

Meeting Date: Tuesday 26 June 2012
Location: Council Chambers, Level 6, Civic Centre, 1 Devlin Street, Ryde
Time: 7.30pm

ATTACHMENTS FOR COUNCIL MEETING

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ATTACHMENT 1

Attachment One - Submission Table - Revised DCP 2010 Part 9.6 Tree Preservation, Technical Manual and draft Urban Forest Policy

Part 1: Submission Summary

<i>Position</i>	<i>Number</i>	<i>%</i>
Support	1	8%
Opposition	5	42%
Neutral	6	50%
Total	12	100%

Part 2: Submission Analysis

TRIM Reference Number	Issue	Overall Position	Recommended Action
Community Groups			
D12/32537	<ul style="list-style-type: none"> What drives the need now to replace Part 9.6 when the Ryde LEP 2012, and presumably a revised DCP which will follow, have both not been finalized 	Opposition	<ul style="list-style-type: none"> The review of the DCP Part 9.6 was to resolve the following: <ul style="list-style-type: none"> Inconsistencies, Failed to provide clear direction to the community about the management of trees on their land Created unnecessary paperwork for Council staff that contributed to delays in resolving tree management applications submitted by the community, and Maintained a lengthy and complicated assessment and approval processes that included a slow and inconsistent review process for tree management applications. The current urban bushland mapping is inconsistent and does not fully encapsulate the extent of critical vegetation areas across the City. It is a priority that this mapping be updated and following this, a revision of the DCP can be made to ensure reference is made to <ul style="list-style-type: none"> Issue - the maps of urban bushland corridors which support the document do not appear attached to the DCP

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TRIM Reference Number	Issue	Overall Position	Recommended Action
	<ul style="list-style-type: none"> Issue - definition of a tree which is protected under the policy ie greater than five metres and a trunk circumference of 1.4 metres above ground level. Urban Forest Technical Manual: Whilst we do not have major problems with this draft document it is once again very generic. It fails to recognise that different technical approaches are needed in different areas if the urban forest asset is to be properly managed. The Glossary needs to be expanded with a definition of concepts such as local indigenous, biodiversity, locally propagated, habitat, genetic diversity etc. A Biodiversity Strategy with supporting maps showing sensitive corridors and areas of high conservation value should be undertaken before this revision of the current DCP Tree Preservation Trees under the care, control and management of Council need similar protection to those on public land but this new draft does not indicate this. Section 2(a) states that exempt works include "Tree works on a Tree on land owned or under the care, control and management of Council where the Tree Works are carried by Council." Whilst the Society supports the protection of trees identified in the Significant Tree Register under this policy, we draw Council's attention to the problems associated in the preservation of mature remnants especially those with hollows. It is vital that these trees be valued very highly and retained. 		<ul style="list-style-type: none"> correct and reliable mapping. The timing of this is influenced by the State Government release of vegetation community mapping. Recommended change to the definition of a tree under DCP Part 9.6 The Technical Manual is aimed at providing general direction on the management of trees as a companion document to the DCP. It is a tool to assist the community to understand the requirements of the City of Ryde's Development Control Plan 2010 Part 9.6 (Tree Preservation). The Glossary in the Technical Manual only provides definition of terms used within the Technical Manual. The preparation of Biodiversity Plan is a future project for the City of Ryde that will be used to inform any future review of DCP Part 9.6. The draft urban Forest Policy is Council's commitment to the enhancement of the Urban Forest. The management of trees on Council land is under the authority of Council's Natural Area and Urban Forest Section and approvals for the pruning and removal of trees by other Sections of Council are managed by this Section. The Significant Tree Register has been identified for future review and this will include consideration of mature remnants and their habitat value.

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TRIM Reference Number	Issue	Overall Position	Recommended Action
D12/31562	<ul style="list-style-type: none"> The DCP does not cover noxious weeds. What defines a heritage tree? What is the scope of the Street Tree Masterplan? Will Council remove all trees that have been determined unsuitable? 	Neutral	<p>Action: That the definition of a tree in the <i>Development Control Plan Part 9.6 Tree Preservation</i> be amended to:</p> <ul style="list-style-type: none"> <i>trees as defined in Part 10 Dictionary of DCP 2010 where the tree has a height of 5 metres or a stem circumference of 450mm at a height of 1.4 metres above ground level. This includes palm trees; and trees described as "major", "substantial" and "significant" in other Parts of DCP 2010.</i> <ul style="list-style-type: none"> Noxious weeds are defined and regulated under the NSW Noxious Weeds Act 1993. Their listing in the DCP is not required as they are exempt under State Legislation. The DCP Part 9.6 does not define heritage trees, rather identifies the Heritage Conservations Areas as defined under the Local Environmental Plan. The preparation of the Street Tree Masterplan has recently commenced and the Masterplan will encompass the whole City and will be a precinct based Masterplan. Council is working towards a proactive tree management program where trees that are unsuitable will be removed and replaced with suitable species. <p>Action: No further action required</p>
D12/31593	<ul style="list-style-type: none"> What defines a heritage tree and has happens if a noxious weed is within a heritage area? Definition of a tree should be altered to be "where a tree has a height of 5m or a stem circumference of 450mm" 	Opposition	<ul style="list-style-type: none"> The DCP Part 9.6 does not define heritage trees, rather identifies the Heritage Conservations Areas as defined under the Local Environmental Plan. Noxious weeds are managed under the NSW Noxious Weeds Act 1993 and approval to remove is not required. Recommended change to the definition of a tree under DCP Part 9.6.

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TRIM Reference Number	Issue	Overall Position	Recommended Action
<p>Others</p> <p>D12/39719</p>	<ul style="list-style-type: none"> Exempt works wording should be modified from "approval from Council is not required to carry out Tree Works etc" and lists various categories which are protected. We believe it should indicate that "no tree works can be carried out to these categories of trees" The words "exempt Works" for these noxious plants is confusing. The replacement tree may not reach maturity if it is not correctly planted or maintained i.e. if the tree was planted in the pot and not be able to reach maturity before if it was correctly planted and was removed after a period before it reached 3 metres in height and came under regulations. 	Neutral	<p>Action: That the definition of a tree in the Development Control Plan Part 9.6 Tree Preservation be amended to:</p> <ul style="list-style-type: none"> <i>trees as defined in Part 10 Dictionary of DCP 2010 where the tree has a height of 5 metres or a stem circumference of 450mm at a height of 1.4 metres above ground level. This includes palm trees; and</i> <i>trees described as "major", "substantial" and "significant" in other Parts of DCP 2010.</i>
<p>D12/31858</p>	<ul style="list-style-type: none"> Replace trees where ever possible 	Support	<p>Action: That the <i>Technical Manual</i> be amended to define and Arborist as: <i>Australian Qualification Framework level 5 or equivalent in Horticulture (Arboriculture).</i></p>

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TRIM Reference Number	Issue	Overall Position	Recommended Action
D12/31309	<ul style="list-style-type: none"> Supporter of the Significant tree Register Concern the Policy does not adequately respect the community's right to manage their own trees. 	Opposition	<ul style="list-style-type: none"> No further action required The DCP together with the other Urban Forest Management documents reinforces the Council position that the City's Urban Forest must be sustainably managed and the DCP controls are just one approach to ensuring that the removal of trees within the City is considered and controlled. A tree located on private property remains under the ownership of the property owner and the purpose of the DCP's controls is to ensure in the preservation of trees greater than 5 metres in height. This suggestion is impractical as Council cannot retain records on who planted trees on private land. The Urban Forest Policy is focussed on planting the right tree in the right place and in many circumstances this will result in planting smaller trees. However, trees of all sizes contribute to the Urban Forest and the community is encouraged to plant suitable trees in their private gardens.
D12/32372	<ul style="list-style-type: none"> Section 2- Exempt works; the following are exempt works should be included for clarity and consistency with other exempt works noted in the draft document. "Works required under the provisions of Section 48 of the Electricity Supply Act 1995". 	Neutral	<ul style="list-style-type: none"> Recommended change to the DCP <p>Action: Include the following under Exempt Works: <i>Tree Works required under the provisions of Section 48 of the Electricity Supply Act 1995</i></p>
D12/32463	<p>Comments on the DCP</p> <ul style="list-style-type: none"> That the following paragraph be REMOVED from proposed (DCP) Section 2.0 a. ii: This exemption does not apply to a Tree on 	Opposition	<ul style="list-style-type: none"> Residents can only apply of conduct tree works on trees located on their land.

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TRIM Reference Number	Issue	Overall Position	Recommended Action
D12/32516	<p>adjoining land. The Tree and the dwelling house or other structure referred to above must both be on the same land for the exemption to apply.</p> <ul style="list-style-type: none"> To add an exemption for minor pruning, carried out by or with the consent of the property owner, which does not threaten the health or safety of the tree; of no more than 5% of the tree canopy, of branches no more than 150mm in diameter. <p>Comments on the Policy</p> <ul style="list-style-type: none"> The policy needs to be made more balanced by recognising that trees in some circumstances may need to be pruned (or in a few cases removed) for other reasons such as: damage, or potential to cause damage to sewer pipes, driveways etc; due to position; b) causing extreme and excessive shading; (i.e. such shade as would be disallowed if a proposed building or building extension would cause it). 	Neutral	<ul style="list-style-type: none"> This approach would be very difficult and costly to administer. The assessment for the pruning of removal of a tree considers many factors that include the following – safety, environmental factors (such as habitat value, species), landscape amenity factors (such as privacy, noise abatements), health of the tree (such as pest and disease infestations), structural condition of the tree, safety and damage considerations. <p>Action: No further action required</p> <ul style="list-style-type: none"> The Technical Manual provides additional guidelines on how to protect trees on development sites. This is additional information that was not previously provided in the management of the Urban Forest. Also included in the Technical Manual is a listing of undesirable tree species. Council will become increasingly proactive in the actioning of breaches of the DCP

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TRIM Reference Number	Issue	Overall Position	Recommended Action
D12/32746	<p>Urban Forest Policy</p> <ul style="list-style-type: none"> should more vigorously apply fines to those people who have removed trees from their property without a permit. I would like to see more suitable trees planted in the streetscape that will not be butchered by tree-trimming contractors for the power supply companies. These trees should be indigenous to the area so they can provide a haven for native birds and animals. Maybe the Council could encourage planting in the verges for community gardens, as has been done in a number of councils in the Sydney area. I would not like to see ANY trees removed for any project related to capital improvements. For example, I understand that the Council is considering the removal of trees from the entrance to the Field of Mars so a carpark can be constructed. I believe this is contrary to the intentions presented in the Urban Forest Policy. There are a number of small parks that have only one or two trees in them. I would like to see the Council planting a lot more native trees so provide shade for the people who use those areas as well as providing a safe area for native fauna. I would like to see the Council provide more funds for bush regeneration work to be done in the Ryde Council area. I think the Council should ensure that more trees should be preserved on sites where a development is to occur 	Neutral	<ul style="list-style-type: none"> A Street Tree Masterplan is currently being prepared for the City that will guide the species selection and positioning of street tree. Considerations in the development of the Masterplan include corridors, environmental conditions (such as wind, water, soils etc) and urban infrastructure (such as wires, pipes, roads, pathways etc). The removal or pruning of trees as a part of capital projects may be necessary. Replacement planting is mandatory under the Urban Forest Policy. Council has an annual park and street tree planting program that includes the planting of trees in parks. The Technical Manual provides additional guidelines on how to protect trees on development sites. This is additional information that was not previously provided in the management of the Urban Forest <p>Action: No further action required</p>

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TRIM Reference Number	Issue	Overall Position	Recommended Action
	<ul style="list-style-type: none"> Tree Protection "The City of Ryde will manage trees throughout the City irrespective of whether they are located in streets, parks or 'private properties' "What does "manage" mean in relation to private properties?" "An inappropriate tree species or a tree growing in an unsuitable location on either private or public land can create problems in the urban environment" We would like to comment on private land i.e. the suburban garden. Council requires that replacement trees be chosen from a list supplied. Another point is that Council requires that replacement trees must be grown to NATSPEC specifications from a reputable supplier of mature trees. 		<ul style="list-style-type: none"> Comment noted and modification to the Urban Forest Policy recommended (see below) No reference is made to a Council specific list for replacement planting in the Urban Forest Policy. For guidelines on species section, go to Section 2.0 of the Policy. Comment noted and modification to the Technical Manual recommended (see below) <p>Action: That Section 1.0 of the Urban Forest Policy be amended to state: <i>The City of Ryde recognises the importance of trees in the urban environment and for that reason it will manage and or regulate trees throughout the City irrespective of whether they are located in streets, parks or on private properties.</i></p> <p>That Section 6.4 of Technical Manual be amended to state: <i>The City of Ryde recommends that tree stock planted within the City should comply with the NATSPEC document Specifying Trees – A guide to assessment of tree quality by Ross Clark (2003).</i></p>
D112/32786	<ul style="list-style-type: none"> Endorsement of the Ryde Hunters Hill Flora and Fauna Preservation Society Submission 	Opposition	<ul style="list-style-type: none"> Please refer to the assessment of the Ryde Hunters Hill Flora and Fauna Preservation Society Submission (D112/32537)
D112/32744	<ul style="list-style-type: none"> Recommendation 1: Attempt to review value of participation effort <i>during</i> as well as <i>after</i> the exercise. This may assist in an improved process and project as well as better 	Neutral	<ul style="list-style-type: none"> Observations and recommendations on the public exhibition of the Urban Forest Documents and the Integrated Open Space Plan are noted.

