured.
3. Attaching a numerically coded metal tag to the trunk.
4. Visually assessing tree health and structural condition using a 6-point scale where 0=dead, 1=poor and 5=excellent condition.
5. Identifying trees that met the Department of Public Works criteria as street, significant or Landmark trees.
6. Assessing the suitability for preservation as poor, moderate or good.
7. Rating the risk associated with the failure of each tree. The assessment method is detailed in the ***Risk Assessment*** section.
8. Recording the presence of defects in structure, insects or diseases and other aspects of development.
9. Verifying the tree's dripline and recording its location on a map.

Description of Trees

Two hundred forty-two (242) trees were evaluated, representing 40 species (Table 1, following page). All trees had been planted as part of the landscape development for either the playground or adjacent streets. No trees appeared to be indigenous to the site. One species, coast live oak, is native to San Francisco.

The most frequently occurring species was blackwood acacia (36 trees) (Photo 1). This medium-sized, evergreen tree was concentrated in two areas. Fourteen (14) trees were located in pavement cutouts on Gough and Washington Streets. For this group, tree condition was a mix of fair and poor. Most of the remaining 22 trees were found in the northeast corner of the park. A number of blackwood acacias appeared to have arisen from seed. This is not unexpected as the species is known to be invasive. Trunk diameters ranged from 8" to 30". The largest blackwoods were tree #54 (30", fair condition), #123 (29", fair), #58 (28", good) and #1 (27", fair).

Table 1. Tree condition and frequency of occurrence. Lafayette Park. San Francisco CA.

Common name	Scientific name	Condition				No. of Trees
		Poor	Fair	Good	Excellent	
Blackwood acacia	<i>Acacia melanoxylon</i>	11	16	5	4	36
Acacia	<i>Acacia</i> sp.	--	--	1	--	1
Peppermint willow	<i>Agonis flexuosa</i>	--	1	--	--	1
Norfolk Island pine	<i>Aracaria heterophylla</i>	--	--	--	1	1
River she-oak	<i>Casuarina cunninghamia</i>	--	2	1	--	3
Deodar cedar	<i>Cedrus deodara</i>	--	--	2	3	5
Lawson's cypress	<i>Chamaecyparis lawsoniana</i>	--	--	1	--	1
Camphor	<i>Cinamomum camphora</i>	1	--	--	--	1
Cordyline	<i>Cordyline terminalis</i>	1	2	1	1	5
Red-flowering gum	<i>Corymbia ficifolia</i>	1	--	--	--	1
Monterey cypress	<i>Cupressus macrocarpa</i>	3	10	9	6	28
Swamp mahogany	<i>Eucalyptus robusta</i>	1	--	1	--	2
River red gum	<i>Eucalyptus camaldulensis</i>	1	3	1	--	5
Blue gum	<i>Eucalyptus globulus</i>	3	14	8	--	25
Eucalyptus	<i>Eucalyptus</i> sp.	--	1	--	--	1
Moreton Bay fig	<i>Ficus macrophylla</i>	--	1	1	--	2
Fig	<i>Ficus microphylla</i>	--	--	1	--	1
Ginkgo	<i>Ginkgo biloba</i>	--	--	--	1	1
Chinese holly	<i>Ilex cornuta</i>	--	1	--	--	1
Grecian laurel	<i>Laurus nobilis</i>	1	--	--	--	1
Catalina ironwood	<i>Lyonothamnus floribundus</i>	--	1	--	1	2
Southern magnolia	<i>Magnolia grandiflora</i>	--	--	1	--	1
Crabapple	<i>Malus</i> sp.	--	--	1	--	1
Mayten	<i>Maytenus boaria</i>	2	3	4	1	10
Olive	<i>Olea europaea</i>	1	--	1	--	2
Avocado	<i>Persea americana</i>	--	2	1	--	3
Canary Island date palm	<i>Phoenix canariensis</i>	--	--	1	6	7
Monterey pine	<i>Pinus radiata</i>	--	3	3	--	6
Pittosporum	<i>Pittosporum</i> sp.	3	4	--	--	7
Tobira	<i>Pittosporum tobira</i>	3	2	--	--	5
Victorian box	<i>Pittosporum undulatum</i>	17	13	1	2	33
Purpleleaf plum	<i>Prunus cerasifera</i> 'Atropurpurea'	--	1	--	1	2
Kwanzan cherry	<i>Prunus serrulata</i> 'Kwanzan'	1	1	2	--	4
Callery pear	<i>Pyrus calleryana</i>	--	--	9	--	9
Coast live oak	<i>Quercus agrifolia</i>	--	6	7	--	13
Weeping willow	<i>Salix babylonica</i>	--	1	1	--	2
Bush cherry	<i>Syzygium paniculatum</i>	--	6	1	--	7
Windmill palm	<i>Trachycarpus fortunei</i>	--	--	3	--	3
English elm	<i>Ulmus procera</i>	--	--	2	--	2
Mexican fan palm	<i>Washingtonia filifera</i>	--	--	1	--	1
Total, all trees surveyed		50	94	71	27	242

Thirty-three (33) Victorian box trees were present. This medium-sized evergreen green was present throughout the park including two groves (#151 – 157 and #179, 181 -184, 186). Most trees were in fair or poor condition due largely to advanced age, poor structure and history of pruning. Exceptions included trees #136, 240, and 242 which were in either good or excellent condition. For single-trunk trees, diameter ranged from 7" to 29" (#155, poor condition). Nineteen (19) trees had multiple stems.

Monterey cypress was represented by 28 trees. This large conifer was concentrated in the center and north sections of the park. Tree condition ranged from poor (3 trees) to fair (10) to good (9) and excellent (6). Trunk diameters ranged from 15" to 79". The largest cypresses were tree #116 (79", good condition) and #239 (72", poor condition).

There were 25 blue gums, a large evergreen tree. Concentrated in the center of Lafayette Park, blue gums ranged from 19" to 74" in diameter. All but 4 trees were 30" or larger. The largest blue gum #103 was in good condition. In general, condition of blue gum was related to available growing space: the greater the space, the better the condition.

Thirteen (13) coast live oaks were present, divided between good and fair condition. Most oaks were in the vicinity of the tennis courts. Trunk diameters ranged from 6" to 22". This is a medium-sized evergreen tree. Most of the oak surveyed were semi-mature in development.

Ten (10) mayten trees were present. Condition ranged from poor to excellent; trunk diameters from 7" to 16". Mayten #118 was in excellent condition and 13" in diameter.

None of the remaining species was represented by more than 9 trees. Included among this group were:

- 9 Callery pears were located in a lawn area between the tennis courts and Sacramento St. All were young and in good condition.
- 7 Canary Island date palms, 6 of which were in excellent condition.
- 5 Deodar cedars, all in good or excellent condition. Tree #9 was mature in development; the others were semi-mature.
- 2 mature Moreton Bay figs were located near the existing playground. Tree #125 was 48" in diameter and in good condition. Tree #131 was 54" and in fair condition.
- 2 mature swamp mahogany trees, #114 was 34" and in good condition while #115 was 25" and poor.
- English elms #109 and 110 were mature in development. Both were in good condition.
- Norfolk Island pine #27 was 7" in diameter and in excellent condition.
- Lawson's cypress #117 was a mature tree with multiple stems. Overall condition was good.

Results for individual trees are located in the **Tree Survey Form** (see **Attachments**).
Tree locations are noted by tree tag number in the **Tree Location Map**.

The Department of Public Works categorizes trees in three ways:

1. **Street tree.** A tree of any size located within the street right of way. Seventeen (17) appeared to meet this criterion: 14 blackwood acacias, 2 tobira (#213, 214) and fig #215.
2. **Significant tree.** Tree located within 10' of a lot line abutting the public right-of-way that: 1) are greater than 20' in height, 2) have a canopy spread greater than 15', or 3) have a trunk diameter of 12" or greater (measured at 54" above grade). A tree attains significant status if any one of the three size criteria is met. Based on our observation purpleleaf plum #37 and blackwood acacias #1, 2, 3 may meet these criteria.
3. **Landmark tree.** A tree so designated by the City's Urban Forestry Council and Board of Supervisors. None of the trees surveyed had this status.

Suitability for Preservation

Trees that are preserved on development sites must be carefully selected to make sure that they may survive development impacts, adapt to a new environment and perform well in the landscape. Our goal is to identify trees that have the potential for long-term health, structural stability and longevity. Evaluation of suitability for preservation considers several factors:

- **Tree health**
Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees.
- **Structural integrity**
Trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Such trees should not be preserved in areas where damage to people or property is likely.
- **Species response**
There is a wide variation in the response of individual species to construction impacts and changes in the environment. For example, coast live oak is relatively tolerant of construction impacts while Monterey pine is sensitive.
- **Tree age and longevity**
Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change.
- **Species invasiveness**
Species which spread across a site and displace desired vegetation are not always appropriate for retention. This is particularly true when indigenous species are displaced. Blackwood acacia and blue gum are considered invasive.

Each tree was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment (Table 2).

Table 2. Tree suitability for preservation. Lafayette Park. San Francisco CA.

Good	Trees with good health and structural stability that have the potential for longevity at the site. Thirty-seven (37) trees had good suitability for preservation including 8 Monterey cypress, 6 Canary Island date palm, 5 blackwood acacia 4 Deodar cedar.
Moderate	Trees in fair health and/or possessing structural defects that may be abated with treatment. Trees in this category require more intense management and monitoring, and may have shorter life-spans than those in the "good" category. Eighty-five (85) trees were rated as having moderate suitability for preservation including 12 Monterey cypress, 9 blue gum, 9 Callery pear and 8 coast live oak.
Poor	Trees in poor health or possessing significant defects in structure that cannot be abated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are undesirable in landscape settings or be unsuited for use areas. One hundred twenty (120) trees were rated as having poor suitability for preservation including 29 Victorian box, 25 blackwood acacia and 16 blue gum.

We consider trees with good suitability for preservation to be the best candidates for preservation. We do not recommend retention of trees with low suitability for preservation in areas where people or property will be present. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

Tree Risk Assessment

Tree risk assessment is the systematic process of evaluating the potential for a tree or one of its parts to fail and, in so doing, injure people or damage property. All trees have the potential to fail. The degree of risk will vary with the size of the tree, type and location of the defect, tree species, and the nature of the target. Tree risk assessment involves three components:

1. a tree with the potential to fail,
2. an environment that may contribute to that failure, and
3. a person or object that would be injured or damaged (i.e. the target).

Tree Risk Rating System

All of the surveyed trees were assessed using the procedure contained in *A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas* (N. Matheny & J. Clark. 1994 (2nd edition. International Society of Arboriculture. Champaign IL). Following a visual inspection of tree health and structural condition, the part of the tree most likely fail within the next year was identified (e.g. branch, stem, whole tree). The target that would be impacted by this part of the tree was then identified.

