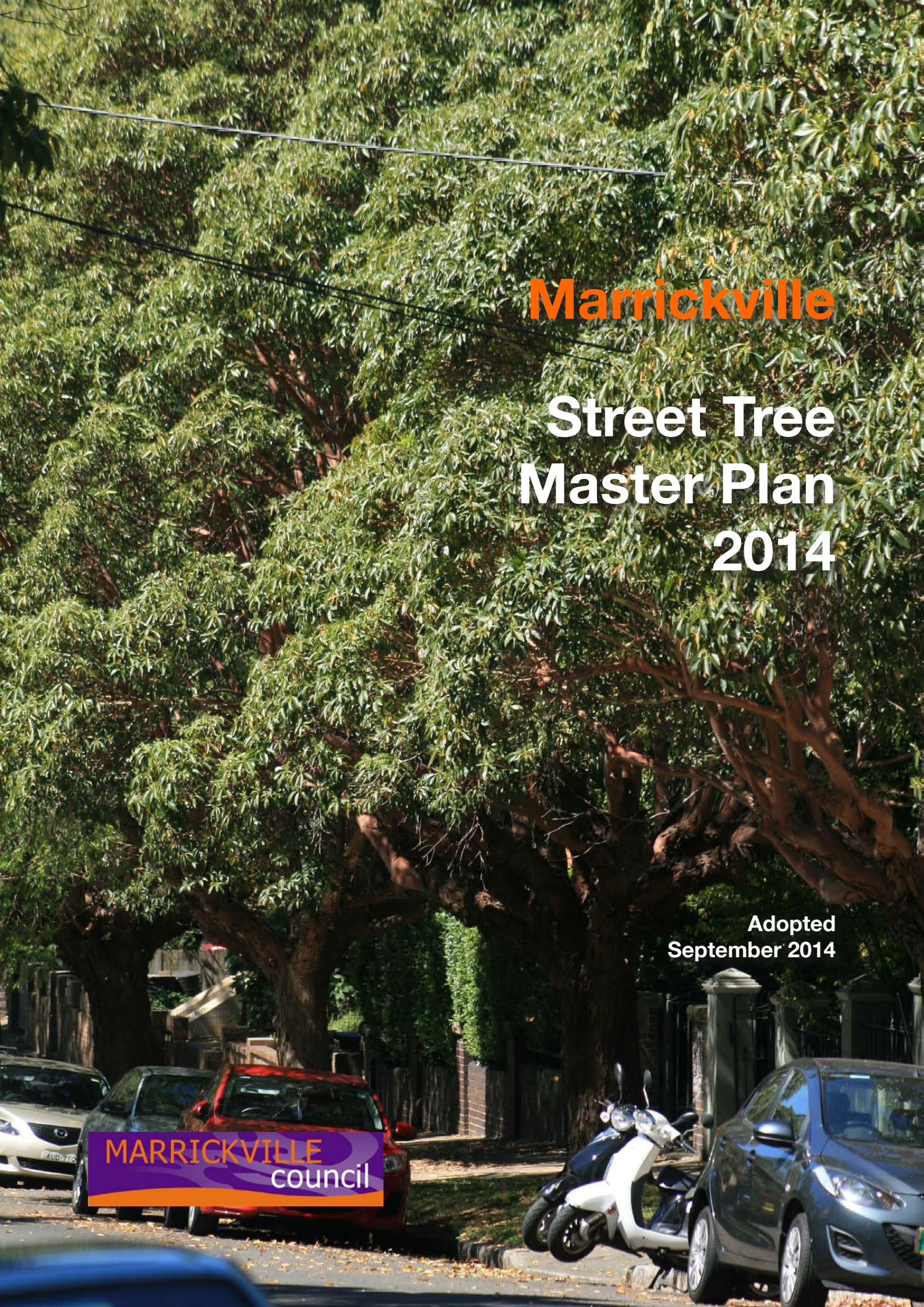

Marrickville

Street Tree Master Plan 2014

Adopted
September 2014

MARRICKVILLE council

Contents

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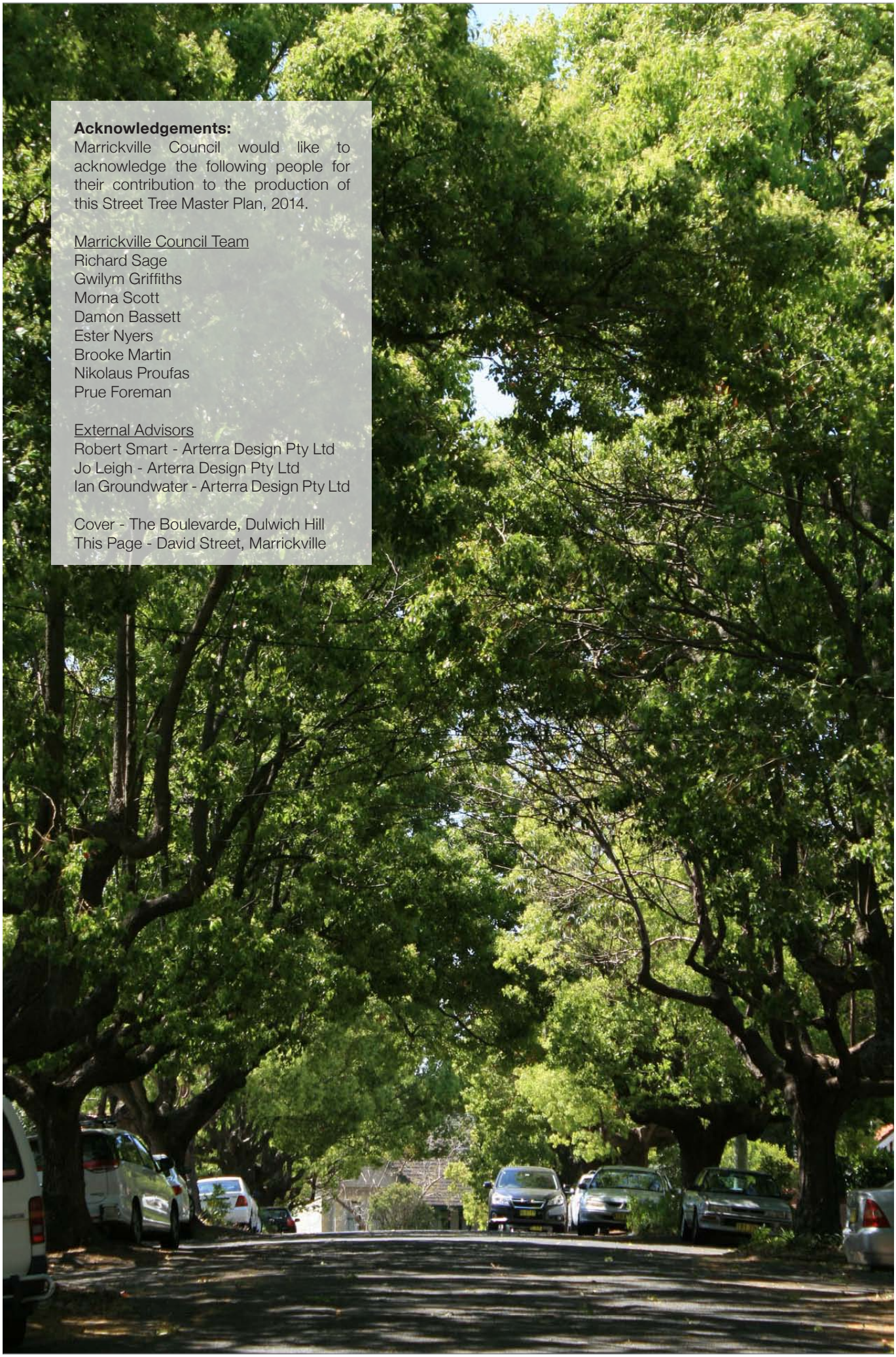


"Someone is sitting in the shade today because someone planted a tree a long time ago."

Anonymous

The Vision

Street trees are one of Marrickville's most important natural assets. The Street Tree Master Plan 2014 recognises the collective ecological, environmental, economic, cultural and social contributions of Marrickville's street trees. The principle of the Street Tree Master Plan is to "*increase the urban tree canopy through sustainable new and replacement tree plantings and maintain street trees throughout the local area*" as outlined in Marrickville Council's Community Strategic Plan.

This Master Plan is a guide to aid in the maintenance and future provision of street trees across the entire municipality. The objective of this Master Plan is to provide a sustainable and strategic framework that is used for the management of Marrickville's street tree canopy. The Plan will also contribute to the collective urban forest, for the benefit of all, through good street tree planning, maintenance, enhancement and reinforcing Marrickville's ongoing commitment to the protection of trees.

With implementation of this Master Plan, Marrickville will continue to provide a population of healthy street trees which will beautify and define our urban environment today and become an important legacy for future generations.

1.0 Introduction

1.1 How to Use This Plan

This document is one part of Marrickville's suite of documents used to proactively manage its tree resources. Trees, like all living things, grow, age and eventually die. It is therefore important that we have a strategy and a plan to deal with our street trees. The Plan will outline where trees are to be planted and what species are to be used to replace trees when they eventually reach the end of their useful life. In short, this document is intended to guide the future of all street tree planting throughout Marrickville. The progress of the Plan will be reviewed annually with a comprehensive review at no longer than 10 years from its adoption.

The general rule the Council has followed in developing this plan is to continue the existing street characters and tree planting as much as possible, unless there are specific problems to address or clear opportunities for improvement and increased canopy cover. Council will seldom remove a healthy street tree. If a certain type of tree is proposed for a street, it does not mean that Council will remove the existing street trees in the short term to implement the proposed new species. This will typically only happen over time, as trees need replacing or if an opportunity exists to plant a new tree in an otherwise vacant area.

Existing street trees will normally be left to grow for their natural life and will only be removed once they become an unacceptable hazard or are clearly failing to provide worthwhile streetscape amenity. The exception to this may be when major street improvements or upgrade works are required or it is planned to revitalise a specific area, but even then tree removal will normally be avoided where possible.

As a member of the community, the way you might use this plan is outlined below.

1. Read Part 2 & 3 on tree species selection to understand the many complex considerations involved in selecting any street tree and its placement.
2. Refer to Part 5 that has a map of the entire Marrickville Local Government Area (LGA) area and identify the precinct that your street lies within.
3. Once you have located the precinct in which your street lies, you should then refer to that precinct's summary page and the proposed Tree Species listings for each street. The list shows what species of trees are proposed for each street within the precinct.
4. If you are unfamiliar with the tree species, you may want to refer to Part 6 at the end of the document where a brief Tree Data Sheet is provided for all the tree species proposed, giving a photograph, a brief description of the trees and outlining their key features.

We hope you find this document useful and share our passion in making Marrickville a green, sustainable and beautiful area.

Figure 1.1- Canonbury Grove, Dulwich Hill - The great streets of the future are dependent on how we plan and implement our street planting today. (Photo Arterra)

1.2 Context & History

Background

Located in the inner-western suburbs of Sydney, Marrickville LGA is about 4-10 kilometres southwest of the city centre. Population as at 2011 was 81,489. It covers an area of approximately 17 square kilometres.

The area is bounded by Parramatta Road to the north, King Street and the Princes Highway to the east, the Cooks River and Alexandra Canal to the south, and New and Old Canterbury Roads to the west. Kingsford Smith International Airport is situated to the southeast of the LGA. Consequently, parts of the LGA (particularly Sydenham, St Peters and Tempe) experience high levels of aircraft noise.

Marrickville LGA is well served by transport including road, rail and active transport. Arterial road routes running either along the LGA's boundaries or through it include Parramatta Road, State Route 54 (along New Canterbury Road, Stanmore and Enmore Road), linking Sydney CBD to Liverpool, and also the King Street–Princes Highway corridor.

Historical Context

At first settlement, Marrickville consisted of natural forest associations of the Cumberland Plain and the Cooks River Valley. By 1830, small areas had been cleared and cultivated. Between 1830 and 1860 small villages and villa estates developed. By the 1880's suburbs had developed in association with improved transportation (both road and rail). These subdivisions changed the character of Marrickville from villages surrounded by semi rural areas to a large continuous urban area.

The majority of development throughout Marrickville occurred in the late 1800's and early 1900's. Most areas were fully developed in line with the current fabric by the 1920's.

Street planting was typically uncommon in most inner Sydney city suburbs prior to the 1940's and 50's. Several streets within the Marrickville LGA did have prominent planting that occurred in the late 1920's and 1930's, often as part of employment programs associated with "the Depression" era.

Figure 1.2 Marrickville - Local Government Area and Context Plan (Source: NearMap August 2013)

Figure 1.3- Canonbury Grove, Dulwich Hill - one of the numerous historic streets in the LGA with a distinctive in-road planting treatment dating back to the 1930's. (Photo Arterra)

Figure 1.4- View over Marrickville in 1943, with the tree planting in streets like Canonbury Grove, Woodcourt Street, Robert Street and David Street clearly visible. Most other streets had very little if any street tree planting until much later. (Source: NSW Lands Dept Six Viewer)

Figure 1.5- Graham Avenue, Marrickville (Photo Arterra)

Streets with notable historic planting that still remain are summarised in the table below:-

Street	Precinct	Existing Primary Tree Species	Comments
Canonbury Grove, Dulwich Hill	1. Dulwich Hill East	*Lophostemon confertus* (Brush Box)	
Durham Street, Dulwich Hill	1. Dulwich Hill East	*Lophostemon confertus* (Brush Box)	
Ness Avenue, Dulwich Hill	1. Dulwich Hill East	*Lophostemon confertus* (Brush Box)	
The Boulevarde, Dulwich Hill	3. Lewisham & Petersham North	*Lophostemon confertus* (Brush Box)	not in-road
David Street, Marrickville	4. Marrickville Central	*Cinnamomum camphora* (Camphor Laurel)	
Harney Street, Marrickville	4. Marrickville Central	*Lophostemon confertus* (Brush Box)	
Marrickville Avenue, Marrickville	4. Marrickville Central	*Lophostemon confertus* (Brush Box)	
Northcote Street, Marrickville	4. Marrickville Central	*Podocarpus elatus* (Plum Pine)	
Robert Street, Marrickville	4. Marrickville Central	*Lophostemon confertus* (Brush Box)	
Woodcourt Street, Marrickville	4. Marrickville Central	*Lophostemon confertus* (Brush Box)	
Graham Avenue, Marrickville	5. Marrickville Central	*Phoenix canariensis* (Canary Island Date Palm)	
Frampton Ave, Marrickville	5. Marrickville Industrial	*Lophostemon confertus* (Brush Box)	
Juliett Street, Marrickville	5. Marrickville Industrial	*Lophostemon confertus* (Brush Box)	
Victoria Rd (east of Juliett St)	5. Marrickville Industrial	*Lophostemon confertus* (Brush Box)	
Carrington Road	6. Marrickville South	*Phoenix canariensis* (Canary Island Date Palm)	
Ewart Street, Marrickville	6. Marrickville South	*Podocarpus elatus* (Plum Pine)	not in-road
Excelsior Parade, Marrickville	6. Marrickville South	*Lophostemon confertus* (Brush Box)	
Harnett Avenue, Marrickville	6. Marrickville South	*Lophostemon confertus* (Brush Box)	
High Street, Marrickville	6. Marrickville South	*Butia capitata* (Jelly Palm)	
Kays Avenue East, Marrickville	6. Marrickville South	*Podocarpus elatus* (Plum Pine)	
Osgood Avenue, Marrickville	6. Marrickville South	*Lophostemon confertus* (Brush Box)	
Warburton Street, Marrickville	6. Marrickville South	*Ficus microcarpa var. hillii* (Hills Weeping Fig)	
Marmion Street, Camperdown	7. Newtown North & Camperdown	*Lophostemon confertus* (Brush Box)	deteriorated
Juliett Street, Marrickville	8. Newtown South & Enmore	*Lophostemon confertus* (Brush Box)	deteriorated
Metropolitan Road, Newtown	8. Newtown South & Enmore	*Cinnamomum camphora* (Camphor Laurel)	
Pemell Street, Newtown	8. Newtown South & Enmore	*Cinnamomum camphora* (Camphor Laurel)	
John Street, Tempe	12. Tempe	*Lophostemon confertus* (Brush Box)	deteriorated
William Street, Tempe	12. Tempe	*Lophostemon confertus* (Brush Box)	deteriorated

Geology and Soils

The majority of the Marrickville LGA is physically characterised as a residual soil landscape comprising gently undulating rises on Wianamatta Group Shales. The result is shale-derived clay or clay loam soils which dominate this area and generally provide favourable conditions for street tree planting.

Smaller pockets of Hawkesbury Sandstone are located in the southern parts of Marrickville and Dulwich Hill.

Parts of Marrickville, Sydenham, Tempe and St Peters are on alluvial floodplain areas, which are dominated by silty clay loams usually derived from deposition of upstream clay soils.

More highly disturbed soils and landfill areas are located along the Cooks River in Tempe, St Peters, Sydenham and Marrickville. Generally these are areas that were previously swamps, estuaries and wetlands and have been subject to historical landfilling and the current soil origin and quality is often unknown.

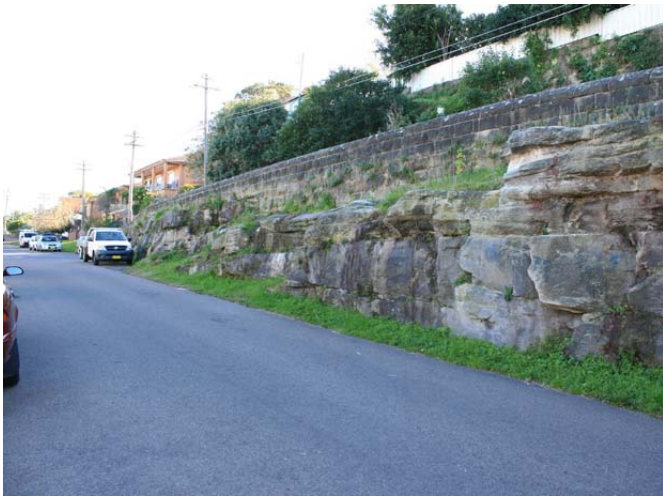


Figure 1.6- Although the majority of soils with the LGA are shale derived clay soils, there are some pockets of sandstone that can lead to very restrictive soil conditions for tree planting. (Photo Arterra)

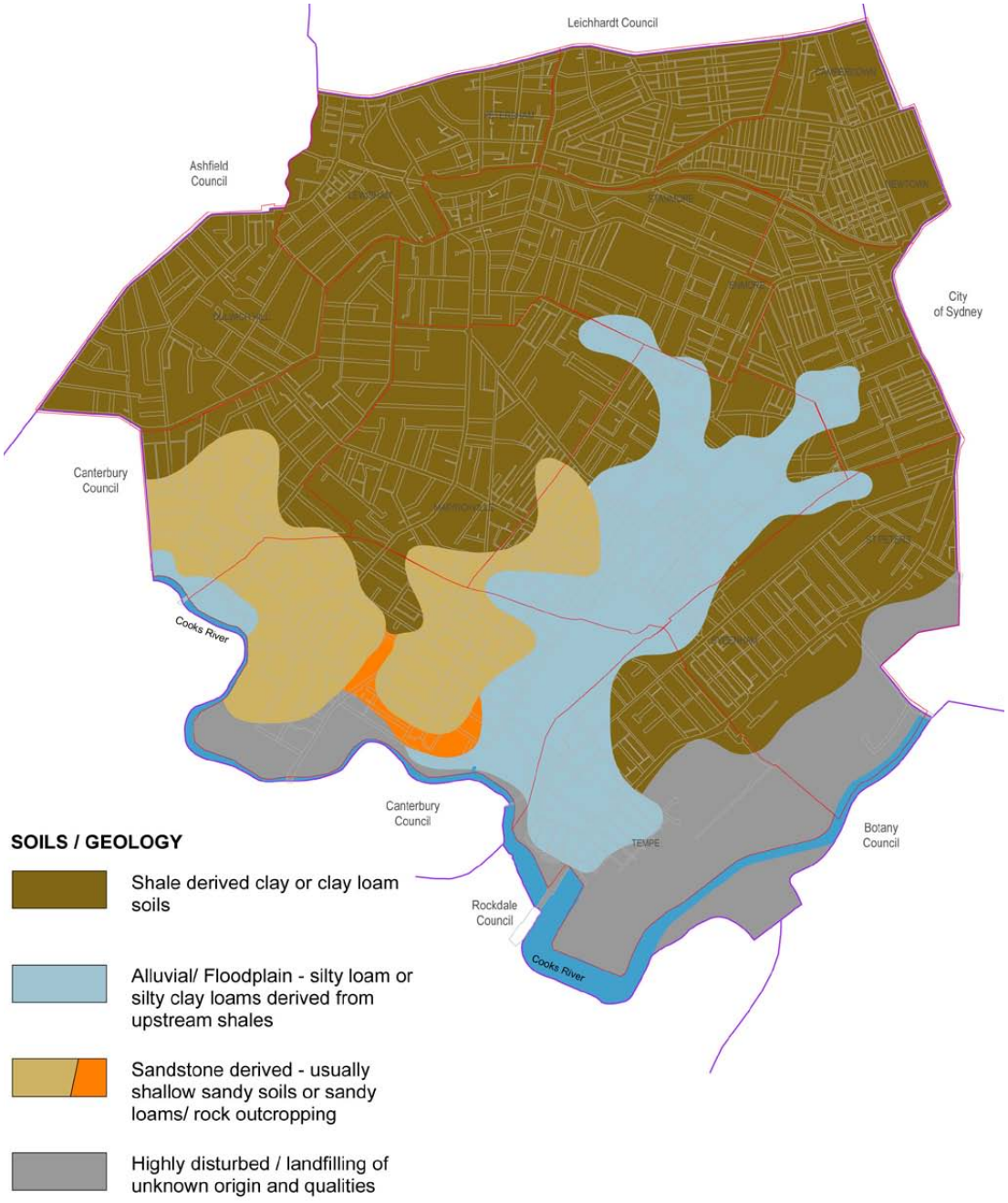


Figure 1.7 - Soil types within the Marrickville LGA (Source: Chapman)

Topography

The overall topography of the area consists of gently undulating slopes, with some steeper sections to the southern side of Marrickville where the land slopes steeply down to the Cooks River. The higher areas of Marrickville South is characterized by rocky sandstone outcrops and is typically drier and exposed to climatic elements such as strong prevailing winds.

Areas adjacent to the Cooks River, around Tempe and Sydenham, that were once tidal mudflats and saltmarsh, have often been filled and are relatively flat.

Generally, the selection of street trees across the municipality is not greatly dictated by the topography of the area, other than the higher sandstone ridges, where trees species will need to be tolerant of more exposed conditions and poorer soils.

Climate

The Marrickville LGA experiences moderate temperatures, good rainfall and minimal climatic and weather extremes. It is typically described as a 'temperate' climate with hot to warm summers and cold winters, with relatively uniform rainfalls. There is no distinctly dry season.

The average annual rainfall is 1083mm, and is fairly evenly spread across the year but with a slightly drier period from July - October. The highest rainfall usually occurs in June with an average of 120mm and the driest month is September with an average of 60mm (figures are according to the Sydney Airport AMO weather recording station).

Maximum average daily temperatures, recorded range from 26.5ºC in January to 17ºC in July. The minimum average daily temperatures range from a low of 19ºC in February down to lows of 7.2ºC in July. Frosts are extremely rare.

The primary wind direction is from the northeast to southeast in the afternoons while it is predominantly from the west and northwest in the mornings. This is common of coastal areas dominated by 'sea breeze' affects. The strongest winds (>30km/h) are normally experienced from the southeast and southerly directions and later in the day. (Source: Australian Bureau of Meteorology).

In comparison with other areas of the greater western Sydney region that experience much higher maximum and lower minimum temperatures and substantially lower annual rainfall, the Marrickville area enjoys a very comfortable climate which in turn lends itself to a very diverse range of tree species that will happily grow in the area. There are no noticeable microclimatic influences in the area.

Figure 1.8- The Cooks River from Tempe, a major natural feature defining the southern portions of the LGA (Photo Arterra)

1.3 The Strategic Framework & Council Policies

In August 2011, Council adopted the Marrickville Urban Forest Strategy (MUFS), a policy that established Council's commitment to the holistic management of Marrickville's urban forest. This document reflects Council's philosophy to increase the urban tree canopy that is outlined in the broader policy known as the Marrickville Community Strategic Plan. The preparation of a Street Tree Master Plan (STMP) was identified as a priority action in the MUFS, and as shown on the adjacent Strategic Framework diagram.

In the preparation of the Street Tree Master Plan the following Marrickville Council policies and documents with relevance to street trees and the Urban Forest have been reviewed and considered;

- Street Tree Inventory Database & Report, 11 October 2012
- Marrickville Local Environmental Plan 2011 - Heritage Map
- Marrickville Urban Forest Strategy 2011
- Marrickville Recreation Policy and Strategy 2013
- Biodiversity Strategy & Appendices 2011-2021
- Recreation Needs Research: Strategic Directions for Marrickville 2011
- Draft Strategy for a Water Sensitive Community 2012-2021
- Council Meeting: Asset Management Strategy and Policy, 16 February 2010
- Council Meeting: Tree Management - Inventory, Master Plan and Policy Framework, 20 November 2012
- Development Control Plan - 2.18 Generic Provisions Landscaping and Open Spaces & 2.20 Tree Management 2010
- Marrickville Public Domain Concept Designs
- Native Plants of the Cooks River
- Marrickville Council WSUD Reference Guideline, February 2012
- Improving the Road Reserve March 2011
- Census Briefing 2012
- Planting your Nature Strip Guidelines
- Verge Planting October 2011
- Tree Assessment & Report - Day Street, Marrickville (2005)
- Riverside Crescent Subcatchment Management Plan October 2010
- Eastern Channel East Subcatchment Management Plan 2011
- Tennyson Street Subcatchment Management Plan 2009
- Urban Risk Tree Management Guide prepared by Westpool, Penrith
- Impacts of Climate Change on Aeroallergens and Allergic Diseases - Report to Marrickville Council September 2013

The STMP aims to complement and achieve the objectives defined in many of Council's policy documents by:-

- The identification of many new planting opportunities within the LGA, particularly the expansion of in-road planting/ kerb extensions, or planting in currently under treed industrial areas;
- A larger inclusion in the STMP of medium sized tree species (and large trees wherever technically possible), to improve the overall LGA canopy cover. In many cases existing small trees have been suggested to be replaced, over time, with slightly larger 'medium-sized' trees.
- The introduction of more locally indigenous and native tree species to provide for increased ecological benefits and biodiversity.
- Identification of several sites where WSUD initiatives could be increased and implemented.
- Selection of the best species to maximise the benefits of shading and solar access using the paradigm of 'right tree for the right place'.
- Provision of a variety of improved planting details for various situations providing details on improved tree planting, its position in relation to the road and better soil conditions to ensure the health and longevity of each tree is optimised.

Figure 1.9- The Boulevarde, Dulwich Hill (Photo Arterra)

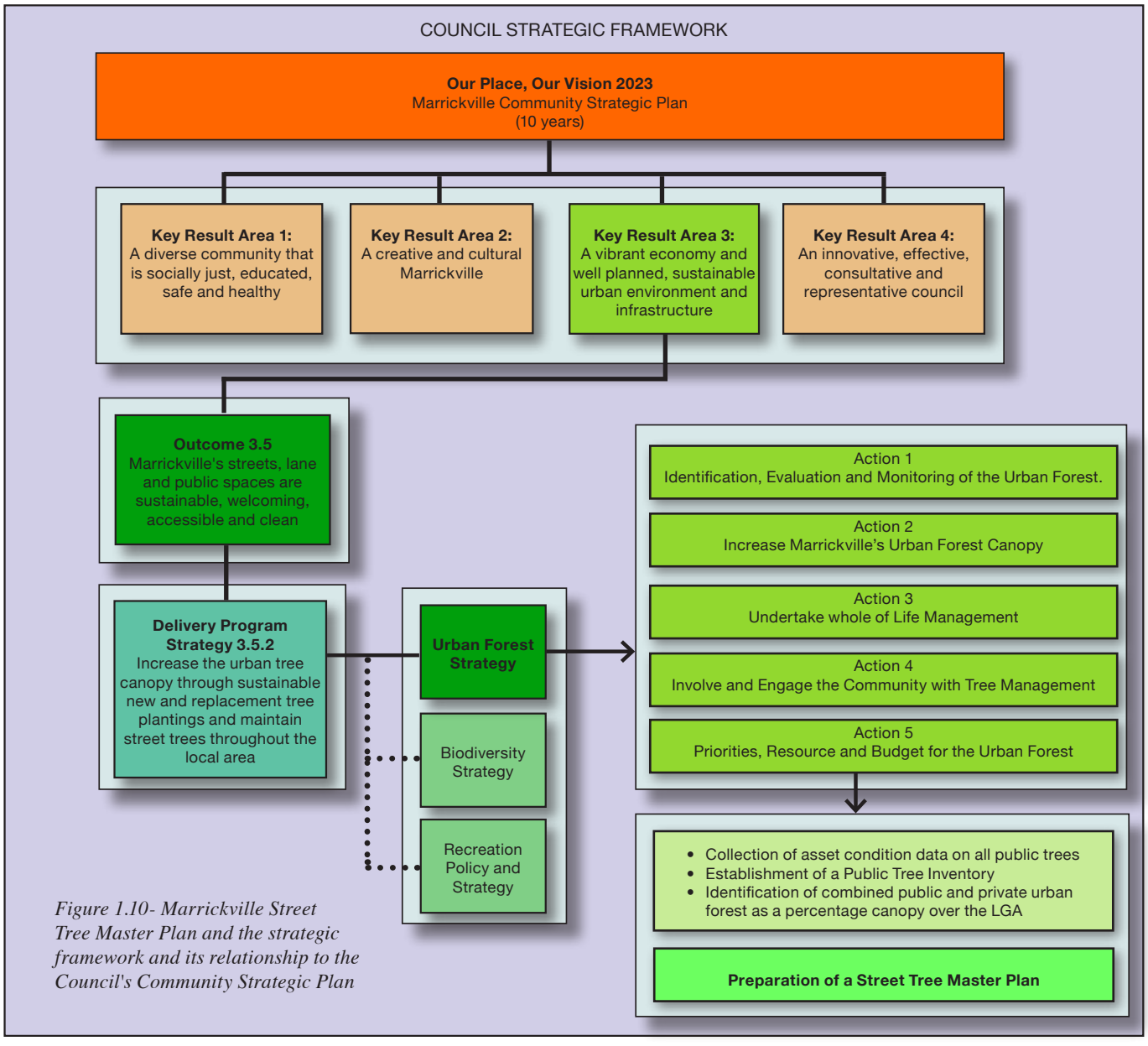


Figure 1.10- Marrickville Street Tree Master Plan and the strategic framework and its relationship to the Council's Community Strategic Plan

1.4 Street Tree Master Plan Objectives

The Street Tree Master Plan is a plan for the effective short and long term management of the Council owned and managed street trees. This document establishes a clear direction for the future development, planting and management of street trees within the Marrickville LGA.

The principle aim of the Street Tree Master Plan is to "*increase the urban tree canopy through sustainable new and replacement tree plantings and maintain street trees throughout the local area*" (in accordance with the Community Strategic Plan 3.5.2).

The key objectives of the Street Tree Master Plan are to:

- Promote and capitalise on the benefits of Marrickville's existing urban forest whilst minimising the ongoing costs of street tree and infrastructure maintenance;
- Provide direction on the most appropriate species and planting techniques;
- Establish an appropriate street tree species palette that is suited to the environmental conditions of Marrickville's public domain;
- Improve street tree establishment, habits and survival rates;
- Guide the maintenance and management of existing and new trees to ensure that they survive and flourish in otherwise harsh and unnatural urban conditions;
- Support and enhance the biodiversity values in the local area;
- Improve the Council's wider community's knowledge and understanding of good urban tree and forest management;
- Guide Council's decision making and provide a transparent and accountable processes for planting, maintenance, customer requests and development application assessments and
- Assist Council staff in the planning, budgeting, implementation, and maintenance of street tree planting by providing consistent guidance on suitable species, locations and planting patterns.

1.5 Community Engagement

In preparation for drafting the STMP, a range of community engagement activities amongst Marrickville LGA residents have been undertaken to identify the views and attitudes within the community on street tree matters. Council's recent customer complaints records from the previous 12-18 months regarding street trees were analysed. Community engagement activities included a random telephone survey of residents, a web-based online survey, a mail-out to people that indicated a desire for more information during the above surveys, presentations to elected Councillor's and nominated committees, and the public exhibition of the draft STMP for feedback and comment prior to its final adoption.

Generally the results and analysis of the surveys and presentations to other stakeholders showed that Marrickville residents are very positive towards street trees and see street trees as a way to beautify the local area, even if they have experienced issues with street trees in the past. The two main drawbacks that residents focused on regarding street tree planting were damage to adjoining public infrastructure (such as footpaths and plumbing) and leaf drop on cars, houses and footpaths. Whilst a very small minority of residents showed negative feelings and views of street trees, overwhelmingly there was a clear preference towards street trees from the community as a whole.

In summary, the telephone and online survey results showed a clear preference for street trees with the following attributes:-

- Street trees that are native to Australia or locally native to Marrickville
- A mix of different species of tree with two or more species within the same street
- Evergreen trees, that is trees that don't lose their leaves during winter.
- Use of medium sized trees (attaining 10-15m in height at maturity).
- Broad and spreading trees with relative thin and less dense foliage that provides filtered shade.

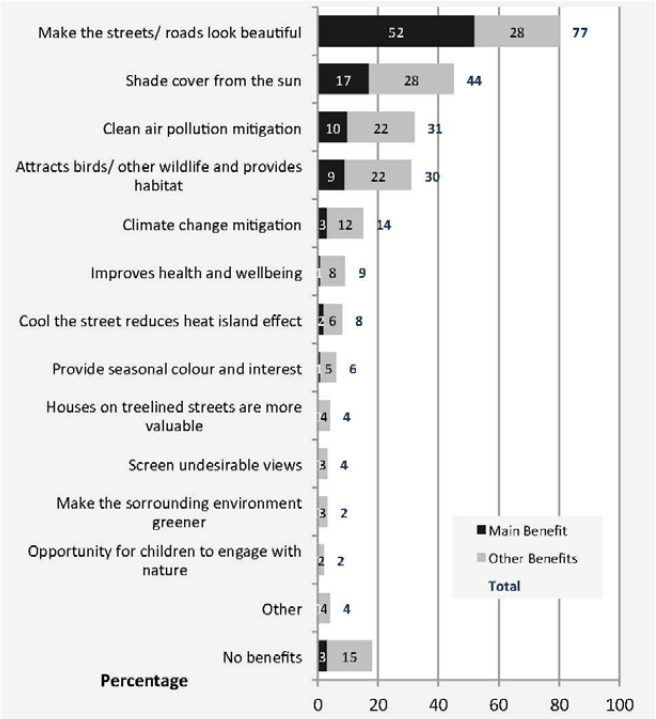


Figure 1.11 - 77% of residents believe that street trees make the streets look beautiful.

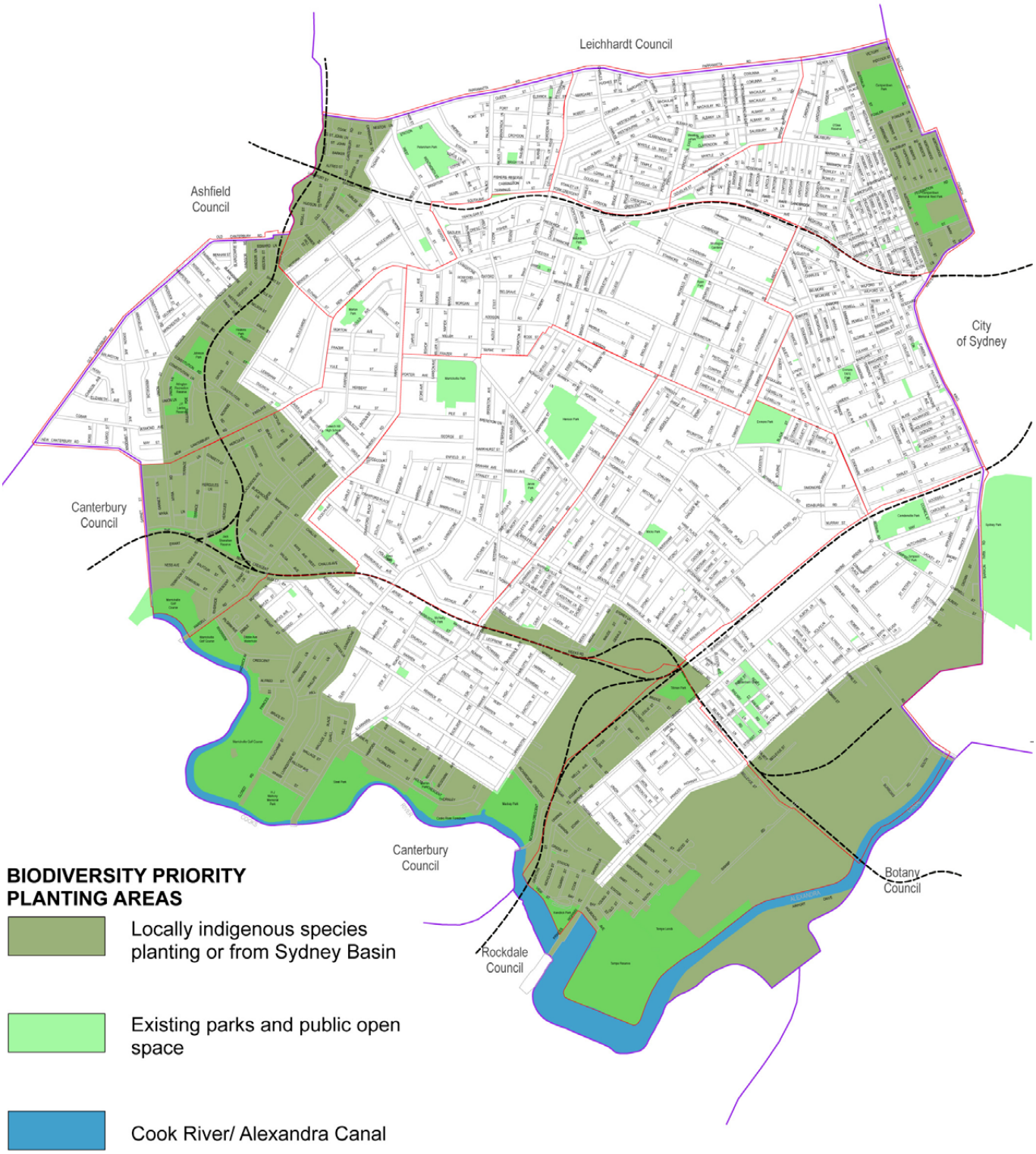


Figure 1.12- Biodiversity Priority Planting Areas - As part of the STMP and the analysis of various other Council policies regarding biodiversity initiatives, the above Biodiversity Priority Planting Areas have been identified. These areas generally include the existing habitat corridors and green web areas within the LGA, particularly along the Cooks River, Alexandra Canal through to Sydney Park and along the major railway corridors. In these areas preference will be given to the planting of a range of locally indigenous street trees, where it is feasible.

1.6 Benefits of Street Trees

Street trees are a vital urban and suburban element that can transform the character of streets and provide numerous environmental, aesthetic, cultural and economic benefits. In the long term, they often create a very real 'sense of place' and dramatically enhance the public domain. The benefits of street tree planting can be viewed in the following categories:

Environmental Benefits

- Carbon sequestration and storage. A single mature tree can absorb carbon dioxide at a rate of 21 kg/year and release enough oxygen back into the atmosphere to support 2 people's needs.
- Shading of pavement, cars and buildings, thereby reducing urban temperatures. Shading of asphalt pavements can also extend its life.
- Removal of gaseous pollutants by absorbing them with normal air components through the stomates in the leaf surface. (eg. Sulfur Dioxide, Ozone, Nitrogen Oxide), plus capture and removal of particles such as dust from the air.
- Acting as natural pollution filters. Their canopies, trunks, roots, and associated soil, filter polluting particulate matter out of stormwater flows and also slow and reduce the flow of runoff, reducing the amount of pollution that is washed into drains and catchment areas. Trees also take up and utilise nutrients like nitrogen, phosphorus, and potassium that can otherwise pollute streams.
- Intercepting and reducing raindrop impact and runoff and thereby reduce erosion of exposed soils and siltation of creeks and drains.
- Providing habitat, roosting and food sources for urban fauna.

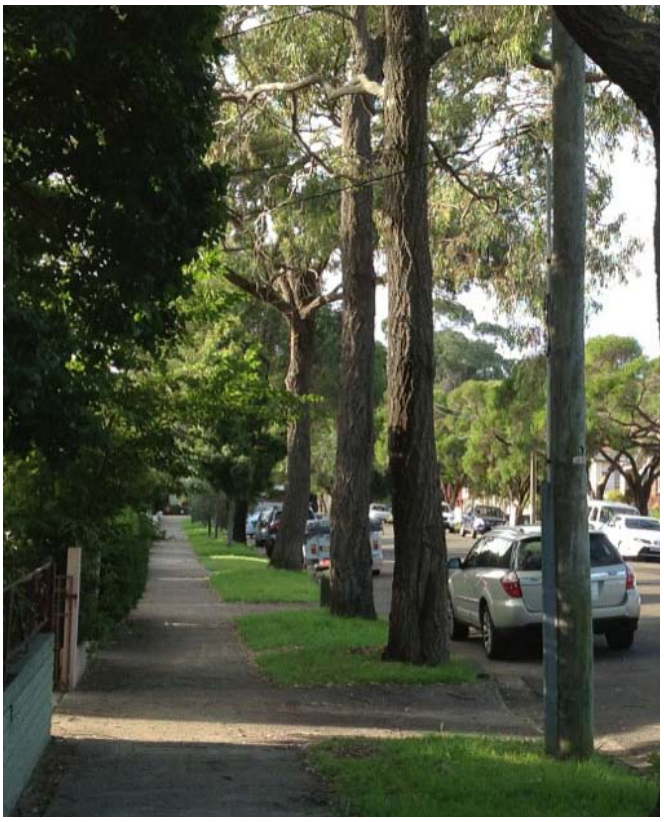


Figure 1.13 - A row of Eucalyptus paniculata along Browns Avenue, Enmore. This is a good example of using medium sized and native trees (where space permits) that contribute to the character of the area and the overall urban canopy cover.

Economic Benefits

- Improving economic performance by increasing the attractiveness of businesses and tourism areas. It has been shown that people typically linger, shop and dine longer in tree-lined streets.
- Reducing energy consumption, through shading and reductions in the "urban heat island" effects.
- Shops, apartments and housing in well planted areas usually attract higher rents and sale prices.

Social and Psychological Benefits

- Calming traffic, slowing speeds, and providing a buffer between pedestrians and cars. They are also useful in delineating and signifying curves in a street.
- Improved sociological benefits with studies showing strong correlation of well planted areas with reduced social services, domestic violence, and strengthened community ties.
- Creation of feelings of relaxation and well-being. Hospital patients, for example, are shown to recover quicker and with fewer complications when in rooms with views of trees. Workers and students are also shown to be more productive when their environments have views to trees.
- Improving comfort and general amenity as street tree canopies can shade pedestrians, diminish traffic noise, screen unwanted views and reduce glare.
- Defining precincts and links with history. Tree lined streets can provide orientation, and contribute to the overall urban character.
- Providing a human scale that contrasts with apartments and larger buildings that can otherwise dominate some streets.
- Providing seasonal interest and natural beauty through foliage and their interesting leaf patterns, flowers, bark, fruit and canopy.

1.7 Street Trees and the Urban Environment

Although trees present a myriad of benefits we have to recognise that they may also present problems, costs and risks, particularly if poorly planned, planted or managed. A tree is a dynamic living organism and can be a potentially large 'structure'. Every species is genetically determined to achieve certain proportions, within the limits imposed by its immediate environment. A tree's mature size has to be accounted for when planning any new planting or when designing new structures that are close to existing trees.

Despite the best intentions, trees can present a variety of forms and habits even within the one species type and within the one street. Street trees are most often planted within an artificial and constructed environment that is far removed from its natural habitat, which in turn lead to some negative aspects associated with trees in the urban environment. However, it is generally considered that the benefits trees contribute to our wider environment usually far outweigh many of the negative aspects.

Marrickville has a wide and varied population of residents, living in apartments, terrace houses, small and large lot suburban housing. Each resident will have a different perspective and interaction with street trees and the wider urban forest. The community as a whole also includes business owners and employees who may visit and engage with the area and its trees every day. As such, Marrickville encompasses many people with an extremely diverse range of interests and attitudes towards street trees.

The most common causes of problems and concerns with trees, including street trees are:-

- cracking and lifting of pavement and walls;
- clogging of pipes and services;
- obstruction of views;
- obstruction of pedestrian and vehicle access and street signage;
- dropping of leaves and fruit;
- attraction of animals and birds that may cause mess and irritation;
- shedding of larger branches;
- excessive shading or blocking of sunlight;
- obscuring of street lighting.

Often many of the common issues associated with street trees can be adequately addressed without tree removal. Appropriate maintenance and pruning can often alleviate most concerns, and appropriate repair or redesign of infrastructure can also be undertaken with little impact to the tree and the tree can continue its valuable contribution for many decades.

It is also important that people recognise, and are informed about, the need for change. As trees age they will typically require maintenance and then eventually will require removal and replacement. In a natural ecosystem this happens gradually and with little problem or impact to people. In an urban environment an aging or hazardous tree cannot be left until it completely fails, as is the case in natural areas.

Tree removal can be traumatic and emotional. Often trees have been there for many decades - people have grown up with them and become attached to their presence, their size and their aesthetic appeal. The trees may also represent associations to past events and historical places. For these and many other reasons, some parts of the community often have expectations of trees being retained for very long periods. There will come a time, however, when the benefit of keeping an individual tree is far outweighed by the risk to life or property and the monetary cost of maintaining it. In summary, when managing and establishing any urban forest the needs of the ‘many’ may often have to override the desires of the ‘few’.

Street trees can evoke a negative perception within the community. Based on feedback from the resident survey, the two main concerns raised are damage to public infrastructure such as footpaths and plumbing (29%) and leaf drop on cars, houses and footpaths (24%). Each of these are discussed in more detail in the sections below.

Damage to pavements and structures

Many old established trees (often the vigorous and larger growing species) in our area can and have caused footpath uplift and cracking. In adhering to the principle of the 'right tree for the right location' future pavement damage can be significantly minimised.

An important factor is site preparation, planting and the establishment techniques used for new tree planting. To minimise pavement damage, the use of expanded planting pits, and in-road blisters or kerb extensions (where possible) will be considered. Also maximising the size of the planting 'cut outs' in the pavements and the use of flexible pavements and other devices such as “Tripstop™” jointing system will assist in minimising future issues.

Figure 1.14 -Infrastructure damage is one of the most common impacts of street tree planting (Photo Arterra)

Figure 1.15 - An example of excessive overshadowing on the south side of a street with small building setbacks and impact with overhead wires (Photo Arterra)

Other factors that commonly contribute to negative interactions between trees and structures include:

- The prevailing soil type, structure and depth;
- The tree species and its genetic dispositions that influences its ultimate size and shape;
- The design of the nearby structures;
- The construction materials, quality of installation and methods adopted;
- The age of the adjoining structure (as with trees, most structures have a 'useful life span' and have to be maintained and then replaced within set time frames); and
- The type of previous land use (eg. industrial sites where soil contamination and/or layers of fill can impede normal biological processes).

Whilst roots are opportunistic they do not act 'aggressively' as often believed. Root growth occurs via extension at the very end of the root tip and it can only occur when there is sufficient soil oxygen and moisture. They will not grow if there is too much water, not enough oxygen, or if the spaces in the soil are too small or compacted. Knowledge of root growth characteristics can be used in the design of infrastructure in proximity to trees. Equally important is the provision of sufficient space for the growth of healthy trees. If sufficient space is not provided at time of planting roots will typically occupy the spaces directly under the pavements, increasing the risk of pavement lifting.

Tree roots are also storage organs and they do have the potential to generate new roots after being cut. In most cases, a tree will generate new roots when roots are cut cleanly, but if roots are torn or crushed then they are most likely to decay and die leading to a potential loss of tree stability and ingress of unwanted pathogens.

The table below outlines some of the common hazards and issues raised regarding street trees and outlines how Council will approach resolution of these issues.

Hazard Abatement 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 can reasonably foreseen or damage by tree roots can be proven, barriers in specific cases may be installed to deflect roots away from structures or services. These are typically very site-specific and are not encouraged except as a last resort.
Tunnelling for services	Tunnelling (directional boring) rather than open trenching for underground service installation, will greatly reduce public risk as well as reducing injury to tree roots. If located deeply, root contact with the pipelines 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 earthenware pipes with PVC or polyurethane will significantly reduce the potential for tree root entry.
Preventative tree maintenance	Trees in public areas should be regularly inspected and maintenance activities, such as dead-wooding and formative pruning carried out as prescribed. Pruning should always be undertaken in accordance with AS 4373-2007.
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 geotextile 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 and bundled cables will reduce both the clearances needed and the pruning costs and severity.
Undergrounding of power and 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 tree health, loss of public amenity and of urban forest economic contributions.

Leaf and fruit droppings

All trees, including evergreen species, drop leaves. Likewise nearly all trees will at some time during the year drop fruit, flowers and bark. Strategies that can be employed to reduce the impact of leaf and fruit litter in our streets will be the coordination of our street sweeping resources to target problem areas and seasons.

Species that are known to develop excessive fruit production or very fleshy fruits or leaves that become slippery on decomposition will typically be avoided for selection, particularly in paved or heavily trafficked areas.

Allergies

Concern is sometimes raised that particular tree species cause allergies/ irritation and respiratory problems. It is important to note there is a difference between an allergic reaction and an irritation. All flowering plants including grasses produce pollen. Generally species that rely on wind pollination create a greater pollen load to ensure continuation of the species. Pollen in the air can contribute to hayfever, eye allergies and other respiratory problems.

Grass species are by far the most prevalent pollen producers and have a long pollen season. Grasses rely on wind to disperse their microscopic pollens, which are produced in vast quantities. In Sydney the grass pollen season goes from September into January or February depending on prevailing weather. Eye allergy symptoms may be reduced by sufferers wearing wrap around sunglasses and a hat. This has the potential to exclude the majority of pollen grains affecting the eyes.

Figure 1.16 - Some species such as this Plum Pine can produce excessive fruit drop and should be avoided except in special circumstances.

Figure 1.17 - Although Plane Trees are a useful and robust street tree, the potential nuisance, discomfort and irritation from the fruit and leaves needs to be carefully managed and assessed prior to their more widespread use.

Property Clearances, Views and Solar Access

Pruning

The Council will prune trees to maintain a reasonable and safe clearance between trees and pedestrians, vehicles and private property. Council has developed specific guidelines with regard to tree pruning for clearances and to maintain views and solar access. Refer to Figure 1.18 below for a diagram that graphically illustrates the proposed clearances and offsets for tree pruning. This is a guideline illustration only and actual clearances required will depend on site constraints.

Council will not typically prune a tree for the provision of views or creation of unreasonable solar access. Council will avoid pruning practices which disfigure the tree or are detrimental to its healthy and safe condition.

When planting new street trees Council will consider the impact the mature tree may have on surrounding residents views and will, as far as practicable and reasonable, avoid planting overly large trees that will block previously unencumbered views.

If an existing tree is removed, any replacement tree will normally be similar in scale and form and will be planted in close proximity to the original tree. It will be allowed to reach its natural potential.

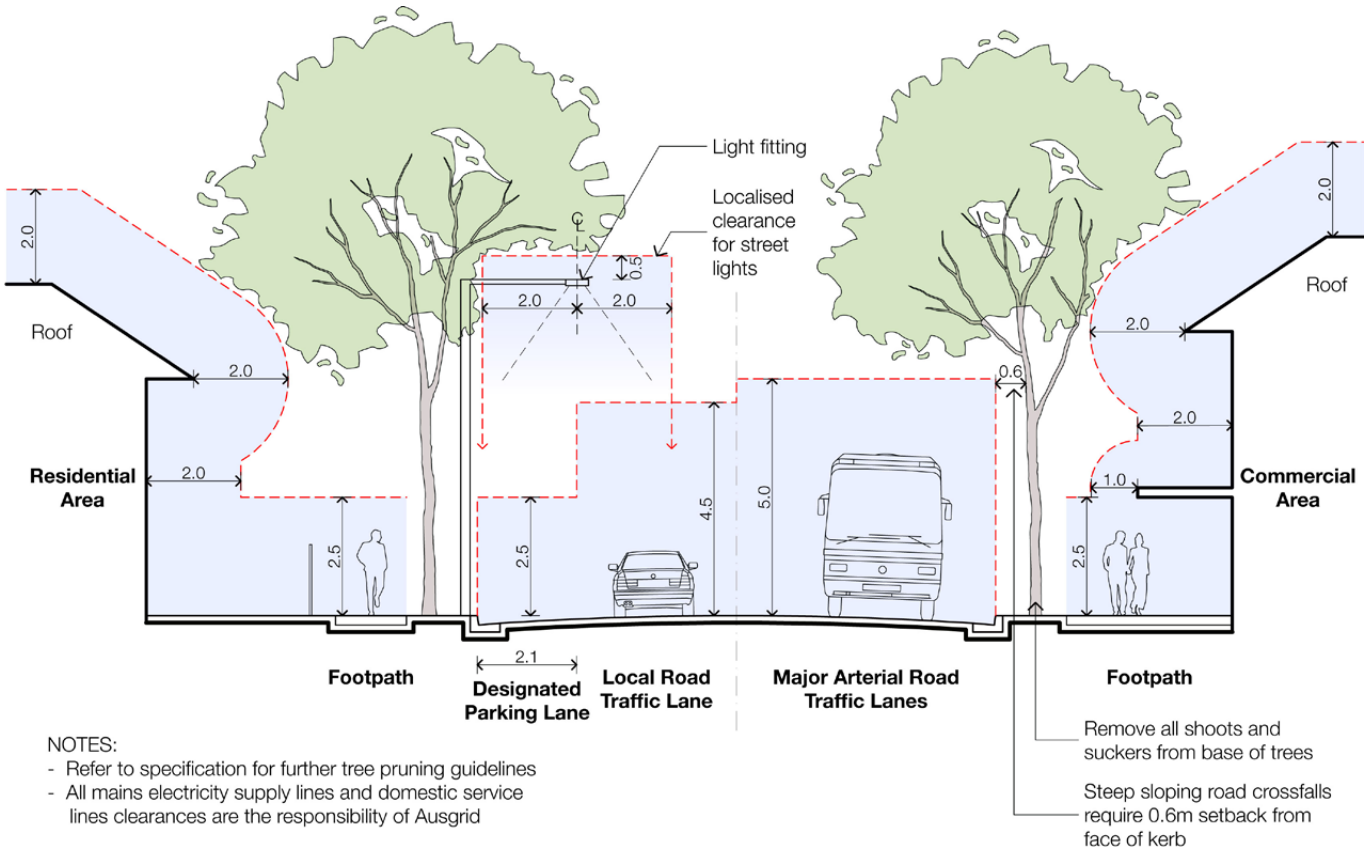


Figure 1.18 - Marrickville Council - Tree Pruning Clearance Diagram

1.8 Tree Removals, Replacements and Implementation Strategies

Overview

Council aims to continue existing street characters and tree planting as much as possible, unless there are specific issues or problems to address or there are clear opportunities for streetscape or canopy cover improvements. Generally speaking, Council will not consider leaf, fruit, sap or bark drop or bird and bat droppings as valid reasons to prune or remove a street tree. These are natural processes of normal tree growth and wildlife.

Council will seldom remove a healthy street tree. If a certain type of tree is proposed for a street within this Plan, it does not mean that Council will remove the existing street trees in the short term to implement any new species. This will only happen gradually over time, as trees need replacing or if a specific opportunity exists to plant a new tree in an otherwise vacant area.

As such, existing street trees, regardless of species will normally be left to grow for their natural life and will only be removed once they have become a safety issue, an unacceptable hazard or ongoing remedial tree or infrastructure works are unviable. The exception to this policy may be when major street improvements or upgrade works are required or there is specific plan to revitalise a street or area. Even then, unnecessary tree removal will be avoided where possible.

Street Tree Removals and Replacements

Council will aim to maintain and conserve the overall canopy coverage within the LGA. Council will remove street trees in the following circumstances.

- The tree is dead or dying
- The tree is assessed as being hazardous due to recognisable structural or health defects and where remedial or selective pruning cannot eliminate the risk, or where such pruning will leave the tree unacceptably disfigured or poorly formed
- The tree is causing public Infrastructure damage which is considered significant and can not be overcome by other reasonable and practical measures
- The tree is causing significant damage to significant private structures. It will typically be a requirement to positively establish that the tree is causing the damage and that the damage is significant and that continued and future damage cannot be overcome by other reasonable and practical measures.
- Any other reason, at the discretion of Council's staff which can be justified by either technical or legal grounds according to particular circumstances.

In regard to the above, significant damage is a relative term, and will usually be assessed with respect to the likelihood of repetitive repairs and the relative costs compared to the amenity value of the individual tree. For example repairs or replacement of footpath pavements or kerbs once every 10-15 years due to tree root growth would generally be considered acceptable. However, the replacement of a footpath every 2-3 years and a tree that will continue to substantially increase in size would indicate that the tree is generally unsuitable for the location.

Likewise, it is also necessary to consider the severity, age and nature of any private property damage and how quantifiable the damage is being caused solely by the tree. If the structure is a relatively minor outbuilding, or landscape wall or the suitability or quality of construction is questionable, it may be of greater over-riding benefit to retain the tree as the more significant item. Obviously, if the damage is clearly related to the Council's tree and is affecting the structural integrity of a dwelling or other important structure, then clearly tree removal must be considered. As a rule this will generally be determined on a case by case basis.

The removal of a tree is generally not considered justified when damage is restricted to minor works such as unit paving, fencing or footpaths and driveways or to deteriorating sewer or drainage lines where reasonable and practical repairs can be carried out. This is a principle largely upheld by the NSW Land and Environment Court.

Where a street tree is removed, Council will install a replacement tree at or very close to the removal site. They will follow the spacing and placement guidelines outlined in this document and may locally adjust the placement as needed. The replacement species shall be as outlined for that particular street in the Master Plan. Where a choice of species is provided the species selected will take into consideration the localised environmental, functional and aesthetic aims and the reason for the previous trees removal. The species selected shall be at the sole discretion of the Council.

Where practicable and feasible the Council will notify the affected residents of planned tree removals and replacements in accordance with the table below:

Removal Activity	Consultation
Minor Street Shrub Removal (including trees up to 5m)	• No prior notification • Notice to 3 adjacent properties stating reason for removal
Standard Street Tree Removal	• 14 days prior notification to adjacent properties and those opposite • Notice attached to tree • Proposed tree removal included on Council's website
Emergency Removal	• No prior notification • Advice on Council's website

Proposed New Street Tree Planting Strategy

The implementation of any new street tree planting needs to be carefully planned and considered. New street planting will typically not be installed under the canopy or within very close proximity to larger and overhanging trees (either street, park or private). The resulting habit and condition of the newly planted tree is severely compromised, often resulting in a substandard tree form and future maintenance issues. Council officers prior to the finalisation of any planting program will assess this sort of conflict.

Unauthorised Planting on Council Land

Council may identify situations where residents' plant trees on the Council managed road reserve without the written approval of Council. Although these are sometimes suitable trees, there are a range of issues relating to insurance, public safety, environment and the integrity of overhead and underground services that must be considered.

Council does not permit planting of trees on Council land by persons other than Council staff or contractors and Council may remove any such trees.

Tree Vandalism or Unauthorised Pruning

In accordance with Clause 5.9 of the Marrickville Local Environmental Plan 2011 it is an offence to damage or remove a Council street tree. Any persons found guilty of tree vandalism will be prosecuted.

1.9 Tree Procurement

Considerable effort and resources can be spent in planting new street trees. This considerable effort can be wasted if the tree dies shortly after planting or if the tree is supplied in a substandard form or condition that may ultimately lead to poor performance or the later development of serious structural defects and poor health. As outlined by authors such as Gilman (Gilman 2012), most tree defects that occur in mature trees were present and identifiable at the time a tree was initially planted. It is therefore essential that the tree is in optimal condition when delivered and planted.

An important aspect of the implementation of this STMP will be also to improve the way Council plans for, and procures its nursery stock. Implementing a more 'forward-thinking' and pre-planned approach to plant procurement has numerous benefits, which include: -

- Securing favourable contract growing prices.
- Ability to prepare and coordinate planting at optimum times of the year.
- Ability to purchase trees of the required species and cultivars.
- Ability to purchase trees of the required sizes and dimensions and formatively pruned to suit street tree installation.
- Assurance of the required quantities, including allowance for replacements when necessary.
- Ability to inspect and demand quality stock free of above and below defects.

In summary, all trees to be provided to the Council should be part of an advanced plant supply contract with one or more reputable suppliers and they should conform to the NATSPEC "*Guide for assessing the quality of and purchasing of landscape trees*" by Ross Clark 2003. The specifications outlined in Section 6.4 of the STMP detail the specific requirements for the supply and transportation of trees. Council should undertake inspections of stock prior to, or upon delivery, and reject any trees that fail to adhere to these specifications.

Figure 1.19 - Quality control of trees supplied for planting is critical to the success of any planting program. Many defects are present at the time of planting and they can be either rejected or the problem easily rectified before it becomes a major problem when the trees reaches maturity.

Figure 1.20 - Advanced growing contracts of trees allows for the proper supply of plants in the varieties, sizes, quantity and quality that Council requires.

1.10 Action Plan and Priorities

This Master Plan provides Council with a clear direction to the ongoing management of street trees in the Marrickville LGA. Specifically, this document recommends the following key priority areas to be targeted by Council in its management of the street tree resource:-

- Commitment to long term strategies to increase the canopy cover within the Marrickville area.
- Reinforcement and improved tree planting along the identified major road corridors (refer to Section 4).
- Identification of streets where the implementation of ABC (Aerial Bundled Conductors) overhead wiring should be budgeted and prioritised (refer to Section 6.2 for detail).
- Investigation and implementation of further in-road planting opportunities particularly in narrow verges or in very wide streets with small trees. (refer to Section 3.7 and 6.3).
- Maintenance and continuation of the existing in-road planting.
- Implementation of improved approaches and methods to tree planting techniques with particular focus on achieving greater soil volumes for trees, more generous tree surrounds, integration of paving, services and tree planting and appropriate species selection.
- Greater scrutiny of proposed new and replacement planting sites based on the expected and ultimate size of the tree and assessment of the surrounding key infrastructure and services clearances.
- Improved procurement of tree stock with a defined and managed approach using forward planned installation periods, advanced ordering of quality plants in suitable sizes and adherence to the proposed species and cultivar palettes.
- Proactive maintenance practices such as formative pruning and mulching around the base of young trees to achieve good quality, well structured and low maintenance trees well into the future.

The above priorities will also require a commensurate commitment from Council, Council staff and the wider community. Appropriate funding, both recurrent and one-off capital injections will need to be provided as part of this Plan to achieve the objectives and allow the implementation of key priorities.

Figure 1.21 - Good streets require good planning. To achieve great street trees in the future will require ongoing commitment and appropriate funding

2.0 Tree Species Selection

2.1 Overview

Street trees are long term assets and investments that may live between 50 to 150 years, so species selection is vitally important. In contrast, most residents will only occupy their houses, on average, for a 5-10 year period.

