**South Park Improvement Association**

# DRAFT Tree Assessment & Management Plan
## South Park

*Prepared for:*
**South Park Improvement Association**
**C/0 Levy Design Partners**
**90 South Park**
**San Francisco CA 94107**

*Prepared by:*
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**March 2012**

# Tree Assessment & Management Plan

South Park
San Francisco CA

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### *Introduction and Overview*

South Park was established as a San Francisco park in 1897. In recent years, the South Park Improvement Association has played an active role in the stewardship of park's vegetation and facilities. The Improvement Association requested that HortScience, Inc. assess the health and structural condition of park's trees. This report presents the following information:

1. Evaluation of tree health and structural condition.
2. Assessment of the risk of tree failure.
3. Recommendations for action.

### *Survey Methods*

Trees were surveyed in March 2012. The survey was limited to trees greater than 4" diameter. The assessment procedure consisted of the following steps:

1. Identifying the tree as to species.
2. Attaching a numerically coded metal tag to the trunk of each tree.
3. Recording the tree's location on a map.
4. Measuring the trunk diameter at a point 54" above grade.
5. Evaluating the health and structural condition using a scale of 0 – 5:
   - ***5*** - A healthy, vigorous tree, reasonably free of signs and symptoms of disease, with good structure and form typical of the species.
   - ***4*** - Tree with slight decline in vigor, small amount of twig dieback, or minor structural defects that could be corrected.
   - ***3*** - Tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, moderate structural defects that might be mitigated with regular care.
   - ***2*** - Tree in decline, epicormic growth, extensive dieback of medium to large branches, significant structural defects that cannot be abated.
   - ***1*** - Tree in severe decline, dieback of scaffold branches and/or trunk; most of foliage from epicormic shoots (secondary shoots that arise along the trunk and branches); extensive structural defects that cannot be abated.
   - ***0*** – Tree is dead.
6. Commenting on the presence of defects in structure, insects or diseases and other aspects of development.
7. Evaluating suitability for preservation.
8. Assessing the tree's maturity.
9. Identify the part of the tree most likely to fail and hit a target within the next year.
10. Identify the target(s) that would be impacted by that failure (e.g. street, sidewalk, landscaping).
11. Rate the potential risk using the method described in *A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas*.
12. Identify arboricultural treatments to reduce the likelihood of failure and improve tree health, structure, stability and longevity.

Trees smaller than 4" were identified and assessed by species.

### *Description of Trees*

Fifty-two (52) trees were evaluated, representing 6 species (Table 1). All trees appeared to have been planted as part of the site's landscape development. One species, white alder, is native to San Francisco but is not indigenous to the site.

South Park is an elongated oval in form. Almost all trees are planted adjacent to the street within 2' of the curb (Photo 1). There was, however, little apparent displacement of curb and pavement associated with tree roots. Curbing appeared to be worn due to age and weathering.

**Photo 1.** Looking east along south side of park. Note that trees are located within a few feet of the street. But there is little displacement of the curb.

**Table 1. Tree condition & frequency of occurrence. South Park. San Francisco CA.**

| Common name | Scientific name | Condition | | | | No. of Trees |
|---|---|---|---|---|---|---|
| | | Poor | Fair | Good | Excel-lent | |
| White alder | *Alnus rhombifolia* | 1 | 1 | 1 | -- | 3 |
| River red gum | *Eucalyptus camaldulensis* | -- | 3 | -- | -- | 3 |
| Olive | *Olea europaea* | -- | -- | 1 | -- | 1 |
| London plane | *Platanus* x *acerifolia* | 4 | 14 | 13 | -- | 31 |
| Lombardy poplar | *Populus nigra* 'Italica' | -- | -- | 1 | -- | 1 |
| American elm | *Ulmus americana* | -- | 5 | 8 | -- | 13 |
| **Total, all trees surveyed** | | **5** | **23** | **24** | **--** | **52** |

London plane (31 trees) represented 60% of the surveyed trees. Trunk diameters ranged from 6" to 24" with approximately 50% of trees being smaller than 15". Trees were either mature or semi-mature in development based on crown size and trunk diameter.

Most London planes had been pollarded when young. As a result, trees have multiple attachments that arise at one point on the trunk, usually between 8' and 12'. The pollarding treatment was discontinued years ago. Tree crowns are composed of a series of stems that originate at the old pollard (Photo 2).

**Photo 2.** London planes were pollarded when young creating a series of multiple stems low in the crown (circle at right). Once the pollarding was discontinued, stems grew rapidly and now bow outward (red arrow).