The risk associated with the tree was evaluated using the following components:

- **Failure potential** (4 points) - identifies the most likely failure and rates the likelihood that the structural defect(s) will result in failure within the next year. The part of the tree most likely to fail was assessed using the following scale:
 - 1 - low - defects are minor (e.g. dieback of twigs, small wounds with good woundwood development)
 - 2 - medium - defects are present and obvious (e.g. lean or bow that has developed over time, cavity encompassing 10-25% of the circumference of the stem, codominant stems without included bark)
 - 3 - high - compounding and/or significant defects present (e.g. severe lean, cavity encompassing 30-50% of the circumference of the stem, multiple pruning wounds with decay along a branch)
 - 4 - severe - defects are very severe (e.g. partial uprooting of leaning tree, decay conks along the main stem, cavity encompassing more than 50% of the stem)

- **Size of defective part** (4 points) - rates the size of the part most likely to fail. Larger parts present a greater potential for damage. Therefore, the size of the failure affects the potential for injury or damage. The scoring system was as follows:
 - 1 - most likely failure less than 6" in diameter
 - 2 - most likely failure 6 - 18" in diameter
 - 3 - most likely failure 18 - 30" in diameter
 - 4 - most likely failure greater than 30" in diameter

- **Target rating** (4 points) - rates the use and occupancy of the area that would be struck by the defective part. For the project areas, the following scoring was employed:
 - 1 - occasional use (e.g. lawn area)
 - 2 - intermittent use (e.g. sidewalk, benches)
 - 3 - frequent use (e.g. street parking, playground structure)
 - 4 - constant use (e.g. structures, high volume streets).

The points in each category were added to obtain the overall hazard rating, with 3 being the minimum and 12 being the maximum value.

Risk rating = failure potential + size of defective part + target rating

Among trees at Lafayette Park, the most likely failure included a branch (129 trees), the entire tree (40), palm frond (11) and a stem (62 trees) (Table 3, following page). The potential target included street parking (13 trees), sidewalk (67), bench (6), children's play area (1), tennis courts (4) and a building (2). No target (typically lawn) was identified for 149 trees. Included in this group were social trails.

Risk rankings ranged from 3 to 10. Six trees received rankings of 9 or 10: blackwood acacia #224, Grecian laurel #208, Monterey pine #43 and Monterey cypress #127, 128 and 238. All of the remaining trees were rated as 8 or lower.

Table 3. Tree risk rankings. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Most likely failure	Risk Ranking			Sum	
					Target	Failure potential	Size Target		
1	Blackwood acacia	27	3	Stem	Sidewalk	3	2	2	7
2	Blackwood acacia	15,11,9	3	Stem	Sidewalk	3	1	2	6
3	Blackwood acacia	19,17,16	3	Stem	Sidewalk	2	2	2	6
4	Monterey cypress	32	4	Branch	None	2	2	1	5
5	Blackwood acacia	13	4	Branch	None	2	2	1	5
6	Victorian box	12,10	1	Stem	Sidewalk	3	1	2	6
7	Tobira	9,8,7	2	Stem	None	2	1	1	4
8	Blackwood acacia	13,13	2	Stem	Sidewalk	3	2	2	7
9	Deodar cedar	23,15	4	Branch	None	2	2	1	5
10	Victorian box	22	2	Branch	Sidewalk	2	2	2	6
11	Deodar cedar	10	5	Branch	None	1	1	1	3
12	Crabapple	6	4	Branch	None	1	1	1	3
13	Blackwood acacia	8	2	Branch	None	1	1	1	3
14	Blackwood acacia	19	2	Whole tree	Sidewalk	2	3	2	7
15	Blackwood acacia	16,14	3	Stem	None	2	2	1	5
16	Monterey cypress	52	4	Branch	Sidewalk	2	2	2	6
17	Monterey cypress	22	3	Whole tree	None	2	3	1	6
18	Monterey cypress	40	4	Branch	None	2	1	1	4
19	Blue gum	38	4	Branch	None	2	2	1	5
20	Blue gum	31	3	Branch	None	2	2	1	5

Table 3, continued. Tree risk rankings. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Most likely failure	Risk Ranking			Sum	
					Target	Failure potential	Size Target		
21	Blue gum	34	3	Heavy lateral branch	None	2	2	1	5
22	Blue gum	50	4	Branch	None	2	2	1	5
23	Blue gum	42	3	Branch	Sidewalk	2	2	2	6
24	Blue gum	31	3	Branch	Bench	2	2	1	5
25	Blue gum	42	4	Branch	Sidewalk	2	1	2	5
26	Blue gum	35	3	Branch	Sidewalk	2	1	2	5
27	Norfolk Island pine	7	5	Branch	None	1	1	1	3
28	Coast live oak	20,19	3	Stem	Sidewalk	2	3	2	7
29	Coast live oak	18	3	Whole tree	None	2	2	1	5
30	Victorian box	19	3	Branch	None	2	1	1	4
31	Peppermint willow	12,7	3	Branch	Sidewalk	2	1	2	5
32	Pittosporum	12,9,9,8,7, 7,6	3	Stem	None	2	2	1	5
33	Pittosporum	9,8	2	Whole tree	None	3	2	1	6
34	Victorian box	9,8,7	2	Whole tree	None	3	2	1	6
35	Victorian box	10	3	Whole tree	None	2	2	1	5
36	Avocado	13	3	Branch	None	1	1	1	3
37	Purpleleaf plum	15	3	Whole tree	Sidewalk	2	1	2	5
38	Red-flowering gum	19	2	Whole tree	None	3	2	1	6
39	Purpleleaf plum	6	5	Branch	None	2	1	1	4
40	Monterey pine	39	3	Heavy lateral branch	Tennis	2	2	2	6
41	Coast live oak	6,6,4	4	Stem	None	2	1	1	4
42	Monterey cypress	35	3	Branch	Tennis	2	2	2	6

Table 3, continued. Tree risk rankings. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Most likely failure	Risk Ranking			Sum	
					Target	Failure potential	Size Target		
43	Monterey pine	44	3	Whole tree	Tennis	3	4	2	9
44	Coast live oak	13	3	Branch	Sidewalk	2	2	2	6
45	Pittosporum	10	3	Branch	None	2	1	1	4
46	Avocado	13	4	Branch	Bench	2	1	2	5
47	Blackwood acacia	9	5	Branch	None	1	1	1	3
48	Blackwood acacia	8	4	Branch	None	1	1	1	3
49	Blackwood acacia	11	2	Branch	None	2	1	1	4
50	Blackwood acacia	9	2	Branch	None	2	1	1	4
51	Blackwood acacia	14	4	Branch	None	2	1	1	4
52	Blackwood acacia	9,5,5	3	Branch	None	1	1	1	3
53	Blackwood acacia	10	3	Branch	None	2	1	1	4
54	Blackwood acacia	30	3	Stem	Sidewalk	2	2	2	6
55	Monterey cypress	43	4	Branch	None	2	2	1	5
56	Monterey cypress	23	4	Branch	None	2	1	1	4
57	Avocado	25	3	Branch	None	2	2	1	5
58	Blackwood acacia	28	4	Stem	None	2	2	1	5
59	Monterey cypress	36	5	Branch	Sidewalk	2	2	2	6
60	Monterey cypress	22	4	Branch	None	2	1	1	4
61	Acacia	9,6,5,5	4	Branch	None	2	2	1	5
62	Blackwood acacia	20	4	Branch	None	2	2	1	5
63	Blackwood acacia	9	5	Branch	None	1	1	1	3
64	Coast live oak	11,9	3	Whole tree	None	2	2	1	5
65	Mayten	7	3	Whole tree	None	2	2	1	5
66	Victorian box	13	3	Whole tree	None	3	2	1	6
67	Victorian box	7,7	2	Whole tree	None	3	2	1	6
68	Victorian box	9,8,8,7	2	Stem	Sidewalk	3	1	2	6

Table 3, continued. Tree risk rankings. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Most likely failure	Risk Ranking			Sum	
					Target	Failure potential	Size Target		
69	Monterey cypress	28	5	Branch	None	2	2	1	5
70	Monterey cypress	43	3	Branch	Sidewalk	3	2	2	7
71	Monterey cypress	46	3	Branch	Sidewalk	2	2	2	6
72	Monterey cypress	29	3	Branch	Sidewalk	2	2	2	6
73	Monterey cypress	15	1	Stem	Bench	3	2	2	7
74	Mayten	8,6,4,3	2	Stem	Sidewalk	3	1	2	6
75	Blue gum	33,16	3	Stem	Sidewalk	2	3	2	7
76	Blue gum	36	3	Dead branch	Sidewalk	4	2	2	8
77	Blue gum	24	3	Branch	Sidewalk	2	2	2	6
78	Blue gum	19	3	Dead branch	Sidewalk	4	2	2	8
79	Blackwood acacia	11	5	Branch	None	2	1	1	4
80	Mayten	7,7,6	2	Stem	Sidewalk	3	2	2	7
81	Blue gum	38	4	Branch	Sidewalk	2	2	2	6
82	Blue gum	27	2	Whole tree	Sidewalk	3	3	2	8
83	Blue gum	31	3	Branch	Sidewalk	2	2	2	6
84	Pittosporum	6,5,4,4,3	2	Stem	Sidewalk	2	1	2	5
85	Monterey cypress	17	3	Whole tree	None	2	2	1	5
86	Blue gum	37	3	Branch	Sidewalk	2	1	2	5
87	Blue gum	36	3	Branch	Sidewalk	2	2	2	6
88	Blue gum	35	2	Stem	None	2	2	1	5
89	Blue gum	32	3	Branch	None	2	2	1	5
90	Blue gum	42	4	Branch	Sidewalk	2	2	2	6
91	Monterey pine	51	4	Branch	Sidewalk	3	2	2	7
92	Coast live oak	8	4	Branch	None	1	1	1	3

Table 3, continued. Tree risk rankings. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Most likely failure	Risk Ranking				
					Target	Failure potential	Size	Target	Sum
93	Coast live oak	14	4	Branch	Sidewalk	1	1	2	4
94	Coast live oak	11	4	Branch	Sidewalk	1	1	2	4
95	Coast live oak	17	3	Dead branch	Bench	4	2	2	8
96	Coast live oak	16,7	3	Whole tree	None	2	2	1	5
97	River red gum	31	2	Branch	Sidewalk	2	2	2	6
98	Blue gum	25	3	Branch	Sidewalk	2	2	2	6
99	Blue gum	52	4	Branch	Sidewalk	2	1	2	5
100	Blue gum	47	4	Branch	Sidewalk	2	2	2	6
101	Victorian box	9,9,8,7,6,6,5	2	Stem	Sidewalk	2	2	2	6
102	Cordyline	22	1	Stem	None	3	2	1	6
103	Blue gum	74	4	Branch	None	2	2	1	5
104	Blue gum	40	2	Dead branch	None	4	1	1	6
105	Monterey pine	19	4	Branch	None	2	1	1	4
106	Monterey pine	44	4	Branch	Sidewalk	2	2	2	6
107	Mexican fan palm	16	4	FronD	Sidewalk	2	1	2	5
108	Canary Island date palm	49	5	FronD	None	2	1	1	4
109	English elm	30	4	Branch	Sidewalk	2	2	2	6
110	English elm	21	4	Branch	None	2	1	1	4
111	Catalina ironwood	10	5	Branch	None	1	1	1	3
112	River red gum	16,15	3	Stem	None	3	2	1	6
113	Cordyline	9,7,6	3	Stem	None	2	1	1	4
114	Swamp mahogany	34	4	Branch	Sidewalk	2	2	2	6
115	Swamp mahogany	25	2	Stem	None	4	2	1	7

