

ITEM 5. HYDE PARK – TREE MANAGEMENT**FILE NO: S034948-05****SUMMARY**

Hyde Park is Australia's oldest public park and is owned by the NSW Government (Crown Land), with the City of Sydney appointed as Trustee Manager for its care, control and management. The park, which has 536 trees, comprises an area of 16.2 hectares and forms a significant element of the City's open space network.

As Trustee of the park, the City has the responsibility and duty of care to maximise the benefits to the community, which are provided by the existing trees, while carefully managing the risks presented by trees that are diseased or have branch faults. In managing this balance, public safety is of paramount importance.

City staff undertake a range of programmed and reactive maintenance activities, including tree assessment, pruning, soil improvement and fertilising in an effort to retain healthy trees as long as possible. Strategies to remove and replace defective trees are also required to manage the canopy cover and amenity provided in this premier park.

The management of trees in Hyde Park is an important issue for Council. Age, poor soil and drainage, root damage, as well as diseases and branch failures have all contributed to the decline of many of the Hill's Figs in the central avenue and other trees located around the park. One third of the figs in the avenue have already failed or been removed.

This report provides information on an updated risk management plan to safely retain healthy trees for as long as possible, while managing potential risks from tree failures.

This report explains the need to remove, as soon as practicable, a further four figs in the central avenue and 12 trees located outside the avenue.

This report also outlines the strategy for the removal and replacement of Hill's Figs in Hyde Park's central avenue to allow for restoration of the soil, installation of proper drainage and to provide adequate light and space for the new trees to grow in a uniform manner to recreate the iconic avenue enjoyed by so many.

The first stage of the replacement works was planned to commence in 2011. However, as fewer trees have been removed from the avenue than previously anticipated, commencement of the works has been deferred.

In 2007, Council resolved to grow new replacement trees, of the highest quality and size available, for the replacement works.

As a result of the deferred commencement of the replacement, City staff are reassessing the number of Hill's Figs that may be required from the current stock of trees that have been growing in nurseries since 2008. The supply contract for these trees made provision for additional trees to be grown at separate locations, as a contingency in the event of destruction or failure of the trees. It is proposed that these additional trees, and any not required for block replacement, be sold before 2017. Any surplus trees need to be sold before 2017 as they will be too large to transport beyond this date.

It is also proposed that a new contract be tendered to ensure the City has sufficient replacement trees, of the highest quality and size required, to achieve the central avenue replacement works in the years ahead.

RECOMMENDATION

It is resolved that Council note:

- (A) the revised Risk Management Plan for Hyde Park trees, as shown in Attachment B to the subject report;
- (B) that 16 trees will be removed in accordance with the Risk Management Plan;
- (C) that the tree supply contract, endorsed by Council in 2007, is due to expire in 2017 and approves the sale of any surplus trees;
- (D) that tenders will be invited for the supply of new trees when required;
- (E) that the block replacement strategy, referred to in the 2006 Hyde Park Tree Management Plan, will be implemented when required; and
- (F) that City staff are investigating the feasibility of block planting, including soil replacement and new drainage around the Archibald Fountain, to replace trees that have been removed.

ATTACHMENTS

Attachment A: Images of issues impacting trees in Hyde Park

Attachment B: Draft Hyde Park Risk Management Plan

Attachment C: Tree Wise Men – Report on Review of Past and Future Management Options

Attachment D: Tree Wise Men – Addendum - Report on Review of Past and Future Management Options

Attachment E: Dr Greg Moore – Peer Review Report on the Review of Past and Future Management Options

