

CP75 - TREES AND TREE ROOT MANAGEMENT

Aim

1. Develop a policy that establishes Wentworth Shire Council's commitment and future strategic direction for tree planting, protection, management and maintenance for its streets and parks.
2. Address park and street tree management and maintenance issues faced by Wentworth Shire Council.
3. Provide a rationale for decision making to ensure consistency in the management of park and street trees in the Shire of Wentworth.

Background

Trees provide many social and environmental benefits. They beautify and soften streetscapes, provide wildlife habitat and play a significant role in determining the character of Council's urban areas.

Trees are critical in the maintenance of a healthy urban environment as they produce oxygen, trap airborne pollutants and absorb carbon dioxide.

While trees play an important role in the urban landscape, it is also recognised that trees of the wrong type, or growing in the wrong place, can create problems and risks that are not reasonable in the urban environment. Property owners and public authorities have obligations with respect to the protection of trees, and responsibilities for any damage or injury associated with the presence, failure or growth of trees.

Tree management is all about managing the various risks and benefits of trees in the urban environment to ensure best community outcome. The implementation of the Trees and Tree Root Management Policy will assist in maintaining a quality tree canopy by: -

- Ensuring a consistent approach in the management of Council's street and park trees;
- Identifying procedures for preserving and protecting trees where possible, on private property and development sites.

Objectives

1. To enhance Wentworth Shire Council's reputation within the community as a competent manager of trees,
2. To maintain and improve a quality tree canopy within the Wentworth Shire Council,
3. To increase awareness and to educate the community, developers and Council staff on the value of trees in the urban landscape,
4. To identify and preserve significant valuable trees based on historic, visual, cultural, social and ecological criteria,
5. To broaden the emphasis from tree planting and preservation to an overall approach of urban tree management;
6. To document and standardise process and procedure to ensure consistency in the management of trees within Wentworth Shire Council.

Responsibilities

Council's Parks and Gardens Supervisor is responsible for implementing Council's Tree and Tree Root Management Policy in line with Tree and Tree Root Management – Implementation Guidelines.

The Parks and Gardens Supervisor is to seek expert Arborist advice when required.

The Parks and Gardens Supervisor is to consult as required with the Director Operations.

Tree Protection

The use of assessment criteria by tree management staff will ensure a consistent approach to tree assessment. A number of assessment conditions have been developed which clarifies Council's attitude and direction with regard to tree management and preservation.

Wentworth Shire Council will identify special trees that are of aesthetic, cultural, social or environmental significance through the establishment of a Significant Tree Register.

Trees will be protected from construction activities and other activities such as major events that are likely to have an adverse effect on their health and appearance.

Policy Statement/Action

Tree Preservation Order

Wentworth Shire Council will develop a Tree Preservation Order as a tool aimed at the preservation and management of trees within the shire.

The Tree Preservation Order will be used to regulate and assess applications to prune or remove trees throughout the shire.

Significant Tree Register

Wentworth Shire Council will recognise and protect significant trees that contribute to the environment, cultural and social character of the shire and will develop a Significant Tree Register that aims to:-

1. Identify and assess significant trees within the Shire of Wentworth on both private and public lands.
2. Act as an educative tool to raise public awareness and community interest in regards to the value of significant trees.
3. Provide a planning tool to assist with protection/retention measures for significant trees on develop sites as well as private and public land.
4. Undertake biennial review of the register to ensure up to date list of registered items.

Development Applications

Wentworth Shire Council will ensure that development application submissions include all necessary information to allow assessment of potential impacts on trees and appropriate standards for planting new trees.

Guidelines for protection of trees will be enforced.

Construction Activities/Events

Wentworth Shire Council will ensure trees are protected from construction works and other activities.

Overhead/Underground Power Lines/Services

Wentworth Shire Council will ensure suitable trees are planted under power lines and only sympathetic pruning of existing trees will be conducted.

Council will not plant nor allow to be planted any trees that will impact on underground services.