Most of Marrickville's streets are already planted with well established trees. If these trees are performing well, are in-scale with the street and the surroundings, and provide a consistent and distinctive streetscape character, then generally the Street Tree Master Plan will follow and continue the existing pattern and species.

However, the Council adheres to the principle of the 'right tree for the right location'. Some exceptions to the general policy will therefore occur. These include species that have performed poorly, are considered out-of-scale with the street, or have proven themselves to be particularly damaging to pavements and other structures in that location. This provides the opportunity to introduce additional tree species to our area and also trial new and better trees and cultivars that show promise as urban street trees.

Research has consistently shown that medium to large trees provide the greatest ecological and community benefits in comparison with small trees. They create more canopy spread and shading benefits, absorption of more gaseous pollutants, lower levels of tree vandalism, ability to achieve higher canopy clearances, and more calming and slowing traffic on streets than very small trees. Medium and larger growing trees are also commonly longer lived than small trees. Large trees do require larger soil volumes and more physical space above and below ground than small trees, which needs to be designed and factored in to any new plantings. However the ultimate benefits to the community are often exponentially increased over their lifetime.

Using the paradigm of "right tree for the right location", a medium to large tree will only be specified and planted for an area where there is obviously sufficient space, and the growing conditions are suitable for the foreseeable life span of the tree. Smaller trees will also have a place in Marrickville's urban forest for areas where physical space, existing views or exposure present over riding factors.

2.2 Street Tree Planting History

Street tree planting has become a particularly recent focus in the last 40 years. In Marrickville, extensive street tree planting of approximately 33,500 trees was carried out during the years of 1972 through to 1992, and a further 9,000 trees recorded as being planted between the years of 1993 and 2003.

Historically, tree planting usually occurred in association with the creation of parks during the mid to late 19th century and in response to the expanse of subdivisions and industry in the area. Some of these parks have been preserved, including Camperdown Park (1882), Petersham Park (1887), and Marrickville Park, which is now known as Enmore Park (1886).

By the early to mid 20th century, the area was heavily urbanised and street tree planting was limited to just a few localised areas. Commonly used tree species in streets and parks during these early times included *Lophostemon confertus* (Brush Box), *Ficus microcarpa var. hillii* (Hills Weeping Fig), *Ficus rubiginosa* (Port Jackson Fig), *Ficus macrophylla* (Morton Bay Fig), *Phoenix canariensis* (Canary Island Date Palm) and *Cinnamomum camphora* (Camphor Laurel). Street tree planting usually took the form of a single species avenue style planting, often within the road carriageway. Many of theses original avenue plantings still exist today, in varying conditions and degrees of intactness.

Figure 2.1 - The Boulevarde, Dulwich Hill (Photo Arterra)

2.3 Existing Street Tree Population

Marrickville has an existing and excellent commitment to street tree planting. With over 22,000 street trees it could be considered by most people to be well treed. The vast majority of streets are already planted and numerous streets present very well and there are many historic avenues that contribute to the beauty, character and enjoyment of Marrickville.

Species diversity is a critical component in managing a sustainable urban forest. The wider the range of botanical species and families, the lower the likelihood of canopy cover degradation and loss in the event of unexpected pest and disease outbreaks, or from impacts such as climate change and prolonged droughts. Increased diversity also helps to support more diversity of fauna, by providing a variety of food and habitat throughout different times of the year.

Species diversity is often measured by the percentage of the tree population in particular families, genera and species. Commonly accepted maximums to aim for are in the range of no more than:-

- 30% - 40% for any one particular family;
- 20% - 30% for any one particular genus and
- 5% - 10% for any one particular species.

The Council's current street tree inventory consists of approximately 360 different tree species. Many of the species, however are only represented by a few trees with approximately 340 of the species representing less than 1% of the total street tree population and approximately 160 species represented by less than 3 separate individuals.

The species diversity in private properties is likely to be substantially higher, as the constraints on planting (overhead and underground utilities, soil conditions, reduced water availability etc) are much less. Whilst the number of the different species is high, it is important to consider the concentration of specific families and species.

The Council aims to achieve a balanced species diversity in its street trees by:-

- Implementing the relevant tree species selection and planting guides included in this Street Tree Master Plan for all new street tree planting;
- Selecting the trees species for planting depending on their suitability for the specified street, aesthetic, functional and biological attributes, past performance and the potential to contribute to the wider environment, using the philosophy of the "right tree for the right location";
- Assessing Development Applications to ensure that any proposed tree selection is compatible with desired canopy cover levels, biodiversity needs and landscape character for particular precincts;
- Selecting tree species to meet the accepted diversity standards of no more than 40% for a family, 30% for a genera and 10% for any one species;
- Considering the known pest and disease impacts when selecting new tree species and managing tree replacements.

Figure 2.2 - Canonbury Grove, Dulwich Hill (Photo Arterra)

Figure 2.3 - Melaleuca bracteata (Black Tea Tree) (Photo Arterra)

Tree Inventory Analysis

An assessment of approximately 22,000 Council street trees species was undertaken in 2012, as outlined in the graph below. The inventory revealed that the most common five species represent over 45% of the total species mix, including:-

- *Callistemon viminalis* (Bottlebrush) (17.1%),
- *Melaleuca bracteata* (Black Tea Tree) (10.0%),
- *Tristaniopsis laurina* (Water Gum) (8.2%),
- *Fraxinus griffithii* (Griffith's Ash) (5.5%), and
- *Lagerstroemia indica* (Crepe Myrtle) (4.8%).

The heavy reliance on *Callistemon viminalis* (Bottlebrush) is often more pronounced in certain individual precincts. For example the precincts of Sydenham/St Peters, Marrickville South, Stanmore North, Newtown South/Enmore and Newtown/Camperdown rely on *Callistemon viminalis* (Bottlebrush) for between 19.02% and 25.49% of the total tree species mix.

The maximum heights of the top five tree species generally does not exceed 6-8m and would be considered a small tree in an urban setting. Their limited size is reflected in the overall data averages and is considered very low, particularly in relation to the low representation of otherwise young or semi-mature trees. The average tree dimension calculated across the entire street tree mix is just 5.2m high and 4.45m wide.

The STMP shall aim to use more medium sized tree species wherever possible, which will increase the average street tree dimensions. Planting slightly larger trees will also support Council's objective to increase canopy cover over the LGA. Furthermore, the notion of planting more medium sized trees is supported by the community based on the telephone survey results (referred to earlier in this plan).

Figure 2.4 - Callistemon viminalis (Bottlebrush) (Photo Arterra)

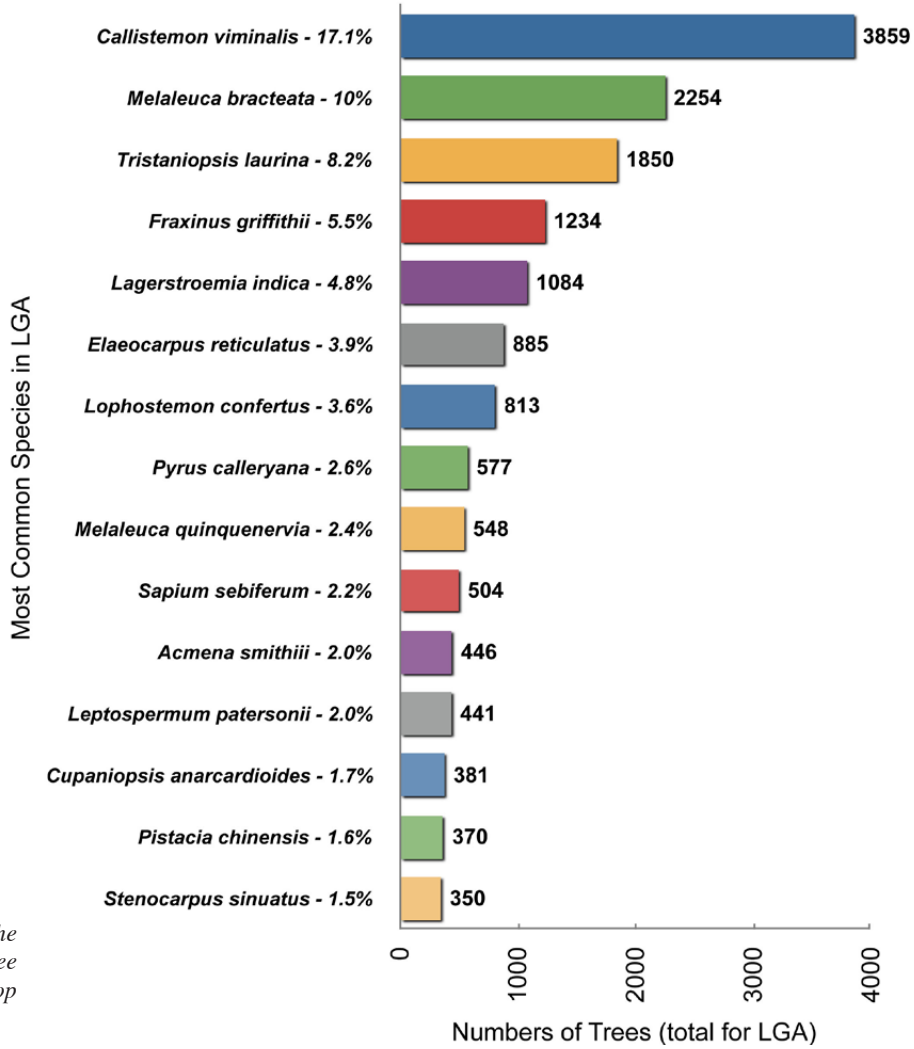


Figure 2.5 - A graph illustrating the relative proportions of street tree species across the entire LGA for the top 15 species (as at August 2013)

2.4 Current Street Tree Issues

Based on field observations and data analysis, the main current street tree issues can be summarised in the following pages.

Past Selection of Tree Species

The current tree species palette relies heavily on just a few species, being *Callistemon viminalis* (Bottlebrush), *Melaleuca bracteata* (Black Tea Tree) and *Tristaniopsis laurina* (Water Gum). The aim is to reduce this over reliance on a relatively few species and in the long term, align with the currently accepted best practice that suggests no more than 10% reliance on any one species in the urban forest mix.

Past street tree planting has also been carried out with minimal strategic control and coordination. This has resulted in many streets with an overly diverse mix of species thus providing a very diluted street planting character with a great number of species potentially occurring on many streets.

A great number of street tree species planted have proved to be either too small or too large. For example, *Melaleuca quinquenervia* (Broad-leaved Paperbark), *Corymbia citriodora* (Lemon Scented Gum), and *Ficus microcarpa var. hillii* (Weeping Hills Fig) are normally large tree species that have historically been planted in quite narrow verges. These have the potential to, or are now causing, many serious conflicts with infrastructure and adjoining residents. In comparison, *Melaleuca bracteata* (Black Tea Tree) is an appropriate tree with a good scale and relationship to most of the streets within which it has been used.

Figure 2.6 - Melaleuca quinquenervia (Broad-leaved Paperbark), Cobar Street, Dulwich Hill (Photo Arterra)

Historical Tree Planting Practices

The Marrickville area has a strong history of in-road planting, particularly of *Lophostemon confertus* (Brush Box) and *Cinnamomum camphora* (Camphor Laurel). It is important that these existing in-road plantings are protected and continued along these streets to ensure the historical character of the streets is not completely lost or diluted.

When planting trees, previous planting practices have often resulted in trees planted too close to each other (often 1 tree per lot frontage (with sometimes more, even 2-3 trees). With narrow lots and terrace houses this means trees can often be only 4-6 metres apart. This can create a visual 'wall' along the street, with the potential for a lot of shading and overcrowding of trees, that when mature, are either suppressed or malformed, and competing with each other for very limited resources. The STMP shall specify suitable spacings between new trees according to the ultimate size the tree will grow.

A consistent problem now exists due to many previous street trees being planted into very small spaces within fully paved verges or in very narrow grassed strips. This has lead to both sub-standard trees and often excessive pavement damage and lifting. Verge gardens and expanded tree pits are a positive move towards correcting this and should continue together with the future use of upgraded and 'below-pavement' structural soil solutions. Better approaches to planting and establishment may cost extra in the short term but in the longer term reduce costs to Council in pavement replacement, tree maintenance and removals.

Many of Marrickville's parks have street trees that have been planted immediately adjacent to the park frontages, often resulting in street trees that are suppressed or malformed due to the larger trees growing adjacent in the park. A better approach is to have the larger and well formed trees set within the park and let them contribute to the streetscape (as they often already do). Further street tree planting in front of park frontages is typically not recommended, unless the park trees are set well back and the verges are wide enough for successful tree planting.

Figure 2.7 - Tree planting in very small tree pits, even with relatively small trees eventually creates problems - The Avenue, Petersham (Photo Arterra)

Current Street Tree Planting Constraints

Approximately 88% of the LGA's streets are impacted by overhead power lines, which affects tree planting on one side of the street. When combined with narrow street verges this means that street trees typically have to be planted under the over head wires on at least one side, unless in-road planting is feasible. Approximately 7% of Marrickville streets currently have Aerial Bundled Conductor (ABC) cable installation, which can facilitate larger trees to be planted beneath.

Approximately 25% of streets in the municipality have narrow verges of less than 1.8m, 73% have a small verge (1.8 - 3.5m), and 5% have a verge greater than 3.5m wide. Approximately 54% of all verges are fully paved, whilst 44% are a combination of a grass strip and pavement. The narrow verges are predominantly in Newtown, Camperdown, Enmore, and Stanmore. These narrower verge widths are usually combined with houses with small or no front setbacks to the street boundary.

Many streets are oriented with angles towards East-West. This results in a north and south side of the street. Trees on the south side shade the houses, particularly in winter. Therefore on streets with a distinct north and south side it is important to plant smaller and/or deciduous trees on the southern side. This can tie in well when the power lines are also on the south side, however it does causes an issue when the power lines are on the north side. The larger trees can therefore be planted on the south side, but then places more emphasis on the trees being deciduous to cater for winter sun and summer shading, particularly when housing lots are small and/or front set backs are small.

The Marrickville LGA comprises a significant number of lane way / rear streets, which are concentrated in the suburbs of Camperdown and Newtown. In almost every situation, there is no existing street trees, nor any opportunity for street tree planting. Given the narrow width of the lane ways and very narrow verge (if any at all) there shall be no street tree planting suggested within laneways.

Figure 2.8 - Corymbia citriodora (Lemon Scented Gum), Bishopgate Street, Newtown (Photo Arterra)

2.5 Street Tree Selection Criteria (Right Tree, Right Location)

One of our key tree selection objectives is to ensure the future selection of the 'right tree for the right location'. In other words, to ensure that the selection of the species is appropriate to the local environmental conditions and the constraints of the planting location.

There is no 'perfect' street tree, so every selection has some compromise between positive and negative values. This often means providing a balanced decision between native and exotic species, deciduous and evergreen species and the ultimate size of the tree.

The Street Tree Master Plan tree species selection criteria is divided into three main considerations :-

- Environmental issues;
- Functional requirements and;
- Aesthetic and design considerations.

Consideration of the criteria outlined in this section should ensure the selection of the species with the most desirable and appropriate characteristics, no matter what their origin or type. In order to ensure the health and longevity of street trees, aesthetic and design considerations will be accommodated only where optimum conditions for plant growth are available. The proven performance of the species, in particular to environmental conditions and functional requirements, will be the primary considerations for the proposed street tree selections.

2.6 Environmental Considerations

Some basic environmental considerations in selecting a street tree are outlined below.

Climate

Street trees selected will need to be able to easily tolerate the prevailing temperate and climatic conditions. More importantly is the consideration of microclimate for particular locations. Exposure, overshadowing caused by taller buildings, wind tunnel effects and reflected heat result in the need for tree species that are particularly hardy and resilient to such adverse conditions.

Street trees selected should be capable of surviving an average drought period in reasonable condition without irrigation or reliance on town water supplies. Passive irrigation through the use of Water Sensitive Urban Design may assist with additional water being available to trees. However, in reality, many existing streets cannot be retrofitted without impacting the trees and requiring major infrastructure changes.

Climate change also dictates that we be particularly mindful when selecting future tree species. Typically the trees selected in the STMP are species that have a reasonable potential to resist and survive increased average temperatures, increased heat-wave conditions and longer drought periods.

Geology & Soils

The underlying geology and soil provides nutrients and water as well as physical support for trees. Soil characteristics such as nutrient levels, drainage and depth greatly influence the potential health and vigour of trees, with some species more sensitive to soil types than others.

Marrickville area has a mix of soil types, the dominant being a shale-derived clay loam soil which provides favourable growing conditions for most trees providing it is well drained.

Smaller pockets of Hawkesbury Sandstone derived soil found in the southern parts of Marrickville and Dulwich Hill are typically shallow sandy soils where rock is found close to the surface and overlaid by a relatively thin layer of soil. This can have considerable impact on the health and vigour of trees, often resulting in stunted growth and trees that succumb to pest and disease attack. Species that can readily adapt to shallow soils will be preferred in these areas. These tend to be the adaptable Australian native species such as *Corymbia sp. Eucalyptus sp. Angophora sp.* and *Banksia sp.*

We must remember that many areas and streets are also extremely disturbed and have had the original soil stripped and replaced by road construction materials, building debris and landfill materials including garbage. This is particularly common along the Cooks River in Tempe, St Peters, Sydenham and Marrickville. Trees that adapt to a wide range of soil types and conditions are preferred in many areas.

Biological Influences

The selected tree species should be resistant to known and commonly encountered pests and disease. A broad mix of species will help reduce the potential impact on any one specific tree species. There are a variety of pests and diseases which have been identified in the Sydney area including (but not limited to) Sycamore Lace Bug, Myrtle Rust, Fusarium Wilt, *Armillaria*, and *Phytophthora*. Overseas precedents show that widespread infestations of harmful pests and diseases can have devastating consequences on parts of our urban tree populations.

The selected species should also have a low risk of becoming an environmental weed. Those species with known weed potential due to their ability to readily self propagate shall typically be avoided, particularly when near bushland.

Physical Influences

It is particularly important the tree species selected can tolerate vehicle emissions, particularly in areas traversed by busy arterial roads that are subject to high levels of photochemical pollution produced by vehicle exhaust systems. Deciduous trees are generally considerably more tolerant than evergreen species due to the duration over which different species retain their leaves. The longer the life of a leaf the greater the likelihood that the threshold levels for pollutant damage will be exceeded.

Selected street trees need to tolerate the site conditions of fully paved areas. These trees must have the ability to adapt to lower than optimum soil oxygen levels and often compacted and highly modified soil conditions. They also need to tolerate the increased radiant heat loads often imposed by these fully paved environments.

Native versus Exotic

Both native and exotic tree species have their strengths and weaknesses for use as street trees. Ultimately the Street Tree Master Plan aims to strike an appropriate balance between the use of native versus exotic tree species.

There is much debate about the use of locally indigenous species, that is, species that originally grew within the area. Whilst locally indigenous species may be the most appropriate for local environmental conditions, the growing conditions within the urban environment have often changed resulting in highly disturbed soil profiles, compaction, higher nutrient status, altered drainage patterns and paved surfaces, etc. Often these native trees are also not highly suited to use as street trees.

Many of the familiar natives such as *Eucalyptus* species are from open and drier vegetation communities, and do not always perform well as a street tree in an urban area. Whilst they tend to be adaptable to low nutrient soils, they usually require excellent drainage and have low tolerance to interference with their root system, including compaction, waterlogging and human damage. Natives can also display a somewhat variable habit or form that makes it difficult to establish and maintain a formal planted avenue, particularly when planted in close proximity to roads and power lines.

Exotic trees (ie. being trees that originate from outside of Australia) do provide an important advantage in the urban context in that they include many deciduous trees, which provide greater solar access to the streets through the winter months. There are a limited number of native species that are deciduous and most of these lose their leaves in spring or early summer (an inheritance of their monsoonal origins). *Toona ciliata* (Red Cedar) and *Melia azedarach* (White Cedar) are the closest native trees that are winter deciduous but both suffer from severe pest problems under urban conditions and are unreliable performers.

Figure 2.9 - A row of Phoenix canariensis (Canary Island Date Palm) along Carrington Road, Marrickville. Their ongoing use is now doubtful due to the continuing spread of the incurable Fusarium Wilt disease (Photo Arterra)

Figure 2.10 - Illustration of the purple discolouration and distortion of the leaves and the prominent yellow fruiting spores of the Myrtle Rust. (Source : www.flickr.com/photos/48395196@N05/5402288905/sizes/o/in/photostream/ - accessed 5/3/11)

An advantage of using exotic deciduous species is that the quality of stock is usually very good due to sometimes hundreds of years of selective breeding. In addition, they are pollution tolerant, more resilient to root area compaction and damage during construction works. The canopy shape and branch architecture of many exotics also facilitate the pruning and shaping required for urban infrastructure within narrow footpaths and under wires.

Preference of using a palette of native trees was identified from the telephone community survey. The use of locally native species has been favoured near the Cooks River and along recognized wildlife corridors (ie. GreenWay corridor). However, it can sometimes become an issue to select a suitable deciduous tree species, given there is limited native choices available and some compromises may need to be facilitated in this respect.

Habitat and Fauna

Trees provide shelter, food and other habitat resources for a range of native and introduced fauna species. Wherever possible, consideration will be given to planting trees which expand on and provide a connection between native vegetation corridors or open spaces. Although native trees are preferable in this regard, exotic species also have some habitat value and should not be discounted altogether. A mix of native and exotic species may be used where appropriate.

The aspects of habitat provision and protection is also considered when potential street tree removals are proposed. The attraction of wildlife has been a key consideration with the adoption of the proposed biodiversity priority planting areas.

2.7 Functional Considerations

Species selected for street tree planting also need to fulfill certain functional criteria to ensure successful establishment and reduced ongoing maintenance and management issues. Some general functional criteria are outlined below.

Safety and Maintenance Considerations

The selected species must have an acceptable level of nuisance created by the shedding of leaves and fruit for a street environment. Those with large or heavy seed pods, excessive leaf drop, or fleshy fruit or flowers which may lead to slip hazards will typically be avoided, particularly in heavily used paved environments.

Generally, trees preferred by Council will be those that require minimal maintenance after the initial establishment phase. Trees with excessive maintenance requirements or trees that need to be regularly treated for pest and diseases will not be selected.

The selected species will not be prone to major limb shear. Limb loss occurs on an occasional basis for most trees, sometimes due to wind induced mechanical breakage and sometimes for self regulated removal. This is a natural process and must be expected to occur from time to time. Some trees that are particularly renowned for having brittle branches and regular branch drop will typically be avoided for use as street trees.

Species that are renowned for vigorous or particularly large root systems that have the potential to cause pavement uplift will be avoided. We must bear in mind that no guarantees can be given that a particular street tree species will not interact with nearby kerbs and pavements. The Council may also investigate the use of alternative footpath materials and planting pit designs to minimise tree root / paving interaction.

Figure 2.11 - Angophora floribunda (Rough-barked Apple), Toyer Street, Tempe. (Photo Arterra)

Figure 2.12 - Waterhousea floribunda (Weeping Lilly-Pilly), Andreas Street, Petersham. (Photo Arterra)

Above and Below Ground Infrastructure

One of the greatest functional issues to consider with street tree selection is the presence of overhead power lines. One solution to this problem is to select very small tree species, which is viable for narrow streets, however with wide streets these small trees are often out of scale with the surrounding streetscape. The installation of Aerial Bundled Conductors (ABC) allows for reduced line clearance resulting in less pruning and in turn less impact on the tree canopies. Where ABC has been installed, larger trees can be planted and the canopy extend into and past the wires. A number of streets warranting the installation or expansion of ABC are outlined in Appendix 6.2.

High pressure gas mains and electricity easements sometimes prohibit establishment of trees due to the depth of the service and potential liabilities if the service is damaged. Similarly underground structures, wall footings and the like may also limit the ability of a tree to be planted and successfully grow. These issues are often very localised and do not affect the whole street. Each identified planting site will be assessed by Council on its merits to determine the feasibility of establishing the trees with consideration to underground services and structures.

Verge and Footpath Widths

The width of a verge and footpath is an essential consideration in the selection of a tree species and street tree planting details. A small tree in a wide verge free of obstructions is a lost opportunity for a large shade tree that would greatly add to the appearance of the streetscape and the LGA's canopy coverage. Conversely a tree with too large an ultimate size for the width of the footpath can become both an expensive maintenance burden, and a danger to pedestrians and public and private infrastructure.

The issue of narrow verges and streets has been identified as a critical issue within the LGA. The proposed approach to street tree planting in very narrow verges has been addressed more fully in Section 3.5 of this Master Plan.

Tree Species Availability and Performance

Proven performance of the species under the environmental conditions of the locality is vitally important. New species should be trialled on smaller scales before implementing their more widespread use. Similarly, premature failure in one given situation should not necessarily rule out further trials being undertaken of particularly promising new species.

The selected plant species must be able to be commercially grown and available in a range of suitable sizes for street planting. Generally the tree nursery stock used will be super advanced stock to provide high initial impact and adequate resistance to casual or intentional vandalism.

Many of the costs associated with the management of trees in the urban environment are at the early establishment period and over-maturity phases. Using long lived species will help minimise tree management costs over time and lengthens the period where a tree requires minimal financial and resource inputs.

Figure 2.13 - Backhousia citriodora (Lemon Scented Myrtle), suitably small tree for under wires, Albert Street, Enmore. (Photo Arterra)

Figure 2.14 - Melaleuca bracteata (Black Tea Tree), although extensively used it is a particularly suitably medium sized tree for narrow streets and footpaths (Photo Arterra)

2.8 Aesthetic and Design Considerations

Tree Form and Scale

Tree species will be selected so that the ultimate mature size of the tree canopy is appropriate to the particular street giving consideration to the site constraints, such as verge width, overhead power lines, building alignments and vehicle clearances. Council will use the largest appropriate species possible for the given location.

Selected species should have an appropriate and predictable form, usually with an upright trunk and stable branch structure. Street trees need to have a form that allows traffic and pedestrian movements easily around and under the tree.

Tree Type

The street tree list includes both evergreen and deciduous trees. Evergreen species provide year round screening, greenery and shelter from winds. Deciduous trees provide seasonal interest whilst maximising summer shading and winter light. This is particularly relevant for buildings located on the southern side of a narrow street with small set backs.

Marrickville has only a few streets with remnant palm tree plantings. They are typically very space efficient, contribute less to view impacts, and provide or continue a distinctive streetscape character. Whilst palms can be useful trees in a street, their continued and strategic use will be limited due to limited canopy coverage, potential pest and disease influences and the need for regular spent frond removal.

Figure 2.15 - Although fruit trees are a worthy aspiration they are better placed in private gardens or designated community based gardens. The canopy provided by a medium sized street tree has far wider community benefits and should be the priority (Photo Arterra)

Figure 2.16 - Caesalpinia ferrea (Leopard Tree), is a medium sized tree with very suitable form and characteristics for use as a street tree for narrow streets and footpaths and has proven reliable in Marrickville's frost free climate (Photo Arterra)

Fruit Trees

The desire for planting fruit trees in a verge often arises, particularly in built up urban areas such as Marrickville where residential allotments are small and open space areas are often limited to confined courtyards. Whilst fruit trees can be highly desirable they are not typically appropriate for use as urban street trees due to a range of factors outlined below. It is better to accommodate the desire for edible fruit trees within either individual private yards or in designated 'community gardens' where there is greater freedom and their management obligations are clearly defined.

The main implications in using fruit trees as street trees are: -

- A fruit tree is usually small growing, and does not achieve the desired and endorsed urban tree canopy outcomes. They also tend to be relatively short lived compared to many other tree species that would otherwise be utilised. Often a fruit tree only has a productive life for the production of fruit of 15 to 25 years before it is replaced in an orchard situation.
- Generally speaking, for a fruit tree to successfully grow and produce edible fruit they require very favourable growing environments. Typically, urban trees face a much harsher growing environment than is suited for a fruit tree to grow, thrive and produce good fruit.
- The level of maintenance required for a fruit tree is much greater than many other species of trees. Most fruit trees need regular and expert pruning and fruit thinning to succeed. The onus of cleaning up spoiled fruit, spraying for pests and diseases, etc. and the ultimate responsibility and liability regarding the fruit is also unclear, and can lead to numerous legal complications. Owners who may diligently tend to the tree initially may also move away, and maintenance falls back on the Council.
- The financial cost involved to manage and maintain a fruit tree would ultimately be greater and would fall back to Council, even if residents initially offer to maintain the trees.

Although Council do not typically support the use of fruit trees for street tree plantings, for the reasons outlined above, there may be some special circumstances when a fruit tree is planted. Ultimately the decision to plant a fruit tree will be determined by Council and permitted on a case-by-case basis, and only when the other overall objectives of the Street Tree Master Plan are not compromised and canopy coverage in the street is already well catered. Refer also to comments under Unique Plantings and Streets below.

Unique Plantings and Streets

With any community and area as historically and environmentally diverse as Marrickville, there will often be some small streets, planting islands, roundabouts and special circumstances that permit or dictate variations to the normal street planting.

Often these are manifested in small left over areas or isolated street widenings resulting from non-typical street intersections or other infrastructure. Often these result in areas and situations that may present unique opportunities to introduce or continue trees that are different, are features or are species that are not normally considered appropriate to most street tree locations.

Often these are considered to be significant trees for either aesthetic, historical or social reasons. These unique areas and planting opportunities should be celebrated. They often allow isolated use of larger or civic-scaled trees, incorporation of surrounding gardens or use of trees that are no longer common in our streets. It is not practical for the STMP to identify or document everyone of these circumstances. Council shall consider special circumstances (either existing or created in the future) on their merits and shall retain, protect and continue any existing unique and special street trees in these locations, as long as they don't create unreasonable hazards or environmental impacts.

Figure 2.17 - Special and unique plantings should be considered or retained where circumstances allow. This unique group of Dawn Redwoods (Metasequoia glyptostroboides) presents a wonderful feature in a small portion of street widening that allows non-typical tree planting such as this in Davis Street, Dulwich Hill (Photo Arterra)

2.9 Master Species Listing

The following schedules provides a list of the proposed species to be used in the streets of Marrickville. The listing is divided into native and exotic tree species and delineates deciduous from evergreen species. These broader categories are further broken down into small medium and large trees. It is important to note that some species may have very wide applications, while others will only be used in very limited or specific locations.

There are a total 73 street tree species proposed for ongoing use in the Marrickville LGA:-

Tree Origin

27 (36.9%) are exotic species;
46 (63.1%) are native species of which;
30 (41.1% of all tree types) are endemic to the Sydney area.

Tree Types

52 (71.2%) of the species are evergreen trees,
18 (24.7%) of the species are deciduous trees,
3 (4.1%) of the species are palms.

Tree Sizes

16 (21.9%) are large trees
33 (45.2%) are medium tree,
24 (32.9%) are small trees.

As mentioned above, some species will have widespread application, while others, will be restricted to more isolated and specialised circumstances. A summary of the use of the proposed species and the anticipated balance of their application within Marrickville's streets is provided below.

Tree Origins	% of streets where they are proposed
Native	68% (43% local)
Exotic	32%

Tree Sizes	% of streets where they are proposed
Small	26%
Medium	57%
Large	17%

Tree Type	% of streets where they are proposed
Evergreen	73%
Deciduous	26%
Palms	1%

NATIVE TREES

Botanical Name	Common Name	Canopy Size	Origin	Locally Native	Type	No. of Streets Proposed
Acmena smithii var. minor	Dwarf Creek Lilly-Pilly	Small	Native	Yes	Evergreen	52
Angophora hispida	Dwarf Apple	Small	Native	Yes	Evergreen	37
Backhousia citriodora	Lemon Scented Myrtle	Small	Native		Evergreen	36
Banksia serrata	Old Man Banksia	Small	Native	Yes	Evergreen	11
Buckinghamia celsissima	Ivory Curl Flower	Small	Native		Evergreen	43
Callistemon viminalis	Bottlebrush	Small	Native		Evergreen	25
Ceratopetalum gummiferum	NSW Christmas Bush	Small	Native	Yes	Evergreen	1
Elaeocarpus reticulatus	Blueberry Ash	Small	Native	Yes	Evergreen	9
Leptospermum petersonii	Lemon-scented Tea Tree	Small	Native		Evergreen	17
Melaleuca linariifolia	Snow In Summer	Small	Native	Yes	Evergreen	2
Synoum glandulosum	Scentless Rosewood	Small	Native	Yes	Evergreen	33
Xanthostemon chrysanthus	Golden Penda	Small	Native		Evergreen	3
Acacia binervia	Coastal Myall	Medium	Native	Yes	Evergreen	11
Acmena smithii	Creek Lilly-Pilly	Medium	Native	Yes	Evergreen	4
Angophora costata	Sydney Red Gum	Medium	Native	Yes	Evergreen	25
Angophora floribunda	Rough-barked Apple	Medium	Native	Yes	Evergreen	19
Banksia integrifolia	Coast Banksia	Medium	Native	Yes	Evergreen	27
Brachychiton acerifolius	Illawarra Flame Tree	Medium	Native	Yes	Deciduous	5
Callistemon salignus	Willow Bottlebrush	Medium	Native	Yes	Evergreen	30
Casuarina glauca	Swamp She-Oak	Medium	Native	Yes	Evergreen	3
Corymbia eximia	Yellow Bloodwood	Medium	Native	Yes	Evergreen	21
Cupaniopsis anacardioides	Tuckeroo	Medium	Native	Yes	Evergreen	22
Elaeocarpus eumundi	Eumundi Quandong	Medium	Native		Evergreen	28
Eucalyptus haemastoma	Scribbly Gum	Medium	Native	Yes	Evergreen	27
Eucalyptus robusta	Swamp Mahogany	Medium	Native	Yes	Evergreen	3
Glochidion ferdinandi	Cheese Tree	Medium	Native	Yes	Evergreen	8
Harpullia pendula	Tulipwood	Medium	Native		Evergreen	21
Melaleuca bracteata	Black Tea-Tree	Medium	Native		Evergreen	54
Melaleuca styphelioides	Prickly Paperbark	Medium	Native	Yes	Evergreen	2
Stenocarpus sinuatus	Firewheel tree	Medium	Native		Evergreen	3
Syzygium luehmannii	Riberry	Medium	Native		Evergreen	5
Syzygium paniculatum	Magenta Cherry	Medium	Native	Yes	Evergreen	26
Tristaniopsis laurina	Water Gum	Medium	Native	Yes	Evergreen	122
Agathis robusta	Queensland Kauri Pine	Large	Native		Evergreen	2
Brachychiton discolor	Queensland Lacebark	Large	Native		Deciduous	1
Corymbia citriodora	Lemon Scented Gum	Large	Native		Evergreen	7
Corymbia maculata	Spotted gum	Large	Native	Yes	Evergreen	49
Eucalyptus microcorys	Tallowwood	Large	Native		Evergreen	4
Eucalyptus paniculata	Grey Ironbark	Large	Native	Yes	Evergreen	24
Eucalyptus tereticornis	Forest Red Gum	Large	Native	Yes	Evergreen	1
Eucalyptus sideroxylon	Mugga Ironbark	Large	Native	Yes	Evergreen	1
Ficus rubiginosa	Port Jackson Fig	Large	Native	Yes	Evergreen	3
Lophostemon confertus	Brush Box	Large	Native		Evergreen	92
Syncarpia glomulifera	Turpentine	Large	Native	Yes	Evergreen	3
Waterhousea floribunda 'Green Avenue'	Green Avenue Lilly Pilly	Large	Native		Evergreen	27

EXOTIC TREES

Botanical Name	Common Name	Canopy Size	Origin	Locally Native	Type	No. of Streets Proposed
Camellia sasanqua	Camellia	Small	Exotic		Evergreen	16
Fraxinus griffithii *	Evergreen Ash	Small	Exotic		Evergreen	9
Gordonia axillaris	Fried-Egg Plant	Small	Exotic		Evergreen	22
Koelreuteria paniculata	Golden Rain Tree	Small	Exotic		Deciduous	10
Magnolia grandiflora 'Exmouth'	Bull Bay Magnolia	Small	Exotic		Evergreen	11
Murraya paniculata	Mock Orange	Small	Exotic		Evergreen	7
Photinia x fraseri 'Robusta'	Photinia	Small	Exotic		Evergreen	11
Pyrus calleryana 'Chanticleer'	Callery Pear	Small	Exotic		Deciduous	5
Xylosma senticosum	Xylosma	Small	Exotic		Evergreen	8
Caesalpinia ferrea	Leopard Tree	Medium	Exotic		Deciduous	32
Celtis australis **	Nettle Tree	Medium	Exotic		Deciduous	9
Fraxinus pennsylvanica	Green Ash	Medium	Exotic		Deciduous	15
Jacaranda mimosifolia	Jacaranda	Medium	Exotic		Deciduous	39
Koelreuteria bipinnata	Chinese Rain Tree	Medium	Exotic		Deciduous	16
Lagerstroemia indica	Crepe Myrtle	Medium	Exotic		Deciduous	95
Liriodendron tulipifera	Tulip Tree	Medium	Exotic		Deciduous	4
Pistacia chinensis	Chinese Pistachio	Medium	Exotic		Deciduous	28
Pyrus ussuriensis	Manchurian Pear	Medium	Exotic		Deciduous	36
Sapium sebiferum	Chinese Tallow Tree	Medium	Exotic		Deciduous	12
Ulmus glabra 'Lutescens'	Golden Elm	Medium	Exotic		Deciduous	4
Zelkova serrata 'Green Vase'	Green Vase Zelkova	Medium	Exotic		Deciduous	36
Araucaria columnaris	Cook Pine	Large	Exotic		Evergreen	2
Araucaria heterophylla	Norfolk Island Pine	Large	Exotic		Evergreen	1
Platanus x acerifolia 'Bloodgood' #	London Plane	Large	Exotic		Deciduous	3
Ulmus parvifolia 'Todd' *	Chinese Elm	Large	Exotic		Deciduous	18

PALM TREES

Botanical Name	Common Name	Canopy Size	Origin	Locally Native	Type	No. of Streets Proposed
Livistona australis	Cabbage Palm	Small	Native	Yes	Palm	2
Butia capitata	Wine Palm / Jelly Palm	Small	Exotic		Palm	1
Washingtonia robusta	Mexican Fan Palm	Small	Exotic		Palm	2

* *Fraxinus griffithii* (Evergreen Ash) and *Ulmus parvifolia* (Chinese Elm) have some environmental weed potential and their use will be more restricted and in areas that are typically not adjacent to any bushland. To further reduce this risk the cultivar Ulmus parvifolia 'Todd' has been specified as this is a superior street tree form and reportedly a sterile variety.

** *Celtis sinensis* (Chinese Celtis) and *Celtis occidendalis* (Common Hackberry) are well recognised environmental weed species and are to be avoided. *Celtis australis* (Southern Hackberry), however is not known to be invasive within Sydney. It is an extremely hardy and versatile tree but its use will still be restricted, as a precaution, to specialised streets and areas that are typically not adjacent to any bushland.

Platanus acerifolia 'Bloodgood' has been specified as it is a selection reported to be more resistent to Anthracnose disease.

3.0 Street Tree Design Guidelines

3.1 Overview

As a collective asset, street trees are considered and planted to reinforce the public realm and landscape design principles. In a heavily urban context like Marrickville the emphasis is commonly to:-

- Provide more consistency and visual uniformity for each street;
- Enhance the local character of distinct streets or areas by introducing a precinct based planting approach;
- Reinforce and celebrate key corridors and nodal intersections;
- Enhance key cultural and commercial sites and
- Allow the adjoining landscape to take precedence over the street tree planting where existing parks adjoin the street.

In adhering to these design principles consideration must be given to sites specific conditions that will determine an individual tree's placements. These include footpath and verge widths, sight-line clearances, underground utilities, overhead wires etc. An overview of these considerations is provided in the following pages. Some of these issues are also outlined in far more specific detail in Appendix 6.4 Street tree supply and installation specifications and Appendix 6.5 Typical street planting details.

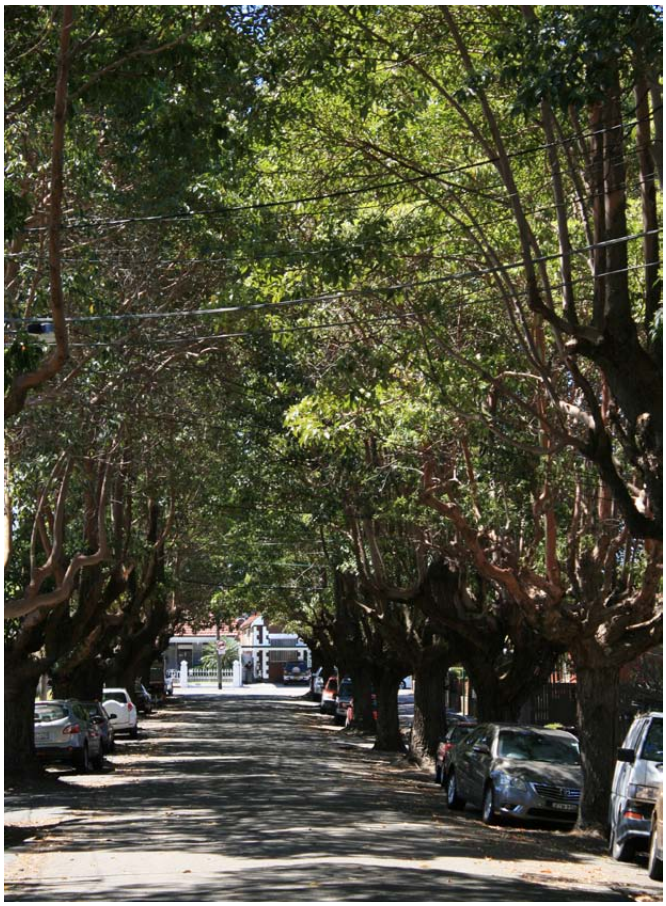


Figure 3.1 - A distinctive avenue of Lophostemon confertus (Brush Box) at Harney Street, Marrickville (Photo Arterra)

Consistency and visual uniformity for each street

The intention of this principle is to establish a more uniform visual character for each street, creating a sense of identity or 'sense of place' that compliments the surrounding architectural forms and provides streets with a distinctive and recognisable character. Inconsistent street plantings with a large number of different species may be appropriate and can add interest to some special streetscapes. However, they are often more difficult for Council to manage and may not be appropriate in many locations.

In many cases the proposed species will be an extension or continuation of the dominant existing species, if that species has been deemed to be suitable in scale and growth habit.

Precinct based approach

Related to the principles of a more consistent and coordinated theme for individual streets is the concept of 'precinct' planting. All new planting will be based on a precinct approach where tree species selection and planting will help reinforce the distinct physical character of each area and be responsive to its more unique environmental conditions.

Mixed Species

Most streets have been designed to have a small mixture of species. This may, for example, be in the form of one side of the street being a smaller species to fit under overhead wires and a larger species on the other side where absence of services and verge space permit. The number of species in each street has been limited as the management of single or relatively few species per street is far more efficient for Council. Issues such as tree supply, tree planting, tree maintenance and street cleaning frequency are all more difficult with highly mixed species streets.

Some streets may also benefit from a planned alternating mix of species. These are usually designed to cater for the continuation of a pre-existing street condition and importantly to balance the provision of native and exotic trees and/ or deciduous and evergreen trees. Attempts may be made to alternate the two (or more) species to provide for the designed intention of the mixed species street.

The selection of which of the species to plant and the exact location within the street shall be at the sole discretion of the Council. Individual requests by adjoining residents for one or other of the species will typically not be accommodated.

Increased Canopy Coverage

Subject to verge width and constraints such as overhead power lines and building setbacks, larger growing street trees will be selected wherever possible. Too often small trees are planted on both sides of a street, when a larger growing tree could have been planted on the non-wire side of the street. A larger canopy tree contributes to the aesthetics of the street and overall environmental performance.

There is much opportunity in many of the industrial streets within Marrickville LGA to plant larger growing but potentially well spaced trees. Often verges in industrial areas are quite wide and building heights would allow the canopy of a large tree to grow over head with minimal impact to owners. Frequently in the industrial areas there is limited on-street parking available which results in many vehicles being parked on the verge, which can lead to damage to street trees caused by cars or trucks butting

up to them. To avoid damage to new street trees commercial grade tree protection is recommended. By instigating a co-ordinated upgrade of the pavement, soil volumes and installation of suitable and robust tree protection, the planting of a large trees at wide spacings could exponentially increase the canopy coverage these areas.

The aerial photograph in Figure 5.10 illustrates the opportunities to plant more trees in the industrial area of Marrickville where there are currently few trees.

Planting Adjacent to Parks

Many of Marrickville's parks have very prominent boundary tree canopies that often contribute or even extend over the adjoining streets. Introduction of competing street trees along these streets is usually discouraged in order to avoid intrusive impacts on the park and minimise any future canopy conflicts. This also allows larger and more major trees along the park edges to 'read' from the street.

General Solar Access

Street tree species should be selected, where appropriate, that will provide an appropriate level of solar access to dwellings. This applies most prominently to the more urban areas and terrace houses with smaller dwellings on the southern side of the carriage ways.

This becomes less of a consideration where lots are larger and houses are set well back from the street. In these instances the street trees typically have smaller influences and the residents have an opportunity to manage and consider their sunshine and shade requirements within their own gardens and open areas.

Unreasonable requests for tree removal or excessive pruning for solar access will typically be rejected by Council.

Solar panels or Digital Data Receiver Access Considerations

Council shall consider this factor when planning any new tree planting. If a resident already has legally installed solar panel collectors or a digital data receiver and their performance is significantly diminished by a street tree, the pre-existing arrangement should stand. That is, was the tree there first or was the receiver/ panel. If a resident currently relies on solar access for the operation of such a device Council will typically avoid planting a tree that will potentially and unreasonably shadow the device by relocating the tree or planting a smaller tree species. Similarly, if an existing street tree pre-dates the installation of a solar collection or digital receiver device, the Council will not prune or remove the tree to provide for increased solar access.

Driveway Access

Where there is a request to expand an existing driveway or install a new driveway (or other access) to a private property and it requires the removal of a street tree, the following considerations shall be assessed in reaching a determination.

- Are there alternative or options to relocate the driveway?
- How significant and prominent is the tree and its contribution to the local streetscape?
- Is the tree healthy and vigorous?
- Are there suitable alternative locations for a replacement street tree?
- Allocation of removal and replacement costs if a replacement tree is agreed.

Figure 3.2 - Street planting adjacent to established parkland is often not needed and it is better to let the borrowed landscape and larger trees of the park contribute to the streetscape rather than planting small trees that are often crowded and malformed (Photo Arterra)

Figure 3.3 - Street planting should consider pre-existing reliance for solar access, however, when the tree was there before the installation of such devices the owner should not expect that the trees be pruned to facilitate greater exposure. (Photo Arterra)

3.2 Street Tree Precinct Definition

The Local Government Area of Marrickville occupies 1607.9 hectares or 16.079 km2 (excluding the Cooks River Water area). It contains 11 recognised suburbs. The precincts defined in the Street Tree Master Plan are generally based on existing suburb boundaries where possible, but also take into account similar major physical boundaries, street types and widths, residential characters, and heritage conservation areas. Consideration of major physical divisions such as rail lines have also been given priority, as the streets often read and function completely differently on either side of such divisions.

There are twelve street tree precincts defined. Each are similar in size, which responds to Council operational and maintenance functions. The location and extent of the precincts are displayed on Figure 5.1. They are itemised in the following table.

Precinct Name	Area (ha)	% of total area
Dulwich Hill East	117.6	7.3
Dulwich Hill West	107.9	6.7
Lewisham & Petersham North	100.8	6.3
Marrickville Central	149.7	9.3
Marrickville Industrial	170.2	10.6
Marrickville South	209.4	13.0
Newtown North & Camperdown	96.0	6.0
Newtown South & Enmore	95.1	5.9
Newington (Part Stanmore/Enmore/Petersham)	155.8	9.7
Stanmore North	71.9	4.5
Sydenham & St Peters	177.5	11.0
Tempe	156.0	9.7

3.3 Street Typology Summary

Streets are varied throughout the municipality, as one would expect, given the range of periods in which the suburbs were developed. There are approximately 615 separate streets within the municipality (excluding minor laneways). Some are not capable of being planted with street trees due to space restrictions, however most do have opportunities or are currently planted with street trees.

When analysing the current street verges within the LGA:

- 25% have verges less than 1.8m wide and would be described as narrow with many inherent difficulties in planting street trees.
- 73% have verges that are between 1.8 - 3.5m wide and would be considered small and difficult to plant larger trees.
- 3% have verges that are 3.5-5.0m wide and would be considered a medium or average size verge with minimal constraints to street tree planting.
- Less than 2% have verges wider than 5m that would be considered large and provide no constraint to street tree planting.

There are many particularly narrow verges that are between 1.5-1.8m wide, particularly in the Newtown and Camperdown area, that are also fully paved and represent a considerable challenge to street tree planting.

3.4 Locating Trees

There are many limitations to the positioning of street trees on footways immediately behind the kerb. Distances from infrastructure elements such as intersections, pedestrian crossings, light and electricity poles, stormwater inlets, underground service pits and bus stops are important in determining final planting locations. Typically this will require individual site assessment and will be determined on a case by case basis.

Street Tree Spacing

Taking into account other relevant clearance requirements, street trees are to be typically planted as follows:

- small trees – spaced at a minimum of 7 to 10 metre intervals
- medium trees – spaced at a minimum of 10 to 15 metre intervals
- large trees – spaced at a minimum of 15 to 20 metre intervals

Verge and Footpath widths

For the purposes of street tree planting implications, the Council footways or verges are divided into four categories:

- very narrow - less than 1.5m and usually fully paved;
- narrow – 1.5 to 3.5m may be fully paved or with a narrow grass strip;
- medium – 3.5 to 5.0m and usually a combination of grassed strip and paved footpath;
- wide - greater than 5.0m and usually a combination of large grassed strip with or without a paved footpath.

Where verges have grassed portions, the tree shall be planted half way between the kerb and the edge of the concrete footway. This method of planting allows a large area of water penetration to the roots of the tree and avoids some of the problems of pavement lifting by the roots of the tree. It also allows the tree to develop a more natural and radial root pattern. In this instance the species selection is based upon the overall width of the verge from the building/ boundary line to the back of the kerb, (i.e. small trees in narrow footpaths, medium trees in medium footpaths and large trees in wider verges).

Sight Lines and Distances from Infrastructure

It is important that trees are placed within a street with regard to existing or proposed road elements and infrastructure. It is important that trees are placed within the streets to maintain acceptable clearances and sight lines to intersections, signs, light poles, crossings and other road elements. The following table outlines the standards that Council will typically apply with regard to tree placement. These dimensions are for typical streets and may need to be increased depending on the design speed of the streets.

Council may consider alterations to these dimensions when the placement of the tree can be shown to not adversely affect safety or the future integrity of nearby infrastructure. Consideration shall also be given to pre-existing street trees and site conditions. Council will not normally remove a mature tree that has historically been planted within these distances unless the impacts of retaining the tree are found to be unacceptable and can not be otherwise mitigated through appropriate pruning.

Road and Layout Element	Typical Street Tree Planting Clearance
Street intersection - distance from projected line of the intersecting kerb line on approach side	10m
Street intersection - distance from projected line of the intersecting kerb line on non-approach side	7m
Street Light pole - distance of trunk away from centre of pole in plan view	5m
Stormwater inlet pit - distance from nearest edge of pit structure	2m
Driveway - distance from driveway edge on approach side	5m
Driveway - distance from driveway edge on non-approach side	3m
Traffic Lights - distance from signal pole on approach side	10m
Pedestrian crossings - distance from outer edge of crossing on either side	10m (on approach) 7m (on departure)
Street lighting pole - minimum distance from pole to centre of tree trunk (unless there are other light sources to consider)	3m
Cycle ways - clearance from edge of cycleway path to centre of tree trunk	0.5m

Tree Pit Dimensions

As an absolute minimum, an access width of 900mm is needed between the back of any tree pit and the building/ boundary line. Since the minimum practical width of any tree pits is usually 600mm, the minimum width of a footpath that can be safely planted is 1500mm (600mm plus 900mm). This is also subject to the following other conditions: -

- that there are no obstructions overhanging the building line from the front yard of the adjacent property (eg. other trees, shrubs, vines, awnings) and;
- that the lower branches of the tree can be pruned to a height of at least 2400mm.

Further problems occur on very narrow roads where parking is restricted to one side only. Larger vehicles may tend to ride up over the kerb onto the footway to avoid parked cars. In this case trees may only be planted on one side of the street even if the footway is sufficiently wide.

3.5 Approach to Narrow Streets & Narrow Verges

Approximately 10% of streets within Marrickville LGA have a 'very narrow' street and accompanying verge width less than 1500mm wide. Trees planted in footways less than 1500mm wide (from building line to back of kerb) force pedestrians, particularly those with strollers, to walk on the road. It may also totally prevent a wheelchair bound user or elderly person with a walking frame or mobility scooter from using the footpath. To ensure safety and access for all pedestrians is a priority and to encourage pedestrians to stay on the footway the following approach may be adopted regarding street trees and narrow streets with footpaths that are less than 1500mm in width:

(i) Where there are no existing trees (or only a very small number of trees) then Council may discontinue tree planting unless it can be done as in-road planting;

(ii) Where there are existing trees planted in footways less than 1500mm wide, then a replacement will be provided when necessary, but only on one side of the road where the tree can be placed away from overhead wires, thereby keeping a tree-lined street while allowing one side of the street to be the main "accessible" walkway. Council will ensure any new replacement tree is installed with appropriate pavement and soil conditions; or

(iii) Where feasible, convert to in-road planting with some potential minor parking reduction but in return providing fully accessible pathways on both sides and less infrastructure damage to pavement and houses. In-road

Figure 3.4 - Denison Street, Newtown. The tree is a suitable tree species for a small street, however its location in such a narrow verge presents many difficulties and potential liabilities for Council (Photo Arterra)

planting will allow the use of medium sized trees that may provide attractive canopy to the entire street and maintain or improve the overall canopy coverage..

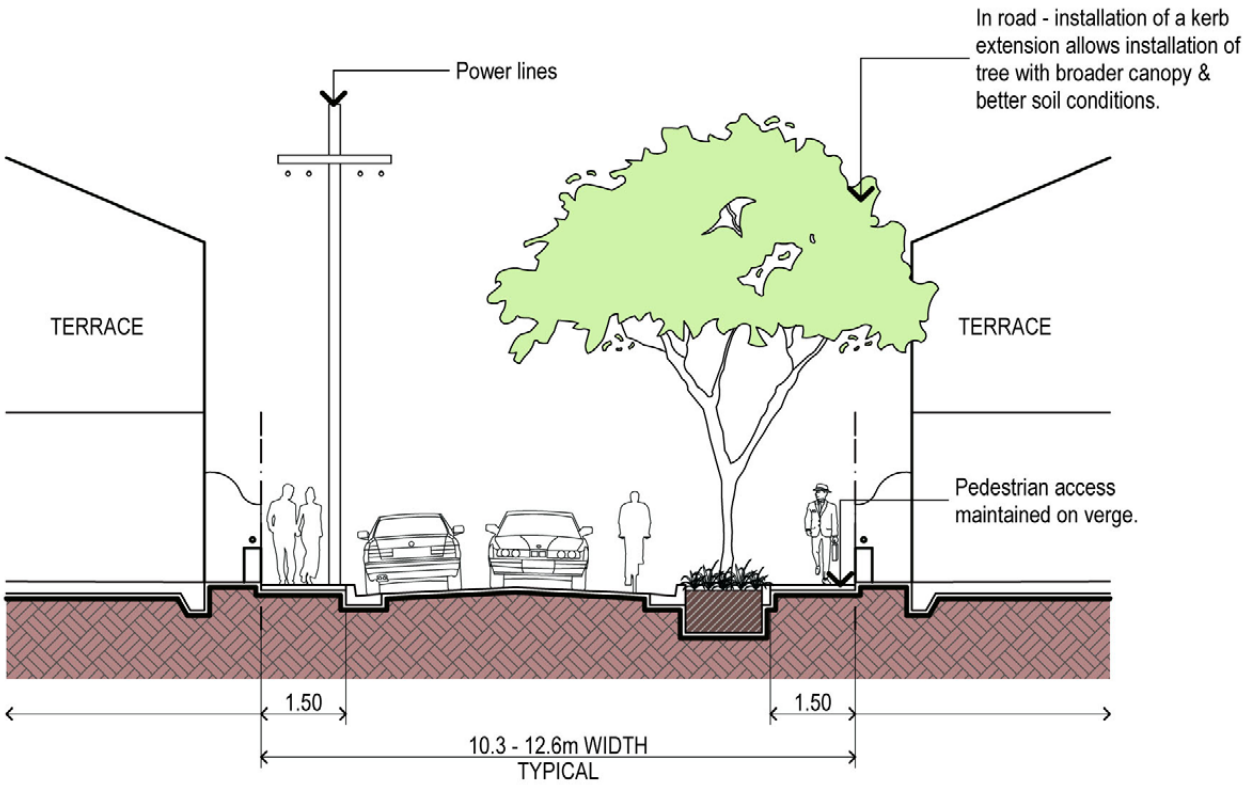
The sections (Figure 3.7) on the following page illustrates the profile of a typical narrow street where in-road blister or kerb extension planting will allow for a broader canopy tree whilst still maintaining maximum pedestrian access to both verges.

Demonstration of Principles - Figures 3.6, 3.7 and 3.8 provide a good example of how the upgrade of a street with narrow verges can benefit a range of Council policy objectives. These include:-

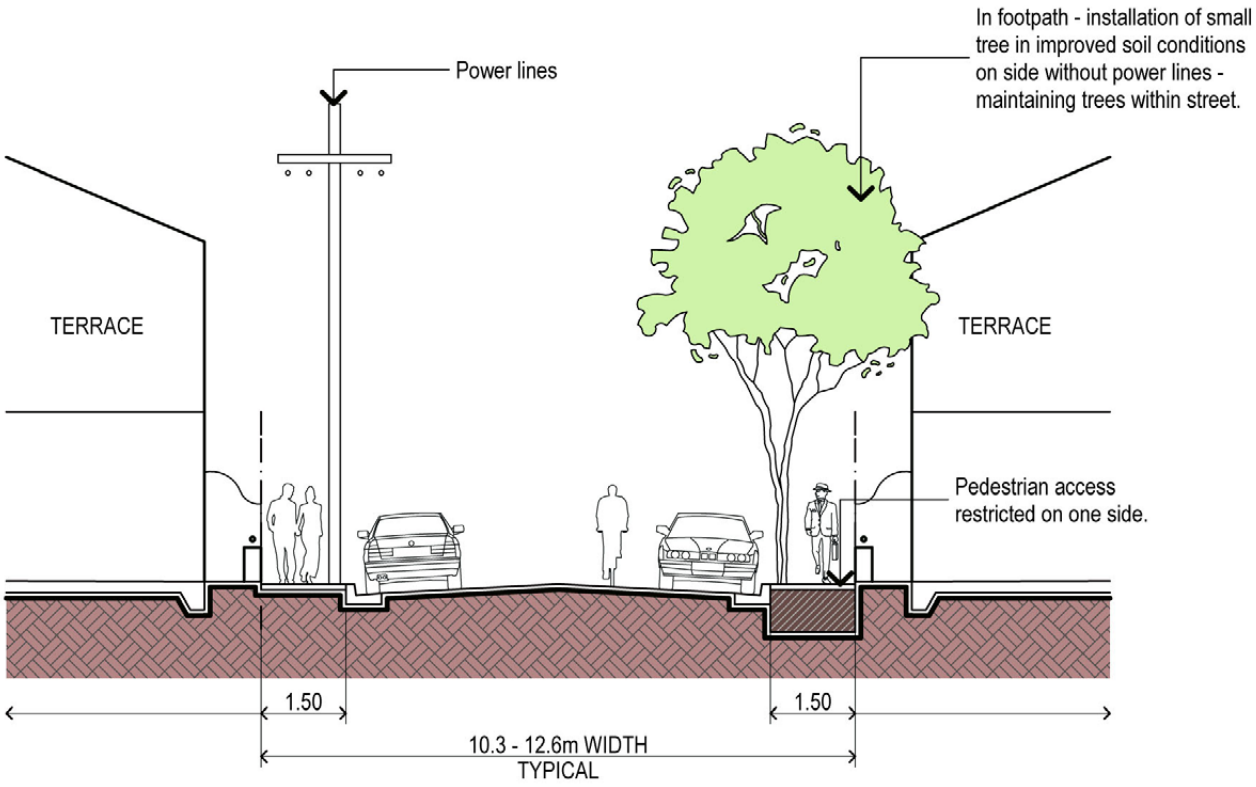
- maintenance or even increases in overall canopy coverage
- providing larger and better formed trees with minimal ongoing maintenance requirements
- moving trees further away from private property and minimising the possibility of future infrastructure and private property damage
- providing disabled and easier access along footpaths
- removing the need to constantly prune trees under the power lines
- Providing for more evenly spaced and consistent street tree planting adding to the character and aesthetics of the street
- In-road planting means fewer but larger trees can be planted and brought out from under the power lines.
- Potentially benefits associated with WSUD / bio-filtration within the tree pits capturing stormwater run-off and passively irrigating trees.

Figure 3.5- Existing narrow street with now existing planting, narrow footpaths and minimal building setbacks (eg. Elswick Street, Petersham.

Figure 3.6- Photomontage showing proposed in road planting in narrow street. (eg. Elswick Street, Petersham)



Narrow Verge - In road planting solution

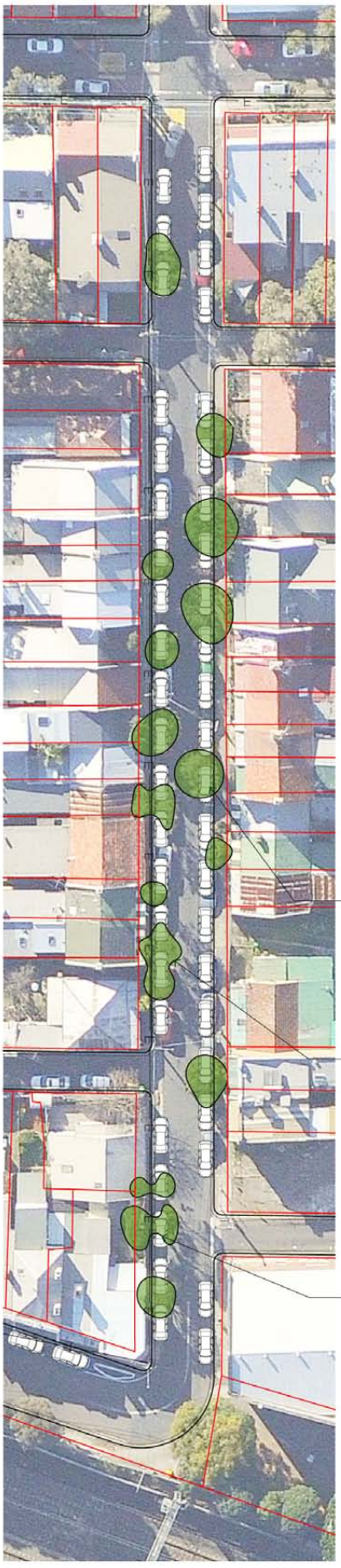


Narrow Verge - In footpath planting solution

Figure 3.7 - Typical street profiles showing proposed location of any future tree planting in narrow streets.