Attachment F: The Sugar Factory – Peer Review

Attachment G: The Sugar Factory – Report on included branches

BACKGROUND

1. Hyde Park is Australia's oldest public park and is owned by the NSW Government (Crown Land), with the City of Sydney appointed as Trustee Manager for its care, control and management. The park comprises an area of 16.2 hectares and forms a significant element of the City's open space network.
2. Hyde Park has an ageing tree population that requires ongoing tree assessment and maintenance. Of the park's 536 trees, half are expected to require removal within the next 40 years. Many of these trees were planted prior to 1928, surviving the construction works associated with Sydney's underground railway, or were planted shortly after the railway's completion.
3. The central avenue of Hill's Figs in Hyde Park is the most important and dominant element of a unique formal landscape in the City of Sydney. The central avenue provides framed views of the Archibald Fountain and ANZAC Memorial and creates outdoor rooms, which host many of Sydney's community and cultural events. It is estimated that more than three million people visit the park each year.
4. The park's trees are growing in a challenging environment, largely due to the less than ideal soil conditions and especially poor drainage. Further, four different diseases, root damage caused during park upgrades in the 1990s, along with structural defects in the trees themselves, contribute to the trees' continued decline and, in some cases, failure.
5. This report provides Council with a summary of the issues impacting the trees in Hyde Park and the reasons why 16 trees will be removed as soon as practicable. It also outlines the City's strategy for the block removal and replacement of the Hill's Figs in the central avenue, and the Risk Management Plan to manage the trees until these works occur.

Brief History

6. Hyde Park is Australia's oldest park and was gazetted in 1810. Hyde Park is Crown Land and has been managed by the City of Sydney since 1904.
7. The central avenue of Hill's Figs was planted in the 1930s to replace the original 'Lovers' Walk', an avenue of Moreton Bay Fig trees, which was removed to make way for the Sydney underground rail system.
8. Unfortunately, during the construction of St James and Museum Railway Stations, which runs underneath the majority of the avenue, poor soil and landfill was spread across the park resulting in the trees being planted in less than ideal soil conditions with inadequate drainage.
9. Of the original 140 Hill's Figs planted in the 1930s, the avenue now consists of 97 trees from Hyde Park North to South that are in varying states of health and condition.

PREVIOUS TREE FAILURES AND TREE REMOVAL

10. The Hill’s Figs in Hyde Park have a history of failures, including entire trees falling and branch failures of various sizes. These failures have occurred due to the impacts from the diseases (discussed below), damage to roots from previous upgrades in the park, and an inherent structural defect, known as an ‘inclusion’, that can lead to unexpected branch failure.
11. Prior to 2003, records indicate that 15 trees had either failed or been removed from the avenue.
12. In 2000, a woman suffered a serious brain injury when a small branch (approximately 150mm in diameter, and about 1.5 metres in length) fell from a Hill’s Fig. It was found that the branch that failed had an ‘included’ branch attachment. In simple terms, an inclusion is where there is inwardly turned bark within the junctions of branches or two large stems, and this can reduce the strength of the attachment. In Hill’s Figs, failures from inclusions can occur without showing any previous external symptoms and without warning.
13. An overview of the tree failures that required entire tree removal, and those removed following comprehensive assessments, is outlined below. This overview focuses on Hill’s Figs, and other large figs planted around the park at a similar time to the central avenue planting. Photographs of some of these failures are included in Attachment A.

Year	Failures (requiring removal)	Trees removed	Total Removed
2004	1 Hill’s Fig – Whole tree failure	7 Hill’s Figs	8
2005	2 Hill’s Figs (1 whole tree, 1 major inclusion)	25 Hill’s Figs	27
2006	No major failures	3 Hill’s Figs	3
2009	No major failures	3 Hill’s Figs (1 outside central ave)	3
2011	3 Hill’s Figs – all major inclusions (one located outside the central avenue).		3
2013	1 Hill’s Fig (1 whole tree), 2 Port Jackson Fig (1 whole tree and 1 Inclusion) all located outside of central avenue.	3 Hill’s Figs (2 outside of central ave)	6
			50

14. Over the past nine years, a total of 50 fig trees have been removed from Hyde Park, including 43 Hill’s Figs from the central avenue, which is about a third of the avenue.
15. The most recent failure of a Hill’s Fig, on the corner of Park and Elizabeth Streets in Hyde Park North, occurred on 30 June 2013 after a week of prolonged rain, coupled with previous root damage sustained during construction works over 15 years ago.

16. The failure prompted an immediate review of the City's tree management strategies for Hyde Park. This included the removal of three trees; the recommended removal of a further 16 trees (outlined below); a review of the frequency of tree assessments; and a review of the use of the park for events and actions required during extreme weather conditions. The location of these trees is shown in Attachment A. The result of these works is outlined in a new Risk Management Plan for the park, outlined in Attachment B.