Table 3, continued. Tree risk rankings. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Most likely failure	Risk Ranking			Sum	
					Target	Failure potential	Size Target		
116	Monterey cypress	79	4	Stem	Sidewalk	2	3	2	7
117	Lawson's cypress	24,21,16,15,15,9,9	4	21" stem	Sidewalk	3	2	2	7
118	Mayten	13	5	Branch	None	2	1	1	4
119	Mayten	14	4	Branch	None	2	1	1	4
120	Mayten	16	4	Branch	Bench	2	1	2	5
121	Mayten	11	3	Branch	None	2	1	1	4
122	Mayten	12	4	Branch	None	2	1	1	4
123	Blackwood acacia	29	3	Stem	Sidewalk	3	2	2	7
124	Blackwood acacia	23	3	Stem	Sidewalk	3	2	2	7
125	Moreton Bay fig	48	4	Branch	Play area	2	1	4	7
126	Victorian box	16,12,7	3	Stem	Sidewalk	2	2	2	6
127	Monterey cypress	26	3	Whole tree	Sidewalk	3	4	2	9
128	Monterey cypress	30	2	Whole tree	Building	3	4	3	10
129	Monterey cypress	38	3	Stem	Sidewalk	3	2	2	7
130	Monterey cypress	29	3	Branch	Sidewalk	2	1	2	5
131	Moreton Bay fig	54	3	Branch	Sidewalk	4	2	2	8
132	Canary Island date palm	32	5	FronD	Sidewalk	2	1	1	4
133	Monterey cypress	20	5	Branch	None	2	1	1	4
134	Monterey cypress	25	5	Branch	None	2	1	1	4
135	Monterey cypress	19	5	Branch	None	2	1	1	4
136	Victorian box	7	5	Stem	None	2	1	1	4
137	Victorian box	20,11,10,9,8	3	Stem	Sidewalk	2	1	2	5

Table 3, continued. Tree risk rankings. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Most likely failure	Risk Ranking			Sum	
					Target	Failure potential	Size Target		
138	Victorian box	19,18,17,1 5,13,11,11 ,8,8	3	Stem	Sidewalk	3	1	2	6
139	Windmill palm	8	4	FronD	None	1	1	1	3
140	River she-oak	9	4	Branch	None	2	1	1	4
141	River she-oak	8	3	Branch	None	2	1	1	4
142	River she-oak	6	3	Branch	None	1	1	1	3
143	Weeping willow	8	3	Stem	None	2	2	1	5
144	Catalina ironwood	13,5	3	Branch	None	2	1	1	4
145	Bush cherry	25	4	Branch	None	2	1	1	4
146	Bush cherry	20,17,14	3	Stem	None	2	2	1	5
147	Bush cherry	25	3	Stem	None	2	2	1	5
148	Bush cherry	18,17	3	Branch	None	2	2	1	5
149	Bush cherry	28,7	3	Whole tree	Sidewalk	3	1	2	6
150	Cordyline	22	4	Stem	None	2	1	1	4
151	Victorian box	14,13,12	1	Stem	None	3	2	1	6
152	Victorian box	14,12,11,7 ,6	3	Stem	None	2	2	1	5
153	Victorian box	16,12,10,9 ,7	3	Stem	None	2	2	1	5
154	Victorian box	22	3	Whole tree	None	3	3	1	7
155	Victorian box	29	2	Whole tree	None	3	3	1	7
156	Victorian box	20	2	Whole tree	None	3	2	1	6
157	Victorian box	19,18	2	Whole tree	None	3	2	1	6
158	Windmill palm	8	4	FronD	None	4	1	1	6
159	Windmill palm	8	4	FronD	None	4	1	1	6

Table 3, continued. Tree risk rankings. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Most likely failure	Risk Ranking			Sum	
					Target	Failure potential	Size Target		
160	Kwanzan cherry	5	4	Branch	None	1	1	1	3
161	Kwanzan cherry	9	4	Branch	None	1	1	2	4
162	Kwanzan cherry	7	3	Branch	None	1	1	1	3
163	Kwanzan cherry	5	2	Whole tree	None	3	1	1	5
164	Cordyline	26,22	3	Stem	None	3	2	1	6
165	Ginkgo	9	5	Branch	None	1	1	1	3
166	Canary Island date palm	43	5	FronD	Sidewalk	4	1	2	7
167	Canary Island date palm	43	5	FronD	Sidewalk	4	1	2	7
168	Mayten	13,12,10	3	Stem	Sidewalk	2	2	2	6
169	Canary Island date palm	32	5	FronD	None	1	1	1	3
170	Canary Island date palm	15	5	FronD	None	1	1	1	3
171	Mayten	8	4	Branch	None	1	1	1	3
172	Southern magnolia	10	4	Branch	None	1	1	1	3
173	River red gum	35	3	Branch	Bench	2	2	2	6
174	River red gum	28	3	Branch	None	2	2	1	5
175	Canary Island date palm	32	4	FronD	None	1	1	1	3
176	River red gum	24	4	Branch	None	2	1	1	4
177	Monterey pine	51	3	Whole tree	None	3	4	1	8
178	Eucalyptus	20,18	3	Stem	None	3	2	1	6
179	Victorian box	11,10,7	2	Stem	None	3	2	1	6
180	Tobira	8	3	Whole tree	None	2	1	1	4
181	Victorian box	9,8,7	3	Stem	None	2	2	1	5
182	Victorian box	11	2	Whole tree	None	2	2	1	5
183	Victorian box	11	2	Whole tree	None	2	2	1	5
184	Victorian box	10	2	Whole tree	None	2	2	1	5
185	Tobira	8	3	Whole tree	None	3	1	1	5

Table 3, continued. Tree risk rankings. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Most likely failure	Risk Ranking			Sum	
					Target	Failure potential	Size Target		
186	Victorian box	7,7,6,6,6	2	Stem	None	2	1	1	4
187	Coast live oak	13	4	Branch	None	2	1	1	4
188	Pittosporum	7,5	2	Stem	None	2	2	1	5
189	Coast live oak	14,9	4	Stem	None	2	2	1	5
190	Pittosporum	10,7	3	Stem	None	2	1	1	4
191	Coast live oak	22,15	4	15" stem	None	3	2	1	6
192	Chinese holly	8,8,7	3	Stem	None	2	1	1	4
193	Bush cherry	18,15,13	3	Stem	None	2	2	1	5
194	Cordyline	12	5	Stem	None	2	1	1	4
195	Pittosporum	15	3	Whole tree	Tennis	3	2	2	7
196	Callery pear	8	4	Branch	None	1	1	1	3
197	Victorian box	10,7,7,6	3	Stem	None	2	1	1	4
198	Callery pear	7	4	Branch	None	1	1	1	3
199	Callery pear	8	4	Branch	None	1	1	1	3
200	Callery pear	7	4	Branch	None	1	1	1	3
201	Callery pear	9	4	Branch	None	2	1	1	4
202	Callery pear	10	4	Branch	None	1	1	1	3
203	Callery pear	9	4	Branch	None	2	1	1	4
204	Callery pear	9	4	Branch	None	2	1	1	4
205	Callery pear	11	4	Branch	None	2	1	1	4
206	Victorian box	12,10,6	2	Stem	None	2	2	1	5
207	Olive	16,13,9	2	Stem	None	3	2	1	6
208	Grecian laurel	14,10	2	Whole tree	Building	3	3	3	9
209	Victorian box	13	3	Stem	None	2	2	1	5
210	Victorian box	9,7,7	3	Whole tree	None	3	2	1	6

Table 3, continued. Tree risk rankings. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Most likely failure	Risk Ranking			Sum	
					Target	Failure potential	Size Target		
211	Victorian box	13,13,12	2	Whole tree	None	3	2	1	6
212	Bush cherry	ms	3	Stem	None	2	1	1	4
213	Tobira	9	2	Whole tree	Parking	2	2	3	7
214	Tobira	10	2	Whole tree	Parking	2	1	3	6
215	Fig	17	4	Heavy lateral branch	Sidewalk	3	2	2	7
216	Blackwood acacia	8	5	Branch	None	1	1	1	3
217	Blackwood acacia	23	3	Branch	Parking	2	2	3	7
218	Blackwood acacia	11	3	Branch	Parking	2	1	3	6
219	Blackwood acacia	19	3	Branch	Parking	3	2	3	8
220	Blackwood acacia	26	3	Branch	Parking	3	2	3	8
221	Blackwood acacia	14	2	Whole tree	Sidewalk	3	2	2	7
222	Blackwood acacia	20	2	Branch	Parking	2	2	3	7
223	Blackwood acacia	9	2	Whole tree	Parking	2	2	3	7
224	Blackwood acacia	18	2	Whole tree	Parking	3	3	3	9
225	Blackwood acacia	17	3	Branch	Parking	2	2	3	7
226	Weeping willow	13	4	Branch	None	2	1	1	4
227	Monterey cypress	58	4	Stem	Sidewalk	2	2	2	6
228	Camphor	10	2	Branch	None	2	1	1	4
229	Deodar cedar	6	5	Branch	None	1	1	1	3
230	Deodar cedar	5	5	Branch	None	1	1	1	3
231	Deodar cedar	7	4	Branch	None	1	1	1	3
232	Blackwood acacia	24	3	Branch	Parking	2	2	3	7
233	Blackwood acacia	23	2	Branch	Parking	3	2	3	8
234	Monterey cypress	30	5	Branch	None	2	1	1	4

Table 3, continued. Tree risk rankings. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Most likely failure	Risk Ranking			Sum	
					Target	Failure potential	Size Target		
235	Blackwood acacia	17	3	Branch	Parking	2	2	3	7
236	Blackwood acacia	23	2	Whole tree	Sidewalk	3	3	2	8
237	Monterey cypress	18	4	Branch	None	2	2	1	5
238	Monterey cypress	40,32	3	40" stem	Sidewalk	3	4	2	9
239	Monterey cypress	72	2	Dead stem	None	3	2	1	6
240	Victorian box	11	4	Stem	None	2	1	1	4
241	Olive	6	4	Branch	None	1	1	1	3
242	Victorian box	11	5	Branch	None	2	1	1	4

Evaluation of Project Impacts

Appropriate tree retention develops a practical match between the location and intensity of construction activities and the quality and health of trees. The results of the general and individual tree surveys were the reference points for tree condition and quality. Impacts from the proposed project were assessed using plans from the 30% project submittal (April 15, 2011). Plans depicted the location and extent of proposed work as well as drainage and electrical improvements. Irrigation plans have not been finalized.