Tree Planting and Selection

Street tree planting will be carried out in a planned approach to reinforce the following design principles:-

1. Enhance the local character of distinct areas by introducing a precinct planting approach,
2. Enhance key cultural and commercial areas

The selection of appropriate trees for street planting will be critical for successful establishment and a well-managed streetscape. Council will ensure that species selected for planting are rigorously assessed to ensure the establishment of the "right tree for the right location".

TREES AND TREE ROOT MANAGEMENT

IMPLEMENTATION GUIDELINES

Negative interactions and impacts between trees and structures frequently occur and can be influenced by factors such as:

- The soil type; its structure and depth,
- The tree species and its generic disposition,
- The design of the structure,
- The construction materials and methods adopted,
- The age of the structure (as with trees, structures have a useful life span and have to be maintained and then replaced within a set timeframe, and
- The type of previous land use e.g. industrial sites where soil contamination and/or layers of fill can impede normal biological processes.

See Annexure A – Common Interactions and Impacts Between Trees & Structures.

Tree Risk Management

In determining the risks and risk control methods associated with trees and tree roots, Council will:

1. Establish an inventory of its tree resource that determines:
 - The number of trees in Council streets, parks and reserves,
 - The tree species,
 - The condition of the trees,
 - Whether any complaints have been received, and
 - What maintenance or remedial action has been completed.
2. Implement a risk management strategy for existing trees that determines:
 - If the tree is of significant value
 - If problems have been associated with the particular tree in the past,
 - If problems are likely to develop into the future,
 - When corrective action should occur,
 - What action is required,
 - If the strategy has been successful, and
 - When the strategy should be reviewed.

Refer Annexure B – Flowchart – Existing Trees – Implementing a Risk Management Strategy,
Annexure C – Tree Inspection Form including notes, and
Annexure D – Risk Assessment and Hazard Abatement Strategies For Existing Trees.
3. Implement a new tree selection strategy that considers:
 - Detailed analysis of site conditions and design constraints – refer Annexure F – Tree Planting Risk Zones In Streets and Annexure G – Tree Planting Site Characteristics,
 - Social and Cultural impacts – refer Annexure H – Social and Cultural Context,
 - Tree Species characteristics – refer Annexure J – Tree Species Characteristics including Key – Tree Species Characteristics, and
 - Risk management control strategies – refer Annexure I – Risk Management Control Strategies

References

Statewide Mutual – Best Practice Manual – Trees and Tree Root Management
AS 4373 – 1996 – Pruning of Amenity Trees

Annexures

Annexure A – Common Interactions and Impacts Between Trees & Structures
Annexure B – Flowchart – Existing Trees – Implementing a Risk Management Strategy
Annexure C – Tree Inspection Form including notes
Annexure D – Risk Assessment and Hazard Abatement Strategies For Existing Trees
Annexure F – Tree Planting Risk Zones In Streets
Annexure G – Tree Planting Site Characteristics
Annexure H – Social and Cultural Context
Annexure I – Risk Management Control Strategies