Tree Diseases

17. There are four pathogens that are affecting the trees in Hyde Park; *Phellinus*, *Ganoderma*, *Armillaria* and *Phytophthora*. Each of these pathogens has different methods of impacting tree health / stability, and different methods of spread.
18. *Phellinus* and *Ganoderma species* are both white rot fungi. The term "white rot" refers to the characteristic colour of the decayed wood. These fungi generally degrade the lignin (strengthening material) components of the wood more rapidly than the cellulose and lead to reduced wood strength. This means that the trees can often look healthy, yet are structurally unsound.
19. The decayed areas within the tree may extend 2-3 metres above or below the fruiting bodies. These fungi are most commonly found in the trees' main supporting roots and base of the trunks. While there are no control methods known for these fungi at this stage, the pathogens mainly affect ageing trees, and are therefore not considered a risk to new plantings.
20. *Armillaria* is a soil borne fungus that causes root rot in a variety of native and exotic plants. The symptoms include the death of branches, yellowing of foliage, poor vigour and the darkening and rotting of the larger roots. During May to June, small mushrooms form under the tree canopy or on the trunk, and white threads or fungi growth under the bark trunk indicate a tree is infected with the fungus. *Armillaria* spreads through root to root contact with infected trees, especially from old decayed stumps and roots.
21. At present there is no simple method for controlling *Armillaria*, so combinations of treatments are required. This involves the complete removal of the infected tree, including the tree stump and roots where possible, and delaying the planting of new trees for as long as possible.
22. *Phytophthora* is a microscopic soil borne disease that causes root rot in a wide variety of native and exotic plants. The pathogen is virulent, and is of great concern as control measures are complex and eradication is unlikely. Infection often results in the death of the plant, with earlier symptoms including wilting, yellowing and retention of dried foliage and darkening of young feeder roots and, occasionally, the larger roots.
23. The pathogen spreads through small swimming 'zoospores' that infect roots. The spores and structures of *Phytophthora* are microscopic and cannot be seen with the naked eye. There is no externally visible way of telling if the pathogen is present in the soil.

24. These spores are easily transported in stormwater, drainage water, infected soil and on tools, footwear and vehicles. The spores are also capable of surviving for extended periods of time and, when conditions become favourable, they germinate and renew the life cycle. This allows *Phytophthora* to survive in dead plant tissue for a number of years.

REMOVAL OF 16 TREES

25. Managing the trees requires balancing the amenity they provide with the risks associated with retaining ageing and defective trees in a heavily visited park.
26. A range of strategies are in place to manage the trees in Hyde Park (refer Attachment B). This includes weekly visual inspections, annual aerial inspections and drill testing every two years for the Hill's Figs in the central avenue. All other trees are visually assessed at least annually. Trees are removed once they have died, are in poor health, are structurally unsound, or once they have become 70 per cent decayed. This threshold is based on an internationally recognised formula that found the risk of failure at this point increases significantly.
27. Importantly, none of these management strategies are able to totally remove the risk of branch or whole tree failure. Five trees have failed in the last two years. This is despite the City's comprehensive management regime using industry best practice and highly competent external consultants. As a result of the ongoing failures, it is considered that the City needs to be more proactive with defective trees.
28. The four key factors impacting the management of trees in Hyde Park are the extent of:
 - (a) decay (particularly in the root crown at and below ground level);
 - (b) inclusions (weakly attached branches and stems);
 - (c) root damage (especially as a consequence of park upgrades); and
 - (d) increased exposure to wind and sun (due to removal of adjacent trees).

Decay

29. In May 2013, the City engaged Urban Tree Management (UTM) to undertake detailed investigations on 101 Hill's Figs in Hyde Park North and South. This included all Hill's Figs within the central avenue, and other large Figs located at the main entrances to the park. The location of all trees, with specific reference to the individual trees described below, are included in Attachment A.
30. The purpose of the investigation was to assess the existing health and stability of the trees, including a specific test that measures the strength of the wood (or alternatively the amount of decay) at the base of the trees' trunks. This was the area found to have been the trees' weakest point in previous tree failures.
31. UTM's report, completed in June 2013, revealed that two of the Hill's Figs, Trees 1N and 11N, had a significant amount of decay at the base of the trunk or in the buttress roots. UTM recommended their immediate removal (i.e. within zero to six months). On 30 June 2013, following a week of prolonged rainfall, T1N fell over.