Several trees have either been topped (#21, 33, 39, 41, 44) or side-trimmed (#20, 22, 29, 30, 31 32) to provide clearance for the electrical lines that run across the west side of the park and along the street on the northwest side.

Condition of London planes ranged from poor (4 trees) to fair (14) to good (13). In general, larger diameter trees were in better condition that smaller diameter trees. Small trees have been suppressed by their larger neighbors.

Thirteen (13) American elms were present. All were mature in development with trunk diameters between 16" and 31". Elms had been treated like the London planes and have a similar crown structure. Given the close spacing between trees, elm crowns are narrow and upright in form. Long stems often bow out of the canopy (Photo 3).

**Photo 3**. Stems of American may have had significant bow, to the point where they were separated from the rest of the canopy (red arrows).

Condition of elms was either fair (5 trees) or good (8).

No other species was represented by more than 3 trees. Included in this group were:

- 3 river red gums on the north side of the park. All were mature in development. Trunk diameters ranged from 20" (#38) to 29" (#47). River red gums were in fair condition but all possessed serious defects in structure, associated with codominant trunks. Of the three, river red gum #47 was the best.

- 3 white alder on the southwest side of the park. Tree #24 was 7" in diameter and in poor condition. Tree #26 was 8" and in poor condition due to poor form and a large trunk wound.. Alder #23 was 13" and in good condition. Overall form was narrow with a slight lean to the south.

- Lombardy poplar #37 was 27" in diameter and in good overall condition. It was mature in development with the narrow upright form that is typical of the species.

- Olive #35 was located on the west end of the park. It was 22" in diameter and mature in development. Tree condition was good. The crown is formed by three scaffold limbs that bow apart. The upper canopy appeared thin.

Trees smaller than 4" diameter included:

- 5 Mariana madrone (*Arbutus* 'Marina) surrounding the west play area. Trees were 2" or 3" in diameter and in excellent condition.

- 3 hopseed (*Dodonea viscosa*) shrubs near tree #11. Plants were mature in development and in good condition.

The San Francisco Department of Public Works categorizes trees in three ways:

1. **Street tree**. A tree of any size located within the street right of way. None of the surveyed trees appeared to meet this criterion. Because almost all trees were located immediately adjacent to the curb, 46 trees appeared to meet this criterion.

2. **Significant tree**. A 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 observations, none of the surveyed trees appeared to 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.

Description of individual trees is found on the enclosed ***Tree Assessment Form***. Tree locations are found on the ***Tree Assessment Map***. Both are included as **Attachments**.

### *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. In our experience, for example, river red gum is sensitive to construction impacts; while London plane, American elm and olive are more tolerant of site disturbance.

- **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.

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. South Park. San Francisco CA.**

| | |
|---|---|
| **Good** | Trees with good health and structural stability that have the potential for longevity at the site. Five (5) were rated as having good suitability for preservation: London plane #2, 17, 19; American elm #5, 18. |
| **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. Thirty-two (32) trees were rated as having moderate suitability for preservation: 19 London plane, 9 American elm, Lombardy poplar #37. olive #35, river red gum #47, white alder #23. |

**Table 2, continued. Tree suitability for preservation. South Park. San Francisco CA.**

| | |
|---|---|
| **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. Fifteen (15) trees were rated as having poor suitability for preservation: 9 London plane, American elm #14, 48; river red gum #38, 46; and white alder #24, 26. |

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 Assessment & Management Plan 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).

The San Francisco Recreation and Park Department employs a standardized procedure for risk assessment.

**Tree Risk Rating System**

All of the surveyed trees were assessed using the procedure outlined 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, or 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 or landscaped area)
2 - intermittent use (e.g. sidewalk, table)
3 - frequent use (e.g. street parking)
4 - constant use (e.g. playground structure, 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 ranking = failure potential + size of defective part + target rating**

Among trees at South Park, the most likely failure included branch (49 trees), one stem (river red gum #38 and 46) and whole tree (white alder #26).. Potential targets included: street parking (40 trees), sidewalk (4), picnic table (3), street (2), bench (2) and none (1).

Risk rankings of the surveyed trees ranged from 4 to 9 (see **Attachments**). No trees received a ranking of 10, 11 or 12. River red gum #38 received a risk rating of 9 based on a stem failing into the street. American elms #7 and 9, and river red gum #46 received rating of 8.

