



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

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**Tree Assessment  
Kimbell Playground**

*Prepared for:*  
**Recreation & Park Department  
City of San Francisco  
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# **Tree Assessment**

Kimbell Playground  
San Francisco CA

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### ***Introduction and Overview***

The City of San Francisco is in the process of renovating Kimbell Playground, located on Geary Street. Site use consists of a children's playground, tennis courts, sports fields, 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 June 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.

At the time of our survey, renovation of the landscape surrounding the ball fields was largely complete. New turf was present. The open lawn area on the north side of the park had been regarded and was ready to have sod installed. The restrooms were being remodeled.

### ***Description of Trees***

Eighty-six (86) trees were evaluated, representing 14 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 were indigenous to the site and no species was native to San Francisco.

The most frequently occurring species was London plane (26 trees) (Photo 1). All London planes were street trees, located on the Geary and Steiner sides of the park. All had been installed in small (4' by 4' or less) cut-outs in the sidewalk. Trees along Geary were in better condition than those on Steiner, possible due to wind patterns. Trunk diameter ranged from 6" to 23". Most London planes were in fair condition; three (#31, 34, 36) were in good condition. Roots from trees #36 and 56 had displaced the adjacent pavement.

**Photo 1.** London planes lined Geary Street, on the north side of Kimbell Playground.



**Table 1. Tree condition and frequency of occurrence. Kimbell Playground. San Francisco CA.**

Common name	Scientific name	Condition				No. of Trees
		Poor	Fair	Good	Excellent	
Blackwood acacia	<i>Acacia melanoxylon</i>	1	2	--	--	3
Red flowering gum	<i>Corymbia ficifolia</i>	2	3	1	--	6
Fig	<i>Ficus microphylla</i>	--	3	--	--	3
Sweetgum	<i>Liquidambar styraciflua</i>	--	1	--	--	1
Brisbane box	<i>Lophostemon confertus</i>	--	2	2	--	4
Olive	<i>Olea europaea</i>	--	3	1	--	4
Canary Island date palm	<i>Phoenix canariensis</i>	--	--	--	1	1
Canary Island pine	<i>Pinus canariensis</i>	--	1	1	--	2
Italian stone pine	<i>Pinus pinea</i>	1	10	--	--	11
Monterey pine	<i>Pinus radiata</i>	1	2	3	--	6
Pittosporum	<i>Pittosporum</i> sp.	--	1	--	--	1
London plane	<i>Platanus x acerifolia</i>	8	15	3	--	26
White poplar	<i>Populus alba</i>	2	8	6	--	16
Kwanzan cherry	<i>Prunus serrulata</i> 'Kwanzan'	--	2	--	--	2
<b>Total, all trees</b>		<b>15</b>	<b>53</b>	<b>17</b>	<b>1</b>	<b>86</b>

White poplar trees (16 total) were located at each corner of the park (Photo 2). Trees were mature in development with trunk diameters ranging from 11" to 25". Larger trees were in better condition than smaller. Two poplars (#68, 71) were in poor condition. Both were located on Ellis Street. Several poplars had cankers either at the base or along the trunk. These were mostly like due to infection by crown gall, a bacterial organism common to trees of this genus.

**Photo 2.** White poplars (#59 – 62) were located at the corner of Steiner and Ellis.



Eleven (11) Italian stone pines were concentrated in the park area north of the playfields (Photo 3, following page). All stone pines were mature in development with trunk diameters between 28" and 52". Condition was fair for all except tree #27 which was poor. Stone pines had high crowns, with either codominant or multiple trunks that arose below 12'. Several trees were leaning and/or bowed. Stone pines #27 and 73 had major stems removed, most likely due to their failure.