32. In 2011, testing of T11N had shown only a low level of decay. The 2013 results show how rapidly the pathogens can spread. Following T1N's failure, T11N and T22N were immediately removed, due to the extent of decay and the increased sun and wind exposure.
33. The report found that a further eight trees had a 'short retention' rating of six months to five years, based on the extent of decay. Five trees were recommended for retesting within two years to assess their stability.
34. A review of the UTM report has been undertaken by Tree Wise Men (TWM). TWM have recommended the removal of four of these trees due to the current extent of decay, coupled with the ongoing spread of the pathogens (evident T1N, T11N and, more recently, T1S).
35. The removal of these four trees will be undertaken as soon as practicable, due to the high visitor use within the park (for example, 25,000 people are expected at the running festival in September) and the overall risk of injury should whole tree failure occur.

Inclusions

36. Inclusions are considered a major issue in the Hill's Figs within the park, with four of the six failures in the past three years being a result of this structural defect.
37. An aerial inspection, conducted by Tree Wise Men (TWM) in April 2012, identified 14 trees in the central avenue, and 10 outside the avenue, with significant inclusions. TWM recommended 'reduction pruning' be undertaken to reduce the weight on the weakly attached branches. Whilst this pruning was completed, it is not able to completely remove the risk of branch failure, and there is no certainty as to which (if any) limbs may drop.
38. TWM reinspected these Hill's Figs in August 2013 and recommended one tree be removed (outside the central avenue) and 20 trees be pruned.
39. This tree removal and pruning works will be undertaken as soon as practicable, due to the unpredictability of this type of limb failure, coupled with the high park usage.

Construction root damage

40. Many trees sustained extensive root damage during the 1990s upgrade of the park, in particular, Hyde Park South.
41. Based on recent failures, the extent of that root damage appears to be more severe than previously understood, or the damage caused has reached a point where the trees' stability is now compromised. This is evident in the Hill's Fig that failed on 30 June, along with a Port Jackson Fig that failed on 4 March 2013.
42. A visual assessment of the park's trees identified a further 11 trees with extensive root damage, evident in the close proximity of the surrounding pavement location, and overall poor / declining tree health. These 11 trees will be removed as soon as practicable. These removals are supported by TWM.

Exposure from the removal of adjacent trees

43. The removal of adjacent trees exposes those remaining to increased wind and sun. In some instances, the close proximity of an adjacent tree will require its removal. This is particularly evident in close avenue plantings, or where trees are already decayed or have root damage.
44. A visual assessment of the trees adjacent to those being removed will be undertaken after the works, to assess the trees' exposure. Pruning works will be performed where necessary. It should be noted that a few select trees may require removal in the month following the initial works, should it be found that they are too exposed and are considered to have a higher potential to fail.

SUMMARY AND TIMING OF TREE REMOVAL

45. Overall, 16 trees will be removed from Hyde Park as soon as practicable. A breakdown of these removals is as follows:
 - (a) four Hill's Figs in the central avenue (due to decay); and
 - (b) 12 trees in other areas of the park (1 due to significant inclusions and 11 due to construction root damage).
46. The location of these trees is shown in Attachment A.
47. The removal of the 16 trees is planned to occur before the commencement of upcoming major events, including:
 - (a) Sydney Running Festival (22 September);
 - (b) Art and About (commencing 28 September); and
 - (c) Night Noodle Markets (commencing 9 October).

TREE MANAGEMENT PLAN

48. A comprehensive Tree Management Plan (TMP) was adopted by Council in October 2006. The TMP is available for viewing on the City's website.
49. The TMP was developed to provide proactive strategies for the effective management, maintenance and conservation of the park's tree population. It also aimed to give the community and relevant City staff a clear direction and vision for the future management of the park trees.
50. A major component of the TMP was the management of the central avenue Figs. Replacement strategies were considered to address the history of failures, the extent of tree removal undertaken in 2004 and 2005, the impacts of the various pathogens, the inclusions and the underlying poor site drainage and soil conditions.

BLOCK REPLACEMENT STRATEGY

51. The TMP endorsed the adoption of a block removal and replacement strategy to properly rectify the current issues in relation to the soil and drainage, as well as the only way of achieving the uniform appearance typical of an avenue, including the 'cathedral effect' currently demonstrated in the Park vista today.