The proposed project includes renovation of the children's play area, construction of a new maintenance facility, repair and replacement of existing paving and general improvements to the landscape. Project Impacts to trees could occur in a variety of ways. First, demolition of existing infrastructure such as pavement may directly damage tree roots and crowns. Grading and other construction activities may also damage trees, through both direct mechanical injury and indirectly by altering drainage.

Plans call for four types of treatment (in order of severity of impact):

- Remove all asphalt, concrete paving, concrete walls, fence, curb, play equipment, sand, site furnishings and plants.
- Remove and resurface paved paths.
- Clear and grub lawn areas.
- Selective clear and grub of landscape plantings.

In addition, some areas of the park will not receive any treatment.

Project plans identify a number of trees to be removed. As a general rule, these trees were in poor condition.

Based on my assessment of the proposed plan and evaluation of the trees, I recommend preservation of 172 trees, possible relocation of 4, and removal of 66 (Table 4, following page). Among trees recommended for preservation are 12 designated as "preserve?" Trees are so noted because additional information is required to finalize a recommendation. Included among these 12 trees are:

- 6 where design modifications are required: Trees #90, 110, 125, 137, 138, 226.
- 2 that have risk rankings of 9: Monterey pine #43 and Monterey cypress #238. I believe abatement treatment would allow retention.
- 3 where additional design detail is required: Trees: 109, 119, 126.
- Monterey cypress #239 has poor suitability for preservation. Retention of this tree is predicated on pruning and installation on a cable/brace system to support the cracked attachment.

Four trees are identified for possible relocation as they are within and/or immediately adjacent to proposed redevelopment activities: Canary Island date palm #108, cordyline #194 and Callery pears #196 and 198.

Among the trees recommended for removal are 4 trees (#118, 160, 161, 162) designated at "Remove?" These are good trees located within the new children's play area, where redevelopment will be extensive. Of the remaining 62 trees proposed for removal, 49 have poor suitability for preservation, 9 will be impacted by the project and 4 have risk rankings of 9 or above. Trees with poor suitability for preservation located outside proposed work areas could be retained.

Table 4. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
1	Blackwood acacia	27	3	Selective clear & grub	Preserve	
2	Blackwood acacia	15,11,9	3	Selective clear & grub	Preserve	
3	Blackwood acacia	19,17,16	3	Selective clear & grub	Preserve	
4	Monterey cypress	32	4	Selective clear & grub	Preserve	
5	Blackwood acacia	13	4	Selective clear & grub	Preserve	
6	Victorian box	12,10	1	Selective clear & grub	Remove	Poor suitability for preservation
7	Tobira	9,8,7	2	Selective clear & grub	Remove	Poor suitability for preservation
8	Blackwood acacia	13,13	2	Selective clear & grub	Remove	Poor suitability for preservation
9	Deodar cedar	23,15	4	Selective clear & grub	Preserve	
10	Victorian box	22	2	Selective clear & grub	Remove	Poor suitability for preservation
11	Deodar cedar	10	5	Outside work area	Preserve	
12	Crabapple	6	4	Outside work area	Preserve	
13	Blackwood acacia	8	2	Selective clear & grub	Remove	Poor suitability for preservation
14	Blackwood acacia	19	2	Selective clear & grub	Remove	Poor suitability for preservation
15	Blackwood acacia	16,14	3	Selective clear & grub	Preserve	
16	Monterey cypress	52	4	Selective clear & grub	Preserve	
17	Monterey cypress	22	3	Selective clear & grub	Preserve	
18	Monterey cypress	40	4	Selective clear & grub	Preserve	
19	Blue gum	38	4	Selective clear & grub	Preserve	
20	Blue gum	31	3	Selective clear & grub	Preserve	

Table 4, continued. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
21	Blue gum	34	3	Selective clear & grub	Preserve	
22	Blue gum	50	4	Selective clear & grub	Preserve	
23	Blue gum	42	3	Selective clear & grub	Preserve	
24	Blue gum	31	3	Selective clear & grub	Preserve	
25	Blue gum	42	4	Selective clear & grub	Preserve	
26	Blue gum	35	3	Selective clear & grub	Preserve	
27	Norfolk Island pine	7	5	Outside work area	Preserve	
28	Coast live oak	20,19	3	Remove all...	Remove	Impacts from construction; new path
29	Coast live oak	18	3	Outside work area	Preserve	
30	Victorian box	19	3	Outside work area	Preserve	
31	Peppermint willow	12,7	3	Outside work area	Preserve	
32	Pittosporum	12,9,9,8,7,7,6	3	Outside work area	Preserve	
33	Pittosporum	9,8	2	Outside work area	Remove	Poor suitability for preservation
34	Victorian box	9,8,7	2	Outside work area	Remove	Poor suitability for preservation
35	Victorian box	10	3	Outside work area	Preserve	
36	Avocado	13	3	Outside work area	Preserve	
37	Purpleleaf plum	15	3	Outside work area	Preserve	
38	Red-flowering gum	19	2	Outside work area	Remove	Poor suitability for preservation

Table 4, continued. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
39	Purpleleaf plum	6	5	Path work	Remove	Impacts from construction; new pavement
40	Monterey pine	39	3	Selective clear & grub	Remove	Poor suitability for preservation
41	Coast live oak	6,6,4	4	Selective clear & grub	Preserve	
42	Monterey cypress	35	3	Outside work area	Preserve	
43	Monterey pine	44	3	Selective clear & grub	Preserve?	Risk ranking of 9; prune to clean crown. Monitor lean.
44	Coast live oak	13	3	Path work	Preserve	Adj. to path; protect trunk with hay bales?
45	Pittosporum	10	3	Selective clear & grub	Preserve	
46	Avocado	13	4	Selective clear & grub	Preserve	
47	Blackwood acacia	9	5	Path work	Preserve	Adj. to path; protect trunk with hay bales?
48	Blackwood acacia	8	4	Selective clear & grub	Preserve	
49	Blackwood acacia	11	2	Selective clear & grub	Remove	Poor suitability for preservation
50	Blackwood acacia	9	2	Selective clear & grub	Remove	Poor suitability for preservation
51	Blackwood acacia	14	4	Selective clear & grub	Preserve	
52	Blackwood acacia	9,5,5	3	Selective clear & grub	Preserve	
53	Blackwood acacia	10	3	Selective clear & grub	Preserve	

Table 4, continued. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
54	Blackwood acacia	30	3	Selective clear & grub	Preserve	
55	Monterey cypress	43	4	Selective clear & grub	Preserve	
56	Monterey cypress	23	4	Selective clear & grub	Preserve	
57	Avocado	25	3	Selective clear & grub	Preserve	
58	Blackwood acacia	28	4	Selective clear & grub	Preserve	
59	Monterey cypress	36	5	Selective clear & grub	Preserve	
60	Monterey cypress	22	4	Selective clear & grub	Preserve	
61	Acacia	9,6,5,5	4	Selective clear & grub	Preserve	
62	Blackwood acacia	20	4	Selective clear & grub	Preserve	
63	Blackwood acacia	9	5	Selective clear & grub	Preserve	
64	Coast live oak	11,9	3	Selective clear & grub	Preserve	
65	Mayten	7	3	Selective clear & grub	Preserve	
66	Victorian box	13	3	Selective clear & grub	Preserve	
67	Victorian box	7,7	2	Selective clear & grub	Remove	Poor suitability for preservation
68	Victorian box	9,8,8,7	2	Selective clear & grub	Remove	Poor suitability for preservation
69	Monterey cypress	28	5	Selective clear & grub	Preserve	
70	Monterey cypress	43	3	Remove all...	Remove	Impacts from construction; poor suitability
71	Monterey cypress	46	3	Remove all...	Remove	Impacts from construction
72	Monterey cypress	29	3	Remove all...	Remove	Impacts from construction; poor suitability

Table 4, continued. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
73	Monterey cypress	15	1	Selective clear & grub	Remove	Poor suitability for preservation
74	Mayten	8,6,4,3	2	Selective clear & grub	Remove	Poor suitability for preservation
75	Blue gum	33,16	3	Selective clear & grub	Preserve	
76	Blue gum	36	3	Selective clear & grub	Preserve	
77	Blue gum	24	3	Selective clear & grub	Preserve	
78	Blue gum	19	3	Selective clear & grub	Preserve	
79	Blackwood acacia	11	5	Selective clear & grub	Preserve	
80	Mayten	7,7,6	2	Selective clear & grub	Preserve	
81	Blue gum	38	4	Selective clear & grub	Preserve	
82	Blue gum	27	2	Selective clear & grub	Remove	Poor suitability for preservation
83	Blue gum	31	3	Selective clear & grub	Preserve	
84	Pittosporum	6,5,4,4,3	2	Selective clear & grub	Remove	Poor suitability for preservation
85	Monterey cypress	17	3	Selective clear & grub	Preserve	
86	Blue gum	37	3	Selective clear & grub	Preserve	
87	Blue gum	36	3	Selective clear & grub	Preserve	
88	Blue gum	35	2	Selective clear & grub	Remove	Poor suitability for preservation
89	Blue gum	32	3	Selective clear & grub	Preserve	
90	Blue gum	42	4	Selective clear & grub	Preserve?	SW-6. Relocate drain line away from tree or hand-dig line within 15' of trunk.