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TRIM Reference Number	Issue	Overall Position	Recommended Action
	<p>community acceptance.</p> <ul style="list-style-type: none"> Recommendations 2-3: Be mindful that Council has the same right as private citizens to submit objections and/or suggest improvements to a State Government proposal. To some degree worthy of exploration, this right applies to even a project designated as State Significant Development. Prepare for situations entailing damage at Bundara and numerous other Ryde locations where Government activity is likely to exert an adverse impact on trees and other threatened flora and fauna. For example, facilitate active involvement in liaison activities during construction and seek opportunities for cooperative information sharing and site inspections. In most cases, the lead proponents of a project actively look for ways to demonstrate cooperation with the local community. There is no reason to be afraid of giving constructive criticism and practical advice. Recommendation 4: Explore means of prevention rather than after-the-fact prosecution for tree damage. Recommendation 5: Employ Australian-compatible version of I-Tree Eco application, introduced at the 2011 ISA Conference in Parramatta. Investigate and support plans for further development. (Information available on <i>I-Tree Newsletter</i> - February 2012) 		<ul style="list-style-type: none"> The management of open space with the City is guided by the Integrated Open Space Plan and the role of DCP Part 9.6 is to outline the provisions for the preservation and management of trees within the City of Ryde. Enforcement of the DCP is a vital component to the realisation of the objectives of DCP Part 9.6. As a key step in the implementation of the DCP, the Natural Areas and Urban Forest Section will have delegated responsibilities to warn and fine people who are not complying with the controls of the DCP. Council will be embarking on an audit of the City's Urban Forest that will include measuring the canopy. I-Tree is one of many software applications that can assist Council with this project.

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TRIM Reference Number	Issue	Overall Position	Recommended Action
	<ul style="list-style-type: none"> Recommendation 6: Identify and Deal with the Real and Immediate Risks to the Urban Forest. 		<ul style="list-style-type: none"> The Urban Forest Policy provides a statement of commitment for the management of the City's Urban Forest. A key component of this is community education on the value and benefits of trees within the City. <p>Action: No further action required</p>

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ATTACHMENT 2

City of Ryde
Development Control Plan 2010

Part 9.6
Tree Preservation

DRAFT



City of Ryde

FOR ADOPTION

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Part
9.6 Tree Preservation

Translation

ENGLISH

If you do not understand this document please come to Ryde Civic Centre, 1 Devlin Street, Ryde Monday to Friday 8:30am to 4:30pm or telephone the Telephone and Interpreting Service on 131 450 and ask an interpreter to contact the City of Ryde for you on 9952 8222.

ARABIC

إذا تعذر عليك فهم محتويات هذه الوثيقة، يرجى الاتصال بمركز بلدية ريد، 1 Devlin Street, Ryde، من الاثنين إلى الجمعة، بين الساعة 8:30 صباحاً والساعة 4:30 مساءً، أو الاتصال بمكتب خدمات الترجمة على الرقم 131 450. يمكن طلب من أحد الموظفين الاتصال بمندوبنا، مدينة ريد، على الرقم 9952 8222، نيابة عنك.

ASSEMBLANI

Ի՞նչ անհամբով եթե դուք չեմք հասկանում ձեր քաղաքի քաղաքապետարանի կողմից ներկայացված փաստաթուղթը, հարցրե՛ք մեր կենտրոնը, 1 Devlin Street, Ryde (կիրակի ցերեկը կիրակի և քաղաքի կենտրոնը 8:30 - 16:30 ժամերին) կամ 131 450 հեռահամարով: Եթե դուք չեմք հասկանում ձեր քաղաքապետարանի կողմից ներկայացված փաստաթուղթը, կարող եք կոնտակտավորվել մեր կենտրոնի հետ 131 450 հեռահամարով: Եթե դուք չեմք հասկանում ձեր քաղաքապետարանի կողմից ներկայացված փաստաթուղթը, կարող եք կոնտակտավորվել մեր կենտրոնի հետ 9952 8222 հեռահամարով:

CHINESE

如果您看不懂本文，請在週一至週五上午 8 時 30 分至下午 4 時 30 分前往 Ryde 市政中心詢問 (Ryde Civic Centre, 地址: 1 Devlin Street, Ryde)。你也可以打電話至電話傳譯服務中心，電話號碼是 131 450。接通後你可以要求一位傳譯員為你打如下電話查詢 Ryde 市政廳聯繫，電話是 9952 8222。

FARSI

اگر این سند را نمی فهمید لطفاً از صبح 8:30 تا عصر 4:30 به دفتر شهرداری رید، Ryde Civic Centre, 1 Devlin Street, Ryde مراجعه کنید یا به سرویس مترجم تلفنی شماره 131 450 تماس بگیرید و از یکی از مترجمان بخواهید که از طرف شما با شهرداری رید تماس بگیرد.

ITALIAN

Se non capite il presente documento, siete pregati di rivolgervi al Ryde Civic Centre al n. 1 di Devlin Street, Ryde, dalle 8.30 alle 16.30, dal lunedì al venerdì; oppure potete chiamare il Telephone Translating and Interpreting Service al 131 450 e chiedere all'operatore di contattare a vostro nome il Municipio di Ryde presso il 9952 8222.

KOREAN

이 문서가 무슨 의미인지 모르실 경우에는 1 Devlin Street, Ryde 에 있는 Ryde Civic Centre 로 오셔서 월 - 금, 오전 8:30 - 오후 4:30, 전화 131 450 번으로 전화 문의 서비스에 연락하셔서 통역사에게 이걸로 대신 Ryde 시청에 전화 9952 8222 번으로 연락을 부탁하십시오.

Amend. No.	Date approved	Effective date	Subject of amendment

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ATTACHMENT 2

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Tree Preservation		

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ATTACHMENT 2

1.0 Introduction

1.0 INTRODUCTION

1.1 Preservation of the Urban Forest

Individually and collectively, trees have environmental, economic and social value. The benefits of trees include amenity, visual quality, enhanced streetscape, native fauna habitat, soil conservation, enhanced microclimatic conditions, solar access control and improved air quality. Collectively all the individual trees form the Urban Forest canopy of the City of Ryde. This Urban Forest is a combination of street trees, park trees (including bushland) and trees on private property.

Effective management of trees as a natural resource and as part of the urban infrastructure of the City of Ryde depends upon the long term retention of existing trees, appropriate tree maintenance, protection of trees on development sites, and in relation to replacement trees, suitable tree location and considered species selection.

1.2 Land to which this Part applies

This Part applies to all lands within the City Of Ryde.

1.3 Purpose of this Part

This Part outlines the provisions for the preservation and management of trees within the City of Ryde.

1.4 Objectives of this Part

The objectives of this Part are:

1. To maximise a sustainable Urban Forest canopy across the City of Ryde.
2. To conserve trees of ecological, heritage, aesthetic and cultural significance.
3. To protect and manage individual trees as an important community asset.
4. To establish the procedural framework and requirements governing the pruning, removal and subsequent replacement of trees within the City of Ryde.
5. To ensure all new development considers existing trees on the development site and provides opportunity for the healthy growth of large trees.

1.5 How to use this Part

1. This Part is to be read in conjunction with:
 - The City of Ryde Urban Forest Technical Manual (**Technical Manual**) and Application Guide (**Guide**) which provide instructions on:
 - i. requirements for arboriculture and other technical reports;
 - ii. technical arboricultural information;
 - iii. requirements as to the protection of trees on development sites;
 - iv. how to make an application under this Part; and
 - v. dealing with trees on adjoining properties.

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1.0 Introduction

- Both documents can be viewed at: (insert weblink)
- Clause 5.9 Preservation of Trees or Vegetation of the City of Ryde Local Environment Plan 2010 (**LEP 2010**).
2. The controls in this Part, to the extent of any inconsistency in relation to trees, take precedence over the controls in other Parts of the City of Ryde Development Control Plan 2010 (**DCP 2010**).
 3. All references to Acts, Regulations, Codes, Australian Standards, Plans, policies, the Technical Manual and the Guide are to those documents as amended from time to time.
 4. This Part has 4 sections:
 - Section 1 Introduction
 - Section 2 Exempt Works
 - Explains which Tree Works do not require a permit or Development Application approval.
 - Section 3 Tree Permits
 - Explains which Tree Works require a Tree Permit and sets out the controls for these works.
 - Section 4 Development Applications
 - Explains when a Development Application must be submitted and approved under this Part and sets out the controls for these Development Applications.

1.6 Meaning of words

1. In this Part:

Crown means the portion of the tree consisting of branches and leaves and any part of the stem from which branches arise.

Deadwood means dead branches within the crown of a tree.

Stem means the part of the tree which supports branches, leaves, flowers and fruit and is also called "the trunk".

Tree means:

- a. trees as defined in Part 10 Dictionary of DCP 2010 where the tree has a height of 5 metres or a stem circumference of 450mm at a height of 1.4 metres above ground level. This includes palm trees; and
- b. trees described as "major", "substantial" and "significant" in other Parts of DCP 2010.

Tree Protection Zone means a specified area above and below ground calculated in accordance with AS 4970 - 2009 *Protection of trees on development sites* and is a radial distance from the centre of the stem set aside for the protection of a tree's roots and crown to provide for the viability and stability of the tree. Refer to section 3 of the Technical Manual for TPZ calculation guidelines.

Tree Works means:

- a. any pruning of the crown of a Tree (except for deadwood in accordance with Section 2 of this Part);
- b. any removal of a Tree;
- c. any pruning or removal of roots (greater than 40mm in diameter) from a Tree inside its Tree Protection Zone; and/or

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d. any alteration (excavation or fill) to the soil level within the Tree Protection Zone of a Tree on the land or on adjoining land.

Urban Forest means all trees and vegetation (both naturally occurring and planted) that occur within or near urban areas.

2. Where the meaning of a term is not set out in Section 1.6 (1) above, the term will have the same meaning as set out (in order of precedence) in Part 10 Dictionary, LEP 2010, and the Environmental Planning and Assessment Act 1979 (EP&A Act) and Regulations.

1.7 Application of Australian Standards

All pruning work must be carried out in accordance with Australian Standard 4373 - 2007 *Pruning of amenity trees*.

The provisions of Australian Standard 4970 – 2009 *Protection of trees on development sites* must be fully complied with on all development sites upon which trees are located.

The Technical Manual sets out how these Australian Standards must be applied.

1.8 Enforcement

1. The following activities are prohibited: ringbarking, cutting down, topping, lopping, removing, injuring or wilfully destroying any Tree without a Tree Permit or Development Application approval issued by Council in accordance with this Part.