**Photo 3.** Italian stone pine #27 was in poor condition.



**Photo 4.** Two of the fig trees located on Pierce Street.

No other species was represented by more than 6 trees. Included in this group were:

- 6 red-flowering gums ranging in size from 8" to 39". Five trees (#79, 80, 81, 84, 85) were street trees located on Pierce Street. Trees #79 and 81 were in poor condition; #80, 84, 85 were in fair. A fruiting body of the heart rot fungus *Ganoderma* was developing on the face of a severed root. Red-flowering gum #16 was located in the park area. It was 39" in diameter and in good condition.
- 6 Monterey pines were located on the north side of the property. All were mature in development with trunk diameters between 23" and 37". Pines #9, 12 and 13 were in good condition; #15 and 37 in fair. Tree #14 was in poor condition with a strong lean.
- 4 Brisbane box were present. Trees were semi-mature in development with trunk diameters between 13" and 18".
- 4 olives were present: #24 was near Geary St; #64, 65, 67 were on Ellis.
- 3 figs were located on Pierce Street (Photo 4 above). All were in fair condition with multiple attachments at 6'.
- 3 blackwood acacias were located on Ellis Street. All were mature in development. Tree #63 was in poor condition; #66 and 78 were fair.
- 2 mature Canary Island pines: #10 was in fair condition; #11 in good.
- A planting of 20 pittosporum shrubs was noted as a group. Overall condition was fair. Crowns had been raised. All were located adjacent to the tennis courts on Pierce St.

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 categories trees in three ways:

1. **Street tree.** A tree of any size located within the street right of way. 37 of the 86 trees met this criterion including all 26 London planes, 3 blackwood acacias, 5 red-flowering gums, and 3 figs.
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 12 white poplars, 3 Italian stone pines, 2 Brisbane box and 1 olive 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, London plane 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 may become 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).

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**Table 2. Tree suitability for preservation. Kimbell Playground. San Francisco CA.**

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<b>Good</b>	Trees with good health and structural stability that have the potential for longevity at the site. Five (5) trees had good suitability for preservation including Brisbane box #7, Canary Island date palm #21, London plane #34 and 36, and olive #24.
<b>Moderate</b>	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. Thirty-four (34) trees were rated as having moderate suitability for preservation including 10 London planes, 8 white poplars, 3 figs, 3 Monterey pines, 3 olives and 3 red-flowering gums.
<b>Poor</b>	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. Forty-seven (47) trees were rated as having poor suitability for preservation including 14 London planes, all 11 Italian stone pines and 8 white poplars.

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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 (2<sup>nd</sup> 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 Kimbell Playground, the most likely failure included a branch (77 trees), the entire tree (4 trees: Monterey pine #14, blackwood acacia #63, and white poplars #63 and 68) and a stem (5 trees) (Table 3, following page). The potential target included street parking (39 trees), sidewalk (24), bench (3), play fields (2) and a driveway (1). No target (typically lawn) was identified for 17 trees. Included in this group were social trails.

Risk rankings ranged from 3 to 9. Three trees received rankings of 8 or 9: blackwood acacias #63 and 78; white poplar #71. Seven (7) trees received a rating of 7. The remaining 76 trees were rated as 6 or lower.



**Table 3. Tree risk rankings. Kimbell Playground. Recreation and Park Department. San Francisco CA.**

Tree No.	Species	Trunk Diameter (in.)	Status?	Condition 1=poor 5=excell.	Most likely failure	Risk Assessment				Sum	Proposed Abatement
						Target	Failure potential	Size of part	Target		
1	White poplar	25	Significant	4	Branch	Sidewalk	2	1	2	5	Prune to clean crown; monitor lean.
2	White poplar	22	Significant	4	Branch	Sidewalk	2	1	2	5	Prune to clean crown; monitor lean.
3	White poplar	23	Significant	4	Branch	Sidewalk	2	2	2	6	Prune to reduce size of bowing scaffolds.
4	Kwanzan cherry	9	--	3	Branch	None	1	1	1	3	No treatment needed
5	Italian stone pine	43	--	3	Branch	Sidewalk	3	2	2	7	Prune to clean crown; moderate-term remove & replace.
6	Italian stone pine	39	--	3	Branch	Driveway	2	1	2	5	Monitor lean; moderate-term remove & replace.
7	Brisbane box	17	--	4	Branch	None	1	1	1	3	No treatment needed
8	Kwanzan cherry	8	--	3	Branch	None	1	1	1	3	No treatment needed
9	Monterey pine	36	--	4	Branch	Sidewalk	2	1	2	5	Monitor lean; moderate-term remove & replace.
10	Canary Island pine	28	--	3	Branch	None	2	2	1	5	Monitor lean.
11	Canary Island pine	26	--	4	Branch	None	2	1	1	4	No treatment needed
12	Monterey pine	36	--	4	Dead branch	None	4	1	1	6	Prune to clean crown; moderate-term remove & replace.
13	Monterey pine	37	--	4	Branch	Bench	2	1	2	5	Prune to clean crown; moderate-term remove & replace.