NARROW STREET TREATMENT CASE STUDY - VERGE 1.5m OR LESS WITH EXISTING TREE PLANTING

Existing Conditions



Numbers of cars parked on street = approx **45**

Numbers of trees = approx **17** (uneven spacing)

Measured Canopy Coverage = **316m2** (average of 18m2/tree)

Largest Tree = **6.5m** diameter spread

CURRENT SITUATION ISSUES

Trees heavily and frequently pruned for power line clearance and house clearances, typically lop-sided forms and valley pruned

Trees in very small tree pits, close to kerb line and typically in poor health and condition, numerous impacts / mechanical damage to trunk and branches

Trees damaging footpath and kerb and gutter, creating trip and fall hazards

Trees potentially impacted by cars and limiting car door opening

Trees damaging private property which is less than 1.2m away from trunks

Trees limiting pedestrian, disabled and elderly access, by being too close to boundary and creating trip hazards

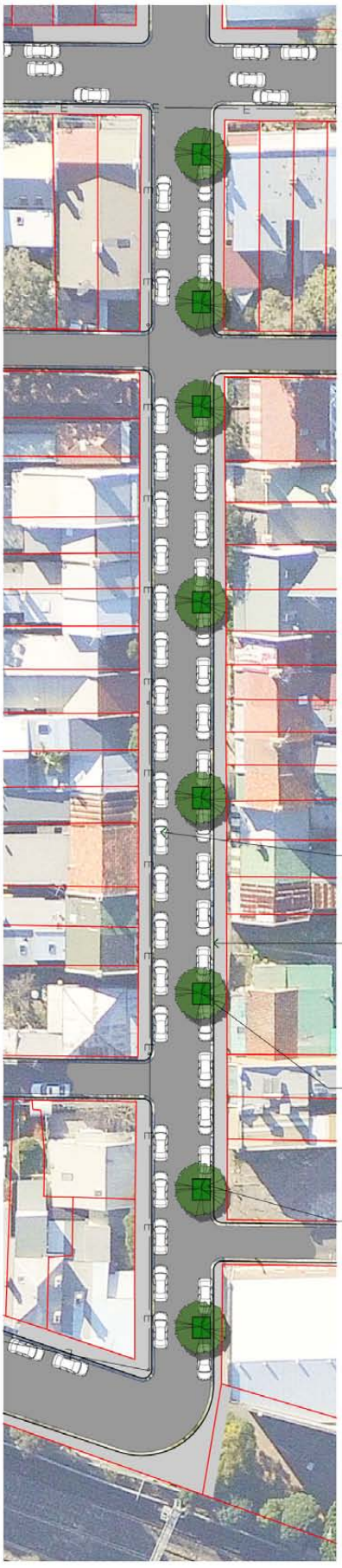
No opportunities for verge gardening, biodiversity shrub planting or WSUD

Existing larger trees on non-power side of street but impacting pedestrian access along street, lifting pavement and overhanging houses

Existing trees under wires, minimal canopy and typically poor health

Existing overhead wires to southern side of street requiring existing trees to be regularly and heavily pruned

Proposed Conditions



Numbers of cars parked on street = approx **43**

Numbers of trees = approx **8** (at 23m spacing)

Measured Canopy Coverage = **304m2** (average of 38m2/tree)

Typical Tree = **7.0m** diameter spread (and potentially larger with minimal impacts)

PROPOSED SITUATION OUTCOMES

Trees typical size and spread larger than existing and maintaining existing canopy coverage.

Trees not pruned for power line clearance and house clearances, typically good symmetrical form maintained.

Trees in good soil volume, purpose built in-road pits and typically in good health and condition.

Trees well clear of the footpath and kerb and gutter.

Trees with increased protection from impacts by cars and trucks and not limiting any car door opening.

Trees with far less chance of damaging private property.

Trees no longer limiting pedestrian and disabled and elderly access, creating trip hazards, pavement longevity increased.

Potential opportunity for shrub planting around bases and biofiltration/ passive irrigation of trees from stormwater.

No tree planting under wires. Path left open for pedestrian access

Trees positioned to avoid conflict with existing driveway crossings if already existing and relatively regularly spaced to provide 3-4 cars to be parked between pits.

Existing trees progressively removed and replaced with in-road planting into 2.1 x 2.5m tree-planting pits. Incorporate drainage and bio-filtration where slopes and drainage infrastructure permit

In-road planting pits located where parking is already limited and positioned far enough from corners to permit garbage truck and other service vehicle access around corners

Figure 3.8 - Demonstration of the potential narrow verge tree planting solution.

3.6 In-Road Planting and Water Sensitive Urban Design

Many roads throughout the LGA have opportunities for additional and larger street tree planting, if the planting is located within the vehicular carriage way rather than the footpath or verge. This also allows trees to be planted in streets that have narrow footpaths or where overhead wires that otherwise present great challenges to achieving successful tree planting.

Any in-road street planting will take into consideration the existing traffic and signage visibility, lot access and parking issues, underlying soil conditions and services. Council will aim to minimise disruptions to, or excessive removal, of parking spaces. Special attention will be paid to achieving appropriate drainage to the tree planting together with adequate soil volumes, road pavement protection, and trunk protection where necessary via bollards or preferably barrier kerbs.

Appendix 6.3 lists the streets that have been identified as streets having opportunities to plant within the road carriageway. The objective here is to plant larger canopy street trees that are away from overhead power lines and also reduce the perceived width of the road carriageway, thereby calming traffic and providing a more aesthetically pleasing street. This also allows trees to be planted further away from adjoining houses, reducing any impact of street trees on adjoining residents. Many of these opportunities could be combined with rearrangement of parking and provisions of perpendicular or angled parking to minimise any parking loss.

Water Sensitive Urban Design (WSUD) opportunities have also been identified, subject to the installation of tree pits, drainage and rain gardens parameters. Note, the viability of in-road planting / WSUD installation to each of the streets identified below is **subject to further investigation** and detailed design including the location of underground services, subsoil drainage, and traffic considerations.

Figure 3.9- Many streets are wide and would lend themselves to in-road planting strategies (eg. Charlotte Ave, Marrickville).

Figure 3.10- Photomontage showing proposed in road planting in Charlotte Ave, Marrickville.

3.7 Power Lines and ABC

Approximately 88% of streets have overhead power lines, which typically affects tree planting on one side of the street. In streets with overhead services, smaller trees will typically be specified to facilitate planting that fits below the cables. Approximately 7% of streets have Aerial Bundled Conductors (ABC). Where ABC is already present or is likely to be reasonable to achieve, larger trees may be specified to take advantage of the ABC opportunities.

Relevant Legislation Regarding Powerlines and Roads

The removal or pruning of street trees is permitted in association with approved road works under sections 88, 107, 138 and 139 of the Roads Act 1993. Council is largely responsible for all planting, removal and maintenance of street and roadside trees.

Declared main arterial or 'State' roads are the responsibility of the Roads and Maritime Services (RMS) (previously the Roads and Traffic Authority). Marrickville LGA contains several 'State' roads that fall under the jurisdiction of the Roads and Maritime Services (RMS). Most of these roads are identified and noted in Section 4: Main Road Corridors.

Ausgrid is the state owned corporation responsible for the electricity network that provides power to Sydney homes. Under the NSW Electricity Supply Act 1995 No.94, Ausgrid are responsible for ensuring street trees (as well as private property trees) are to trimmed to maintain a minimum safety clearance between the tree and power lines. The typical safety clearance distance is 1.5m around bare, low voltage overhead wires and 2m around the power poles. This safety clearance distance may be greater on higher voltage lines.

If trees are within 3m of Ausgrid power lines, only vegetation management workers authorised by Ausgrid are permitted to carry out the pruning work. In theory, trimming is carried out by contractors who follow the Australian Standard AS4373-2007 Pruning of Amenity Trees. Ausgrid also employs qualified arborists to audit the work of their contractors. Each contractor is also supposed to employ arborists to monitor standards and ensure they are maintained.

Installation of Aerial Bundled Conductors (ABC)

From the ground ABC looks like a single thick cable however ABC contains the normal group of overhead services bundled together to reduce the cross sectional area necessary for the provision of overhead services. This method of cabling reduces conflict with trees. Pruning requirements are usually reduced and branches can be trained around the ABC more easily.

Priority for ABC conversion is given to major roads and particular problem streets where the conflicts between trees and overhead services are identified. Marrickville Council and Ausgrid maintain an ongoing program to convert some conventional overhead wires to Aerial Bundled Conductors (ABC), however the cost of this conversion is considerable and is not favoured by Ausgrid due to the reduced life expectancy of the cables.

Figure 3.11 - Pruning for power line clearance can result in a very unbalanced canopy , clearly illustrated above with a Podocarpus elatus (Plum Pine) along Kays Avenue East, Marrickville. Trees need to be carefully selected to either fit under wires or have suitable branch architecture to be shaped around the wires in the long term.

4.0 Main Road Corridors

4.1 Overview

The main roads in our area include some of the more major roads in the inner west of Sydney. These major roads form corridors of movement through the area and are often considered somewhat separate in character to the precincts and suburbs they traverse, divide or bound. A key initiative of this Master Plan is to strengthen and re-define the character and role of most of these roads with a more consistent and unified tree planting schemes for the decades to come.

The main road corridors that have been identified as part of this Plan have been identified on Figure 4.1 and are highlighted in green. King Street and Parramatta Road (both State Roads managed by RTA / RMS) are only partially located within the municipality and are highlighted in purple. For the purposes of this Master Plan, these two roads are not specified for street trees given the substantial planting constraints along these roads ie. above and below ground services, traffic sign visibility, awnings, plus only one side of the street being located within Council's municipality, with the other side of the street being located in either City of Sydney or Leichhardt Council.

For the main road corridors highlighted in green, it is recommended that a long term vision be adopted with regard to tree planting. Whilst a strategic direction can take decades to achieve its desired impact, in the long term if consistently adhered to, it can make the vision a reality. It is proposed the main connector roads are defined with a more traditional approach using primarily a single species palette to create definition and continuity. By adhering to a more constrained palette, this will enhance the character of the road, and help visually define it as a main corridor. This, of course, will be subject to further detailed designs and investigations at new planting sites.

Typically new trees will be positioned away from the edge of the road by at least 800mm. The tree species selected will be able to grow above the traffic, and be supplied in larger sizes to allow formative pruning and robust installation sizes. ABC should be undertaken wherever possible. The species palette is to be robust, proven and a larger size for the best effect.

The main road corridors and their proposed tree species through the Marrickville LGA are outlined below:-

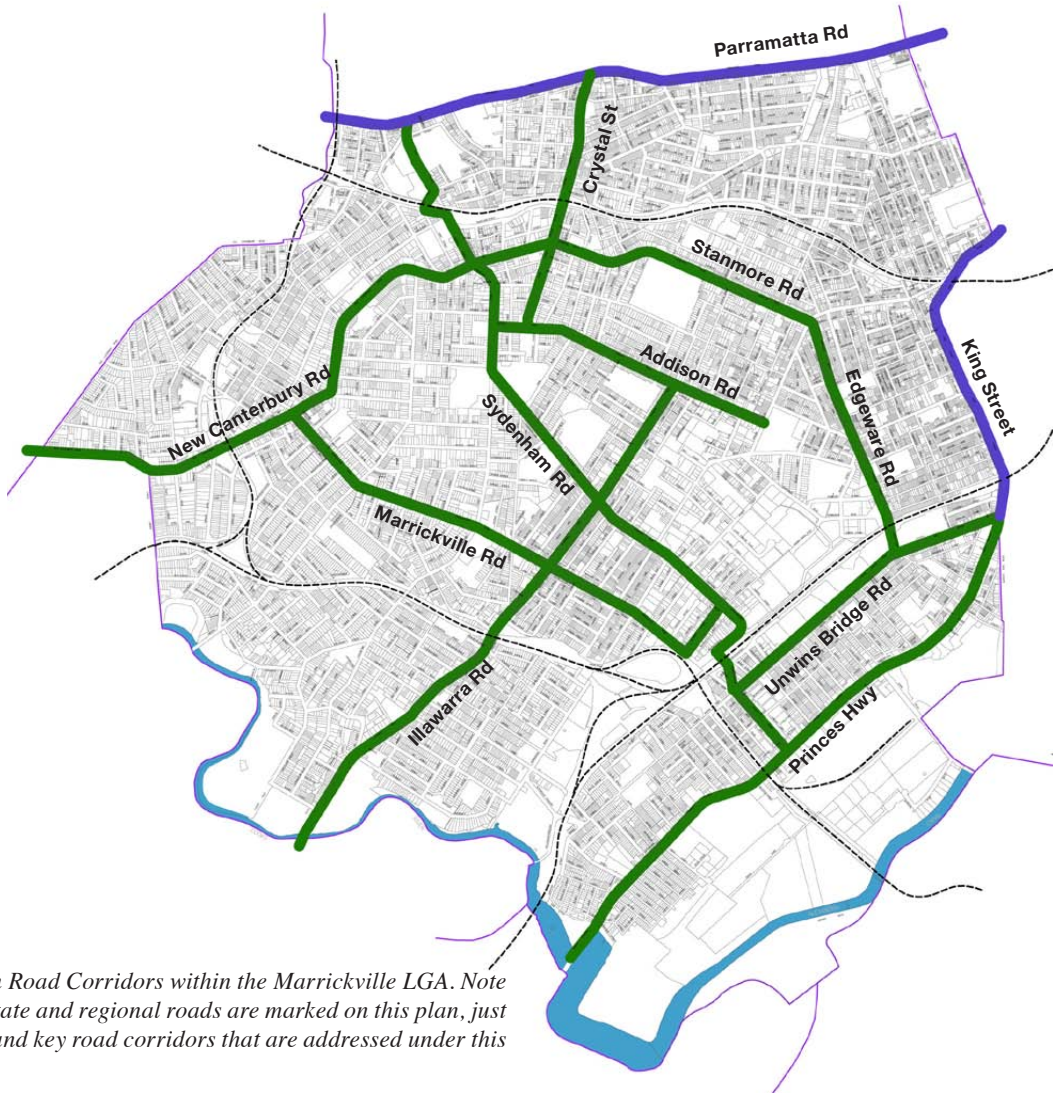


Figure 4.1- Main Road Corridors within the Marrickville LGA. Note that not all the state and regional roads are marked on this plan, just the more major and key road corridors that are addressed under this Plan

Figure 4.2- Planting opportunities along Parramatta Road are very limited due to infrastructure, awnings, sight lines, power lines, etc. No street tree planting is proposed with the Street Tree Master Plan. (Photo Arterra)

Figure 4.3- Planting opportunities along King St are very limited due to infrastructure, awnings, power lines, etc. No street tree planting is proposed within the Street Tree Master Plan. (Photo Arterra)

4.2 Princes Highway

A heavily used State road that runs through the more industrial suburbs of St Peters, Sydenham and Tempe. The existing species mix consists of mainly natives including *Elaeocarpus reticulatus* (Blueberry Ash), *Tristaniopsis laurina* (Water Gum), *Melaleuca bracteata* (Black Tea Tree), *Callistemon viminalis* (Bottlebrush), *Lophostemon confertus* (Brush Box), and *Melaleuca quinquenervia* (Broad-leaved Paperbark). Generally there is opportunity to plant larger trees and create a distinctive streetscape and greatly improve canopy cover and surrounding residential amenity (refer to Photomontage Figure 4.5).

Proposed species:
***Lophostemon confertus* (Brush Box)**

4.3 Marrickville Road

This busy regional road travels across Marrickville and part of Dulwich Hill in a relative east-west direction through residential, industrial and retail areas. It is proposed to continue with existing *Harpullia pendula* (Tulipwood) along Dulwich Hill shops, and *Liriodendron tulipifera* (Tulip Tree) along Marrickville shops and demarcate remaining residential and industrial areas with *Lophostemon confertus (*Brush Box).

Proposed species:
***Lophostemon confertus* (Brush Box)**
***Liriodendron tulipifera* (Tulip Tree) - Marrickville CBD**
***Harpullia pendula* (Tulipwood) - Dulwich Hill CBD**

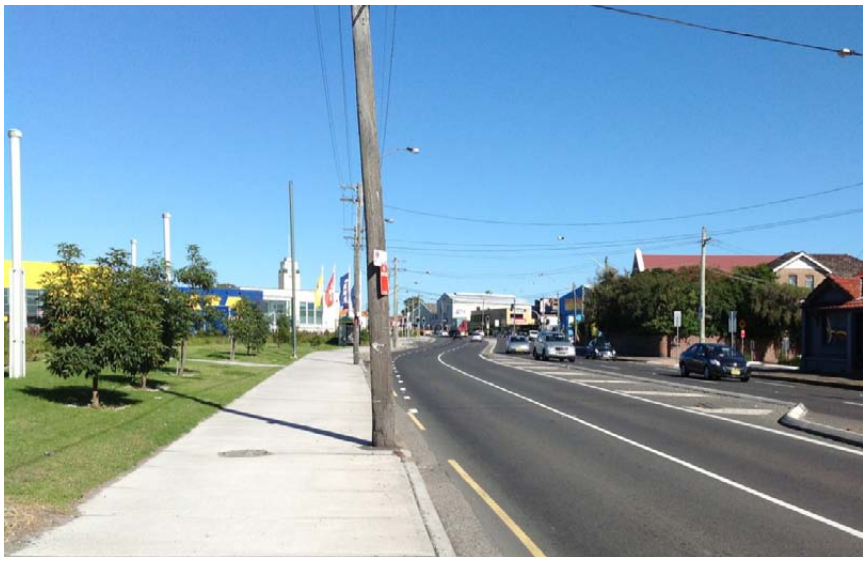


Figure 4.4- Existing - Princes Highway, Tempe.

Figure 4.5- Photomontage showing proposed Brush Box along the Princes Highway, Tempe. This theme has already commenced in front of the recent Ikea development.

4.4 Illawarra Road

This regional corridor road starts at Addison Road, Marrickville, and extends down in a southwest direction towards the Cooks River. The road extends through mostly residential areas with a retail hub to the north and south of Marrickville Station. The already strong theme of *Lagerstroemia indica* (Crepe Myrtle) south of Harnett Avenue (under wires) and north of Marrickville Road should be continued. Opposite the wires and south of Harnett Avenue, it is proposed to plant *Corymbia maculata* (Spotted Gum). The retail area between Harnett Avenue and Marrickville Road should be defined using *Celtis australis* (Nettle Tree) - however constraints do need to be considered (ie. infrastructure, bus stops, traffic signage, awnings).

Proposed species:
***Corymbia maculata* (Spotted Gum) - opposite wires**
***Lagerstroemia indica* (Crepe Myrtle) - under wires**
***Celtis australis* (Nettle Tree) - Marrickville CBD**
***Syzygium leuhmannii* (Riberry) - Marrickville CBD**
***Harpullia pendula* (Tulipwood) - Marrickville CBD**

Figure 4.6- A strong theme of Lagerstroemia indica (Crepe Myrtle) already exists along Illawarra Road, Marrickville and should be continued. (Photo Arterra)

4.5 New Canterbury Road / Stanmore Road / Edgeware Road

New Canterbury Road and Stanmore Road are state managed roads that travel through Dulwich Hill, Lewisham, Petersham, Stanmore and Enmore in mostly an east-west direction. Edgeware Road is a regional road that travels in a north-south direction running through Newtown. This main corridor has a strong theme of *Pyrus* species (Pear) already along much of the western end of the corridor and it is proposed to continue through this theme to the eastern end.

Proposed species:
***Pyrus ussuriensis* (Manchurian Pear)**

Figure 4.7- Limited opportunities for street tree planting along the retail precinct of New Canterbury Road, Petersham however all potential opportunities should be explored to continue theme. (Photo Arterra)

Figure 4.8- An existing theme of Pyrus species (Pear) along New Canterbury Road, Dulwich Hill to be strengthened and reinforced. (Photo Arterra)

4.6 Unwins Bridge Road (between Railway Rd & Bedwin Rd) / May St

A regional road extending from the Princes Highway in St Peters across Sydenham and Tempe in a north east and south west direction. The dominant tree along this street is *Pyrus* species (Pear). It is proposed to continue and strengthen this existing theme.

Proposed species:
***Pyrus ussuriensis* (Manchurian Pear)**

Figure 4.9- Opportunity exists to building upon the existing theme of Pyrus species (Pear) along Unwins Bridge Road, through Tempe and Sydenham and create an attractive and unified main road corridor. (Photo Arterra)

4.7 Sydenham Road / Livingstone Rd / Gordon St / West St

This main corridor road runs in a northwest and south east direction connecting Parramatta Road in Petersham, travelling through the centre of Marrickville and down towards the Princes Highway in Sydenham. West Street is a regional street whilst Sydenham Road, Livingstone Road and Gordon Street are each State managed roads. The corridor runs through a combination of residential, commercial and industrial areas. Suggest no planting adjacent to Petersham Park where there is already established plantings of *Cinnamomum camphora* (Camphor Laurel) and *Lophostemon confertus* (Brush Box). It is proposed to reinforce the corridor with a consistent planting of *Lophostemon confertus* (Brush Box) and implement ABC where necessary.

Proposed species:
***Lophostemon confertus* (Brush Box)**

Figure 4.11- Combined with a strategic and ongoing program of ABC installation, Sydenham Road could be transformed to a grand avenue with medium to large evergreen trees on both sides. (Photo Arterra)

Figure 4.10- West Street, Lewisham offers a long term opportunity to mirror the Lophostemon confertus (Brush Box) in the adjoining Petersham Park and continue the theme from Sydenham Road and Livingstone Road. (Photo Arterra)

4.8 Crystal Street

Crystal Street is a heavily used regional road in Petersham providing a connection between Parramatta Road and Stanmore Road / New Canterbury Road. Running in a north-south direction, this street currently has a very mixed palette of trees including *Pyrus calleryana* (Callery Pear), *Melaleuca bracteata* (Black Tea Tree), *Sapium sebiferum* (Chinese Tallow Tree), *Stenocarpus sinuatus* (Firewheel Tree) and *Elaeocarpus reticulatus* (Blueberry Ash). The road runs through a combination of commercial and residential areas, with tight building setbacks and due to the high volume of traffic, presents challenging conditions for street tree planting. The use of a very hardy tree species is necessary along this street with special attention to improved subsurface conditions and placement and the provision of ABC.

Proposed species:
***Lophostemon confertus* (Brush Box)**

Figure 4.12- Although recently planted many of the trees along Crystal Street are suffering from the harsh conditions present and their size contributes little to the urban canopy. (Photo Arterra)

4.9 Addison Road

This regional road travels in an east-west direction through the suburbs of Marrickville and Petersham, and connects Livingstone Road with Enmore Road. The dominant tree along this street is *Pyrus* species (Pear). It is proposed to continue with, and reinforce this existing theme along the entire street and the provision of ABC.

Proposed species:
***Pyrus ussuriensis* (Manchurian Pear)**

Figure 4.14- Addison Road already has a strong theme of Pyrus ussuriensis (Manchurian Pear) which is proposed to be reinforced and continued. (Photo Arterra)

Figure 4.13- Although there has been recent plantings of Pyrus calleryana (Callery Pear) along Crystal Street, in the long term and combined with a strategic and ongoing program of ABC installation, better soil and planting pit preparation, this heavily used and relatively short section of main road could be transformed to a well canopied tree-lined avenue with spreading evergreen trees on both sides. (Photo Arterra)

5.0 Precinct Plans & Species Lists

This section of the Street Tree Master Plan provides the main guide for future tree planting in Council's streets. The precinct approach addresses local issues and provides appropriate treatments for each precinct on an individual street by street basis.

The design objectives for each precinct are outlined, the precinct conditions are described and the nominated tree species have been provided for each street.

Figure 5.1 indicates the location and extent of street tree precincts across the Local Government Area.

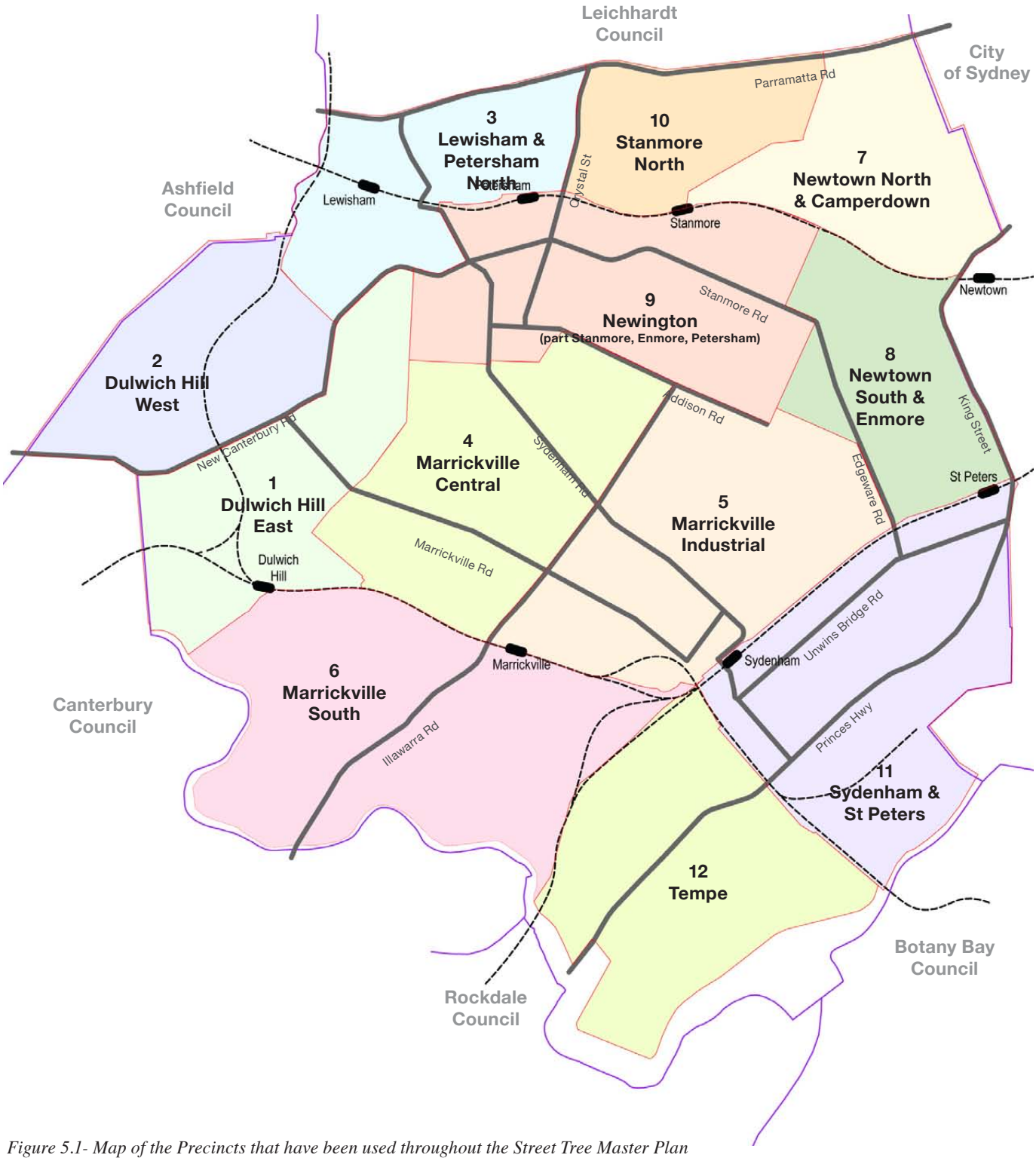


Figure 5.1- Map of the Precincts that have been used throughout the Street Tree Master Plan

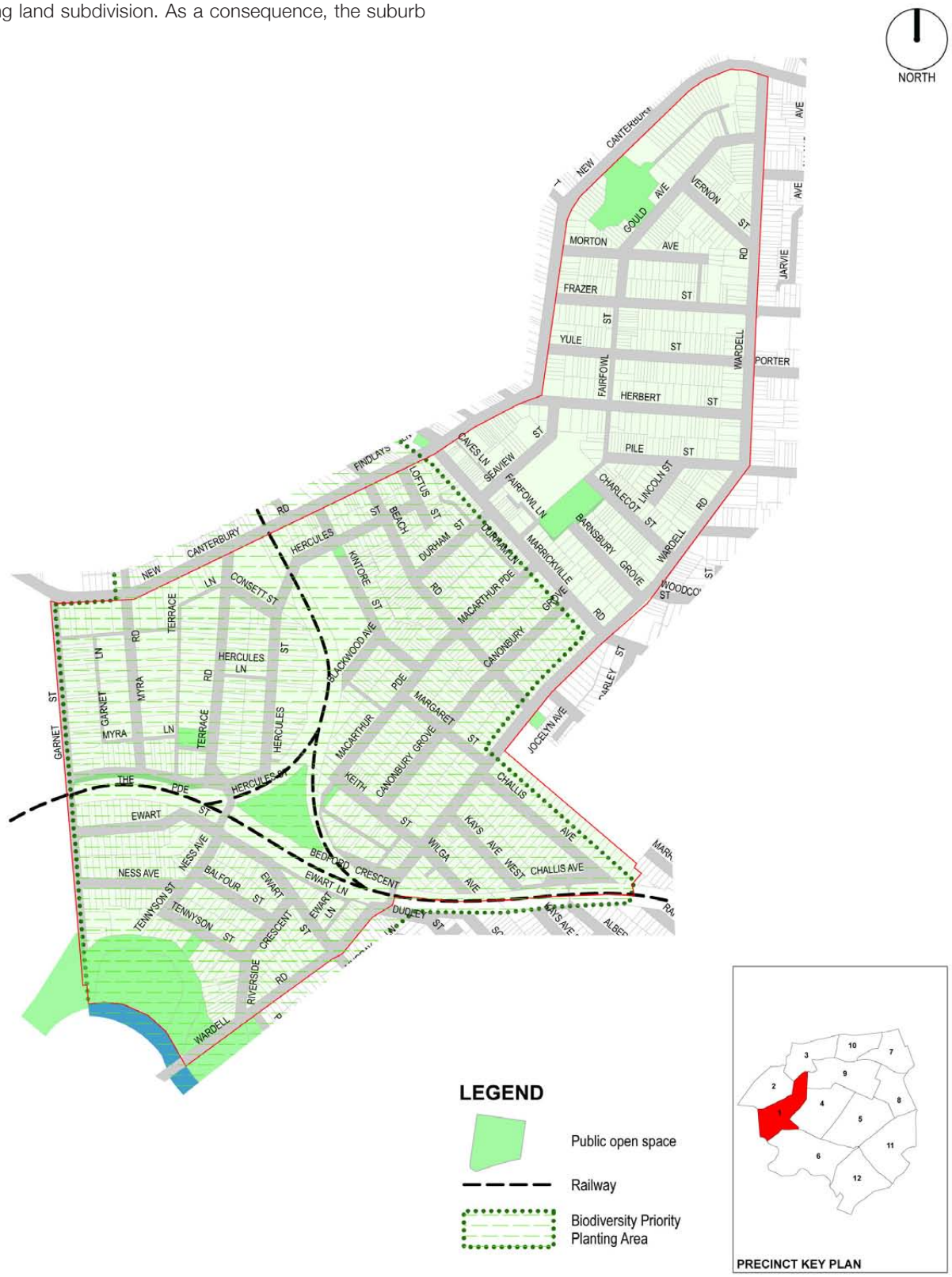
5.1 Dulwich Hill East

History and Context

Dulwich Hill East is an established residential area that stretches south to the shore of the Cooks River. Dulwich Hill was named after a London suburb. The name means “meadow where dill grows” and was previously known as Wardell’s Bush and Wardell Hill.

Settlement of the area dates back to 1794 when the first land grant was made, with land used mainly for market gardening and orchards. The area experienced rapid growth in the early twentieth century with the opening of the railway station in 1895 and resulting land subdivision. As a consequence, the suburb has a large number of Australian federation styled dwellings. Dulwich Hill East contains some fine examples of in-road tree avenues that were constructed in the early part of the 1900s and still remain today. In the last 40 years, infill multi-unit flat developments have been constructed, within the areas zoned for medium density housing.

The precinct is bounded by New Canterbury Road in the west and north, Garnet Street and the Cooks River in the south, and Wardell Road in the east. Major features of the precinct include retail areas along Marrickville Road, New Canterbury Road and Wardell Road, Marrickville Golf Club, and Jack Shanahan Park. Also includes the light rail line, GreenWay Corridor and the railway line which runs through the precinct.



Physical Influences

Dulwich Hill East at 117.6ha (7.3% of total area) is a relatively average sized precinct. The majority of streets contain a verge between 1.8 - 3.5m wide comprising a grassed strip and footpath pavement. Almost half of the streets in the area are orientated towards East-West, resulting in a north and south side of the street. Any future planting to the south side needs to consider either a small or deciduous tree to limit excessive overshadowing of the dwellings.

Most of the area is reasonably flat or gently undulating and characterised by Wianamatta Group shale derived clay soils to the north, with sandy soils derived from Hawkesbury Sandstone to the south, and a small pocket of silty loams adjacent to the Cooks River. Trees growing in the sandy soils need to be a hardy species that can tolerate poorer quality soils and drier conditions.

Existing Streetscape Character

Dulwich Hill East is a reasonably well treed area containing a high proportion of mature street trees (76%), with a relatively low proportion of semi-mature (12%) and young trees (5%). *Callistemon viminalis* (Bottlebrush) is the dominant species across the precinct comprising 13.86% of the species mix.

Generally, streets are wider than many of the other LGA precincts and houses are typically bigger and on larger lots than some of the older neighbouring suburbs such as Petersham, and the setback distance from the dwelling to the front boundary is generally greater than those in areas such as Newtown and Camperdown. The in-road avenue plantings along Canonbury Grove and Ness Avenue make a strong contribution to the heritage character of the area.

Dulwich Hill East is defined by:

- Federation style architecture consisting of detached villas set on relatively spacious allotments.
- Generous width streets that allow for in-road or blister planting opportunities.
- Identified biodiversity priority planting area constituting over half of the precinct.
- Reasonable setback distances from houses to the front verge with the opportunity to introduce larger trees without impacting residents (when not under wires).
- A busy retail/commercial area along Marrickville Road.

Current Dominant Species

Botanical Name	No. of trees	% of trees within precinct
Callistemon viminalis	260	13.86%
Tristaniopsis laurina	168	8.96%
Melaleuca bracteata	162	8.64%
Lagerstroemia indica	136	7.25%
Elaeocarpus reticulatus	123	6.56%
Proportion of total species mix	849	45.26%
Total number of trees	1876	100.00%

Precinct Objectives

- To enhance the streetscape with street trees of appropriate scale and form.
- To respect the established and desirable street tree characters.
- To reinforce the residential character through a mix of deciduous and evergreen tree planting that respond to the generous street width and spacious building setbacks.
- Maintain and provide plantings that are sympathetic to the heritage values of some of the Dulwich Hill streets.
- Maintain and provide plantings that contribute to the continuation and expansion of identified wildlife corridor (the GreenWay) and native planting corridors.

Figure 5.2 - Canonbury Grove, Dulwich Hill (Photo Arterra)

01 DULWICH HILL EAST					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Balfour Street	Overhead (Odd)	Small (<1.8-3.5m)	*Photinia x fraseri 'Robusta' Callistemon viminalis cv.*	*Syzygium paniculatum, Corymbia eximia (in road / opposite wires) Acmena smithii var. minor, Tristaniopsis laurina (under wires)*	Street located in biodiversity priority planting area. Short street. Potential to replace Bottlebrush with larger species, although bear in mind shading. Possible in-road planting opportunity.
Barnsbury Grove	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Pistacia chinensis (opposite wires) Magnolia grandiflora 'Exmouth', Lagerstroemia indica (under wires)*	No through road. Brick paving to verge. Continue with Pistachio.
Beach Road	Overhead (Even)	Small (<1.8-3.5m)	*Callistemon viminalis cv. Podocarpus elatus*	*Angophora floribunda, Eucalyptus haemastoma, Acmena smithii (opposite wires) Callistemon viminalis, Tristaniopsis laurina, Banksia integrifolia (under wires)*	Street located in biodiversity priority planting area. Sections of street are grass and path. Mature Tuckeroo lifting kerb.
Bedford Crescent	Overhead (Odd)	Small (<1.8-3.5m)	*Cupaniopsis anacardioides Callistemon viminalis cv.*	*Cupaniopsis anacardioides (opposite wires) Angophora hispida, Tristaniopsis laurina (under wires)*	Street located in biodiversity priority planting area. Short street with 45 degree parking on one side. Verge width gets narrower. ABC a priority to allow larger tree species.
Blackwood Avenue	Overhead (Even)	Small (<1.8-3.5m)	*Sapium sebiferum*	*Eucalyptus haemastoma, Eucalyptus paniculata (opposite wires) No planting under wires.*	Street located in biodiversity priority planting area. Trees overhanging from school contribute to the street character. Existing 45 degree parking. Planting to odd side only.
Canonbury Grove	ABC	Small (<1.8-3.5m)	*Cinnamomum camphora Lophostemon confertus*	*Lophostemon confertus (in road) Acmena smithii var. minor, Synoum glandulosum (under wires)*	Historic in-road avenue planting. Brick paved verge. Some trees in verge between Beach Rd and Marrickville Road, WSUD opportunity.
Challis Avenue	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Syzygium paniculatum (opposite wires) Melaleuca linariifolia, Acmena smithii var. minor (under wires)*	Street located in biodiversity priority planting area. Heritage Conservation Area. Brick paved verge. Opportunity for larger species opposite wires. Crepe Myrtle under wires. Road reserve narrows at bend to end of street.
Charlecot Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Zelkova serrata 'Green Vase' (opposite wires) Xylosma senticosa, Lagerstroemia indica (under wires)*	Trees overhanging from the school contribute to the street character. Replace Eucalypts.
Consett Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Angophora costata, Syncarpia glomulifera, Acacia binervia (opposite wires) Tristaniopsis laurina, Banksia integrifolia, Synoum glandulosum (under wires)*	Street located in biodiversity priority planting area. 3.5m verge, variable width. One way street with 45 degree parking.
Durham Street	Overhead (Even)	Small (<1.8-3.5m)	*Cinnamomum camphora Lophostemon confertus*	*Syzygium paniculatum (in road) Synoum glandulosum, Angophora hispida, Acmena smithii var. minor (in verge)*	Street located in biodiversity priority planting area. Existing in-road planting in poor condition, recommend new blister planting. Replace Camphor Laurel.
Ewart Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Syzygium paniculatum (in road) Corymbia maculata (opposite wires) Angophora hispida, Acmema smithii var. minor (under wires)*	Street located in biodiversity priority planting area. Further in-road planting opportunities. Existing Brush Box in-road. Road reserve variable width.
Fairfowl Street	Overhead (Even)	Narrow (<1.8m)	-	*Syzygium paniculatum (in road)*	No existing street trees. Narrow verge 1.3m. Potential in-road opportunities.
Frazer Street between Wardell Street and New Canterbury Road	Overhead (Even)	Small (<1.8-3.5m)	*Sapium sebiferum Lagerstroemia indica*	*Zelkova serrata 'Green Vase' (opposite wires) Lagerstroemia indica (under wires)*	Continue with existing theme of Chinese Tallow and Crepe Myrtle.
Garnet Lane	None or UG	Narrow (<1.8m)	*Syzygium leuhmannii*	-	Street located in biodiversity priority planting area. Syzygium x 3 growing in verge 350mm wide, recommend no planting.

01 DULWICH HILL EAST (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Garnet Street	Overhead (Even)	Small (<1.8-3.5m)	***Callistemon viminalis cv. Elaeocarpus reticulatus Sapium sebiferum***	***Corymbia maculata, Angophora floribunda (opposite wires) Tristaniopsis laurina, Acmena smithii var. minor, Synoum glandulosum (under wires)***	Street located in biodiversity priority planting area.
Gould Avenue	ABC	Small (<1.8-3.5m)	**Mixed**	***Ulmus parvifolia 'Todd', Jacaranda mimosifolia (opposite wire or where ABC) Xylosma senticosa, Tristaniopsis laurina (under wires)***	There is opportunity on this street to plant larger growing species of street tree. Current species are too small for the space.
Herbert Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Ulmus parvifolia 'Todd' (blister planting) Zelkova serrata 'Green Vase' (opposite wires) Acmena smithii var. minor, Lagerstroemia indica (under wires)***	Opportunity for more blister planting. Street has both residential and commercial precincts
Hercules Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Syncarpia glomulifera (opposite wires - wide section of grass verge) Angophora costata, Corymbia eximia (opposite wires) Tristaniopsis laurina, Banksia integrifolia, (under wires)***	Street located in biodiversity priority planting area. Trees overhanging from school contribute to streetscape. Continue large tree in wide section of grass verge. Opportunity for larger species opposite powerlines.
Kays Avenue West	Overhead (Odd)	Small (<1.8-3.5m)	***Lagerstroemia indica***	***Syzygium paniculatum (in road) Lagerstroemia indica (in verge)***	Street located in biodiversity priority planting area. Heritage Conservation area. Single species along street with tree guards around each tree. Brick paved verge both sides. Room to introduce larger tree species.
Keith Street	Overhead (Odd)	Small (<1.8-3.5m)	***Melaleuca bracteata Callistemon viminalis cv.***	***Eucalyptus haemastoma (opposite wires) Angophora hispida, Tristaniopsis laurina, Acmena smithii var. minor (under wires)***	Street located in biodiversity priority planting area. Section of verge is brick paving
Kintore Street	Overhead (Odd)	Small (<1.8-3.5m)	***Tristaniopsis laurina***	***Eucalyptus haemastoma, Angophora floribunda (opposite wires) Tristaniopsis laurina, Callistemon viminalis, Banksia integrifolia (under wires)***	Street located in biodiversity priority planting area. Trees overhanging from school contribute to street. Existing blisters with Acmena sp. Existing 45 degree parking. Continue with Water Gums.
Lincoln Street	ABC	Small (<1.8-3.5m)	**Mixed**	***Ulmus parvifolia 'Todd', Jararanda mimosifolia (both sides)***	Short street, 45 degree parking. Opportunities for larger species. Existing verge gardens.
Loftus Street	Overhead (Even)	Small (<1.8-3.5m)	***Melaleuca bracteata***	***Corymbia maculata, Eucalyptus paniculata, Tristaniopsis laurina (ABC priority)***	Street located in biodiversity priority planting area. Short street, public car parking area adjacent. ABC a priority to enable larger tree species.
Macarthur Parade	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Corymbia eximia, Eucalyptus paniculata, Eucalyptus microcorys (opposite wires) Callistemon viminalis, Tristaniopsis laurina (under wires)***	Street located in biodiversity priority planting area. Park at end of street. 45 degree parking towards Marrickville Road end of street. Opportunity for larger species opposite wires.
Margaret Street	Overhead (Even)	Large (>5m)	***Ficus microcarpa var. hillii***	***Waterhousea floribunda (both sides)***	Street located in biodiversity priority planting area. Conservation area, brick paved verge. Figs create an avenue between Canonbury Street and Wardell Road. Continue with avenue but use different species. Recommend ABC in this street
Marrickville Road between New Canterbury Road and Wardell Road	None or UG	Medium (3.5-5m)	***Lophostemon confertus Melaleuca quinquenervia***	**Retail precinct between New Canterbury Road and Macarthur Parade:** ***Harpullia pendula, Caesalpinia ferrea*** **Between Macarthur Parade and Wardell Road:** ***Lophostemon confertus (both sides)***	Continue with new plantings of Leopard Tree and Tulipwood. Limited planting opportunities due to awnings outside retail premises, etc.

01 DULWICH HILL EAST (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Morton Avenue	Overhead (Odd)	Small (<1.8-3.5m)	*Melaleuca quinquenervia Elaeocarpus reticulatus*	*Jacaranda mimosifolia, Ulmus parvifolia 'Todd' (opposite wires) Xylosma senticosa, Lagerstroemia indica (under wires)*	No through road, with Paperbarks getting too large.
Myra Road	Overhead (Even)	Small (<1.8-3.5m)	*Celtis occidentalis*	*Syzygium paniculatum, Corymbia maculata (opposite wires) Angophora hispida, Acmena smithii var. minor, Synoum glandulosum (under wires)*	Street located in biodiversity priority planting area. An existing row of Celtis one side.
Ness Avenue between Garnet Street and Tennyson Street	Overhead (Odd)	Small (<1.8-3.5m)	*Lophostemon confertus*	*Lophostemon confertus, Syzygium paniculatum (in road) Angophora hispida, Acmena smithii var. minor (in verge)*	Street located in biodiversity priority planting area. Historic avenue of Brush Box in-road planting. Brick paved verge approx. 3.5m.
Ness Avenue between Tennyson Street and Ewart Street	Overhead (Odd)	Small (<1.8-3.5m)	*Podocarpus elatus Fraxinus griffithii*	*Syzygium paniculatum (in road) Angophora hispida, Acmena smithii var. minor (in verge)*	Street located in biodiversity priority planting area. Opportunity to continue in-road planting. Brick paved verge. Road blocked off at Ewart Street.
Pile Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Ulmus parvifolia 'Todd' (blister planting) Zelkova serrata 'Green Vase' (opposite wires) Acmena smithii var. minor, Lagerstroemia indica (under wires)*	Opportunity for some blister planting, locations to be explored by Council.
Riverside Crescent between Wardell Road and Ewart Street	Overhead (Odd)	Small (<1.8-3.5m)	*Fraxinus griffithii (under wires)*	*Angophora costata, Corymbia eximia (opposite wires) Tristaniopsis laurina, Banksia integrifolia (under wires)*	Street located in biodiversity priority planting area. Newly planted verge gardens.
Seaview Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Zelkova serrata 'Green Vase' (opposite wires) Gordonia axillaris (under wires)*	Holy Trinity Church, School and car park located on this street. One side is grass and path. Trees in School contribute to street character. Wires on Church side.
Tennyson Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Waterhousea floribunda 'Green Avenue', Angophora costata (in road) Angophora hispida, Banksia integrifolia, Tristaniopsis laurina (in verge)*	Street located in biodiversity priority planting area. Wide street with opportunity for in-road planting. Replace Paperbarks.
Terrace Road	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Angophora floribunda (opposite wires) Tristaniopsis laurina, Synoum glandulosum (under wires)*	Street located in biodiversity priority planting area. A few blisters on street. Existing Bottlebrush opposite wires are too small. Some of street is ABC. Alison Playground on street.
The Parade	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Ficus rubiginosa, Agathis robusta, Araucaria columnaris (opposite wires) Angophora hispida, Banksia integrifolia (under wires)*	Street located in biodiversity priority planting area. Verge adjacent to railway line is grass. Celtis under wires. Continue with figs on grass verge
Vernon Street	Overhead (Odd)	Small (<1.8-3.5m)	*Tristaniopsis laurina Lagerstroemia indica*	*Ulmus parvifolia 'Todd' (in road) Tristaniopsis laurina, Lagerstroemia indica (in verge)*	There is opportunity in this street for in-road planting
Wardell Road between Frazer Street and New Canterbury Road	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Zelkova serrata 'Green Vase' (opposite wires) Tristaniopsis laurina (under wires)*	This street is a main thoroughfare.
Wardell Road between Frazer Street and Cooks River	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	**South of Challis Avenue:** *Angophora floribunda, Cupaniopsis anacardioides (opposite wires) Tristaniopsis laurina, Callistemon salignus (under wires)* **North of Challis Avenue:** *Zelkova serrata 'Green Vase' (opposite wires) Tristaniopsis laurina (under wires)*	Busy road, variable verge width towards southern end of street near bridge. Street partially located within a biodiversity priority planting area.

01 DULWICH HILL EAST (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Wilga Avenue	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Corymbia maculata (opposite wires) Banksia integrifolia, Acmena smithii var. minor (under wires)***	Street located in biodiversity priority planting area. Existing verge gardens being used as vegetable gardens. Short street, ABC a priority.
Yule Street	Overhead (Even)	Small (<1.8-3.5m)	***Elaeocarpus reticulatus Melaleuca bracteata***	***Zelkova serrata 'Green Vase' (opposite wires) Lagerstroemia indica, Magnolia grandiflora 'Exmouth' (under wires)***	Portion of street has 45 degree parking. Consider replacement species similar to Eucalyptus nicholii.

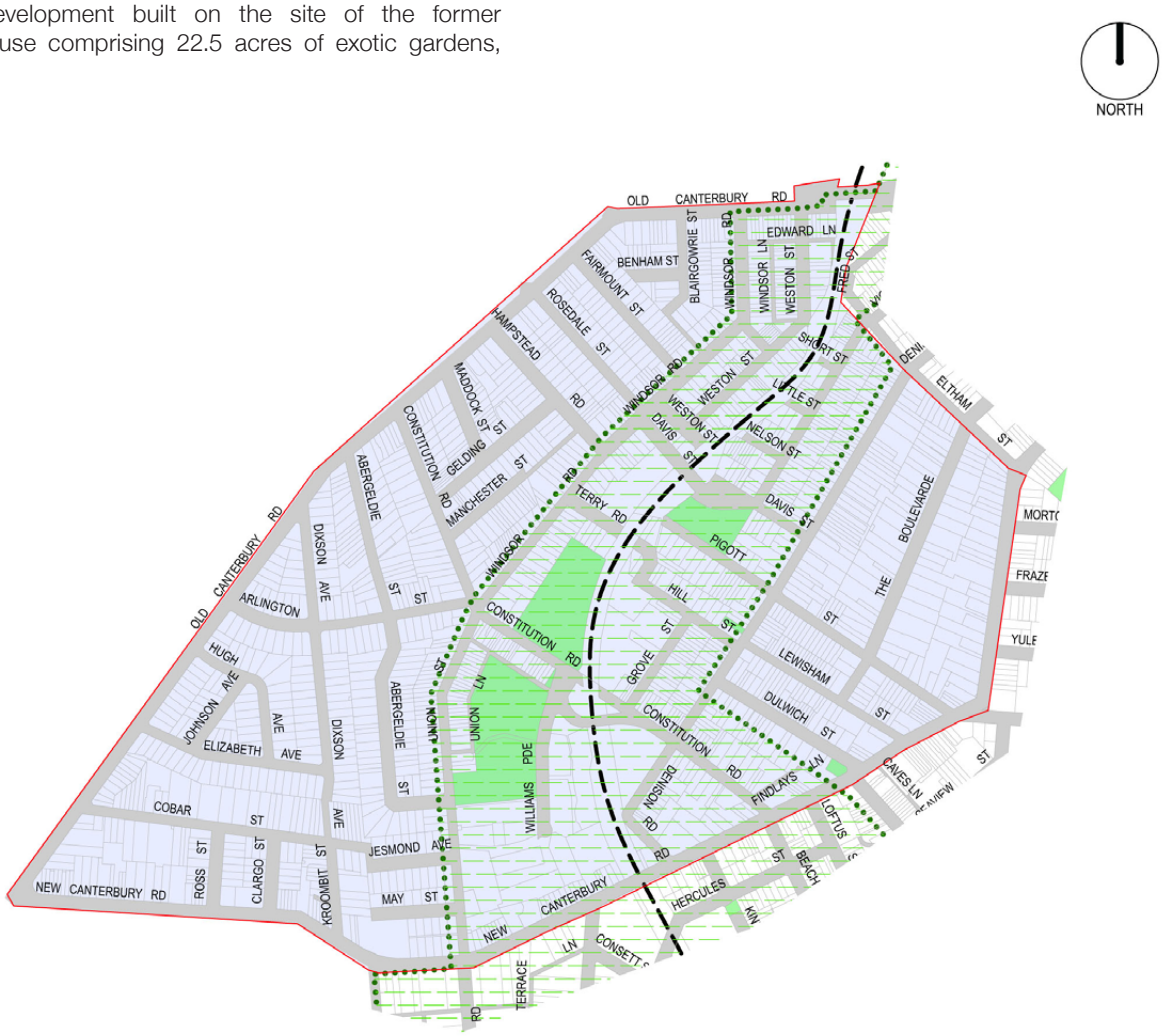
5.2 Dulwich Hill West

History and Context

Dulwich Hill West is an established residential area that adjoins Ashfield Council to the west, and Canterbury Council to the south. Dulwich Hill takes its name from a suburb from London. The name means “meadow where dill grows” and was previously known as Wardell’s Bush and Wardell Hill.

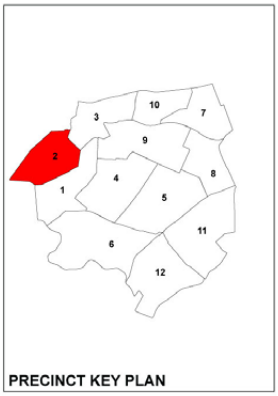
The Abergeldie Estate Heritage Conservation Area (HCA) forms a wedge shape area on the south-side of the gently undulating area to the south west of the precinct. Abergeldie Estate is a fine example of a late twenties and thirties suburban subdivision development built on the site of the former Abergeldie House comprising 22.5 acres of exotic gardens, conservatory, garages, piggery and dairy. The character of the HCA relies on a collection of original single storey free-standing houses on medium allotments which are fine examples of late 1920s – 1930s suburban architecture. Despite the historical development in the area, tree planting was not a focus with minimal trees planted and the majority of street trees only planted over the last 40 years.

The precinct is bounded by Old Canterbury Road in the west, New Canterbury Road in the south and east, and Eltham Street in the north. Major features of the area include retail areas along New Canterbury Road, Arlington Recreation Reserve, and Johnson Park. Also includes the light rail line and GreenWay Corridor.



LEGEND

- Public open space
- Railway
- Biodiversity Priority Planting Area



Physical Influences

Dulwich Hill West at 107.9ha (6.7% of total area) is an average sized precinct. The majority of streets contain a verge between 1.8-3.5m wide comprising a grassed strip and footpath pavement. Many of the streets have a generously wide road reserve accompanied by low demand for on street parking, making it an excellent opportunity for in-road planting. The railway line runs primarily in a north-south direction through the precinct.

The area comprises gently undulating rises on Wianamatta Group Shale, resulting in shale derived clay or clay loam soils which generally have a high nutrient and water holding capacity and relatively favourable conditions for street tree planting.

Existing Streetscape Character

The generously wide road reserves and larger houses provide a very spacious feel to the streetscape. Setback distances from the dwellings to the front verges are also generous.

The precinct is well treed with 71% of trees considered to be in good condition and 23% in a fair condition. In recent years new tree planting has occurred resulting in an age class spread of 15.7% young trees, 27% semi mature trees and 57% mature trees. Whilst the area contains a good number of street trees, the overall impression of many of the streets is that the trees selected are too small for the street.

Dulwich Hill East is defined by:

- The historically significant subdivision development, Abergeldie Estate characterised by original single storey detached houses on spacious allotments built during the late 1920s – 1930s.
- Wide road reserves and low demand for on street parking by residents, which provides a great opportunity to plant larger trees in-road.
- Generous setbacks from dwellings to the front verge, with the opportunity to plant larger trees than what currently exist.
- An identified biodiversity priority planting area constituting about half of the precinct.

Current Dominant Species

Botanical Name	No. of trees	Percentage (%)
Callistemon viminalis	256	12.64%
Melaleuca bracteata	238	11.75%
Tristaniopsis laurina	176	8.69%
Elaeocarpus reticulatus	98	4.84%
Fraxinus griffithii	96	4.74%
Proportion of total species mix	864	42.67%
Total number of trees	2025	100.00%

Precinct Objectives

- To enhance the streetscape with street trees of appropriate scale and form.
- To respect the established and desirable street tree characters.
- To reinforce the residential character through a mix of deciduous and evergreen tree planting that respond to the generous street width and spacious building setbacks.
- Maintain and provide plantings that are sympathetic to the heritage values of Abergeldie Estate.
- To take advantage of the wide road reserves and identify further in-road planting opportunities.
- Maintain and provide plantings that contribute to the continuation and expansion of identified wildlife corridor (the GreenWay) and native planting corridors.

Figure 5.3 - In-road planting of Platanus x acerifolia (London Plane Tree) at Williams Parade, Dulwich Hill (Photo Arterra)

02 DULWICH HILL WEST					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Abergeldie Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	**Between Arlington Street & Union Street:** ***Lophostemon confertus (in road blisters or opposite wires)*** ***Gordonia axillaris, Koelreuteria paniculata (in verge)*** **Between Old Canterbury Road & Arlington Street:** ***Koelreuteria bipinnata (opposite wires)*** ***Gordonia axillaris (under wires)***	Wider road reserve between Arlington Street and Union Street, with opportunity for blisters in road.
Arlington Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (in road)*** ***Magnolia grandiflora 'Exmouth', Murraya paniculata (under wires)***	Heritage Conservation Area. Wide street. Opportunity for in-road planting.
Benham Street	Overhead (Even)	Small (<1.8-3.5m)	***Fraxinus griffithii*** ***Callistemon viminalis cv.***	***Eucalyptus haemastoma (opposite wires)*** ***Backhousia citriodora, Murraya paniculata (under wires)***	Short street, no through road. Opportunity for larger tree planting opposite wires eg. Eucalypt
Blairegowrie Street	Overhead (Odd)	Small (<1.8-3.5m)		***Eucalyptus haemastoma (opposite wires)*** ***Backhousia citriodora, Murraya paniculata (under wires)***	
Channel Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Acacia binervia (opposite wires)*** ***Acmena smithii var. minor, Synoum glandulosum (under wires)***	Street in biodiversity priority planting area. Very short street and narrow verge. Existing verge gardens.
Clargo Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Jacaranda mimosifolia (in road blister)*** ***Corymbia maculata (opposite wires)*** ***Gordonia axillaris (under wires)***	Short street. ABC a priority. Opportunity to install a few blisters.
Cobar Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Koelreuteria bipinnata (opposite wires)*** ***Gordonia axillaris, Magnolia grandiflora 'Exmouth' (under wires)***	Long street. Discontinue Paperbarks under wires.
Constitution Road between New Canterbury Road and Railway Line	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Glochidion ferdinandi, Corymbia maculata (opposite wires)*** ***Tristaniopsis laurina, Synoum glandulosum (under wires)***	Street located in biodiversity priority planting area. Existing verge gardens.
Constitution Road between Railway Line and Windsor Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (opposite wires)*** ***Tristaniopsis laurina (opposite powerlines where adjacent to park)***	Street located in biodiversity priority planting area. Fig trees in Johnson Park contribute to the street. Discontinue planting in front of park. Variable verge width.
Davis Street bewteen Denison Road and Hoskin Park	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Eucalyptus eximia (opposite wires)*** ***Acmena smithii var. minor,*** ***Angophora hispida (under wires)***	Street located in a biodiversity priority planting area. Continue with Eucalypts.
Davis Street west of Hoskin Park	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Angophora costata (opposite wires)*** ***Angophora hispida, Acmena smithii var. minor (under wires)***	Street located in a biodiversity priority planting area.
Denison Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Corymbia eximia (opposite wires)*** ***Tristaniopsis laurina (both sides - between Dulwich Street and New Canterbury Road)***	Long street (both commercial & residential). Continue with Water Gums sth of Constitution Street and outside apartments.
Dixson Avenue	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Eucalyptus haemastoma (opposite wires)*** ***Lagerstroemia indica (under wires)*** **Between Elizabeth Ave & Cobar St:** ***Lagerstroemia indica, Tristaniopsis laurina (both sides)***	Heritage Conservation Area. Variable verge width. Continue with existing planting between Elizabeth Ave and Cobar St.

02 DULWICH HILL WEST (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Dulwich Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Pistacia chinensis (opposite wires)*** ***Lagerstroemia indica (under wires)***	Odd side is a row of Black Tea Trees. Even side mixed species Opportunity for Eucalpyts on even side
Elizabeth Avenue	Overhead (Even)	Small (<1.8-3.5m)	***Tristaniopsis laurina***	***Jacaranda mimosifolia (opposite wires)*** ***Lagerstroemia indica, Gordonia axillaris (under wires)***	Heritage Conservation Area. Long row of Water Gums opposite wires.
Fairmount Street	Overhead (Odd)	Small (<1.8-3.5m)	***Melaleuca quinquenervia***	***Koelteuteria bipinnata (opposite wires)*** ***Gordonia axillaris (under wires)***	Lovely street character and quaint built form. Long row of Paperbarks opposite wires. Continue with Koelteuteria. ABC a priority
Gelding Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Angophora costata, Jacaranda mimosifolia (in road)***	Wide street. Opportunity for WSUD and in-road planting.
Grove Street	Overhead (Odd)	Small (<1.8-3.5m)	***Melaleuca bracteata*** ***Callistemon viminalis cv.***	***Glochidion ferdinandi (opposite wires)*** ***Acmena smithii var. minor, Synoum glandulosum, Callistemon viminalis (under wires)***	Street located in biodiversity priority planting area. Lemon Scented Myrtle not looking great.
Hampstead Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (in road)***	Lovely wide road reserve. Opportunity for some in-road blisters along street.
Hill Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Angophora costata, Corymbia eximia, Glochidion ferdinandi (opposite wires)*** ***Banksia serrata, Angophora hispida (under wires)***	Street located in biodiversity priority planting area. No through road. Road reserve at end of street widens with opportunity for in-road planting. New plantings of QLD Firewheel and Blueberry Ash. Replace E. nicholii. Major lifting of pavement from Eucalypts
Hugh Avenue	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Pistacia chinensis (opposite wires)*** ***Acmena smithii var. minor (under wires)***	Heritage Conservation Area. Continue with Lilly Pilly under wires.
Jesmond Avenue	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (in road)*** ***Gordonia axillaris, Lagerstroemia indica (in verge)***	Short street, wide road reserve. ABC a priority. Opportunity for in-road planting.
Johnson Avenue	Overhead (Even)	Small (<1.8-3.5m)	***Olea europaea subsp. africana*** ***Callistemon viminalis cv.***	***Pistacia chinensis (opposite wires)*** ***Gordonia axillaris (under wires)***	Heritage Conservation Area. Opportunity for larger specimen opposite wires.
Kroombit Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Corymbia maculata (opposite wires)*** ***Gordonia axillaris, Buckinghamia celsissima (under wires)***	Short street. Blueberry Ash opposite wires.
Lewisham Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Caesalpinia ferrea (opposite wires)*** ***Lagerstroemia indica (under wires)***	Narrow street. Powerlines change to odd side.
Little Street	Overhead (Even)	Small (<1.8-3.5m)	***Pyrus calleryana cv.***	***Elaeocarpus reticulatus (opposite wires)*** ***Synoum glandulosum (under wires)***	Street located in a biodiversity priority planting area. Very short street. Railway line at end of street.
Maddock Street	Overhead (Odd)	Small (<1.8-3.5m)	***Eucalyptus sideroxylon*** ***Melaleuca quinquenervia***	***Angophora costata, Jacaranda mimosifolia (in road)***	Paperbarks under wires. Short street, ABC a priority. Wide street, opportunity for in-road planting and possibly WSUD. Existing combination of Paperbarks and Eucalypts is visually pleasing.
Manchester Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Buckinghamia celsissima (both sides)***	Narrow verge approx. 2m. Existing verge gardens along street. Continue with newly planted Ivory Curl.
May Street	Overhead (Even)	Small (<1.8-3.5m)	***Callistemon viminalis cv.*** ***Melaleuca bracteata***	***Lophostemon confertus (in road blisters)*** ***Gordonia axillaris, Lagerstroemia indica (in verge)***	Short street, no through road. School on street. Road reserve is wide enough for a few blisters.