Note: A person will "injure" a tree if they damage the tree including (but not limited to) by:

- poisoning, applying herbicides or other toxic chemicals to a tree, spilling chemicals, washing off or directing water contaminated by chemicals (eg. oil, petroleum, paint, cement or mortar) within the Tree Protection Zone;
- tearing, breaking or snapping off the stem, branches and roots;
- damaging the root zone by compaction, excavation, filling and stockpiling materials within the Tree Protection Zone;
- wounding the stem with machinery (eg lawn mowers), fixing objects (eg. signs) to the stem or branches by nails, staples or wire, using tree climbing spikes in healthy trees to be retained (except for access to an injured tree worker), fastening materials around the stem or branches that circle and restrict the normal vascular function of the stem or branches.

2. Failure to comply with this Part is a breach of section 126 of the EP&A Act for which pecuniary penalties apply. The court dealing with the offence may, in addition to or in substitution for any pecuniary penalty, direct a person to plant new trees and vegetation, maintain those trees and vegetation to mature growth, and provide security for the performance of that obligation.

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ATTACHMENT 2

2.0 Exempt Works

2.0 EXEMPT WORKS

Introduction

This section explains when approval from Council (either by Tree Permit or by Development Application) is **not** required to carry out Tree Works including the removal or pruning of a Tree.

This section does not apply to any Tree which:

- is listed on the City of Ryde Significant Tree Register;
- is or is located on a site classified as being part of a vulnerable, threatened or endangered ecological community or provides or has the potential to provide habitat for native fauna or fauna classified as vulnerable or threatened under the *Threatened Species Conservation Act 1995* (NSW) or the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth);
- is or forms part of a heritage item; or
- is within one of the five heritage conservation areas within the City of Ryde.

Trees classified as being part of a vulnerable, threatened or endangered ecological community within the City of Ryde include the following tree species: Turpentine (*Syncarpia glomulifera*), Grey Gum (*Eucalyptus punctata*), Grey Ironbark (*Eucalyptus paniculata*), Thin-leaved Stringybark (*Eucalyptus eugenioides*), Sydney Blue Gum (*Eucalyptus saligna*), Blackbutt (*Eucalyptus pilularis*), Forest Oak (*Allocasuarina torulosa*) and Sydney Red Gum (*Angophora costata*). To identify if any of these classifications apply to your Tree please view: (insert weblink).

To identify if your Tree or land has heritage significance please view: (insert weblink).

Controls

- a. The following are exempt works:
 - i. Removal of deadwood provided the work is carried out in accordance with Australian Standard 4373 – 2007 *Pruning of amenity trees* and NSW WorkCover *Code of Practice: Amenity Tree Industry 1998*.
 - ii. Tree Works on a Tree where the stem of the Tree at ground level is within 3 metres of:
 - the outside enclosing wall of a legally constructed dwelling or outbuilding of over 20 square metres;
 - the outside edge of the footings of a carport; and/or
 - the outside edge of the coping of a legally constructed swimming pool.

This exemption does **not** apply to a Tree on adjoining land. The Tree and the dwelling house or other structure referred to above must both be on the same land for the exemption to apply.

Note: The term "legally constructed" means built in compliance with environmental and planning legislation and instruments in force within the City of Ryde at the time of construction.

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- iii. Tree Works on a Tree on land owned or under the care, control and management of Council where the Tree Works are carried out by Council.
- iv. Tree Works carried out on a Tree by the State Emergency Service or Rural Fire Service in response to an emergency or severe natural event.
- v. Tree Works on a Tree on land owned by the Macquarie University or the State Government.
- vi. Tree Works required under the provisions of Section 48 of the Electricity Supply Act 1995".
- vii. Tree Works on any Tree on the following list:

Botanical Name	Common Name
<i>Ailanthus altissima</i>	Tree of Heaven
<i>Alnus jorulensis</i>	Evergreen Alder
<i>Arecastrum romanzoffianum</i> (syn. <i>Syagrus romanzoffianum</i>)	Cocos Palm
<i>Bambusa</i> spp.	Rhizomatous Bamboo
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Erythrina crista-galli</i>	Cockscomb Coral Tree
<i>Erythrina x sykesii</i>	Indian Coral Tree
<i>Ficus benjamina</i>	Weeping Fig
<i>Ficus elastica</i>	Rubber tree
<i>Lagunaria patersonii</i>	Norfolk Island Hibiscus
<i>Ligustrum lucidum</i>	Broad leaf Privet
<i>Ligustrum sinense</i>	Narrow leaf Privet
<i>Nerium oleander</i>	Oleander
<i>Olea europaea africana</i>	African Olive
<i>Populus</i> spp.	Poplars
<i>Salix</i> spp.	Willows
<i>Schefflera actinophylla</i>	Umbrella tree
<i>Tamarix aphylla</i>	Athel tree
<i>Toxicodendron</i> spp.	Rhus tree

All edible fruit and nut trees except *Acmena* spp. (Lilly Pilly), *Syzygium* spp. (Lilly Pilly), *Elaeocarpus* spp. (Blueberry Ash) or *Macadamia* spp. (Macadamia Tree).

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3. Tree Permits

3.0 TREE PERMITS

Introduction

This section explains when a Tree Permit is required to carry out Tree Works. Trees on private land are critical to the Urban Forest within the City of Ryde and accordingly Council wishes to preserve and protect these trees.

If you are applying for a Complying Development Certificate under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 you need to obtain a Tree Permit to carry out any Tree Works to a Tree on your land.

If a Development Application has been approved for the removal of a Tree, a Tree Permit is not required for that Tree.

Controls

- a. A Tree Permit must be obtained before any Tree Works are carried out on a Tree other than works requiring a Development Application under Section 4 of this Part. An arboricultural report, and other reports and information may be required to be submitted as part of the Tree Permit assessment process. Requirements for arboricultural reports are set out in section 4 of the Technical Manual.
- b. A Tree Permit must be obtained for any pruning: a) of the crown of a Tree, (including deadwood) and / or b) pruning or removal of roots (greater than 40mm in diameter) from a Tree inside its Tree Protection Zone that is or forms part of a heritage item or is within one of the five heritage conservations areas within the City of Ryde.
- c. All Tree Works must be carried out in accordance with the NSW WorkCover *Code of Practice: Amenity Tree Industry 1998* and, in relation to pruning, Section 5 of the Technical Manual.
- d. Trees removed as a consequence of approval by a Tree Permit must be replaced, in accordance with section 6 of the Technical Manual, to effectively maintain the Urban Forest canopy.

Note: If a Tree is considered to be:

- dead;
- dying; or
- posing an imminent risk to human life or property,

a Tree Permit Application is required to be submitted to Council for the removal of that Tree.

If Council is satisfied that the tree is dead, dying or posing an imminent risk to human life or property, it will issue a letter confirming that the Tree is exempt from the requirement for a Tree Permit and Tree Works may be undertaken.

Note: If you want to remove a Tree which is or forms part of a heritage item or is within one of the five heritage conservations areas within the City of Ryde you must apply for a Development Application under Section 4 of this Part

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4.0 Development
Applications

4.0 DEVELOPMENT APPLICATIONS

Introduction

The City of Ryde contains a number of areas with heritage significance. On land within these areas, Development Application approval must be obtained before carrying out Tree Works on any Tree regardless of whether any other development is proposed for that land. This section explains when Development Application approval under this Part must be obtained.

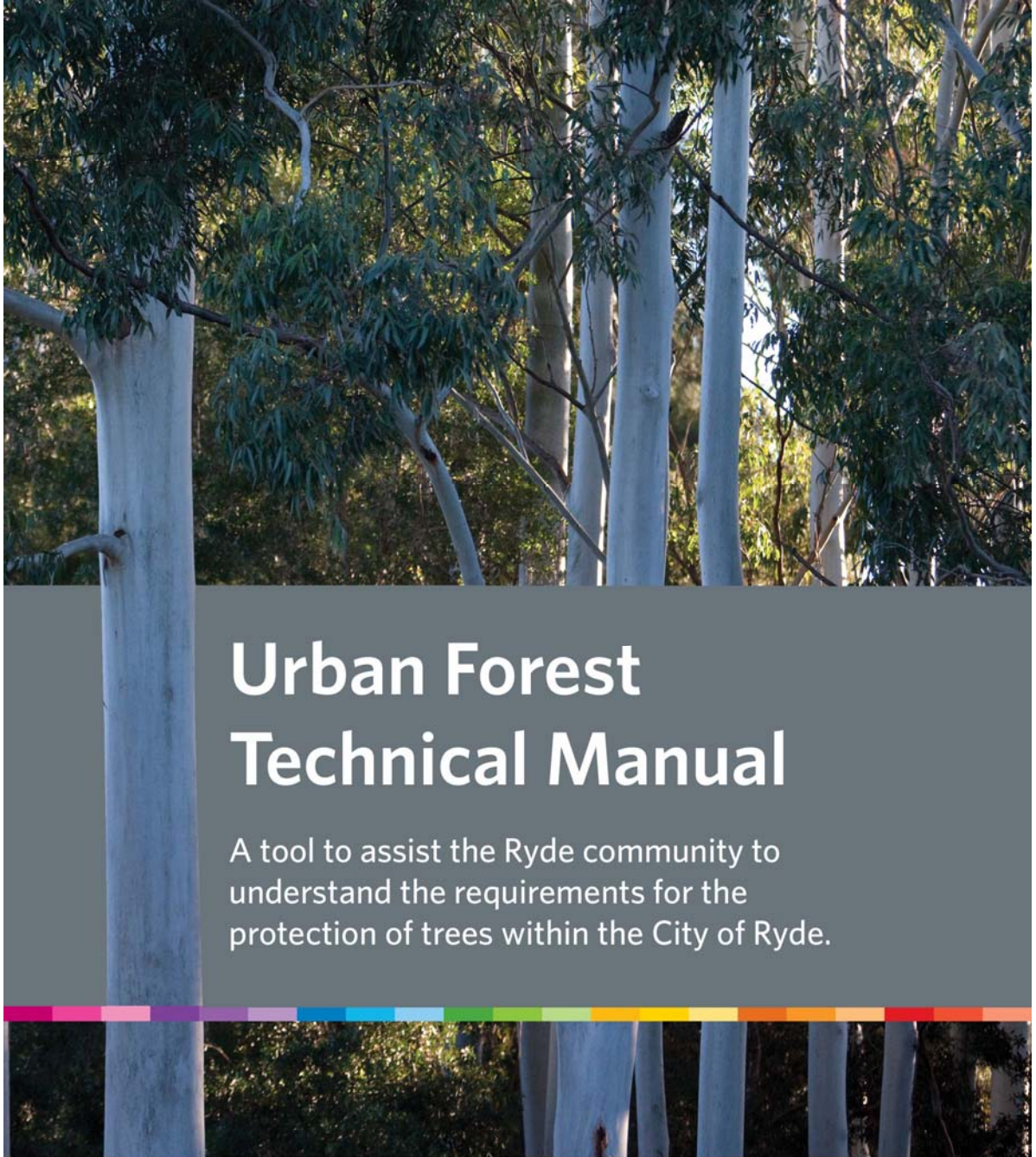
Requirements relating to Trees on development sites are set out in section 2 of the Technical Manual.

Controls

- a. A Development Application approval must be obtained before any removal of a Tree if either the Tree or the site upon which the Tree is located:
 - is or forms part of a heritage item. Heritage items are identified in Schedule 5 of LEP 2010 and are shown on the Heritage Map (Insert weblink)
 - is within one of the five heritage conservation areas within the City of Ryde. You can check whether your property is within one of these areas by looking at the Heritage Map (Insert weblink)
- b. Trees removed as a consequence of Development Application approval must be replaced, in accordance with section 6 of the Technical Manual, to effectively maintain the Urban Forest canopy.

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Urban Forest Technical Manual

A tool to assist the Ryde community to understand the requirements for the protection of trees within the City of Ryde.

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DOCUMENT CONTROL

ISSUE NAME	ISSUE DATE	PURPOSE
DRAFT 9	20 February 2012	Council Report
FOR PUBLIC EXHIBITION	8 March 2012	For Public Exhibition
FOR ADOPTION	15 June 2012	For Adoption

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1. Introduction

Individually and collectively, trees have environmental, economic and social benefits. These benefits include amenity, visual quality, enhanced streetscape, native fauna habitat, soil conservation, enhanced microclimatic conditions, solar access control and improved air quality. Collectively, all the individual trees form the Urban Forest canopy of the City of Ryde. This Urban Forest is a combination of street trees, park trees (including bushland) and trees on private property.