**Table 3, continued. Tree risk rankings. Kimbell Playground. Recreation and Park Department. San Francisco CA.**

Tree No.	Species	Trunk Diameter (in.)	Status?	Condition 1=poor 5=excell.	Most likely failure	Risk Assessment				Sum	Proposed Abatement
						Target	Failure potential	Size of part	Target		
14	Monterey pine	23	--	2	Whole tree	Sidewalk	2	3	2	7	Remove & replace.
15	Monterey pine	24	--	3	Branch	Sidewalk	2	1	2	5	Remove tree.
16	Red flowering gum	39	--	4	Branch	Bench	2	1	2	5	Prune to clean crown.
17	Sweetgum	12	--	3	Branch	Sidewalk	2	1	2	5	Prune to restore central leader.
18	Pittosporum	multi	--	3	Stem	Sidewalk	2	1	2	5	Remove & replace as individual trees decline.
19	Italian stone pine	28	--	3	Branch	Sidewalk	2	1	2	5	Prune to clean crown; moderate-term remove & replace.
20	Italian stone pine	33	--	3	Branch	Sidewalk	2	1	2	5	Prune to clean crown; monitor lean; moderate-term remove & replace.
21	Canary Island date palm	25	--	5	Fronde	None	1	1	1	3	No treatment needed
22	White poplar	18	Significant	4	Branch	Sidewalk	2	1	2	5	Prune to clean crown.
23	White poplar	16	Significant	3	Branch	Sidewalk	2	1	2	5	Prune to clean crown; moderate-term remove & replace.
24	Olive	23	Significant	4	Branch	None	2	1	1	4	No treatment needed
25	Brisbane box	13	Significant	3	Branch	None	2	1	1	4	No treatment needed
26	Brisbane box	15	--	3	Branch	None	2	1	1	4	No treatment needed
27	Italian stone pine	50	--	2	Heavy lateral limb	None	3	3	1	7	Remove & replace.

**Table 3, continued. Tree risk rankings. Kimbell Playground. Recreation and Park Department. San Francisco CA.**

Tree No.	Species	Trunk Diameter (in.)	Status?	Condition 1=poor 5=excell.	Most likely failure	Risk Assessment				Sum	Proposed Abatement
						Target	Failure potential	Size of part	Target		
28	London plane	15	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown.
29	London plane	16	Street	3	Branch	Sidewalk	2	1	2	5	Prune to clean crown.
30	London plane	16	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown.
31	London plane	16	Street	4	Branch	Parking	2	1	3	6	Prune to clean crown.
32	London plane	11	Street	3	Branch	Parking	1	1	3	5	Prune to clean crown.
33	London plane	12	Street	3	Branch	Parking	1	1	3	5	Prune to clean crown.
34	London plane	19	Street	4	Branch	Parking	2	1	3	6	Prune to clean crown.
35	London plane	6	Street	3	Branch	Parking	1	1	3	5	Remove tree.
36	London plane	21	Street	4	Branch	Parking	2	1	3	6	Prune to clean crown.
37	Monterey pine	31	--	3	Heavy lateral limb to S.	None	2	2	1	5	Prune to clean crown; moderate-term remove & replace.
38	White poplar	21	--	4	Branch	Sidewalk	2	2	2	6	Prune to clean crown.
39	London plane	7	Street	2	Branch	Sidewalk	1	1	2	4	No treatment needed
40	London plane	12	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown.
41	London plane	16	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown.
42	London plane	6	Street	2	Branch	Parking	2	1	3	6	Remove & replace.
43	London plane	10	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown.
44	Brisbane box	18	Significant	4	Branch	Sidewalk	2	1	2	5	Prune to clean crown.
45	Italian stone pine	52	Significant	3	Branch	Parking	2	1	3	6	Prune to clean crown; monitor base; moderate-term remove & replace.
46	London plane	17	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown.
47	London plane	8	Street	1	Branch	Parking	2	1	3	6	Remove & replace.
48	London plane	8	Street	2	Stem	Parking	2	1	3	6	Remove & replace.