Annexure A

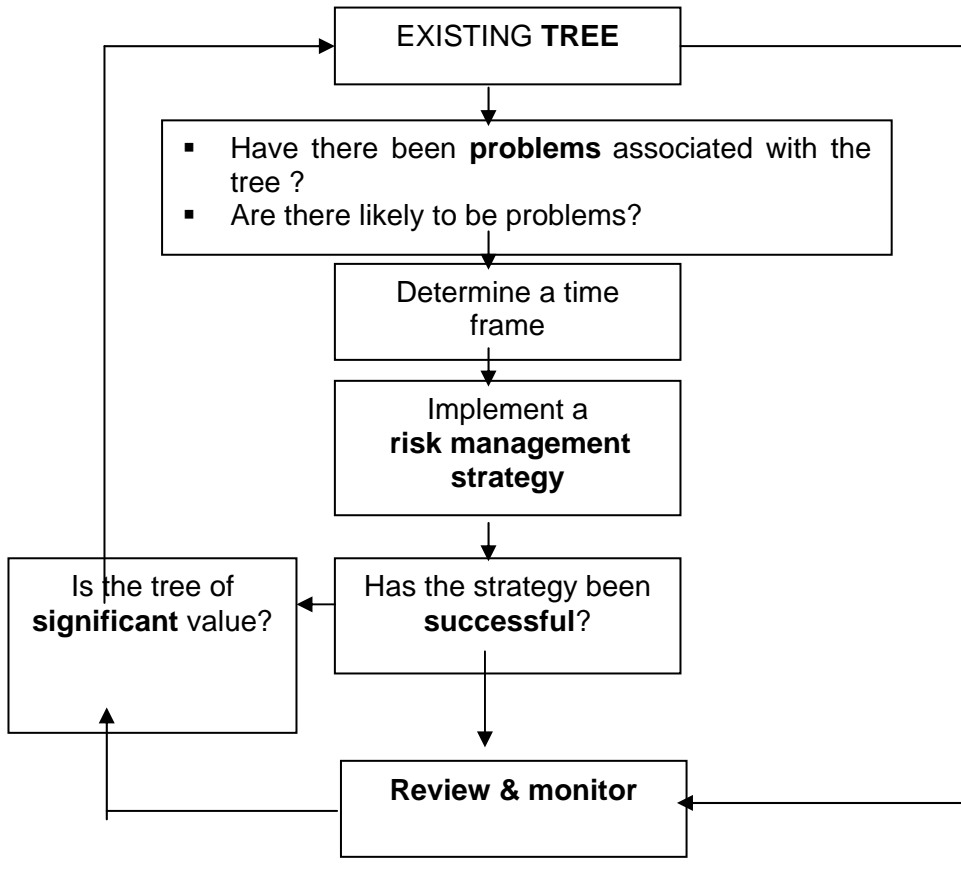
COMMON INTERACTIONS & IMPACTS BETWEEN TREES & STRUCTURES

STRUCTURE	Typical Causes OF conflict with trees	Impact BY trees	Impact ON trees
Footpaths Concrete, Pavers & Bitumen	Pathways located too close to trees, bitumen laid over tree roots.	Lifting, heaving, cracking, leading to trip hazards & increased risk	Root pruning and root scalping leads to root decay & a potential loss of stability; reduced water and nutrient uptake; reduction of soil oxygen; loss of natural nutrient recycling; and elevated tree stress.
Kerb and Gutter Concrete	Pathway cross overs located too close to trees.	Lifting, heaving, cracking & displacement. Drainage interruptions	Restricted root distribution effects tree stability and the critical availability of water and elements
Underground services Power; fibre optic, water, gas	Improperly laid eg poorly jointed, inadequately compacted backfill; inappropriate backfill materials, pipes retained past their useful life and requiring renewal, use of technology that does not account for the dynamics tree root development	Blockages, crushing, displacement & heaving	Root loss during installation; incipient decay following excavation. Changes in water table fluctuations; gas leaks; soil saturation.
Overhead Services Power lines, Phone and cable TV	Inappropriately located poles, poles shorter than prescribed heights, wires lower than prescribed height, uninsulated wires where insulated cables would be less restrictive on tree planting and safer near people, above ground transformers	Branch & whole tree failures; wind whipping. Electrical outages, blackouts, fire, restricted access to poles	Reduced amenity and environmental contributions ie shade and shelter, aesthetics, PM 10 absorption; incipient decay. Poor public image for street trees
Buildings & other load bearing structures	Minimum distances not observed, reactive soils.	Lifting and cracking of foundations; subsidence; branch & fruit shedding; reactive soils drying and wetting cycles	Damage during site preparations and construction, reduced sunlight, wind tunnelling,
Traffic & pedestrians	Compaction.	Vehicle hitting trees Blocked vision of road signs and access places Trip points in footpaths	Trees damaged or killed in vehicle accidents; Heavy and repeated pruning to achieve visibility; Decay of roots and loss of stability from root grinding for footpaths.