This Technical Manual is a tool to assist the community to understand the requirements of the City of Ryde Development Control Plan 2010 Part 9.6 (Tree Preservation). It contains:

- Details of the technical requirements for the assessment and protection of trees on development sites
- Guidance on how to calculate the DBH and TPZ of a tree
- Qualification and reporting specifications for arborists to support submissions to the City of Ryde
- Qualification requirements and standards applicable to persons carrying out work on trees
- Details of pruning requirements and
- Guidance and specifications in relation to replacement tree planting.

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2. Trees on development sites

2.1 Introduction

This section applies to all development sites upon which trees are located. It applies to Development Applications under all Parts of Development Control Plan 2010 (DCP 2010) and not only to Development Applications under Part 9.6 (Tree Preservation).

The protection of trees on development sites must be planned and managed. Developments should be designed to avoid or minimise potential conflict between trees and proposed structures. The future growth of trees (both above and below ground) must be considered when proposing to construct a structure close to a tree.

The provisions of Australian Standard 4970 – 2009 Protection of trees on development sites and the provisions set out in this Technical Manual shall be complied with in all development within the City of Ryde.

All Development Applications relating to land upon which trees are located shall:

- Include a determination of the retention value of all trees on the land
- Design for the retention of the trees categorised as having high or medium retention values
- Specify construction techniques which avoid or minimise the adverse impact of the development on trees to be retained
- Include details of the species and location of proposed replacement planting.

2.2 Determining tree retention values

Tree retention values shall be used to guide site analysis, site planning and development design. The retention value of a tree is an estimation of the overall significance of the tree in the landscape. Because this estimation of retention values is subjective, the retention value of each tree on a site shall be calculated using a consistent qualitative method using appropriate industry methods, eg SULE, Tree AZ, STARS or SRV.

An arborist shall determine the retention value of a tree if any development is proposed within the Tree Protection Zone of that tree. This includes:

- trees on land upon which development is proposed
- trees on adjoining land
- street trees.

Refer to Section 3 for instructions on how to calculate a Tree Protection Zone. Refer to Section 4 for qualification requirements for arborists.

The retention value of each tree shall be calculated in accordance with the following three step process:

Step 1. Assess the sustainability of the tree in its location. This is determined by considering the vitality, structural condition, age/longevity of the tree and suitability of the tree to the site.

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Step 2: Assess the landscape significance of the tree. This is calculated by considering the amenity, heritage and environmental value of each tree.

Step 3: Consider sustainability and landscape significance together to determine the retention value.

Trees shall be categorised as having a high, medium, low or very low retention value. The City of Ryde considers trees with a high retention value as a priority for retention on a site and trees with a medium retention value should be considered for retention. Both must be considered as constraints on development. Trees given a low or very low retention value can usually be removed and are therefore not considered to be a constraint on development.

2.3 Design for the retention of trees

All developments should be designed to enable the preservation and the long term ongoing viability of trees categorised as having a high or medium retention value. Alternative design options shall be considered prior to recommending tree removal including (but not limited to) the following:

- altering the building footprint;
- altering the development layout; and/or
- altering hard surface design and the extent of hard surfacing, and using permeable materials.

2.4 Tree sensitive construction techniques

Construction techniques which avoid or minimise the adverse impact of the development on trees should be used in all developments within the City of Ryde. These include (but are not limited to)

- Pier and beam footings;
- Localised pier footings;
- Suspended slabs;
- Cantilevered building sections;
- Screw piles; and
- Contiguous piling.

2.5 Replacement planting

If trees on the development site cannot be retained, the City of Ryde shall require replacement trees to be planted. Section 6 below applies to all replacement planting.

2.6 Tree protection measures

Tree protection on all development sites within the City of Ryde must comply with Australian Standard 4970 - 2009 *Protection of Trees on development sites*. The Tree Protection Zone shall be calculated in accordance with section 3 and not be less than that area. All tree protection measures must be in place prior to the commencement of construction works (including demolition, excavation or earthworks) and before any machinery or materials are taken onto the site.

All tree protection measures must be maintained in good condition during the construction works and kept in place until the completion of works or as otherwise advised by the Project Arborist. All tree protection measures shall then be removed.

Details of requirements relating to Project Arborists are set out in section 4.

The following tree protection measures are mandatory on all development sites within the City:

1. Each Tree Protection Zone shall:
 - a. be enclosed by a 18m high fully supported chainmesh protective fencing. The fencing shall be secure and fastened to prevent movement. The fencing shall have a lockable opening for access. Roots greater than 40mm in diameter shall not be pruned, damaged or destroyed during the installation or maintenance of the fencing. The fencing shall not be moved, altered or removed without the approval of the Project Arborist;
 - b. have a minimum of two signs that include the words "Tree Protection Zone - Keep Out". Each sign shall be a minimum size of 600mm x 500mm and the name and contact details of the Project Arborist. Signs shall be attached facing outwards in prominent positions at 10 metre intervals or closer where the fence changes direction. The signs shall be visible within the site;
 - c. be kept free of weeds and, except where the existing surface is grass, grass. Weeds shall be removed by hand; and
 - d. unless the existing surface is grass, have mulch installed and maintained to a depth of 75mm.
2. Where the Project Arborist determines that tree protection fencing cannot be installed, the tree protection fencing needs to be removed temporarily, access within or through the Tree Protection Zone is necessary or where work will be carried out within the Tree Protection Zone (as approved and supervised by the Project Arborist):
 - a. the stem and branches of trees to be retained shall be protected, as follows:
 - two layers of carpet underlay (or other padding approved by the Project Arborist) shall be installed around the stem and branches. Stem protection shall cover the stem from ground level; and
 - hardwood or treated pine timbers (100mm x 50mm) the same length as the stem or branch shall be positioned over the padding and next to each other around the stem or branch, secured together with galvanised wire or strapping. Boards shall not be nailed or screwed into the stem or branch. No part of the protection shall be secured to the tree.
 - b. The ground surface within the Tree Protection Zone shall be protected by placing geotextile fabric on the ground surface, covering this with a layer of mulch to a depth of 75mm and then placing boarding (scaffolding board, plywood sheathing or similar material) on top. The geotextile fabric and mulch shall be kept clear of tree stems by at least 50mm.

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Effects of development on Trees

All parts of a tree may be damaged by development, as follows:

1. Crown damage: Leaf area can be lost through pruning or from mechanical damage caused by construction machinery. Poor pruning techniques can cause wounds that are susceptible to infection by wood decay organisms. Damage to foliage reduces the level of photosynthesis, production of sugars, and consequently the tree's ability to withstand stress and respond to wounds.
2. Trunk damage: Mechanical damage from construction machinery causes wounds which lead to decay. Damage may also interfere with the transport of water, sugar and nutrients throughout the tree reducing the tree's ability to function normally.

3. Root damage: The roots of a tree can be 4 to 7 times larger than the crown area and most roots are found in the top of the soil. Roots can be damaged or severed, the soil compacted, root space lost, soil levels changed (eg. by stripping the soil surface, excavation and cut and fill), soil hydrology altered and surfaces sealed. Damage to roots may lead to a loss of tree stability, reduction in water and nutrient uptake adversely affecting tree vitality, and decay as a result of wounding.

Trees take years to grow but can be injured or killed in a very short time. **It is usually not possible to repair trees stressed or injured through construction damage.** The ability of all trees to tolerate construction impacts depends on a number of factors:

1. Tree age, health and vigour: Healthy, vigorous trees are better able than non-vigorous trees to tolerate adverse impacts because they have more energy reserves to recover from injury. In general, mature and over-mature trees are less able to tolerate construction impacts and adapt to environmental changes than young or semi-mature trees.
2. Tree species: Some species of tree are more tolerant of site changes than others.

3. The cumulative impact of construction throughout the construction process. Mature trees on a site may have already been affected by past construction activities (eg. excavation, compaction and fill when the original building work was carried out).

Trees may respond to construction impacts in a variety of ways. Common symptoms of tree stress from construction injury are slower growth, smaller leaves and poor foliage colour, thin foliage, wilting, twig and branch dieback, decay at wounds caused by mechanical damage, attack by stress-related pests such as borers and tree death.

3. The following activities shall not be carried out within any Tree Protection Zone:
 - a. disposal of chemicals and liquids (including concrete and mortar slurry, solvents, paint, fuel or oil);
 - b. stockpiling, storage or mixing of materials;
 - c. refuelling, parking, storing, washing and repairing tools, equipment, machinery and vehicles;
 - d. disposal of building materials and waste;

4. The following activities shall not be carried out within any Tree Protection Zone unless under the supervision of the Project Arborist:
 - a. increasing or decreasing soil levels (including cut and fill);
 - b. soil cultivation, excavation or trenching;
 - c. placing offices or sheds;
 - d. erection of scaffolding or hoardings; and/or
 - e. any other act that may adversely affect the vitality or structural condition of the tree.

5. All work undertaken within or above a Tree Protection Zone shall be supervised by the Project Arborist.

6. Excavation within the Tree Protection Zone of any tree to be retained shall:
 - a. be undertaken using non-destructive methods (eg. an Airspade or by hand) to ensure no roots greater than 40mm in diameter are damaged, pruned or removed. All care shall be taken to preserve and avoid damaging roots;
 - b. not occur within the Structural Root Zone.

7. The City of Ryde shall only give approval for minor pruning works. All pruning works shall be specified by the Project Arborist. All pruning shall be carried out in accordance with section 5 and by an arborist qualified in accordance with section 4.

8. Written approval from the City of Ryde shall be obtained prior to removing or pruning any street tree. All street trees not approved for removal shall be protected in accordance with the tree protection measures set out above.

The City of Ryde may include additional tree protection requirements as conditions of Development Application approval.

2.7 Arboricultural reports

If any part of the proposed development will encroach into the Tree Protection Zone of any Tree on the site, on adjoining land or any street tree, the City of Ryde may require an arboricultural report to be submitted as part of the Development Application process. The City of Ryde Planning and Environment team shall specify the type of arboricultural report required and any issues they wish to be addressed in the report. The requirements for arboricultural reports are set out in section 4.

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3. Tree Protection Zones

3.1 Introduction

The Tree Protection Zone of a tree is a distance from the stem set aside for the protection of a tree's crown and roots to provide for the viability and stability of the tree. It is an estimate of the area required to protect a tree from adverse construction impacts. No construction activity or changes to soil levels should occur within this area. Because a tree's crown and roots do not always grow in a perfect circle around the stem, it is a hypothetical estimation of the area to be protected. The actual location of tree roots can only be determined by carrying out root investigation via excavation by a qualified arborist (refer to section 4).

3.2 When does the Tree Protection Zone need to be calculated?

The Tree Protection Zone of a Tree must be calculated:

- before soil levels are altered (eg. by excavation or fill) close to a Tree to determine if the works are within the Tree Protection Zone. If it is, a Tree Permit must be obtained for the works before they commence.
- before a Development Application is submitted to determine if any development is proposed within the Tree Protection Zone of any:
 - tree on land upon which development is proposed.
 - tree on adjoining land, or
 - street tree.

3.3 Tree Protection

The Tree Protection Zone is a minimum area set aside for protection of a tree. The Tree Protection Zone shall not be less than this area. Section 2 specifies activities that are prohibited within Tree Protection Zones and tree protection measures. These requirements are mandatory for all development within the City. The City of Ryde may specify in the Tree Permit or Development Application approval additional prohibited activities and tree protection measures. All tree protection measures must be installed before any works are commenced (including demolition, excavation and earthworks) and before any machinery or materials are taken on to the site.