**Table 3, continued. Tree risk rankings. Kimbell Playground. Recreation and Park Department. San Francisco CA.**

Tree No.	Species	Trunk Diameter (in.)	Status?	Condition 1=poor 5=excell.	Most likely failure	Risk Assessment				Sum	Proposed Abatement
						Target	Failure potential	Size of part	Target		
49	London plane	11	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown.
50	London plane	22	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown.
51	London plane	22	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown.
52	London plane	13	Street	2	Branch	Parking	2	1	3	6	Remove & replace.
53	London plane	9	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown.
54	Italian stone pine	44	Significant	3	Stem	Play field	2	2	2	6	Prune to clean crown; monitor lean & attachment.
55	London plane	9	Street	2	Branch	Parking	2	1	3	6	Remove & replace.
56	London plane	20	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown.
57	London plane	9	Street	2	Branch	Parking	2	1	3	6	Remove & replace.
58	London plane	9	Street	2	Branch	Parking	2	1	3	6	Remove & replace.
59	White poplar	22	--	4	Branch	Sidewalk	2	1	2	5	Prune to clean crown.
60	White poplar	20	Significant	3	Branch	Parking	2	1	3	6	Prune to clean crown.
61	White poplar	20	Significant	3	Branch	Parking	2	1	3	6	Prune to clean crown; monitor lean.
62	White poplar	18	Significant	3	Branch	Parking	2	1	3	6	Prune to clean crown; monitor lean.
63	Blackwood acacia	22	Street	2	Whole tree	Parking	3	3	3	9	Remove & replace.
64	Olive	10	--	3	Branch	None	2	1	1	4	No treatment needed
65	Olive	11	--	3	Branch	None	2	1	1	4	No treatment needed
66	Blackwood acacia	21	Street	3	Branch	Parking	2	2	3	7	Remove & replace.
67	Olive	6,4	--	3	Branch	None	2	1	1	4	No treatment needed
68	White poplar	14	Significant	2	Whole tree	Parking	3	1	3	7	Remove & replace.

**Table 3, continued. Tree risk rankings. Kimbell Playground. Recreation and Park Department. San Francisco CA.**

Tree No.	Species	Trunk Diameter (in.)	Status?	Condition 1=poor 5=excell.	Most likely failure	Risk Assessment			Sum	Proposed Abatement	
						Target	Failure potential	Size of part			
69	White poplar	15	Significant	3	Branch	None	2	1	1	4	Prune to clean crown; monitor lean.
70	White poplar	15	--	3	Branch	None	2	2	1	5	Prune to clean crown; monitor lean.
71	White poplar	11	Significant	1	Whole tree	Sidewalk	4	2	2	8	Remove & replace.
72	White poplar	14	Significant	3	Branch	Sidewalk	2	1	2	5	Prune to clean crown; monitor lean.
73	Italian stone pine	41	--	3	Branch	Sidewalk	2	2	2	6	Prune to clean crown; moderate-term remove & replace.
74	Italian stone pine	19,18,18, 14	--	3	Stem	Sidewalk	3	2	2	7	Remove & replace.
75	Italian stone pine	30	--	3	Branch	Bench	2	2	2	6	Prune to clean crown; monitor lean; moderate-term remove & replace.
76	White poplar	18	--	3	Branch	Play field	2	2	2	6	Prune to clean crown.
77	Italian stone pine	42	Significant	3	Heavy lateral limb	Sidewalk	3	2	2	7	Prune to clean crown & reduce health lateral branch; moderate-term remove & replace.
78	Blackwood acacia	26	Street	3	Stem	Parking	3	3	3	9	Remove & replace.
79	Red flowering gum	15	Street	2	Branch	Sidewalk	2	1	2	5	Remove & replace.
80	Red flowering gum	28	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown.
81	Red flowering gum	8	Street	2	Branch	Parking	1	1	3	5	Remove & replace.