52. Block replacement enables Council to:
- (a) reinstate the avenue in a proactive manner, planned around key events to minimise disruption to park users, whilst resolving issues such as pathogens and the unpredictable large branch failures;
 - (b) remove the poor soil and install new drainage and improved soils that will promote healthy tree growth for the replacement trees into the long term; and
 - (c) plant advanced trees that have been grown specially to form the next iconic avenue for future generations.
53. The option of 'infill' or 'interplanting' has also been considered. This approach involves the removal of a small amount of soil (where tree/s have previously been removed) and the planting of a new tree into the same location. This approach is not recommended as:
- (a) the new trees will not re-establish the avenue. Any new trees will need to compete with the existing trees, above and below ground, resulting in stunted/misshapen avenue trees that will be of varying height and shape and never reach their full potential;
 - (b) it does not allow the soil and drainage works to occur to the extent and scale required. Further, the efficacy of the drainage system may be compromised as a result;
 - (c) the piecemeal removal of the soil and installation of drainage will result in damage to the existing tree roots, as the roots of neighbouring trees that are being retained would be dug up with the soil, further compromising the remaining trees' health and structure;
 - (d) the removal of poor trees exposes those remaining trees to more wind and sun, placing those trees under greater stress (and increased risk of failure); and
 - (e) the soil being retained will remain infected with the various diseases, which can then quickly re-establish into the new soil and potentially infect the newly planted trees.
54. In summary, interplanting removes the ability to re-establish healthy, long lived new trees of consistent size and shape, because planting at different times amongst existing mature trees will create highly varied tree shape and height, and the trees are also exposed to the diseases. It also removes the ability to recreate the current cathedral like avenue.
55. Block replacement will deliver healthy, long-lived trees that will create a uniform avenue. Block replacement is supported by the technical reports at Attachments C and E.

Review of Block Replacement Timing

56. The 2006 TMP envisaged the block replacement works would commence in 2011, with four stages of works occurring over two yearly intervals, with all works completed by 2017. This timing was primarily based on the expected rate of continued tree removal from the central avenue (as 35 trees were removed from 2004 to 2005), and also took into account the fact that the new trees, being grown at separate nurseries, would be too large to transport after 2017.
57. Following adoption of the TMP in 2006, the central avenue was repeatedly assessed, and the rate of trees requiring removal slowed significantly, resulting in the replanting program being delayed. Eight trees have been removed from the avenue since 2006. As fewer trees have been removed from the avenue than expected, it is considered that the avenue may be retained longer than expected and beyond 2017.
58. The monitoring and other risk management measures referred to in this report have continued throughout this period, and trees have been removed or pruned as required. A draft Risk Management Plan has been prepared, which outlines the City's management practices for these trees (refer Attachment B).
59. While the timing and scale of the block replacement, as envisaged in the 2006 TMP has been deferred, City staff are investigating the feasibility of block replacement of trees removed from around the Archibald Fountain over the last decade. Preliminary results of this investigation indicate that the relatively large 'gaps' in this area will allow soil replacement and drainage improvements to be made prior to planting new trees within the current financial year.

TREE SUPPLY

60. A Tree Supply Contract for the replacement Hill's Fig trees commenced in early 2008. Cuttings were taken from Hill's Figs growing in the Royal Botanic Gardens that were in good health, and did not exhibit inclusions in their main branches.
61. The cuttings were transported to two nurseries on the NSW Central and North Coasts, to guarantee supply, in the event that one batch of trees was damaged from a major storm or fire event. The 'back up' trees would then be planted or sold on following the planting of the replacement trees into the park.
62. The contract for the tree supply expires in late 2017. After this time, the trees will become too large to transport.
63. Due to the deferred commencement of the block replacement works, City staff will assess the number of Hill's Figs that may be required by the City before 2017 and will make arrangements for surplus stock to be sold. The tree supply contract was specifically designed for this purpose; to guarantee supply (two batches), whilst allowing the greatest flexibility (timeframes and ability to sell stock).
64. The trees are excellent specimens and are currently six metres tall (photos are included in Attachment A). Therefore, the City expects to recoup a significant portion, if not all, of the costs from the sale of the surplus trees.
65. A new contract will be tendered to ensure the City has replacement trees of the highest quality and size required to achieve the central avenue block replacement works.