3.4 Encroachment into a Tree Protection Zone

Encroachment (eg. excavation, trenching or fill) of the Tree Protection Zone should be avoided however the City of Ryde recognises that this is sometimes unavoidable. Encroachments of less than 10% of the area of the Tree Protection Zone area are generally considered minor and may be compensated for elsewhere and contiguous with the Tree Protection Zone. Such encroachments must be determined by the Project Arborist who should consider the factors listed in clause 3.3.4 of AS 4970-2009 Protection of trees on development sites. If the encroachment is outside the Structural Root Zone of the tree, the City of Ryde will generally not require detailed root

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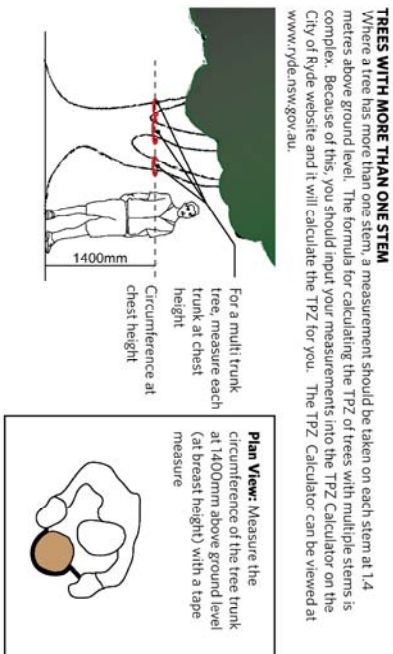
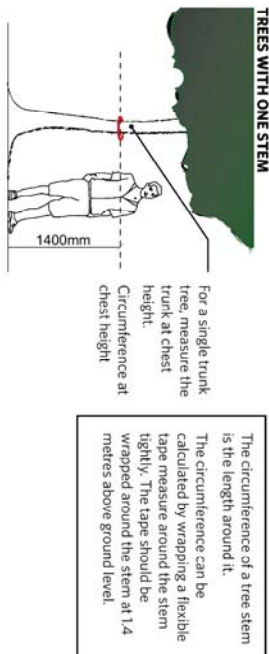
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Figure 3.1 Calculating a Tree Protection Zone (TPZ)

STEP 1 Calculating the circumference of a tree stem



Investigation to be carried out.

Encroachment into the Tree Protection Zone greater than 10% into the Tree Protection Zone is generally considered to be major. If this or an encroachment into the Structural Root Zone will occur, advice shall be sought from the Project Arborist who must determine if the tree will remain viable. The area lost to the encroachment must be compensated for elsewhere and contiguous with the Tree Protection Zone. The Project Arborist shall determine whether detailed root investigation is required (refer to section 4 for Project Arborist qualification requirements and responsibilities).

Depending on the site constraints and the tree's tolerance for root loss, the development may need to be changed to satisfy the requirements of AS 4970-2009 Protection of trees on development sites. Tree sensitive design and construction options can reduce the impact of encroachment and may be conditioned as part of a Development Application approval or Tree Permit.

3.5 How to calculate a Tree Protection Zone

Figures 3.1 and 3.2 illustrate how to calculate the Tree Protection Zone. If you are unsure whether you have calculated the Tree Protection Zone correctly, you can use Tree Protection Zone Calculator on the City of Ryde website at www.ryde.nsw.gov.au. If you input your measurements into the calculator it will calculate the Tree Protection Zone for you.

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Figure 3.2 Calculating a Tree Protection Zone (TPZ)

STEP 2 - Using the circumference measurement to calculate the TPZ

- 1. Calculate the DBH (Diameter at Breast Height)**
Divide the circumference (as calculated in Step 1) by 3.14
- 2. Calculate the TPZ**
Multiply the DBH figure by 12. This measurement should be calculated in metres.
- 3. Measure the TPZ**
The TPZ of a tree is then measured by laying a tape measure on the ground and measuring the TPZ distance radially from the stem to form a circle around the tree stem. This circle is the TPZ, as shown in the examples below.
NOTE: A TPZ should not be less than 2 metres or more than 15 metres from the tree stem.
NOTE: You do not need to calculate the TPZ of palms, cycads and tree ferns. For these plants, the TPZ should not be less than 1 metre outside the crown.

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4. Arborists

4.1 Qualifications

Tree work is technical and inherently dangerous. Therefore it is important that appropriately qualified people are hired to carry out this work. Table 4.1 sets out the qualification requirements for arborists within the City of Ryde.

Table 4.1 Arborist Qualification Requirements

TASK / ACTIVITY	MINIMUM QUALIFICATIONS
Assess and carry out tree pruning	Australian Qualification Framework level 3 or equivalent in Horticulture (Arboriculture). Registered as a member of either: <ul style="list-style-type: none"> • Tree Contractors Association Australia • Arboriculture Australia
All tree assessment and report preparation including: <ul style="list-style-type: none"> • Tree health and condition assessment • Tree retention value assessment • Arboricultural impact assessment • Tree protection plan • Root mapping • Testing with a sonic tomograph • Testing with resistance drilling technology 	Australian Qualification Framework level 5 or equivalent in Horticulture (Arboriculture).
Project Arborist in relation to all development	Australian Qualification Framework level 5 or equivalent in Horticulture (Arboriculture).

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4.2 Suitably qualified arborists

Qualified and industry approved arborists can be found by contacting the following organisations:

- **Tree Contractors Association Australia**
Web: <http://www.tcaa.com.au> Telephone: 1300 660 379
- **Institute for Australian Consulting Arboriculturists**
Web: <http://www.iaca.org.au>
Telephone 1300853 288
- **Arboriculture Australia**
Web: <http://arboriculture.org.au> Telephone: 1300 664 374

Before you employ an arborist you should check that they are qualified to carry out the work (in accordance with Table 4.1) and insured to carry out the type of work proposed.

Note: You must obtain a Tree Permit or Development Application approval before you carry out all non exempt Tree Works within the City of Ryde. If you employ a person or company to carry out Tree Works without prior approval you will be in breach of section 126 of the *Environmental Planning and Assessment Act (1979)* for which pecuniary penalties apply. The City of Ryde may issue penalty /infringement notices.

4.3 Arboricultural Reports

Reports prepared by an arborist who does not hold the qualifications specified in Table 4.1 or reports that do not include the minimum information as specified in this Section will not be accepted.

When preparing an arboricultural report, the arborist must not act as an advocate for their client but instead has an overriding duty to assist the City of Ryde in making an impartial decision. All arboricultural reports must provide an objective, balanced assessment of the tree and must reflect the arborist's expert opinion.

The City of Ryde shall consider the level of detail and relevance of the information contained within an arboricultural report. The City of Ryde may:

- require further investigation to be carried out, for example aerial inspection or testing via a sonic tomograph or resistograph,
- disagree with the findings and/or recommendations in the report, and the report may form the basis for refusing an application for tree removal.

Pages 21-25 set out the minimum content requirements for all arboricultural reports. Reports submitted that do not comply with these requirements shall not be accepted.

The City of Ryde may require plans to be submitted in both hard copy and AutoCAD dwg. format.

4.4 Project Arborist

A Project Arborist is an arborist appointed by a property owner or development applicant to monitor the vitality and condition throughout the construction process of all trees being retained on the land, and any trees on adjoining land and street trees where the development encroaches into

the Tree Protection Zone of those trees. Project Arborists must have the qualifications set out in Table 4.1.

Throughout the construction process, the Project Arborist shall be responsible for:

- inspecting and assessing the trees
- supervising any work within the Tree Protection Zone of the trees
- specifying and supervising pruning works
- preparing reports required by the City of Ryde
- specifying and monitoring compliance with tree protection measures
- specifying and certifying remediation works
- providing written statements of compliance (certification) at specific milestones throughout the construction process in accordance with AS 4970 - 2009 Protection of trees on development sites.

The property owner or development applicant should employ the Project Arborist at the initial design stage of the development and prior to the commencement of any construction works (including demolition, excavation or earthworks). The same Project Arborist should be retained throughout the construction process to ensure a consistent approach in the protection and preservation of the trees.

The City of Ryde shall include monitoring and reporting requirements as conditions at development application approval and construction certificate stages.

The City of Ryde shall require the Project Arborist to be involved at pre-determined stages of the development process, as listed in Table 4.2. Reports prepared by the Project Arborist during the development process shall include (as a minimum) the following:

- details of the vitality and structural condition of all trees being retained and their growing environment
- details of any works undertaken within the Tree Protection Zone of each tree
- documentary evidence of compliance with tree protection measures (eg. photographs)
- details of proposed remedial works and the time frame for these works to be completed if:
 - the vitality or structural condition of the tree or the growing environment has been adversely affected
 - the tree has been damaged in any way
 - any tree protection measures are non-compliant
- Confirmation (certification) that remedial works specified in previous reports have been completed.
- Any other information reasonably required by the City of Ryde in relation to the health and structural condition of trees being retained. Copies of monitoring documentation may be required.

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Table 4.2 Development Stages

STAGE OF THE PROJECT	ROLE OF PROJECT ARBORIST
Pre-construction	<ul style="list-style-type: none"> Tree removal and pruning - the Project Arborist shall mark all trees for pruning, retention, removal or transplanting on site and check these correspond with those shown on the relevant construction plans; specify all pruning works; and certify all tree pruning, removal and transplanting works on the completion of these works Tree protection - the Project Arborist shall certify that all tree protection measures are installed in compliance with the Tree Protection Plan and specification.
Construction	<p>The Project Arborist shall submit reports to the City of Ryde regularly throughout the construction process. The number and timing of reports required will vary according to the size of site and complexity of the development. Report requirements shall be specified by the City of Ryde in the Development Application approval and construction certificate documentation. The following milestones are typical triggers for the preparation of reports:</p> <ul style="list-style-type: none"> Completion of site establishment Installation of services Installation of footings and slabs Erection of scaffolding Works within the Tree Protection Zone of any tree on the site or on adjoining land or any street tree Completion of building works Practical completion of all construction and landscape works.
Post-construction	<p>Completion of the defects liability period. The Project Arborist shall:</p> <ul style="list-style-type: none"> certify that all tree protection measures throughout the construction and landscaping works have complied with all plans, specifications and reports prepared by the Project Arborist; and conditions specified in Development Application approval or Tree Permit. If any tree protection measures have not been complied with, provide details of the non-compliance and the impact on the trees. assess the vitality and structural condition and growing environment of all trees on the site, and trees on adjoining land and street trees where any work has occurred within the Tree Protection Zone of those trees. make recommendations for any necessary remedial works and certify that all remedial works have been completed.

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Minimum content for Arboricultural Reports

MANDATORY REPORT REQUIREMENTS

- All arboricultural reports submitted to the City of Ryde must include the following information:
- The name, business address and telephone number of the arborist and/or business who inspected the tree(s) and prepared the report.
 - The qualifications and industry experience of the arborist who prepared the report.
 - Disclosure by the arborist of any pecuniary or non pecuniary interests in the site or development.
 - The name of the person or business who commissioned the report.
 - The address of the site where the tree(s) affected by the proposed development are located.
 - The date(s) when the tree inspection was undertaken.
 - The purpose of the report.
 - Methodology used in the inspection.
 - A survey plan of the site, to scale (with scale shown), accurately showing:
 - The lot boundaries
 - The location of the all trees on the site with an individual number given to each tree
 - A brief description of any other vegetation on the site
 - Trees on adjoining properties 5 metres or less from the site boundaries.
 - A table showing, for each tree surveyed:
 - the full botanical name (genus and species) and common name
 - age class
 - estimation of the height
 - D3H - trunk diameter at 1.4 metres above ground level
 - an estimation of canopy spread to the four cardinal points.
 - The arborist's observations and findings:
 - A description of the health, condition and structure of each tree, addressing root system, the stem, branches and foliage.
 - Supporting evidence (eg. photographs and laboratory results).
 - A discussion of the observations made and data collected. This should include a discussion of all management options available (eg. tree pruning, site or design modification) to avoid the removal of the tree.

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Minimum content for Arboricultural Reports

- The estimated useful life expectancy and an analysis of the landscape amenity and significance of each tree to the site and locality.
- The retention value of each tree using appropriate industry methods (eg. SULE, Tree A-Z, Stars or SRIV).
- Recommendations: These must be based on the observations made and any test results. Recommendations made to support a specific development outcome will not be considered. An explanation of why options are recommended or not recommended must be included.
- Sources of references referred to in the report. References not used in the report should not be included.

Root Mapping

Roots must be located and exposed using minimally destructive techniques (eg. hand digging or Air-spades) or non-destructive techniques (eg. sonic tomograph). Machinery or tools such as mattocks and crow bars must not be used.

In addition to the mandatory report requirements, the report must contain the following information:

- a plan showing the location of all excavation lines including points of reference and orientation details
- a section plan of the excavation showing all material found within the excavated area
- photographs (including points of reference and orientation details)
- a schedule of findings for each individual excavation line including details of:
 - total linear distance of the excavated line
 - number of roots found
 - linear distance along the excavation that roots are located
 - depth at which roots were located
 - condition of the roots
 - diameter of the roots.