**Table 3, continued. Tree risk rankings. Kimbell Playground. Recreation and Park Department. San Francisco CA.**

Tree No.	Species	Trunk Diameter (in.)	Status?	Condition 1=poor 5=excell.	Most likely failure	Risk Assessment				Sum	Proposed Abatement
						Target	Failure potential	Size of part	Target		
82	Fig	17	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown; reduce long heavy limbs.
83	Fig	17	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown; reduce long heavy limbs.
84	Red flowering gum	28	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown; monitor decay development.
85	Red flowering gum	23	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown.
86	Fig	15	Street	3	Branch	Parking	2	1	3	6	Prune to clean crown; monitor lean.

### ***Tree Preservation Guidelines***

Kimbell Playground 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. Locate trunks and tag numbers of all trees within 25' of the proposal construction area. Include trunk locations and tag numbers on all plans.
2. Allow the Consulting Arborist to review all project plans including grading, utility, drainage, 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 1' back from the limit of grading. 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. 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***

Kimbell Playground is being renovated. Areas surrounding the ball fields have been cleared, regraded and new turf installed. Several trees appear to have been injured during construction, as evidenced by wounds along the trunk. It is likely that injury to tree roots occurred as well. That said, the installation of a new irrigation system will benefit trees in the long-term.

Trees at Kimbell Playground are largely mature in development, particularly the pines and poplars that surround the main use areas. Overall tree condition was fair with 60% of the trees surveyed. There is a need for new trees, to insure that canopy is retained over time.

Based on my observations, I recommend the following:

1. **Mowing circle.** New turf has been installed, placed directly against the base of the trunk. I recommend that park staff establish turf-free areas around the base of all trees. Size should be 1' from the trunk for young trees, and 2' to 3' for mature individuals.
2. **Street trees.** Trees along Pierce and Ellis Streets require attention. The 3 blackwood acacias (#63, 66, 78) and two red-flowering gums (#79, 81) should be removed and replaced. Decay development on red-flowering gum #84 needs to be monitored.
3. **Removal and replacement program.** The Recreation and Park Department should initiate a tree removal and replacement program at Kimbell. I recommend that the program focus on trees in poor condition at the start.



4. **Tree risk abatement.** The Recreation and Park Department has established a tree risk rating of 9 as the threshold for abatement. Blackwood acacias #63 and 78 received ratings of 9. Both should be removed and replaced.