Table 4, continued. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
91	Monterey pine	51	4	Selective clear & grub	Preserve	
92	Coast live oak	8	4	Selective clear & grub	Preserve	Adj. to path; protect trunk with hay bales?
93	Coast live oak	14	4	Path work	Preserve	Adj. to path; protect trunk with hay bales?
94	Coast live oak	11	4	Path work	Preserve	Adj. to path; protect trunk with hay bales?
95	Coast live oak	17	3	Path work	Preserve	Adj. to path; protect trunk with hay bales?
96	Coast live oak	16,7	3	Selective clear & grub	Preserve	
97	River red gum	31	2	Selective clear & grub	Remove	Poor suitability for preservation
98	Blue gum	25	3	Remove all...	Remove	Poor suitability for preservation
99	Blue gum	52	4	Selective clear & grub	Preserve	
100	Blue gum	47	4	Selective clear & grub	Preserve	
101	Victorian box	9,9,8,7,6,6,5	2	Remove all...	Remove	Poor suitability for preservation
102	Cordyline	22	1	Lawn, clear & grub	Remove	Impacts from construction; new pavement
103	Blue gum	74	4	Lawn, clear & grub	Preserve	

Table 4, continued. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
104	Blue gum	40	2	Lawn, clear & grub	Remove	Poor suitability for preservation
105	Monterey pine	19	4	Lawn, clear & grub	Preserve	
106	Monterey pine	44	4	Lawn, clear & grub	Preserve	
107	Mexican fan palm	16	4	Lawn, clear & grub	Preserve	
108	Canary Island date palm	49	5	Remove all...	Relocate?	Within project area; new paving. Need more detail.
109	English elm	30	4	Remove all...	Preserve?	Within project area; new paving. Need more detail.
110	English elm	21	4	Selective clear & grub	Preserve?	SW-6. Relocate drain line away from tree or hand-dig line within 10' of trunk.
111	Catalina ironwood	10	5	Selective clear & grub	Preserve	
112	River red gum	16,15	3	Selective clear & grub	Preserve	
113	Cordyline	9,7,6	3	Selective clear & grub	Preserve	
114	Swamp mahogany	34	4	Selective clear & grub	Preserve	
115	Swamp mahogany	25	2	Selective clear & grub	Remove	Poor suitability for preservation
116	Monterey cypress	79	4	Selective clear & grub	Preserve	
117	Lawson's cypress	24,21,16,15,1 5,9,9	4	Selective clear & grub	Preserve	

Table 4, continued. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
118	Mayten	13	5	Remove all...	Remove?	Impacts from construction; within new play area
119	Mayten	14	4	Remove all...	Preserve?	
120	Mayten	16	4	Selective clear & grub	Preserve	Within project area, adj. to remove all. Need more detail.
121	Mayten	11	3	Selective clear & grub	Preserve	
122	Mayten	12	4	Selective clear & grub	Preserve	
123	Blackwood acacia	29	3	Selective clear & grub	Preserve	
124	Blackwood acacia	23	3	Selective clear & grub	Preserve	
125	Moreton Bay fig	48	4	Selective clear & grub	Preserve?	
126	Victorian box	16,12,7	3	Remove all...	Preserve?	
127	Monterey cypress	26	3	Remove all...	Remove	Risk ranking of 9
128	Monterey cypress	30	2	Selective clear & grub	Remove	Risk ranking of 10
129	Monterey cypress	38	3	Selective clear & grub	Preserve	
130	Monterey cypress	29	3	Selective clear & grub	Preserve	
131	Moreton Bay fig	54	3	Selective clear & grub	Preserve	
132	Canary Island date palm	32	5	Selective clear & grub	Preserve	
133	Monterey cypress	20	5	Outside work area	Preserve	

Table 4, continued. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
134	Monterey cypress	25	5	Outside work area	Preserve	
135	Monterey cypress	19	5	Outside work area	Preserve	
136	Victorian box	7	5	Outside work area	Preserve	
137	Victorian box	20,11,10,9,8	3	Outside work area	Preserve?	SW-3 & -4. Relocate drain line west, towards Laguna St, starting at Clay St.
138	Victorian box	19,18,17,15,13,11,11,8,8	3	Outside work area	Preserve?	SW-3 & -4. Relocate drain line west, towards Laguna St, starting at Clay St.
139	Windmill palm	8	4	Outside work area	Preserve	
140	River she-oak	9	4	Outside work area	Preserve	
141	River she-oak	8	3	Outside work area	Preserve	
142	River she-oak	6	3	Outside work area	Preserve	
143	Weeping willow	8	3	Outside work area	Preserve	
144	Catalina ironwood	13,5	3	Selective clear & grub	Preserve	
145	Bush cherry	25	4	Outside work area	Preserve	
146	Bush cherry	20,17,14	3	Outside work area	Preserve	
147	Bush cherry	25	3	Outside work area	Preserve	
148	Bush cherry	18,17	3	Outside work area	Preserve	
149	Bush cherry	28,7	3	Outside work area	Preserve	
150	Cordyline	22	4	Outside work area	Preserve	

Table 4, continued. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
151	Victorian box	14,13,12	1	Outside work area	Remove	Poor suitability for preservation
152	Victorian box	14,12,11,7,6	3	Outside work area	Preserve	
153	Victorian box	16,12,10,9,7	3	Outside work area	Preserve	
154	Victorian box	22	3	Outside work area	Preserve	
155	Victorian box	29	2	Outside work area	Remove	Poor suitability for preservation
156	Victorian box	20	2	Outside work area	Remove	Poor suitability for preservation
157	Victorian box	19,18	2	Outside work area	Remove	Poor suitability for preservation
158	Windmill palm	8	4	Outside work area	Preserve	
159	Windmill palm	8	4	Outside work area	Preserve	
160	Kwanzan cherry	5	4	Remove all...	Remove?	Impacts from construction; within new play area
161	Kwanzan cherry	9	4	Remove all...	Remove?	Impacts from construction; within new play area
162	Kwanzan cherry	7	3	Remove all...	Remove?	Impacts from construction; within new play area
163	Kwanzan cherry	5	2	Remove all...	Remove	Poor suitability for preservation
164	Cordyline	26,22	3	Outside work area	Preserve	

Table 4, continued. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
165	Ginkgo	9	5	Outside work area	Preserve	
166	Canary Island date palm	43	5	Selective clear & grub	Preserve	
167	Canary Island date palm	43	5	Selective clear & grub	Preserve	
168	Mayten	13,12,10	3	Selective clear & grub	Preserve	
169	Canary Island date palm	32	5	Selective clear & grub	Preserve	
170	Canary Island date palm	15	5	Selective clear & grub	Preserve	
171	Mayten	8	4	Selective clear & grub	Preserve	
172	Southern magnolia	10	4	Selective clear & grub	Preserve	
173	River red gum	35	3	Selective clear & grub	Remove	Impacts from construction; new parking
174	River red gum	28	3	Selective clear & grub	Remove	Impacts from construction; new parking
175	Canary Island date palm	32	4	Selective clear & grub	Preserve	Adj. to new parking; protect base & trunk with hay bales?
176	River red gum	24	4	Selective clear & grub	Preserve	
177	Monterey pine	51	3	Selective clear & grub	Preserve	
178	Eucalyptus	20,18	3	Selective clear & grub	Preserve	
179	Victorian box	11,10,7	2	Selective clear & grub	Remove	Poor suitability for preservation
180	Tobira	8	3	Selective clear & grub	Preserve	
181	Victorian box	9,8,7	3	Selective clear & grub	Preserve	

Table 4, continued. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
182	Victorian box	11	2	Remove all...	Remove	Poor suitability for preservation
183	Victorian box	11	2	Remove all...	Remove	Poor suitability for preservation
184	Victorian box	10	2	Selective clear & grub	Remove	Poor suitability for preservation
185	Tobira	8	3	Selective clear & grub	Preserve	
186	Victorian box	7,7,6,6,6	2	Selective clear & grub	Remove	Poor suitability for preservation
187	Coast live oak	13	4	Outside work area	Preserve	
188	Pittosporum	7,5	2	Outside work area	Remove	Poor suitability for preservation
189	Coast live oak	14,9	4	Outside work area	Preserve	
190	Pittosporum	10,7	3	Outside work area	Preserve	
191	Coast live oak	22,15	4	Outside work area	Preserve	
192	Chinese holly	8,8,7	3	Selective clear & grub	Remove	Poor suitability for preservation
193	Bush cherry	18,15,13	3	Selective clear & grub	Remove	Impacts from construction; new paving
194	Cordyline	12	5	Selective clear & grub	Relocate?	
195	Pittosporum	15	3	Selective clear & grub	Remove	Poor suitability for preservation
196	Callery pear	8	4	Selective clear & grub	Relocate?	
197	Victorian box	10,7,7,6	3	Selective clear & grub	Remove	Poor suitability for preservation
198	Callery pear	7	4	Selective clear & grub	Relocate?	

Table 4, continued. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
199	Callery pear	8	4	Selective clear & grub	Preserve	
200	Callery pear	7	4	Selective clear & grub	Preserve	
201	Callery pear	9	4	Selective clear & grub	Preserve	
202	Callery pear	10	4	Selective clear & grub	Preserve	
203	Callery pear	9	4	Lawn, clear & grub	Preserve	
204	Callery pear	9	4	Lawn, clear & grub	Preserve	
205	Callery pear	11	4	Selective clear & grub	Preserve	
206	Victorian box	12,10,6	2	Outside work area	Preserve	
207	Olive	16,13,9	2	Outside work area	Remove	Poor suitability for preservation
208	Grecian laurel	14,10	2	Outside work area	Remove	Risk ranking of 9
209	Victorian box	13	3	Outside work area	Remove	Poor suitability for preservation
210	Victorian box	9,7,7	3	Outside work area	Preserve	
211	Victorian box	13,13,12	2	Lawn, clear & grub	Remove	Poor suitability for preservation
212	Bush cherry	ms	3	Outside work area	Preserve	
213	Tobira	9	2	Street tree	Remove	Poor suitability for preservation
214	Tobira	10	2	Street tree	Remove	Poor suitability for preservation
215	Fig	17	4	Street tree	Preserve	
216	Blackwood acacia	8	5	Street tree	Preserve	
217	Blackwood acacia	23	3	Street tree	Preserve	
218	Blackwood acacia	11	3	Street tree	Preserve	
219	Blackwood acacia	19	3	Street tree	Preserve	

Table 4, continued. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
220	Blackwood acacia	26	3	Street tree	Preserve	
221	Blackwood acacia	14	2	Street tree	Remove	Poor suitability for preservation
222	Blackwood acacia	20	2	Street tree	Remove	Poor suitability for preservation
223	Blackwood acacia	9	2	Street tree	Remove	Poor suitability for preservation
224	Blackwood acacia	18	2	Street tree	Remove	Risk ranking of 9
225	Blackwood acacia	17	3	Street tree	Preserve	
226	Weeping willow	13	4	Outside work area	Preserve?	SW-3. Move drain line north, towards Washington Street.
227	Monterey cypress	58	4	Outside work area	Preserve	
228	Camphor	10	2	Outside work area	Remove	Poor suitability for preservation
229	Deodar cedar	6	5	Outside work area	Preserve	
230	Deodar cedar	5	5	Outside work area	Preserve	
231	Deodar cedar	7	4	Outside work area	Preserve	
232	Blackwood acacia	24	3	Street tree	Preserve	
233	Blackwood acacia	23	2	Street tree	Remove	Poor suitability for preservation
234	Monterey cypress	30	5	Outside work area	Preserve	
235	Blackwood acacia	17	3	Street tree	Preserve	
236	Blackwood acacia	23	2	Street tree	Remove	Poor suitability for preservation
237	Monterey cypress	18	4	Outside work area	Preserve	

Table 4, continued. Proposed Action. Lafayette Park. San Francisco CA.