Under a normal management regime, trees with the highest ranking would be abated first, followed in order of decreasing ratings. The City of San Francisco Recreation and Park Department abates risk for trees ranked 9 or greater.

### *Summary and Recommendations*

Trees at South Park are vigorous and in generally good health. No pest or disease problems are evident. Most trees are mature in development but can be expected to continue to shade the part for years to come. Two main factors limit tree performance at South Park:

- **Crowded, dense growing conditions**. South Park receives little direct sun due to the mature tree canopies. This is a limitation on the success of new tree plantings and growth of turf. Neither London plane nor American elm is well-adapted to shade conditions. Small trees located beneath the canopy can be expected to lack vigor and grow poorly.

- **Existing tree structure.** The cessation of pruning to pollard training system resulted in crowns with multiple stems that arise low in the canopy. Many stems have bowed outwards and separated from the rest of the canopy. Such stems are more likely to fail than those that are vertically oriented. A secondary concern is the quality of stem attachments in American elm. Because stems arise at one point on the trunk, they push and constraint each other's diameter development, a situation which is also more likely to fail.

All but one tree at South Park received a risk rating below the Recreation & Park Department's threshold for action. The Department employs a risk ratings system with a range of 3 (lowest) to 12 (highest). A rating of 9 is the threshold for action. Only river red gum #36 received a rating of 9. This finding is consistent with the Department's previous risk assessment in 1984 where none of the 41 trees evaluated was rated as high hazard.

The moderate nature of tree risk at South Park reflects the overall quality of trees as almost all are adjacent to the high value targets of children's play areas, streets and parking. Tree risk can best be abated through pruning rather than a program of removal.

Based on my observations, I recommend the following:

1. Remove river red gums #38 and 46 due to significant defects in structure. Tree #38 has the higher priority for action.

2. Install cable system in the crowns of American elm #14 and 15. For #15, reduce the length of the south-facing stem at the same time.

3. Prune river red gum #46 to reduce the length and weight of any long lateral branches. Consider installation of a cable system .

4. Prune American elms #7 and 9 to reduce the length and weight of long laterals than extend over the parking and street.

5. Following completion of items #1 to 4, initiate a routine pruning program for mature London planes and American elms. A general pruning specification is located in the **Attachments**.

6. Do not plant American elm or London plane beneath existing canopy. Such sites are too shady for young trees to thrive.

7. Continue to use London plane and American elm as the street trees, associated with high irrigation situation such lawn. Continue to use olive and Marina madrone as accent plants in low irrigation settings and where fruit drop will not be problematic.

8. Discontinue use of Lombardy poplar, white alder and river red gum. Although the one Lombardy poplar at South Park has performed well, the cultivar has a narrow upright form and is relatively short-lived. White alder has not performed well. River red gum has grown vigorously but does not possess the structure needed for such a high use area.

**HortScience, Inc.**

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## ATTACHMENTS

**General pruning specification**

***Tree Assessment Form***

***Tree Assessment Map***

**Pruning Specifications**
South Park
South Park Improvement Association

**Qualifications**
An I.S.A. (International Society of Arboriculture) Certified Arborist or Tree Worker is to be present at all times during pruning. Contractor must have a State of Calif. Contractor's License for Tree Service (C61-D49) and provide proof of workman's compensation and general liability insurance.

**Objectives**
The following are general objectives:

1. Clean the crown of diseased, crossing, weak, dead, dying and otherwise structurally unsound branches to 1" diameter.

2. Reduce the length and weight on long lateral branches and stems, particularly those that are bowed over the street.

3. Inspect the point of origin of multiple stems in American elm for cracks, splits and decay.

**Specifications**

1. All pruning shall be in accordance with the *Best Management Practices for Pruning* (International Society of Arboriculture, 2002) and adhere to the most recent editions of the American National Standard for Tree Care Operations (Z133.1) and Pruning (A300).

2. Interior branches shall not be stripped out.

3. No more than 20% of live foliage shall be removed on any one branch or throughout the entire tree.

4. Trees shall not be climbed with spurs.

5. Branch removal or reduction cuts (thinning cuts) are to be employed rather than heading cuts. Trees shall not be topped or headed back.