**HortScience, Inc.**

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

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

## **Attachments**

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*Tree Survey Form*

*Tree Location Map*

# Tree Survey

**Kimbell Playground**  
Recreation & Park Department  
San Francisco CA  
June 2010



TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
1	White poplar	25	Significant	4	Moderate	Slight lean NE.; pillows over pavement.
2	White poplar	22	Significant	4	Moderate	Slight lean E.; pillows over pavement.
3	White poplar	23	Significant	4	Moderate	Scaffolds bowing apart.
4	Kwanzan cherry	9	--	3	Moderate	Low & squat.
5	Italian stone pine	43	--	3	Poor	Codominant trunks @ 5' & 8'; heavy lateral limb to NE. separated.
6	Italian stone pine	39	--	3	Poor	Multiple attachments @ 5'; asymmetric form, one-sided to S.
7	Brisbane box	17	--	4	Good	Bowed E.; codominant trunks @ 12'.
8	Kwanzan cherry	8	--	3	Poor	No vigor; needs water.
9	Monterey pine	36	--	4	Moderate	Leans E.; red turpentine beetle; dense crown.
10	Canary Island pine	28	--	3	Poor	Strong lean E.; some correction.
11	Canary Island pine	26	--	4	Moderate	Codominant trunks @ 26'; okay; trunk wounds.
12	Monterey pine	36	--	4	Moderate	Good form; red turpentine beetle.
13	Monterey pine	37	--	4	Moderate	Big tree; red turpentine beetle; lost central leader.
14	Monterey pine	23	--	2	Poor	Total lean to NW.; base outside dripline; red turpentine beetle
15	Monterey pine	24	--	3	Poor	Poor form; suppressed; red turpentine beetle.
16	Red flowering gum	39	--	4	Moderate	Good vigor & form.
17	Sweetgum	12	--	3	Moderate	Lost central leader @ 12'.
18	Pittosporum	multi	--	3	Poor	Planting of 20 shrubs in 4' wide space adjacent to tennis courts; raised 5'; codominant or multiple attachments @ base; trunk wounds; all stems 7" or less.
19	Italian stone pine	28	--	3	Poor	Codominant trunks @ 6' & 2 @ 8'.

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TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
20	Italian stone pine	33	--	3	Poor	Leans SE.; codominant trunks @ 14'.
21	Canary Island date palm	25	--	5	Good	Pencil below pineapple.
22	White poplar	18	Significant	4	Moderate	Minor twig dieback; crown gall cankers.
23	White poplar	16	Significant	3	Poor	Basal cavity; pillows; smaller crown.
24	Olive	23	Significant	4	Good	Good tree; multiple attachments @ 6'.
25	Brisbane box	13	Significant	3	Poor	Poor, thin crown.
26	Brisbane box	15	--	3	Poor	Poor form; bowed SE.
27	Italian stone pine	50	--	2	Poor	Multiple attachments @ 6' with 4th stem removed, leaving large wound; one-sided to S. over lawn; heavy lateral limb to S. is bad.
28	London plane	15	Street	3	Moderate	Multiple attachments @ 8'.
29	London plane	16	Street	3	Moderate	One-sided to S.
30	London plane	16	Street	3	Moderate	Multiple attachments @ 8'.
31	London plane	16	Street	4	Moderate	One-sided to N.
32	London plane	11	Street	3	Moderate	Bowed E.
33	London plane	12	Street	3	Moderate	Multiple attachments @ 8'.
34	London plane	19	Street	4	Good	Multiple attachments @ 9'.
35	London plane	6	Street	3	Poor	No vigor; suppressed.
36	London plane	21	Street	4	Good	Multiple attachments @ 8'; pavement lifted 3".
37	Monterey pine	31	--	3	Poor	Multiple attachments @ 6'; one-sided to W.
38	White poplar	21	--	4	Moderate	Multiple attachments @ 10'; poor attachment.
39	London plane	7	Street	2	Poor	Suppressed.
40	London plane	12	Street	3	Poor	Poor form; bowed E.
41	London plane	16	Street	3	Moderate	Competes with adjacent pine; could be better.
42	London plane	6	Street	2	Poor	Poor form; suppressed.