Annexure B

FLOWCHART

EXISTING TREES – IMPLEMENTING A RISK MANAGEMENT STRATEGY



Notes on Tree Inspection Schedule

Key	Criteria	Comments
Tree No	Must relate to the number on your site diagram	
Species	May be coded – include a key to the codes; botanical names and common names in key (eg Lc = Lophostemon confertus Brush Box)	
Remnant/ Planted/ Sown	Self explanatory; of use when negotiating cost sharing for line clearing operations	
Special Significance	A Aboriginal C Commemorative Ha Habitat Hi Historic M Memorial R Rare U Unique O Other	This may require specialist knowledge.
Age class	Y Young = recently planted S Semi-mature (< 20% of life expectancy) M Mature (20-80% of life expectancy) O Over-mature (> 80% of life expectancy)	
Height	In metres	
Spread	Average diameter of canopy in metres	
Crown Condition	Overall vigour and vitality Dead Severe decline (<20% canopy; major dead wood) Declining (20-60% canopy density; twig and branch dieback) Average/low vigour (60-90% canopy density; twig dieback) Good (90-100% crown cover; little or no dieback or other problems) Excellent (100% crown cover, no deadwood or other problems)	This requires knowledge of species.
Failure Potential	Identifies the most likely failure and rates the likelihood that the structural defect(s) will result in failure within the inspection period. Low – defects are minor (eg dieback of twigs, small wounds with good wound wood development) Medium – defects are present and obvious (eg cavity encompassing 10-25% of the circumference of the trunk) High – numerous and or significant defects present (eg cavity encompassing 30-50% of the circumference of the trunk, major bark inclusions) Severe – defects are very severe (eg heart rot fruiting bodies, cavity encompassing more than 50% of the trunk)	This requires specialist knowledge

Size of defective part	Rates the size of the part most likely to fail. The larger the part that fails, the greater the potential for damage. most likely failure less than 150mm in diameter Most likely failure 150-450mm in diameter Most likely failure 450-750mm in diameter Most likely failure more than 750mm in diameter	
Target Rating*	Rates the use and occupancy of the area that would be struck by the defective part Occasional use (eg jogging/cycle track) Intermittent use (eg picnic area, day use parking) Frequent use, secondary structure (eg seasonal camping area, storage facilities) Constant use, structures (eg year-round use for a number of hours each day, residences)	
Hazard rating*	Failure potential + size of part + target rating Add each of the above sections for a number out of 12	The final number identifies the degree of risk. The next step is to determine a management strategy. A rating in this column does not condemn a tree but may indicate the need for more investigation and a risk management strategy.
Root zone	C Compaction D Damaged/wounded roots (eg by mowers) E Exposed roots Ga Tree in garden bed Gi Girdled roots Gr Grass K kerb close to tree L+ Raised soil level Lowered soil level M Mulched Pa Paving/concrete/bitumen Pr Roots pruned O Other	More than one of these may apply.
Defects	B Borers C Cavity D Decay F Previous failures I Inclusions L Lopped M Mistletoe/Parasites S Splits/cracks T Termites O Other	More than one of these may apply.
Services/ adjacent structures	Bs Bus stop Bu Building within 3m HV0 High voltage open-wire construction HVb High Voltage bundled (ABC) LV0 Low Voltage open-wire construction LVb Low Voltage bundled (ABC) Na No services above Nb No services below ground Si Signage Sl Street light T Transmission lines (>33KV) U Underground services O Other	More than one of these may apply.

Recommendations NB. See Annexure D: Risk Management and Hazard Abatement, for a more comprehensive list of options		
Pruning	Use the table from AS 4373 – 1996 and insert the appropriate code – See Table 1	
Repair/ Replace surface	✓ or -	
Root pruning/ barrier	Rb Root barrier Rp Root prune - do nothing	
Replanting	✓ or -	
Remove target		
Modify target		
Modify tree		
Other	Would need to be specified in discussion and recommendations	
Remove Tree	✓ or -	

TABLE 1 PRUNING TYPES, CLASSES AND SUITABILITY (AS 4373—1996)

PRUNING TYPE: CROWN MAINTENANCE

Class	Code*	Species Restrictions	Clause
General Pruning	G	a	8.1
Thinning	T	a	8.2
Dead wooding	D	a	8.3
Selective Pruning	S	a	8.4
Formative Pruning	F	a	8.5

PRUNING TYPE: CROWN MODIFICATION

Class	Code*	Species Restrictions	Clause
Reduction Pruning	R	r	9.1
Crown Lifting	C	a	9.2
Pollarding	P	df	9.3
Remedial Pruning	H	c	9.4
Line Clearance	L	a	9.5

* The code is a symbol to represent the pruning class in the same row of the Table to the left. It is intended to be a useful way of referring to classes of pruning when writing specifications.