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excell.	Type of work	Proposed Action	Notes
238	Monterey cypress	40,32	3	Outside work area	Preserve?	Risk ranking of 9; prune to remove 40" stem. Poor suitability for preservation; needs to be pruned & possibly cabled in order to stabilize cracked attachment.
239	Monterey cypress	72	2	Outside work area	Preserve?	
240	Victorian box	11	4	Outside work area	Preserve	
241	Olive	6	4	Outside work area	Preserve	
242	Victorian box	11	5	Outside work area	Preserve	

Tree Preservation Guidelines

Lafayette Park has recently received landscape improvements. Additional changes may be planned for the future. The following are recommendations for design and construction phases that will assist in successful tree preservation.

Design recommendations

1. Verify the location and tag numbers of all trees within 25' of the proposal construction areas. Include trunk locations and tag numbers on all plans. Note: tree #206 is misidentified on sheet L-1.0. It is tree #209.
2. Allow the Consulting Arborist to review all future project submittals including grading, utility, drainage, irrigation, and landscape plans.
3. Prepare a site work plan which identifies access and haul routes, construction trailer and storage areas, etc.
4. Establish a **TREE PROTECTION ZONE** around each tree to be preserved. For design purposes, the **TREE PROTECTION ZONE** shall be either the dripline or 1/3rd the tree height, whichever is greater. No grading, excavation, construction or storage of materials shall occur within that zone.
5. Install protection around all trees to be preserved. Where construction will be within 4' of tree trunks, use hay bales instead of fencing. Trees requiring hay bales include #44, 47, 92 – 95, and 175. Any fencing shall be 6' chain link with posts sunk into the ground. No entry is permitted into a tree protection zone without permission of the City's project manager.
6. Route underground services including utilities, sub-drains, water or sewer around the **TREE PROTECTION ZONE**. Where encroachment cannot be avoided, special construction techniques such as hand digging or tunneling under roots shall be employed where necessary to minimize root injury.
7. Use only herbicides safe for use around trees and labeled for that use, even below pavement.
8. Design irrigation systems so that no trenching will occur within the **TREE PROTECTION ZONE**.

Pre-construction and demolition treatments and recommendations

1. The demolition contractor shall meet with the Consulting Arborist before beginning work to discuss work procedures and tree protection.
2. Trees to be removed shall be felled so as to fall away from **TREE PROTECTION ZONE** and avoid pulling and breaking of roots of trees to remain. If roots are entwined, the consultant may require first severing the major woody root mass before extracting the trees, or grinding the stump below ground.

Tree protection during construction

1. Prior to beginning work, the contractors working in the vicinity of trees to be preserved are required to meet with the Consulting Arborist at the site to review all work procedures, access routes, storage areas and tree protection measures.
2. Any grading, construction, demolition or other work that is expected to encounter tree roots should be monitored by the Consulting Arborist.
3. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the Consulting Arborist so that appropriate treatments can be applied.
4. Fences have been erected to protect trees to be preserved. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without permission of the City's Project Manager.
5. Construction trailers, traffic and storage areas must remain outside fenced areas at all times.
6. No materials, equipment, spoil, waste or wash-out water may be deposited, stored, or parked within the **TREE PROTECTION ZONE** (fenced area).
7. Any additional tree pruning needed for clearance during construction must be performed by a qualified arborist and not by construction personnel.
8. All trees shall be irrigated on a schedule to be determined by the Consulting Arborist. Each irrigation shall wet the soil within the **TREE PROTECTION ZONE** to a depth of 30".
9. Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw.

Summary and Recommendations

Extensive renovation is planned at Lafayette Park. A new children's play area will be constructed in the location of a number of existing trees. Other trees are within and immediately adjacent to paved areas. Renovation of turf and landscape areas has the potential to have significant adverse impacts on trees. Only with careful design and execution will trees at the site remain assets into the future.

Trees at Kimball Playground are a mix of 40 species that vary in number, condition and size. Approximately 20% of the surveyed trees were in poor condition while about 40% were in good and excellent condition. The best prospects for successful retention are those trees with good suitability for preservation.

Based on my observations, I recommend the following:

1. **Describe plans for "selective grub and clear" of turf and landscape areas in more detail.**
2. **Prepare irrigation plans to that impacts to trees are minimized.**
3. **Revise project plans as indicated to reduce impacts to a number of trees.**

HortScience, Inc.

A handwritten signature in black ink, appearing to read 'J.R. Clark', written in a cursive style.

James R. Clark, Ph.D.
Certified Arborist WE-0846
Registered Consulting Arborist #357

Attachments

Tree Survey Form

Tree Location Map

Tree Survey

Lafayette Park
Recreation & Park Department
San Francisco CA
September 2010



TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS ?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
1	Blackwood acacia	27	Significant	3	Poor	Codominant trunks @ 3' with included bark; midslope.
2	Blackwood acacia	15,11,9	Significant	3	Poor	Multiple attachments @ base; high crown; bowed E.
3	Blackwood acacia	19,17,16	Significant	3	Poor	Codominant trunks @ base & 3' with included bark; high crown.
4	Monterey cypress	32	--	4	Moderate	Multiple attachments @ 7'; developing heavy lateral limbs.
5	Blackwood acacia	13	--	4	Moderate	Multiple attachments @ 18'.
6	Victorian box	12,10	--	1	Poor	Codominant trunks @ 1'; trunk wounds; dieback; decay @ base.
7	Tobira	9,8,7	--	2	Poor	Codominant trunks @ base & 2'; high crown; one-sided to N.
8	Blackwood acacia	13,13	--	2	Poor	Codominant trunks @ base; decay @ base; good crown.
9	Deodar cedar	23,15	--	4	Moderate	Codominant trunks @ 1', 3' & 6'; upright; one-sided to E.
10	Victorian box	22	--	2	Poor	Dying; codominant trunks @ 4'.
11	Deodar cedar	10	--	5	Good	Low laterals sweep upright; good young tree.
12	Crabapple	6	--	4	Moderate	Flat-topped.
13	Blackwood acacia	8	--	2	Poor	Suppressed.
14	Blackwood acacia	19	--	2	Poor	Dying back from upper crown; one-sided & slight bow NE.
15	Blackwood acacia	16,14	--	3	Poor	Codominant trunks @ base with included bark; 14" suppressed.
16	Monterey cypress	52	--	4	Moderate	Codominant trunks @ 16' & high in crown; one-sided to SW.
17	Monterey cypress	22	--	3	Poor	Suppressed; trunk decay.

Tree Survey

Lafayette Park
Recreation & Park Department
San Francisco CA
September 2010



TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS ?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
18	Monterey cypress	40	--	4	Good	Good tree; high crown.
19	Blue gum	38	--	4	Moderate	Okay form; codominant trunks high in crown.
20	Blue gum	31	--	3	Poor	Intermediate; rangy form.
21	Blue gum	34	--	3	Poor	Flat form, E-W.
22	Blue gum	50	--	4	Moderate	Nice tree; heavy lateral limb to E.
23	Blue gum	42	--	3	Poor	One-sided & bowed SW.
24	Blue gum	31	--	3	Poor	Intermediate; heavy lateral limb over bench.
25	Blue gum	42	--	4	Moderate	Vase-shaped crown; flat form.
26	Blue gum	35	--	3	Poor	Codominant trunks @ 20'; one-sided S.; ext. trunk wounds; twig dieback.
27	Norfolk Island pine	7	--	5	Good	Good young tree.
28	Coast live oak	20,19	--	3	Poor	Codominant trunks @ base; separated; irregular form.
29	Coast live oak	18	--	3	Poor	Bowed flat to S.
30	Victorian box	19	--	3	Poor	Multiple attachments @ 8'; high crown.
31	Peppermint willow	12,7	--	3	Moderate	Branches poorly attached.
32	Pittosporum	12,9,9,8,7,7,6	--	3	Poor	Big shrub; multiple attachments @ 1'; one-sided to NE.
33	Pittosporum	9,8	--	2	Poor	Codominant trunks @ 1'; failing @ base to E.
34	Victorian box	9,8,7	--	2	Poor	Multiple attachments @ base; poor form.
35	Victorian box	10	--	3	Poor	High crown; adj. to fence.
36	Avocado	13	--	3	Moderate	Bowed E.; okay.
37	Purpleleaf plum	15	Significant	3	Poor	Leans E.; codominant trunks @ 4'.
38	Red-flowering gum	19	--	2	Poor	Failing @ base to E.
39	Purpleleaf plum	6	--	5	Good	Good tree.

Tree Survey

Lafayette Park
Recreation & Park Department
San Francisco CA
September 2010



TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS ?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
40	Monterey pine	39	--	3	Poor	Big tree; upper crown bowed over tennis court; heavy lateral limb high.
41	Coast live oak	6,6,4	--	4	Moderate	Multiple attachments @ base.
42	Monterey cypress	35	--	3	Moderate	Very high, small crown.
43	Monterey pine	44	--	3	Poor	Leaning & one-sided to S., over tennis courts; heavy lateral limb to W.; bark intact; flat-topped; minor pine pitch canker.
44	Coast live oak	13	--	3	Moderate	Corrected lean E.; codominant trunks @ 6'.
45	Pittosporum	10	--	3	Poor	One-sided E.
46	Avocado	13	--	4	Moderate	Okay form.
47	Blackwood acacia	9	--	5	Good	Good tree.
48	Blackwood acacia	8	--	4	Good	One-sided to E.
49	Blackwood acacia	11	--	2	Poor	Poor form.
50	Blackwood acacia	9	--	2	Poor	Poor form.
51	Blackwood acacia	14	--	4	Moderate	One-sided to S.
52	Blackwood acacia	9,5,5	--	3	Poor	Multiple attachments @ base.
53	Blackwood acacia	10	--	3	Moderate	Codominant trunks high in crown.
54	Blackwood acacia	30	--	3	Poor	Codominant trunks @ 6' with included bark to base.
55	Monterey cypress	43	--	4	Moderate	Huge tree with high crown; enormous base; exposed roots.
56	Monterey cypress	23	--	4	Moderate	Small narrow crown.
57	Avocado	25	--	3	Poor	One-sided & bowed NE.
58	Blackwood acacia	28	--	4	Moderate	Codominant trunks @ 8' & 12' with included bark; upright.
59	Monterey cypress	36	--	5	Good	One-sided to N.
60	Monterey cypress	22	--	4	Good	Codominant trunks @ 6'.