6. Do not raise canopies by removing lower branches.

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**Tree Assessment**

**South Park**
San Francisco CA
March 2012

HORT SCIENCE

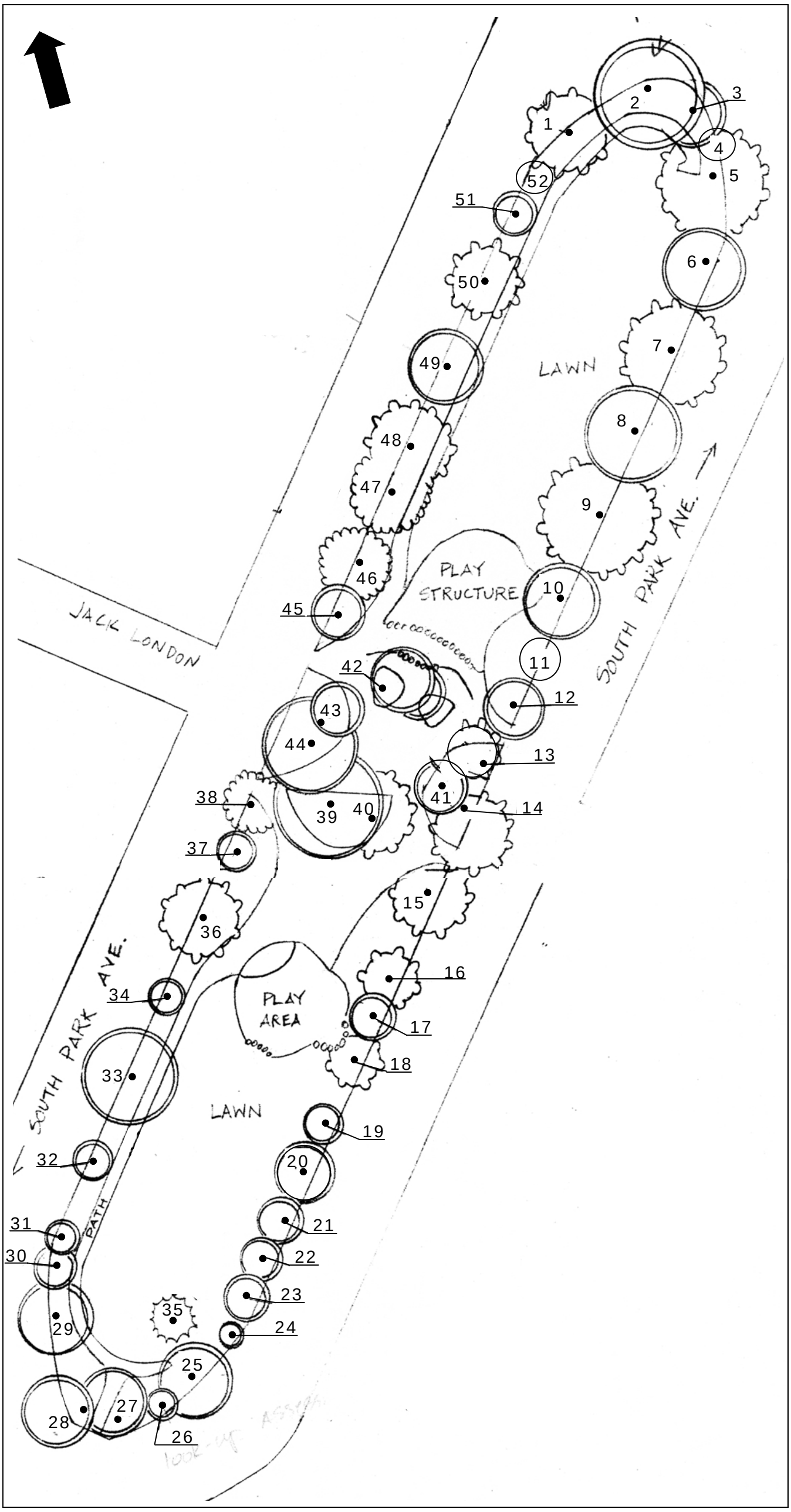
| TREE No. | LOCATION | | SPECIES | TRUNK DIAMETER (in.) | STATUS ? | AGE | CONDITION 0=dead 1=poor 5=excell. | SUITABILITY for PRESERVATION | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | NE | -- | American elm | 21 | Street | Mature | 4 | Moderate | Multiple attachments @ 7'; topped @ 12'; restructured; narrow & upright. |
| 2 | E | -- | London plane | 24 | Street | Mature | 4 | Good | multiple attachments @ 12'; topped?; good form. |
| 3 | E. | -- | London plane | 14 | Street | Mature | 3 | Moderate | Crowded; small crown; bowed SE. |
| 4 | SE. | -- | London plane | 6 | Street | Semi-mature | 2 | Poor | Suppressed; small basal wound; codominant trunks @ 8'. |
| 5 | SE. | -- | American elm | 26 | Street | Mature | 4 | Good | Multiple attachments @ 10'; topped @ 15'; upright; better than #1. |
| 6 | S. | -- | London plane | 18 | Street | Mature | 3 | Moderate | Multiple attachments @ 10'; crowded with small crown. |
| 7 | S. | -- | American elm | 31 | Street | Mature | 4 | Moderate | Multiple attachments @ 8' with poor attachment; codominant trunks @ 11' & 13'; narrow & upright; small girdling root. |
| 8 | S. | -- | London plane | 22 | Street | Mature | 4 | Moderate | Crowded; multiple attachments @ 10'; laterals bowed over street. |
| 9 | S. | -- | American elm | 28 | Street | Mature | 4 | Moderate | Multiple attachments @ 10' poor attachment; topped @ 15'; narrow & upright; no basal flare on E. |
| 10 | S. | -- | London plane | 23 | Street | Mature | 4 | Moderate | Multiple attachments @ 10'; topped?; upper crown good. |
| 11 | S. | -- | London plane | 7 | Street | Semi-mature | 2 | Poor | Suppressed; small crown bowed W. |
| 12 | S. | At Jack London | London plane | 11 | Street | Semi-mature | 3 | Poor | Suppressed; codominant trunks @ 6'; no vigor. |