02 DULWICH HILL WEST (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Nelson Street	ABC	Small (<1.8-3.5m)	**Mixed**	***Elaeocarpus reticulatus, Cupaniopsis anacardioides (both sides)***	Street located in a biodiversity priority planting area. Very short and narrow street
New Canterbury Road	Overhead (Odd)	Variable Small (<1.8-3.5m) and Medium (3.5-5m)	***Pyrus ussuriensis Callistemon viminalis cv. Melaleuca quinquenervia***	***Pyrus ussuriensis (both sides)***	Busy arterial road. Recommend ABC a priority. Limited space due to awnings. Wires on odd side (nth of Herbert St) and verge is grass and path. Row of Paperbarks outside St Paul of the Cross and Pears under wires. Limited planting opportunities in retail areas due to awnings. Some existing verge gardens. Standard Lilly Pillys under awnings installed.
Old Canterbury Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus interplanted with Koelreuteria bipinnata (opposite wires) Backhousia citriodora (under wires)***	Busy arterial road. Heritage Conservation Area. Trees in Yeo Park and Gough Reserve overhanging street contribute to street character. No planting in front of park.
Pigott Street	Overhead (Odd)	Small (<1.8-3.5m)	***Sapium sebiferum***	***Acmena smithii var. minor (both sides - west of Denison Rd) Caesalpinia ferrea (opposite wires) Lagerstroemia indica (under wires)***	Street partly located in a biodiversity priority planting area. Trees overhanging from Hoskins Park contribute to street character. No planting in front of Hoskins Park
Rosedale Street	Overhead (Even)	Small (<1.8-3.5m)	***Eucalyptus nicholii Callistemon viminalis cv.***	***Eucalyptus haemastoma (opposite wires) Gordonia axillaris (under wires)***	Verge gardens towards intersection at Windsor Road. Continue with row of Eucalypts. Nice street character.
Ross Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Corymbia maculata, Jacaranda mimosifolia (opposite wires) Gordonia axillaris (under wires)***	Short street. Continue with Corymbia maculata.
Short Street	Overhead (Odd)	Small (<1.8-3.5m)	***Acer buergerianum***	***Eucalyptus haemastoma (opposite wires) Acmena smithii var. minor (under wires)***	Street located in a biodiversity priority planting area. Very short street with just one tree. Opportunity for more trees in this street. Railway line at end of street.
Terry Road	None or UG	Small (<1.8-3.5m)	**Mixed**	***Waterhousea floribunda 'Green Avenue' (both sides)***	Street located in a biodiversity priority planting area. No through road, short street. Opportunity for avenue planting.
The Boulevarde	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Pistacia chinensis, Lophostemon confertus (both sides - where verge width is wider) Lagerstroemia indica (under wires)***	Variable verge width. Section of street is 90 degree parking
Union Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Eucalyptus haemastoma, Corymbia eximia (opposite wires) Angophora hispida, Acmena smithii var. minor, Synoum glandulosum (under wires)***	Street located in biodiversity priority planting area. Quaint residential area with Reserve on street.
Victoria Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Glochidion ferdinandi, Angophora floribunda (opposite wires) Synoum glandulosum, Banksia integrifolia, Angophora hispida (under wires)***	Street located in a biodiversity priority planting area. Quaint street character. Recently planted Ivory Curl.
Weston Street between Windsor Lane and Old Canterbury Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Angophora costata (in road blisters) Tristaniopsis laurina, Synoum glanduosum, Banksia serrata (in verge)***	Street in biodiversity priority planting area. Wide street. Very mixed species. Opportunity for some in-road blisters.
Weston Street between Windsor Lane and Windsor Road	Overhead (Even)	Small (<1.8-3.5m)	***Sapium sebiferum Callistemon viminalis cv.***	***Sapium sebiferum (opposite wires) Tristaniopsis laurina, Synoum glanduosum, Banksia serrata (under wires)***	Continue with Chinese Tallow theme.

02 DULWICH HILL WEST (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Williams Parade	None or UG	Small (<1.8-3.5m)	***Platanus x acerifolia***	***Platanus x acerifolia 'Bloodgood' or Zelkova serrata 'Green Vase' (in road)***	Continue with in-road avenue planting of Plane trees.
Windsor Road	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Eucalyptus haemastoma, Corymbia eximia (opposite wires) Angophora hispida, Acmena smithii var. minor, Synoum glandulosum, Tristaniopsis laurina (under wires)***	Street located in a biodiversity priority planting area. Long street discontinue Paperbarks under powerlines.

Figure 5.4 - One of the more attractive and desirable streets in the LGA - The Boulevarde, Dulwich Hill (Photo Arterra)

5.3 Lewisham & Petersham North

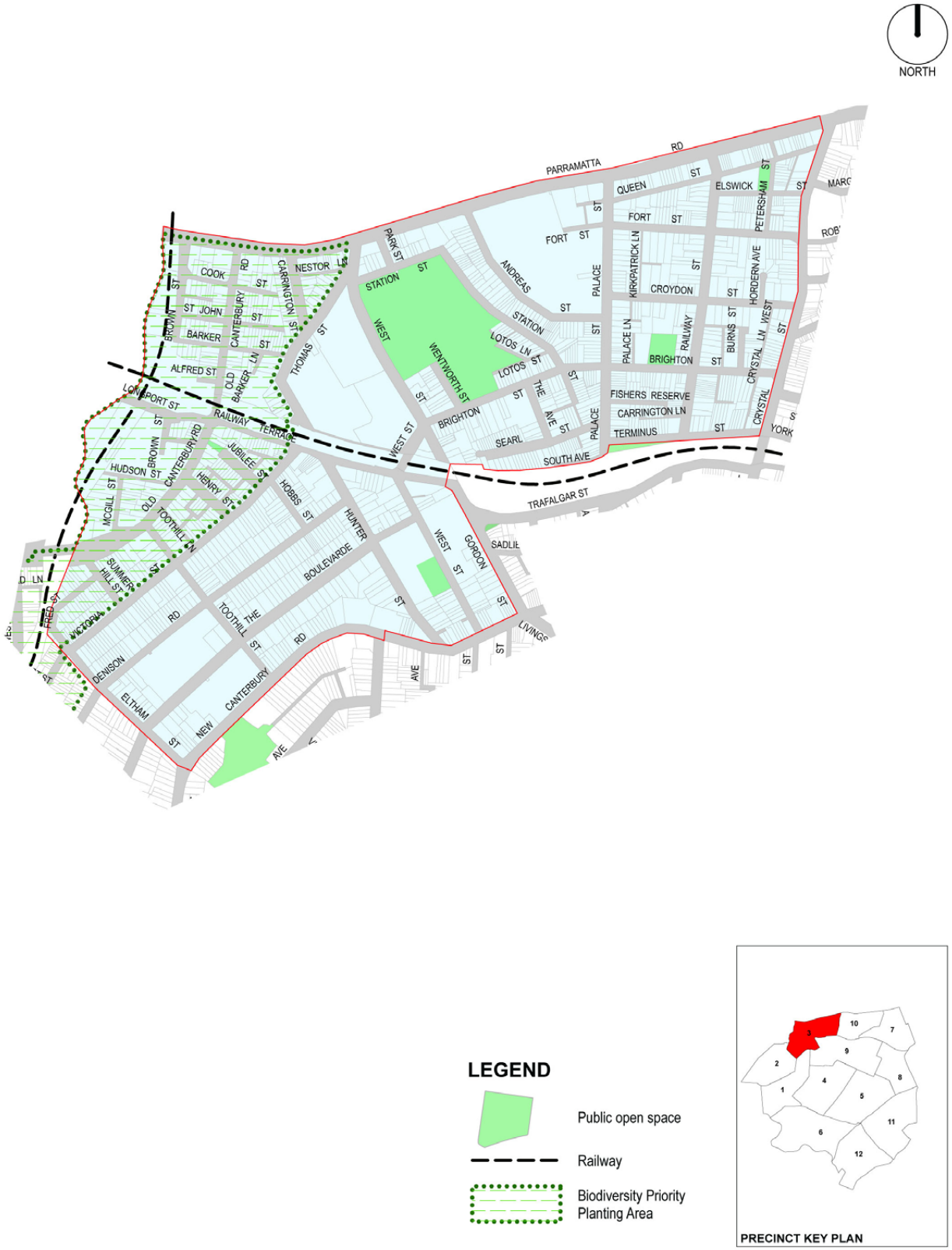
History and Context

This precinct is largely a residential area bounded by Parramatta Road in the north, Crystal Street in the east, the railway line, New Canterbury Road, and Eltham Street in the south, the Hawthorne Canal and the Ashfield Council area in the west.

Lewisham is named after an early property in the area, which was named after a borough in London. Settlement of the area dates from the 1790s when the first land grant was made, where the land was used mainly for agriculture and timber-getting. Population growth took place during the late 1800s and early 1900s, with the new railway station completed in 1885. Petersham Park was created in 1887 with many of the original trees planted still standing today. Much of the precinct is zoned as a heritage conservation area, with a large number of original terraces, villas and apartments preserved.

Physical Influences

At 100.8ha (6.3% of total area) this precinct is an average sized precinct and graced with around 1500 trees. Generally streets are a relatively standard width for Marrickville, with around 60% of the verges 1.8 - 3.5m wide. Setbacks of buildings to the street boundary do vary but are generally close to the street.



LEGEND

- Public open space
- Railway
- Biodiversity Priority Planting Area

A large number of streets in the area are orientated towards East-West, resulting in a north and south side of the street. Any future planting to the south side needs to consider either a small or deciduous tree to limit excessive overshadowing of the dwellings.

The railway line runs through the precinct in an East-West direction, providing a physical boundary between residential areas, with West Street and New Canterbury Road being the main road corridor that travel through the precinct. Petersham Park provides a large recreation area located centrally to the north of the precinct.

The area is relatively flat or gently sloping, with mainly shale derived clay soils. The conditions for tree planting are favourable in this area, with soils typically having a high nutrient and water holding capacity.

Existing Streetscape Character

Lewisham & Petersham North is an attractive and well treed precinct, characterised by a high number of terrace houses and villas originally built in the first half of the 20th century. Road reserve and verge widths vary however generally are not overly generous, with a mix of fully paved verges and a combination of narrow grass strips and footpath pavement. The selection of tree species is often limited due to the tight spaces and building setbacks.

Several streets have been identified for in-road planting including Thomas Street, Jubilee Street, Henry Street, Searl Street, and Carrington Street.

Lewisham & Petersham North is defined by:

- Streets containing a mix of tree species, but with a heavy reliance on *Callistemon viminalis* (Bottlebrush) (15.69%).
- A variety of residential typology including terraces, villas and apartments, with a range of setback distances from dwellings to the front verge.
- A combination of verge widths with many less than 1.8m wide and the majority between 1.8 and 3.5m wide.
- An identified biodiversity priority planting area to the western side of the precinct.

Current Dominant Species

Botanical Name	No. of trees	Percentage (%)
Callistemon viminalis	239	15.69%
Melaleuca bracteata	102	6.70%
Pyrus calleryana	98	6.43%
Lophostemon confertus	88	5.78%
Tristaniopsis laurina	80	5.25%
Proportion of total species mix	607	39.86%
Total number of trees	1523	100.00%

Precinct Objectives

- To enhance the streetscape with street trees of appropriate scale and form.
- To respect the established and desirable street tree characters.
- To reinforce the residential character through a mix of deciduous and evergreen tree planting that respond to the street typology.
- To reduce the heavy reliance on *Callistemon viminalis* (Bottlebrush) by introducing other suitable tree species.
- Maintain and provide plantings that contribute to the continuation and expansion of identified biodiversity areas.

Figure 5.5 - Celtis australis (Southern Hackberry) planting in Searl Street, Petersham (Photo Arterra)

Figure 5.6 - The Boulevarde, Lewisham (Photo Arterra)

03 LEWISHAM & PETERSHAM NORTH					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Andreas Street	ABC	Small (<1.8-3.5m)	***Callistemon viminalis cv. Callistemon salignus cv.***	***Zelkova serrata 'Green Vase' Callistemon salignus***	Heritage Conservation area. Existing ABC on odd side. Trees from school grounds contribute to street character. Suggest deciduous tree.
Barker Street	Overhead (Even)	Narrow (<1.8m)	-	-	Narrow street and verge less than 1.5m. Suggest no tree planting
Brighton Street	Overhead (Even)	Small (<1.8-3.5m)	***Pyrus ussuriensis Corymbia citriodora***	***Pyrus ussuriensis (opposite wires) Photinia x fraseri 'Robusta' (under wires)***	Pyrus give lovely autumn colour, mature Lemon Scented Gums. Reserve on this street.
Brown Street-south	Overhead (East)	Narrow (<1.8m)	-	-	Verge is less than 1.5m. This street is too narrow for trees.
Brown Street - north	Overhead (West)	Varies	***Ficus microcarpa var. hillii Casuarina glauca***	***Syzygium paniculatum (in grass verge)***	Street is located in a biodiversity priority planting area. Opportunity for larger canopy tree in broader reserve area.
Burns Street	Overhead (Odd)	Small (<1.8-3.5m)	***Callistemon viminalis cv. Lagerstroemia indica***	***Lagerstroemia indica, Backhousia citriodora (both sides)***	Heritage Conservation area.
Carrington Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Waterhousea floribunda 'Green Avenue' (in road blisters) Tristaniopsis laurina (in verge)***	Street located in biodiversity priority planting area. Road currently breaking up. Possible opportunity to redesign street. Potential to plant in road blisters which will assist in calming down traffic. Recommend ABC.
Cook Street	Overhead (Even)	Narrow (<1.8m)	-	-	No existing trees. Busy one-way street. Verge is less than 1.5m, suggest no street trees.
Croydon Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Pyrus ussuriensis (opposite wires) Photinia x fraseri 'Robusta' (under wires)***	
Denison Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Harpullia pendula (feature tree in commercial precinct) Pistacia chinensis (opposite wires) Tristaniopsis laurina (under wires)***	One side of the street is fully paved (beneath the powerlines).The overhead wires swap east of Toothill Street. There is a small commercial precinct to the far northern block, with possible room for a feature tree.
Elswick Street	Overhead (Even)	Narrow (<1.8m)	***Callistemon viminalis cv.***	***Caesalpinia ferrea (in road blister planting - between Petersham Street and Crystal Street)***	Heritage Conservation area. Verge width 1.6m. Trees overhanging from park adjacent contribute to street character.
Eltham Street	ABC	Small (<1.8-3.5m)	***Cupaniopsis anacardioides Callistemon viminalis cv.***	***Ulmus parvifolia "Todd" (in road blisters) Pistacia chinensis (opposite wires) Buckinghamia celsissima (under wires)***	There are some in road planting opportunities in this street.
Fishers Reserve	Overhead (Odd)	Narrow (<1.8m)	-	-	No existing trees, verge less than 1.2. Recommend no planting.
Fort Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Pyrus ussuriensis (opposite wires) Photinia x fraseri 'Robusta' (under wires)***	Heritage Conservation Area. Continue with Photinia beneath power lines.
Fred Street	Overhead (Odd)	Small (<1.8-3.5m)	***Callistemon viminalis cv.***	***Syncarpia glomulifera (opposite wires - section of street adjacent to railway) Elaeocarpus reticulatus (opposite wires) Banksia integrifolia, Angophora hispida (under wires)***	Street is located in a biodiversity priority planting area.
Henry Street	Overhead (Odd)	Small (<1.8-3.5m)	***Callistemon viminalis cv. Melaleuca bracteata***	***Eucalyptus paniculata (in road) Synoum glandulosum, Acmena smithii var. minor (in verge)***	Short street. Opportunities for future perpendicular parking and some in road planting. Street is located in a biodiversity priority planting area.

03 LEWISHAM & PETERSHAM NORTH (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Hobbs Street	Overhead (Odd)	Narrow (<1.8m)	**Mixed**	***Elaeocarpus eumundi (opposite wires)*** ***Backhousia citriodora (under wires)***	Narrow verge.
Hordern Avenue	ABC	Narrow (<1.8m)	-	-	Verge less than 1.3m. No existing trees. Recommend no tree planting.
Hudson Street	Overhead (Odd)	Narrow (<1.8m)	-	-	Verge is less than 1.5m. This street is too narrow for planting.
Hunter Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Pistacia chinensis (opposite wires)*** ***Buckinghamia celsissima (under wires)***	The street contains a mixture of native species
Jubilee Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Eucalyptus paniculata (in road)*** ***Synoum glandulosum, Acmena smithii var. minor (in verge)***	Short street. Street is located in a biodiversity priority planting area. This street has in road planting opportunities.
Longport Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Eucalyptus paniculata (opposite wires)*** ***Tristaniopsis laurina (under wires)***	Street is located in biodiversity priority planting area. Recently planted row of Manchurian Pears.
McGill Street	Overhead (Odd)	Narrow (<1.8m)	-	-	Verge is less than 1.5m. This street is too narrow for planting.
Old Canterbury Road between Railway Terrace and Summer Hill Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Ficus microcarpa var hillii (island planting)*** ***Lophostemon confertus (opposite wires)*** ***Tristaniopsis laurina (under wires)***	Street is located in biodiversity priority planting area. There is room for two more Hills Figs in the island split near western end.
Old Canterbury Road between Parramatta Road and Railway Terrace	Overhead (Even)	Small (<1.8-3.5m)	***Corymbia maculata***	***Corymbia maculata (opposite wires)*** ***Tristaniopsis laurina (under wires)***	Street located in biodiversity priority planting area. Existing verge gardens. Continue with Spotted Gums. ABC a priority.
Palace Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Zelkova serrata 'Green Vase' (opposite wires)*** ***Buckinghamia celsissima (under wires)***	Some sections of verge are grass and pavement. Opportunity for verge gardens. Lovely neighbourhood street with cafes.
Park Street	Overhead (Odd)	Small (<1.8-3.5m)	***Callistemon viminalis cv. Tristaniopsis laurina***	***Corymbia maculata (opposite wires)*** ***Tristaniopsis laurina (under wires)***	Heritage Conservation Area. Continue with Water Gums.
Parramatta Road	Overhead (Odd)	Medium (3.5-5m)	-	-	3.5m verge, no trees
Petersham Street	Overhead (Even)	Narrow (<1.8m)	-	-	No existing street trees. Verge less than 1.5m. Recommend no street tree planting.
Queen Street	Overhead (Even)	Narrow (<1.8m)	-	***Caesalpinia ferrea (in road blister planting where possible)***	Heritage Conservation Area. No existing trees. Trees from school playground and private homes contribute to street character. Verge width 1.5 metres.
Railway Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Zelkova serrata 'Green Vase' (opposite wires)*** ***Buckinghamia celsissima (under wires)***	New Corymbia maculata and Angophora floribunda plantings. School at Paramatta end
Railway Terrace between West Street and Old Canterbury Road	Overhead (Odd)	Narrow (<1.8m)	-	-	This road is a major thoroughfare, there are no existing trees. The verge width is variable down to 1.5m wide.
Searl Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Celtis australis (in road and verge - both sides between The Avenue and end of street)*** ***Zelkova serrata 'Green Vase' (in verge - opposite wires)*** ***Magnolia grandiflora 'Exmouth' (in verge - under wires)***	No through road. ABC a priority, opportunity to plant in-road second part of street and continue Celtis. Verge width narrows down to 700mm at end of street.

03 LEWISHAM & PETERSHAM NORTH (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
St John Street	Overhead (Odd)	Narrow (<1.8m)	***Callistemon viminalis cv.***	-	No trees between Old Canterbury Road and Brown Street. Verge is less than 1.5metres. Trees in open space area contribute to streetscape.
Station Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Corymbia maculata (opposite wires) Backhousia citriodora (under wires)***	Brush Box in the park contribute to the street character. No planting where adjacent to park.
Summerhill Street	Overhead (Odd)	Small (<1.8-3.5m)	***Callistemon viminalis cv.***	***Eucalyptus haemastoma (opposite wires) Synoum glandulosum, Acmena smithii var. minor (under wires)***	Short street, no through road. Street is located in a native planting corridor.
Terminus Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (opposite wires) Lagerstroemia indica (under wires and opposite wires where the verge is too narrow for Lophostemon confertus)***	Railway on one side. Petersham station on this street.
The Avenue	Overhead (Even)	Small (<1.8-3.5m)	***Lagunaria patersonia***	***Zelkova serrata 'Green Vase' (in road blisters or opposite wires) Murraya paniculata (under wires)***	Short street, bowling club on street. Mostly lagunaria opposite side to wires. Possibly 3 x blisters.
The Boulevarde	Overhead (Odd)	Large (>5m)	***Lophostemon confertus Koelreuteria bipinnata***	***Koelreutaria bipinnata, Lophostemon confertus (both sides)***	Many Koelreutaria bipinnata planted along street already. Powerlines swap to even side east of Toothill. East of Hunter St the verge narrows down to 2.5m wide, with mainly Koelreutaria bipinnata planted. Street partially ABC.
Thomas Street	Overhead (Odd)	Small (<1.8-3.5m)	***Melaleuca bracteata***	***Jacaranda mimosifolia, Ulmus parvifolia 'Todd' (in road - between Carrington Street and railway station) Corymbia maculata (opposite wires) Photinia x fraseri 'Robusta' (under wires)***	3.2 metre verge. Opportunity for in-road planting, WSUD and 45 degree parking. Heritage items including Trinity College, St Thomas Becket's Church on street, with railway station at end of street.
Toothill Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Pistacia chinensis (opposite wires) Buckinghamia celsissima (under wires)***	This street is a critical cross street between Old Canterbury Road and New Canterbury Road
Victoria Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Koelreuteria bipinnata (opposite wires) Tristaniopsis laurina (under wires)***	Existing Native Frangipani is not doing well. There is a grass verge north of Toothill Street.
Wentworth Street	Overhead (Even)	Small (<1.8-3.5m)	-	***Zelkova serrata 'Green Vase' (opposite wires)***	No through road. Park trees contribute to street character. Camphor Laurels and wires on park side. No planting to tree side.
West Street between Railway Line and New Canterbury Road	Overhead (Even)	Small (<1.8-3.5m)	***Pistacia chinensis Tristaniopsis laurina***	***Pistacia chinensis (opposite wires) Buckinghamia celsissima (under wires)***	Overhead power lines swapped to south of The Boulevard
West Street between Parramatta Road and Railway Terrace	Overhead (Odd)	Medium (3.5-5m)	-	***Lophostemon confertus (both sides)***	Heritage Conservation area. Camphor Laurel and Brush Box alternate planting in Petersham Park contribute to street character. No future tree planting where adjacent to park. ABC a priority.
William Street	Overhead (Odd)	Narrow (<1.8m)	-	-	Verge is less than 1.5m, too narrow for street tree planting.

5.4 Marrickville Central

History and Context

Marrickville Central is an established residential area located centrally within the LGA. Early settlement dates from 1794 when the first land grant was made and the land originally used mainly for farming, market gardening and quarrying. The main residential growth took placed from the late 1880s and into the 1920s, aided by the opening of the railway line and the establishment of a brickworks business.

The area holds a strong historical quality with much of the residential typology consisting of original villas, cottages and terraces houses that date back to the first half of the 20th century. Of all the precincts, Marrickville Central contains the greatest number of in-road plantings that date back to the late 1920s and early 1930s and still exist today. Marrickville Park contains a row of mature *Lophostemon confertus* (Brush Box) that were planted when the park was first created in the early 1900s.

The precinct is bound by Frazer Street and Addison Road in the north, Illawarra Road in the east, the railway line in the south, and Wardell Road in the west. The main corridor roads of Livingstone Road, Sydenham Road and Marrickville Road run through the precinct.

Physical Influences

Marrickville Central at 170.2ha (10.6% of total area) is graced with over 2,370 trees (10.53% of the tree population within the LGA). This well treed precinct contains generously wide streets, with potential for more streets to have in road planting. Verge widths are typically between 1.8 - 3.5m wide, and either fully paved or a combination of grass strip and footpath pavement. Allotments are a mix of spacious residential blocks through to closely spaced, long and narrow blocks and terrace housing.

A number of streets in the area are orientated towards East-West, resulting in a north and south side of the street. Any future planting to the south side needs to consider either a small or deciduous tree to limit overshadowing on the dwellings.

The area is relatively flat or gently sloping, with mainly shale derived clay soils except for a few pockets of sandstone soils towards the south-eastern corner.

Existing Streetscape Character

Today, Marrickville has numerous streets that are graced with some magnificent in-road plantings that date back to the early 1900s. These are predominantly with *Lophostemon confertus* (Brush Box) and some *Cinnimomum camphora* (Camphor Laurel). A single row of *Phoenix canariensis* (Canary Island Date Palm) along Graham Avenue was also planted during this time and still stands relatively intact today.

The current species mix is heavily reliant on *Tristaniopsis laurina* (Water Gum) (14.14%) and *Callistemon viminalis* (Bottlebrush) (14.05%). Where the road reserve is more generous and building setbacks permit, there is often opportunity to plant some larger trees either in-road or in the grassed verge.

Marrickville Central is defined by:

- A range of allotment sizes and residential typology including villas, cottages and terraces.
- Many streets with in-road avenue plantings originally planted in the early 1900s.
- A busy retail/commercial area along Marrickville Road.
- Generous street widths that would accommodate in-road planting treatments.

Figure 5.7 - Although there is a strong precedent of in-road planting many of the avenues are now deteriorating and soon need to be restored with new planting such as Frampton Ave, Marrickville (Photo Arterra)

Current Dominant Species

Botanical Name	No. of trees	Percentage (%)
Tristaniopsis laurina	336	14.14%
Callistemon viminalis	334	14.05%
Melaleuca bracteata	226	9.51%
Lophostemon confertus	122	5.13%
Prunus cerasifera 'Nigra'	95	4.00%
Proportion of total species mix	1113	46.82%
Total number of trees	2377	100.00%

Precinct Objectives

- To enhance the streetscape with street trees of appropriate scale and form.
- To respect the established and desirable street tree characters.
- To preserve the existing in-road avenue plantings along many of the streets, and identify further in-road planting opportunities to increase LGA canopy coverage.
- To reinforce the residential character through a mix of deciduous and evergreen tree planting that respond to the street typology.
- To reduce the heavy reliance on *Tristaniopsis laurina* (Water Gum) and *Callistemon viminalis* (Bottlebrush) by introducing other suitable tree species.

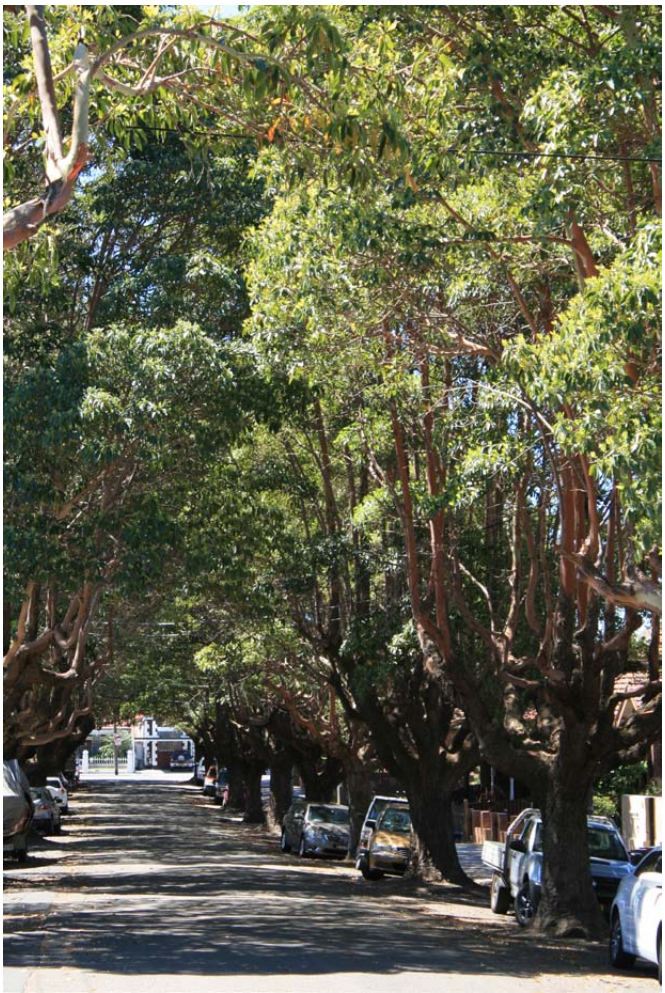


Figure 5.8 - Central Marrickville contains many historical, desirable and important examples of street tree planting such as Harney St, Marrickville (Photo Arterra)

04 MARRICKVILLE CENTRAL					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Addison Road between Illawarra Road and John Street	Overhead (Odd)	Small (<1.8-3.5m)	*Pistacia chinensis* *Pyrus ussuriensis*	*Pyrus ussuriensis (both sides)*	Some sections are grass and path. Main road corridor
Albion Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Melaleuca bracteata (opposite wires)* *Buckinghamia celsissima (under wires)*	Narrow road reserve, good example of Ivory Curl tree in this street. Verge garden opportunities.
Amy Street	Overhead (Odd)	Small (<1.8-3.5m)	*Callistemon viminalis cv.* *Jacaranda mimosifolia*	*Lophostemon confertus (in road blisters)* *Pyrus ussuriensis (opposite wires)* *Koelrueteria paniculata (under wires)*	Very short street, verge 3.5m. Opportunity for more planting and verge gardens. Playground at end of street.
Anderton Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Lophostemon confertus (in road)* *Jacaranda mimosifolia (opposite wires)* *Buckinghamia celsissima (under wires)*	Quiet street, wide street with option for in-road plantings.
Ann Street	Overhead (Even)	Small (<1.8-3.5m)	*Corymbia citriodora*	*Corymbia eximia, Angophora costata (opposite wires / in road blisters)* *Banksia integrifolia (under wires)*	Short street, verge 3.5m wide. Opportunities in this street for verge gardens and more trees! Generous width street.
Arthur Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Angophora costata (opposite wires - between Ann St and Illawarra Rd)* *Elaeocarpus eumundi (opposite wires)* *Backhousia citriodora (under wires)*	One way, narrow street. Some sections grass and pavement.
Brereton Avenue	Overhead (Even)	Small (<1.8-3.5m)	*Tristaniopsis laurina* *Callistemon viminalis cv.*	*Waterhousea floribunda 'Green Avenue' alternating with Koelreuteria bipinnata (in road)* *Buckinghamia celsissima (in verge)*	Nice wide and quiet street, opportunity for in-road planting. ABC a priority.
Cecilia Street	Overhead (Even)	Variable	*Podocarpus elatus* *Elaeocarpus reticulatus*	*Waterhousea floribunda "green Avenue' (in road)* *Lagerstroemia indica (in verge)*	Variable verge width, section of verge is brick paving. One Plum Pine in-road. Verge garden opportunities.
Centennial Street	Overhead (Odd)	Small (<1.8-3.5m)	*Tristaniopsis laurina* *Melaleuca bracteata*	**North of Sydenham Road:** *Lophostemon confertus (both sides)* **Between Sydenham Road and Petersham Road:** *Lophostemon confertus (opposite wires)* *Tristaniopsis laurina(under wires)*	Trees from high school grounds contribute to street character.
Charles Street	Overhead (Even)	Small (<1.8-3.5m)	*Pyrus ussuriensis*	*Lophostemon confertus (in road blisters)* *Pyrus ussuriensis (opposite wires)* *Koelrueteria paniculata (under wires)*	Generous width street, opp for blisters. No through road. Verge 3.5m. Verge garden opportunities. Continue with Pears.
Council Street	Overhead (Odd)	Narrow (<1.8m)	*Lophostemon confertus*	*Caesalpinia ferrea (opposite wires)* *Lagerstroemia indica (under wires)*	Short and narrow street, no through road. 3 x existing Brush Box towards end of street. Opportunity for small tree species only due to narrow verge width.
Crawford Place	Overhead (Even)	Small (<1.8-3.5m)	*Acmena smithii var. minor*	*Acmena smithii var. minor (both sides)*	Variable verge width, narrow street.
Darley Street	Overhead (Even)	Small (<1.8-3.5m)	*Photinia x fraseri 'Robusta'* *Lagunaria patersonia*	*Waterhousea floribunda 'Green Avenue' (in road)* *Photinia x fraseri 'Robusta',* *Lagerstroemia indica (in verge)*	Brick path to both sides. Street typology is like Harney St but very different treatment.
David Street	ABC	Small (<1.8-3.5m)	*Cinnamomum camphora*	*Waterhousea floribunda 'Green Avenue' (in road)*	Historic in road avenue planting
Despointes Street	Overhead (Even)	Small (<1.8-3.5m)	*Tristaniopsis laurina* *Sapium sebiferum*	*Sapium sebiferum (both sides)*	Continue with Chinese Tallow. ABC a priority. 45 degree parking towards Marrickville Road.

04 MARRICKVILLE CENTRAL (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Enfield Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	**Between Harrison St and Livingstone Rd:** ***Jacaranda mimosifolia (in-road and opposite wires)*** ***Buckinghamia celsissima (under wires)*** **Between Harrison St and Woodbury St:** ***Backhousia citriodora (under wires)***	Variable road and verge width. In-road planting opportunity between Livingstone Road and Anderton Street. Section of street is ABC. Option for larger trees opposite wires.
Fletcher Street	Overhead (Odd)	Small (<1.8-3.5m)	***Melaleuca bracteata*** ***Tristaniopsis laurina***	***Melaleuca bracteata (opposite wires)*** ***Tristaniopsis laurina (under wires)***	No through road
Francis Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Angophora costata (opposite wires)*** ***Backhousia citriodora (under wires)***	Verge 3.5m. Catholic college on street. New plantings of Angophora costata opposite wires.
Frazer Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lagerstroemia indica (both sides)***	Brush Box in park contribute to street character. Verge 3.5m. Continue with Crepe Myrtle. No planting in front of park.
George Street	Overhead (Even)	Medium (3.5-5m)	**Mixed**	***Angophora costata alternating with Ulmus parvifolia 'Todd' (opposite wires in wide grass verge)*** ***Tristaniopsis laurina, Ulmus glabra 'Lutescens' (under wires)***	Variable verge width up to 3m of grass verge. Recently planted Turpentine.
Gordon Square	ABC	Small (<1.8-3.5m)	**Mixed**	***Jacaranda mimosifolia, Celtis australis (both sides)***	Short street, no through road. 45 degree parking. Opportunity for larger deciduous trees and in-road planting
Graham Avenue	Overhead (Odd)	Small (<1.8-3.5m)	***Phoenix canariensis*** ***Callistemon viminalis cv.***	***Brachychiton discolor (in road / opposite wires)*** ***Magnolia grandiflora 'Exmouth' (under wires)***	Historic street with a row of Date Palms and brick paving. Replace palms when Fusarium Wilt occurs in time.
Harney Street	Overhead (Odd)	Small (<1.8-3.5m)	***Lophostemon confertus***	***Lophostemon confertus (in road)***	One side of verge is grass. Historic in-road planting.
Harrison Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Waterhousea floribunda 'Green Avenue' (in road)*** ***Jacaranda mimosifolia (opposite wires)*** ***Buckinghamia celsissima, Callistemon viminalis (under wires)***	Spacious wide street, quiet street. Opportunity for in-road planting.
Hastings Street	Overhead (Even)	Small (<1.8-3.5m)	***Callistemon viminalis cv.***	***Ulmus parvifolia 'Todd' (opposite wires)*** ***Buckinghamia celsissima, Callistemon viminalis (under wires)***	Mainly one species, older homes with heritage qualities.
Hawkhurst Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Eucalyptus paniculata (opposite wires)*** ***Buckinghamia celsissima (under wires)***	Short street, continue with Eucalypts opposite wires. Good width street.
Hollands Avenue	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Elaeocarpus eumundi (opposite wires)*** ***Backhousia citriodora (under wires)***	One way street. One side fully paved and the other side grass and path.
Holmesdale Street	Overhead (Even)	Small (<1.8-3.5m)	***Callistemon viminalis cv.*** ***Melaleuca bracteata***	***Caesalpinia ferrea (opposite wires)*** ***Backhousia citriodora (under wires)***	Narrow, one way street. Existing verge gardens.
Horton Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (in road blisters)*** ***Pyrus ussuriensis, Eucalyptus haemastoma (opposite wires)*** ***Koelrueteria paniculata (under wires)***	Generous width street, no through road. 3.5m verge. Opportunity for larger tree species in verge.

04 MARRICKVILLE CENTRAL (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Jocelyn Avenue	Overhead (Odd)	Small (<1.8-3.5m)	***Callistemon viminalis cv.***	***Eleaocarpus eumundi (opposite wires)*** ***Callistemon viminalis (under wires)***	No through road, narrow street and verge. Grass section of verge 600mm wide.
Lawson Avenue	None or UG	Small (<1.8-3.5m)	**-**	***Harpullia pendula (under wires)***	No through road, short and narrow street with footpath one side only. Crochet Club and park adjacent.
Lilydale Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Melaleuca bracteata (opposite wires)*** ***Lagerstroemia indica (under wires)***	One way, very narrow street. Overhanging trees from private properties contribute to street character.
Livingstone Road between Frazer Street and Marrickville Avenue	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (both sides)***	Brush Box in park contribute to streetscape. No planting where adjacent to park.
Malakoff Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Koelreuteria bipinnata (opposite wires)*** ***Gordonia axillaris (under wires)***	Wide verge at Marrickville road end. Continue with theme of Koelreuteria.
Marrickville Avenue	Overhead (Even) / UG	Small (<1.8-3.5m)	***Lophostemon confertus***	***Lophostemon confertus (in road)***	Existing in-road Brush Box, wires on railway side, no through road.
Marrickville Road between Illawarra Road and Wardell Road	Overhead (Even)	Medium (3.5-5m)	**Mixed**	***Liriodendron tulipifera (both sides - between Fletcher St and Wardell Rd)*** ***Lophostemon confertus (both sides)***	Limited opportunity due to retail awnings, infrastructure, traffic etc Variable verge width.
Neville Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (opposite wires)*** ***Gordonia axillaris (under wires)***	Existing verge gardens, variable road width.
Northcote Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Waterhousea floribunda 'Green Avenue' (in road)*** ***Backhousia citriodora (in verge)***	Plum Pines are in-road. Trees in playground contribute.
Park Road	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (opposite wires)*** ***Lagerstroemia indica (under wires)***	Trees overhanging from Wilkins Public School contribute to street character.
Petersham Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Waterhousea floribunda 'Green Avenue' (opposite wires between Albion St and Francis St) otherwise Melaleuca bracteata (opposite wires)*** ***Backhousia citriodora (under wires)***	Some sections of verge are grass and pavement. Verge width is variable - wider between Albion St and Francis St. Brush Box in reserve contribute to street character. No planting in front of reserve.
Pile Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Ulmus parvifolia 'Todd' (blister planting)*** ***Zelkova serrata 'Green Vase' (opposite wires)*** ***Acmena smithii var. minor (under wires)***	Row of Paperbarks under wires. Mostly Acmena and M. bracteata opp wires. Opportunity to switch species, WSUD / in-road out from under wires on one side.
Pine Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Eucalyptus tereticornis, Corymbia maculata (opposite wires)*** ***Buckinghamia celsissima, Callistemon viminalis (under wires)***	Brick paving, variable road and verge width. Section of 45 degree parking section and grass verge adjacent.
Porter Avenue	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (opposite wires)*** ***Backhousia citriodora, Camellia sasanqua (under wires)***	Replace Camellia japonica with larger tree species opposite wires. New plantings of Backhousia. Marrickville Park at end of street.
Robert Street	Overhead (Odd)	Small (<1.8-3.5m)	***Lophostemon confertus*** ***Tristaniopsis laurina***	***Waterhousea floribunda 'Green Avenue' (in road)*** ***Tristaniopsis laurina (in verge)***	Existing verge gardens. Existing in road Brush Box
South Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Waterhousea floribunda 'Green Avenue' (blisters / opposite wires)*** ***Tristaniopsis laurina (under wires)***	Brick paving to some of verge. Opportunity for larger tree opposite wires. Opportunity for blisters.
Stanley Street	Overhead (Odd)	Small (<1.8-3.5m)	***Callistemon viminalis cv.*** ***Eucalyptus nicholii***	***Fraxinus pennsylvanica (opposite wires)***	Narrow street and verge. Plant opposite wires side only.

04 MARRICKVILLE CENTRAL (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Stoke Avenue	Overhead (Odd)	Small (<1.8-3.5m)	***Eucalyptus nicholii Callistemon viminalis cv.***	***Eucalyptus paniculata (opposite wires) Callistemon viminalis (under wires)***	No through road. Replace E. nicholii.
Surrey Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Caesalpinia ferrea (opposite wires) Backhousia citriodora (under wires)***	One way street. Narrow road reserve and verge 2.2m. Space limited with a grass verge of 600mm.
Sydenham Road between Livingstone Road and Illawarra Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (both sides)***	Some sections of street have fully paved verge. Many trees have permanent guards around them.
Woodbury Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (in road) Jacaranda mimosifolia (opposite wires) Buckinghamia celsissima (under wires, and both sides north of Enfield St.)***	Brick paving, 3.5m verge. Discontinue Paperbarks under wires. Wide street south of Enfield St with opportunity for in-road planting to get canopy out from under wires.
Woodcourt Street	Overhead (Even)	Small (<1.8-3.5m)	***Lophostemon confertus***	***Lophostemon confertus (in road) Lagerstroemia indica (in verge)***	Continue with inroad Brush Box, section of 45 degree parking.
Woodland Street	Overhead (Odd)	Small (<1.8-3.5m)	***Callistemon viminalis cv. Melaleuca bracteata***	***Caesalpinia ferrea (opposite wires) Lagerstroemia indica (under wires)***	Short, narrow street. Hensen Park at end of street.
Yabsley Avenue	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Waterhousea floribunda 'Green Avenue' (opposite wires) Backhousia citriodora (under wires)***	Trees from neighbouring park and Marrickville High School contribute. No planting where adjacent to park.

Figure 5.9 - Central Marrickville contains many historical, desirable and important examples of street tree planting such as David St, Marrickville. The Cinnamomum camphora (Camphor Laurel) will be maintained in the short term until they decline, eventually to be replaced with a native species of similar form and character - Waterhousea floribunda (Weeping Lilly Pilly) (Photo Arterra)

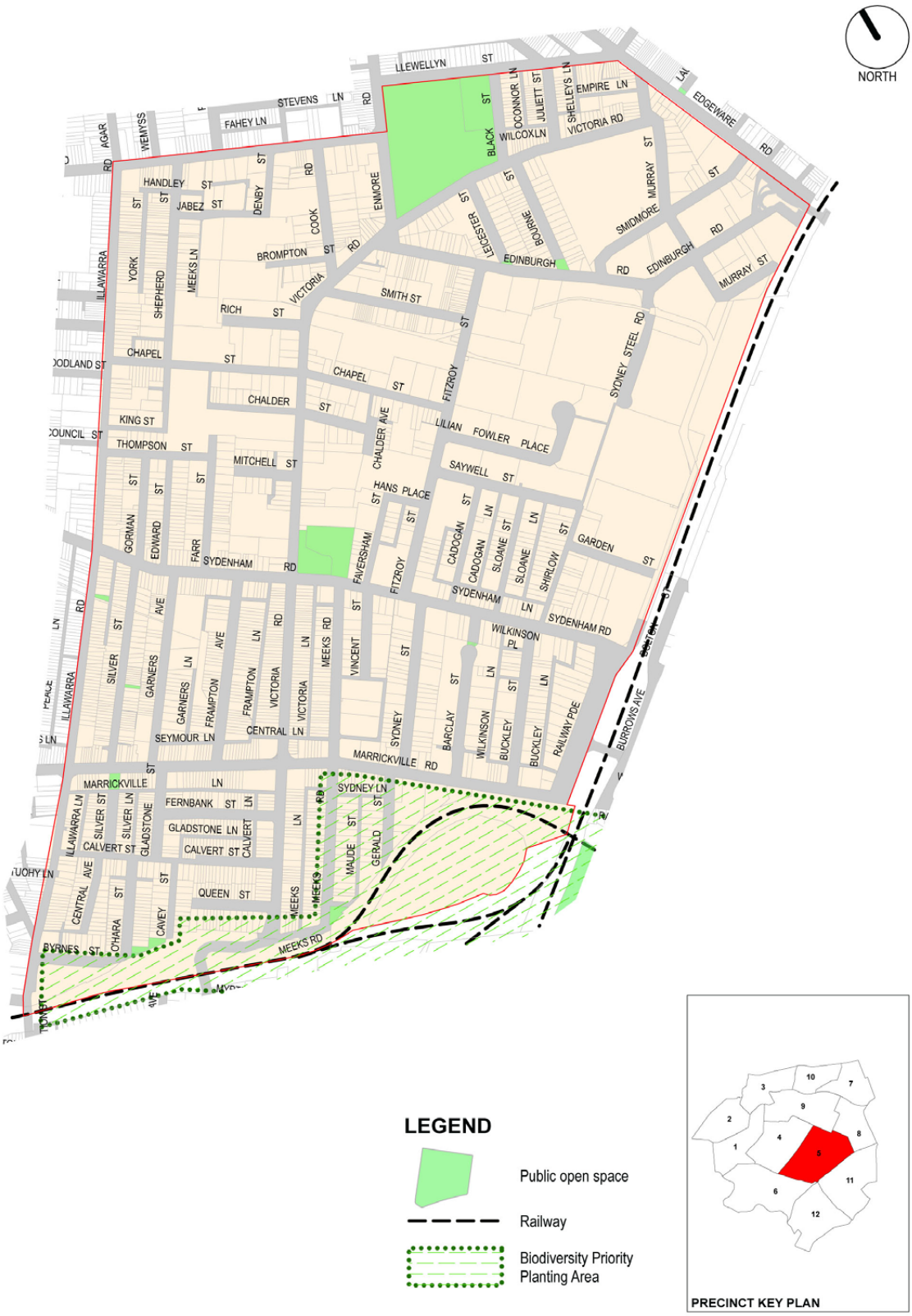
5.5 Marrickville Industrial

History and Context

Marrickville Industrial is predominantly an industrialised area, with some smaller residential sections located to the south west and north east of the precinct. The area is bounded by Addison Road, Llewellyn Street and Edgeware Road in the north, the railway line in the east and south, and Illawarra Road in the west. The main road corridors include Sydenham Road, Marrickville Road and Victoria Road. Enmore Park (created in 1886) located between Victoria Road, Enmore Road and Llewelyn Street hosts many mature and significant trees. The park was originally planted in response to the expanse of subdivisions and industry in the area.

Physical Influences

Marrickville Industrial at 170.2ha (10.6% of total area) is the third largest precinct, and contains around 1,800 street trees (8.01% of the tree population). Around 80% of streets have a verge between 1.8 - 3.5m wide, with over 70% of verges fully paved. Only 55% of street trees are considered to be in good condition, with the remaining trees considered to be in fair or poor health. These figures may reflect poorly prepared tree pits within a pavement, and the high proportion of trees located in a fully paved verge.



Much of the built typology throughout the precinct consists of 2-3 storey factory buildings, that would still allow a tall Eucalypt, or similar tree, to grow up and over the building and street. Parking along these streets is often limited and in high demand. Some streets are narrow and vehicles frequently are parked on the paved footpath areas.

The area is primarily flat, with geology of the area consisting of alluvial / floodplains resulting in silty loam or silty clay loams derived from upstream shales. Due to the industrial development and extensive earthworks required to achieve this type of development these soils may also be highly disturbed and not very conducive to good tree growth.

Existing Streetscape Character

Many of the industrial streets have quite small trees, for example *Fraxinus griffithii* (Griffith's Ash) along Rich Street. With more attention to the preparation of planting pits, many larger trees could be planted which would greatly contribute to the overall canopy cover within the LGA and make these area much more attractive and comfortable.

Marrickville Industrial is defined by:

- Established large lot industrial developments, with relatively narrow verges that are generally fully paved.
- Historically, small tree species have been used and the sub-surface preparation of tree pits has been poor – this has resulted in a significant number of small trees in fair to poor health or trees that have been removed or damaged.
- The potential to plant more larger and taller growing trees along many of the industrial based streets.

Current Dominant Species

Botanical Name	No. of trees	Percentage (%)
Tristaniopsis laurina	202	11.17%
Melaleuca bracteata	170	9.40%
Callistemon viminalis	162	8.96%
Fraxinus griffithii	130	7.19%
Lagerstroemia indica	103	5.7%
Proportion of total species mix	767	42.42%
Total number of trees	1808	100.00%

Precinct Objectives

- To enhance the streetscape with street trees of more appropriate scale and form.
- To plant larger growing trees along industrial streets and improve current tree pit preparation techniques and ongoing tree protection methods.

Figure 5.10 - Compared to many other areas of Marrickville, the industrial areas have an almost non-existent canopy cover. Many streets have either very small trees or very few trees. A reasonably modest increase in the number of larger trees could have wide ranging benefits for the character of the area as well as the LGA as a whole. (Source: NSW Dept of Lands - Six Viewer)

05 MARRICKVILLE INDUSTRIAL					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Addison Road between Enmore Road and Shepherd Street	Overhead (Odd)	Small (<1.8-3.5m)	*Pistacia chinensis*	*Pyrus ussuriensis (both sides)*	Some sections are grass and path. Main road corridor
Barclay Street	Overhead (Odd)	Small (<1.8-3.5m)	*Pyrus calleryana cv.*	*Eucalyptus paniculata (opposite wires)* *Tristaniopsis laurina (under wires)*	Small section towards Marrickville Rd is ABC
Black Street	Overhead (Odd)	Small (<1.8-3.5m)	*Elaeocarpus reticulatus*	*Harpullia pendula (under wires)*	Heritage Conservation Area with Enmore Park and Aquatic Centre located on even side. No planting on park side.
Bourne Street	Overhead (Even)	Small (<1.8-3.5m)	*Auranticarpa rhombifolia*	*Waterhousea floribunda 'Green Avenue' (blister planting)* *Jacaranda mimosifolia (opposite wires)* *Cupaniopsis anacardioides (under wires)*	Heritage Conservation Area. Brick paved verge. Short street, no through road.
Brompton Street	Overhead (Even)	Narrow (<1.8m)	-	*Melaleuca bracteata (opposite wires)*	Very narrow street and verge. Limited parking spaces. Room for a few trees only. Planting to one side only.
Buckley Street	Overhead (Even)	Small (<1.8-3.5m)	*Tristaniopsis laurina*	*Eucalyptus paniculata (opposite wires)* *Tristaniopsis laurina (under wires)*	
Byrnes Street	Overhead (Even)	Small (<1.8-3.5m)	*Tristaniopsis laurina* *Fraxinus griffithii*	*Lophostemon confertus (opposite wires)* *Tristaniopsis laurina (under wires)*	Variable verge width. Section of verge is grass and path. Currently no planting under power lines. Large development on street.
Cadogan Street	Overhead (Odd)	Narrow (<1.8m)	*Fraxinus griffithii*	*Corymbia maculata (opposite wires)* *Fraxinus griffithii (under wires)*	Narrow street and verge. Plant a few Eucalypts to non-wire side only.
Calvert Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Cupaniopsis anacardioides (in blisters)* *Lophostemon confertus (opposite wires - between Victoria St & Gladstone Lane)* *Backhousia citriodora (under wires and both sides between Gladstone Lane & Illawarra Rd)*	45 degree parking. Verge width 3.5m, road reserve width variable. Tuckeroos in blisters.
Cavey Street	ABC	Small (<1.8-3.5m)	*Tristaniopsis laurina*	*Tristaniopsis laurina (both sides)*	No through road, narrow street. Continue with Water Gum planting. Railway at end of street.
Central Avenue	ABC	Small (<1.8-3.5m)	**Mixed**	*Melaleuca bracteata (opposite wires)* *Lagerstroemia indica (under wires)*	Narrow street.
Chalder Avenue	ABC	Small (<1.8-3.5m)	-	*Corymbia maculata (opposite wires, when allowable)*	Limited planting opportunities.
Chalder Street between Victoria Road and Chalder Avenue	Overhead (Odd)	Small (<1.8-3.5m)	*Fraxinus griffithii* *Tristaniopsis laurina*	*Elaeocarpus eumundi (opposite wires)* *Tristaniopsis laurina (under wires)*	Existing 90 degree parking
Chalder Street between Victoria Road and Chapel Lane	Overhead (Odd)	Small (<1.8-3.5m)	-	-	There are no existing street trees, cars are parked on verge, limited tree planting opportunities. Playground on one side. Recommend no planting.
Chapel Street between Victoria Road and Fitzroy Street	Overhead (Odd)	Small (<1.8-3.5m)	-	*Corymbia maculata (opposite wires)*	Busy commercial street. Currently no street trees. Recommend planting one side only - opposite wires.
Chapel Street between Victoria Road and Shepherd Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Corymbia maculata (opposite wires)*	Industrial area - busy street. Recommend planting to one side only.
Chapel Street between Shepherd Street and Illawarra Road	Overhead (Odd)	Small (<1.8-3.5m)	*Callistemon viminalis cv.* *Melaleuca bracteata*	*Corymbia maculata (opposite wires)* *Buckinghamia celsissima (under wires)*	Busy street primarily an industrial area.

05 MARRICKVILLE INDUSTRIAL (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Cook Road	Overhead (Even)	Small (<1.8-3.5m)	*Melaleuca bracteata* *Fraxinus griffithii*	*Corymbia maculata (opposite wires)*	Opportunity for a larger tree. Recommend planting to one side only.
Denby Street	Overhead (Even)	Small (<1.8-3.5m)	-	*Melaleuca bracteata (opposite wires)*	Very narrow street, no existing street trees. Limited opportunity for street tree planting, cars parked on verge. Recommend a few trees to one side only.
Edinburgh Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Corymbia maculata, Elaeocarpus eumundi (opposite wires)* *Lagerstroemia indica (under wires)* ** Ficus microcarpa var. hillii (in island at Bedwin Road intersection)*	A busy commercial road, space for a larger tree opposite wires.
Edward Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Melaleuca bracteata (opposite wires)* *Backhousia citriodora (under wires)*	Very narrow street, verge is approx. 2.2m
Enmore Road	Overhead (Even)	Small (<1.8-3.5m)	-	*Koelreuteria bipinnata (opposite wires)* *Tristaniopsis laurina (under wires)*	Figs planted in Enmore Park contribute to street character. Busy thoroughfare. Limited trees planted.
Farr Street	Overhead (Odd)	Small (<1.8-3.5m)	*Pistacia chinensis* *Callistemon viminalis cv.*	*Pistacia chinensis (opposite wires)* *Backhousia citriodora (under wires)*	Recently planted Pistachio.
Faversham Street	Overhead (Even)	Small (<1.8-3.5m)	-	*Corymbia maculata (opposite wires)*	Very narrow road. Plant one side only opposite wires.
Fernbank Street	Overhead (Even)	Small (<1.8-3.5m)	*Stenocarpus sinuatus*	*Cupaniopsis anacardioides (in blisters)* *Lophostemon confertus (opposite wires)* *Lagerstroemia indica (under wires)*	45 degree parking. Tuckeroos in blisters.
Fitzroy Street	Overhead (Even)	Medium (3.5-5m)	*Corymbia citriodora (odd side)* *Elaeocarpus eumundi*	*Eucalyptus paniculata, Angophora floribunda (opposite wires)* *Harpullia pendula (under wires)*	Some sections are grass and paved verge
Frampton Avenue	Overhead (Even)	Small (<1.8-3.5m)	*Lophostemon confertus*	*Lophostemon confertus (in road)*	Historic in road avenue planting, verge 3.5m. Section of street has 90 degree parking.
Garden Street	Overhead (Even)	Small (<1.8-3.5m)	-	*Eucalyptus microcorys (opposite wires)* *Buckinghamia celsissima (under wires)*	No verge on railway side with 3.5m wide verge on opposite side plus wires.
Garners Avenue	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Lophostemon confertus (in blister)* *Pistacia chinensis (both sides)*	Existing verge gardens. Continue with Pistachio. ABC a priority.
Gerald Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Corymbia eximia, Angophora floribunda, Acmena smithii (opposite wires)* *Tristaniopsis laurina, Angophora hispida (under wires)*	Street is located in a biodiversity priority planting area.
Gladstone Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Platanus x acerifolia 'Bloodgood' (opposite wires)* *Backhousia citriodora, Callistemon viminalis (under wires)*	Recently planted row of Plane trees opposite wires. Short street and good width, ABC a priority.
Gorman Street	ABC	Small (<1.8-3.5m)	*Sapium seribiferum* *Elaeocarpus reticulatus*	*Pistacia chinensis (opposite wires)* *Backhousia citriodora (under wires)*	Recently planted Pistachio
Handley Street	Overhead (Odd)	Narrow (<1.8m)	-	-	Verge too narrow no existing trees

05 MARRICKVILLE INDUSTRIAL (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Hans Place	Overhead (Even)	Small (<1.8-3.5m)	*Fraxinus griffithii*	*Corymbia maculata (opposite wires)* *Fraxinus griffithii (under wires)*	
Illawarra Road between Marrickville Road & Arthur Street	Overhead (Odd)	Small (<1.8-3.5m)	*Syzygium leuhmanii*	*Syzygium leuhmannii, Harpullia pendula (both sides)*	Limited space due to awnings only a few trees possible.
Illawarra Road between Addison Road and Sydenham Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Corymbia maculata (opposite wires)* *Lagerstroemia indica (under wires)*	Very diverse mix of tree species. Busy and long arterial road.
Illawarra Road between Marrickville Road & Sydenham Road	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Lagerstroemia indica (both sides)*	Wires switch to even side north of Marrickville Rd. Mostly Crepe Myrtle. Variable verge width.
Jabez Street	Overhead (Odd)	Small (<1.8-3.5m)	*Ficus microcarpa var. hillii*	*Waterhousea floribunda 'Green Avenue' (opposite wires between Meeks Lane & Denby Street)* *Melaleuca bracteata (both sides - between Meeks Lane & Shepherd Street)*	Existing Figs located on verge and private land. Verge on even side. Verge is narrower towards Shepherd Street and wires switch to ABC.
Juliett Street between Llewellyn Street and Victoria Road	Overhead (Odd)	Small (<1.8-3.5m)	*Lophostemon confertus*	*Lophostemon confertus (in road)*	Heritage Conservation Area. Brick paved verges listed as heritage item. Very short street with limited parking. ABC a priority.
King Street	Overhead (South)	Narrow (<1.8m)	-	-	Narrow street with a verge less than 1.3m. No existing street trees.
Leicester Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Corymbia citriodora and Jacaranda mimosifolia (opposite wires)* *Cupaniopsis anacardioides (under wires)*	Short street, no through road with 90 degree parking on one side.
Lilian Fowler Place	None or UG	Small (<1.8-3.5m)	*Tristaniopsis laurina*	*Corymbia eximia, Angophora floribunda (opposite wires)* *Tristaniopsis laurina (under wires)*	Continue with recently planted Water Gums
Marrickville Road between Buckley Street and Victoria Road	Overhead (Even)	Small (<1.8-3.5m)	*Tristaniopsis laurina* *Buckinghamia celsissima*	*Lophostemon confertus (both sides)*	Main road corridor. Verge is approx. 3.5 metres. ABC a priority
Marrickville Road between Illawarra Road and Victoria Rd	Overhead (Odd)	Small (<1.8-3.5m)	*Liriodendron tulipifera*	*Liriodendron tulipifera (both sides)*	Commercial precinct, verge gardens looking good. ABC a priority
Meeks Road between Sydenham Rd & Marrickville Rd	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Waterhousea floribunda 'Green Avenue' (opposite wires)* *Acmena smithii var. minor,* *Tristaniopsis laurina (under wires)*	Opportunity for larger trees.
Meeks Road south of Marrickville Rd	Overhead (Odd)	Small (<1.8-3.5m)	*Melaleuca bracteata* *Acmena smithii var. minor*	*Corymbia eximia, Corymbia maculata, Acmena smithii (opposite wires)* *Acmena smithii var. minor,* *Tristaniopsis laurina (under wires)*	Street is located in a biodiversity priority planting area.
Mitchell Street	Overhead (Odd)	Medium (3.5-5m)	*Fraxinus griffithii*	*Lophostemon confertus (opposite wires)* *Fraxinus griffithii (under wires)*	The verge varies in width, mostly 3.5m.
Murray Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Corymbia maculata, Elaeocarpus eumundi (opposite wires)* *Tristaniopsis laurina (under wires)*	Mature Hills Figs on odd side adjacent to Council verge. Planting opportunity south of Edinburgh Road.
O'Hara Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Lophostemon confertus (opposite wires)* *Lagerstroemia indica (under wires)*	O'Hara Park at end of street. Opportunity for larger tree opposite wires.

05 MARRICKVILLE INDUSTRIAL (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Queen Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (opposite wires)*** ***Lagerstroemia indica (under wires)***	Short street, no through road. Road is split. Verge garden opportunities. Opportunity for larger species on higher side.
Railway Parade	ABC	Small (<1.8-3.5m)	-	***Tristaniopsis laurina (under wires)***	90 deg parking area. No existing street trees. Opportunity to plant under wires only.
Rich Street	ABC	Small (<1.8-3.5m)	***Fraxinus griffithii***	***Lophostemon confertus (both sides)***	Street tree planting to one side only. Ash trees are good specimens however opportunity to plant larger canopy trees due to ABC above.
Saywell Street	Overhead (Even)	Small (<1.8-3.5m)	***Fraxinus griffithii*** ***Eucalyptus microcorys***	***Eucalyptus microcorys (opposite wires)*** ***Tristaniopsis laurina (even side)***	Grass and path verge under Tallow Woods
Shepherd Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Corymbia maculata (opposite wires)*** ***Tristaniopsis laurina (under wires)***	School on street. Industrial area.
Shirlow Street	Overhead (Even)	Narrow (<1.8m)	-	-	Very narrow street with overflow parking on verge. No existing street trees. Recommend no trees.
Silver Street between Calvert St & Marrickville Lane	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Cupaniopsis anacardioides (in blisters)*** ***Elaeocarpus eumundi (opposite wires)*** ***Lagerstroemia indica (under wires)***	Some 45 degree parking, Tuckeroo in blister. Plaza area at end of street, semi mature blueberry ash along street.
Silver Street between Sydenham Rd and Marrickville Rd	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Melaleuca bracteata (opposite wires)*** ***Lagerstroemia indica (under wires)***	Silver Street playground.
Sloane Street	Overhead (Even)	Small (<1.8-3.5m)	-	***Corymbia maculata (opposite wires)***	Very limited planting opportunity plus cars parked on verge. No existing street trees. Plant a few Eucalypts to one side only.
Smidmore Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Corymbia maculata (opposite wires)*** ***Tristaniopsis laurina (under wires)***	Figs on commercial property contribute to street character. Fully paved outside retail area. Replace Lemon Scented Gums with smaller species.
Smith Street	Overhead (Even)	Small (<1.8-3.5m)	***Tristaniopsis laurina*** ***Fraxinus griffithii***	***Corymbia maculata (opposite wires)*** ***Harpullia pendula (under wires)***	
Sydenham Road between Illawarra Road and Railway Parade	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (both sides)***	Main thoroughfare. Some sections are grass and path.
Sydney Steel Road	None or UG	Narrow (<1.8m)	-	***Corymbia citriodora (in blister)***	No through road, no existing street trees, very narrow verge. Opportunity for a few blisters, need to consider parking spaces.
Sydney Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Waterhousea floribunda 'Green Avenue' (in road blisters)*** ***Corymbia maculata (opposite wires)*** ***Buckinghamia celsissima (under wires)***	Broad street with opportunity for a few blisters, except consider industrial parking and trucks manoeuvring.
Thompson Street	Overhead (Even)	Small (<1.8-3.5m)	***Tristaniopsis laurina*** ***Callistemon viminalis cv.***	***Melaleuca bracteata (opposite wires)*** ***Tristaniopsis laurina, Callistemon viminalis (under wires)***	Primary School located on one side of the road

05 MARRICKVILLE INDUSTRIAL (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Victoria Road between Enmore Road & Juliett Street	Overhead (Odd)	Small (<1.8-3.5m)	***Corymbia citriodora***	***Corymbia citriodora (opposite wires) Buckinghamia celsissima (under wires)***	Continue with Lemon Scented Gums opposite power lines. One in-road young Brush Box east of Black Street.
Victoria Road East of Juliett Street	Overhead (Odd)	Small (<1.8-3.5m)	***Lophostemon confertus***	***Lophostemon confertus (in road)***	Heritage Conservation Area. Brick paved verge listed as heritage item. Narrow street. Existing Brush Box planted in-road on odd side.
Victoria Road between Enmore Road and Rich Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (opposite wires) Tristaniopsis laurina (under wires)***	Mostly industrial based premises. Busy road.
Victoria Road between Rich Street & Sydenham Road	Overhead (Odd)	Small (<1.8-3.5m)	***Pyrus calleryana cv.***	***Pyrus ussuriensis, Lophostemon confertus (opposite wires) Tristaniopsis laurina (under wires)***	Section of street is grass and path verge
Victoria Road between Sydenham Road and Marrickville Road	Overhead (Odd)	Small (<1.8-3.5m)	***Tristaniopsis laurina Melaleuca bracteata***	***Pyrus ussuriensis (opposite wires) Tristaniopsis laurina (under wires)***	Verge width 3.2m. Young Eucalypts recently planted. Continue with pears.
Vincent Street	Overhead (Even)	Medium (3.5-5m)	***Corymbia citriodora Fraxinus griffithii***	***Corymbia maculata (opposite wires) Banksia integrifolia (under wires)***	90 degree parking on one side
York Street	Overhead (Odd)	Narrow (<1.8m)	-	-	Verge too narrow, suggest no planting.