Tree Hazard Assessments

A tree hazard assessment may be required when an applicant considers a tree to be potentially hazardous.

In addition to the mandatory report requirements, the report must contain the following information:

- a description of any identified hazards (eg. the extent of decay or basal cavity)

Minimum content for Arboricultural Reports

- details of the hazard rating system used
- the hazard rating under that system
- recommendations for hazard abatement. These must be based on the observations made. An explanation of why options are recommended or not recommended must be included.

Resistograph Reports

In addition to the mandatory report requirements, the report must contain the following information:

- The reason why the resistograph assessment is being carried out (eg. testing for decay associated with a wound)
- The type of defect being tested for
- Drill depth and resonance setting
- The type or model of resistograph used
- The location of the drill test readings on the tree in relation to the defect
- The failure criteria applicable to the defect
- Photographs of the defect
- A clear copy of the resistograph charts resulting from the test, with the wood quality indicated on the charts by colour coding
- Plotted diagram of the decay
- Assessment as to whether the defect passes or fails the applicable failure criteria (including details of calculations made)
- Recommendations and the reasons for the recommendations.

Arboricultural Impact Assessment Reports

Where development is being carried out on a site upon which trees are located or within the Tree Protection Zone of a tree on adjoining land or a street tree, an Arboricultural Impact Assessment report may be required by the City of Ryde as part of the Development Application process.

In addition to the mandatory report requirements, the report shall contain the following information:

- Retention values for all trees.
- In accordance with Australian Standard 4970-2009 Protection of trees on development sites, for each tree on the site, and for each tree on adjoining land and street tree where the development will occur within the Tree Protection Zone of those trees:
 - stem diameter measured above the root buttress
 - recommended Tree Protection Zone (TPZ) and Structural Root Zone (SRZ)

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Minimum content for Arboricultural Reports

- percentage of encroachment into each TPZ and details of any encroachment into any SRZ
- proposed method used to excavate within the TPZ and SRZ

Note: This information shall be clearly presented in table form.

- An accurate and comprehensive assessment of the likely impact of the proposed development on each tree including:
 - Details of the proposed development, including but not limited to alterations to existing buildings, services, drainage and driveways, and proposed building footprints
 - Details of above and below ground constraints on trees to be retained
 - Details of any modifications to existing soil levels on the site (for example, cut, fill and excavation)
- The location of proposed sediment controls on the site
- The impact of proposed landscape modifications.
- Recommendations as to design modifications and construction methods to minimize the adverse impact on trees that should be retained.
- Recommendations on protection measures to ensure the protection of the trees to be retained.

Details of any pruning required for construction works and the proposed development, and a pruning specification setting out the:

- pruning type (classification) in accordance with AS 4373 - 2007 Pruning of amenity trees
- number of branches to be pruned
- branch orientation
- branch diameter, and
- approximate percentage of live canopy to be removed

Note: All pruning shall be carried out in accordance with section 5.

- A Tree Protection Plan (to scale, with scale shown) showing the TPZ and location and type of tree protection measures that will be erected or installed around each tree. This plan must include all trees being retained on the site, and trees on adjoining land and street trees if development will occur within the TPZ of these trees. The Plan shall include details of proposed protection measures throughout the entire development and construction process (including during the demolition and excavation stages).
- A Tree Removal Plan showing all trees on site and clearly marking all trees proposed to be removed.

Minimum content for Arboricultural Reports

- A Landscape Plan showing:
 - All trees that are proposed to be retained and transplanted on the site
 - For all replacement tree plantings proposed
 - a replacement plant schedule (showing the botanical and common names the expected mature height of the tree with the City of Ryde)
 - tree stock specification in accordance with section 6.
 - locations of proposed plantings
 - A post-construction tree establishment and maintenance programme. The City of Ryde requires a 52 week establishment and maintenance period and this period shall commence at practical completion.

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5. Pruning

5.1 Introduction

Tree pruning should result in healthy, structurally sound and aesthetically pleasing trees. One of the key objectives when pruning a tree is to create and maintain a strong structure with a functional and pleasing form. This can be achieved by undertaking pruning regularly throughout the life of the tree. Pruning can guide the form of a tree and correct defects such as poor structure.

There should always be a good reason to prune a tree because pruning causes wounds which the tree has to respond to. Frequent and indiscriminate pruning will stress the tree and consequently adversely affect its health.

5.2 General requirements

All pruning works within the City of Ryde must be carried out:

- by an arborist with a minimum qualification of AQF level 3 (refer to Table 4.1 in section 4)
- in accordance with Australian Standard 4373 - 2007 *Pruning of amenity trees*
- in accordance with the *Workcover Code of Practice - Amenity Tree Industry 1998*
- in accordance with this Technical Manual.

5.3 Pre pruning assessment

Prior to any pruning works being carried out, the tree must be assessed by a person competent in arboricultural assessment (Table 4.1 in Section 4). This must include:

- an assessment of the tree's species, age, health, growth habit, structural condition, stability and growing environment
- an assessment of existing habitat and potential habitat value of the tree or section of the tree being considered for pruning.

Note: Tree with hollows or other potential habitat may need to be assessed by an ecologist or wildlife specialist.

- an assessment of the risk of disease spreading from the tree to other trees and the need for disinfecting pruning tools between trees
 - consideration of the reason for pruning the tree
 - an assessment of the likely effect of any root pruning
 - consideration of the impact of the pruning on the health, structure, amenity and stability of the tree.
- The arborist must:
- Determine whether pruning is required or not having regard to the criteria set out above.
 - Recommend the pruning works only if the tree will not be adversely affected by the pruning.

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5.4 Pruning practices

Trees must be pruned to maintain their natural habit. The arborist must aim to remove the smallest possible amount of living tissue when pruning. Lopping, topping, lion's tailing, flush cutting, wound painting and wound filling must not be specified or undertaken within the City of Ryde. Tree pruning should not:

- result in the premature death of the tree
- create a hazard
- be excessive or indiscriminate
- result in the overall crown shape becoming unbalanced or the tree unstable.

All pruning tools must be sharp to ensure clean cuts will be made. Equipment that will wound, penetrate or bruise bark and conductive tissues (including spurs, spikes, hooks, chained platforms and lowering systems) must not be used on or in sections of trees to be retained. When pruning palms all pruning tools must be disinfected in between trees to avoid the spread of disease.

Roots to be pruned shall be located and exposed using minimally destructive techniques (eg. hand digging or by Air-spade) or non-destructive techniques (eg. sonic tomograph).

5.5 Pruning specifications

The City of Ryde's Urban Forest team or the Project Arborist shall specify the type (Pruning class) and amount of pruning which may be carried out before any pruning work commences. All pruning shall be undertaken in accordance with these specifications and the provisions of this Section 5.

AS 4373 - 2007 *Pruning of amenity trees* sets out a number of pruning classes. Pruning may maintain or modify the crown of a tree. Crown maintenance does not reduce the volume of the crown and retains the structure and size of the tree. Crown modification changes the form and habit of the tree. The class specified by the Urban Forest team or Project Arborist will depend on the reason for pruning a tree. The specification shall include:

- For deadwooding, the minimum diameter and location of the branches to be removed (refer to the Note below)
 - For crown thinning, the percentage of the crown to be removed, and maximum diameter and location of branches to be removed
 - For selective pruning, the specific branches to be removed
 - For formative pruning of young trees, the specific branches to be removed
 - For reduction pruning, the extent of the crown or limb reduction
 - For crown lifting, the clearances to be achieved, and the maximum diameter and location of the branches to be removed
 - For remedial (restorative) pruning, specific details of pruning and number of pruning stages
 - For pruning palms, specific parts (fronds and/or fruit) to be removed.
- Note:** Written consent (by way of a Tree Permit or Development Application approval) is not

required to remove dead branches, provided the work is carried out:

- by a qualified arborist (in accordance with Table 4.1 in Section 4)
 - in accordance with:
 - Australian Standard 4373-2007 *Pruning of Amenity Trees*
 - NSW WorkCover Code of Practice: *Amenity Tree Industry 1998*.
- However, prior written approval to remove deadwood from a Tree must be obtained if the Tree:
- is or forms part of a heritage item; or
 - is within one of the five heritage conservation areas within the City of Ryde.

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6. Replacement planting

6.1 Introduction

DCP Part 9.6 (Tree Preservation) aims to preserve the urban forest within the City of Ryde. An urban forest has environmental, social and economic functions and benefits. The environmental function largely depends on the amount of canopy cover. In addition many of the benefits of individual trees are directly related to size. When a large mature tree is removed from a site it will take a significant amount of time and resources to regain those benefits and replace the canopy cover. A small replacement tree does not have the same function or benefits as an existing large mature tree.

Effective management of trees as a natural resource and as part of the urban infrastructure of the City of Ryde depends, amongst other things, upon the long term retention of existing trees. However the City of Ryde recognises that trees need to be removed in some situations. In order to maintain the urban forest within the City of Ryde, the Urban Forest team may require replacement of any tree removed.

The success of the replacement tree will depend upon:

- Selecting an appropriate tree species and a suitable planting location (refer to section 6.2)
- Purchasing a good quality tree to buy (refer to section 6.3)
- Correctly planting the tree to give it the best conditions in which to grow (refer to section 6.4)
- Maintaining the tree during the period in which it establishes (Refer to section 6.5).

6.2 Replacement planting as a condition of tree removal

The City of Ryde may require replacement planting as a condition of a Tree Permit or Development Application approval. The Tree Permit or Development Application approval may specify in relation to the replacement tree:

- the minimum height at planting or minimum container size
- the minimum height at maturity
- whether the tree is native or exotic
- the genus and species (refer to the Note below)

Note: Within Urban Bushland areas, specific native trees may be specified.

6.3 Selecting the right tree for the right place

When selecting a tree, the following factors should be considered:

- The mature size and habit of the tree. Large trees should not be planted in very small spaces where they may conflict with buildings and service infrastructure (eg solar panels or sewerage pipes). The height and spread of trees can only be controlled by frequent and ongoing maintenance which may be costly.

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- Desirable features of the tree, eg. weeping habit, flowering, bird attracting, drought tolerant, evergreen or deciduous, native or exotic. The City of Ryde considers both native and exotic trees to be valuable natural assets and does not advocate the planting of native trees only. In many urban situations, native trees do not grow as well as exotic species.
- The specific benefits to be achieved or problems to be avoided. Eg. planting a deciduous tree on the northern side of a dwelling house will provide shade to that part of the house in summer and allow light through in winter. Conversely planting a potentially large, evergreen tree to the north of solar panels will cause overshadowing which will adversely affect energy collection.

The mature size of a tree and what it looks like (habitat/shape) will vary depending on where it has been planted (soil and climate conditions) and how much care it has received. However, in general, a good way of finding out how big a tree will grow and what it will look like when mature is to look at mature specimens within the City of Ryde. For example in parks, nearby gardens and street trees. Trees listed in Table 6.1 are considered undesirable and should not be planted within the City.

Table 6.1 Undesirable Tree Species

BOTANICAL NAME	COMMON NAME
<i>Alnus altissima</i>	Tree of Heaven
<i>Alnus jordanensis</i>	Evergreen Alder
<i>Acacia saligna</i> (syn. <i>Saligna</i>)	Coccoloba
<i>Bambusa nana</i>	Rhizomatous Bamboo
<i>Cinnamomum camphora</i>	Campbell Laurel
<i>Erythrina x sikkimensis</i>	Indian Coral Tree
<i>Erythrina cristata-galli</i>	Cockscomb Coral Tree
<i>Ficus benjamina</i>	Weeping Fig
<i>Ficus elastica</i>	Rubber Tree
<i>Lagunaria patersonii</i>	Norfolk Island Hibiscus
<i>Ligustrum lucidum</i>	Broad Leaf Privet
<i>Ligustrum sinense</i>	Narrow Leaf Privet
<i>Nerium oleander</i>	Oleander
<i>Olea europaea africana</i>	African Olive
<i>Populus spp</i>	Poplars
<i>Salix spp.</i>	Willows
<i>Schefflera actinophylla</i>	Umbrella Tree
<i>Tamarix aphylla</i>	Athel Tree
<i>Toxicodendron spp.</i>	Rhus Tree

6.4 Choosing good quality plants

Choosing good quality stock is as important as choosing suitable species, planting location, correct planting and maintenance of the tree. The selection of a good quality plant is essential for the long term success of the tree. In particular, a well developed and well formed root system is critical to the long term health and viability of a tree.