| TREE No. | LOCATION | | SPECIES | TRUNK DIAMETER (in.) | STATUS ? | AGE | CONDITION 0=dead 1=poor 5=excell. | SUITABILITY for PRESERVATION | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 13 | S. | At Jack London | American elm | 21 | Street | Mature | 4 | Moderate | Codominant trunks @ 12'; 1 stem dominates; 2nd set codominant trunks high in crown; slight lean E. |
| 14 | S. | At Jack London | American elm | 19 | Street | Mature | 3 | Poor | Codominant trunks @ 11'; poor attachment; 1 vertical; stem to W. with slight bow & gap in canopy. |
| 15 | S. | At Jack London | American elm | 24 | Street | Mature | 3 | Moderate | Codominant trunks @ 6'; N. stem dominates; codominant again @ 16'. |
| 16 | S. | -- | American elm | 17 | Street | Mature | 3 | Moderate | Codominant trunks @ 9'; topped @ 10'; 4 stems; one-sided to E. |
| 17 | S. | -- | London plane | 14 | Street | Mature | 4 | Good | Codominant trunks @ 12'; okay vase-shaped crown. |
| 18 | S. | -- | American elm | 16 | Street | Mature | 4 | Good | Good form; sinuous trunk; been reduced. |
| 19 | S. | -- | London plane | 13 | Street | Semi-mature | 4 | Good | Codominant trunks @ 16'; vase-shaped crown. |
| 20 | S. | -- | London plane | 16 | Street | Mature | 4 | Moderate | Multiple attachments @ 12'; side-trimmed on W; lots of sprouts. |
| 21 | S. | -- | London plane | 13 | Street | Mature | 3 | Poor | Topped well for electrical lines. |
| 22 | S. | -- | London plane | 12 | Street | Mature | 4 | Moderate | Codominant trunks @ 8'; side-trimmed on E.; lots of sprouts. |
| 23 | S. | -- | White alder | 13 | Street | Mature | 4 | Moderate | Narrow pyramidal form; basal wound on E; leans S. |
| 24 | S. | -- | White alder | 7 | Street | Semi-mature | 3 | Poor | Poor form & structure; suppressed; numerous basal wounds. |