TREE MANAGEMENT – MONITORING AND REVIEW

66. As Trustee Manager of Hyde Park, the City has a duty of care to maximise the benefits to the public provided by the existing trees, while carefully managing the risks presented by trees that are diseased or have branch faults. In managing this balance, public safety is of paramount importance.
67. The draft Risk Management Plan (Attachment B) outlines the actions the City considers necessary to manage the trees within the park. An overview of these actions is outlined below.
68. The City's parks service providers undertake regular tree assessments and maintenance works on all trees within our parks and open spaces. In addition to this scheduled maintenance, an extensive tree assessment program is in place to minimise potential risk from the central avenue trees. This includes engaging independent expert consultants and contractors to undertake:
 - (a) a 'walk through' assessment of the central avenue trees each week. The staff then carry out any pruning works required as a result of the inspection;
 - (b) an aerial inspection (viewing the trees branches from a cherry picker or through climbing) the trees in the central avenue each year; and
 - (c) a 'drill test' every two years to assess the extent of decay in the base of the trees.
69. Any trees found to be in a dangerous condition are pruned or removed as soon as possible, to reduce any danger posed by the trees to park visitors and City staff.
70. The City is seeking advice regarding extreme weather events, and the thresholds at which the City needs to act, such as closing the central avenue to minimise community access under the trees during such events.
71. The management of community events has also been assessed, and no new event will be booked under the central avenue Hill's Figs. Relocation of events to other places within the park, or to other parks, is being discussed with key event organisers to allow for a smooth transition.
72. Importantly, whilst this tree management program is in place, it should be noted some tree failures are unpredictable. This is especially relevant when experiencing extreme weather events, along with the 'inclusion' failures that can occur without showing any previous external symptoms (such as bulges, cracks etc).

INDEPENDENT ASSESSMENT OF TREES

73. In 2013, experts were engaged to conduct a comprehensive review of the current condition of the Hill's Figs and the central avenue's past and future management options.
74. The report, prepared by the Tree Wise Men, reviews and comments on the tree defects, health and structure, the resulting risk management considerations, longevity of the avenue, and its individual trees, and any mitigating strategies that may alleviate the defects and prevent further tree removal (refer Attachment C).

75. The report states that there are no feasible mitigation procedures or strategies, which will stop or control the decline in the vigour and condition of the planting. The report also states that replacement of the trees through natural attrition and infill planting is not a viable option, as the risk of failure increases as adjoining trees are removed, and this option does not allow for the replacement of the poor soil and inadequate drainage.
76. The report also found that the trees are beginning to enter the 'over mature' age category, based on the incidence of white rot fungus, deadwood formation and previous whole tree failures. When combined with the issues of other pathogens, inclusions, poor soil and associated root damage, it is considered the avenue is not sustainable in its current form.
77. The report concludes that block removal is the only option to reinstate the avenue in its current form (even aged, same species and form). This method also addresses the improvement in the existing soil quality, subsoil drainage and soil borne disease control to be undertaken.
78. Tree Wise Men initially recommended that block removal and replacement commence without further delay because of the continued tree failures (albeit outside of the avenue), disease spread and limb failure despite best practice tree management of the ageing central avenue Hill's Fig planting. The block removal of trees in Central Avenue was, in the main, recommended to replicate the existing cathedral canopy configuration. However, given the City's desire to retain healthy trees for as long as possible, Tree Wise Men were subsequently requested to provide advice on the revised Risk Management Plan, in particular, the option of deferring the block replacement to allow healthy trees to be retained for as long as possible.
79. Tree Wise Men have reviewed the revised Risk Management Plan and advised that if Council seeks to retain the healthy trees for as long as possible, then Council should remove the four trees with high levels of decay (identified for short term retention in UTM report), prune and remove one tree with significant inclusions, and monitor the edge trees that have sunscald. These trees have been included in the 16 trees identified for removal in this report (refer Attachment D).