5.6 Marrickville South

History and Context

Marrickville South is a large area set in a relative picturesque and hilly setting that extends down to the Cooks River. The precinct is bounded by the railway line in the north, the railway line and Richardson Crescent in the east, the Cooks River in the south, and Garnet Street in the west. The area was named after an early property in the area, called Marrick, a village in North Yorkshire, England. Much of the area was originally market gardens, taking advantage of the alluvial soils near the river. A landmark in the district for many years was a 100 acre estate overlooking the Cooks River, known as The Warren. Warren Park on the Cooks River and Warren Road remind us that this house once existed.

The precinct contains several in-road plantings of *Lophostemon confertus* (Brush Box), *Cinnimomum camphora* (Camphor Laurel), and *Ficus macrocarpa* var. *hillii* (Hills Weeping Fig) that were planted in the 1920-30s and still stand today. A prominent row of *Phoenix canariensis* (Canary Island Date Palm) dating

back to this period still remain along Carrington Road, however due to problems associated with Ibis nesting in the canopy and the palm's susceptibility to Fusarium Wilt the continued success and longevity of this species of palm is questionable.

Large public recreational areas now align with the Cooks River corridor, including Marrickville Golf Course, Steel Park, H J Mahoney Memorial Park, Warren Park and Mackey Park. The main corridor road, Illawarra Road runs centrally through the precinct and crosses over the Cook's River leading into adjoining Earlwood and the Canterbury LGA.

Physical Influences

Marrickville South at 209.4ha (13% of total area) is the largest precinct and graced with over 2,740 trees (12.16% of total trees) being the highest number of trees in a precinct within the municipality. Generally, street width is generous and allotments are spacious. The majority of streets have a verge between 1.8-3.5m wide that is a combination of a grassed strip and footpath pavement. A number of streets are orientated in an East-West direction, resulting in a north and south side of the street. Deciduous trees or smaller trees should be planted on the south side to limit overshadowing.

The geology of the area consists of a combination of Hawkesbury Sandstone with obvious rock outcropping on the higher ridges, and then gently undulating alluvial floodplains along the River, and some shale derived clays. Some of the land adjacent to the Cooks River is disturbed, with landfill of unknown qualities. Most of these areas are dominated by open space and parkland. The upper slopes are typically quite exposed to prevailing winds and climatic elements, with presumably a shallow and poor sandy soil profile, but they provide some of the more panoramic views within the LGA.

Existing Streetscape Character

Marrickville South is typically a highly treed precinct, with an over reliance on *Callistemon viminalis* (Bottlebrush) (21.789% of tree species mix). The majority of residential typology is single storey detached homes, with some pockets of intensive apartment block development scattered throughout. The generously wide road reserves allow for larger trees where setback distances from dwellings to the front verge permit.

Marrickville South is defined by:

- The greatest number of street trees but with an overwhelming reliance on one species *Callistemon viminalis* (Bottlebrush).
- More exposed streets with shallow sandy, poorer quality soils.
- The Cooks River and a large area identified as a biodiversity priority planting area.
- Many streets oriented in an East-West direction.
- Intensive area of large lot industrial development to the eastern side fronting Carrington Road.

Figure 5.11 - (Left) One of the well planted smaller streets, Leofrene Ave, Marrickville (Photo Arterra)

Current Dominant Species

Botanical Name	No. of trees	Percentage (%)
Callistemon viminalis	598	21.78%
Tristaniopsis laurina	253	9.21%
Cupaniopsis anacardioides	190	6.92%
Melaleuca bracteata	152	5.54%
Lophostemon confertus	130	4.73%
Proportion of total species mix	1323	48.18%
Total number of trees	2746	100.00%

Precinct Objectives

- To enhance the streetscape with street trees of appropriate scale and form.
- To respect the established and desirable street tree characters.
- To preserve the existing in-road avenue plantings along many of the streets, and identify further in-road planting opportunities.
- To reinforce and supplement the existing green corridor extending along the Cooks River.
- To reduce the over reliance on *Callistemon viminalis* (Bottlebrush).
- To plant larger growing trees along industrial streets and improve current tree pit preparation techniques and ongoing tree protection methods.

Figure 5.12 - (Above) One of the many historic streets planting with Lophostemon confertus (Brush Box), Excelsior Pde, Marrickville (Photo Arterra)

Figure 5.13 - Before - Although mostly residential streets, this precinct also contains some important areas of industrial development where larger tree planting would help with the target to increase canopy cover, such as Renwick Street, Marrickville (Photo Arterra)

Figure 5.14 - After - This photomontage shows how even well-spaced but larger trees can work well with the larger format development of industrial areas such as Renwick Street, Marrickville. Emphasis has to be placed on more appropriate soil and tree pit preparation and robust trunk protection to withstand the rigours of industrial areas (Photo Arterra)

06 MARRICKVILLE SOUTH					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Albermarle Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (opposite wires)*** ***Koelreuteria paniculata (under wires)***	Heritage Conservation Area. Brick paved verge.
Alfred Street	Overhead (Even)	Small (<1.8-3.5m)	***Melaleuca bracteata*** ***Sapium sebiferum***	***Sapium sebiferum (opposite wires)*** ***Tristaniopsis laurina (under wires)***	Use native species preferably. Strong row of Chinese Tallows.
Bayley Street	Overhead (Even)	Small (<1.8-3.5m)	***Sapium sebiferum*** ***Photinia x fraseri 'Robusta'***	***Sapium sebiferum (opposite wires)*** ***Photinia x fraseri 'Robusta' (under wires)***	Continue with existing planting.
Beauchamp Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Angophora floribunda, Eucalyptus haemastoma, Corymbia eximia (opposite wires)*** ***Acmena smithii var. minor, Angophora hispida, Callistemon viminalis (under wires)***	Recently planted Eucalypts opposite wires
Bruce Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Banksia integrifolia, Angophora hispida (under wires)***	Short street. Street located in biodiversity priority planting area. Planting under wires only.
Cahill Place	Overhead (Odd)	Narrow (<1.8m)	-	***Callistemon salignus, Acacia binervia, Glochidion ferdinandi (opposite wires)*** ***Banksia integrifolia, Tristaniopsis laurina (under wires)***	Variable verge width. Multi storey government housing on street. Located in a biodiversity priority planting area.
Carrington Road	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Agathis robusta, Araucaria columnaris, Livistona australis, Washingtonia robusta (opposite wires)*** ***Waterhousea floribunda (under wires)***	Industrial area, new plantings of Eucalypts and Waterhousea. ABC a priority
Cary Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Zelkova serrata 'Green Vase' (opposite wires)*** ***Buckinghamia celsissima (under wires)***	Continue Ivory Curl on north side
Chadwick Avenue	Overhead (Central)	Narrow (<1.8m)	-	***Eucalyptus robusta (grass verge side only)***	No existing trees. Suggest 3 x Eucalyptus robusta one side only. Investigate potential for planting trees in golf course outside of street.
Charlotte Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (in road)*** ***Camellia sasanqua (in verge)***	Great opportunity for in-road planting.
Church Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Pistacia chinensis (opposite wires)*** ***Lagerstroemia indica, Koelreutaria paniculata (under wires)***	Section of street is fully paved
Day Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Corymbia eximia, Callistemon salignus, Angophora floribunda (in road blisters and opposite wires)*** ***Angophora hispida, Banksia integifolia, Banksia serrata (under wires)***	Opportunity for a few in-road blisters on both sides. Retain bushland reserve grove to western end of street. Street located in biodiversity priority planting area.
Dibble Avenue	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Syzygium paniculatum (opposite wires and both sides where wires stop past Pilgram Ave)*** ***Tristaniopsis laurina, Acmena smithii var. minor (under wires)***	Playground on street.
Dudley Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Koelreuteria bipinnata (under wires)*** ***Callistemon salignus (under high voltage wires)***	Numerous *Koelreuteria bipinnata* already planted. ABC a priority.
Esk Street	Overhead (Odd)	Small (<1.8-3.5m)	-	***Elaeocarpus eumundi (opposite wires)***	No existing trees. Plant one side only opposite wires.

06 MARRICKVILLE SOUTH (CONT.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Ewart Street	Overhead (Even)	Small (<1.8-3.5m)	***Podocarpus elatus Callistemon viminalis cv.***	***Syzygium paniculatum (opposite wires) Tristaniopsis laurina, Acmena smithii var. minor (under wires)***	Mostly Plum Pine with recent plantings of *Acmena smithii*. Verge 3.5m wide with grass and path on wire side.
Excelsior Parade	Overhead (Odd)	Medium (3.5-5m)	***Lophostemon confertus***	***Lophostemon confertus (in road)***	Historic avenue planting of Brush Box.
Glen Street	Overhead (Even)	Small (<1.8-3.5m)	***Melaleuca bracteata Callistemon viminalis cv.***	***Melaleuca bracteata (opposite wires) Camellia sasanqua (under wires)***	Grass and path on even side
Greenbank Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Pistacia chinensis (opposite wires) Lagerstoemia indica (under wires)***	
Grove Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Koelreuteria bipinnata (in road / rain garden) Tristaniopsis laurina (verge)***	WSUD/in road planting opportunity. Possible blisters at entrances to laneways, include 45 degree parking. Deciduous tree in rain garden on south side.
Hampden Avenue	None or UG	Narrow (<1.8m)	-	-	No existing trees - on rock. No opportunity for planting.
Harnett Avenue	Overhead (Even)	Small (<1.8-3.5m)	***Lophostemon confertus***	***Lophostemon confertus (in road)***	Existing in-road planting
Harriet Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Pistacia chinensis (opposite wires) Camellia sasanqua (under wires)***	Nominate a deciduous tree on south side
Henson Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Syzygium paniculatum, Acacia binervia, Angophora costata (opposite wires) Callistemon viminalis, Banksia serrata, Angophora hispida (under wires)***	WSUD/rain garden opportunity. Possible 45 degree parking opportunity.
High Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Butia capitata (opposite wires) Buckinghamia celsissima (under wires)***	Short street, no through road. Historic planting of Butias one side.
Hill Street	Overhead (Even)	Small (<1.8-3.5m)	***Lophostemon confertus Callistemon viminalis cv.***	***Syzygium paniculatum, Callistemon salignus, Acacia binervia, Angophora floribunda, Angophora costata (opposite wires) Banksia serrata, Angophora hispida (under wires)***	Consistent row of young Brush Box opposite wires. Located in a biodiversity priority planting area.
Hilltop Avenue	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Banksia integrifolia, Synoum gladulosum (both sides)***	Short street, very narrow verge 1.8m. Located in a biodiversity priority planting area.
Holt Crescent	None or UG	Varies	-	-	Street located in biodiversity priority planting area. Fig trees in park contribute to streetscape. Recommend no planting in verge.
Illawarra Road Hill St to Cooks River	Overhead (Odd)	Small (<1.8-3.5m)	***Lagerstroemia indica***	***Lagerstroemia indica (opposite wires)***	Continue with Crepe Myrtles. No planting under wires.
Illawarra Road between Hill St and Warren Rd	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Corymbia maculata, Tristaniopsis laurina (opposite wires) Lagerstroemia indica (under wires) Syzygium leuhmannii (Harnett Ave to Railway station)***	Main thoroughfare. From Harnett Ave to Railway station use *Syzygium leuhmannii* wherever possible and where awnings permit. Retail hub has many wires, infrastructure constraints, bus stops, etc.
Ivanhoe Street	Overhead (Even)	Small (<1.8-3.5m)	***Melaleuca bracteata Callistemon viminalis cv.***	***Elaeocarpus eumundi (opposite wires) Buckinghamia celsissima (under wires)***	Existing verge gardens.
Jersey Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Pyrus ussuriensis, Jacaranda mimosifolia (opposite wires) Tristaniopsis laurina (under wires)***	

06 MARRICKVILLE SOUTH (CONT.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Junction Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Jacaranda mimosifolia (opposite wires)*** ***Harpullia pendula (under wires)***	Split road. Opportunity for a tree to arch over street
Kays Avenue East	Overhead (Odd)	Small (<1.8-3.5m)	***Podocarpus elatus*** ***Lagerstroemia indica***	***Lophostemon confertus (in road section of street)*** ***Zelkova serrata 'Green Vase' (opposite wires)*** ***Lagerstroemia indica (under wires)***	Heritage Conservation Area. Brick paved verge. Replace existing in-road Plum Pine with Brush box. Plum Pine are causing extreme mess due to fruit drop.
Leofrene Avenue	Overhead (Even)	Small (<1.8-3.5m)	***Tristaniopsis laurina*** ***Callistemon viminalis cv.***	***Tristaniopsis laurina (opposite wires)*** ***Callistemon viminalis cv. (under wires)***	Continue with existing two species
Livingstone Road	Overhead (Odd)	Small (<1.8-3.5m)	***Tristaniopsis laurina***	***Lophostemon confertus (both sides)***	Predominantly single species of Water Gums. Wires swap to even past Hill Street.
Mansion Street	Overhead (Odd)	Small (<1.8-3.5m)	***Backhousia citriodora*** ***Elaeocarpus reticulatus***	***Syzygium paniculatum, Angophora costata, Callistemon salignus (either in road or opposite wires)*** ***Angophora hispida, Banksia serrata, Acmena smithii var. minor (in verge if inroad undertaken or when under wires)***	Street located in biodiversity priority planting area. WSUD / in road planting opportunity. Retain existing trees in verge.
McGowan Avenue	Overhead (Odd)	Small (<1.8-3.5m)	***Melaleuca bracteata***	***Angophora costata, Callistemon salignus (opposite wires)***	Street located in biodiversity priority planting area. Discontinue with planting on western side.
Moncur Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Koelreuteria bipinnata (opposite wires)*** ***Lagerstroemia indica (under wires)***	Existing verge gardens. Consider smaller evergreen tree on south side of street.
Moyes Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Pistacia chinensis (opposite wires)*** ***Acmena smithii var. minor (under wires)***	Part ABC to southern end of street
Myrtle Street	Overhead (Odd)	Small (<1.8-3.5m)	***Pistacia chinensis***	***Pistacia chinensis (under ABC wires)*** ***Cupaniopsis anacardioides (under high voltage wires)***	Power lines on both sides with high voltage on north side. ABC on south. North side grass and path. Verge is 3m.
Osgood Avenue	Overhead (Even)	Small (<1.8-3.5m)	***Lophostemon confertus***	***Lophostemon confertus,*** ***Waterhousea floribunda 'Green Avenue' (in road)***	Historic in road Brush Box avenue.
Pilgram Avenue	Overhead (Even)	Small (<1.8-3.5m)	***Callistemon viminalis cv.*** ***Leptospermum petersonii***	***Leptospermum petersonii (both sides)***	No through road. Continue with Lemon Scented Tea Tree.
Premier Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (opposite wires)*** ***Lagerstroemia indica (under wires)***	Paperbark is the main species, wires are on the south side trees in school grounds contribute to street.
Princes Street	Overhead (Even)	Large (>5m)	**Mixed**	***Angophora costata, Banksia serrata (opposite wires)***	Short street. Views are an issue. No planting under wires. Wires switch over half way down street.
Randall Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Fraxinus pennsylvanica, Zelkova serrata 'Green Vase' (opposite wires)*** ***Camellia sasanqua, Gordonia axillaris, Magnolia grandiflora 'Exmouth' (under wires)***	
Renwick Street east of Carrington Road	Overhead (Even)	Medium (3.5-5m)	***Cupaniopsis anacardioides***	***Eucalyptus paniculata (opposite wires)*** ***Cupaniopsis anacardioides (under wires)***	Cars parked on verge, keep Tuckeroos under wires. Opportunity to plant Eucalypts opposite wires where there is currently no trees. Need tree guards, and possibly pave around trees to still allow cars to park

06 MARRICKVILLE SOUTH (CONT.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Renwick Street between Carrington Rd & Illawarra Rd	Overhead (Even)	Medium (3.5-5m)	**Mixed**	***Waterhousea floribunda 'Green Avenue' (opposite wires)*** ***Koelreuteria paniculata (under wires)***	Discontinue any further planting of Waterhousea on south side, strengthen on northern side.
Richards Avenue	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Syzygium paniculatum, Angophora costata, Angophora floribunda (in road and opposite wires)*** ***Angophora hispida, Synoum glandulosum, Banksia integrifolia (under wires)***	Street located in biodiversity priority planting area. WSUD/in road blister opportunity.
Richardson Crescent	Overhead (West)	Small (<1.8-3.5m)	***Corymbia maculata***	***Corymbia maculata (opposite wires)***	New planting (one side only) of Spotted Gums, trees in park contribute to street. Continue with Spotted Gums but with wider spacing.
Riverdale Avenue	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Caesalpinnia ferrea (opposite wires)*** ***Camellia sasanqua, Murraya paniculata (under wires)***	Road reserve width is variable, some ABC wires, very mixed species, Railway at end of street. Wires switch to odd at narrow end of street.
Riverside Crescent	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Angophora floribunda, Casuarina glauca, Eucalyptus robusta, Eucalyptus haemastoma (opposite wires)*** ***Tristaniopsis laurina, Angophora hispida (under wires)***	Trees overhanging from golf course contribute to street character.
Roach Street	Overhead (Even)	Small (<1.8-3.5m)	***Tristaniopsis laurina*** ***Xanthostemon chrysanthus***	***Fraxinus pennsylvanica (opposite wires)*** ***Xanthostemon chrysanthus (under wires)***	Short street, park at end of street
Roseby Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Syzygium paniculatum, Callistemon salignus, Angophora floribunda (opposite wires)*** ***Callistemon viminalis, Tristaniopsis laurina (under wires)***	Street located in biodiversity priority planting area.
Ruby Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Melaleuca bracteata, Eleaocarpus reticulatus (opposite wires)*** ***Camellia sasanqua, Xylosma senticosum (under wires)***	Split road at crest, shallow soils.
School Parade	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus alternating with Liriodendron tulipifera (opposite wires)*** ***Lagerstroemia indica, Koelreuteria paniculata (under wires)***	Brick paving on north side.
Schwebel Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Tristaniopsis laurina (both sides)***	Split road to eastern end with large wall. 1.9m verge.
Tamar Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (in road)*** ***Zelkova serrata 'Green Vase' (in verge - opposite wires)*** ***Lagerstroemia indica (in verge - under wires)***	Heritage Conservation Area. Brick paved verge. In road planting opportunity on this street.
Thornley Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Corymbia eximia, Angophora costata, Callistemon salignus (opposite wires)*** ***Banksia integrifolia, Melaleuca linariifolia, (under wires)***	Street located in biodiversity priority planting area.
View Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Ulmus parvifolia 'Todd' (in road)*** ***Harpullia pendula, Lagerstroemia indica (both sides)***	Short street, opportunity for verge gardens, in road planting opportunity.

06 MARRICKVILLE SOUTH (CONT.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Wallace Street	Overhead (Odd)	Large (>5m)	***Eucalyptus nicholii Callistemon viminalis cv.***	***Angophora costata, Banksia serrata, Acacia binervia, Callistemon viminallis (randomly planted each side where space permits)***	Located in biodiversity priority planting area. Generous verge width (grass), lower section of street is ABC - recommend ABC to entire street. Maintain views with new planting.
Warburton Street	Overhead (Even)	Small (<1.8-3.5m)	***Ficus microcarpa var. hillii Cupaniopsis anacardioides***	***Waterhousea floribunda 'Green Avenue' (in road) Cupaniopsis anacardioides (in verge)***	Existing Figs planted in road, Tuckeroos planted in verge. ABC a priority.
Warren Road between Illawarra Road and Carrington Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Elaeocarpus eumundi (opposite wires) Lagerstroemia indica, Buckinghamia celsissima (under wires)***	Remove newly planted figs (3) in a row - too close to each other too narrow verge.
Warren Road between Illawarra Road and Livingstone Road	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Cupaniopsis anacardioides (both sides)***	Busy cross street. A lot of Tuckeroos planted.
Wharf Street	Overhead (Odd)	Small (<1.8-3.5m)	***Callistemon viminalis cv.***	***Callistemon viminalis cv. (under wires)***	Very strong single row of Bottlebrush along street. Trees in golf course contribute greatly to street. Plant one side only.
Wicks Ave	Overhead (Even)	Small (<1.8-3.5m)	***Callistemon viminalis cv. Lagunaria patersonia***	***Harpullia pendula (opposite wires) Camellia sasanqua (under wires)***	Fully paved under wire side
Wrights Avenue	Overhead (Even)	Small (<1.8-3.5m)	***Cupaniopsis anacardioides***	***Cupaniopsis anacardioides (both sides)***	Brick pathways

Figure 5.15 - Marrickville South contains numerous streets that have shallow and difficult soil conditions for tree planting. Strategically these streets would benefit from a long term vision to create better below-ground tree planting conditions and potentially integrating WSUD initiatives, ultimately creating better streets with greater canopy cover, such as in Grove Street, Marrickville (Photo Arterra)

5.7 Newtown North & Camperdown

History and Context

Newtown North & Camperdown is a long established residential area with a small industrial area located to the north west. Camperdown was named after Governor Bligh's 240 acre estate in 1806 named after the battle of Camperdown, whilst Newtown is named after a grocery store (New Town Stores) which opened in the area in the 1830s. Originally used for farming until the 1840s when the land was subdivided, residential and industrial growth took place during the late 1800s and early 1900s. From the 1970s gentrification has occurred, with many industrial sites now converted into housing and many old homes and terraces being restored and renovated.

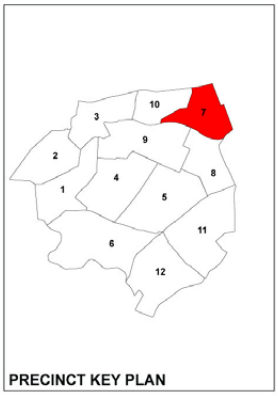
The precinct is bounded by Parramatta Road in the north, Mallett Street, Salisbury Road and Church Street in the east, King Street and the railway line in the south, and Percival Road, Salisbury Road and Bridge Road in the west. Major features include Camperdown Park, O'Dea Reserve and Camperdown Memorial Rest Park.

Physical Influences

Newtown North & Camperdown at 96ha (6% of total area) is one of the smaller precincts. Street typology usually consists of narrow streets often accompanied by a rear lane way. Allotments tend to be long and narrow. There are numerous roads in the precinct that are lane ways with no existing street tree planting and no opportunities for trees. Over 33% of the

LEGEND

- Public open space
- Railway
- Biodiversity Priority Planting Area



verges are very narrow, being less 1.8m wide, and 59% are considered narrow at between 1.8-3.5m wide.

The majority of built form is single or double storey terrace housing. Setback distances between dwellings and front verges are small. Many terraces are in fact built right to the street boundary line, making it extremely difficult to plant street trees. In-road planting opportunities are very limited in the precinct due to the width of the streets and the pressure for on-street parking.

The area is relatively flat or gently sloping, with mainly shale derived clay soils. The conditions for tree planting are favourable in this area, with soils having a high nutrient and water holding capacity, although it is expected that many areas will have highly disturbed soil profiles due to the intensive development and the installation of services.

Existing Streetscape Character

Due to the dominance of late 1800's – early 1900's terrace housing, many of the streets have a strong historical quality with much of the precinct zoned as a heritage conservation area. The historical Camperdown Park, created in 1882, also greatly contributes to the heritage value of the area.

Despite the narrow streets, very narrow verges (often less than 1.5m) and tight setbacks, this precinct appears relatively well treed area with other 1,900 trees (making up 8.43% of total tree population). However these constraints have made it not practical to plant large or medium sized trees without causing infrastructure damage. This has resulted in a very heavy reliance on small trees such as *Callistemon viminalis* (Bottlebrush) (19.02% of tree species mix). In addition, a high percentage of trees in this precinct are mature (71%). The combination of small spaces and overhead wires has resulted in many completely disfigured trees that are poor specimens and actually detract from the amenity of the streets and contribute little to canopy cover in real terms.

Newtown North & Camperdown is defined by:

- Original or restored single and double storey terrace housing
- Narrow streets and very narrow fully paved verges (often less than 1.5m in width), with tight setback distances between housing and footpaths
- A large number of lane ways where tree planting is not possible
- High demand for on street parking, which can limit in-road or blister planting opportunities.

Current Dominant Species

Botanical Name	No. of trees	Percentage (%)
Callistemon viminalis	362	19.02%
Melaleuca bracteata	226	11.88%
Fraxinus griffithii	139	7.30%
Lagerstroemia indica	89	4.68%
Tristaniopsis laurina	79	4.15%
Proportion of total species mix	895	47.03%
Total number of trees	1903	100.00%

Precinct Objectives

- To enhance the streetscape with street trees of appropriate scale and form.
- To respect the established and desirable street tree characters.
- To identify those streets with a verge less than 1.5m, and make appropriate future tree planting and street upgrade recommendations.
- To reinforce the residential character through a mix of small and medium deciduous and evergreen trees that is an appropriate scale for the street.
- To reduce the heavy reliance on *Callistemon viminalis* (Bottlebrush).

Figure 5.16 - Newtown and Camperdown, contains many streets that are narrow and have narrow verges such as Dension Street. Planting of larger trees in these areas, although providing some benefits can cause long term impacts to infrastructure and residential property. A strategic program of changing to one sided in-road planting is proposed to gradually address these issues over the coming decades (Photo Arterra)

07 NEWTOWN NORTH & CAMPERDOWN					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Albermarle Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Lagerstroemia indica (opposite wires)*** ***or*** ***Caesalpinia ferrea, Elaeocarpus eumundi (in road blisters)***	Heritage Conservation Area. Very narrow street and verge less than 1.5m. Suggest planting to one side only or in road blisters.
Albert Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Caesalpinia ferrea (opposite wires)*** ***Lagerstroemia indica, Backhousia citriodora (under wires)***	One side is grass and path.
Australia Street between Paramatta Road & Salisbury Road	Overhead (Even)	Small (<1.8-3.5m)	***Fraxinus griffithii*** ***Callistemon viminalis cv.***	***Callistemon salignus, Tristaniopsis laurina, Banksia integrifolia (opposite wires)*** ***Synoum glandulosum, Acmena smithii var. minor (under wires)***	Heritage Conservation Area. Brush Box located on Camperdown Oval contribute to street character. Located in a biodiversity priority planting area. No planting where adjacent to park.
Australia Street south of Salisbury Road	Overhead (Even)	Small (<1.8-3.5m)	***Callistemon viminalis cv.***	***Callistemon salignus, Tristaniopsis laurina, Banksia integrifolia (opposite wires)*** ***Synoum glandulosum, Acmena smithii var. minor (under wires)***	Heritage Conservation Area. Camperdown Memorial Rest Park located on street. Narrow street width.
Baltic Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Leptospermum petersonii, Melaleuca bracteata (opposite wires)*** ***or*** ***Pyrus ussuriensis, Elaeocarpus eumundi (in road blisters)***	Very narrow street and verge width less than 1.5m. Suggest planting to one side only or in road blisters.
Bedford Street	Overhead (Odd)	Narrow (<1.8m)	**Mixed**	***Melaleuca bracteata, Buckinghamia celsissima, Backhousia citriodora (opposite wires)***	Heritage Conservation Area. Road runs parallel with railway line. No trees on odd side east of Baltic Street. Verge less than 1.5m.
Bishopgate Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Caesalpinia ferrea (opposite wires)*** ***or*** ***Zelkova serrata 'Green Vase', Magnolia grandiflora 'Exmouth' (in road blisters)***	Heritage Conservation Area. Very narrow street and verge less than 1.5m. Suggest planting to one side only or in road blisters.
Cardigan Street	Overhead (Odd)	Medium (3.5-5m)	**Mixed**	***Jacaranda mimosifolia alternating with Lophostemon confertus (both sides)***	Heritage Conservation Area. Jacaranda trees planted under power lines. Damage to pavement. ABC a priority.
Chelmsford Street	Overhead (Odd)	Narrow (<1.8m)	**Mixed**	***Melaleuca bracteata (opposite wires)*** ***or*** ***Elaeocarpus eumundi, Zelkova serrata 'Green Vase' (in road blisters)***	Heritage Conservation Area. Very narrow street and verge 1.3m. Remove Paperbarks. Suggest planting to one side only or in road blisters.
Church Street	ABC	Narrow (<1.8m)	-	-	Water Gums on City of Sydney LGA side of street. Very narrow street and verge less than 1.5m. Recommend no planting.
Cruikshank Street between Cardigan Street and stormwater channel	Overhead (Odd)	Small (<1.8-3.5m)	-	***Caesalpinia ferrea (opposite wires)***	Plant one side only, currently no trees, very short street.
Cruikshank Street betwenn Bridge Road & stormwater channel	Overhead (Odd)	Narrow (<1.8m)	***Tristaniopsis laurina*** ***Auranticarpa rhombifolia***	***Elaeocarpus eumundi (opposite wires)*** ***Tristaniopsis laurina (under wires)***	Short street and narrow verges. Recommend ABC.
Denison Street	Overhead (Odd)	Narrow (<1.8m)	**Mixed**	***Caesalpinia ferrea, Callistemon salignus, Harpullia pendula (in road blisters)***	No tree planting north of Derby Street. South of Derby Street a diverse mix. Very narrow verge 1.3m wide. Suggest blisters only.

07 NEWTOWN NORTH & CAMPERDOWN (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Derby Street	Overhead (Odd)	Narrow (<1.8m)	***Callistemon viminalis cv.***	***Caesalpinia ferrea, Elaeocarpus eumundi (in road blisters)***	Very narrow street and verge less than 1.5m.
Douglas Street between Railway Avenue and Percival Road	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Elaeocarpus eumundi (opposite wires)***	Trees located in Stanmore Park contribute to the street character. Continue with Eumundi Quandong theme. No planting in front of park.
Durham Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Eucalyptus haemastoma, Zelkova serrata 'Green Vase' (opposite wires) Buckinghamia celsissima, Tristaniopsis laurina (under wires)***	90 degree parking towards section towards Salisbury Road Continue with Eucalyptus theme opposite wires.
Eliza Street	Overhead (Even)	Narrow (<1.8m)	-	-	No existing trees. Very narrow street and verge width less than 1.3m.
Eton Street	Overhead (Odd)	Narrow (<1.8m)	***Melaleuca bracteata Callistemon viminalis cv.***	***Melaleuca bracteata, Callistemon viminalis (opposite wires or in road blister)***	Short street. Very narrow street and verge less than 1.5m. Suggest in road blisters or planting to one side only.
Federation Road	Overhead (Even)	Small (<1.8-3.5m)	***Melaleuca quinquenervia***	***Banksia integrifolia, Cupaniopsis anacardioides, Callistemon salignus (opposite wires)***	Heritage Conservation Area. Camperdown Memorial Rest Park on street. Remove row of Paperbarks beneath powerlines where adjacent to park and don't replace.
Fowler Street	ABC	Medium (3.5-5m)	**Mixed**	***Callistemon salignus, Tristaniopsis laurina (opposite wires) Synoum glandulosum, Acmena smithii var. minor (under wires)***	Heritage Conservation Area. Short street. Street located in a native planting corridor. No planting in verge where adjacent to park
Gibbens Street	ABC	Small (<1.8-3.5m)	**Mixed**	***Syzygium paniculatum, Brachychiton acerifolius (opposite wires) Synoum glandulosum, Tristaniopsis laurina (under wires)***	Located in biodiversity priority planting area.
Gilpin Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Jacaranda mimosifolia, Brachychiton acerifolius (opposite wires) Lagerstroemia indica (under wires)***	Width of road reserve varies, 90 degree parking on one side. ABC a priority. Opportunity for more verge gardens
Hopetoun Street	Overhead (Odd)	Small (<1.8-3.5m)	***Lophostemon confertus***	***Syzygium paniculatum, Brachychiton acerifolius, Eucalyptus paniculata (opposite wires or where ABC) Glochidion ferdinandi (both sides)***	Heritage Conservation Area. Generous width street which would benefit from ABC. One side is grass and path
Hordern Place	Overhead (Odd)	Small (<1.8-3.5m)	***Acmena smithii var. minor***	***Lophostemon confertus (opposite wires) Acmena smithii var. minor (under wires)***	There are limited planting opportunities in this industrial street. Opportunity to plant a larger tree species.
Kingston Road	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Koelreuteria bipinnata, Jacaranda mimosifolia (opposite wires) Koelreuteria paniculata, Magnolia grandiflora 'Exmouth', Buckinghamia celsissima (under wires)***	Busy road, verge width 3.5m. Griffiths Ash under powerlines.
Lennox Street	Overhead (Even)	Small (<1.8-3.5m)	***Callistemon viminalis cv.***	***Caesalpinia ferrea, Lagerstroemia indica (opposite wires or blisters - between Australia St & Station St) Synoum glandulosum (under wires - between Australia St & Church St)***	Heritage Conservation Area. Trees from Camperdown Memorial Rest Park contribute to street character.
Liberty Street between Railway Ave and Railway Line	None or UG	Small (<1.8-3.5m)	***Lagerstroemia indica***	***Fraxinus pennsylvanica (both sides)***	Busy road, one side is grass and path verge.

07 NEWTOWN NORTH & CAMPERDOWN (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Lincoln Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (blister near Bain Playground)*** ***Zelkova serrata 'Green Vase',*** ***Jacaranda mimosifolia (opposite wires)*** ***Ulmus glabra 'Lutescens',*** ***Tristaniopsis laurina (under wires)***	Some existing verge gardens. Bain Playground at end of street
Mallett Street	Overhead (Odd)	Small (<1.8-3.5m)	***Ceratopetalum gummiferum***	***Ceratopetalum gummiferum,*** ***Tristaniopsis laurina (under wires)***	Heritage Conservation Area. Located in a biodiversity priority planting area. Brush Box on City of Sydney side of street. Park trees contribute to street character.
Marmion Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Celtis australis, Lophostemon confertus (in road)*** ***Eucalyptus haemastoma (in verge - opposite wires)*** ***Lagerstroemia indica (in verge - under wires)***	Generous width street with some mature trees. Verge width approx. 3.2m Continue with Eucalyptus theme. Further opportunities for in road blisters. ABC a priority.
Mary Street	Overhead (Even)	Narrow (<1.8m)	-	-	No existing trees. Very narrow street and verge width less than 1.3m.
Northwood Street	ABC	Small (<1.8-3.5m)	***Ficus microcarpa var. hillii***	***Waterhousea floribunda 'Green Avenue', Syzygium paniculatum, Brachychiton acerifolius, Eucalyptus haemastoma (both sides)***	Heritage Conservation Area. Replace Figs.
Oxford Street	Overhead (Odd)	Small (<1.8-3.5m)	***Callistemon viminalis cv.***	***Backhousia citriodora, Lagerstroemia indica (opposite wires)*** ***or*** ***Pyrus ussuriensis (in road blister)***	Heritage Conservation Area. Community garden and School on street. Continue with Lemon Scented Myrtle. Verge less than 1.5m. Suggest planting to one side only or in road blisters.
Parramatta Road between Mallett Street and Bridge Road	None or UG	Medium (3.5-5m)	-	-	No trees. Substantial obstacles to tree planting, only one side controlled
Pidcock Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Melaleuca bracteata, Tristaniopsis laurina (both sides)***	Heritage Conservation Area. 90 degree parking. Bowling Club on street Short street, ABC a priority. Street in a biodiversity priority planting area.
Pierce Street	ABC	Narrow (<1.8m)	-	***Leptospermum petersonii, Melaleuca bracteata (opposite wires)*** ***or*** ***Pyrus ussuriensis, Elaeocarpus eumundi (in road blisters)***	Short street. Verge less than 1.5m. Suggest planting to one side only or in road blisters.
Probert Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Melaleuca bracteata (opposite wires)*** ***or*** ***Caesalpinia ferrea, Zelkova serrata 'Green Vase' (in road blisters)***	Heritage Conservation Area. Very narrow street and verge less than 1.5m. Suggest planting to one side only or in road blisters.
Railway Avenue	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Eucalyptus paniculata, Corymbia eximia, Angophora floribunda (opposite wires)*** ***Leptospermum petersonii, Backhousia citriodora, Tristaniopsis laurina (under wires)***	Road runs parallel with railway line, very diverse tree species mix. Existing verge gardens. Sections of verge are grass on railway side. Remove row of Paperbarks under wires.
Roberts Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Syzygium paniculatum, Brachychiton acerifolius, Eucalyptus haemastoma (both sides)***	Heritage Conservation Areas. Generous width to street with established medium sized trees. Opportunity to plant larger trees. Make ABC a priority
Rosevear Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Ulmus parvifolia 'Todd', Jacaranda mimosifolia (opposite wires)*** ***Harpullia pendula, Acmena smithii var. minor (under wires)***	Existing verge gardens in this street. Opportunity for medium sized deciduous tree on odd side. Recently planted Crepe Myrtle and Lilly Pilly under wires.
Ross Street	Overhead (Odd)	Narrow (<1.8m)	**Mixed**	***Caesalpinia ferrea, Melaleuca bracteata (in road blisters)***	The trees in the adjacent O'Dea Reserve contribute to the street character. Very narrow verge. Remove Figs. No planting in front of park. Suggest in road blisters only.

07 NEWTOWN NORTH & CAMPERDOWN (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Rowley Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Celtis australis, Lophostemon confertus (in road)*** ***Pyrus ussuriensis (in verge - opposite wires)*** ***Harpullia pendula (in verge - under wires)***	Generous width to street and verge. Street would greatly benefit from ABC. Existing verge gardens. Mature specimens.
Salisbury Road between Church Street and Bridge Road	Overhead (Even)	Medium (3.5-5m)	***Celtis australis***	***Celtis australis (opposite wires)*** ***Harpullia pendula (under wires)***	Partly within a Heritage Conservation Area. Consistent avenue of mature Celtis for a portion of the street.
St Marys Street	Overhead (Odd)	Narrow (<1.8m)	***Callistemon viminalis cv.***	***Lagerstroemia indica (opposite wires)*** ***or*** ***Callistemon viminallis, Callistemon salignus, Pyrus ussuriensis (in road blisters)***	Heritage Conservation Area. Very narrow street. A small number of trees due to verge width less than 1.5m. Suggest planting to one side only or in road blisters.
Stafford Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Corymbia maculata, Jacaranda mimosifolia (opposite wires)*** ***Backhousia citriodora, Buckinghamia celsissima (under wires)***	Continue with Eucalpytus theme opposite wires. Quiet street with verge width suitable for medium sized tree
Station Street between Lennox Street and Bedford Street	ABC	Narrow (<1.8m)	***Corymbia citriodora***	***Corymbia maculata (in-road opposite wires)***	Heritage Conservation Area. Five mature Gums on very narrow verge. Church adjacent. Any replacements should be in-road.
Surrey Street	Overhead (Odd)	Small (<1.8-3.5m)	***Sapium sebiferum*** ***Pyrus calleryana cv.***	***Sapium sebiferum (both sides)***	Short street with 45 degree parking on one side. Continue with Chinese Tallow theme. Recommend ABC a priority.
Trade Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Celtis australis (in road blisters)*** ***Jacaranda mimosifolia (opposite wires)*** ***Tristaniopsis laurina, Buckinghamia celsissima (under wires)***	Generous width street with 90 degree parking. ABC a priority. One side of street is grass and path. One side of verge is less than 1.5m. Camphor Laurel trees are planted in-road.
Warwick Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Zelkova serrata 'Green Vase' (opposite wires)*** ***Buckinghamia celsissima (under wires)***	Short street, with 90 degree parking on one side. One side grass and path.

5.8 Newtown South & Enmore

History and Context

The Newtown South & Enmore precinct is a small, established residential area located to the eastern side of the municipality. Similar to the Newtown North & Camperdown precinct, most growth took place in the area between 1860s and into the early 1900s. In recent decades, the move by many young couples to the area has brought a wave of renovation to many of the old workers' cottages and terrace houses.

Today their remains a very well-defined retail strip along King Street and Enmore Road that forms a heritage conservation area and includes some fine examples of late 19th century and early 20th century retail premises. Other important features in the precinct include Enmore Tafe Park, Matt Hogan Reserve, and Salmon Playground. The area is bounded by the railway line in the north and south, King Street in the east, and Edgeware Road, Llewelyn Road, Stanmore Road, Enmore Road and Liberty Street in the west.

Physical Influences

Newtown South & Enmore at 95.1ha (5.9% of total area) is a relatively small precinct graced with approximately 1,920 trees (8.54% of total trees). Street typology is usually a main street (often narrow) accompanied by a rear laneway. Almost half of the roads are lane ways with no tree plantings.

Allotments tend to be long and narrow with no vehicular parking on the properties, so on-street car parking spaces are valuable. Approximately 50% of streets have verges less than 1.8m, and the remaining 50% have verges between 1.8-3.5m. More than 85% of footpaths are fully paved.

The majority of built form is single or double storey terrace housing. Setback distances between dwellings and front verges vary but are generally very close to the street boundary, making it extremely difficult to plant well formed trees. In-road planting opportunities are very limited within the precinct.

The area is relatively flat or gently sloping, with mainly shale derived clay soils. The conditions for tree planting are favourable in this area, with soils having a high nutrient and water holding capacity, although it is expected that many areas will have highly disturbed soil profiles due to the intensive development and the installation of services.

Existing Streetscape Character

Despite the narrow streets, very narrow footpath verges (often less than 1.5m) and tight setbacks, this precinct still appears as a well treed area with over 1,920 trees (making up 8.54% of total tree population). The precinct relies heavily, however, on two species, *Callistemon viminalis* (Bottlebrush) (19.81% of tree species mix) and *Melaleuca bracteata* (Black Tea Tree) (16.36% of total species mix), totalling 36.17% of the tree species mix alone. Whilst there are many constraints in the selection of a suitable tree for this precinct, an effort should be made to reduce the reliance on only two species. The combination of small spaces and overhead wires has also resulted in many completely disfigured trees that are poor specimens and actually detract from the amenity of the streets and contribute little to canopy cover in real terms.

Newtown South & Enmore is defined by:

- The heritage character of the retail strip along King Street and Enmore Road.
- Narrow road reserves (often only 10m wide) and very narrow verges (often less than 1.5m), with tight setback distances between terrace housing and verges.
- High demand for on-street parking, which limits in road or blister planting opportunities.
- A large number of lane ways where tree planting is not possible
- An over reliance on two tree species throughout the precinct.

Current Dominant Species

Botanical Name	No. of trees	Percentage (%)
Callistemon viminalis	382	19.81%
Melaleuca bracteata	316	16.36%
Fraxinus griffithii	146	7.57%
Lagerstroemia indica	126	6.54%
Elaeocarpus reticulatus	120	6.22%
Proportion of total species mix	1090	56.54%
Total number of trees	1928	100.00%

Precinct Objectives

- To enhance the streetscape with street trees of appropriate scale and form.
- To respect the established and desirable street tree characters.
- To identify those streets with a verge less than 1.5m, and make appropriate future tree planting and street upgrade recommendations.
- To reinforce the residential character through a mix of small deciduous and evergreen trees that is a correct scale for the street.
- To reduce the heavy reliance on *Callistemon viminalis* (Bottlebrush) and *Melaleuca bracteata* (Black Tea Tree).

Figure 5.17 - Newtown and Enmore, contains many streets that are narrow and have narrow verges such as Simmons Street. Smaller trees such as Melaleuca bracteata (Black Tea-tree) provide attractive streets and are very appropriate, however this precinct does have a distinct over reliance on this species and Callistemon viminalis (Bottle Brush). (Photo Arterra)

08 NEWTOWN SOUTH & ENMORE					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Alice Avenue	Overhead (Even)	Narrow (<1.8m)	-	-	No existing street trees. Limited opportunity for planting, cars parked on verge, recommend no planting.
Alice Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Fraxinus pennsylvanica (opposite wires)*** ***Tristaniopsis laurina (under wires)***	
Augustus Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Melaleuca bracteata, Buckinghamia celsissima, Backhousia citriodora (opposite wires)*** ***Xylosma senticosum (under wires)***	Verge width approx. 2.2m.
Bailey Street	Overhead (Even)	Narrow (<1.8m)	***Auranticarpa rhombifolia*** ***Fraxinus griffithii***	***Pyrus ussuriensis (in road blister)***	Very narrow street and verge width less than 1.5m, only a few trees in this street. Suggest verge is too narrow for planting. Suggest no planting in this street other then possible in road blisters.
Belmore Street	Overhead (Even)	Small (<1.8-3.5m)	***Tristaniopsis laurina*** ***Callistemon viminalis cv.***	***Jacaranda mimosifolia (opposite wires)*** ***Tristaniopsis laurina (under wires)***	
Camden Street	Overhead (Even)	Narrow (<1.8m)	***Callistemon viminalis cv.*** ***Elaeocarpus reticulatus***	***Melaleuca bracteata (opposite wires)*** ***Leptospermum petersonii (under wires)***	Heritage Conservation Area. Very narrow street with a 1.8m verge. No planting on verge adjacent to TAFE. Portion of street towards King Street is ABC.
Cavendish Street between Liverty Street & Cambridge Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Waterhousea floribunda 'Green Avenue' (in road or opposite wires)*** ***Gordonia axillaris (under wires)***	Recently planted Waterhousea
Charles Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Caesalpinia ferrea (in road blisters)*** ***Melaleuca bracteata (opposite wires)*** ***Lagerstroemia indica (under wires)***	Very narrow street and verge width. Existing blister planting.
Clara Street	Overhead (Even)	Narrow (<1.8m)	***Melaleuca bracteata***	***Caesalpinia ferrea, Melaleuca bracteata (opposite wires or in road blisters)***	Very narrow street and verge less than 1.5m. Trees on private properties greatly contribute to the character of the street. Suggest planting on one side only or in road blisters.
College Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Caesalpinia ferrea, Lagerstroemia indica (opposite wires)*** ***Camellia sasanqua (under wires)***	Heritage Conservation area. Generous road reserve width, however very narrow grass strip.
Commodore Street	Overhead (Odd)	Narrow (<1.8m)	**Mixed**	***Caesalpinia ferrea, Elaeocarpus eumundi (opposite wires)*** ***Harpullia pendula (under wires)***	
Darley Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Pyrus calleryana 'Chanticleer' (opposite wires)***	Very narrow street one-way street and verge less than 1.5m. Continue with newly planted upright Pyrus form. Suggest plant one side only.
Dickson Street	Overhead (Even)	Small (<1.8-3.5m)	***Gleditsia triacanthos*** ***Corymbia citriodora***	***Corymbia maculata alternating with Jacaranda mimosifolia (opposite wires & in-road)*** ***Camellia sasanqua Ulmus glabra 'Lutescens' (under wires)***	Lovely wide street and verge width 3m. Potential for in-road blisters on even side. Continue with existing theme. ABC a priority.
Don Street	Overhead (Even)	Narrow (<1.8m)	***Melaleuca bracteata*** ***Callistemon viminalis cv.***	***Melaleuca bracteata (opposite wires)*** ***Lagerstroemia indica (under wires)***	
Edgeware Road	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Pyrus ussuriensis (both sides)***	Verge width is 3.5m. School and Tafe located on this street
Ferndale Street	ABC	Small (<1.8-3.5m)	***Melaleuca bracteata***	***Melaleuca bracteata (opposite wires)*** ***Lagerstroemia indica (under wires)***	Heritage Conservation Area. Narrow street.
Francis Street	Overhead (Odd)	Narrow (<1.8m)	***Melaleuca bracteata***	***Lagerstroemia indica (opposite wires)***	Heritage Conservation area. Very narrow street. Verge 1.8m on one side only. Existing tree species too big for space available.

08 NEWTOWN SOUTH & ENMORE (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Fulham Street	Overhead (Odd)	Narrow (<1.8m)	**Mixed**	***Melaleuca bracteata (opposite wires)*** ***Lagerstroemia indica (under wires)***	
Gladstone Street between Wilford Street & Phillip Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Corymbia maculata (opposite wires)*** ***Tristaniopsis laurina (under wires)***	Some sections are grass and path. Opportunity for larger tree where adjacent to industrial buildings. Some section of street is ABC.
Gladstone Street between Liberty Street and Philip Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Lagerstroemia indica (opposite wires only)***	One way street. Very narrow street and verge less than 1.5m. Suggest planting to one side only.
Goddard Street	None or UG	Narrow (<1.8m)	-	-	No existing trees. Verge less than 1.5m
Hawken Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Melaleuca bracteata (opposite wires)*** ***Xanthostemon chrysanthus (under wires)***	
Holmwood Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Ulmus parvifolia 'Todd' (opposite wires)*** ***Gordonia axillaris, Camellia sasanqua (under wires)***	Generously wide street with 90 degree parking one side, verge 3.5m. Replace Paperbarks on south side of street with a deciduous tree.
Holt Street	ABC	Small (<1.8-3.5m)	**Mixed**	***Pyrus ussuriensis (opposite wires and where ABC)*** ***Camellia sasanqua, Fraxinus griffithii (under wires)***	Continue with Pear theme. Section of road east of Station Street is ABC.
James Street	Overhead (Odd)	Narrow (<1.8m)	-	-	Variable road width, no existing trees. Trees in park contribute to character of street. Very narrow verge less than 1.5m, recommend no trees.
John Street	Overhead (Odd)	Narrow (<1.8m)	***Fraxinus griffithii*** ***Callistemon viminalis cv.***	***Elaeocarpus reticulatus, Callistemon viminalis (in road blisters)*** ***or*** ***Lagerstroemia indica (opposite wires)***	Very narrow verge width less than 1.5m. Suggest planting one side only or in road blisters.
Juliett Street	Overhead (Even)	Small (<1.8-3.5m)	***Lophostemon confertus*** ***Lagerstroemia indica***	***Lophostemon confertus (in road)*** ***Ulmus glabra 'Lutescens' (opposite wires)*** ***Lagerstroemia indica (under wires)***	Heritage Conservation area, brick paved verge. 90 degree parking. Overhead wires swap to odd numbers south of Lynch Street. Continue with Brush Box in road.
Kent Street	Overhead (Even)	Narrow (<1.8m)	***Melaleuca bracteata*** ***Fraxinus griffithii***	***Melaleuca bracteata (opposite wires)*** ***Fraxinus griffithii (under wires)***	Continue with existing two species theme.
King Street	None or UG	Small (<1.8-3.5m)	-	-	Very limited opportunities for street trees
Laura Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Callistemon salignus (opposite wires)*** ***Backhousia citriodora (under wires)***	Trees in Camdenville Public School add to streetscape. Mostly Fraxinus griffithii under wires.
Liberty Street	Overhead (Odd)	Small (<1.8-3.5m)	***Sapium sebiferum***	***Sapium sebiferum (in road blisters)*** ***Tristaniopsis laurina (under wires)*** ***Lagerstroemia indica (opposite wires)***	Busy and narrow road, cars parked up on kerb. Minimal trees with existing in road blisters.
Little Commodore Street	Overhead (Even)	Narrow (<1.8m)	***Callistemon viminalis cv.***	***Caesalpinia ferrea, Elaeocarpus eumundi (opposite wires)*** ***Buckinghamia celsissima (under wires)***	
Llewellyn Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Fraxinus pennsylvanica (opposite wires)*** ***Lagerstroemia indica, Fraxinus griffithii (under wires)***	Heritage Conservation area. No planting in front of Enmore Park.
London Street	Overhead (Odd)	Small (<1.8-3.5m)	***Tristaniopsis laurina*** ***Callistemon viminalis cv.***	***Tristaniopsis laurina (both sides)***	Continue with existing. Street has some lovely specimens of water gum.

08 NEWTOWN SOUTH & ENMORE (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Lord Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (opposite wires - adjacent to railway line) Backhousia citriodora (opposite wires - southern end of street)***	One way street. Continue with Backhousia theme. Variable verge width, mostly less than 1.5m. Suggest planting to one side of verge only.
Lynch Avenue	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (in road) Fraxinus pennsylvanica (opposite wires if no in road undertaken) Photinia x fraseri 'Robusta', Syzygium leuhmannii (under wires or both sides if inroad undertaken)***	Heritage Conservation area, brick paved verge. Opportunity for in road planting.
Margaret Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Pyrus ussuriensis, Zelkova serrata 'Green Vase' (in road blisters) or Lagerstroemia indica, Leptospermum petersonii (opposite wires)***	Verge less than 1.5m. Suggest planting to one side only or in road blisters.
Marian Street	Overhead (Even)	Small (<1.8-3.5m)	***Callistemon viminalis cv.***	***Caesalpinia ferrea (opposite wires) Callistemon viminalis cv. (under wires)***	Kerb damage caused by Liquidamber. Bottlebrush looking good in this street.
Metropolitan Road	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus, Waterhousea floribunda 'Green Avenue' (in road) Jacaranda mimosifolia (opposite wires) Koelreuteria paniculata (under wires)***	Camphor Laurels in-road planting. 45 degree parking on one Wide road reserve, existing verge gardens. New Brush Box planting towards Enmore Road, semi-mature Blueberry Ash
Pearl Street	Overhead (Odd)	Narrow (<1.8m)	**Mixed**	***Pistacia chinensis (in road blister) or Lagerstroemia indica, Melaleuca bracteata (opposite wires)***	Verge less than 1.5m. Suggest planting one side only or in road blisters.
Pemell Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (in road near Reiby St) Ulmus parvifolia 'Todd' (opposite wires) Photinia x fraseri 'Robusta' (under wires)***	In road planting of Camphor Laurel. Wide residential street, recommend ABC a priority.
Phillip Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Pyrus ussuriensis (opposite wires) Acmena smithii var. minor, Lagerstroemia indica (under wires)***	
Rawson Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Melaleuca bracteata (opposite wires) Leptospermum petersonii (under wires)***	Melaleuca bracteata under wires are not looking good
Reiby Street	Overhead (Odd)	Narrow (<1.8m)	***Melaleuca bracteata Callistemon viminalis cv.***	***Melaleuca bracteata (opposite wires) Harpullia pendula (under wires)***	Very narrow verge, with setback of terrace dwellings very close
Sarah Street	Overhead (North)	Narrow (<1.8m)	***Melaleuca bracteata***	***Zelkova serrata (between Marian Lane & Metropolitan Rd)***	Enmore TAFE on street. Section of road blocked off and paved with two trees in pavement. Trees from TAFE contribute to character of street. Verge less than 1.5m.
Scouller Street	Overhead (Even)	Small (<1.8-3.5m)	***Melaleuca bracteata Elaeocarpus reticulatus***	***Fraxinus pensylvannica, Ulmus parvifolia 'Todd' (opposite wires) Photinia x fraseri 'Robusta' (under wires)***	Heritage Conservation area. Verge approx. 3.1m
Simmons Street between Margaret Street & Camden Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lagerstroemia indica, Melaleuca bracteata (one side of verge) Pyrus ussuriensis (in road blister)***	Trees located in adjoining park contribute to the character of the street. Verge less than 1.5m. Suggest planting on one side only or in road blisters.

08 NEWTOWN SOUTH & ENMORE (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Simmons Street between Margaret Street & Enmore Road	Overhead (Even)	Narrow (<1.8m)	***Melaleuca bracteata***	***Lagerstroemia indica, Melaleuca bracteata (one side of verge) or Zelkova serrata 'Green Vase' (in road blister)***	Very narrow verge less than 1.5m. Suggest planting on one side only or in road blisters.
Sloane Street	ABC	Narrow (<1.8m)	**Mixed**	***Corymbia maculata (in road) Backhousia citriodora (both sides)***	Eventually replace row of Corymbia citriodora, narrow verge and close building setback.
Station Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Melaleuca bracteata (opposite wires) Backhousia citriodora (under wires)***	Heritage Conservation area. Very narrow street, verge width 1.8m
Trafalgar Street	Overhead (Odd)	Narrow (<1.8m)	***Allocasuarina sp.***	***Casuarina glauca (railway side only)***	Planting on one side only. Continue with existing.
Walenore Avenue	Overhead (Odd)	Small (<1.8-3.5m)	***Jacaranda mimosifolia Fraxinus griffithii***	***Jacaranda mimosifolia (opposite wires) Backinghamia celsissima (under wires)***	Short street. Recommend ABC installation. Strong existing planting theme.
Wells Street	Overhead (Odd)	Narrow (<1.8m)	***Callistemon viminalis cv.***	***Zelkova serrata 'Green Vase', Caesalpinia ferrea (in road blisters) or Leptospermum petersonii, Lagerstroemia indica (opposite wires)***	Existing trees are located on the even side only. Very narrow street and verge width less than 1.5m. Camdenville Public School and community garden located on street. Suggest planting one side only or in road blisters.
Wilford Street	ABC	Small (<1.8-3.5m)	**Mixed**	***Syzygium leuhmannii, Elaeocarpus eumundi (north side btn Station St & Gladstone St) Lagerstroemia indica (south side)***	Variable verge width and road width, in some areas verge less than 1.5m.

5.9 Newington

(part Stanmore/Enmore/Petersham)

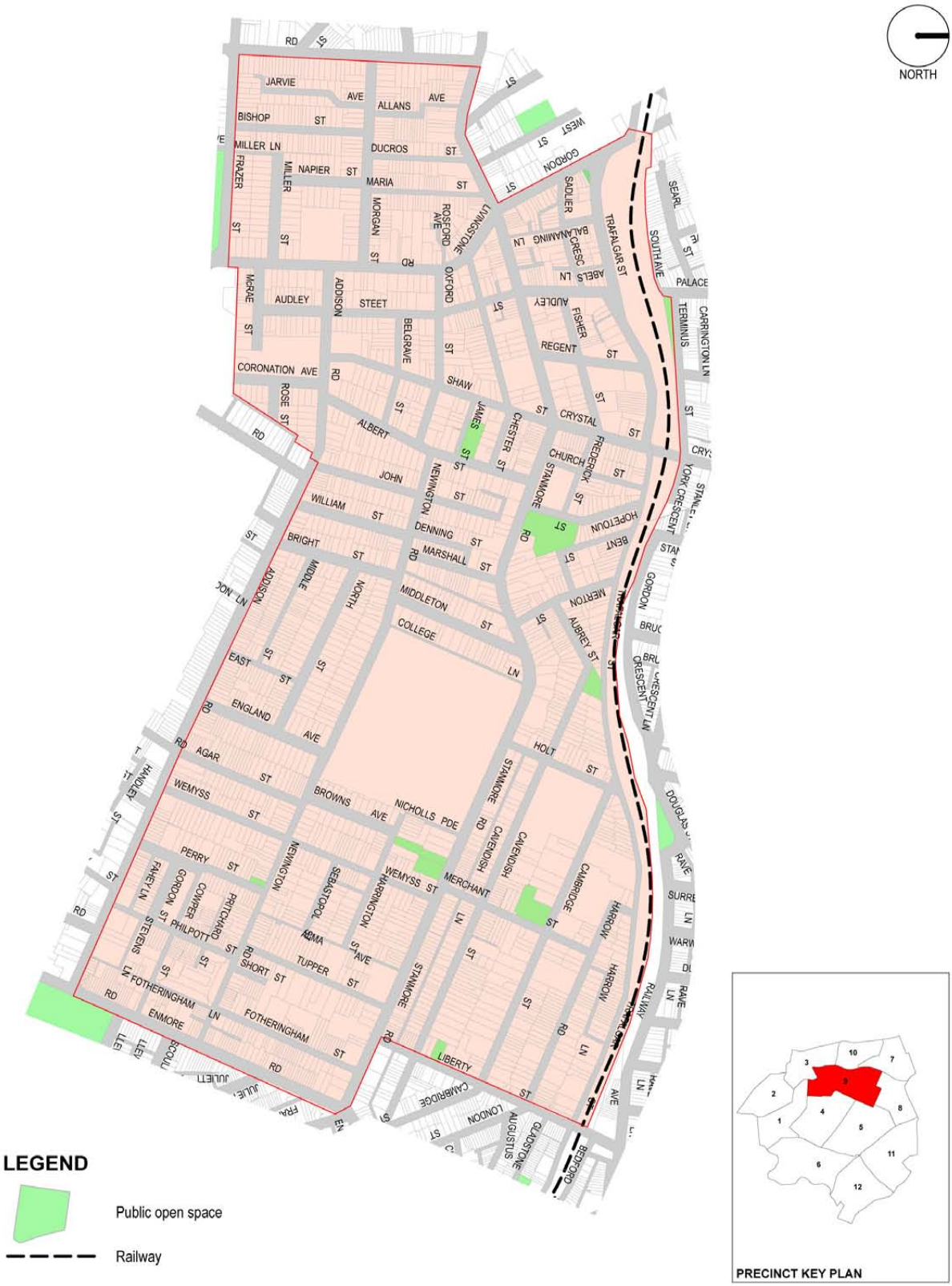
History and Context

The Newington precinct (as it has been named for the purpose of this Master Plan) is made up of a combination of the part suburbs of Stanmore, Enmore and Petersham that all share a similar street typography and built form. A significant proportion of the precinct is zoned as a heritage conservation area, with several heritage items such as Newington College and Stanmore Public School (established in 1884). These sites still host some of the tree planting that was typical of that period.

The area is bounded by the railway line in the north, Liberty Street, Stanmore Road, Enmore Road in the east, Addison Street, Park, and Frazer Street in the south, and Wardell Road, New Canterbury Road and Gordon Street in the west. The main corridor of Stanmore Road runs centrally across the precinct from east to west.

Physical Influences

Newington precint at 155.8ha (9.7% of total area) is an average size precinct graced with 2,540 trees which is the second most heavily tree populated precinct despite its average size (containing 11.26% of total tree population). Street widths vary greatly across the precinct, with about 75% of verges between



1.8-3.5m wide and around 17% of verges are less than 1.8m wide. About 60% of verges are a grassed strip and with footpath pavement.

A number of streets are orientated to an East-West direction, resulting in a north and south side of the street. Deciduous trees or smaller trees should be planted on the south side to prevent any overshadowing on dwellings.

Geology of the area comprises gently undulating rises on Winamatta Group Shale with soil being mainly of Shale derived clays. The conditions for tree planting are favourable in this area, with soils having a high nutrient and water holding capacity.

Existing Streetscape Character

Generally, the streets consist of a very diverse and mixed palette of trees, using both native and exotic trees of varying sizes. In most instances, the street typology lends itself to specifying larger trees than what currently exist, and in some cases in-road planting would be an appropriate option. The heavy reliance on *Callistemon viminalis* (Bottlebrush) (making up 17.34% of tree species mix) should be diluted in future planting.