| TREE No. | LOCATION | | SPECIES | TRUNK DIAMETER (in.) | STATUS ? | AGE | CONDITION 0=dead 1=poor 5=excell. | SUITABILITY for PRESERVATION | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 25 | S. | -- | London plane | 19 | Street | Mature | 4 | Moderate | Multiple attachments @ 12'; good form. |
| 26 | SW. | -- | White alder | 8 | Street | Semi-mature | 2 | Poor | Bowed E. with long trunk wound on W. |
| 27 | W. | -- | London plane | 18 | Street | Mature | 4 | Moderate | Multiple attachments @ 10'; good form. |
| 28 | W. | -- | London plane | 18 | Street | Mature | 3 | Moderate | Multiple attachments @ 6'; one-sided to NE. |
| 29 | NW. | -- | London plane | 18 | Street | Mature | 3 | Moderate | Multiple attachments @ 12'; upper crown bowed to S. due to side-trimming on N. |
| 30 | N. | -- | London plane | 14 | Street | Mature | 3 | Moderate | Asymmetric form due to side-trimming on S. |
| 31 | N. | -- | London plane | 11 | Street | Semi-mature | 3 | Moderate | Bowed E.; asymmetric due to side-trimming. |
| 32 | N. | -- | London plane | 13 | Street | Semi-mature | 4 | Moderate | Codominant trunks @ 7'; one-sided to S. due to side-trimming. |
| 33 | N. | -- | London plane | 19 | Street | Mature | 3 | Poor | Multiple attachments @ 8'; topped on W. for electrical lines. |
| 34 | N. | -- | London plane | 14 | Street | Semi-mature | 4 | Moderate | Good form; low laterals sweep upright. |
| 35 | W. | -- | Olive | 22 | Street | Mature | 4 | Moderate | Rounded form; 3 scaffolds with slight separation; dense canopy. |
| 36 | N. | -- | American elm | 24 | Street | Mature | 4 | Moderate | Multiple attachments @ 10'; girdling root on E.; 4 stems; 1 dominates; stem to SE. with sharp elbow. |

| TREE No. | LOCATION | | SPECIES | TRUNK DIAMETER (in.) | STATUS ? | AGE | CONDITION 0=dead 1=poor 5=excell. | SUITABILITY for PRESERVATION | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 37 | N. | -- | Lombardy poplar | 27 | Street | Mature | 4 | Moderate | Multiple attachments @ 12' to 14'; topped; upright; |
| 38 | N. | At Jack London | River red gum | 20 | Street | Mature | 3 | Poor | Codominant trunks @ 12'; 1 vertical; 1 bowed N.; high crown. |
| 39 | N. | -- | London plane | 22 | -- | Mature | 3 | Moderate | Multiple attachments @ 8'; topped @ 12; upright but crowded. |
| 40 | N. | -- | American elm | 22 | -- | Mature | 4 | Moderate | Codominant trunks @ 7'; 1 stem dominates. |
| 41 | N. | -- | London plane | 20 | -- | Mature | 4 | Moderate | Multiple attachments @ 10'; topped @ 16'; upright but crowded. |
| 42 | N. | -- | London plane | 18 | -- | Mature | 3 | Poor | Small crown; decay in trunk; long cavity on W. |
| 43 | N. | At Jack London | London plane | 15 | -- | Mature | 2 | Poor | Codominant trunks @ 6'; poor form & structure; sparse crown bowed to E. |
| 44 | N. | At Jack London | London plane | 22 | -- | Mature | 3 | Moderate | Multiple attachments @ 8'; topped @ 12'; upright. |
| 45 | N. | At Jack London | London plane | 20 | Street | Mature | 3 | Poor | Suppressed; multiple attachments @ 10'; small crown lacks vigor. |
| 46 | N. | -- | River red gum | 26 | Street | Mature | 3 | Poor | Codominant trunks @ 20'; 1 vertical with codominant trunks high in crown; 2nd bowed N.; high crown. |
| 47 | N. | -- | River red gum | 29 | Street | Mature | 3 | Moderate | Codominant trunks @ 16'; better structure; nice crown. |

| TREE No. | LOCATION | | SPECIES | TRUNK DIAMETER (in.) | STATUS ? | AGE | CONDITION 0=dead 1=poor 5=excell. | SUITABILITY for PRESERVATION | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 48 | N. | -- | American elm | 19 | Street | Mature | 3 | Poor | Multiple attachments @ 8'; topped @ 12'; upright but small; partly suppressed. |
| 49 | N. | -- | London plane | 23 | Street | Mature | 4 | Moderate | Irregular structure in lower trunk; crown good. |
| 50 | N. | -- | American elm | 30 | Street | Mature | 3 | Moderate | Multiple attachments @ 7'; 4 large crowded stems; girdling root; topped @ 16'; several cavities @ topping points. |
| 51 | N. | -- | London plane | 12 | Street | Semi-mature | 3 | Moderate | Codominant trunks @ 8'; slightly flat to N/S. |
| 52 | N. | -- | London plane | 7 | Street | Semi-mature | 2 | Poor | Suppressed; poor. |




## Tree Assessment Map

**South Park**
San Francisco, CA

*Prepared for:*
South Park Improvement Association
San Francisco, CA

March 2012

No Scale

**Notes:**

- Base map provided by: South Park Improvement Association
- Numbered tree locations are approximate.

HORT SCIENCE

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