Tree Survey

Lafayette Park
Recreation & Park Department
San Francisco CA
September 2010



TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS ?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
61	Acacia	9,6,5,5	--	4	Moderate	Flat-topped shrub.
62	Blackwood acacia	20	--	4	Moderate	One-sided to N.
63	Blackwood acacia	9	--	5	Good	Good tree.
64	Coast live oak	11,9	--	3	Poor	Bowed N.; base outside dripline; codominant trunks @ 1'
65	Mayten	7	--	3	Poor	Bowed N.; base outside dripline.
66	Victorian box	13	--	3	Poor	Multiple attachments @ 3'; leans N.
67	Victorian box	7,7	--	2	Poor	Codominant trunks @ base; decay.
68	Victorian box	9,8,8,7	--	2	Poor	Multiple attachments @ base; declining.
69	Monterey cypress	28	--	5	Good	Good tree; one-sided to N.
70	Monterey cypress	43	--	3	Poor	Codominant trunks high in crown; history of branch failure.
71	Monterey cypress	46	--	3	Moderate	High vase-shaped crown; leans E; one-sided W.
72	Monterey cypress	29	--	3	Poor	Dying with good form.
73	Monterey cypress	15	--	1	Poor	All but dead.
74	Mayten	8,6,4,3	--	2	Poor	Multiple attachments @ 1' with poor attachment; bowed N.
75	Blue gum	33,16	--	3	Poor	Codominant trunks @ base; bowed NW.; base outside dripline.
76	Blue gum	36	--	3	Poor	Leans N.; base outside dripline.
77	Blue gum	24	--	3	Poor	Leans SE.; multiple attachments @ 18'.
78	Blue gum	19	--	3	Poor	Leaning & bowed N.; base outside dripline.
79	Blackwood acacia	11	--	5	Good	Good tree.
80	Mayten	7,7,6	--	2	Poor	Poor form & structure
81	Blue gum	38	--	4	Moderate	High crown; leans NE.
82	Blue gum	27	--	2	Poor	Severe lean N.; base outside dripline.

Tree Survey

Lafayette Park
Recreation & Park Department
San Francisco CA
September 2010



TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS ?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
83	Blue gum	31	--	3	Poor	Multiple attachments @ 30'; rangy form.
84	Pittosporum	6,5,4,4,3	--	2	Poor	Suppressed; multiple attachments @ 1'.
85	Monterey cypress	17	--	3	Moderate	Leans S.
86	Blue gum	37	--	3	Moderate	Okay form.
87	Blue gum	36	--	3	Poor	Intermediate; top bowed NE.
88	Blue gum	35	--	2	Poor	Intermediate; leans NE.; declining.
89	Blue gum	32	--	3	Poor	Codominant trunks @ 15'; bowed E.
90	Blue gum	42	--	4	Moderate	Vase-shaped crown; multiple attachments @ 30'.
91	Monterey pine	51	--	4	Moderate	Huge tree; one-sided to S.; exposed roots.
92	Coast live oak	8	--	4	Moderate	Rangy form.
93	Coast live oak	14	--	4	Moderate	Edge of sidewalk.
94	Coast live oak	11	--	4	Good	Good tree.
95	Coast live oak	17	--	3	Moderate	High thin crown.
96	Coast live oak	16,7	--	3	Poor	Total lean S.; base outside dripline.
97	River red gum	31	--	2	Poor	Poor form.
98	Blue gum	25	--	3	Poor	Rangy form; one-sided to SE.
99	Blue gum	52	--	4	Moderate	Huge tree; multiple attachments @ 26'; upright; basal cavity on S.; well-buttressed.
100	Blue gum	47	--	4	Moderate	Huge tree; multiple attachments @ 22'.
101	Victorian box	9,9,8,7,6,6,5	--	2	Poor	Dying; multiple attachments @ 1'.
102	Cordyline	22	--	1	Poor	Dying; trunk wounds & branch dieback; decay.
103	Blue gum	74	--	4	Moderate	Huge tree; vase-shaped crown; codominant trunks @ 12'; multiple attachments @ 18'.
104	Blue gum	40	--	2	Poor	Codominant trunks @ 18'; ext. trunk wounds; twig & branch dieback to 2".
105	Monterey pine	19	--	4	Moderate	Partly corrected lean NW.

Tree Survey

Lafayette Park
Recreation & Park Department
San Francisco CA
September 2010



TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS ?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
106	Monterey pine	44	--	4	Moderate	Big tree with high crown; slight lean SW.
107	Mexican fan palm	16	--	4	Moderate	30' clear trunk; crook @ 24.
108	Canary Island date palm	49	--	5	Good	24' clear trunk; irregular base.
109	English elm	30	--	4	Moderate	Codominant trunks @ 18'.
110	English elm	21	--	4	Good	Codominant trunks @ 12'.
111	Catalina ironwood	10	--	5	Good	Good tree.
112	River red gum	16,15	--	3	Poor	Codominant trunks @ base; 16" bowed flat to SE.
113	Cordyline	9,7,6	--	3	Moderate	Multiple attachments @ 1'.
114	Swamp mahogany	34	--	4	Moderate	Codominant trunks @ 12'; upright.
115	Swamp mahogany	25	--	2	Poor	Poor form & structure; leans W.; trunk wound.
116	Monterey cypress	79	--	4	Moderate	Codominant trunks @ 6' & twice @ 8'; high crown; seam on S. stem; 1 stem stubbed.
117	Lawson's cypress	24,21,16,15,1 5,9,9	--	4	Moderate	Multiple attachments @ 1'; high crown; 21" on E. poor.
118	Mayten	13	--	5	Good	Corrected lean N.
119	Mayten	14	--	4	Moderate	Codominant trunks throughout.
120	Mayten	16	--	4	Moderate	Leans NW.; heavy lateral limb to bench.
121	Mayten	11	--	3	Poor	Codominant trunks @ 8'; long cavity on N.
122	Mayten	12	--	4	Moderate	Codominant trunks @ 7' & 11'.
123	Blackwood acacia	29	--	3	Poor	Codominant trunks @ 18' with included bark; bowed E.
124	Blackwood acacia	23	--	3	Poor	Codominant trunks @ 16'; separating.
125	Moreton Bay fig	48	--	4	Moderate	Codominant trunks @ 4' & 7', both with included bark; huge surface roots; history of branch failures.
126	Victorian box	16,12,7	--	3	Moderate	Multiple attachments @ 3'; upright.
127	Monterey cypress	26	--	3	Poor	Partly corrected lean N.

Tree Survey

Lafayette Park
Recreation & Park Department
San Francisco CA
September 2010



TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS ?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
128	Monterey cypress	30	--	2	Poor	Very strong lean N.; hung up in crown of #127.
129	Monterey cypress	38	--	3	Moderate	Trunk wound on W. mid-crown; leans NW.
130	Monterey cypress	29	--	3	Poor	Poor form; flat-topped; lost central leader.
131	Moreton Bay fig	54	--	3	Moderate	Several sets of codominant trunks with included bark; history of branch failures; heavy lateral limb to S. over sidewalk; lateral branch with ext. decay.
132	Canary Island date palm	32	--	5	Good	30' clear trunk.
133	Monterey cypress	20	--	5	Good	Good tree; low laterals sweep upright
134	Monterey cypress	25	--	5	Good	Good tree; low laterals sweep upright; slight lean W.
135	Monterey cypress	19	--	5	Good	Good tree; low laterals sweep upright & compete with central leader.
136	Victorian box	7	--	5	Good	Good tree; multiple attachments @ 7'.
137	Victorian box	20,11,10,9,8	--	3	Poor	Multiple attachments @ 2'; 2 sets of codominant trunks; trunk wounds; twig dieback.
138	Victorian box	19,18,17,15,1 3,11,11,8,8	--	3	Poor	Multiple attachments @ base; trunk decay; 1 stem bowed to sidewalk.
139	Windmill palm	8	--	4	Poor	26' clear trunk; small head.
140	River she-oak	9	--	4	Moderate	Codominant trunks @ 7'.
141	River she-oak	8	--	3	Moderate	Branch failure @ 8'; heavy lateral limb to N.; poor form.
142	River she-oak	6	--	3	Moderate	Okay form; thin crown.
143	Weeping willow	8	--	3	Moderate	Codominant trunks @ 7' with poor attachment.
144	Catalina ironwood	13,5	--	3	Moderate	Very thin crown; too windy; okay form.
145	Bush cherry	25	--	4	Moderate	Grove of 5 huge plants; bowed E.
146	Bush cherry	20,17,14	--	3	Moderate	Grove of 5 huge plants; multiple attachments @ 1'; 17" with crook @ 8'.

Tree Survey

Lafayette Park
Recreation & Park Department
San Francisco CA
September 2010



TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS ?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
147	Bush cherry	25	--	3	Moderate	Grove of 5 huge plants; codominant trunks @ 6' & 8'; one-sided to E.
148	Bush cherry	18,17	--	3	Moderate	Grove of 5 huge plants; codominant trunks @ 1'; one-sided to W.
149	Bush cherry	28,7	--	3	Poor	Grove of 5 huge plants; codominant trunks @ 6'; leans N.; base outside dripline.
150	Cordyline	22	--	4	Good	Good form.
151	Victorian box	14,13,12	--	1	Poor	Dying; multiple attachments @ base.
152	Victorian box	14,12,11,7,6	--	3	Poor	Poor form & structure; multiple attachments @ 1'.
153	Victorian box	16,12,10,9,7	--	3	Poor	Poor form & structure; multiple attachments @ 1'.
154	Victorian box	22	--	3	Poor	Failing @ base to S.; trunk decay.
155	Victorian box	29	--	2	Poor	Half of tree failed @ base; leans E; base outside dripline.
156	Victorian box	20	--	2	Poor	Leans N.; ext. trunk wounds; twig dieback; codominant trunks @ 5'.
157	Victorian box	19,18	--	2	Poor	Codominant trunks @ 1'; leans E; trunk wounds; twig dieback
158	Windmill palm	8	--	4	Good	No tag ; 27' clear trunk; small head.
159	Windmill palm	8	--	4	Good	24' clear trunk.
160	Kwanzan cherry	5	--	4	Moderate	Okay.
161	Kwanzan cherry	9	--	4	Moderate	Codominant trunks @ 4'.
162	Kwanzan cherry	7	--	3	Moderate	Codominant trunks @ 4'; huge surface roots.
163	Kwanzan cherry	5	--	2	Poor	Decay @ base.
164	Cordyline	26,22	--	3	Poor	Codominant trunks @ base with ext. decay.
165	Ginkgo	9	--	5	Good	Good tree; wind-swept.
166	Canary Island date palm	43	--	5	Good	26' clear trunk.