LEGEND:

a Pruning type is suited to all species.
r Pruning type is restricted to trees with suitable secondary branches.
d Pruning type is suited only to deciduous trees.
f Pruning type is suited only to trees formatively pruned to achieve the required result.
c Carried out only on damaged, declining or diseased trees.

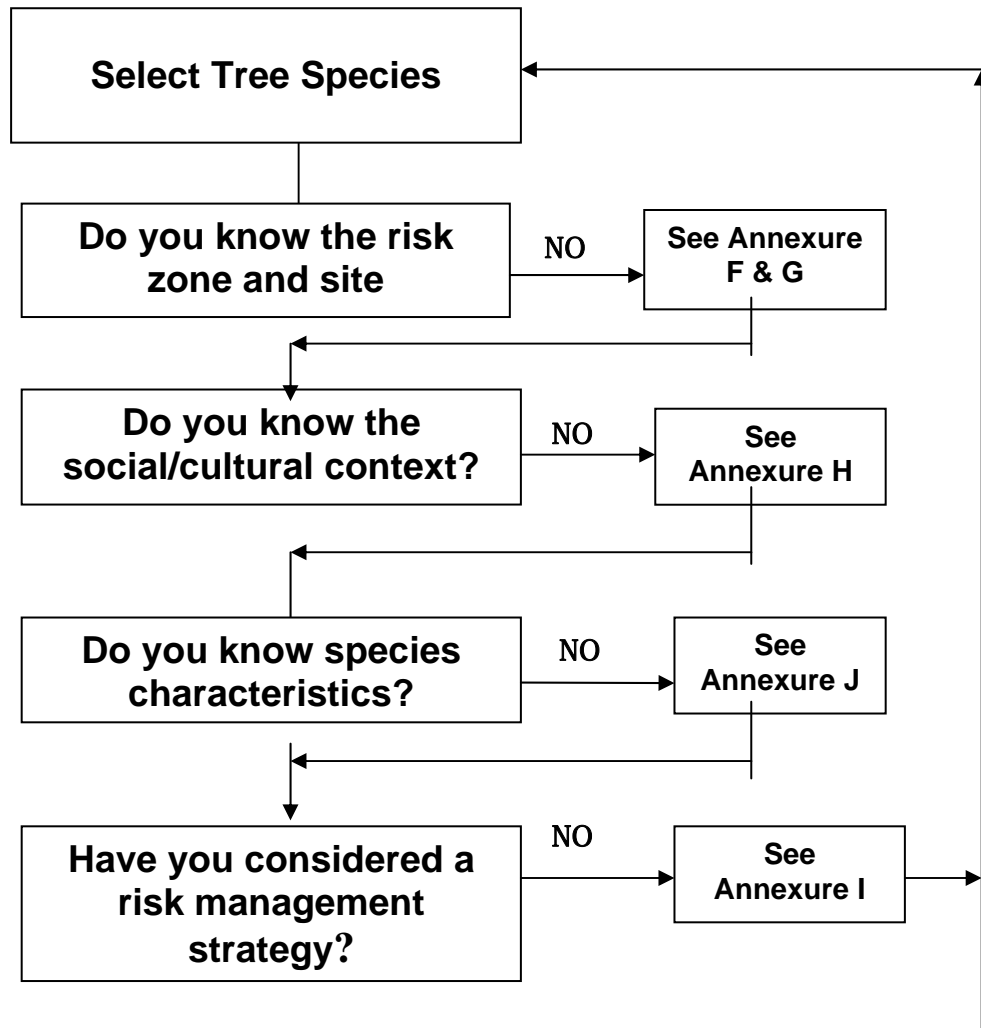
Annexure D

RISK MANAGEMENT AND HAZARD ABATEMENT STRATEGIES FOR EXISTING TREES

Strategy	Description
Monitor trip points	Where no other practical method can be employed to prevent this occurring, a regular trip point inspection program should be instigated and pavement replaced or repaired as necessary.
Flexible pathways	Use of flexible material such as bitumen, paving, or rubber compounds for footpaths and tree surrounds, will reduce the occurrence of trip points and is less expensive and easier than concrete to maintain or replace when necessary.
Re-direct pathways	Where space allows, pathways should be re-directed away from trees/tree roots. It may also be beneficial to reduce the newly directed pathway width.
Bridging Footpaths	Self-supporting construction methods, such as pier and beam could be used to raise pathways above the roots, allowing for root expansion without damaging the pavement. Timber bridges are an effective option
Root pruning	Non-structural roots could be pruned on a predetermined basis under the guidance of a qualified arborist. This practice could be combined with installation of root barriers where appropriate.
Root barriers	Where future problems are perceived, barriers could be installed to deflect roots away from pavement or services.
Tunnelling for services	Tunnelling (directional boring) rather than open trenching for underground services, will greatly reduce public risk as well reducing injury to tree roots. If located deeply, root contact with the pipeline may be minimised as the majority of roots of most species will remain within the top 1 metre of soil (based on a soil with medium texture).
PVC welded piping	Replacement of old porous clay pipe mains with PVC or polyurethane mainlines will significantly reduce the potential for tree root entry.
Preventative tree maintenance	Trees in public areas should be regularly inspected and maintenance, such as dead-wooding and developmental pruning carried out as prescribed. Pruning should always be undertaken in accordance with AS 4373-1996.