Newington is defined by:

- The heritage character of the area depicted by the residential typology including original or restored cottages and villas, The main campus of Newington College and Stanmore Public School.
- A very leafy and well treed precinct, with a high number of street trees compared to the rest of the municipality.

Current Dominant Species

Botanical Name	No. of trees	Percentage (%)
Callistemon viminalis	441	17.34%
Melaleuca bracteata	230	9.04%
Tristaniopsis laurina	178	7.00%
Fraxinus griffithii	152	5.98%
Lagerstroemia indica	135	5.31%
Proportion of total species mix	1136	44.67%
Total number of trees	2543	100.00%

Precinct Objectives

- To enhance the streetscape with street trees of appropriate scale and form.
- To respect the established and desirable street tree characters.
- To reinforce the residential character through a mix of deciduous and evergreen tree planting that respond to the street typology.
- To reduce the heavy reliance on *Callistemon viminalis* (Bottlebrush).
- Maintain and provide plantings that are sympathetic to the heritage values of the area.

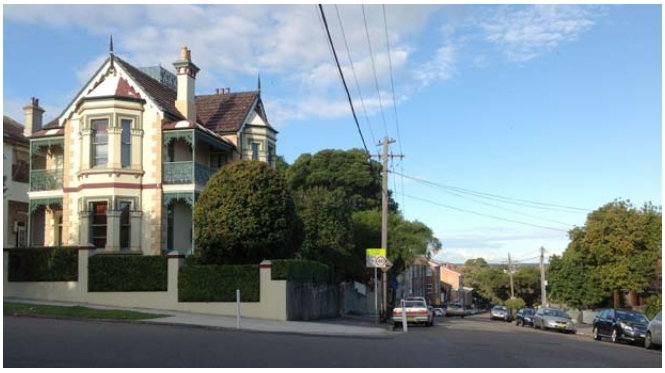


Figure 5.19- The precinct contains numerous streets with properties of heritage, significance such as Middleton Street, Petersham (Photo Arterra)

Figure 5.18- Although many streets in are tree-lined they are often quite wide and there are numerous streets that would benefit from exploring in-road planting, parking reconfiguration and larger tees to further improve the street and canopy cover of the area such as Morgan Street, Petersham (Photo Arterra)

09 NEWINGTON (Part Stanmore, Petersham, Enmore)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Addison Road between John Street and Enmore Road	Overhead (Odd)	Small (<1.8-3.5m)	***Pistacia chinensis Pyrus ussuriensis***	***Pyrus ussuriensis (both sides)***	ABC a priority. Existing Chinese Pistacio trees under wires. Pears are most likely Pyrus ussuriensis due to broad canopy.
Addison Road between Livingstone Road and John Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Pyrus ussuriensis (both sides)***	Main road corridor. ABC a priority.
Agar Street	Overhead (Even)	Small (<1.8-3.5m)	***Fraxinus griffithii Melaleuca bracteata***	***Pistacia chinensis (opposite wires) Tristaniopsis laurina (under wires)***	Excellent opportunity to create verge gardens along this street.
Albert Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (in road) Stenocarpus sinuatus (opposite wires) Backhousia citriodora (under wires)***	In road planting opportunities.
Allans Avenue	Overhead (Even)	Small (<1.8-3.5m)	-	***Koelreuteria bipinnata (opposite wires)***	No existing trees - opportunity for some planting along lower section. Upper section of road is a laneway with no verge.
Aubrey Street between McRae Street and Stanmore Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Eucalyptus haemastoma (opposite wires) Lagerstroemia indica, Acmena smithii var. minor (under wires)***	Some mature Gum trees in street. Existing verge gardens working well.
Audley Street between Trafalgar Street and Stanmore Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (in road - south of Addison Rd) Angophora floribunda alternating with Jacaranda mimosifolia (opposite wires) Lagerstroemia indica (under wires)***	Mostly crepe myrtles. Overhanging trees from private properties contribute to street character. Section south of Addison is no through road. Opportunity for 45 degree parking and a few blisters.
Audley Street	Overhead (Even)	Medium (3.5-5m)	**Mixed**	***Livistona australis, Washingtonia robusta (in road blisters) Fraxinus pennsylvanica (eastern side) Harpullia pendula (western side)***	
Belgrave Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Cupaniopsis anacardioides (opposite wires) Lagerstroemia indica (under wires)***	
Bent Street	Overhead (Odd)	Small (<1.8-3.5m)	***Lagerstroemia indica Elaeocarpus reticulatus***	***Lagerstroemia indica (both sides)***	
Bishop Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Callistemon salignus, Elaeocarpus eumundi (opposite wires) Buckinghamia celsissima (under wires)***	Narrow grass strip, several young Blueberry Ash.
Bright Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Fraxinus pennsylvanica (opposite wires) Lagerstroemia indica (under wires)***	Semi-mature Tuckeroos planted along street.
Browns Avenue	Overhead (Odd)	Small (<1.8-3.5m)	***Melaleuca bracteata Eucalyptus species***	***orymbia maculata, Eucalyptus paniculata (both sides if ABC) Camellia sasanqua (under wires if not ABC)***	Nice wide street where ABC would allow taller tree species on odd side. Continue with Eucalyptus theme along street.
Cambridge Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Jacaranda mimosifolia alternating with Eucalyptus haemastoma (opposite wires) Magnolia grandiflora 'Exmouth', Tristaniopsis laurina (under wires)***	Heritage Conservation Area. Prestigious street character. Stanmore Public School and Montague Gardens on street. Portion of street is grass and path. Wires switch east of Merchant St.
Cavendish Street between Liberty Street and Aubrey Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Waterhousea floribunda 'Green Avenue' (opposite wires) Gordonia axillaris, Lagerstroemia indica (under wires)***	Heritage Conservation Area. Stanmore Public School on street. New block planting of Crepe Myrtles. Sections are grass and path. Recently planted Waterhousea.

09 NEWINGTON (Part Stanmore, Petersham, Enmore) (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Chester Street	Overhead (Odd)	Small (<1.8-3.5m)	***Melaleuca bracteata Callistemon viminalis cv.***	***Melaleuca bracteata (opposite wires) Backhousia citriodora, Callistemon viminalis (under wires)***	Existing species working well in this narrow street.
Church Street between Hopetoun Street and Crystal Street	ABC	Narrow (<1.8m)	-	***Caesalpinia ferrea (opposite wires)***	
Coronation Ave	ABC	Small (<1.8-3.5m)	***Lophostemon confertus***	***Lophostemon confertus (both sides)***	Continue with existing Brush Box theme. Extend ABC to end of street.
Cowper Street	Overhead (Even)	Narrow (<1.8m)	***Fraxinus griffithii***	***Fraxinus griffithii (one side only)***	Narrow verge, one-way street. Continue with Griffiths Ash.
Crystal Street between Trafalgar Street and Stanmore Road	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (both sides)***	Busy arterial road. ABC a priority.
Denning Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Pistacia chinensis (opposite wires) Leptospermum petersonii (under wires)***	
Ducros Street	Overhead (Odd)	Narrow (<1.8m)	-	***Zelkova serrata 'Green Vase' (in road blister)***	Currently no trees in street. Opportunity for 3-4 in road blisters along street taking up 3 parking spaces.
East Street	Overhead (Odd)	Narrow (<1.8m)	***Photinia x fraseri 'Robusta'***	***Elaeocarpus eumundi (opposite wires) Photinia x fraseri 'Robusta' (under wires)***	Opportunity for larger tree species opposite wires
England Avenue	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Ulmus parvifolia 'Todd' alternating with Jacaranda mimosifolia (opposite wires) Magnolia grandiflora 'Exmouth', Gordonia axillaris (under wires)***	Fruit tree planting and vegetable planter box on verge by residents. Opportunity for larger tree species opposite wires.
Enmore Road bewteen Stanmore Road and Llewellyn Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Koelreuteria bipinnata (opposite wires) Tristaniopsis laurina (under wires)***	Heritage Conservation Area. Several vacant sites for street tree planting. Portion of street is fully paved.
Fisher Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus, Zelkova serrata 'Green Vase' (opposite wires) Tristaniopsis laurina (under wires)***	Continue with some existing.
Fotheringham Lane	Overhead (Even)	Narrow (<1.8m)	***Fraxinus griffithii***	***Fraxinus griffithii (one side only)***	Very narrow verge and street. Continue with existing row of Griffiths Ash.
Fotheringham Street	Overhead (Odd)	Narrow (<1.8m)	**Mixed**	***Cupaniopsis anacardioides (opposite wires) Acmena smithii var. minor (under wires)***	
Frederick Street between Hopetoun and Crystal Street	ABC	Narrow (<1.8m)	-	***Caesalpinia ferrea (opposite wires)***	No trees at present.
Gordon Street between Perry Street and Philpott	None or UG	Small (<1.8-3.5m)	***Melaleuca quinquenervia Pyrus calleryana cv.***	***Pyrus calleryana 'Chanticleer' (north side) Jacaranda mimosifolia (south side)***	Recently planted Pears. Replace Paperbarks.
Gordon Street between Stanmore Road and Railway Terrace	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (both sides)***	Main road corridor. ABC a priority.
Harrington Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Eucalyptus haemastoma alternating with Jacaranda mimosifolia (opposite wires) Leptospermum petersonii (under wires)***	Lemon Scented Tea Tree is looking good in this street.

09 NEWINGTON (Part Stanmore, Petersham, Enmore) (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Harrow Road	Overhead (Odd)	Small (<1.8-3.5m)	*Lagunaria patersonia Callistemon viminalis cv.*	*Koelreuteria bipinnata (opposite wires) Tristaniopsis laurina, Magnolia grandiflora 'Exmouth' (under wires)*	Heritage Conservation Area. Sections of street are grass and path. Stone kerbing.
Holt Street	Overhead (Even)	Small (<1.8-3.5m)	*Callistemon viminalis cv. Auranticarpa rhombifolia*	*Platanus x acerifolia 'Bloodgood' (blister at cnr. Trafalgar St & Holt St) Jacaranda mimosifolia (opposite wires) Koelreuteria paniculata (under wires)*	Heritage Conservation Area. Trees located in grounds of Stanmore Public School contribute to street character.
Hopetoun Street	Overhead (Odd)	Small (<1.8-3.5m)	*Melaleuca quinquenervia Tristaniopsis laurina*	*Callistemon salignus (opposite wires) Tristaniopsis laurina (under wires)*	Remove trees on park side and let park trees read.
James Street	Overhead (Odd)	Narrow (<1.8m)	-	*Lagerstroemia indica (opposite wires)*	No trees at present but good private trees and park that contribute to street character. Narrow verge.
Jarvie Avenue	ABC	Small (<1.8-3.5m)	**Mixed**	*Caesalpinia ferrea, Callistemon viminallis (both sides)*	Existing ABC on odd side.
John Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Pistacia chinensis (opposite wires) Gordonia axillaris, Murraya paniculata (under wires)*	
Livingstone Road between Stanmore Road and Frazer Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Lophostemon confertus (both sides)*	Main thoroughfare. Room for mid size trees with high canopy.
Maria Street	Overhead (Odd)	Narrow (<1.8m)	-	*Zelkova serrata 'Green Vase' (in road blisters)*	Currently no trees in street. Opportunity for 3-4 in road blisters along street taking up 3 parking spaces.
Marshall Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Pistacia chinensis (opposite wires) Backhousia citriodora (under wires)*	Brick footpath
McRae Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Lophostemon confertus (in road) Jacaranda mimosifolia (opposite wires) Backhousia citriodora (under wires)*	Recently planted Backhousia under wires. Verge 3.5m, one side grass and pavement. In road planting opportunities.
Merchant Street	Overhead (Even)	Small (<1.8-3.5m)	*Fraxinus griffithii Callistemon viminalis cv.*	*Koelreuteria bipinnata (opposite wires) Buckinghamia celsissima (under wires)*	Heritage Conservation Area. Section of street is grass and path. Trees overhanging from Montague Gardens contribute to the street character. No planting in verge where adjacent to park.
Merton Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Eucalyptus haemastoma alternating with Celtis australis (opposite wires) Tristaniopsis laurina, Buckinghamia celsissima (under wires)*	Overhead wires switch to even side of street north of Aubrey St.
Middle Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Fraxinus pennsylvanica (opposite wires) Lagerstroemia indica (under wires)*	Road reserve becomes narrow along main length of street where verge is 1.6m - too narrow for street trees, private trees contribute to street character. Suggest no planting on narrow length of road.
Middleton Street	Overhead (Even)	Small (<1.8-3.5m)	*Callistemon viminalis cv. Melaleuca bracteata*	*Celtis australis (opposite wires) Gordonia axillaris, Camellia sasanqua (under wires)*	Parking critical
Miller Street	Overhead (Odd)	Medium (3.5-5m)	**Mixed**	*Pistacia chinensis (opposite wires) Koelreuteria paniculata (under wires)*	Continue with Pistachio opposite wires and Koelreuteria under wires.
Morgan Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Fraxinus pennsylvanica, Pistacia chinensis (opposite wires or in road) Xanthostemon chrysanthus, Xylosma senticosum (under wires)*	3.5m verge. Width of street allows for a median however possible sewer line runs along middle of street. Alternatively in-road planting. Road closed in middle. Fraxinus and Koelreuteria theme

09 NEWINGTON (Part Stanmore, Petersham, Enmore) (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Napier Street	Overhead (Odd)	Small (<1.8-3.5m)	*Corymbia citriodora* *Callistemon viminalis cv.*	*Angophora costata (opposite wires)* *Callistemon viminallis (under wires)*	Continue with Eucalypts opposite wires
Nelson Place	Overhead (Odd)	Small (<1.8-3.5m)	*Melaleuca bracteata* *Fraxinus griffithii*	*Elaeocarpus eumundi (opposite wires)* *Buckinghamia celsissima (under wires)*	
Newington Road between Agar Street and Enmore Road	Overhead (Odd)	Small (<1.8-3.5m)	*Melaleuca bracteata* *Callistemon viminalis cv.*	*Melaleuca bracteata (opposite wires - btn Enmore Rd & Agar St)* *Leptospermum petersonii, Xylosma senticosa (under wires)*	Melaleuca bracteata working well on even side.
Newington Road between John Street and Perry Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Eucalyptus haemastoma alternating with Jacaranda mimosifolia (opposite wires)* *Syzygium leuhmannii (under wires)*	Newington College and Buchanan Oval located on this street. Powerlines switch to odd side east of Browns Avenue.
Nicholls Parade	None or UG	Medium (3.5-5m)	*Gingko biloba*	-	Very shaded area where trees are suppressed and shaded by adjacent Casuarina trees and apartment block. Suggest no planting
North Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Fraxinus pennsylvanica (opposite wires)* *Photinia x fraseri 'Robusta' (under wires)*	Opportunity for larger tree species opposite wires.
Oxford Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Sapium sebiferum, Stenocarpus sinuatus (opposite wires)* *Gordonia axillaris (under wires)*	Discontinue Paperbark under wires. Stenocarpus look great, Chinese Tallow both sides.
Perry Street between Addison Road and Cowper Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Pyrus calleryana 'Chanticleer' (opposite wires - btn Cowper St & Gordon St), Zelkova serrata 'Green Vase' (opposite wires)* *Harpullia pendula (under wires)*	Recently planted Callery Pears
Perry Street between Newington Road and Cowper Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Callistemon salignus (opposite wires)* *Lagerstroemia indica (under wires)*	Replace existing Broad Leafed Paperbark with smaller species
Philpott Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	*Caesalpinia ferrea (opposite wires)* *Leptospermum petersonii (under wires)*	Existing Lemon Scented Tea Tree works well with street character and scale of street.
Regent Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Lophostemon confertus, Zelkova serrata 'Green Vase' (opposite wires)* *Tristaniopsis laurina (under wires)*	
Rose Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	*Fraxinus pennsylvanica (opposite wires)* *Gordonia axillaris (under wires)*	Great opportunity for large deciduous trees.
Sadlier Crescent	Overhead (Even)	Narrow (<1.8m)	**Mixed**	*Lagerstroemia indica (both sides)*	Narrow street.
Sebastopol Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	*Eucalyptus haemastoma alternating with Caesalpinia ferrea (opposite wires)* *Harpullia pendula (under wires)*	
Shaw Street	Overhead (Odd)	Small (<1.8-3.5m)	*Melaleuca quinquenervia* *Callistemon viminalis cv.*	*Callistemon salignus (opposite wires)* *Callistemon viminalis (under wires)*	
Short Street	ABC	Narrow (<1.8m)	**Mixed**	*Caesalpinia ferrea alternating with Camellia sasanqua (both sides)*	Short street, no through road. ABC allows for larger tree.

09 NEWINGTON (Part Stanmore, Petersham, Enmore) (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Stanmore Road between Merton Street and Edgeware Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Pyrus ussuriensis (both sides)***	Heritage Conservation Area with Newington College Heritage listed item. Recently planted Acmena smithii var. minor.
Stanmore Road between Wardell Road and Crystal Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Pyrus ussuriensis (both sides)***	Major road. ABC a priority.
Trafalgar Street between Liberty Street and Merton Street	Overhead (Odd)	Narrow (<1.8m)	**Mixed**	*-	Road runs parallel with railway line. Verge width less than 1.5. Suggest no planting.
Trafalgar Street between Crystal Street and Gordon Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Callistemon salignus (opposite wires)*** ***Tristaniopsis laurina (under wires)***	Brush Box in railway land contribute to street character. Wires on opposite side to railway. No planting where verge adjacent to Brush Box.
Tupper Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Melaleuca bracteata (opposite wires)*** ***Elaeocarpus reticulatus (under wires)***	Continue with Blueberry Ash. Melaleuca bracteata looking good in this street. Narrow street
Wemyss Street between Stanmore Road & Newington Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Pistacia chinensis (opposite wires)*** ***Lagerstroemia indica (under wires)***	Poor pruning of Melaleuca bracteata under powerlines.
Wemyss Street between Newington Road and Addison Road	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Pistacia chinensis (opposite wires)*** ***Gordonia axillaris (under wires)***	
William Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Ulmus parvifolia 'Todd' (opposite wires)*** ***Callistemon viminalis cv. (under wires)***	Callistemon viminalis working well under wires. Portion of street is brick paving.

Figure 5.20- Coronation Avenue, Petersham (Photo Arterra)

5.10 Stanmore North

History and Context

Stanmore North is an established residential suburb, with some commercial land use. It is the smallest precinct in area and is located to the northern side of the municipality. Stanmore was named after an early property in the area, which was named after a suburb in London.

Settlement of the area dates from 1799, with the land used mainly for farming. Population growth took place between 1835 and 1860, with more substantial development during the late 1800s and early 1900s, aided by the opening of the Stanmore railway station in 1878. Expansion continued during the post-war years, with many flats constructed and a number of larger villas converted into boarding houses. The population and dwelling types have been relatively stable from the mid 1990s. Much of the area today is identified as a heritage conservation area.

The precinct is bounded by Parramatta Road in the north, Bridge Road and Salisbury Road in the east, the railway line in the south, and Crystal Street in the west. Major features of the area include the varied retail areas along Parramatta Road, Weekley Park, and Whiteley Reserve.

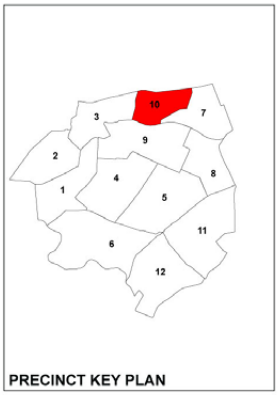
Physical Influences

Stanmore North at 71.9ha (4.5% of total area) is the smallest precinct in the LGA. Generally, the streets are a generous width with verges between 1.8 – 3.5m wide with a grassed strip and adjoining footpath pavement. Several of the streets are long and run parallel to Parramatta Road in an East-West direction, giving a strong north and south side of the street.

LEGEND

Public open space

Railway



The area is relatively flat or gently sloping, with mainly shale derived clay soils. The conditions for tree planting are favourable in this area, with soils having a high nutrient and water holding capacity, although it is expected that many areas will have highly disturbed soil profiles due to the intensive development and the installation of services.

Existing Streetscape Character

Despite Stanmore North being a small size, the precinct is reasonably well treed with some 1,730 street trees (7.66% of total tree population). Most streets have a very diverse mix of tree species, with *Sapium sebiferum* (Chinese Tallow) and *Pyrus calleryana* (Callery Pear) making a significant contribution to the species mix. Similar to other precincts, *Callistemon viminalis* (Bottlebrush) is the overly dominant species, contributing to 21.62% of tree species in the precinct. Generally, there is opportunity to plant more medium size trees across the precinct, whilst also considering suitable species to the southern side of the east-west streets.

Stanmore North is defined by:

- The heritage character of the area particularly punctuated by many small residential flat buildings and villas built during the 1800s and early 1900s.

Current Dominant Species

Botanical Name	No. of trees	Percentage (%)
Callistemon viminalis	374	21.62%
Melaleuca bracteata	164	9.48%
Tristaniopsis laurina	156	9.02%
Sapium sebiferum	112	6.47%
Pyrus calleryana	99	5.72%
Proportion of total species mix	905	52.31%
Total number of trees	1730	100.00%

Precinct Objectives

- To enhance the streetscape with street trees of appropriate scale and form.
- To respect the established and desirable street tree characters.
- To reinforce the residential character through a mix of deciduous and evergreen tree planting that respond to the street typology.
- To reduce the heavy reliance on *Callistemon viminalis* (Bottlebrush).
- Maintain and provide plantings that are sympathetic to the heritage values of the area.

Figure 5.21- Cannon St, Stanmore (Photo Arterra)

10 STANMORE NORTH					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Albany Road	Overhead (Even and Odd)	Small (<1.8-3.5m)	**Mixed**	***Jacaranda mimosifolia alternating with Lophostemon confertus(opposite wires) Leptospermum petersonii (under wires)***	Very diverse tree species mix. Excellent example of Lemon Scented Tea Tree on this street.
Bridge Road	ABC	Small (<1.8-3.5m)	***Pyrus calleryana cv.***	***Corymbia maculata, Pyrus ussuriensis***	Continue with recently planted Pears and Corymbia sp.
Bruce Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Fraxinus pennsylvanica (opposite wires) Murraya paniculata (under wires)***	
Cannon Street	Overhead (Even)	Small (<1.8-3.5m)	***Sapium sebiferum Eucalyptus nicholii***	***Angophora costata (in road blister) Sapium sebiferum (in verge)***	Continue with existing theme of Eucalypts and Chinese Tallow. ABC a priority in this street to allow Chinese Tallows to reach their mature biological size. Possible blister / inroad planting.
Charles Street	Overhead (Odd)	Narrow (<1.8m)	**Mixed**	***Melaleuca bracteata (opposite wires) Lagerstroemia indica (under wires)***	Narrow street and verge width 1.8m. Wires are ABC north of Margaret Street.
Clarendon Road	Overhead (Odd)	Small (<1.8-3.5m)	***Callistemon viminalis cv. Corymbia maculata***	***Corymbia maculata (opposite wires) Buckinghamia celsissima (under wires)***	Continue with existing theme opposite wires
Corunna Road	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Melaleuca bracteata (opposite wires, btn Cannon St & Crystal St) Sapium sebiferum (opposite wires - btn Cannon St & Bridge Rd) Backhousia citriodora (under wires)***	45 degree parking to section of street. Replace Paperbarks.
Crystal Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus***	Busy commercial road, one side grass and path. Recommend ABC a priority.
Douglas Street	Overhead (Odd)	Small (<1.8-3.5m)	***Pyrus calleryana cv. Tristaniopsis laurina***	***Lophostemon confertus (opposite wires) Pyrus calleryana 'Chanticleer', Lagerstroemia indica (under wires)***	Strong theme of Callery Pears and Water Gums. Room for larger tree opposite wires.
Gordon Crescent	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (opposite wires) Lagerstroemia indica (under wires)***	Street runs parallel with railway line. Continue with Brush Box opposite wires. Prestigious detached homes along this street.
Macaulay Road	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus, Stenocarpus sinuatus (opposite wires) Tristaniopsis laurina (under wires)***	Newly planted row of *Stenocarpus sinuatus* between Percival Road and Cannon Street
Margaret Street between Cannon Street and Charles Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Elaeocarpus eumundi (opposite wires, outside TAFE towards Crystal St) Tristaniopsis laurina (both sides)***	New plantings of Water Gum. Jacarandas growing under wires
Myrtle Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Pistacia chinensis (opposite wires) Acmena smithii var. minor, Lagerstroemia indica (under wires)***	Very quiet street. Replace existing Paperbarks under wires. Continue with Chinese Pistachio
Northumberland Avenue	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Corymbia maculata, Callistemon salignus (opposite wires) Buckinghamia celsissima (under wires)***	Canary Island Date Palm in middle of roundabout.
Parramatta Road between Crystal Street and Bridge Road	Overhead (Even)	Medium (3.5-5m)	-	-	No existing trees. No space due to awnings
Percival Road	None or UG	Small (<1.8-3.5m)	**Mixed**	***Liriodendron tulipifera (blister plantings near Temple St) Corymbia maculata (opposite wires) Harpullia pendula (under wires)***	No planting in front of park. Portion of street has overhead wires and some is underground toward railway station.
Phillip Street	Overhead (Even)	Small (<1.8-3.5m)	***Melaleuca bracteata***	***Elaeocarpus eumundi (opposite wires) Tristaniopsis laurina (under wires)***	Short street, make ABC a priority.

10 STANMORE NORTH (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Robert Street	Overhead (Odd)	Narrow (<1.8m)	-	-	Tafe on street, verge 1.3m no trees on street. Recommend no planting.
Salisbury Road	Overhead (Even)	Small (<1.8-3.5m)	***Pyrus ussuriensis Sapium sebiferum***	***Pyrus ussuriensis, Sapium sebiferum (opposite wires) Harpullia pendula (under wires)***	Busy arterial road.
Stanley Street	Overhead (Odd)	Small (<1.8-3.5m)	***Sapium sebiferum Celtis australis***	***Sapium sebiferum, Celtis australis (both sides)***	Short street, recommend ABC a priority. Continue with existing species.
Temple Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (opposite wires) Lagerstroemia indica (under wires)***	Quiet street. Continue with existing Brush Box theme opposite wires, and Crepe Myrtle under wires.
Westbourne Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Melaleuca bracteata (opposite wires) Acmena smithii var. minor (under wires)***	

Figure 5.22- Salisbury Road, Stanmore is one of the more major and attractive streets in the precinct and has a well developed canopy dominated by Pyrus ussuriensis (Manchurian Pear) (Photo Arterra)

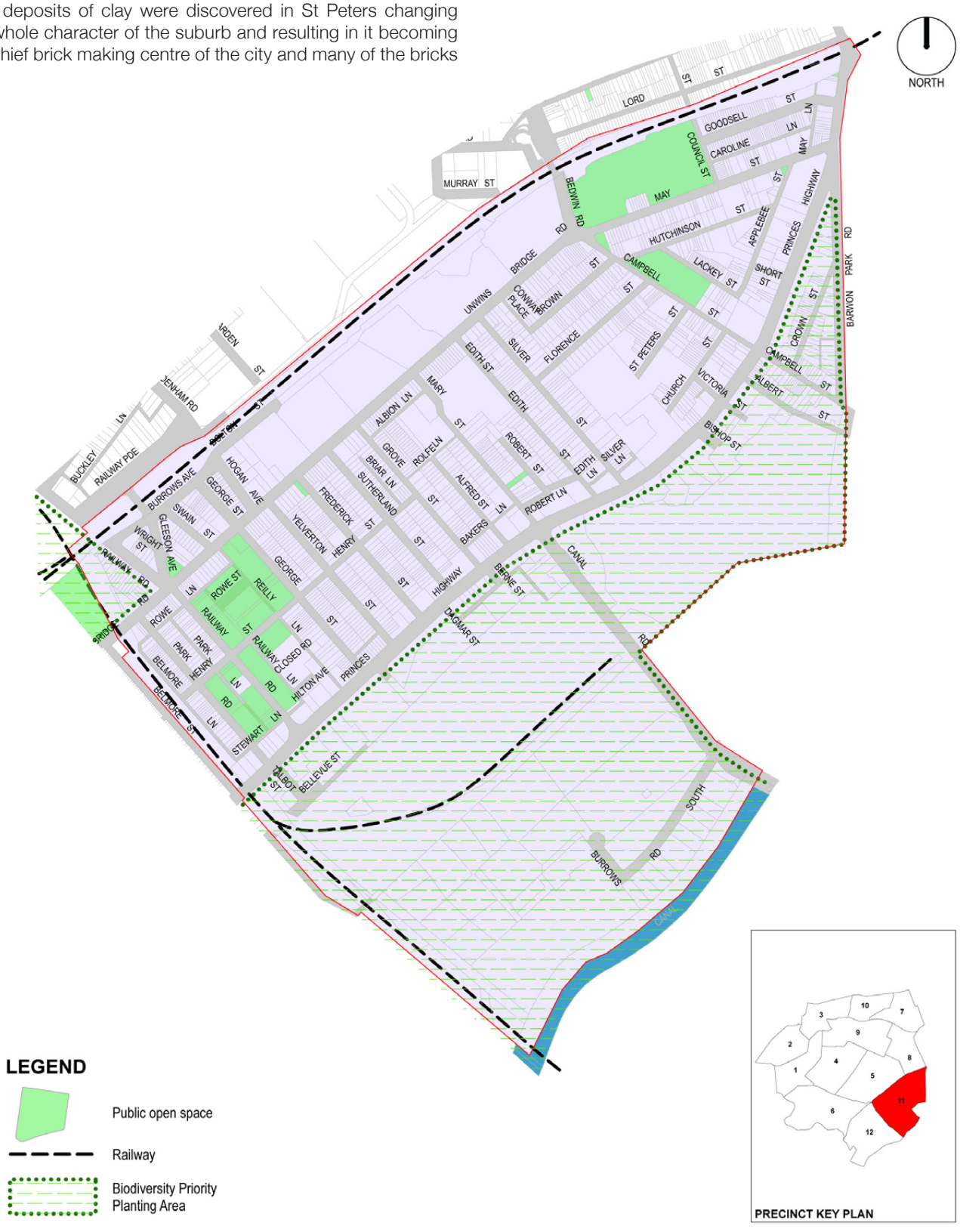
5.11 Sydenham & St Peters

History and Context

Sydenham & St Peters is a large precinct located to the south east of the municipality. The precinct primarily consists of a large industrial area to the south east, with a defined residential area to the north west. Due to the close proximity of the precinct to the airport, aircraft noise has been an issue for the area. Sydenham Green is a major park in the area, created in the 1990s as a result of the demolition of about 150 homes by the Commonwealth Government, which were deemed to be uninhabitable due to aircraft noise.

Vast deposits of clay were discovered in St Peters changing the whole character of the suburb and resulting in it becoming the chief brick making centre of the city and many of the bricks and tiles used in houses in the expanding Sydney suburbs came from these brickworks. This period marked the change of St Peters from native woodlands with scattered houses of its early days to a very industrialised area with utilitarian 'workers cottages'. The site of the former brickworks was converted to parkland in the 1980's and is now known as Sydney Park.

The area is bounded by the railway line in the north and west, King Street, Barwon Park Road, the City of Sydney, Canal Road, Ricketty Street and the Alexandra Canal in the east, and the railway line and Belmore Street in the south.



Physical Influences

Sydenham & St Peters at 177ha (11.0% of total area) is the second largest precinct, however it has the second lowest number of street trees (approximately 1,180 trees, that is 5.23% of total street trees). This is a direct result of the relatively large areas turned over to industrial, large lot commercial and railway uses. The street typology consists of a range of street widths, with most streets with a verge between 1.8-3.5m or less than 1.8m wide.

The precinct is relatively flat or gently undulating, dominated by the shale derived clay soils to the northern side of the precinct, with some highly disturbed soil profile areas to the south that were previously swamps or wetland areas, where the quality and origin of the soil is largely unknown.

Existing Streetscape Character

The canopy cover across the precinct is relatively sparse, with most trees that are planted being small trees. The over reliance on *Callistemon viminalis* (Bottlebrush) is greatest in this precinct and contributes to a quarter (25.49%) of the total species mix. The opportunity for planting larger trees is very dependent on the verge width. Of the trees in the precinct 48.26% are considered to be in good condition, with over 50% considered to be in only fair or poor condition. These figures could well be a reflection of previously limited tree pit preparation and relatively harsh urban environment.

Sydenham & St Peters is defined by:

- Close proximity to the airport, making aircraft noise an issue
- Clearly defined industrial areas to the eastern side of the Princes Highway, and a residential area to the western side of the Princes Highway.
- An over reliance on *Callistemon viminalis* (Bottlebrush).
- Opportunity to plant more (and larger) trees, particularly along some of the industrial areas, eg. Canal Road and Burrows Road South and Princes Highway.
- An identified biodiversity priority planting area located along the southern side of the precinct.

Current Dominant Species

Botanical Name	No. of trees	Percentage (%)
Callistemon viminalis	301	25.49%
Melaleuca bracteata	145	12.28%
Fraxinus griffithii	143	12.11%
Pyrus calleryana	69	5.84%
Tristaniopsis laurina	62	5.25%
Proportion of total species mix	720	60.97%
Total number of trees	1181	100.00%

Precinct Objectives

- To enhance the streetscape with street trees of appropriate scale and form.
- To respect the established and desirable street tree characters.
- To reinforce the residential character through a mix of deciduous and evergreen tree planting that respond to the street typology.
- To reduce the heavy reliance on *Callistemon viminalis* (Bottlebrush).
- To increase the number of street trees and canopy coverage in the precinct.

Figure 5.23- Many streets have narrow footpaths and overhead wires and tree planting is difficult, for example in Edith Street, St Peters (Photo Arterra)

11 SYDENHAM & ST PETERS					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Albert Street	Overhead (Even)	Small (<1.8-3.5m)	***Tristaniopsis laurina***	***Tristaniopsis laurina, Angophora hispida, Synoum glandulosum***	Biodiversity priority planting area. Very narrow street.
Alfred Street	Overhead (Odd)	Narrow (<1.8m)	***Fraxinus griffithii***	***Melaleuca bracteata (opposite wires) Fraxinus griffithii (under wires)***	Very narrow verge and street. Mostly young and semi mature plantings of Fraxinus.
Applebee Street	Overhead (Even)	Narrow (<1.8m)	-	-	Very narrow one way street. Only one tree on street. Suggest no planting.
Barwon Park Road	ABC	Small (<1.8-3.5m)	***Lophostemon confertus***	***Syzygium paniculatum, Angophora floribunda (opposite wires) Tristaniopsis laurina, Angophora hispida (under wires)***	Biodiversity priority planting area. Switch to overhead lines to end closest to Princes Hwy
Bedwin Road	ABC	Small (<1.8-3.5m)	***Pyrus calleryana cv.***	***Pyrus ussuriensis***	Variable verge width. Continue with Pear theme.
Bellevue Street	None or UG	Small (<1.8-3.5m)	***Banksia integrifolia***	***Corymbia eximia***	Biodiversity priority planting area. Planting possible to one side only. Opportunity to plant larger tree and increase width of grass verge.
Belmore Lane	None or UG	Narrow (<1.8m)	-	-	Limited space for tree planting. Recommend no planting.
Berne Street	None or UG	Narrow (<1.8m)	-	-	No existing trees. Limited space, recommend no tree planting.
Bishop Street	None or UG	Small (<1.8-3.5m)	-	***Eucalyptus paniculata***	Biodiversity priority planting area. Very short street. Planting opportunity with previous cut holes on one side. Currently no existing street trees.
Bolton Street	None or UG	Small (<1.8-3.5m)	***Pyrus calleryana cv.***	***Lophostemon confertus (in blisters and grass verge)***	Opportunity for a larger tree.
Brown Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Zelkova serrata 'Green Vase' (opposite wires) Tristaniopsis laurina (under wires)***	Narrow street and verge
Burrows Avenue	Overhead (Even)	Small (<1.8-3.5m)	-	***Tristaniopsis laurina (under wires)***	No existing trees. Tree planting possible on one side (beneath power lines)
Burrows Road South	None or UG	Small (<1.8-3.5m)	**Mixed**	***Eucalyptus microcorys, Callistemon salignus***	Biodiversity priority planting area. Taller planting opportunities along street. Consider trucks and canopy clearance. Some overflow parking on verge.
Campbell Street	Overhead (Even)	Narrow (<1.8m)	-	-	Currently no trees, very narrow street and verge. Busy thoroughfare.
Canal Road	ABC	Small (<1.8-3.5m)	***Corymbia maculata***	***Corymbia maculata (eastern side) Elaeocarpus reticulatus, Tristaniopsis laurina (western side)***	Biodiversity priority planting area. Existing row of Spotted Gums, opportunity for more trees under ABC. Variable width along road, busy arterial road. Combination of overhead and underground wires along road.
Church Street	Overhead (Even)	Narrow (<1.8m)	-	-	A very narrow street and verge with no existing street trees. Recommend no planting.
Council Street	Overhead (Even)	Narrow (<1.8m)	-	-	No existing trees. Narrow, one way street and verge. Camdenville Oval on street. Suggest planting in park and not in verge.
Crown Street	Overhead (Even)	Narrow (<1.8m)	***Auranticarpa rhombifolia Cupaniopsis anacardioides***	***Cupaniopsis anacardioides (opposite wires) Angophora hispida, Synoum glandulosum (under wires)***	Very narrow one-way street. Pittosporum not looking great under wires. Commercial area closest to Campbell Street.
Edith Street	Overhead (Odd)	Narrow (<1.8m)	**Mixed**	***Melaleuca bracteata (opposite wires) Banksia integrifolia (under wires)***	Very narrow street and verge. Variable verge width.

11 SYDENHAM & ST PETERS (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Florence Street	Overhead (Odd)	Narrow (<1.8m)	***Callistemon viminalis cv.***	***Koelreuteria bipinnata (opposite wires)*** ***Leptospermum petersonii (under wires)***	Narrow street and verge
Frederick Street	Overhead (Odd)	Narrow (<1.8m)	***Melaleuca bracteata*** ***Callistemon viminalis cv.***	***Tristaniopsis laurina (opposite wires)*** ***Lagerstroemia indica (under wires)***	Similar theme to Sutherland Street.
George Street	Overhead (Even)	Narrow (<1.8m)	***Fraxinus griffithii*** ***Callistemon viminalis cv.***	***Corymbia eximia (opposite wires - between Unwins Bridge Rd & Burrows Rd)*** ***Buckinghamia celsissima (opposite wires)*** ***Banksia integrifolia (under wires)***	Existing Fraxinus under wires working well.
Gleeson Avenue	Overhead (Even)	Small (<1.8-3.5m)	-	***Lophostemon confertus (western side)***	Space for medium sized tree on odd side of street.
Goodsell Street	ABC	Small (<1.8-3.5m)	**Mixed**	***Waterhousea floriunda 'Green Avenue' (in road)*** ***Sapium sebiferum, Jacaranda mimosifolia (opposite wires, blisters)*** ***Lagerstroemia indica (under wires)***	Heritage Conservation area. Existing in-road and blister planting. Combination of ABC and overhead wires. Existing trees greatly contribute to the character of the street. Recommend ABC entire street.
Grove Street	Overhead (Odd)	Narrow (<1.8m)	***Callistemon viminalis cv.***	***Melaleuca bracteata (opposite wires)*** ***Backhousia citriodora (under wires)***	Very narrow street and verge.
Henry Street	ABC	Narrow (<1.8m)	**Mixed**	***Elaeocarpus eumundi, Melaleuca bracteata, Callistemon salignus***	Very narrow verge. Some mature Corymbia citriodora causing damage, replace with smaller trees.
Hilton Avenue	None or UG	Narrow (<1.8m)	-	***Tristaniopsis laurina***	Opportunity to plant on odd side. Narrow verge 1.8m.
Hogan Avenue	ABC	Small (<1.8-3.5m)	***Pyrus calleryana cv.*** ***Callistemon viminalis cv.***	***Eucalyptus paniculata (opposite wires)*** ***Tristaniopsis laurina (under wires)***	
Hutchinson Street	Overhead (Odd)	Narrow (<1.8m)	-	***Cupaniopsis anacardioides,*** ***Caesalpinia ferrea (opposite wires)*** ***Lagerstroemia indica, Buckinghamia celsissima (under wires)***	No existing trees. Narrow one-way street. Recommend no planting in verge where adjacent to Simpson Park.
Lackey Street	Overhead (Even)	Narrow (<1.8m)	***Cupaniopsis anacardioides***	***Cupaniopsis anacardioides (opposite wires)*** ***Leptospermum petersonii (under wires)***	One way street. Recommend no planting in verge where adjacent to Simpson Park.
Mary Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Elaeocarpus eumundi (opposite wires)*** ***Lagerstroemia indica (under wires)***	Very narrow and busy street.
May Street	Overhead (Odd)	Small (<1.8-3.5m)	***Koelreuteria paniculata*** ***Fraxinus 'Raywood'***	***Pyrus ussuriensis***	Busy road, adjacent to Camdenville Park. Mostly a commercial area. Recommend ABC a priority.
Park Road	Overhead (Even)	Small (<1.8-3.5m)	***Callistemon viminalis cv.*** ***Tristaniopsis laurina***	***Tristaniopsis laurina***	Narrow verge 1.8m, existing garden verges with stone kerb and gutter.
Princes Highway between Belmore Street and Goodsell Street	Overhead (Even)	Small (<1.8-3.5m)	***Melaleuca quinquenervia*** ***Lophostemon confertus***	***Lophostemon confertus***	Young planting of trees between May Street and Sydney Park Road. Recommend ABC a priority.
Railway Road between Unwins Bridge Road and Princes Highway	ABC	Narrow (<1.8m)	***Lophostemon confertus***	***Lagerstroemia indica***	Busy road. Narrow verge. No planting in verge where adjacent to park.

11 SYDENHAM & ST PETERS (cont.)					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Railway Road west of Unwins Bridge Road	Overhead (Even)	Small (<1.8-3.5m)	***Melaleuca quinquenervia Fraxinus griffithii***	***Lophostemon confertus***	Quiet section of Railway Road. Continue with existing Brush Box planting through from other side of Unwins Bridge Road.
Roberts Street	Overhead (Odd)	Narrow (<1.8m)	**Mixed**	***Melaleuca bracteata (opposite wires) Koelreuteria paniculata (under wires)***	Narrow street and verge. Powerlines switch to even side of road on longer stretch of street.
Short Street	Overhead (Even)	Narrow (<1.8m)	**-**	***Tristaniopsis laurina (in blister) Acmena smithii var. minor (in verge)***	Short and narrow street and verge. Suggest planting to one side only or blister planting.
Silver Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Melaleuca bracteata (opposite wires) Leptospermum petersonii, Xylosma senticosum (under wires)***	A narrow street with lovely character to the streetscape. Melaleuca bracteata is the appropriate scale for the street.
St Peters Street	Overhead (Even)	Narrow (<1.8m)	***Melaleuca bracteata Callistemon viminalis cv.***	***Tristaniopsis laurina (both sides)***	Narrow cul-de-sac. St Peters School in street. Recently planted Tristaniopsis laurina cultivar.
Sutherland Street	Overhead (Odd)	Narrow (<1.8m)	***Callistemon viminalis cv. Photinia x fraseri 'Robusta'***	***Buckinghamia celsissima (opposite wires) Camellia sasanqua (under wires)***	Existing planting of two species only. Room for larger scale tree opposite side to overhead wires.
Swain Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (in blister) Melaleuca bracteata (opposite wires) Buckinghamia celsissima (under wires)***	Existing blister towards Burrows Avenue.
Talbot Street	Overhead (Even)	Small (<1.8-3.5m)	**-**	***Corymbia eximia (opposite wires) Tristaniopsis laurina (under wires)***	Biodiversity priority planting area. Variable verge width with perpendicular parking to one side. Currently only one tree planted. Limited parking opportunities.
Unwins Bridge Road between Gleeson Avenue and Princes Highway	Overhead (Even)	Small (<1.8-3.5m)	***Melaleuca quinquenervia Fraxinus griffithii***	***Pyrus ussuriensis***	Overhead wires are on both sides. Some recently planted verge gardens.
Unwins Bridge Road West of Gleeson Avenue	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Pyrus ussuriensis***	Small section of mixed tree species
Victoria Street	None or UG	Narrow (<1.8m)	**-**	***Tristaniopsis laurina (east of Princes Highway)***	Very narrow street and verge, no existing street trees. Verge less than 1.8m between Princes Hwy and Church St.
Yelverton Street	ABC	Narrow (<1.8m)	***Melaleuca bracteata Acmena smithii var. minor***	***Elaeocarpus eumundi (opposite wires) Acmena smithii var. minor (under wires)***	Narrow verge. Existing ABC wires.

5.12 Tempe

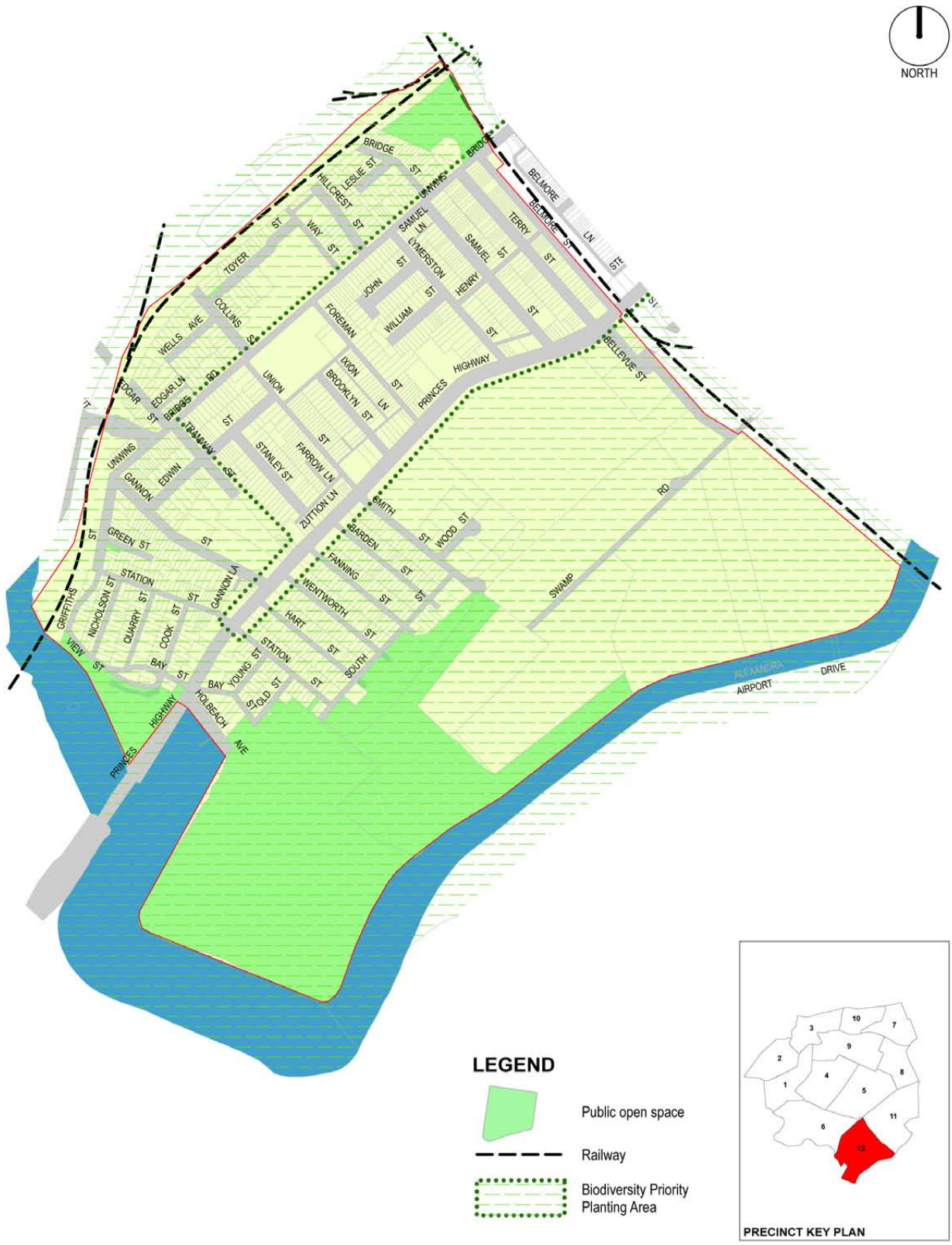
History and Context

Tempe is a busy, established residential and industrialised precinct, which sits on the northern bank of the Cooks River. The residential area tends to be located to the western side of the Princes Highway, whilst the industrial area is located more to the eastern side. Tempe's commercial district runs along the Princes Highway, and includes the large IKEA development that opened in 2011. Tempe is named after an early home in the nearby area, which was named after Vale of Tempe in Ancient Greece. Settlement of the area dates from the 1830s, with a village first laid out in 1842. Rapid growth took place during the late 1800s and early 1900s, spurred by the opening of the railway line in 1884. Some expansion continued during the post-war years.

The precinct is bounded by the railway line and Belmore Street in the north, the City of Botany Bay, Rockdale City and the Alexandra Canal in the east, the Cooks River in the south, and the railway line and Richardson Crescent in the west.

Physical Influences

Tempe at 156ha (9.7% of total area) is an average size precinct, comprising the lowest number of trees of less than 940 (4.15% of total number of trees). This low figure is largely due to a substantial portion of the area is either industrial land (which



historically has received little attention with regard to tree planting), or large recreational open spaces (namely Tempe Recreation Reserve).

The majority of residential streets are narrow with verges less than 1.8m wide. Along these streets, vehicles are often park partially on the footpath pavement. There are some exceptions to this street typology, with some more generous width streets that have a slightly wider verge between 1.8-3.5m wide such as Stanley Street, Edwin Street and Tramway Street.

Existing Streetscape Character

The low street tree population across the precinct has resulted in a more visually sparse streetscape, where the built forms dominate. The majority of the residential typology is made up of small, utilitarian terrace houses and workers cottages.

In recent years little attention has been given to tree planting in Tempe with only 5% of trees being in young age class, and 82% of trees being mature age class. As a result only 41% of trees are considered to be in good condition, with 58% of trees considered to be in fair, poor or very poor condition. There is potential to focus on tree planting in this precinct, providing there are also improvements upon tree pit preparation.

Tempe is defined by:

- Well defined residential and industrial areas with the Princes Highway usually separating and demarcating the different areas.
- Opportunity to plant more and medium sized trees, particularly in-road when practical.
- Narrow streets with a fully paved verge less than 1.8m wide.
- The biodiversity priority planting area connecting Sydney Park with the Cooks River through most of the Tempe precinct.

Current Dominant Species

Botanical Name	No. of trees	Percentage (%)
Callistemon viminalis	142	15.15%
Melaleuca bracteata	122	13.02%
Elaeocarpus reticulatus	63	6.72%
Fraxinus griffithii	60	6.40%
Tristaniopsis laurina	47	5.02%
Proportion of total species mix	434	46.32%
Total number of trees	937	100.00%

Precinct Objectives

- To enhance the streetscape with street trees of appropriate scale and form.
- To reinforce the residential character through a mix of deciduous and evergreen tree planting that respond to the street typology.
- To increase the number of street trees and canopy cover in the precinct.
- To reduce the reliance on *Callistemon viminalis* (Bottlebrush) by introducing other suitable tree species.
- Maintain and provide plantings that contribute to the continuation and expansion of identified biodiversity areas and native habitat corridors.

Figure 5.24- Like Sydenham & St Peters many streets have very narrow footpaths and overhead wires and tree planting is often difficult, for example in Fanning Street, Tempe. Cars often park partially on the footpath adding to the tree conflicts (Photo Arterra)

12 TEMPE					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Barden Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Melaleuca bracteata, Callistemon salignus (opposite wires)***	Street verge very narrow, fully paved and only 1.8m wide. Powerlines on one side, frequent parking on footpath. Suggest planting to one side only.
Bay Street	Overhead (Even)	Narrow (<1.8m)	***Acmena smithii var. minor***	***Elaeocarpus reticulatus***	Limited opportunity to plant trees. Option to plant in the few grass only areas. Existing trees suffering from pests.
Bay Street	Overhead (Even)	Narrow (<1.8m)	***Tristaniopsis laurina Callistemon salignus cv.***	***Callistemon salignus (opposite wires) Tristaniopsis laurina (under wires)***	Variable verge width. Section of paving between Cook St and Princes Hwy. Biodiversity priority planting area.
Bellevue Street	None or UG	Small (<1.8-3.5m)	-	***Corymbia maculata***	Some grassed verge available.
Belmore Street	Overhead (Even)	Large (>5m)	**Mixed**	***Angophora costata, Eucalyptus robusta, Eucalyptus paniculata, Ficus rubiginosa***	Fronts railway land and is a rear lane to properties fronting Terry Street. Planting on railway side only.
Bridge Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Acmena smithii, Callistemon salignus, Banksia integrifolia (opposite wires) Angophora hispida, Synoum glandulosum (under wires)***	Biodiversity priority planting area.
Brooklyn Street	Overhead (Odd)	Narrow (<1.8m)	***Melaleuca bracteata Callistemon viminalis cv.***	***Melaleuca bracteata (opposite wires) Lagerstroemia indica (under wires)***	
Collins Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Syzygium paniculatum (opposite wires) Tristaniopsis laurina, Acmena smithii var. minor, Angophora hispida (under wires)***	Biodiversity priority planting area.
Cook Street	Overhead (Odd)	Narrow (<1.8m)	-	-	Very narrow verge. Two existing trees on the street
Edgar Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Eucalyptus haemastoma, Acacia binervia, Acmena smithii (opposite wires) Banksia serrata, Tristaniopsis laurina (under wires)***	Biodiversity priority planting area.
Edwin Street	Overhead (Even)	Large (>5m)	***Agonis flexuosa Tristaniopsis laurina***	***Eucalyptus paniculata (opposite wires) Tristaniopsis laurina (under wires)***	Opportunity to plant larger species on odd side, keeping Water Gums under power lines.
Fanning Street	Overhead (Odd)	Narrow (<1.8m)	***Fraxinus griffithii***	***Tristaniopsis laurina, (opposite wires)***	Street verge very narrow, fully paved and only 1.8m wide. Powerlines on one side, frequent parking on footpath. Limited planting in this street. Suggest planting to one side only.
Foreman Street	Overhead (Odd)	Narrow (<1.8m)	***Elaeocarpus reticulatus***	***Elaeocarpus reticulatus (opposite wires)***	Very narrow street. Continue with new planting of Blueberry Ash on one side only.
Gannon Street	ABC	Small (<1.8-3.5m)	**Mixed**	***Syzygium paniculatum (opposite wires) Acmena smithii var. minor, Tristaniopsis laurina (under wires)***	ABC existing, busy road. Biodiversity priority planting area.
Green Street	Overhead (Odd)	Narrow (<1.8m)	-	***Elaeocarpus reticulatus (near new commercial building near Griffiths St)***	No existing trees, except Brush Box in reserve. Variable verge width. Opportunity to plant outside commercial building where verge is wider. Biodiversity priority planting area.
Griffiths Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (in road) Callistemon salignus (opposite wires) Tristaniopsis laurina, Angophora hispida (under wires)***	Existing Eucalyptus theme on railway side. Replace Callistemon. Camphor Laurel and Brush Box in-road. Past Station street too narrow for street planting.

12 TEMPE					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Hart Street	Overhead (Even)	Narrow (<1.8m)	***Melaleuca bracteata***	***Tristaniopsis laurina (opposite wires) Acmena smithii var. minor (under wires)***	Street verge very narrow, fully paved and only 1.8m wide. Powerlines on one side, vehicles frequently parked on footpath. Suggest planting on one side only. Some planting underwires in this street.
Henry Street	ABC	Narrow (<1.8m)	-	-	Verge less than 1.5m, no existing trees. Recommend no tree planting.
Hillcrest Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Syzygium paniculatum (in road or opposite wires) Tristaniopsis laurina (under wires)***	Heritage Conservation area (brick paved footpath is listed as a Heritage Item). Two lines of high voltage along street. Possible in-road planting opportunity.
Holbeach Avenue	ABC	Small (<1.8-3.5m)	***Araucaria heterophylla***	***Araucaria heterophylla, Araucaria columnaris (opposite wires) Cupaniopsis anacardioides (under wires)***	Major cycling route. Some Pines in poor condition.
John Street	Overhead (Even)	Small (<1.8-3.5m)	***Lophostemon confertus Callistemon viminalis cv.***	***Lophostemon confertus (in road) Koelreuteria paniculata (in verge)***	Older Brush Box planted in-road. Further in-road planting opportunities. ABC a priority.
Leslie Street	Overhead (Odd)	Large (>5m)	**Mixed**	***Angophora costata, Acacia binervia, Acmena smithii (opposite wires) Synoum gladulosum, Angophora hispida (under wires) Acmena smithii var. minor (only turning circle end)***	Verge width is narrower around bulb. Biodiversity priority planting area.
Lymerston Street	Overhead (Odd)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (opposite wires) Lagerstroemia indica (under wires)***	
Nicholson Street	Overhead (Odd)	Narrow (<1.8m)	-	-	Very narrow verge and street, with no existing planting.
Old Street	Overhead (Odd)	Narrow (<1.8m)	**Mixed**	***Cupaniopsis anacardioides***	
Princes Highway between Belmore Street and Cooks River	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus***	Very difficult planting conditions. Variable verge width most typically less than 3.5m wide. Brush Box used in front of Ikea site. Recommend ABC a priority.
Quarry Street	Overhead (Odd)	Narrow (<1.8m)	***Melaleuca bracteata***	***Melaleuca bracteata (opposite wires) Synoum glanulosum, Acmena smithii var. minor (under wires)***	Very narrow street and verge, with planting on both sides. Biodiversity priority planting area.
Samuel Street	Overhead (Even)	Small (<1.8-3.5m)	**Mixed**	***Lophostemon confertus (both sides)***	
Smith Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Tristaniopsis laurina, Angophora hispida (under wires)***	Suggest planting to one side only.
South Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Angophora hispida, Banksia integrifolia, Acmena smithii var. minor (under wires)***	Park contributing to street character. Recommend no planting in verge where adjacent to park.
Stanley Street	Overhead (Odd)	Large (>5m)	**Mixed**	***Corymbia maculata, Waterhousea floribunda 'Green Avenue' (both sides)***	Opportunity to plant bigger trees. Possible to plant taller trees to grow over wires.
Station Street between Princes Hwy and South Street	Overhead (Even)	Narrow (<1.8m)	***Melaleuca bracteata***	***Melaleuca bracteata (opposite wires)***	Street verge very narrow, fully paved and only 1.8m wide. Powerlines on one side, vehicles frequently parked on footpath. Suggest planting on one side only.
Station Street between Princes Hwy and Griffiths Street	Overhead (Even)	Narrow (<1.8m)	**Mixed**	***Callistemon salignus (opposite wires)***	Biodiversity priority planting area.
Swamp Street	None or UG	Small (<1.8-3.5m)	-	***Corymbia eximia (if permitted)***	Major industrial and truck movement, close to airport. Possibly restrictions regarding height of trees.

12 TEMPE					
Street Name	**Power Lines**	**Verge Type**	**Existing Dominant**	**Proposed Species**	**Key Observations**
Terry Street	ABC	Small (<1.8-3.5m)	***Fraxinus griffithii Callistemon viminalis cv.***	***Lophostemon confertus (both sides)***	Larger trees could be accommodated. Street ABC.
Toyer Street	Overhead (Even)	Large (>5m)	**Mixed**	***Angophora costata, Eucalyptus paniculata, Acacia binervia (opposite wires) Tristaniopsis laurina, Banksia integrifolia, Angophora hispida (under wires)***	Biodiversity priority planting area. Asymmetrical verge arrangement
Tramway Street	Overhead (Even)	Large (>5m)	***Eucalyptus haemastoma Eucalyptus sideroxylon***	***Eucalyptus haemastoma, Eucalyptus sideroxylon (opposite wires) Synoum glandulosum, Tristaniopsis laurina (under wires)***	Existing wide grass verge. Continue with Eucalyptus planting. Biodiversity priority planting area.
Union Street	Overhead (Odd)	Narrow (<1.8m)	-	-	No existing street trees , road is very narrow with cars parking on verge.
Unwins Bridge Road	Overhead (Even)	Small (<1.8-3.5m)	***Callistemon viminalis cv. Melaleuca bracteata***	***Pyrus ussuriensis***	Overhead power on both sides. Parts are too narrow for planting. Major street. Verge width variable. No power on western side past Hillcrest Street and High School. Recommend ABC a priority.
View Street	None or UG	Large (>5m)	-	***Casuarina glauca, Glochidion ferdinandi, Ficus rubiginosa***	A collection of native tree species located in the reserve/open space areas. Any new plantings should continue with this native theme. Biodiversity priority planting area.
Way Street	Overhead (Odd)	Narrow (<1.8m)	***Eucalyptus nicholii Callistemon citrinus cv.***	***Callistemon salignus, Melaleuca styphelioides, Acacia binervia (opposite wires) Angophora hispida, Tristaniopsis laurina (under wires)***	Biodiversity priority planting area. One side of verge is grass. Suggest no planting in verge where adjacent to school yard.
Wells Avenue	ABC	Narrow (<1.8m)	**Mixed**	***Acacia binervia, Banksia serrata, Melaleuca styphelioides (opposite wires) Acmena smithii var. minor, Tristaniopsis laurina (under wires)***	No through road. Biodiversity priority planting area.
Wentworth Street	Overhead (Even)	Narrow (<1.8m)	***Melaleuca bracteata***	***Banksia integrifolia, Cupaniopsis anacardioides (opposite wires)***	Street verge very narrow, fully paved and only 1.8m wide. Vehicles frequently parked on footpath. Suggest planting to one side only.
William Street	Overhead (Even)	Small (<1.8-3.5m)	***Lophostemon confertus Callistemon viminalis cv.***	***Lophostemon confertus (in road) Koelreuteria paniculata (in verge)***	ABC a priority. Older Brush Box planted in-road. Further in-road planting opportunities.
Wood Street	Overhead (Odd)	Narrow (<1.8m)	-	***Corymbia maculata***	Footpath fully paved but some grassed areas to put larger trees in at end of cul-de-sac.
Young Street	Overhead (Even)	Narrow (<1.8m)	***Melaleuca bracteata Stenocarpus sinuatus***	***Melaleuca bracteata (opposite wires) Leptospermum petersonii (under wires)***	Street verge very narrow, fully paved and only 1.8m wide. Powerlines on one side, vehicles frequently parked on footpath. Suggest planting on one side only.

6.0 Appendices

6.1 References

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6.2 ABC Priority Streets

During fieldwork and review for the preparation of the Street Tree Master Plan 2014 the following streets were identified as 'priority' streets for the expansion or the introduction of Aerial Bundled Conductor overhead wiring. This has been based primarily on identifying streets where existing tree health and forms would be substantially improved or where recent street tree planting has been undertaken and the introduction of ABC will prevent the need for disfiguring pruning practices needing to be employed as the tree encroaches on the wires.