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 June 2010



TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
43	London plane	10	Street	3	Poor	Poor form; broken branch.
44	Brisbane box	18	Significant	4	Moderate	Multiple attachments @ 8'; thin crown; probably from construction.
45	Italian stone pine	52	Significant	3	Poor	Multiple attachments @ 4'; one-sided to S.
46	London plane	17	Street	3	Poor	Total bow E; multiple attachments @ 10'.
47	London plane	8	Street	1	Poor	Couldn't be worse.
48	London plane	8	Street	2	Poor	Total bow E; couldn't be worse.
49	London plane	11	Street	3	Poor	Bowed E.; branch wound.
50	London plane	22	Street	3	Moderate	Codominant trunks @ 14'; flat N/S.
51	London plane	22	Street	3	Moderate	Codominant trunks @ 14'; bowed SE.
52	London plane	13	Street	2	Poor	Poor form.
53	London plane	9	Street	3	Poor	Poor form; bowed E.
54	Italian stone pine	44	Significant	3	Poor	Codominant trunks @ 3'; W-facing side with buckled bark.
55	London plane	9	Street	2	Poor	Poor.
56	London plane	20	Street	3	Moderate	Multiple attachments @ 12'; pavement lifted 3".
57	London plane	9	Street	2	Poor	Poor.
58	London plane	9	Street	2	Poor	Stubbed back; poor.
59	White poplar	22	--	4	Moderate	Codominant trunks @ 6'.
60	White poplar	20	Significant	3	Moderate	Codominant trunks @ 10'; leans E.; crown gall @ base.
61	White poplar	20	Significant	3	Poor	Codominant trunks @ 20'; leans SE.
62	White poplar	18	Significant	3	Poor	Extensive crown gall @ base; okay form.
63	Blackwood acacia	22	Street	2	Poor	Multiple attachments @ 8'; large basal cavity on S.; extensive branch wounds; slight lean S.