Raising pathways	Where appropriate, pathways could be raised to reduce direct root pressure on the pavement. Care must be taken not to build up soil against the trunk of a tree. Aeration piping, in conjunction with geo-textile fabric and gravel should be installed between root zone and new pavement to aid with gas exchange to roots. Care should be taken to shape the new surface to drain water away from the trunk of the tree.
Insulated (ABC) cabling	Replacement of uninsulated overhead powerlines with insulated & bundled cables will reduce both the clearance needed and the pruning costs and severity.
Underground power & communications cables	The initially high cost of installing power underground may in fact be a practical option when compared with the projected cost of repeated pruning, the risk that this work involves to operators, the negative impact on trees, loss of public amenity and of urban forest economic contributions.
Diverting services	Services could be diverted along roadways, rather than in the nature strip where a valuable stand of trees is present. To make this option more attractive to service providers, Councils may wish to consider waiving road opening fees.
Diverting kerb/gutter	When possible, kerb/gutter could be diverted around tree roots or further away from the trunk, creating an island around the tree.
Enlarging root zone	Where space allows, a designated area above the root zone of the tree should

	be enlarged/created to accommodate surface roots. Rather than turf, this area could be formed into a garden bed, mulched or covered with a suitable tree grate.
Formative pruning	Early pruning will reduce the development of structural weaknesses in older trees. Refer to AS4373 <i>Pruning of Amenity Trees</i> .
Remove target	In some situations it is preferable to remove a potential target, such as a seat rather than to remove a tree in order to abate a hazard.
Remove the defect	This could include pruning of live or dead branches or the removal of co-dominant stems.
Tree engineering	In some cases cabling may be used to support tree structure or to control the direction of a possible failure. This is highly specialised work.
Tree removal	In some situations it may be preferable to remove a tree and replace with a more suitable species, perhaps in an alternative location. In all cases of tree removal it is necessary to ensure that the removal is mitigated in order to ensure the future integrity of the urban forest.