Street Name	Precinct Name
Vernon Street	01. Dulwich Hill East
Loftus Street	01. Dulwich Hill East
Margaret Street	01. Dulwich Hill East
Wilga Avenue	01. Dulwich Hill East
Bedford Crescent	01. Dulwich Hill East
New Canterbury Road	02. Dulwich Hill West
Lewisham Street	02. Dulwich Hill West
Jesmond Avenue	02. Dulwich Hill West
Clargo Street	02. Dulwich Hill West
Benham Street	02. Dulwich Hill West
Fairmount Street	02. Dulwich Hill West
Maddock Street	02. Dulwich Hill West
The Boulevarde	03. Lewisham & Petersham North
West Street	03. Lewisham & Petersham North
Jubilee Street	03. Lewisham & Petersham North
Searl Street	03. Lewisham & Petersham North
The Avenue	03. Lewisham & Petersham North
Thomas Street	03. Lewisham & Petersham North
Old Canterbury Road	03. Lewisham & Petersham North
Carrington Street	03. Lewisham & Petersham North
Despointes Street	04. Marrickville Central
Brereton Avenue	04. Marrickville Central
Marrickville Road	04. Marrickville Central
Juliett Street	05. Marrickville Industrial
Gladstone Street	05. Marrickville Industrial
Garners Avenue	05. Marrickville Industrial
Marrickville Road	05. Marrickville Industrial
Carrington Road	06. Marrickville South
Harnett Avenue	06. Marrickville South
Wrights Avenue	06. Marrickville South
Moyes Street	06. Marrickville South
Warburton Street	06. Marrickville South
Kays Avenue East	06. Marrickville South
Dudley Street	06. Marrickville South
Wallace Street	06. Marrickville South
Cardigan Street	07. Newtown North & Camperdown
Pidcock Street	07. Newtown North & Camperdown
Federation Road	07. Newtown North & Camperdown
Hopetoun Street	07. Newtown North & Camperdown
Marmion Street	07. Newtown North & Camperdown
Rowley Street	07. Newtown North & Camperdown

Street Name (cont.)	Precinct Name (cont.)
Gilpin Street	07. Newtown North & Camperdown
Trade Street	07. Newtown North & Camperdown
Surrey Street	07. Newtown North & Camperdown
Cruikshank Street	07. Newtown North & Camperdown
Walenore Avenue	08. Newtown South & Enmore
Holmwood Street	08. Newtown South & Enmore
Dickson Street	08. Newtown South & Enmore
Pemell Street	08. Newtown South & Enmore
Stanmore Road	09. Newington
Browns Avenue	09. Newington
Addison Road	09. Newington
Livingstone Road	09. Newington
Coronation Ave	09. Newington
Denning Street	09. Newington
Middleton Street	09. Newington
Crystal Street	09. Newington
Gordon Street	09. Newington
Nelson Place	09. Newington
Fisher Street	09. Newington
Cannon Street	10. Stanmore North
Phillip Street	10. Stanmore North
Stanley Street	10. Stanmore North
Crystal Street	10. Stanmore North
Princes Highway	11. Sydenham & St Peters
Goodsell Street	11. Sydenham & St Peters
May Street	11. Sydenham & St Peters
Unwins Bridge Road	11. Sydenham & St Peters
Princes Highway	12. Tempe
Unwins Bridge Road	12. Tempe
John Street	12. Tempe
William Street	12. Tempe
Edgar Street	12. Tempe

6.3 In-Road Planting Opportunities

During fieldwork and review for the preparation of the Street Tree Master Plan 2014 the following streets were identified as 'potential' streets for the continuation, expansion or introduction of in-road planting. This has been based primarily on identifying streets where carriage way widths would accommodate such planting or where moving the trees into the roadway could alleviate other constraints such as overhead wires. Many of these locations could also be utilised for WSUD initiatives and the use of stormwater runoff to passively irrigate the trees, improving their ability to survive prolonged dry spells.

Existing In-Road Planting to be Continued

Streets that have in-road planting already that should be retained and continued, even though species may be adjusted to reflect current planting needs.

Address	Precinct
Canonbury Grove, Dulwich Hill	1. Dulwich Hill East
Durham Street, Dulwich Hill	1. Dulwich Hill East
Ness Avenue, Dulwich Hill	1. Dulwich Hill East
Fairfowl Street, Dulwich Hill	1. Dulwich Hill East
Williams Parade, Dulwich Hill	2. Dulwich Hill West
David Street, Marrickville	4. Marrickville Central
Harney Street, Marrickville	4. Marrickville Central
Marrickville Avenue, Marrickville	4. Marrickville Central
Northcote Street, Marrickville	4. Marrickville Central
Robert Street, Marrickville	4. Marrickville Central
Woodcourt Street, Marrickville	4. Marrickville Central
Graham Avenue, Marrickville	5. Marrickville Central
Frampton Ave, Marrickville	5. Marrickville Industrial
Juliett Street, Marrickville	5. Marrickville Industrial
Victoria Rd (east of Juliett St)	5. Marrickville Industrial
Ewart Street, Marrickville	6. Marrickville South
Excelsior Parade, Marrickville	6. Marrickville South
Harnett Avenue, Marrickville	6. Marrickville South
Kays Avenue East, Marrickville	6. Marrickville South
Osgood Avenue, Marrickville	6. Marrickville South
Warburton Street, Marrickville	6. Marrickville South
Marmion Street, Camperdown	7. Newtown North & Camperdown
Charles Street, Enmore	8. Newtown South & Enmore
Juliett Street, Marrickville	8. Newtown South & Enmore
Liberty Street, Newtown	8. Newtown South & Enmore
Metropolitan Road, Newtown	8. Newtown South & Enmore
Pemell Street, Newtown	8. Newtown South & Enmore
Goodsell Street, St Peters	11. Sydenham & St Peters
Griffiths Street, Tempe	12. Tempe
John Street, Tempe	12. Tempe
William Street, Tempe	12. Tempe

Narrow Streets Where In-Road Planting should be explored

Narrow verge streets that have been identified as potential in-road planting to allow street trees to be better accommodated.

Street	Precinct
Elswick Street, Petersham	3. Lewisham & Petersham North
Queen Street, Petersham	3. Lewisham & Petersham North
Derby Street, Camperdown	7. Newtown North & Camperdown
Ross Street, Camperdown	7. Newtown North & Camperdown
Eton Street, Camperdown	7. Newtown North & Camperdown
Albermarle Street, Camperdown	7. Newtown North & Camperdown
Probert Street, Newtown	7. Newtown North & Camperdown
Bishopgate Street, Newtown	7. Newtown North & Camperdown
St Marys Street, Newtown	7. Newtown North & Camperdown
Chelmsford Street, Camperdown	7. Newtown North & Camperdown
Oxford Street, Newtown	7. Newtown North & Camperdown
Baltic Street, Newtown	7. Newtown North & Camperdown
Station Street, Newtown	7. Newtown North & Camperdown
Pierce Street, Newtown	7. Newtown North & Camperdown
Clara Street, Newtown	8. Newtown South & Enmore
Simmons Street, Newtown	8. Newtown South & Enmore
Sloane Street, Newtown	8. Newtown South & Enmore
Pearl Street, Newtown	8. Newtown South & Enmore
Wells Street, Newtown	8. Newtown South & Enmore
John Street, Newtown	8. Newtown South & Enmore
Margaret Street, Newtown	8. Newtown South & Enmore
Bailey Street, Newtown	8. Newtown South & Enmore
Denison Street, Newtown	8. Newtown South & Enmore

New In-Road Planting Opportunities

The table below lists streets that been identified for potential in-road planting.

Street	Precinct	WSUD
Balfour Street, Dulwich Hill	1. Dulwich Hill East	*
Kays Avenue West, Dulwich Hill	1. Dulwich Hill East	
Tennyson St, Dulwich Hill	1. Dulwich Hill East	*
Vernon Street, Lewisham	1. Dulwich Hill East	*
Abergeldie Street, Dulwich Hill	2. Dulwich Hill West	
Arlington Street, Dulwich Hill	2. Dulwich Hill West	
Clargo Street, Dulwich Hill	2. Dulwich Hill West	
Gelding Street, Dulwich Hill	2. Dulwich Hill West	*
Hampstead Road, Dulwich Hill	2. Dulwich Hill West	
Jesmond Avenue, Dulwich Hill	2. Dulwich Hill West	*
Maddock Street, Dulwich Hill	2. Dulwich Hill West	*
May Street, Dulwich Hill	2. Dulwich Hill West	*
Weston Street, Dulwich Hill	2. Dulwich Hill West	
Carrington Street, Lewisham	3. Lewisham & Petersham North	*
Eltham Street, Dulwich Hill	3. Lewisham & Petersham North	
Henry Street, Lewisham	3. Lewisham & Petersham North	*
Jubilee Street, Lewisham	3. Lewisham & Petersham North	*
Searl Street, Petersham	3. Lewisham & Petersham North	*
The Avenue, Petersham	3. Lewisham & Petersham North	
Thomas Street, Lewisham	3. Lewisham & Petersham North	*
Amy Street, Marrickville	4. Marrickville Central	
Anderton Street, Marrickville	4. Marrickville Central	*
Ann Street, Marrickville	4. Marrickville Central	
Brereton Avenue, Marrickville	4. Marrickville Central	*
Cecelia Street, Marrickville	4. Marrickville Central	
Charles Street, Marrickville	4. Marrickville Central	
Darley Street, Marrickville	4. Marrickville Central	
Enfield Street, Marrickville	4. Marrickville Central	*
Gordon Square, Marrickville	4. Marrickville Central	*
Harrison Street, Marrickville	4. Marrickville Central	*
Horton Street, Marrickville	4. Marrickville Central	
Pile Street, Marrickville	4. Marrickville Central	*
Woodbury Street, Marrickville	4. Marrickville Central	*
Sydney Street, Marrickville	5. Marrickville Industrial	
Charlotte Street, Marrickville	6. Marrickville South	*
Day Street, Marrickville	6. Marrickville South	
Grove Street, Marrickville	6. Marrickville South	*
Mansion Street, Marrickville	6. Marrickville South	*

Street (cont.)	Precinct (cont.)	WSUD
Richards Ave, Marrickville	6. Marrickville South	*
Tamar Street, Marrickville	6. Marrickville South	*
View Street, Marrickville	6. Marrickville South	*
Rowley Street, Camperdown	7. Newtown North & Camperdown	*
Trade Street, Camperdown	7. Newtown North & Camperdown	
Dickson Street, Newtown	8. Newtown South & Enmore	
Lynch Avenue, Enmore	8. Newtown South & Enmore	
Albert Street, Petersham	9. Newington	
Audley Street, Petersham	9. Newington	
Ducros Street, Petersham	9. Newington	
Maria Street, Petersham	9. Newington	
McRae Street, Petersham	9. Newington	*
Morgan Street, Petersham	9. Newington	*
Cannon Street, Stanmore	10. Stanmore North	
Hillcrest Street, Tempe	12. Tempe	*

* Streets identified where planting may be combined with appropriate Water Sensitive Urban Design (WSUD) initiatives such as rain gardens or biofiltration pits. Any tree planting is to take precedence over WSUD outcome requirements.

6.4 Street Tree Supply and Installation Specifications

1. Technical Guidelines Overview

Planting trees within streets is a complex operation that can involve removal and reinstatement of existing pavements, excavation, disposal of spoil, supply and planting of the tree, mulching, and installation of final tree surrounds. When carried out on major roads, professional vehicle and pedestrian traffic control measures will be required including the potential scheduling of work in the early mornings or on weekends.

This considerable effort can be wasted if the tree dies shortly after planting and then must be replaced. It is therefore essential that the tree is in optimal condition when planted, and the methods of planting, protection and maintenance is of a high standard.

This part of the document outlines the required measures and requirements of Marrickville Council with regard to street tree planting. This Section will act as a specification for the purchase, installation and maintenance of street trees for use by the Council itself or any private developers required to carry out work in the public domain.

Key factors that will be considered include:

- Purchase of trees of the specified size and quality
- Tree installation specification - including size of tree pit, and backfill provisions
- Street planting technical details
- Specification and installation of tree guards
- Maintenance requirements

2. Street Tree Supply Specification

2.1 General conditions and quality

All trees to be provided to the Council are to conform to the NATSPEC guide and "*Guide for assessing the quality of and purchasing of landscape trees*" by Ross Clark 2003. The following specification details the specific requirements for the supply and transportation of trees.

Nursery stock shall meet design criteria for minimum dimensions, container size and shape, plant shape or special pruning requirements outlined in this document and the table below.

Definitions for the terms used within this specification shall be in accordance with the NATSPEC guide.

Container Volume	Height (m) above container	Calliper at 300mm	Clear trunk height (m)
45 Litre	1.9 - 2.3	30-35 mm	1.2
75 Litre	2.2 - 2.4	40-45 mm	1.4
100 Litre	2.4	> 50 mm	1.5
200 Litre	3.5	> 60 mm	1.5
300 Litre	4.2	> 70 mm	1.5
400 Litre	5.5	> 70 mm	1.5
Palm trees	-	n/a	5.0

2.2 Labelling of stock

Clearly label individual trees and batches with the species name and cultivar / variety / provenance if appropriate. The label is to withstand transit without erasure or misplacement.

2.3 True to type

The trees supplied and planted shall be the species, and variety or cultivar that the Council has specified.

2.4 Health and vigour

The trees supplied shall be healthy and vigorous at the time of delivery and planting. Supply trees with foliage size, texture and colour at the time of delivery consistent with the size, texture and colour shown in healthy specimens of the nominated species. Supply trees with extension growth consistent with that exhibited by vigorous specimens of the nominated species.

2.5 Pest and disease

Trees shall not be diseased or show evidence of pest attack that could affect the long term health of the tree or adjoining plantings. Supply trees with foliage and soil free from attack by pests and diseases. For Australian native trees with a history of attack by native pests (eg. *Ficus macrophylla* & *Eucalypts*), evidence of previous attack must be restricted to less than 15% of the foliage and there must be no actively feeding insects or evidence of fungi.

2.6 Injury

Supply only trees free from injury and wounds.

2.7 Self supporting

Supply only trees that are self supporting.

2.8 Stem taper

Supply trees where the calliper at any given point on the stem is greater than the calliper at any point higher on the stem.

2.9 Pruning

Trees are not to be pruned into a saleable shape just prior to shipment. All pruning shall be a clean-cut at the branch collar, no lopping or topping of trees is to be carried out and the diameter of any wound must not exceed 50% of the calliper immediately above the point of pruning.

Clean stem height: trees shall be supplied with a clean stem height of 35-40% of total tree height. For example a 5m tree is to be pruned to 2m maximum (clean stem height must not exceed 40% of total tree height).

Pruning wounds: Restrict fresh cuts (i.e recent, non-calloused) to <20% of total tree height.

Type: Ensure a clean-cut at the branch collar that complies with AS4373-2007:Pruning of Amenity Trees.

2.10 Crown symmetry

The symmetry of the crown is an important aspect of the presentation and appearance of the tree in the landscape. Difference in crown distribution on opposite sides of the stem axis must not exceed 20%.

2.11 Stem structure

Species with an excurrent form: Supply trees with a defined central leader and the apical bud intact. Trees that have had their leaders cut or damaged will not be accepted. Supply trees with a single stem roughly in the centre of the tree with any deviation from vertical <15°.

Species with decurrent form: Supply trees where the central stem is not divided at any point lower than the clean stem height nominated, and that the stem junction at the point of division is sound.

All species: Ensure that branch diameter is less than or equal to one-half of the calliper immediately above the branch junction.

2.12 Included bark
Supply trees where the branch/stem bark ridges at junctions between stems and branches and between co-dominate stems are convex, except for species prone to include bark that are known to remain strong (as approved by Council).

2.13 Trunk position
Supply trees with the distance from the centre of the trunk to any extremity of the rootball is not varying by >10%.

2.14 Compatibility of graft unions
When purchasing named cultivars propagated by grafting, it is critical that the graft union is sound and that the scion and root stock are compatible. The union between the scion and the root stock must be sound for the entire perimeter of the graft. The diameter of the scion immediately above the graft must be equal to the diameter of the rootstock immediately below the graft (+or -20%).

2.15 Indication of north
Trees in containers >100 litres: Indicate the northerly aspect during growth in the nursery and ensure it is marked so to withstand transit without erasure or misplacement.

3.16 Root division
Trees in containers >45 litre: Primary division of roots is to have occurred within the outer 50% of the rootball at <100mm intervals.

2.17 Root direction
Ensure that roots, from the point of initiation, generally grow in outwards (radial) or downwards direction, and that any deviation from the established direction <45º.

2.18 Root ball occupancy
Soil Retention: On shaking or handling of the unsupported rootball at least 90% of the soil volume shall remain intact.

2.19 Rootball depth
Rootball depth assessment for containers/rootballs 45 litres or larger must:

- have a depth of less than or equal to the maximum depth specified for palms;
- have a diameter greater than or equal to their depth; and
- rootballs (regardless of size) must not exceed 550mm in depth (except for palms).

2.20 Height of root crown
Ensure that the trees root crown is at the surface of the rootball and free from suckering.

2.21 Non-suckering rootstock
Grafted cultivars/varieties: Supply trees grafted onto non-suckering rootstock.

2.22 Rejection of non-conforming specimens
Any tree not conforming to the specifications and standards listed in this specification shall be rejected and suitable replacements provided. If non-conforming trees are provided, the Council require new stock that complies to be supplied and planted, or alternatively may provide replacement specimens and deduct the costs from any applicable bank guarantee or bond.

3. Street Tree Installation Specification

3.1 General
This specification describes the appropriate techniques to be used to install new street trees within the Council local government area.

There may be allowance for some variation in the techniques to be used, however any change to the techniques from those described here must be submitted in a Work Method Statement for approval by the Council prior to any work being carried out.

Tree planting works shall be undertaken by an Arborist or Horticulturist with minimum certification in accordance with Australian Qualifications Framework Level 2.

3.2 Typical scope of work
The scope of work for tree installation work typically comprises:-

(a) Demolition of existing tree pit or cutting of the existing footway.
(b) Excavation of subgrade for tree pits.
(c) Supply and installation of imported and existing soil mixes.
(d) Installation of trees.
(e) Supply and installation of wooden stakes, ties and guys where required to maintain stability.
(f) Installation of supplied tree guards where specified.
(g) Supply and installation of various style tree bases, to the Councils specification, after an initial six (6) month soil settlement and tree establishment period.
(h) Reinstatement of pavement in any aborted tree pits.
(i) Maintenance of planted trees for a specified period following completion of planting.

3.3 Standards
All works shall be in accordance with the relevant standards. The following standards are referred to in this section:-

- AS 4419-2003 Soils for landscaping and garden use;
- AS 4454-2003 Compost, soil conditioners and mulches;
- AS 4373-2007 Pruning of amenity trees.

3.4 Statutory requirements
The installer is responsible for compliance with all relevant statutory requirements.

The installer shall apply for a Road Opening Permit and be able to demonstrate clear working programs and sequences. Site specific pedestrian and vehicular traffic control plans are to be submitted as part of this application and shall conform to NSW Roads and Maritime Services guidelines and any other statutory requirements. These plans shall include any requirements for parking of work site vehicles and the delivery of materials.

Approval from the NSW Police Traffic Management Centre and NSW Roads and Maritime Services may be required when the work has an impact on traffic flow on major roads.

3.5 Environmental controls
The installer shall ensure that all materials and the execution of the work are ecologically sound, environmentally benign and consistent with the principles of sustainable development.

The installer shall take all practical precautions to ensure that dust and noise caused by the works are kept to a minimum. The installer shall take all practical precautions to prevent the spread of dirt and mud along roads and paths. The installer shall be responsible for all localised sediment and erosion control of work and stockpiles under their control and use.

The installer must comply, and make sure that sub-contractors comply, with the general provisions of this clause and any other

environmental protection provisions within the requirements of any statute, by-law, standard and the like related to environmental protection.

3.6 Inspections
Provide not less than 48 hours notice so that a Council Representative can make the following inspections:-

(a) Tree stock prior to planting.
(b) Plant materials set out and placed in tree pits before backfilling.
(c) Tree planting completed.
(d) Footpath reinstated.
(e) Periodic inspections during maintenance period.
(f) Completion of plant establishment period.

3.7 Site investigations, existing services and structures
The installer shall confirm with the Council the exact location of all tree pits associated with tree planting works.

In accordance with NSW electricity and gas supply regulations, all excavations for tree planting require the review of underground service plans sourced from Dial Before You Dig service. Specialist service location tools or expertise may be required when underground service plans are insufficiently detailed or where plans indicate that services are close to the intended planting location. The installer shall be responsible for the rectification of all pavement surfaces where inspections have been undertaken including the making good of any excavation or site markings.

The installer shall notify the Council immediately upon discovery of services or obstructions that prevent any planned tree planting. All services shall be considered live until determined otherwise. No liability is accepted, by the Council or the Service Authorities, for accidents resulting from contact or disturbance to services.

In the event of any damage to any service, the installer shall immediately notify the relevant authority and the Council and satisfy all requirements of the authority concerned.

The installer shall be liable for all damage caused by the tree installation works to all existing buildings and structures. The installer shall make good all damage at their expense.

3.8 Spoil
Surplus excavated material must be immediately removed from the site. This includes debris resulting from site clearance and excavated material not reusable as topsoil, filling, mulch or the like, unless otherwise specified or directed. Existing topsoil with any stump grinding debris incorporated within it will be removed from site and not re-used in the new planting site.

The installer shall be solely responsible for the safe and harmless disposal of material away from the site. Surplus excavated material shall not be permitted to remain in place overnight.

Existing tree base materials, such as unit pavers or stone tiles, can be recycled and reused in the new tree bases as long as specifications allow.

3.9 Extent of excavations
Excavate to an equivalent depth of the new tree rootball measured from the underside of any concrete base slabs, or as shown on the details. Do not disturb services, and excavate by hand around any existing services as required.

The installer shall measure the rootball depth of each tree to determine the appropriate tree pit depth. Allow additional depth to achieve specified falls for subsoil drainage lines and to satisfy finished levels.

Safety precautions must be in place to prevent public entry to work site area.

3.10 Existing pavement
The existing pavement shall be cut by a road-saw or other suitable tool to the dimensions shown in the details. Cutting shall only be at right angles and parallel to the kerb. The cut shall have a neat straight edge and smooth face. Kerbs must not be cut under any circumstances. In the case of cutting unit paving, ensure that the cuts are made along the joints without damage to the surrounding pavers. Unit paving may be dismantled rather than cut if this option minimises damage.

3.11 Subgrade preparation
Cultivate or rip the subgrade at the base and sides of tree pits to a depth of 100mm. During cultivation, thoroughly mix in any materials required to be incorporated into the subsoil. Remove stones exceeding 70mm and any rubbish or other deleterious material brought to the surface during cultivation. Grade the base of tree holes to the required design levels and shapes after cultivation.

3.12 Root control barriers
Root barriers will typically not be required, and shall only be installed when specifically instructed by the Council.

3.13 Soil mixes
TYPE A Soil mix: Commercially available premium grade manufactured sandy loam organic garden mix conforming to AS4454.

TYPE B Soil mix: Blended soil mix comprising 50% recovered existing site topsoil (or imported premium grade top soil) and 50% Type A.

COURSE SAND: Shall be washed, sharp coarse river sand 0.25 to 2.0mm in diameter, free of weeds, debris or other deleterious material.

3.14 Soil stockpiling
Do not establish stockpiles of soil on the site. All materials are to be moved directly from carrier to the hole. The pavement surface is to be maintained in a clean and tidy state at all times.

3.15 Soil testing
Upon excavation, if the tree site appears to show poor subterranean condition (poor drainage, contamination, or anaerobic conditions), the installer shall immediately notify the Council. Site specific soil testing or subsoil drainage may be specified and approved.

3.16 Drainage
Subsoil drainage is to be installed as per Council requirements and will be determined on a site by site basis.

3.17 Bad ground
Bad ground shall be ground considered unsuitable for the purpose of the works, including filling liable to subsidence, ground containing cavities, faults or fissures, ground contaminated by harmful substances or ground which is, or becomes soft, wet and unstable and the like.

If bad ground is encountered in, or adjacent, to any tree pit during the work, notify the Council immediately and obtain instructions before carrying out any further work in the affected area.

3.18 Planting conditions
Do not plant in unsuitable weather conditions such as extreme heat, cold, wind or rain. Avoid planting where unseasonable and adverse weather is forecast within 24 hours of the operations. No trees are to be planted on days exceeding temperatures of 30º Celsius. Generally tree planting is preferred during the cooler months from March to October (autumn and spring).

3.19 Watering
Thoroughly water the tree rootballs before planting and then immediately after planting. Prevent the rootballs from drying out during the transportation or planting phase.

Apply water so as not to disturb the soil. Raise the moisture within the root zone to field capacity. Ensure potted rootball is thoroughly wet through the entire soil profile. Continue watering at a rate and frequency as required to avoid water stress in the plant.

3.20 Lifting of trees
It is preferred that all trees are carried or slung via the root ball. In the event that the trees have to be repositioned or lifted by the trunk, the installer shall provide adequate soft padding to the trunk in the form of underfelt, carpet or rubber wrapping and use only soft slings during the lifting. Serious damage to the cambium tissue of the stem as a result of poor lifting techniques will require replacement of the tree.

3.21 Placement
When the tree pit is excavated and the hole is the correct size, place the rootball in its final position. Ensure the trees are centred and plumb and the top of the rootball level with the finished surface of the surrounding soil mix.

Do not use the trunk of the tree as a lever in positioning or moving the tree in the planting hole.

3.22 Alignment and orientation
Position the tree at the setout distances as indicated in the details. Ensure trunks are set vertically and aligned with other new or existing trees.

Orientate the trees trunk north where indicated by supplied markings where applicable. (+or- 20º). Adjust within the above tolerances so that the primary lowest branches are generally aligned parallel with the kerb and road way (NOT extending out into roadway).

3.23 Root trimming
All trees shall have the outer 10-25mm of the external root ball faces pruned or sliced away using secateurs or a suitably sharp and clean spade. Avoid excessive disturbance to the remaining rootball during this trimming and discontinue if excessive rootball soil begins to fall away. Do not leave the rootballs exposed for extended periods. Cover the rootball with moist hessian if backfilling can not occur immediately.

3.24 Backfilling
Backfill with soil mix as specified in soil mixes and in accordance with the details and specification. Lightly compact the soil to ensure all voids around rootballs are filled and that no air pockets are retained.

Ensure that the backfill soil is not placed over the top of the potted rootball. The top of the rootball and plant stem must be kept level with the top of the backfill.

3.25 Mulch
Mulch shall be free of deleterious and extraneous matter, including soil, weeds, rocks, twigs and the like. Lay mulch to maximum 75mm depth. Place the mulch so that it is not in direct contact with the trunk. Feather mulch away from trunk at base of root ball.

Mulch the areas in accordance with the details. The mulch types to be used are as follows:-

- Decomposed granite brown colour, lightly compacted and installed as shown in the relevent standard details.
- Weed free timber chippings or recycled (no fines) wood waste.

4. Tree Establishment and Maintenance

4.1 Tree establishment period
The tree establishment period commences at the date of practical completion for a period specified by the Council.

All trees shall also be maintained immediately following their installation, as per the specifications below, up until the above tree establishment period commences. Tree maintenance works shall be undertaken by an Arborist or Horticulturist with minimum certification in accordance with Australian Qualifications Framework Level 2.

The installer shall submit a program prior to the commencement of the tree establishment period. The program shall detail all works required during the planting establishment period including:-

(a) Rectification of defects;
(b) Provision of materials;
(c) Watering;
(d) Fertilising;
(e) Control of weed growth;
(f) Replacement of dead, damaged or stolen plants.

The installer shall provide 7 days notice of any works to replace trees as part of planting establishment. Throughout the tree establishment period, the installer must continue to maintain new trees and carry out maintenance work including, but not limited to:-

- weeding and rubbish removal from tree surrounds;
- fertilising;
- pest and disease control;
- replanting (on approval from Council);
- adjustment, removal or replacement of stakes & ties;
- formative and selective pruning to AS 4373 and;
- mulching to maintain and reinstate to depth specified.

Watering - Allow for 10% of the planted container volume to be applied every 2 days for the first 2 weeks and then 20% of the container volume once per week for 3-4 months. Despite above guideline, installer is to monitor and maintain soil moisture during summer months ensuring the rootball does not dry out and causes wilting. Ensure the bottom of the tree planting hole does not become saturated. (The above is based on spring to early autumn planting – the above frequency may be halved for winter plantings).

Inspection results and the maintenance procedures shall be recorded and submitted to the Council every 2 months. The various ongoing maintenance practices shall be carried out to the satisfaction of Council.

4.2 Tree guards and supports
The installer shall supply and install 3 wooden stakes with hessian ties per tree, for all trees planted up to 200 litre in size. Where advised by the Council, the installer shall allow to supply and install metal tree guards on specified trees.

4.3 Fertilising

The following table details the required fertiliser program.

Timing	Product and application rate
At time of planting	Slow Release landscape fertiliser suitable for trees and shrubs, 9 to 12 months release time. Osmocote or approved equivalent applied according to manufacturers directions.
6 months after planting and then monthly through to end of plant the establishment period.	Organic liquid fertiliser. Seasol or approved equivalent applied to soil as per manufacturers directions.

4.4 Aeration pipe

Only where detailed, the aeration pipe will be 50mm slotted 'Ag-Pipe'. These will be without a geotextile sleeve. Any surface grates will be separately specified by Council, where necessary.

4.5 Tree bases

Tree bases surrounded by permeable pavements or flagging etc. shall be left as soil or filled with a thin layer of decomposed granite for the first six (6) months to allow for any settlement of the rootball and backfill soil.

Following the six (6) month settlement period, the tree base as specified in the detail is to be installed.

The tree base is to be maintained in a safe and level condition at all times.

Failure of the tree bases prior to agreed practical completion timing will require rectification by the installer. This failure equates to any area of the tree base slumping/lifting/cracking or creating a trip hazard (variation of more then 10mm) and will require rectification by the installer.

4.6 Pavement rectification

Reinstate and make good to match exactly the surrounding pavement, to the satisfaction and approval of the Council, all pavement, paving, concrete, brick or other surface damaged or affected by the tree planting and tree base installation works.

Existing materials salvaged from the site must be approved by the Council for reuse and must match existing pavement. Where temporary asphalt topping is required, approval of the Council shall be sought.

4.7 Tree replacements

Where trees are damaged or die or fail to maintain vigorous growth typical of the species due to neglect or inadequate maintenance, the installer shall replace, replant and maintain trees of the same species, size and quality.

5. Tree Planting Details

Technical details have been developed to ensure Council staff, developers and Council contractors provide an appropriate and consistent treatment for street tree planting throughout the variety of street environments typically encountered.

The Appendix 6.6 illustrate the typical details to be applied.

In-road planting details and median strip details will be dependent on the individual street widths, traffic and services and will therefore require site specific designs to be employed, however the following 'ideal practice' details have been included here to provide general expectations for tree planting in these instances.

The use of continuous planting trenches, structural soil, structural cells, suspended pavements and other tree planting technology will be considered based on specific site conditions. Actual designs shall be developed by Council or submitted to Council for consideration prior to any installation.

6.5 Street Tree Pruning Specifications

1. Overview

Pruning has a direct impact on the health, structure and viability of a tree. All pruning of live tissue results in a wound to the tree, which the tree has to attempt to seal and compartmentalise. Incorrect pruning techniques can lead to decay and disease within the tree, much the same as a wound in animals can lead to disease and infection.

Pruning of the canopy also has the consequence of removing valuable foliage, which in-turn removes an essential source of energy production from the tree. The tree will then also spend considerable reserves of energy in trying to regrow the losses of the removed foliage. Branches and trunks also hold important transport and storage tissues within the tree.

As per Marrickville's Street Tree Master Plan, Section 1.8 Council will generally not consider leaf, fruit, sap or bark drop or bird and bat droppings as valid reasons to prune or remove a street tree.

2. Canopy Pruning

Pruning of branches of street trees shall be as directed by the Council Tree Management Officer. Pruning is only to be undertaken by a qualified arborist (under the supervision of a person with AQF Level 4 or above). Work is to be in strict accordance with to AS4373-2007 *Pruning of Amenity Trees*. Wounds are not to be treated.

Generally, evaluate the existing plant habit and form together with the desired habit, clearances and form as determined by Council and gain approval prior to any pruning. Minimise the size and number of wounds resulting from all pruning.

Use crown maintenance techniques on all protected trees to improve health and appearance. Use crown modification techniques on all protected trees to accommodate adjacent proposed structures and future construction access. Ensure remaining canopy is balanced with appropriate weight and crown distribution.

Use only clean, sharp pruning implements for all pruning work, ensuring that cuts are made without damage, tearing or bruising of vascular tissue.

Deadwooding

Remove all dead branches greater than 30mm in diameter as required on young trees less than 5m in height. Remove all dead branches of greater than 50mm diameter for existing mature trees greater than 5m in height.

Formative Pruning

Selectively remove branches as required to promote proper form and branching habit, typical for the natural growth habit of the species. For species with an excurrent branching habit, ensure the development of a dominant central leader. Remove lesser competing leaders where required. Ensure that no greater than 15-20% of the total foliage area is removed at any one time. Trees occurring below new or existing overhead power lines shall be pruned to create a lower and multi-branched canopy well below minimum clearances in line with Ausgrid guidelines.

Selective and Reduction Pruning

Remove identified branches for building clearance requirements. These should be removed to a suitable internal lateral branch at least 1/3 the diameter of the branch removed or to the branch collar at the stem. Also remove any broken, damaged and defective branches as required. Remove crossing and rubbing branches and branches with included bark at their junction to ensure proper form and branching habit as required.

Crown Lifting

Remove the lower branches as required to create adequate vehicular and pedestrian clearance up to a minimum height of 2.4m on the pedestrian side or over parking lanes and 4.5m on the trafficable roadside lanes (at 1 metre radius from the centre of the main trunk and outward). Ensure that at least 50% of the foliage arises from the lower two-thirds of the trunk.

Epicormic Growth and Suckers

Typically remove all epicormic growth occurring on the main trunks or basal suckers as and when they occur. If major pruning was undertaken it may be necessary to manage and allow some epicormic growth to mature to provide necessary foliage cover.

Palms

Only remove the old and spent fruits and fronds. Never remove the terminal shoot. To avoid transmission of diseases, tools shall be thoroughly disinfected between trees.

3. Root Pruning

Pruning roots of Council managed trees shall only be as directed by the Council. The Council shall use only a qualified arborist (AQF Level 4 or above) to undertake the pruning. Prior to any excavation, check that there are no existing underground services along the proposed cut line that may be damaged. Roots are not, under any circumstances to be cut using normal excavation machinery of any sort. This usually results in splitting and massive disturbance well past the intended line of cut.

Preliminary root pruning using a high pressure water knife or air spade is allowable along an alignment of the final cut. Using a high pressure water jet, cut through the soil and tree roots from the surface down to the nominated depth or rock, whichever comes first and in the location(s) as shown on the drawing(s). All roots are to be hand excavated and pruned if necessary to provide clean cuts.

When required to cut roots, use sharp hand tools (e.g. secateurs, hand saw) such that the remaining root system is preserved intact and undamaged. Roots are to be cut back by hand square to the edge of the excavation. Do not cut any tree roots exceeding 100mm diameter unless permitted by Council and after evaluation by a AQF Level 5 arborist.

Excavations within root zones should be kept open for as short a period as possible. Any excavated face containing roots is to be supported immediately after cutting, where necessary, to prevent soil loss from around the retained roots.

4. Post Root Pruning Care

Cover the cut face of the roots with moist hessian or jute immediately after pruning. Maintain in moist state until permanent or temporary backfilling can be achieved.

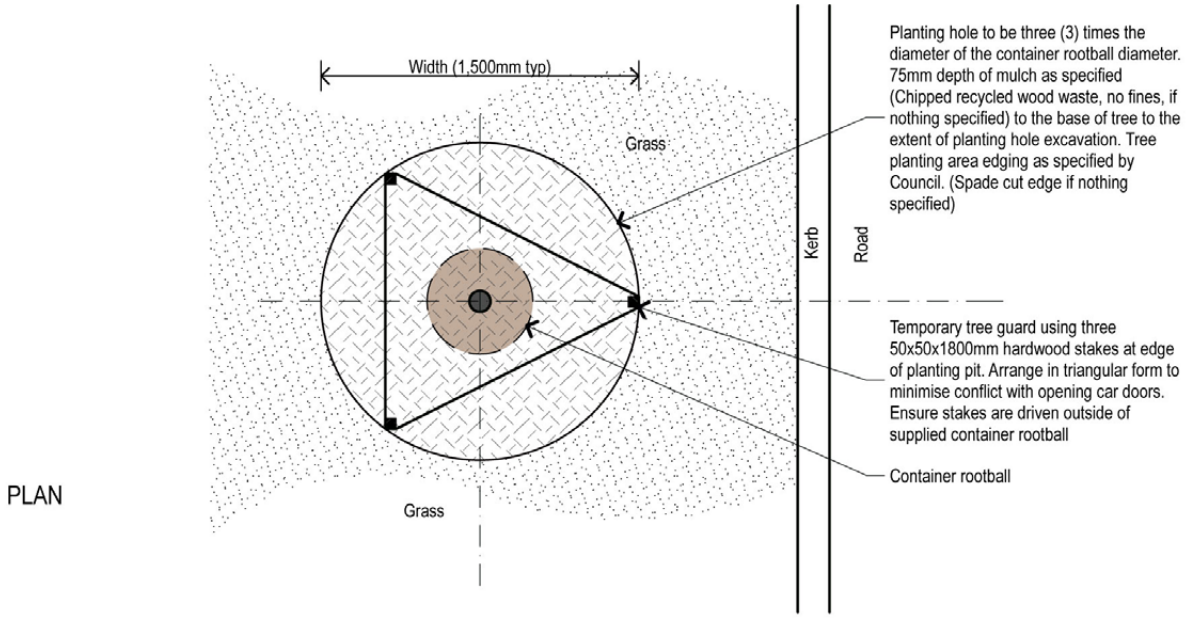
If no temporary measures are required and finished levels can be achieved, backfill all excavations around tree roots with a mixture consisting of one part by volume of site soil and three parts of washed course sand with a neutral pH value, free from weed growth and harmful materials. Place the backfill in 150-200mm layers and thoroughly water the root zone surrounding the tree.

Apply root inducing hormone, Auxinone by Barmac Industries (or approved equivalent) at a rate of 1 part Auxinone to 50 parts water together with a soil wetting agent to the area around the cut root surfaces once per week for 10 weeks.

6.6 Typical Street Planting Details

Refer to the following pages for the standard street tree installation and planting details to be typically applied to all normal street planting within the Marrickville LGA area. These details may be amended by Council, from time to time, to accommodate site specific circumstances.

NOTE:
All details are to be read in conjunction with any site specific DA conditions, Council issued Contract Documentation and the general Specification clauses contained in Section 6.4 of the Marrickville Street Tree Master Plan 2014



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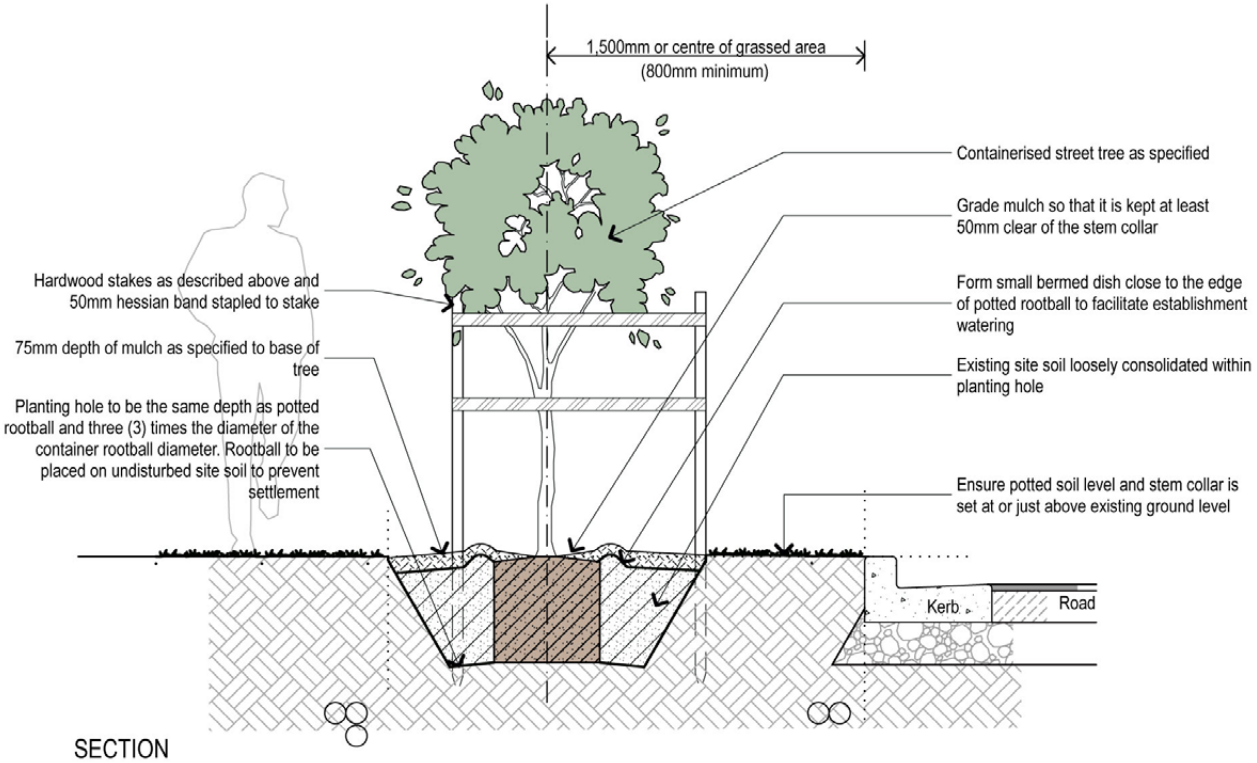

SECTION

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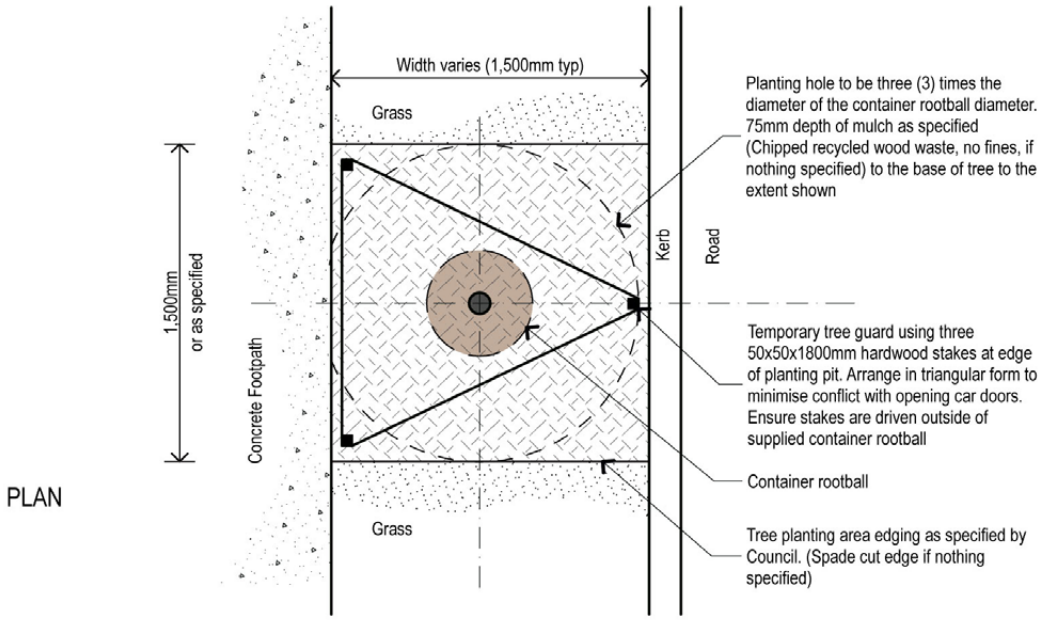
DETAIL 1 - TREE PLANTING IN GRASSED VERGE WITH NO PATH NEARBY

Marrickville Council

NOTE:
All details are to be read in conjunction with any site specific DA conditions, Council issued Contract Documentation and the general Specification clauses contained in Section 6.4 of the Marrickville Street Tree Master Plan 2014



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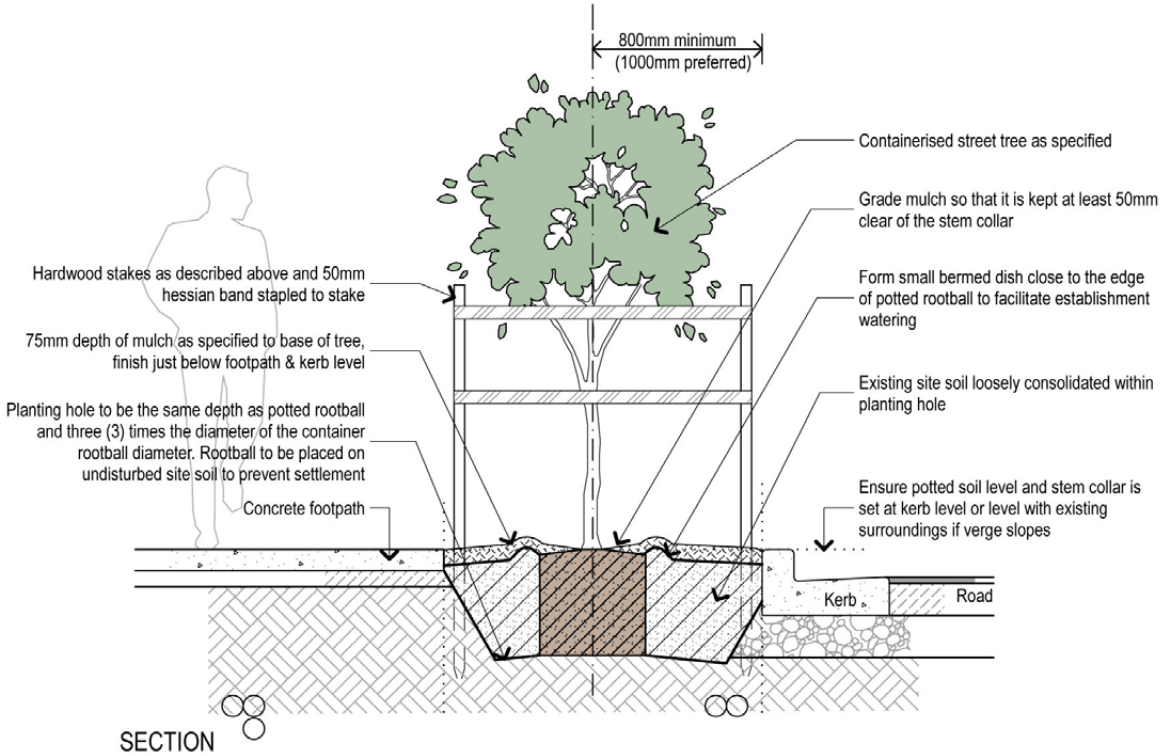


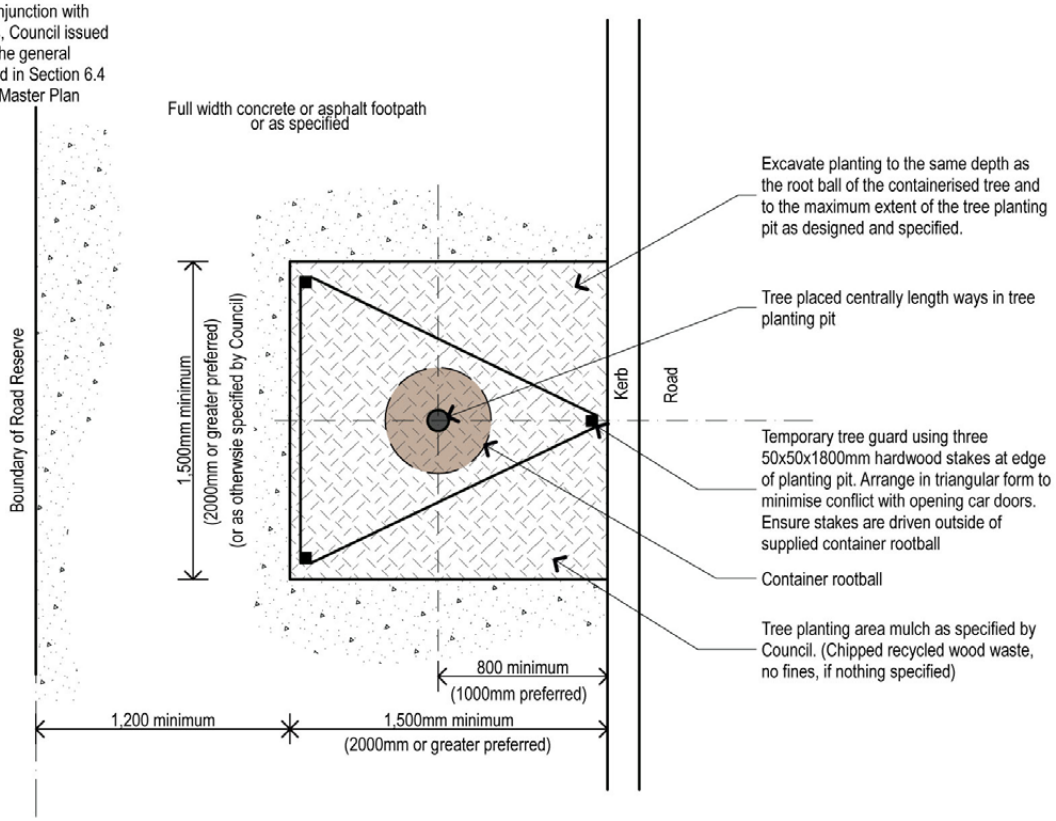
SECTION

Scale 1: 25 @ A3 0 500 1000mm

DETAIL 2 - TREE PLANTING IN GRASSED VERGE STRIP WITH ADJOINING PATH

Marrickville Council

NOTE:
All details are to be read in conjunction with any site specific DA conditions, Council issued Contract Documentation and the general Specification clauses contained in Section 6.4 of the Marrickville Street Tree Master Plan 2014



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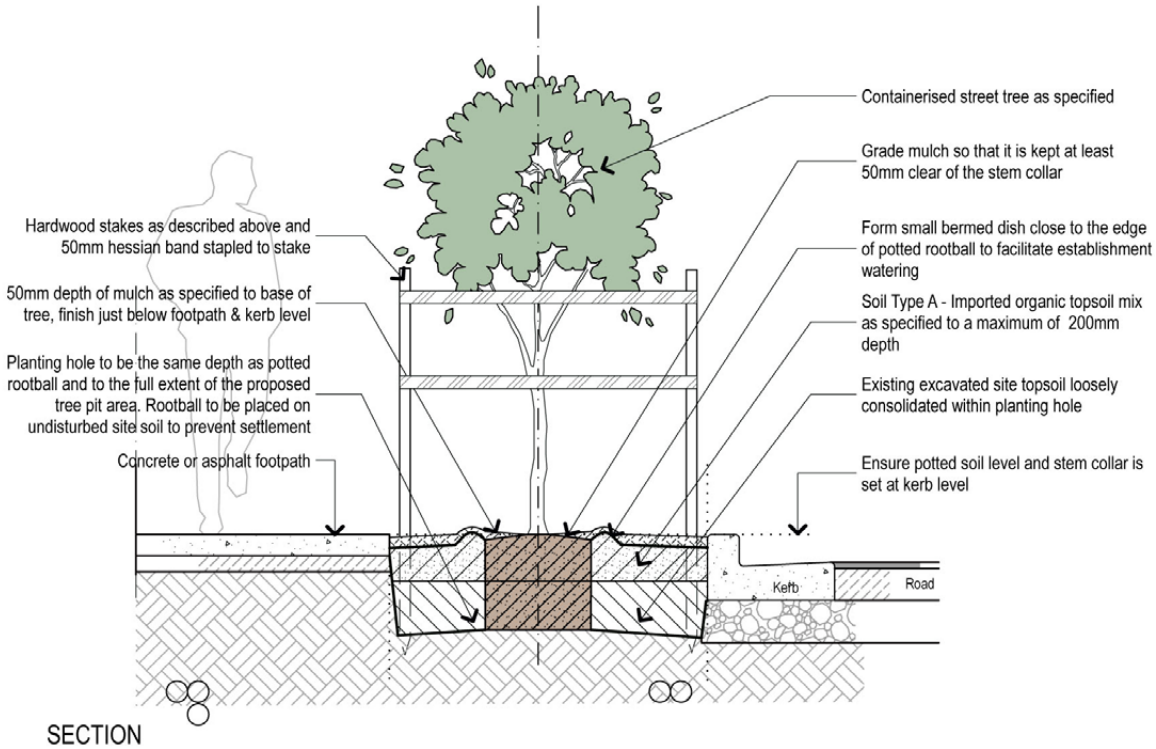

SECTION

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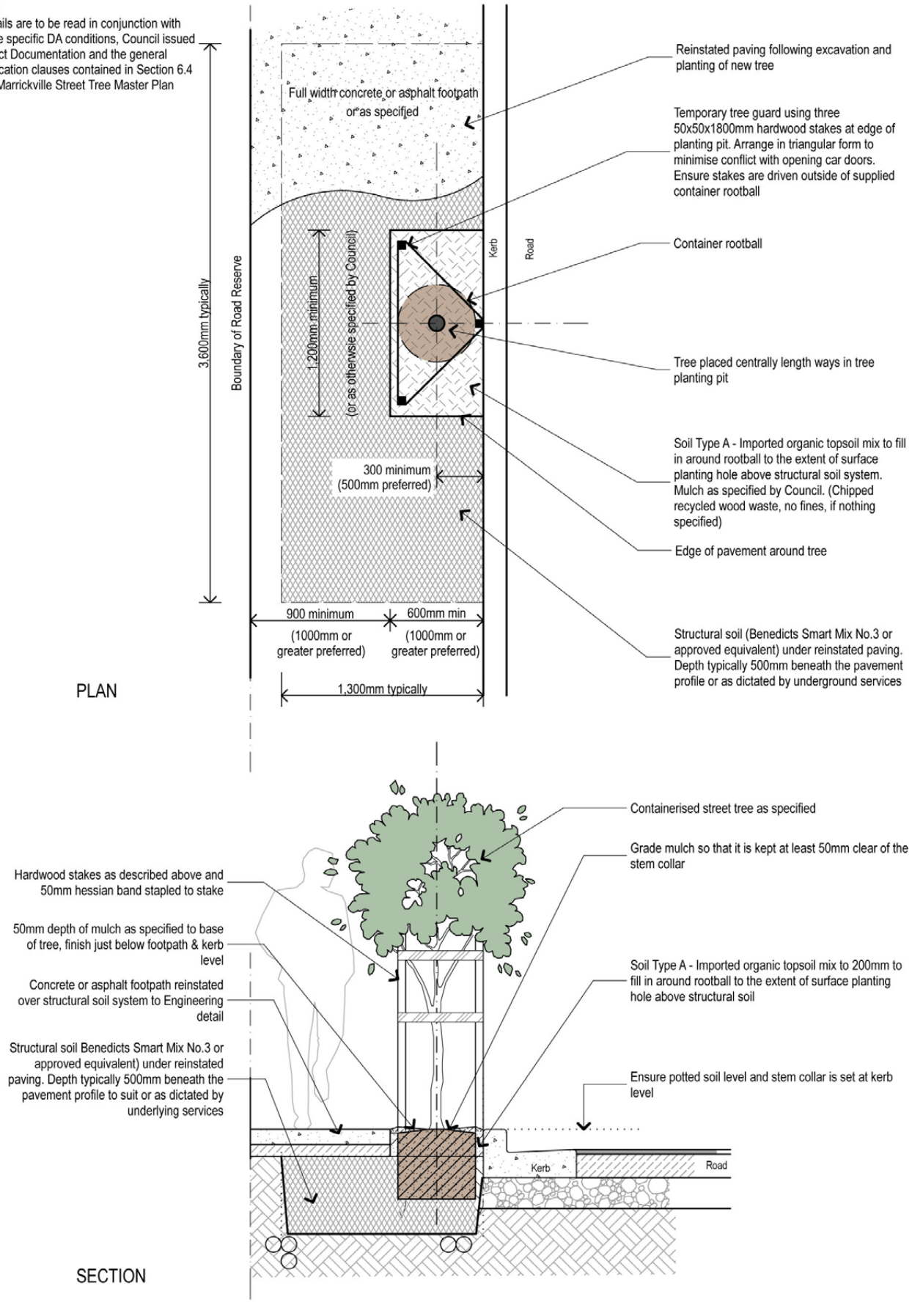
DETAIL 3 - TREE PLANTING IN FULLY PAVED VERGE AND GOOD SURROUNDING SUBSOIL

Marrickville Council

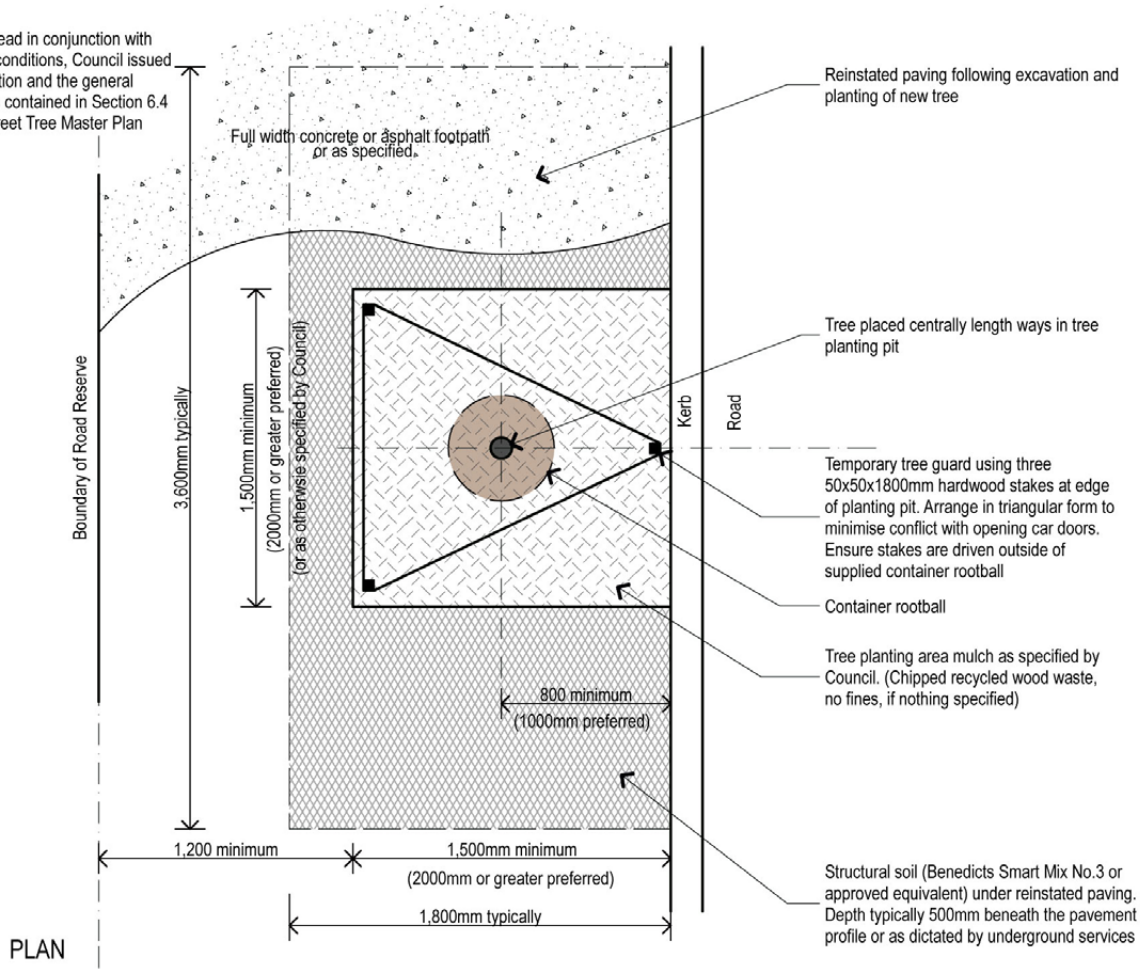
NOTE:
All details are to be read in conjunction with any site specific DA conditions, Council issued Contract Documentation and the general Specification clauses contained in Section 6.4 of the Marrickville Street Tree Master Plan 2014

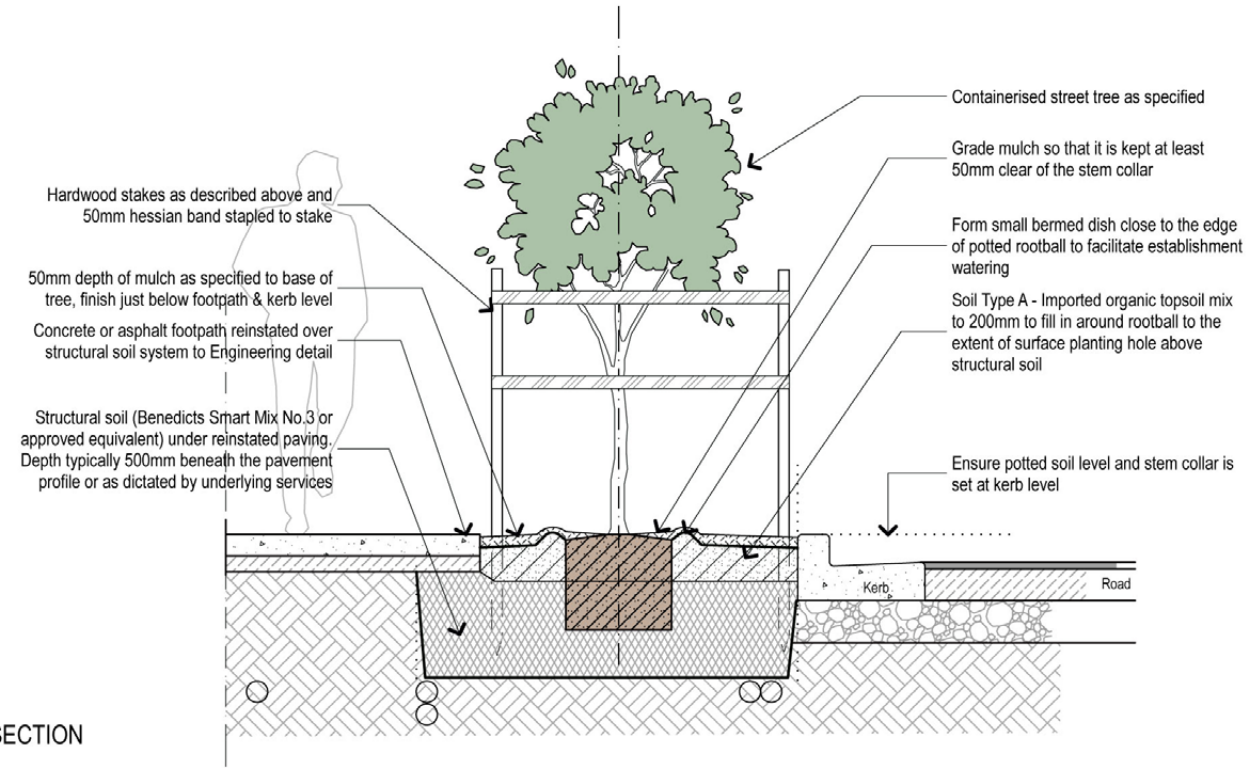


DETAIL 4 - TREE PLANTING IN NARROW PAVED VERGE WITH EXPANDED SOIL VOLUME

Marrickville Council

NOTE:
All details are to be read in conjunction with any site specific DA conditions, Council issued Contract Documentation and the general Specification clauses contained in Section 6.4 of the Marrickville Street Tree Master Plan 2014