PEER REVIEWS

80. A peer review of the Tree Wise Men report has been undertaken by Dr Greg Moore, University of Melbourne, who is considered one of Australia's foremost experts in urban tree management and arboriculture. Dr Moore considered the TWM report to be thorough, of a high standard and addresses the pertinent issues relating to the central avenue trees (refer Attachment E).
81. The report has also been peer reviewed by Dennis Marsden, an independent qualified arborist who specialises in the use of the Resistograph®, along with assessing Hill's Figs with inclusions. Mr Marsden concludes that the TWM report is a thorough review of the current defects, health and structural issues affecting the figs and provides a sound basis for its conclusions and recommendations. In particular, he agrees that removal of the trees in blocks will secure the best long term result in re-establishing the cathedral effect of the central avenue (refer Attachment F).

82. Further, Mr Marsden undertook a joint tree inspection with TWM of the trees identified with significant inclusions. Both Mr Marsden and TWM have agreed on the extent and methodology for the pruning and removal works required to manage these defects (refer Attachment G).

POOL OF REFLECTION

83. There are 27 Poplars that line the Pool of Reflection in Hyde Park South. These Poplars are declining in health, and their removal and replacement has been planned to occur within the next five years. A tree supply contract for replacement trees has also been put in place for these works. City staff are consulting with the Anzac Memorial Trust and the RSL with regards to timing.

KEY IMPLICATIONS

Strategic Alignment - Sustainable Sydney 2030

84. Sustainable Sydney 2030 is a vision for the sustainable development of the City to 2030 and beyond. It includes 10 strategic directions to guide the future of the City, as well as 10 targets against which to measure progress. This report is aligned with the following strategic directions and objectives:
- (a) Direction 2 provides a road map for the City to become A Leading Environmental Performer – the management of urban canopy is a key component of the City's Urban Forest Strategy adopted by Council in February 2013. Managing the sustainable and timely replacement of aging and defective trees is critical to ensuring that new young trees are providing the canopy needed to meet our canopy targets for 2030, 2050 and for the benefit of future generations.
 - (b) Direction 4 - A City for Walking and Cycling – Parks are key facilities and destinations for walking. The provision of safe places to walk, free from the risks associated with aging and defective trees, is important for the health and well-being of the community, and the City's goal of promoting active transport.
 - (c) Direction 5 - A Lively and Engaging City Centre – Hyde Park is a cultural icon within the city, hosting key events and providing a place to meet, relax or enjoy time. It is important that the community's enjoyment and use of Hyde Park is not restricted by risks associated with aging and defective trees or any measures required to mitigate those risks.
 - (d) Direction 6 - Vibrant Local Communities and Economies – Cultural events such as Australia Day, Art & About, Good Food Week, City to Surf, St Patrick's Day and Mardi Gras all use Hyde Park and attract large crowds. These events contribute to local businesses and communities, and it is important they are not restricted by the condition of the Hyde Park trees.
 - (e) Direction 10 - Implementation through Effective Governance and Partnerships – The City has put in place a Plan of Management and Tree Management Plan, which recognises the importance of trees within Hyde Park and plans for their stewardship and replacement for future generations to enjoy. The City will continue to work with adjoining key stakeholders and the community to keep them informed of the work programs.

Greening Sydney Plan

85. Urban canopy is a key focus area of the Greening Sydney Plan adopted by Council in May 2012. The Greening Sydney Plan recognises the importance of trees and other vegetation and their potential to deliver climate change benefits, urban heat island reductions, stormwater benefits and associated economic and social benefits. Key targets include percentage canopy cover and selective removal and replacement programs, over many years, to allow canopy cover to be managed at a sustained level.

Tree Management Policy

86. The City's Tree Management Policy was adopted in February 2013. The Policy establishes the City's commitment and future strategic direction for tree planting, protection, management and maintenance of its urban forest. It also recognises that tree management in the urban environment is about balancing the various risks against the benefits that trees provide, to ensure the best community outcome.

Urban Forest Strategy

87. The City adopted its Urban Forest Strategy in February 2013. Urban forests play a vital role in the health, social framework and economic sustainability of a city. An abundance of research shows that trees improve our air, soil and water quality; improve mental health and well-being; reduce anger and aggression; and provide a sense of place and enhance property values. This Urban Forest Strategy outlines the way the City will work to improve the environment, using trees, while managing the associated risks and costs.