FLOW CHART – SPECIES SELECTION



TREE PLANTING RISK ZONES IN STREETS

	ZONE A Most constraints (Greatest risk)	ZONE B Moderate constraints (Moderate risk)	ZONE C Fewest constraints (Minimum risk)
Electrical & telecommunications	<ul style="list-style-type: none"> ▪ uninsulated low and high voltage wires ▪ bushfires area 	<ul style="list-style-type: none"> ▪ bundled cables (ABC) ▪ insulated cables 	<ul style="list-style-type: none"> ▪ no powerlines
Below ground services typical layouts	<ul style="list-style-type: none"> ▪ fibre optic cables ▪ high voltage power 	<ul style="list-style-type: none"> ▪ water mains ▪ gas mains ▪ stormwater 	<ul style="list-style-type: none"> ▪ no underground services
Slope	<ul style="list-style-type: none"> ▪ steep slope 	<ul style="list-style-type: none"> ▪ moderate slope 	<ul style="list-style-type: none"> ▪ generally flat land
Paved areas	<ul style="list-style-type: none"> ▪ area wholly paved ▪ surface wholly sealed ▪ brick pavers laid on sand bedding 	<ul style="list-style-type: none"> ▪ partially paved areas ▪ non reinforced concrete 	<ul style="list-style-type: none"> ▪ grass up to 6m
Verge width	<ul style="list-style-type: none"> ▪ less than 3.0m 	<ul style="list-style-type: none"> ▪ from 3m to 4m 	<ul style="list-style-type: none"> ▪ 4m or wider
Building set back	<ul style="list-style-type: none"> ▪ none 	<ul style="list-style-type: none"> ▪ less than 6m 	<ul style="list-style-type: none"> ▪ 6m or greater
Street lighting	<ul style="list-style-type: none"> ▪ over pedestrian crossings ▪ traffic intersections 	<ul style="list-style-type: none"> ▪ street lighting other than crossings and intersections 	<ul style="list-style-type: none"> ▪ no street lighting
Safety signage ie traffic signs	<ul style="list-style-type: none"> ▪ dual carriageways ▪ arterial roads ▪ high density residential streets 	<ul style="list-style-type: none"> ▪ medium density residential streets ▪ arterial roads in rural zones 	<ul style="list-style-type: none"> ▪ low density rural/residential streets
Traffic	<ul style="list-style-type: none"> ▪ heavy vehicles ▪ public transport in heavy volumes 	<ul style="list-style-type: none"> ▪ public transport in moderate volume ▪ heavy vehicles in moderate volumes 	<ul style="list-style-type: none"> ▪ public transport in low volume ▪ residential traffic in low volume ▪ cul-de-sacs.
Soils	<ul style="list-style-type: none"> ▪ severely compacted ▪ shallow ▪ reactive clay ▪ acid sulphate ▪ poor drainage 	<ul style="list-style-type: none"> ▪ moderately compacted ▪ urban fill ▪ moderate drainage 	<ul style="list-style-type: none"> ▪ undisturbed soil ▪ deep profile ▪ medium texture ▪ good natural drainage
Water table	<ul style="list-style-type: none"> • high 	<ul style="list-style-type: none"> • moderate depth 	<ul style="list-style-type: none"> • deep water table

Annexure G

TREE PLANTING SITE CHARACTERISTICS

	A Most Constraint	B Moderate Constraint	C Least Restraint
Climate	<ul style="list-style-type: none"> ▪ Frontline salt wind exposure ▪ Prevailing wind exposure ▪ Rain shadow ▪ Extensive sealed ground surface 	<ul style="list-style-type: none"> ▪ Second line coastal salt influence ▪ Moderate wind exposure ▪ Partial rain shadow ▪ Partial ground surface sealed 	<ul style="list-style-type: none"> ▪ Minimum salt influence ▪ Minimal wind exposure ▪ No rain shadow ▪ Minimal ground surface sealed
Slope	<ul style="list-style-type: none"> ▪ Steep slope 	<ul style="list-style-type: none"> ▪ Moderate slope 	<ul style="list-style-type: none"> ▪ Minor slope to flat land
Aspect	<ul style="list-style-type: none"> ▪ Southern & Western exposure 	<ul style="list-style-type: none"> ▪ Either southern or western exposure 	<ul style="list-style-type: none"> ▪ Northern & eastern exposure
Street – Width & Usage	<ul style="list-style-type: none"> ▪ Narrow; CBD residential & commercial; ▪ Arterial –high traffic volume 	<ul style="list-style-type: none"> ▪ Non CBD; narrow residential & commercial; ▪ Suburban collector roads – medium volume traffic 	<ul style="list-style-type: none"> ▪ Average to wide residential/ commercial ▪ Wide residential
Soil – Type and Drainage	<ul style="list-style-type: none"> ▪ Reactive clay ▪ Poor drainage ▪ Salinity 	<ul style="list-style-type: none"> ▪ Non reactive clay ▪ Average drainage 	<ul style="list-style-type: none"> ▪ Free draining open textured soil
Services	<ul style="list-style-type: none"> ▪ Above ground and below ground utilities 	<ul style="list-style-type: none"> ▪ Above or below ground utility services 	<ul style="list-style-type: none"> ▪ No utility services