Poor plant selection can cause early death, poor growth, poor vitality and poor form. Most root defects cannot be corrected. A tree with above ground defects will need remedial care. Eg. poor form will need to be corrected by formative pruning by an arborist whilst the tree is young or establishing. It is not economical in the long term to buy cheap plants if they are of poor quality.

The City of Ryde recommends that tree stock planted within the City should comply with the NATSPEC document *Specifying Trees - A guide to assessment of tree quality* by Ross Clark (2003).

The following guidelines are intended to help residents identify good quality stock at the plant nursery/garden centre. They are based on the NATSPEC document.

Tree stock should be assessed for overall balance between the size of the roots below ground and the crown above ground, and for both above ground and below ground characteristics, as follows and as shown in Figure 6.1:

- Balance between the size of the tree above the ground and the size of the rootball/container: In general, large trees in small containers are likely to have root defects and will need a high level of maintenance (eg frequent watering) when planted. A tree with a moderately sized crown in proportion to the root system is likely to grow more vigorously when planted than a tree with a large crown.
- Above ground:
 - Does the tree look healthy?
 - Is the tree free from pests and disease?
 - Is the tree free from wounds or injury? Are there any recent pruning wounds? Select plants with no or very few wounds. All pruning wounds should be cleanly cut.
 - Is the tree self supporting? A tree should be able to stand up without being staked. If the stem of the tree bends when the stake is removed, the tree is not self supporting and should be rejected.
 - Does the stem of the tree taper? The circumference of the stem at the base of the tree should be larger than the circumference higher up the stem. This shows that the stem is strong. Often trees that have been staked do not have stem taper.
 - Does the tree have a intact (unpruned) central stem?
 - Is the crown of the tree symmetrical? Are there branches on all sides of the stem?
- Are all branches smaller in diameter than the stem? The diameter of each branch should be no more than half the diameter of the stem.

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- Are the junctions between the stem and branches convex (similar to a wide "U" shape)? Structural problems may occur on some trees if the space between the stem and branches forms a very narrow fork (similar to a narrow "V" shape).
 - Is the stem of the tree approximately in the middle of the container?
 - Below ground (these characteristics can only be seen if the plant is taken out of the container):
 - Root growth should be symmetrical and roots should grow downwards.
 - The outside of the rootball should be free of circling or large, sharply bent roots.
 - There should be sufficient roots in the pot so that when the tree is removed from the pot, the root mass will keep its shape. On staking or handling the rootball outside of the pot, most (at least 90%) of the soil should remain around the roots.
 - The root crown (the uppermost roots emerging from the stem) should be at the surface of the rootball/potting mix.
- The Urban Forest team, arborists and your local plant nursery/garden centre will be able to explain these characteristics to you and give you advice on how to select good quality trees.**

6.5 Tree planting

Correctly planting a tree is a very simple process but an important one. Correctly handling the tree when planting, preparing the planting hole and caring for a tree after it has been planted will ensure the survival and optimal growth of the tree.

The best time to plant a tree is during autumn when the soil is still warm and the roots of the tree have time to grow before winter. Trees take up water through their roots. In general, trees require more water when they actively start to grow in spring and during hot summer months. Planting in autumn gives the tree more time to grow new roots and for roots to start growing into the surrounding soil before the increased demand for water starts. However, container-grown trees can be planted at any time of the year if they are properly cared for after planting.

Handling a tree

Trees should be kept in a sheltered and shady spot before being planted to keep them from wilting. Care should be taken not to damage trees when moving them. If the tree must be lifted by its stem, the stem should be wrapped with soft padding (eg. carpet underlay or rubber) and only the padded part of the stem handled. If the tree is large, a soft sling should be placed under the rootball rather than lifting the tree by its stem.

Watering

- The tree should be well watered a number of times during the planting process:
- prior to planting, whilst the tree is still in the container. The soil in the container should be moist when you plant the tree.
- immediately after planting by watering within the watering berm (see below). This will ensure

- the rootball of the plant receives the water and not the surrounding soil (refer to the Note below and Figure 6.2).
 - after laying mulch or, if mulch isn't immediately placed around the newly planted tree, both before and after laying the mulch.
- The soil should be thoroughly wetted. It is better to give the plant a few long, thorough applications of water rather than a small amount of water frequently.
- Note:** When the tree is first planted all of its roots are contained inside the potting mix from the container. This is the tree's rootball at this time. The tree will not have any roots in the surrounding soil and therefore there is no need to water the surrounding soil at the time of planting.

Digging the planting hole

Before digging the planting hole, the location of underground services should be ascertained to avoid injury and interruption or damage to services. The City of Ryde recommends contacting Dial Before you Dig on 1100 before you carry out any excavation works. All excavation within 300mm of services should be carried out by hand.

Tree roots need oxygen and generally most fine absorbing roots of trees are to be found in the top 200-300mm of soil. The planting hole should be dug to a depth slightly less than the height of the rootball in the container so that when the tree is placed in the hole the top of the rootball sits up to 20mm above the top of the hole. This is because the weight of the tree will make the tree settle down in the hole over time and eventually the top of the rootball will be level with the top of the surrounding soil.

Root trimming

Root pruning may increase fine root growth within the root ball. Shaving or trimming off the very outermost edge (up to 20mm) of the rootball of a container-grown tree will stimulate root division and growth. An increased root system will allow the tree to absorb more water and nutrients, and consequently the tree may establish more quickly. Root trimming can be done when the tree has been placed in the planting hole prior to backfilling.

Backfilling the hole

Backfill the planting hole in layers, gently tamp down the soil in each layer and lightly water to remove any air pockets. Fill the hole with soil and construct a berm (see below). There should be no soil placed over the top of the rootball because this buries the existing tree roots impacting on the tree's ability to absorb oxygen. Placing soil over the rootball up to the trunk may also cause collar rot.

Constructing a berm

Form a mounded edge of soil approximately 60mm high on top of the rootball just inside the outermost edge of the rootball. This makes a shallow basin around the stem which prevents water run off to lower ground and allows the water to soak into the soil. The tree should be watered within this area until the tree is established.

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6.4.7 Staking

Good quality trees should not require staking.

6.4.8 Mulching

Applying organic mulch over the surface of the soil after planting is beneficial because it:

- adds organic matter (and nutrients) to the soil
- protects the soil surface
- reduces water run-off
- insulates the soil from temperature extremes and
- inhibits weed growth.

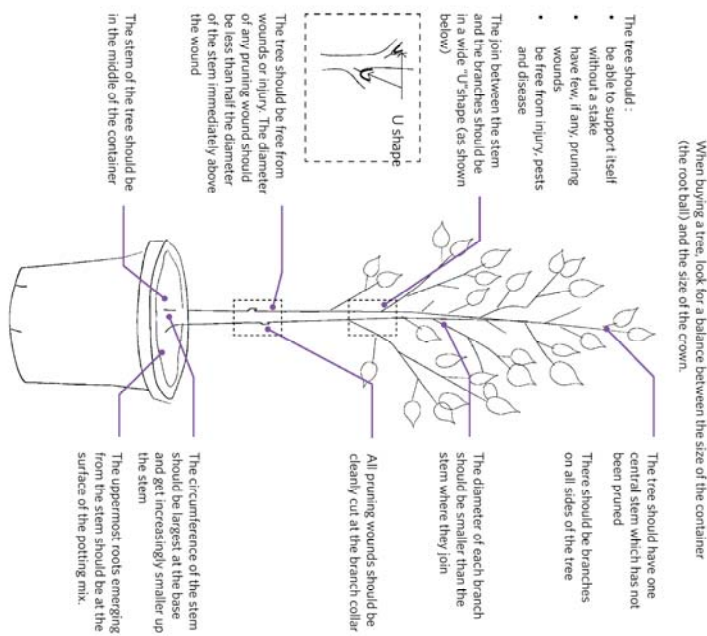
Mulch should be placed at an approximate maximum depth of approximately 50mm. If mulch is too deep it can have negative effects such as reducing the amount of surface water reaching the soil and roots. Mulch should be kept well clear of the tree trunk. Mulching up to the trunk may cause collar rot.

6.5 Care after planting

Trees may take up to two years to successfully establish. Care during this period will lead to healthy and vigorously growing trees. The following maintenance practices should be regularly carried out during the establishment period:

- Watering: Water both the rootball and the surrounding soil thoroughly
- Weeding: Remove weeds close to the tree (weeds compete with the tree for water and nutrients)
- Fertilising: To maintain healthy growth in accordance with the fertiliser manufacturer's application instructions
- Pest and disease control: inspect to monitor and protect the tree from pests and diseases
- Mulching: Replenish water to keep the mulch depth to approximately 50mm deep.

Figure 6.1 Choosing a good quality tree
what to look for above ground

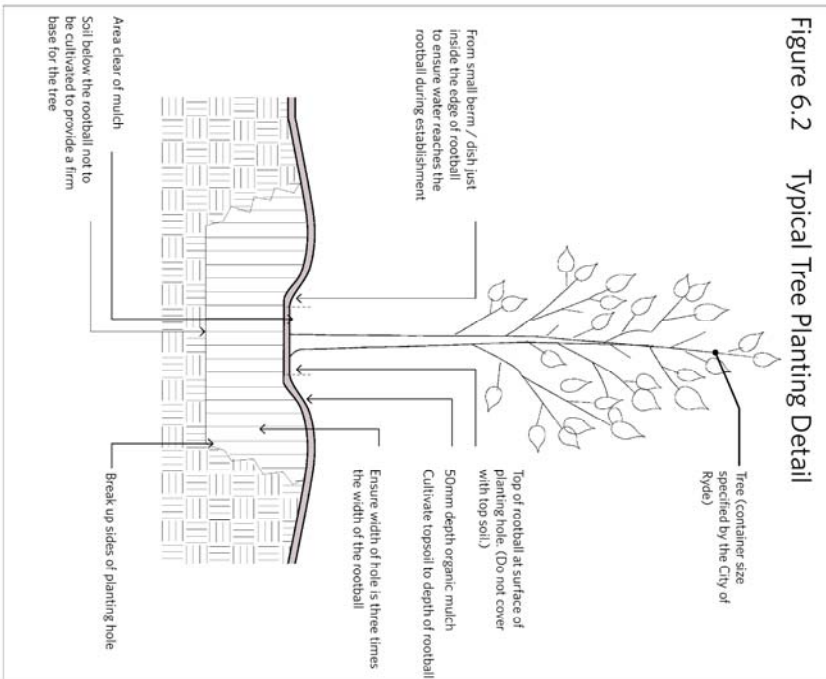


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Figure 6.2 Typical Tree Planting Detail



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7. References

Australian Standards:
 AS 4373 - 2007 - Pruning of amenity trees
 AS 4970 - 2009 - Protection of trees on development sites

Tree supply standards:
 Clark, R. 2003, Specifying Trees - A guide to assessment of tree quality, 2nd edn, Sydney NSW

Codes of practice:
 NSW WorkCover Code of Practice: Amenity Tree Industry 1998.

City of Ryde documents:
 City of Ryde Local Environment Plan 2010
 City of Ryde Development Control Plan 2010

Other references:
 City of Newcastle 2010, The Newcastle Urban Forest Technical Manual, The City of Newcastle Council, Newcastle NSW
 Harris, RW, Clark, JR & Matheny, NP 2004, Arboriculture Integrated Management of Landscape Trees, Shrubs and Vines, 4th edn, Prentice Hall, New Jersey USA

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8. Glossary

Branch collar means a swelling around the base of a branch containing defensive chemicals formed by overlapping stem and branch tissue.

Crown means the portion of the tree consisting of branches and leaves and any part of the stem from which branches arise.

Crown lifting means the removal of the lower branches of a tree.

Crown thinning means the selective removal of branches that does not alter the overall size of the tree.

DBH means diameter at breast height at 1.4m above ground level.