# Tree Survey

**Kimbell Playground**  
 Recreation & Park Department  
 San Francisco CA  
 June 2010



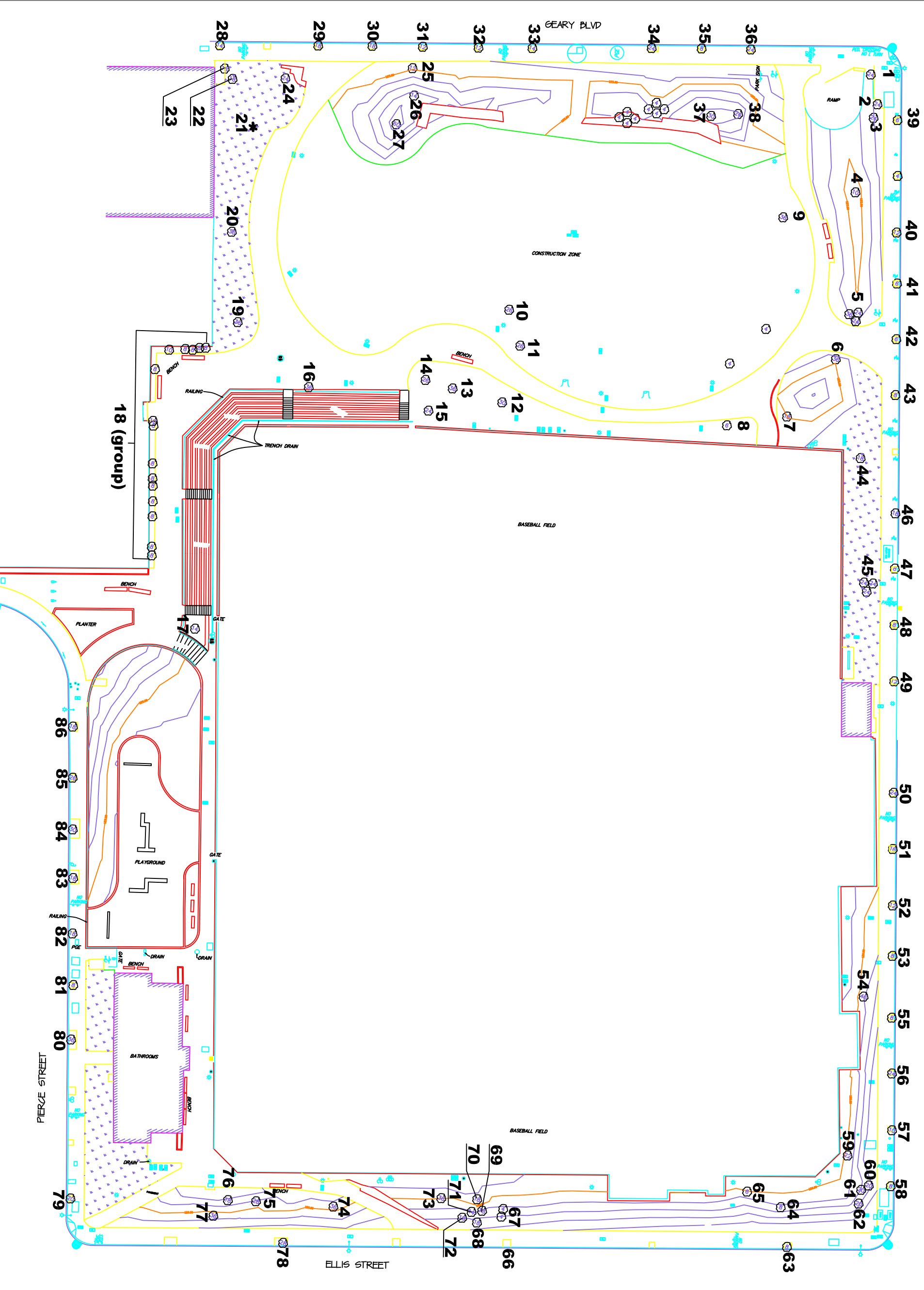
TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
64	Olive	10	--	3	Moderate	Okay tree.
65	Olive	11	--	3	Moderate	Multiple attachments @ 4'.
66	Blackwood acacia	21	Street	3	Poor	Multiple attachments @ 12'; spread apart; center open.
67	Olive	6,4	--	3	Moderate	Codominant trunks @ 3'.
68	White poplar	14	Significant	2	Poor	Leaning & one-sided to SE.; base outside dripline.
69	White poplar	15	Significant	3	Poor	Leaning & one-sided to E.; crown gall @ base.
70	White poplar	15	--	3	Poor	Leans N. partly corrected.
71	White poplar	11	Significant	1	Poor	Huge trunk cavity.
72	White poplar	14	Significant	3	Poor	Twig dieback; codominant trunks @ 16'.
73	Italian stone pine	41	--	3	Poor	Codominant trunks @ 4' with 3rd stem removed; upright; high crown.
74	Italian stone pine	19,18,18,14	--	3	Poor	Multiple attachments @ 4' with poor attachment; high crown.
75	Italian stone pine	30	--	3	Poor	Multiple attachments @ 7'; one-sided E.
76	White poplar	18	--	3	Moderate	Multiple attachments @ 16'; bowed NE.
77	Italian stone pine	42	Significant	3	Poor	Multiple attachments @ 5'; high crown; heavy lateral limb to NW.
78	Blackwood acacia	26	Street	3	Poor	Codominant trunks @ 7' with cavity.
79	Red flowering gum	15	Street	2	Poor	Strong lean to E. partly corrected; thinning.
80	Red flowering gum	28	Street	3	Moderate	Codominant trunks @ 9'; high crown.
81	Red flowering gum	8	Street	2	Poor	Big shrub; trunk wound.
82	Fig	17	Street	3	Moderate	Multiple attachments @ 6' with included bark; sidewalk repaired.

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TREE No.	SPECIES	TRUNK DIAMETER (in.)	STATUS?	CONDITION 1=poor 5=excell.	SUITABILITY for PRESERVATION	COMMENTS
83	Fig	17	Street	3	Moderate	Multiple attachments @ 6' with included bark; sidewalk repaired; roots severed.
84	Red flowering gum	28	Street	3	Poor	Huge base with <i>Ganoderma</i> conk on cut root; rangy crown; sidewalk repaired.
85	Red flowering gum	23	Street	3	Moderate	Multiple attachments @ 15'; dense crown.
86	Fig	15	Street	3	Moderate	Multiple attachments @ 6' with included bark; sidewalk repaired; corrected lean SE.



# Tree Survey Map

**Kimbell Playground**  
San Francisco, CA

*Prepared for:*  
San Francisco Department of  
Recreation and Park  
San Francisco, CA

June 2010

No Scale

*Notes:*  
Base map provided by:  
Department of Public Works  
San Francisco, CA  
  
Numbered tree locations  
are approximate.



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