Annexure H
SOCIAL AND CULTURAL CONTEXT

CONTEXT	IMPORTANCE			COMMENT
	LOW	MEDIUM	HIGH	
Heritage				
Architectural style				
Community values				
Wildlife habitat				
Street character				
Landscape character				

Annexure I

RISK MANAGEMENT CONTROL STRATEGIES

Control Strategy	Description
Root barriers	Installation of root barriers to manufacturers specification at the time of planting will assist tree roots to develop away from services, pavements and other structures. NOTE OF CAUTION Tree root barriers do require periodic monitoring as roots deflected downwards will return to the surface if soil oxygen levels are not sufficient to support growth at depth. Roots can also grow over the barrier in some situations
Soil compaction	Proper compaction of the soil when back filling trenches or around utility easements and house footings will direct tree roots away from these areas. By achieving and maintaining compaction to 95% root growth can be inhibited through the depravation of oxygen.
Pseudo street trees	Residents could be encouraged to plant trees within their boundaries in preference to street tree planting. This might allow larger species to be used, and reduce pressure on pavements and services.
Design of new roads and pathways	The design of new roads and footpaths should be undertaken with consideration for tree planting on the nature strip or in the road pavement to ensure appropriate allocation of space.
Provision of aeration and irrigation	Where there is to be continuous paving around a tree, the installation of an aeration and irrigation system should be considered. Where irrigation is installed and properly operating, a tree root system will be proportionally smaller than without irrigation.
Pavement Openings	Pavement openings at the base of the tree should be as large as possible to reduce the future impact of buttressing roots on pavements. Position of the tree should be a good distance (eg 1 m) from the kerb line to reduce the likelihood of future cracking.

Key – Tree Species Characteristics

(1) FORM

A guide to the general shape or profile that indicates the mature form of a species.

Column-like	eg. <i>Callitris rhomboidea</i> (Port Jackson Pine)
Pyramidal	eg. <i>Brachychiton spp.</i> (Illawarra Flame tree)
Broad-Domed	eg. <i>Ficus rubiginosa</i> (Port Jackson Fig)
Narrow-Domed	eg. <i>Lophostemon confertus</i> (Brush box)

(2) FRUIT, FLOWER, TWIG or BRANCH SHEDDING

A rating for the tendency to shed material, such as fruit, flowers, twigs and branches.

Key

Fr – fruit	H – heavy (large amount of fruit fall with risk implications) L – light (limited amount of fruit with lower risk implications) R – respiratory (as recommended by Australian Asthma Foundation)
Fl – flower	H – heavy (large amount of flower with risk implications) L – light (limited amount of flowers with lower risk implications) R – respiratory (as recommended by Australian Asthma Foundation)
Br – branch	H – heavy (listed in horticultural literature as potential large branch drop) L – light (limited amount of small diameter branches/twigs)

(3) CONSTRAINT ZONE

A rating on the potential conflict between tree species and infrastructure based on an assessment of factors detailed in Statewide Best Practice guidelines for trees and tree roots.

A -	Most constraints
B -	Moderate constraints
C -	Least constraints

(4) LONGEVITY

The potential useful life expectancy of a nominated species when planted in the public domain, eg. streets, parks, reserves, easements.

S	Short – less than 15 years
M	Medium 15 – 40 years
L	Long > 40 years

(5) POWERLINES

Suitability for planting beneath insulated (Aerial Bundled Cabling or ABC) and uninsulated powerlines. Clearances from insulated wires are less than for clearances from uninsulated wires. Refer to energy supply authority guidelines.

U	Unsuitable
S	Suitable
SP	Suitable if given cyclical pruning