Deadwooding means the removal of dead branches from a tree.

Exotic means a plant introduced or not originating from Australia.

Flush cut means a cut that damages or removes the branch collar or removes the branch and stem tissue and is inconsistent with branch attachment as indicated by the branch bark ridge.

Formative pruning means the pruning of young or establishing trees with the aim of directing growth and/or developing a sound structure.

Lion's tailing means the practice of removing branches from the interior of the crown leaving most of the foliage at the ends of branches. This may lead to structural hazards.

Lopping means the cutting branches or stems between branch unions or internodes.

Native means all plant species indigenous to Australia including all plant species locally indigenous to the City of Ryde.

Project Arborist means an arborist qualified in accordance with section 4.1 who is retained by a property owner or development applicant to carry out the responsibilities set out in section 4.4.

Reduction pruning means the removal of ends of branches to lower internal lateral branches or stems in order to reduce the height and/or spread of the tree.

Remedial (restorative) pruning means the removal of damaged, diseased or lopped branches back to undamaged tissue in order to induce the production of shoots from latent or adventitious buds, from which a new crown will be established.

Stem means the part of the tree which supports branches, leaves, flowers and fruit and is also called "the trunk".

Structural Root Zone (SRZ) means an area around the base of a tree required for the tree to be stable. The tree's woody roots and soil cohesion in this area are necessary to hold the tree upright. It is a radial distance from the stem calculated in accordance with AS 4970 -2009 Protection of trees on development sites.

Topping means reducing the height of a tree by lopping.

Tree Protection Zone (TPZ) means an area above and below ground calculated in accordance with AS 4970 -2009 Protection of trees on development sites. It is a radial distance from the stem set

aside for the protection of a tree's roots and crown to provide for the viability and stability of the tree.

Urban Bushland means land designated as Urban Bushland within the City as shown on maps and in documents commissioned by the City of Ryde from time to time.

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Urban Forest Policy

Scope

The City of Ryde urban forest comprises all the trees within the City irrespective of whether the trees are in parks, bushland areas, along road verges and nature strips, or in private gardens.

Trees have many environmental, economic and social benefits. The urban forest is a community asset that needs to be planned for and managed as an important part of the City's public infrastructure system together with other parts of the built environment such as footpaths, roads and buildings. The urban forest should be managed and expanded.

One of the challenges identified in the Ryde 2021 Community Strategic Plan is to "plan and design a growing and liveable city through considered urban renewal and land use, while protecting and enhancing the natural assets ..." This Urban Forest Policy responds to that challenge by promoting a vision of the urban forest for the future and by setting out principles for the management of the urban forest within the City of Ryde.

Purpose

This policy will inform the manner in which the City of Ryde will manage its tree assets and work towards providing a sustainable approach to urban forest management. This policy reflects a shift in approach by the City of Ryde away from dealing with trees on an individual, ad-hoc basis to managing trees as a collective canopy. The aim of this policy is to reinforce the City of Ryde's commitment to the sustainable management of the Urban Forest through the following policy principles:

- recognition of the urban forest as an intergenerational asset within the City that needs to be managed to preserve its value to the community
- recognition of the asset value of trees in an urban environment and a commitment to management strategies that consider this value
- recognition of the need to manage and enhance the urban forest within the City and to proactively respond to pressures on tree resources from population and economic growth, demographic changes and the effects of climate change
- the importance of a framework for forward planning management of the urban forest in both public and private domains and
- continuous collaboration within Council to achieve best outcomes for the City of Ryde's Urban Forest.

This policy applies to all lands within the City of Ryde.

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Guidelines / Procedures

This Urban Forest policy is divided into five key management areas with individual guiding principles for each management area. The areas are:

- 1.0 Tree protection
- 2.0 Tree selection and planting
- 3.0 Tree asset management (including risk management)
- 4.0 Tree removal and replacement and
- 5.0 Community consultation and involvement.

1.0 Tree protection

The City of Ryde recognises the importance of trees in the urban environment and for that reason it will manage **and or regulate** trees throughout the City irrespective of whether they are located in streets, parks or on private properties. The City of Ryde recognises that trees on public land play a critical role in ensuring the urban forest is an intergenerational asset.

TREE PROTECTION GUIDING PRINCIPLES

Implementation of protection measures

The City of Ryde will protect trees within the City by managing trees on public land and regulating activities relating to trees on private land, in accordance with the following documents:

- Greening Ryde Plan which provides management direction to the planning and management of the Urban Forest across the City by specifying the actions necessary to implement this policy. This Plan's focus is on trees on public lands
- Street Tree Masterplan which directs the protection and maintenance of existing street trees and provides a plan for the planting of additional trees along the City's streets and
- Significant Tree Register which identifies and guides the protection of trees identified as being significant for heritage, cultural or ecological reasons. This single register will be used to promote community awareness and ensure better and consistent methods of protection of the trees in the future.
- City of Ryde Development Control Plan, Part 9.6 Tree Preservation (2010), a regulatory tool which sets out the procedural framework governing the removal, pruning and alteration of soil levels close to trees within the City. In order to ensure the collective loss of trees across the City is balanced by tree replacements Part 9.6 Tree Preservation enables the City of Ryde to condition any tree removal with replacement tree planting
- Urban Forest Technical Manual which specifies requirements for the management and protection of trees on development sites

Development applications under the City of Ryde DCP 2010

The City of Ryde will ensure that the assessment of development applications includes an assessment of the potential impacts of trees in accordance with the Environmental Planning and Assessment Act 1979 and other relevant Federal and State legislation, as amended from time to time.

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TREE PROTECTION GUIDING PRINCIPLES

Overhead utility/service lines

The City of Ryde will reduce conflicts between street trees and overhead service lines through considered tree species selection and partnerships with telecommunications and energy providers.

2.0 Tree selection and planting

The urban forest is measured as a percentage of canopy cover of the total area and an appropriate tree canopy density is necessary for significant benefits to accrue. Replacement and new tree plantings need to take place to offset the gradual loss of the urban forest canopy.

Street trees are the City's green connections between parks and the surrounding National Parks and provide many benefits to residents such as screening, shade over footpaths and car parking. The choice of tree species helps create the character of each suburb.

There are opportunities within parks to plant large trees and parks generally enhance the visual quality of a neighbourhood. Tree planting within parks will be guided by individual Plans of Management and street tree planting by the Street Tree Masterplan.

The conditions of many of the City's existing mature trees are declining due to ageing, prolonged drought and environmental factors as well increased urban development. This decline contributes to the loss of biodiversity through habitat loss and places increased pressures on the City's natural ecosystems.

TREE SELECTION AND PLANTING GUIDING PRINCIPLES

Tree planting

The City of Ryde will maintain and increase the canopy cover within the City through a program of tree planting in considered locations in the City's streets and open spaces while encouraging the community to plant suitable trees in their private gardens.

Street Tree Masterplan

The City of Ryde will plan and manage street trees throughout the City to enhance the quality of streetscapes, amenity and character of neighbourhoods. The City of Ryde recognises that street trees are important for both establishing and improving vegetation and habitat connections between parks and other open space.

Park trees

The City of Ryde recognises that the City's parks and open space are important because:

- they provide space for the planting of large and broad canopy trees
- remnant vegetation located in these areas will be managed
- a diversity of tree and shrub species within these areas attracts wildlife and provide low, medium and high canopy cover for native fauna
- they offer protection for trees and sites classified as being part of a

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TREE SELECTION AND PLANTING GUIDING PRINCIPLES

- vulnerable, threatened or endangered ecological community
- they provide and have the potential to provide habitat for native fauna or fauna including that classified as vulnerable or threatened under the *Threatened Species Conservation Act 1995* (NSW) or the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) and
- they form part of wildlife habitat corridor networks across the City.

Tree selection and supply

The City of Ryde values both native and exotic tree species and recognises that different tree species are suited to a different environmental conditions.

The City of Ryde will incorporate ecologically sustainable design principles in the selection of species for replacement and new tree plantings and will plan to select the trees suitable for the growing environment.

The City of Ryde will consider cultural, heritage, neighbourhood character and ecological factors when selecting trees in addition to the suitability of tree species to the planting location.

The City of Ryde will require all trees planted to be good quality tree stock in accordance with current industry best practice.

Tree installation

The City of Ryde recognises the importance of correctly planting and maintaining new tree stock to the:

- long term vitality and structural condition of the tree and
- aesthetic success and benefits of the tree in the long term.

3.0 Tree asset management

Trees are an important part of the City's landscape and like buildings, roads, footpaths and park furniture, trees in the City's open spaces and streets are valuable assets. Asset management is the process by which the City of Ryde manages its physical assets to meet current and future levels of service and the principles of asset management will be applied to the management of all public trees. Asset management of the urban forest will require the following:

- identification of tree assets
- maintenance of tree asset inventory records
- identification of service levels
- maintenance of tree assets
- operation of the tree assets and
- disposal of tree assets when the need no longer exists or it is no longer appropriate for the tree assets to be retained.

An inappropriate tree species or a tree growing in an unsuitable location on either private or public land can create problems in the urban environment. Proactively

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implementing strategies to manage risk and minimize harm are part of tree asset management.

TREE ASSET MANAGEMENT GUIDING PRINCIPLES
<p><i>Asset management</i> The City of Ryde is committed to the ongoing sustainable management of trees in parks and streets within the City.</p> <p>The City of Ryde recognises that the urban forest is an important part of the urban form and accordingly that its management must be integrated with the management of the entire urban environment including infrastructure and buildings.</p> <p>The City of Ryde recognises the importance of proactively and consistently managing tree risk issues.</p> <p>The City of Ryde will plan and manage its urban forest infrastructure to lessen conflict with and damage to other urban infrastructure, assets and services.</p>

4.0 Tree removal and replacement

The average life span of a tree in an urban environment is shortened due to the unfavourable conditions in which trees are planted and grow. Trees in parks generally have better environmental conditions and therefore a longer life span than street trees. Many trees in streets and parks within the City are mature and reaching the end of their life expectancy.

The City of Ryde will aim to manage the urban forest within the City. However maintaining over mature and senescent trees is costly and is only a very short term solution to ongoing health and structural problems. In addition to the removal of old trees, trees may need to be removed as part of capital improvements, as part of risk assessment management of other assets and young trees may need to be removed if they are not growing well and have little visual appeal.

Trees significantly contribute to the visual quality and character of a neighbourhood. Tree removals have immediate visual, environmental and management implications and accordingly residents are often concerned about tree loss.

TREE REMOVAL AND REPLACEMENT GUIDING PRINCIPLES
<p><i>Sustainable Urban Forest</i> The City of Ryde will plan for a sustainable Urban Forest that maintains and increases canopy cover across the City.</p> <p>The City of Ryde will preserve the cultural, heritage and ecological importance of trees and places.</p>
<p><i>Habitat value</i> The City of Ryde recognises and will consider the habitat value of trees on public land prior to removal.</p>

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Replacement planting
The City of Ryde will incorporate ecologically sustainable design principles and risk management in the selection of species for replacement tree plantings.

The City of Ryde will consider cultural, heritage, neighbourhood character and ecological factors when selecting trees in addition to the suitability of tree species to the planting location.

5.0 Community consultation and involvement

Trees have environmental, economic and social benefits, and many residents appreciate them as an asset. Trees are a community resource with very direct implications on property values and urban character. The conservation of natural resources including trees will ensure the health, diversity and productivity of the local environment is maintained or enhanced for the benefit of future generations.

The City of Ryde wants the community to gain an understanding and interest in the trees in their neighbourhood and throughout the City.

The City of Ryde will be receptive to community comment and providing avenues by which comments, concerns and suggestions can be relayed to the Urban Forest team.

URBAN FOREST COMMUNITY EDUCATION AND PARTICIPATION GUIDING PRINCIPLES
<p><i>Developing community awareness</i> The City of Ryde will promote community awareness of the benefits of trees in an urban environment and tree management on both public and private land.</p>
<p><i>Balancing community outcomes</i> The City of Ryde will manage the benefits and risks associated with trees in an urban environment in order to achieve the best community outcomes.</p>

References - Legislation

Not Applicable

Review Process and Endorsement

This Policy should be reviewed every five years and endorsed by the executive team.

Attachments

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Form	

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