Tree Survey

Lafayette Park
Recreation & Park Department
San Francisco CA
September 2010



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167	Canary Island date palm	43	--	5	Good	26' clear trunk.
168	Mayten	13,12,10	--	3	Poor	Multiple attachments @ base; history of branch failure; bowed E.
169	Canary Island date palm	32	--	5	Good	34' clear trunk.
170	Canary Island date palm	15	--	5	Good	12' clear trunk.
171	Mayten	8	--	4	Moderate	Okay.
172	Southern magnolia	10	--	4	Good	Good tree.
173	River red gum	35	--	3	Poor	Bowed SE.; base outside dripline.
174	River red gum	28	--	3	Poor	Bowed S.; base outside dripline.
175	Canary Island date palm	32	--	4	Moderate	20' clear trunk; decay @ base on N.
176	River red gum	24	--	4	Moderate	Corrected lean S.
177	Monterey pine	51	--	3	Poor	Leans S.; heavy lateral limb on SW.; lost central leader high in crown; <i>Phellinis</i> conk on buttress root.
178	Eucalyptus	20,18	--	3	Poor	Codominant trunks @ base; one-sided to S.
179	Victorian box	11,10,7	--	2	Poor	Multiple attachments @ base; <i>Ganoderma</i> conks; ext. trunk wounds; twig dieback.
180	Tobira	8	--	3	Poor	Suppressed
181	Victorian box	9,8,7	--	3	Poor	Multiple attachments @ 1'; bowed S.
182	Victorian box	11	--	2	Poor	Totally bowed S.
183	Victorian box	11	--	2	Poor	Bowed S.
184	Victorian box	10	--	2	Poor	Bowed SE.
185	Tobira	8	--	3	Poor	Leans E.; base outside dripline.
186	Victorian box	7,7,6,6,6	--	2	Poor	Multiple attachments @ base; ext. trunk wounds; twig dieback.
187	Coast live oak	13	--	4	Moderate	Codominant trunks @ 18'.
188	Pittosporum	7,5	--	2	Poor	Codominant trunks @ base; ext. sunburn on W.

Tree Survey

Lafayette Park
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San Francisco CA
September 2010



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189	Coast live oak	14,9	--	4	Moderate	Codominant trunks @ 2'.
190	Pittosporum	10,7	--	3	Poor	Codominant trunks @ 1'; high crown.
191	Coast live oak	22,15	--	4	Moderate	Codominant trunks @ base; 22" upright; 15" bowed flat to S.
192	Chinese holly	8,8,7	--	3	Poor	Multiple attachments @ base; high crown.
193	Bush cherry	18,15,13	--	3	Moderate	Codominant trunks @ 1' & 3'; history of stem failure.
194	Cordyline	12	--	5	Good	Good tree.
195	Pittosporum	15	--	3	Poor	Codominant trunks high in crown; <i>Ganoderma</i> @ base on N.
196	Callery pear	8	--	4	Moderate	Multiple attachments @ 7'.
197	Victorian box	10,7,7,6	--	3	Poor	Codominant trunks @ base & 1'.
198	Callery pear	7	--	4	Moderate	Multiple attachments @ 7'.
199	Callery pear	8	--	4	Moderate	Multiple attachments @ 6'.
200	Callery pear	7	--	4	Moderate	Multiple attachments @ 6'; leans S.
201	Callery pear	9	--	4	Moderate	Multiple attachments @ 7'.
202	Callery pear	10	--	4	Moderate	Multiple attachments @ 7'; basal wound.
203	Callery pear	9	--	4	Moderate	Multiple attachments @ 6'.
204	Callery pear	9	--	4	Moderate	Codominant trunks @ 6'.
205	Callery pear	11	--	4	Moderate	Multiple attachments @ 7'.
206	Victorian box	12,10,6	--	2	Poor	Multiple attachments @ 1'.
207	Olive	16,13,9	--	2	Poor	Multiple attachments @ 3'; ext. decay.
208	Grecian laurel	14,10	--	2	Poor	Codominant trunks @ 4'; ext. trunk wounds; leans NE.
209	Victorian box	13	--	3	Poor	Codominant trunks @ 6'; bowed S.
210	Victorian box	9,7,7	--	3	Poor	Codominant trunks @ 1' & 3'; leans E.
211	Victorian box	13,13,12	--	2	Poor	Codominant trunks @ base & 3'; <i>Ganoderma</i> .

Tree Survey

Lafayette Park
Recreation & Park Department
San Francisco CA
September 2010



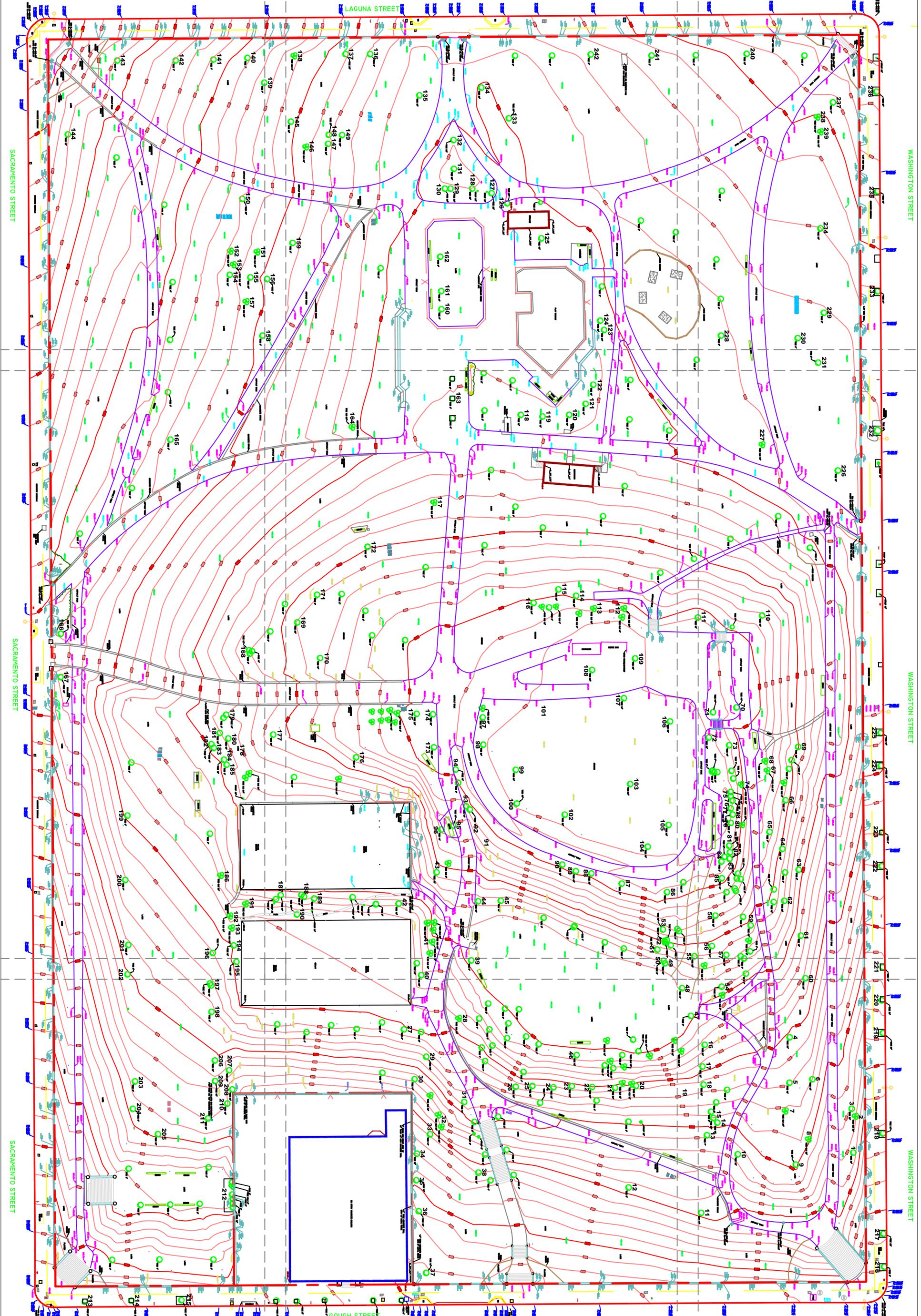
TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS ?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
212	Bush cherry	ms	--	3	Moderate	Group of 8 stems; form a hedge.
213	Tobira	9	Street	2	Poor	Huge basal wound; thin crown.
214	Tobira	10	Street	2	Poor	Just poor.
215	Fig	17	Street	4	Moderate	Codominant trunks @ 7'; pavement lifted.
216	Blackwood acacia	8	Street	5	Good	Good tree.
217	Blackwood acacia	23	Street	3	Poor	Multiple attachments @ 7'.
218	Blackwood acacia	11	Street	3	Moderate	Overtopped by adj. tree; codominant trunks high in crown.
219	Blackwood acacia	19	Street	3	Poor	Multiple attachments @ 10'.
220	Blackwood acacia	26	Street	3	Poor	Multiple attachments @ 10'; heavy lateral limbs.
221	Blackwood acacia	14	Street	2	Poor	Leans SE. over sidewalk.
222	Blackwood acacia	20	Street	2	Poor	Multiple attachments @ 8'; thin crown.
223	Blackwood acacia	9	Street	2	Poor	Leans N.; multiple attachments @ 5'.
224	Blackwood acacia	18	Street	2	Poor	Multiple attachments @ 8'; <i>Ganoderma</i> .
225	Blackwood acacia	17	Street	3	Poor	Multiple attachments @ 7'.
226	Weeping willow	13	--	4	Moderate	Codominant trunks @ 10'; history of branch failure.
227	Monterey cypress	58	--	4	Moderate	Multiple attachments @ 14'; upright but poor attachments.
228	Camphor	10	--	2	Poor	No vigor.
229	Deodar cedar	6	--	5	Good	Good tree; low laterals sweep upright.
230	Deodar cedar	5	--	5	Good	Good tree; low laterals sweep upright.
231	Deodar cedar	7	--	4	Good	Good tree; low laterals sweep upright.
232	Blackwood acacia	24	Street	3	Poor	Multiple attachments @ 8'; trunk decay; pavement lifted badly.
233	Blackwood acacia	23	Street	2	Poor	Large basal cavity @ curb; multiple attachments @ 10'; history of branch failure.

Tree Survey

Lafayette Park
Recreation & Park Department
San Francisco CA
September 2010



TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS ?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
234	Monterey cypress	30	--	5	Good	Big base; slight bow W.
235	Blackwood acacia	17	Street	3	Poor	Multiple attachments @ 8'.
236	Blackwood acacia	23	Street	2	Poor	Codominant trunks @ 10' with poor attachment; <i>Ganoderma</i> @ base.
237	Monterey cypress	18	--	4	Moderate	Codominant trunks @ 3'; one-sided to W.
238	Monterey cypress	40,32	--	3	Moderate	Codominant trunks @ 3'; 40" bowed S.
239	Monterey cypress	72	--	2	Poor	Multiple attachments @ 8'; crack between; high crown; 1 or 2 stems dead.
240	Victorian box	11	--	4	Moderate	Multiple attachments @ 6'.
241	Olive	6	--	4	Moderate	Okay tree.
242	Victorian box	11	--	5	Good	Good tree.





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Notes:

 Base map provided by:

 Department of Public Works

 San Francisco, CA

 Numbered tree locations

 are approximate.

Prepared for:

 San Francisco Department of

 Recreation and Park

 San Francisco, CA

 No Scale

Tree Survey Map

Lafayette Square Park

 San Francisco, CA

 August 2010