Register of Significant Trees

88. The City adopted the Register of Significant Trees in June 2013. The Register identifies and recognises the importance of significant trees in the landscape, to guide their management and to ensure their protection for future generations. The Register of Significant Trees is not a static document and will be subject to ongoing review and updates. The Hyde Park central avenue is listed in the Register. However, like all trees in the Register, this does not mean they cannot be removed if they are a risk to public safety.

Organisational Impact

89. The City will continue to allocate resources for the management of the park trees, including parks maintenance service providers, independent arborists, and the management of tree supply contracts.
90. Resources will now need to be allocated for managing new works identified in the draft Risk Management Plan. This includes resources to close the central avenue during extreme weather events.

Risks

91. City staff have undertaken risk assessments to consider the impacts of a tree failure causing injury or a fatality. Due to the combination of the large numbers of people using Hyde Park and the underlying conditions of the trees, the likely impact to the City would be significant.

92. Risk mitigation strategies have been put in place to reduce the likelihood and impact including the removal of seats from under high risk trees, exclusion zones for events, site risk assessments for all events and increased frequency of inspection (and any ensuing work, including proactive tree removal) of the trees by qualified arborists.
93. As stated earlier, City staff have also prepared a draft Risk Management Plan, outlining the City's proposed management practises for Hyde Park (refer Attachment B).

Social / Cultural / Community

94. Hyde Park is an iconic Sydney landmark, much loved for its trees and formal garden landscape. The recommendations in this report will likely draw a mixed response from the community, particularly those who will understandably be concerned about the removal of trees. It is therefore important that the City clearly communicates the reasons why the tree removals are required and the actions required to ensure future generations enjoy the benefits of the Hyde Park trees.

Environmental

95. In the short term, approximately eight trees will be planted, to replace those removed from outside the central avenue, before the end of the planting season in October 2013.
96. The central avenue of Hill's Figs will be replaced by specifically grown replacement trees, following the extensive soil and drainage improvement works required. As stated earlier, 'infill' planting will not be undertaken as it will deliver a poor result.
97. When replacement planting occurs for the central avenue, a construction program will be developed to minimise the impact of construction works on the remainder of the park as each stage is carried out.

Economic

98. The main economic impacts will be on community events, which will have to be relocated until the central avenue is replaced. This would include events such as the Sydney Wine and Food Festival, Night Noodle Markets and some elements of the Sydney Festival. Alternative sites will be found for these events.

BUDGET IMPLICATIONS

99. There are sufficient funds within the 2013/14 budget to implement the recommendations in the report.

RELEVANT LEGISLATION

100. Crown Lands Act 1989.
101. Environmental Planning and Assessment Act 1979.
102. Heritage Act 1977.
103. Civil Liability Act 2002.

CRITICAL DATES / TIME FRAMES

104. The critical date for the removal of dangerous trees is 20 September 2013, prior to the Sydney Running Festival on 22 September.
105. The critical date for the current tree supply contract is 2017, as the trees will be too large to move beyond this date. Therefore, City staff will assess the number of trees to be planted prior to this date, and sell the remaining stock to recoup the majority of the contract costs.
106. There are also a number of centenary dates related to World War One, which will take place between August 2014 and November 2018. The key dates impacting Hyde Park include:
 - (a) 1 August 2014 – Centenary of WW1;
 - (b) 25 April 2015 – Centenary of Gallipoli landing;
 - (c) 19 July 2016 – Centenary of battle of Fromelles; and
 - (d) 11 November 2018 – Centenary of the end of WW1.

PUBLIC CONSULTATION

107. During the preparation of the Hyde Park Plan of Management (which was adopted by Council in 2006 and subsequently by the Minister for Crown Lands in 2007), there were over 1,000 intercept surveys, meetings with adjoining property owners, on-site information stalls and a public exhibition of the Plan.
108. There have been signs in the park since 2006 advising that it is Council's intention to replace the central avenue figs.
109. The City has also maintained community interest and awareness of the tree replacement program by maintaining a web page and issuing press releases about the successful development of the replacement Hill's Fig trees being grown in northern NSW.
110. A comprehensive communications strategy is being developed to inform the community of the City's strategies for managing Hyde Park trees and maintaining public safety.

GARRY HARDING

Director City Operations

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