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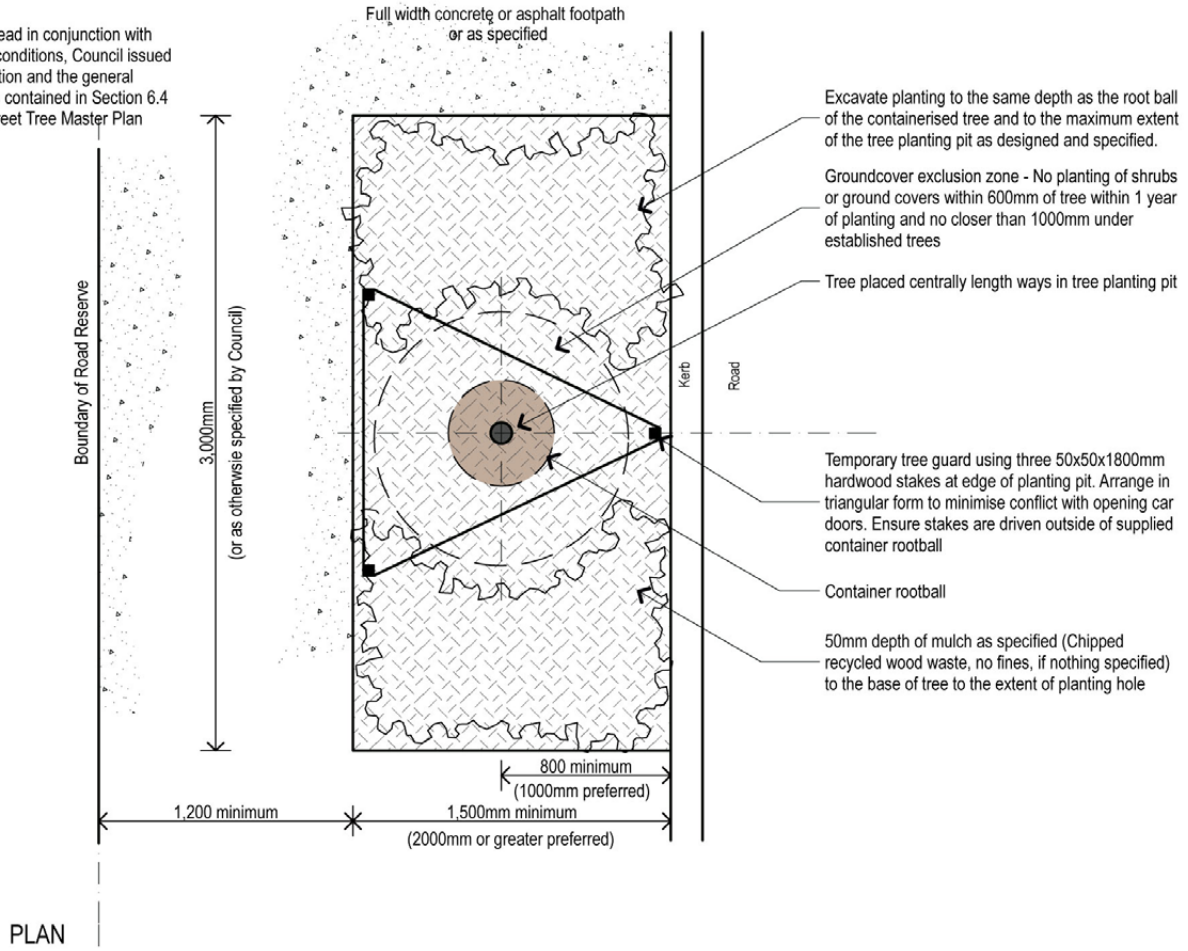
DETAIL 5 - TREE PLANTING IN FULLY PAVED VERGE WITH EXPANDED SOIL VOLUME

Marrickville Council

NOTE:
All details are to be read in conjunction with any site specific DA conditions, Council issued Contract Documentation and the general Specification clauses contained in Section 6.4 of the Marrickville Street Tree Master Plan 2014



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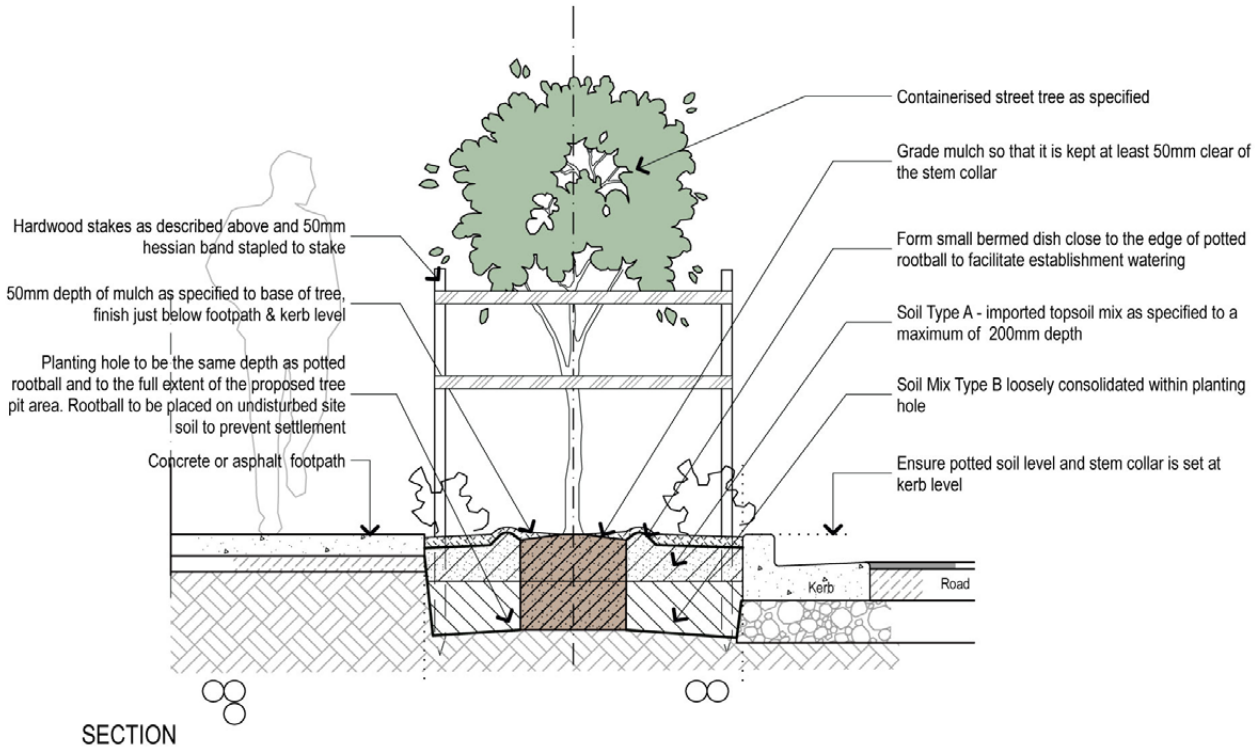

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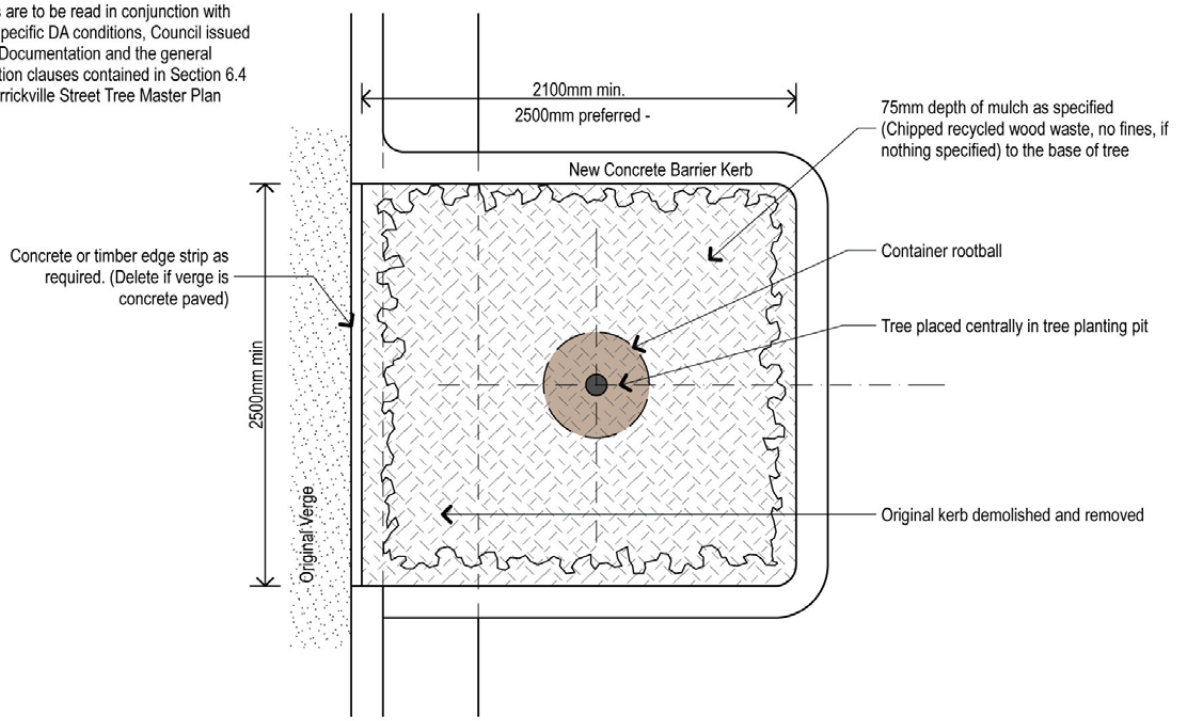
DETAIL 6 - TREE PLANTING IN FULLY PAVED VERGE WITH EXPANDED TREE PIT GARDEN

Marrickville Council

NOTE:
All details are to be read in conjunction with any site specific DA conditions, Council issued Contract Documentation and the general Specification clauses contained in Section 6.4 of the Marrickville Street Tree Master Plan 2014



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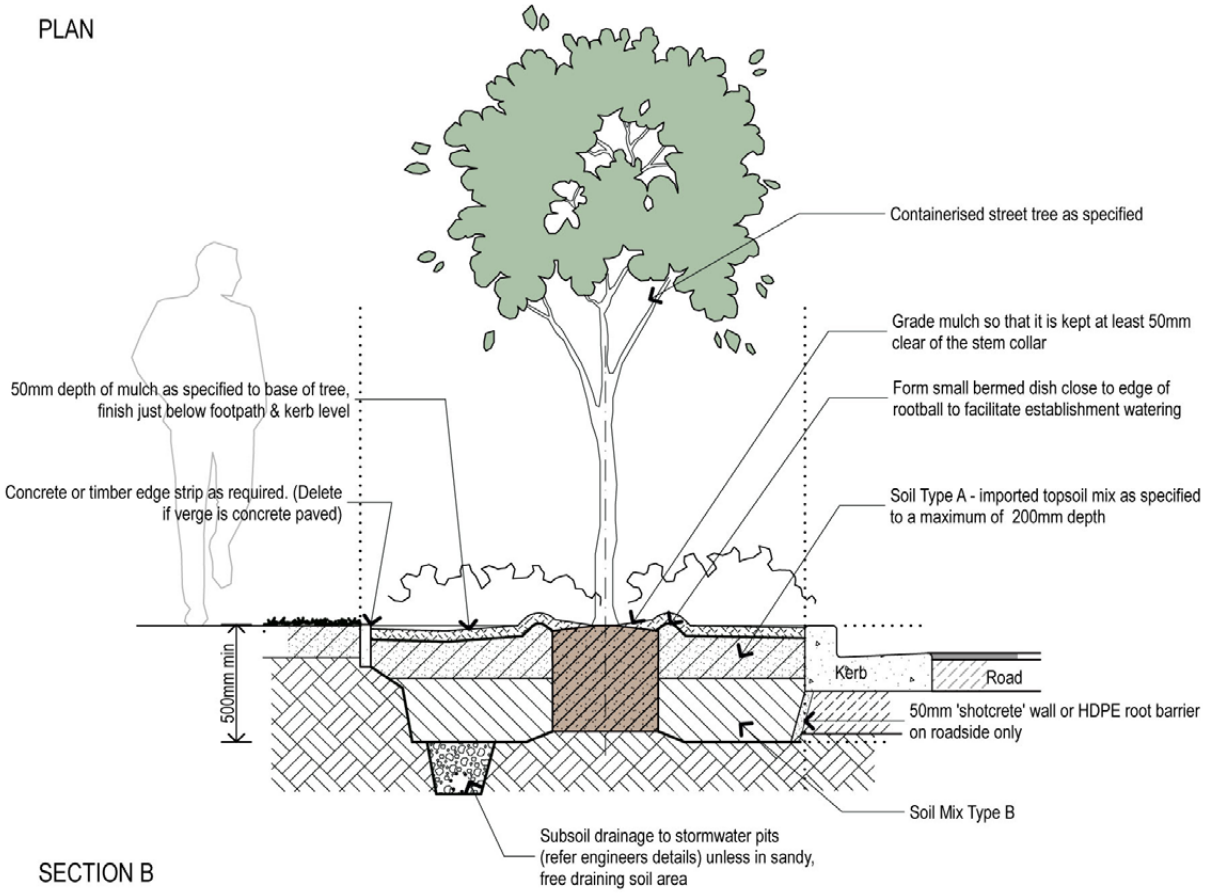


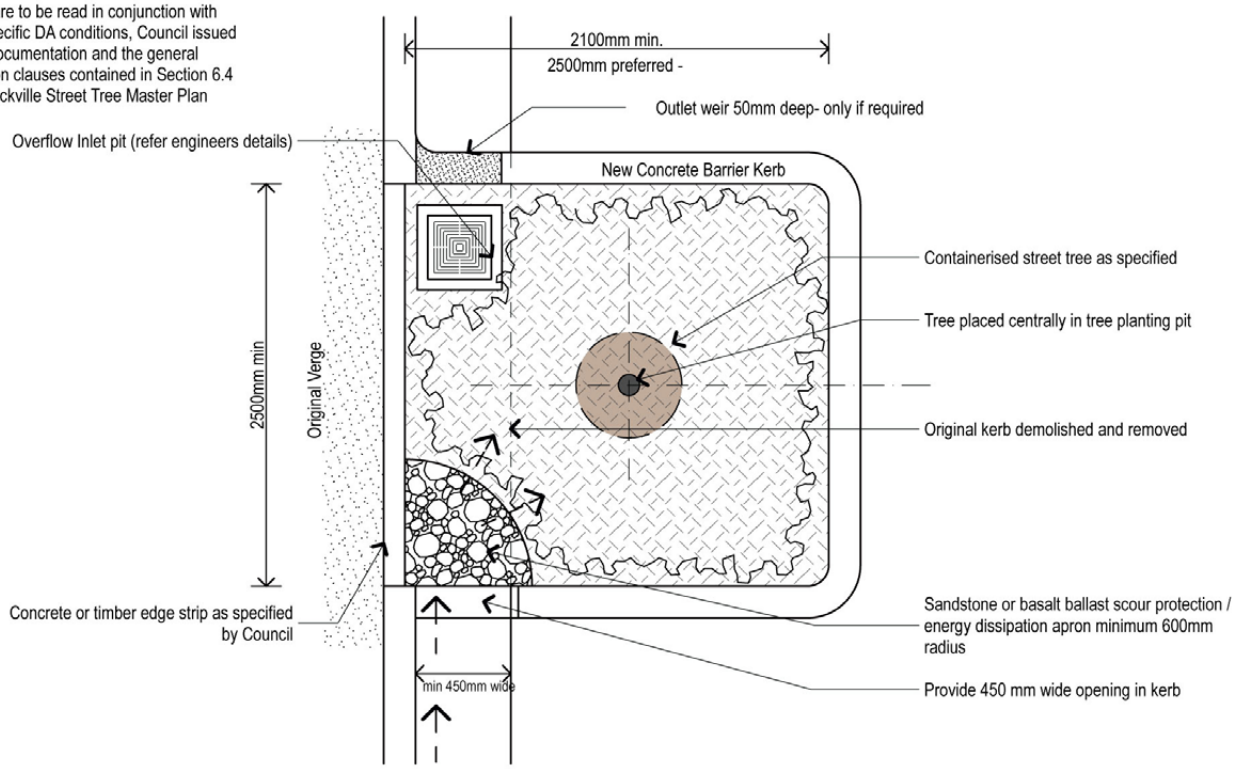
SECTION B

Scale 1: 25 @ A3 0 500 1000mm

DETAIL 7 - INDICATIVE IN ROAD PLANTING WITH KERB EXTENSION

Marrickville Council

NOTE:
All details are to be read in conjunction with any site specific DA conditions, Council issued Contract Documentation and the general Specification clauses contained in Section 6.4 of the Marrickville Street Tree Master Plan 2014



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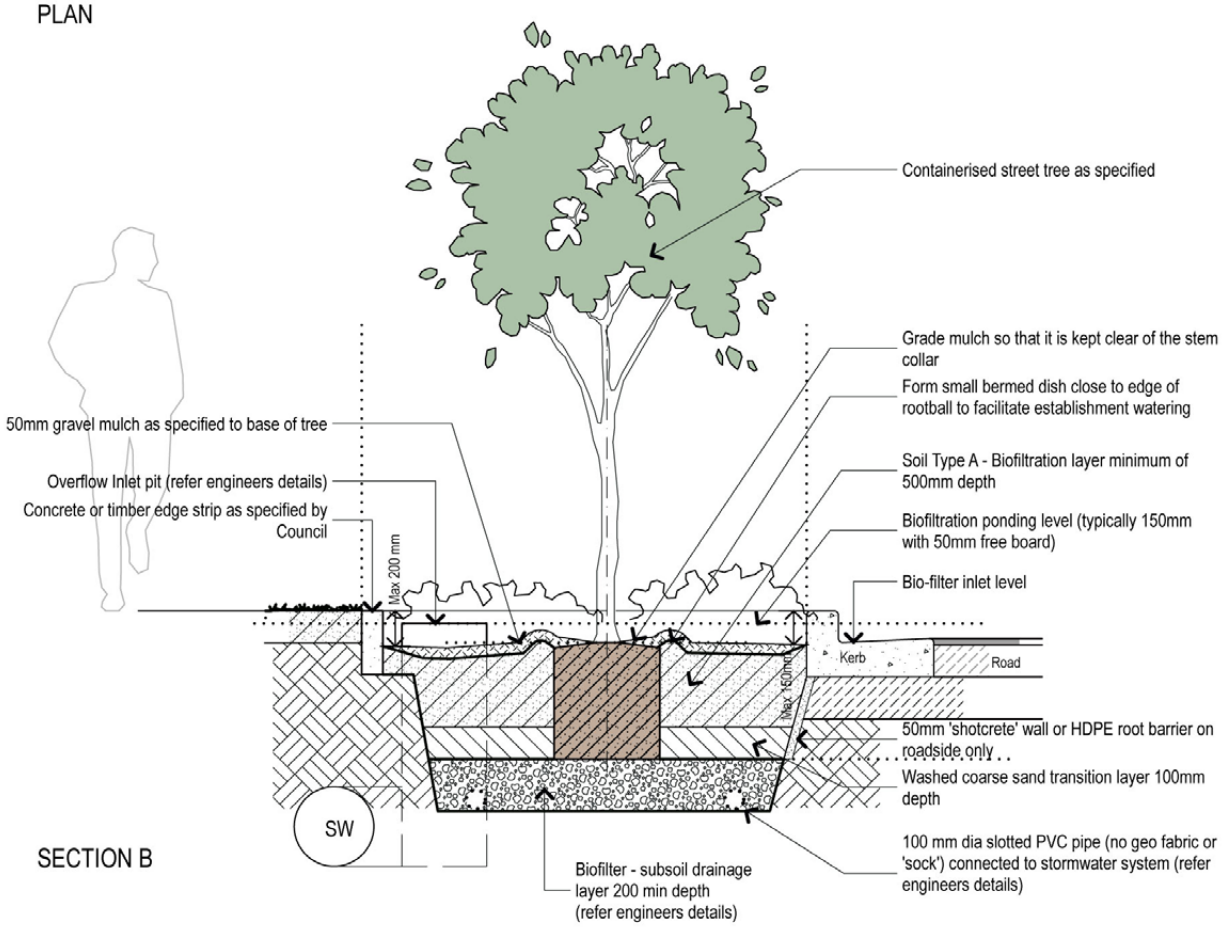

SECTION B

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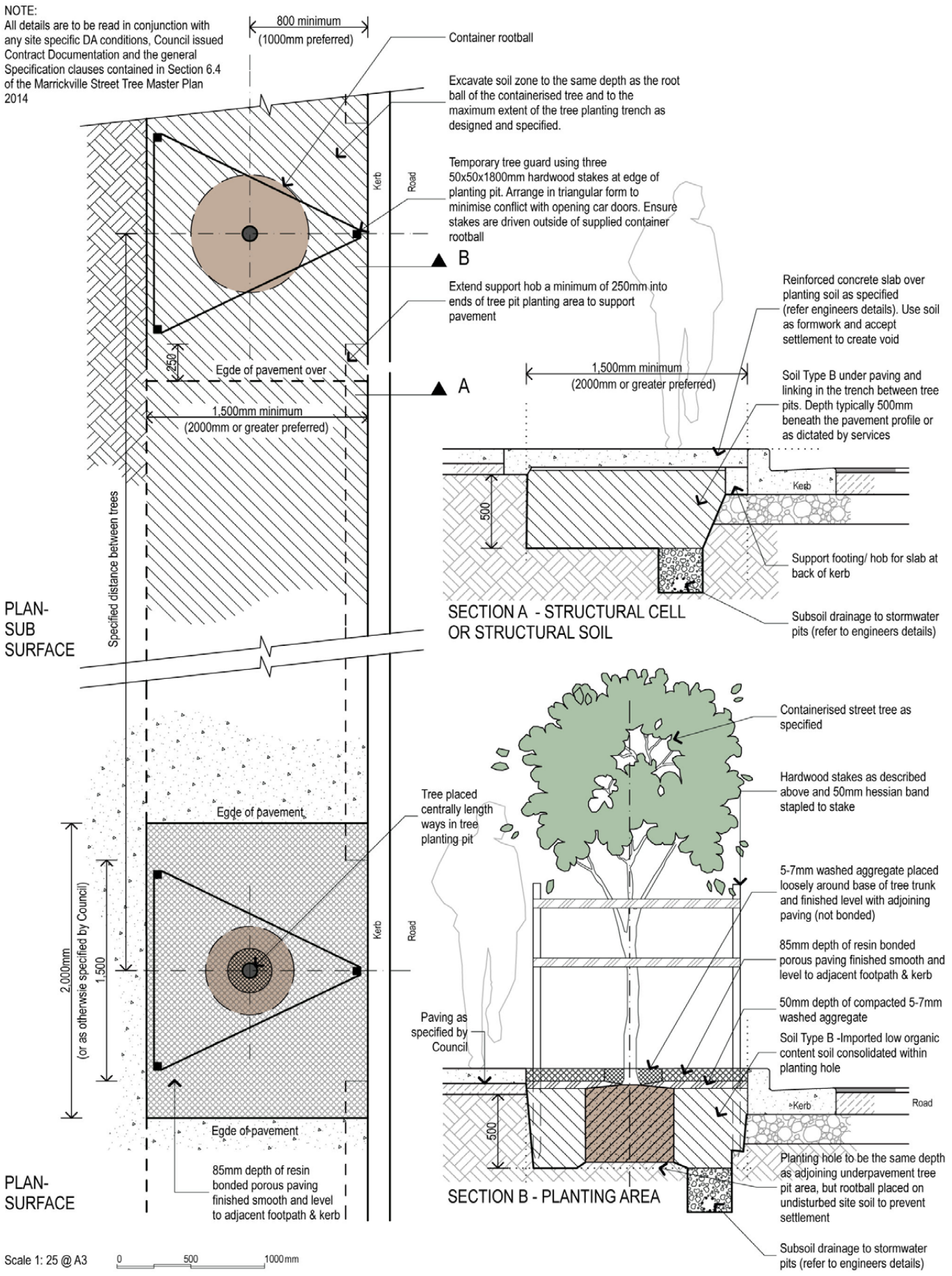
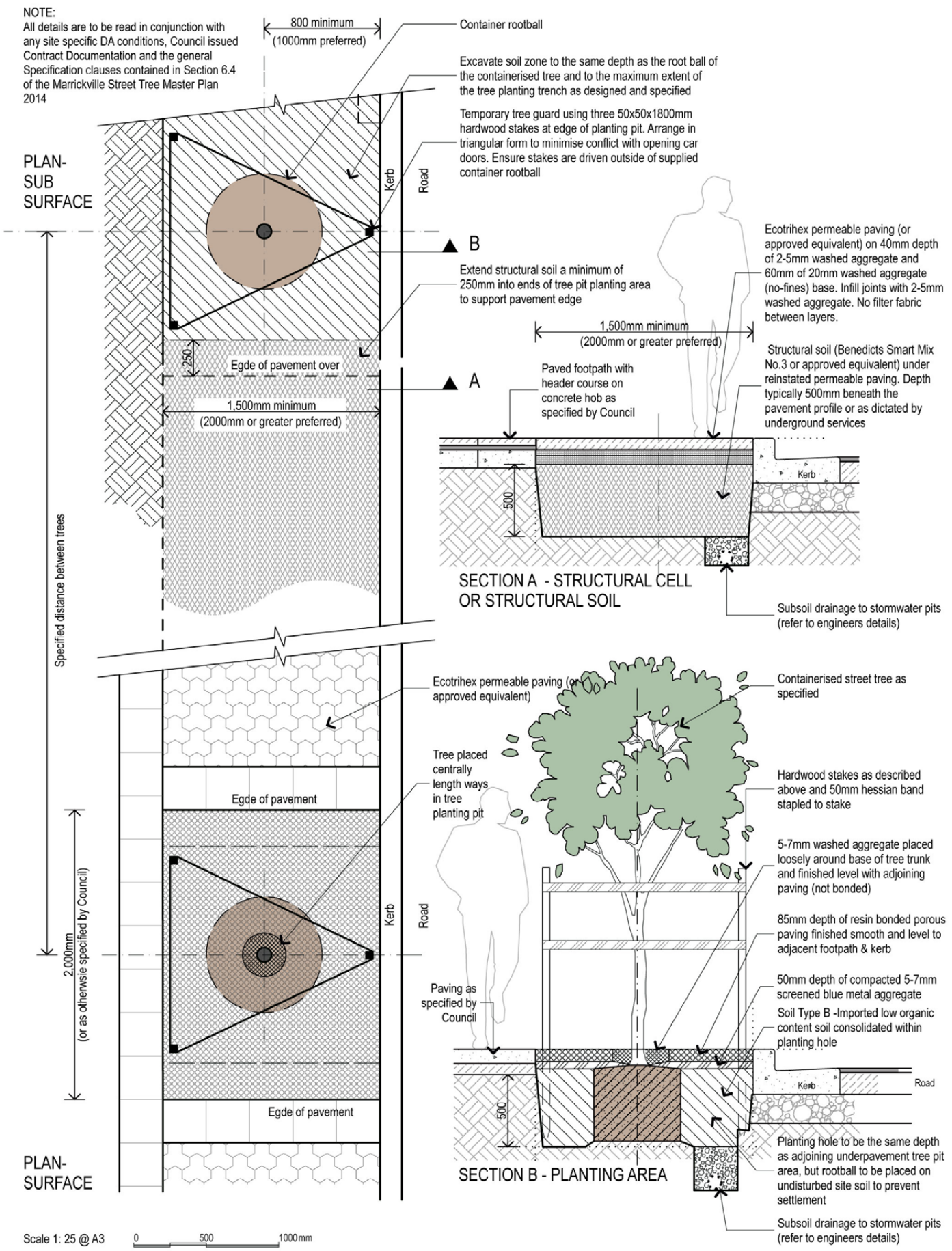
DETAIL 8 - INDICATIVE IN ROAD PLANTING WITH KERB EXTENSION & BIOFILTRATION

Marrickville Council



DETAIL 9 - 75-200L TREE PLANTING WITH VAULTED INTERCONNECTED SOIL TRENCH

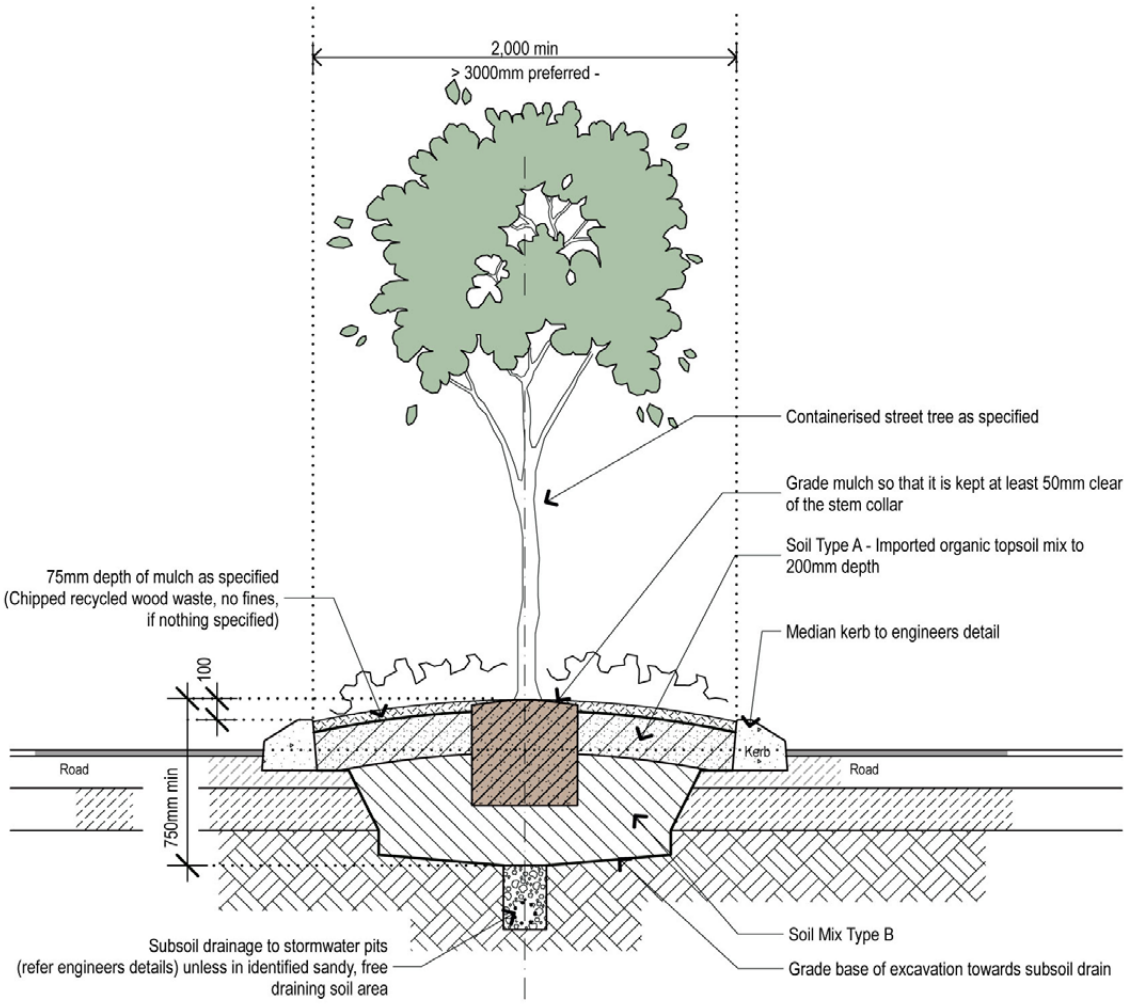
Marrickville Council



DETAIL 10 - 75-200L TREE PLANTING IN PERMEABLE PAVING WITH STRUCTURAL SOIL

Marrickville Council

NOTE:
All details are to be read in conjunction with any site specific DA conditions, Council issued Contract Documentation and the general Specification clauses contained in Section 6.4 of the Marrickville Street Tree Master Plan 2014



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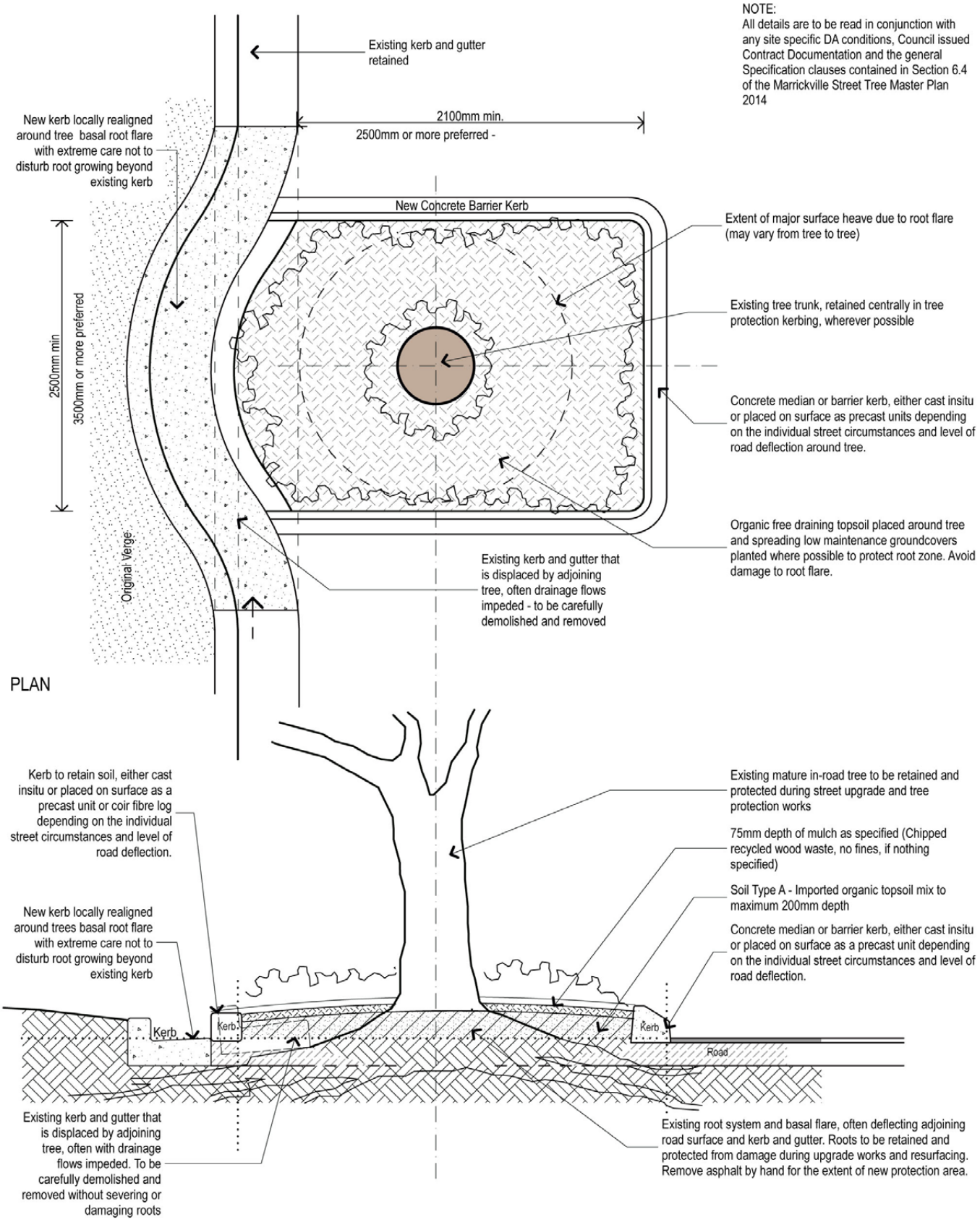
DETAIL 11 - INDICATIVE IN ROAD CENTRE ISLAND / MEDIAN PLANTING

Marrickville Council

NOTE:
All details are to be read in conjunction with any site specific DA conditions, Council issued Contract Documentation and the general Specification clauses contained in Section 6.4 of the Marrickville Street Tree Master Plan 2014



DETAIL 12 - INDICATIVE EXISTING IN ROAD UPGRADE AND TREE PROTECTION TREATMENT

Marrickville Council

6.7 Street Tree Data Sheets

The following pages are in alphabetical order (by botanical name) and provide illustrations and a brief description of the proposed future street tree species for Marrickville.

The descriptions and measurements are a reasonable and indicative guide to the expected typical sizes in Sydney in an average street environment with average soil conditions and moderate moisture levels.

Please note that some trees may gain larger sizes than suggested in the following data sheets but only in very favourable conditions or in their original and natural forest environments. They will seldom make it to those larger sizes in a normal street planting situation.

Photo of a mature tree. (Photo. Arterra)

Photo of foliage and flowers. (Photo. Arterra)

Botanic Name:
Acacia binervia
(Syn. Acacia glaucesens)

Common Names:
Coastal Myall

Family:
FABACEAE (sub. fam. MIMOSOIDEAE)

Origin:
NSW Coast and Ranges

Typical Height:
8-12 metres

Typical Width:
8-10 metres

Typical Growth rate:
Fast.

Typical Habit:
Dense broad domed and compact crown with dark coloured rough bark.

Foliage:
Silvery grey curved phyllodes (modified leaf).

Flowers:
Bright yellow rod shaped 'wattle' flowers in early spring.

Fruit:
A legume (pea) pod that splits to reveal a hard row of seeds.

Site requirements:
Free draining soil in a full sun position. Formative pruning required when young to achieve clearances.

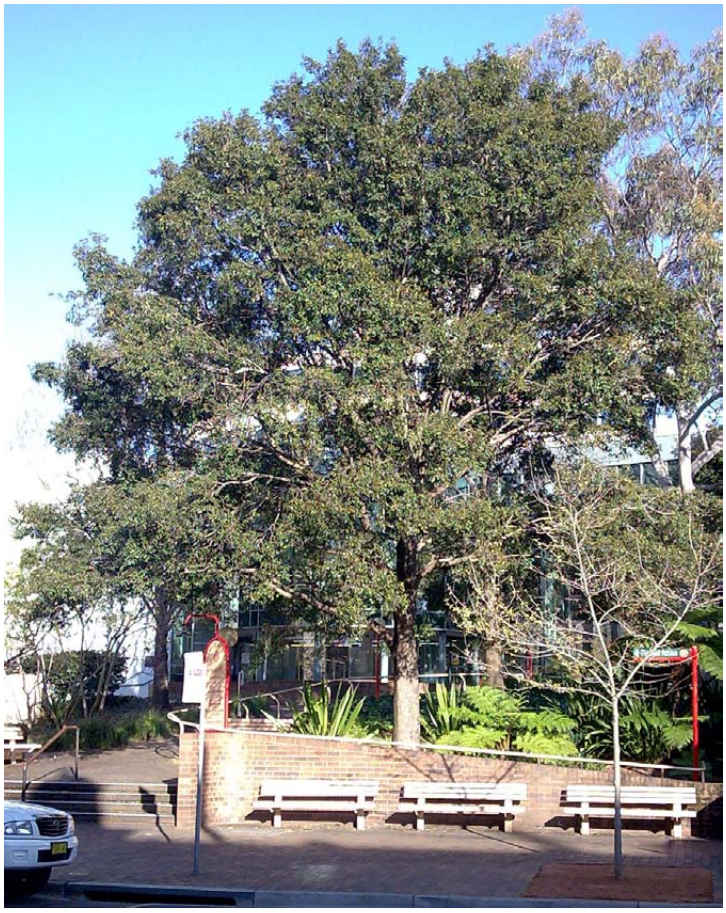


Photo of a mature tree. (Photo. Arterra)

Photo of foliage and fruit. (Photo. Arterra)

Botanic Name:
Acmena smithii
(Syn. Syzygium smithii)

Common Names:
Creek Lilly-Pilly

Family:
MYRTACEAE

Origin:
Eastern Australia

Typical Height:
10-15 metres

Typical Width:
8-12 metres

Typical Growth rate:
Moderate.

Typical Habit:
Hardy and dense evergreen tree with a rounded to broadly columnar shape.

Foliage:
Small glossy green leaves varying in shape from narrow-lanceolate to broad-ovate.

Flowers:
Cream-white stamenous flowers in summer.

Fruit:
Creamy-pink round berry-like fruit about 10-20mm in diameter, turning pinky red when ripe.

Site requirements:
Tolerates a wide range of soils in a full sun or part shade position.

Photo of a mature tree. (Photo. Arterra)

Photo of foliage and fruit. (Photo. Arterra)

Botanic Name:
Acmena smithii var. minor
(Syn. Syzygium smithii var minor)

Common Names:
Dwarf Creek Lilly-Pilly

Family:
MYRTACEAE

Origin:
Eastern Australia

Typical Height:
5-8 metres

Typical Width:
3-4 metres

Typical Growth rate:
Moderate.

Typical Habit:
Hardy and dense evergreen tree with a typically compact columnar shape.

Foliage:
Small glossy green leaves varying in shape from narrow-lanceolate to broad-ovate, typically smaller than normal variety.

Flowers:
Cream-white stamenous flowers in summer.

Fruit:
Creamy-pink round berry-like fruit about 10-20mm in diameter, turning pinky red when ripe.

Site requirements:
Tolerates a wide range of soils in a full sun or part shade position.

Photo of mature trees. (Photo.Arterra)

Photo of foliage and fruiting cone. (Photo. Arterra)

Botanic Name:
Agathis robusta

Common Names:
Queensland Kauri Tree

Family:
ARAUCARIACEAE

Origin:
Queensland

Typical Height:
20-25 metres

Typical Width:
6-10 metres

Typical Growth rate:
Moderate.

Typical Habit:
Large tree with a pole like trunk and short branches. Classified as a conifer.

Foliage:
Broad leathery dark green leaves with no midrib and arranged in almost opposite pairs.

Flowers:
None.

Fruit:
Large green cones.

Site requirements:
Free draining deep soil in a full sun position.

Photo of semi-mature tree. (Photo. Arterra)

Close up photo of flowers. (Photo. Arterra)

Botanic Name:
Angophora costata

Common Names:
Sydney Red Gum/ Smooth Barked Apple

Family:
MYRTACEAE

Origin:
Eastern Australia

Typical Height:
12-20 metres

Typical Width:
10-13 metres

Typical Growth rate:
Fast.

Typical Habit:
Tall native spreading tree with smooth pink bark and twisted, gnarled branches.

Foliage:
Light green, lanceolate and opposite leaves.

Flowers:
White flowers occurring in large fluffy terminal clusters.

Fruit:
Small ribbed woody capsules.

Site requirements:
Prefers well drained to heavy soils in an open sunny position. Drought and frost resistant.

Photo of mature tree. (Photo. Arterra)

Photo of bark. (Photo. Arterra)

Botanic Name:
Angophora floribunda

Common Names:
Rough-barked Apple

Family:
MYRTACEAE

Origin:
Eastern Australia

Typical Height:
15-20 metres

Typical Width:
10-13 metres

Typical Growth rate:
Moderate.

Typical Habit:
Tall growing spreading tree with rough bark and twisted, gnarled branches.

Foliage:
Light green, lanceolate and opposite.

Flowers:
White flowers occurring in large fluffy terminal clusters late spring.

Fruit:
Small ribbed woody capsules.

Site requirements:
Prefers well drained to heavy soils in an open sunny position. Drought and frost resistant.

Photo of mature tree. (Photo. Arterra)

Close up photo of flowers. (Photo. Arterra)

Botanic Name:
Angophora hispida

Common Names:
Dwarf Apple

Family:
MYRTACEAE

Origin:
Coastal Sydney

Typical Height:
5-7 metres

Typical Width:
5-7 metres

Typical Growth rate:
Moderate.

Typical Habit:
Small growing spreading tree with rough bark and twisted, gnarled branches.

Foliage:
Broad stiff, rough and light green, ovate and opposite.

Flowers:
White flowers occurring in large fluffy terminal clusters late spring.

Fruit:
Ribbed woody capsules.

Site requirements:
Prefers well drained sandy soils in an open sunny position. Very drought and frost resistant.

Photo of a mature tree. (Photo. Arterra)

Botanic Name:
Araucaria columnaris
(Syn. Araucaria cookii)

Common Names:
Cook Pine

Family:
ARAUCARIACEAE

Origin:
New Caledonia

Typical Height:
20-25+ metres

Typical Width:
5-7 metres

Typical Growth rate:
Moderate.

Typical Habit:
Large very symmetrical columnar tree with a pole like trunk and regularly spaced radial branches, usually with a characteristic curved sweep at the trunk base. Classified as a conifer.

Foliage:
Densely crowded spirally arranged leaves.

Flowers:
None.

Fruit:
Small greenish cones.

Site requirements:
Free draining deep soil in a full sun position. Tolerates extreme coastal exposure.

Photo of a mature tree. (Photo. Arterra)

Botanic Name:
Araucaria heterophylla

Common Names:
Norfolk Island Pine

Family:
ARAUCARIACEAE

Origin:
Norfolk Island

Typical Height:
20-25+ metres

Typical Width:
10-13 metres

Typical Growth rate:
Moderate.

Typical Habit:
Large very symmetrical tree with a pole like trunk and regularly spaced radial branches. Classified as a conifer.

Foliage:
Densely crowded spirally arranged leaves.

Flowers:
None.

Fruit:
Cones.

Site requirements:
Free draining deep soil in a full sun position. Tolerates extreme coastal exposure.

Photo of a semi-mature tree. (Photo. Arterra)

Photo of foliage. (Photo. Arterra)

Botanic Name:
Backhousia citriodora

Common Names:
Lemon-Scented Myrtle

Family:
MYRTACEAE

Origin:
Eastern Australia

Typical Height:
6-9 metres

Typical Width:
3-5 metres

Typical Growth rate:
Moderate.

Typical Habit:
Small native sub-tropical rainforest tree with a compact form when grown in streets.

Foliage:
Dense dull green leaves heavily scented with lemon.

Flowers:
Masses of creamy white lemon scented flowers in summer.

Fruit:
The fruit is a nut-like capsule which contains small seeds.

Site requirements:
Well drained soil in a full sun position. Can attain larger sizes but only in very favourable conditions and further north.

Photo of a mature tree. (Photo. Arterra)

Photo of foliage and flower spike. (Photo. Arterra)

Botanic Name:
Banksia integrifolia

Common Names:
Coast Banksia

Family:
PROTEACEAE

Origin:
East Coast Australia

Typical Height:
7-10 metres

Typical Width:
5-7 metres

Typical Growth rate:
Moderate.

Typical Habit:
Small tree with rough corky bark and sometimes twisted and curvy trunks and stems.

Foliage:
Leathery dull green leaves with a silvery underside.

Flowers:
Pale yellow-green cylindrical flower spikes that are rich in nectar in summer through to winter.

Fruit:
Woody fruit cones.

Site requirements:
Well drained soil in a full sun position. Tolerates extreme drought and coastal exposure.

Photo of a mature tree. (Photo. Arterra)

Botanic Name:
Banksia serrata

Common Names:
Old Man Banksia

Family:
PROTEACEAE

Origin:
East Coast Australia

Typical Height:
5-7 metres

Typical Width:
5-7 metres

Typical Growth rate:
Moderate.

Typical Habit:
Small tree with very rough corky bark and usually twisted and curvy trunks and stems.

Foliage:
Leathery dull green leaves with a lighter underside and saw-tooth margins.

Photo of foliage, young flower head and older seed head. (Photo. Arterra)

Flowers:
Pale cream-white cylindrical flower spikes that are rich in nectar in summer through to winter.

Fruit:
Woody fruit cones.

Site requirements:
Well drained soil in a full sun position. Tolerates extreme drought and coastal exposure.

Photo of a semi-mature tree. (Photo. Arterra)

Close up photo of flowers and foliage. (Photo. Arterra)

Botanic Name:
Brachychiton acerifolius

Common Names:
Illawarra Flame Tree

Family:
MALVACEAE

Origin:
Eastern Australia

Typical Height:
10-15 metres

Typical Width:
7-9 metres

Typical Growth rate:
Moderate.

Typical Habit:
Hardy medium sized sub-tropical native tree. It is generally deciduous before the flowers are seen in early summer. However, the deciduous nature of the plant is variable, in some seasons foliage will be retained on all or part of the tree.

Foliage:
Large glossy light green leaves with a variable number of lobes, up to 7.

Flowers:
The showy flowers are bell-shaped and bright coral red. They appear in spring on leafless branches.

Fruit:
Dark seed pod contains numerous seeds embedded in hairs in a honeycomb-like husk.

Site requirements:
Tolerates a wide range of soils but prefers rich moist soil in a full sun or part shade position.

Photo of a mature tree. (Photo. Arterra)

Photo of flowers. (Photo. Arterra)

Botanic Name:
Brachychiton discolour

Common Names:
Queensland Lacebark

Family:
MALVACEAE

Origin:
Eastern Australia

Typical Height:
12-18 metres

Typical Width:
8-10 metres

Typical Growth rate:
Moderate.

Typical Habit:
Hardy medium sub-tropical native deciduous tree with a stout green grey trunk and dense spreading crown. The deciduous nature of the plant is variable, in some seasons foliage will be retained on all or part of the tree.

Foliage:
Large light green leaves with a variable number of lobes.

Flowers:
The flowers are woolly and prominent bell-shaped pink flowers that appear in spring on leafless branches.

Fruit:
Dark brown woolly seed pod contains numerous seeds embedded in hairs in a honeycomb-like husk.

Site requirements:
Tolerates a wide range of soils but prefers moist very well drained soils, in a full sun or part shade position.

Photo of semi-mature trees. (Photo. Arterra)

Close up photo of a flower. (Photo. Arterra)

Botanic Name:
Buckinghamia celsissima

Common Names:
Ivory Curl Flower

Family:
PROTEACEAE

Origin:
North-eastern Australia

Typical Height:
7-9 metres

Typical Width:
5-7 metres

Typical Growth rate:
Moderate.

Typical Habit:
Small native tree from northern Queensland with a densely foliaged crown and compact rounded form.

Foliage:
Large stiff and glossy elliptical leaves with wavy margins. New growth has pink/ bronze colouring.

Flowers:
Large and profuse racemes of cream flowers upto 200mm long occurring at the ends of the branches in late spring to summer.

Fruit:
The fruit is a nut-like capsule which are retained on old stems.

Site requirements:
Tolerates most soils with good moisture and in a full sun position. Drought resistant once established.

Photo of a group of mature trees. (Photo. Arterra)

Botanic Name:
Butia capitata

Common Names:
Wine Palm or Jelly Palm

Family:
ARECACEAE

Origin:
Brazil

Typical Height:
5-7 metres

Typical Width:
4-5 metres

Typical Growth rate:
Slow.

Typical Habit:
Thick single trunked palm with broadly pendulous grey-green curving fronds. Dead fronds typically held and sheath the trunk unless removed.

Foliage:
Grey-green pinnately divided 3-4m long fronds.

Flowers:
Short spikes with small white-cream flowers held amongst the fronds, in Spring.

Fruit:
Bunches of grape sized orange to brown fleshy rounded fruits.

Site requirements:
Adaptable to a variety of soil conditions in a full sun position. Tolerates some coastal exposure.

Photo of a semi-mature tree. (Photo. Arterra)

Photo of bark. (Photo. Arterra)

Botanic Name:
Caesalpinia ferrea

Common Names:
Leopard Tree

Family:
FABACEAE
(sub. family CAESALPINIOIDEAE)

Origin:
Brazil

Typical Height:
8-15 metres

Typical Width:
8-10 metres

Typical Growth rate:
Slow to moderate.

Typical Habit:
An open and slender branched vase-shaped deciduous tree from Brazil with a smooth and attractively mottled bark.

Foliage:
Delicate light green, with fern-like bipinnate leaves.

Flowers:
Bright yellow in Spring.

Fruit:
Thick and waxy flattened dark brown pods.

Site requirements:
Adaptable to a variety of soil conditions in a full sun position. Prefers moist soils with some protection from winds and frosts when young.

Photo of a mature tree. (Photo. Arterra)

Close up photo of bark. (Photo. Arterra)

Close up photo of flowers. (Photo. Arterra)

Botanic Name:
Callistemon salignus

Common Names:
Willow Bottlebrush

Family:
MYRTACEAE

Origin:
South-eastern Australia

Typical Height:
7-9 metres

Typical Width:
5-6 metres

Typical Growth rate:
Moderate.

Typical Habit:
Small to medium native tree with a weeping crown and compact form and creamy white bark similar to a paper bark.

Foliage:
Light green narrow and scented pendulous leaves. New growth often has pink/ bronze colouring.

Flowers:
Creamy-white 'bottlebrush' flower in spring to summer.

Fruit:
The fruit are groups of nut-like capsules which are retained on old flowering stems.

Site requirements:
Prefers moist soils in a full sun position. Drought resistant.

Photo of a mature tree. (Photo. Arterra)

Close up photo of a flower. (Photo. Arterra)

Botanic Name:
Callistemon viminallis cv.

most suitable cultivars:-
'Hannah Ray'
'Harkness'
'Kings Park Special'
Ku-ring-gai Chase'

Common Names:
Bottlebrush

Family:
MYRTACEAE

Origin:
South-eastern Australia

Typical Height:
7-10 metres

Typical Width:
5-8 metres

Typical Growth rate:
Moderate.

Typical Habit:
Small native tree with a weeping crown and compact form.

Foliage:
Light green narrow scented leaves. New growth has pink/ bronze colouring.

Flowers:
Bright red 'bottlebrush' flower in spring to summer.

Fruit:
The fruit are groups of nut-like capsules which are retained on old flowering stems.

Site requirements:
Tolerates moist soils in a full sun position. Drought resistant.

Photo of a mature tree. (Photo. Arterra)

Close up photo of a flower. (Photo. Arterra)

Botanic Name:
Camellia sasanqua

Common Names:
Camellia

Family:
THEACEAE

Origin:
China, Japan

Typical Height:
4-6 metres

Typical Width:
4-5 metres

Typical Growth rate:
Moderate.

Typical Habit:
Small exotic tree with a broadly domed crown and compact form. May require some formative pruning to achieve clearances and promote a single leader and tree form.

Foliage:
Dark green leaves. New growth often has slight bronze colouring.

Flowers:
Showy and colour varies widley but typically bright to light pink flowers in late summer, into winter (depending on cultivar).

Fruit:
The fruit are firm and grape sized capsules.

Site requirements:
Tolerates a range of reasonable and moist acidic soils in a full sun or partly shaded position. Drought and frost resistant once established.

Photo of mature trees. (Photo. Arterra)

Botanic Name:
Casuarina glauca

Common Names:
Swamp She-Oak

Family:
CASUARINAEAE

Origin:
South-eastern Australia

Typical Height:
15-20 metres

Typical Width:
5-8 metres

Typical Growth rate:
Fast.

Typical Habit:
Extremely hardy, medium to large upright native tree with a sparsely foliaged canopy with long and weeping needle-like branchlets and rough dark grey-brown bark.

Foliage:
Dull dark green needle-like branchlets with tiny unseen clasping leaves. New growth has pink/ bronze colouring.

Flowers:
Inconspicuous rusty-pink furry covering to some outer branchlets

Fruit:
The fruit is a woody cone-like capsule which is retained on the younger woody stems.

Site requirements:
Tolerates a vast variety of soils in a full sun position. Drought and waterlogging resistant.

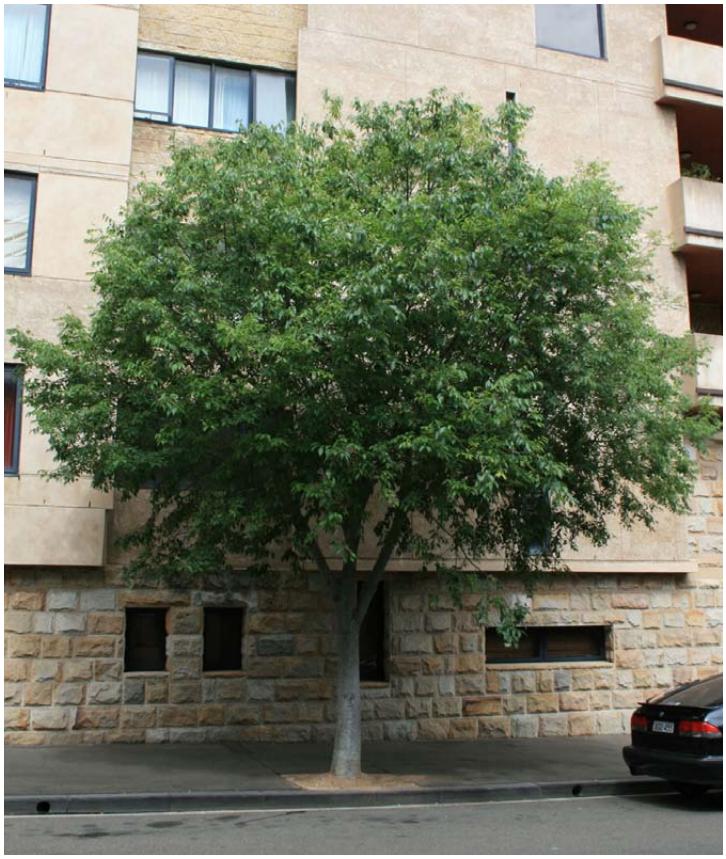


Photo of mature tree. (Photo. Arterra)

Botanic Name:
Celtis australis

Common Names:
Southern Hackberry

Family:
ULMACAEAE

Origin:
Southern Europe

Typical Height:
10-15 metres

Typical Width:
6-9 metres

Typical Growth rate:
Moderate.

Typical Habit:
Deciduous small to medium sized tree with smooth or slightly rough light grey bark. Generally they are a shapely and long lived low maintenance specimen tree.

Foliage:
Broadly lance-shaped, serrated edge leaves that are dull and mid to dark green and rough to touch on the upper surface.

Flowers:
Insignificant flowers.

Fruit:
Small, hard purple black fruit which fall in autumn.

Site requirements:
Well drained soil in full sun to part shade locations.

Photo of a mature tree in flower. (Photo. Arterra)

Close up photo of a flower and foliage in early spring. (Photo. Arterra)

Close up photo of a ripened sepal in summer. (Photo. Arterra)

Botanic Name:
Ceratopetalum gummiferum

Common Names:
New South Wales Christmas Bush

Family:
CUNONIACEAE

Origin:
South-eastern Australia

Typical Height:
5-7 metres

Typical Width:
3-5 metres

Typical Growth rate:
Moderate.

Typical Habit:
A hardy and small evergreen upright tree, usually growing in very well drained soils. May require some formative pruning to achieve clearances and promote a single leader and tree form. Can be susceptible to getting sparse in the canopy as it ages.

Foliage:
Relatively small trifoliate, mid green and finely toothed leaves. New growth tips can be orange to red.

Flowers:
Very small but numerous small white-cream flowers in early spring. The flowers are surrounded by larger and lower sepals which turn bright red after pollination which gives the more distinctive "flowering" display in late December.

Fruit:
Each 'flower' contains a single small nut.

Site requirements:
Tolerates a wide range of soils in a full sun position.

Photo of a mature tree. (Photo. Arterra)

Close up photo of foliage and flowers. (Photo. Arterra)

Botanic Name:
Corymbia citriodora

Common Names:
Lemon Scented Gum

Family:
MYRTACEAE

Origin:
North-east NSW and Queensland

Typical Height:
18-25 metres

Typical Width:
10-15 metres

Typical Growth rate:
Fast.

Typical Habit:
Large native open-crowned evergreen tree with an attractive smooth white trunk.

Foliage:
Long narrow leaves with a strong lemon fragrance.

Flowers:
Bears fluffy white flowers in summer to autumn.

Fruit:
Urn shaped woody capsule.

Site requirements:
Tolerates a wide range of soils in a full sun position. Very drought tolerant.

Photo of mature trees. (Photo. Arterra)

Photo of bark. (Photo. Arterra)

Botanic Name:
Corymbia eximia

Common Names:
Yellow Bloodwood

Family:
MYRTACEAE

Origin:
Sydney and Blue Mountains

Typical Height:
10-18 metres

Typical Width:
8-12 metres

Typical Growth rate:
Fast.

Typical Habit:
An erect and typically well proportioned hardy native tree with a prominently yellowish-brown flaky bark.

Foliage:
Glossy grey-green, curved lanceolate up to 18cm long.

Flowers:
Creamy yellow flowers, appearing late spring to summer.

Fruit:
Urn shaped woody capsules.

Site requirements:
Prefers well drained Hawkesbury Sandstone or sandy soils in an open sunny position, but appears tolerant of a variety of soil types. Drought resistant but frost tender.

Photo of mature tree. (Photo. Arterra)

Photo of bark. (Photo. Arterra)

Botanic Name:
Corymbia maculata

Common Names:
Spotted Gum

Family:
MYRTACEAE

Origin:
South-eastern Australia

Typical Height:
18-25 metres

Typical Width:
10-13 metres

Typical Growth rate:
Fast.

Typical Habit:
A tall growing native tree with smooth and straight trunk with attractively mottled, blue-grey, cream and sometimes pink or brown bark.

Foliage:
Large glossy dark green, curved lanceolate leaves.

Flowers:
White flowers occurring in winter to spring.

Fruit:
Urn-shaped woody capsule.

Site requirements:
Tolerates a wide range of soils in an open sunny position. Drought resistant, but frost tender before two years of age.

Photo of a mature tree. (Photo. Arterra)

Botanic Name:
Cupaniopsis anacardiodies

Common Names:
Tuckeroo

Family:
SAPINDACEAE

Origin:
Coastal eastern Australia

Typical Height:
8-10 metres

Typical Width:
5-8 metres

Typical Growth rate:
Moderate.

Typical Habit:
Medium sized native evergreen tree with a rounded and dense crown and neat form.

Foliage:
Leathery and glossy leaves with bronze coloured new growth.

Close up photo of foliage and fruit. (Photo. Arterra)

Flowers:
Large clusters of small yellow flowers in spring to summer.

Fruit:
Orange 3-part fruit capsules.

Site requirements:
Tolerates a wide range of soils including poor modified sites. Full sun position. Salt and drought tolerant.

Photo of a semi-mature tree. (Photo. Arterra)

Close up photo of foliage with prominent new growth. (Photo. Arterra)

Botanic Name:
Elaeocarpus eumundi

Common Names:
Eumundi Quondong

Family:
ELAEOCARPACEAE

Origin:
South-eastern Queensland

Typical Height:
10-12 metres

Typical Width:
3-5 metres

Typical Growth rate:
Moderate.

Typical Habit:
Small native evergreen tree with an upright narrow form and dense glossy canopy.

Foliage:
Dark green glossy leaves with deep bronze-red new growth.

Flowers:
Bird attracting cream sweetly scented flowers in summer.

Fruit:
Dark blue round berries.

Site requirements:
Tolerates a wide range of soils but prefers rich moist soil in a full sun position.

Photo of a semi-mature tree. (Photo. Arterra)

Close up of foliage and flowers. (Photo. Arterra)

Botanic Name:
Elaeocarpus reticulatus

Common Names:
Blueberry Ash

Family:
ELAEOCARPACEAE

Origin:
Eastern Australia

Typical Height:
7-10 metres

Typical Width:
3-5 metres

Typical Growth rate:
Moderate.

Typical Habit:
Small native evergreen tree with a typically upright narrow and dense form but somewhat more random canopy shape with age.

Foliage:
Dark green matt leaves with finely toothed edges.

Flowers:
Showy light pink to creamy white flowers in spring to summer.

Fruit:
Bright blue berries that give the tree its name.

Site requirements:
Tolerates a wide range of soils but prefers rich moist soil in a full sun position. Drought tolerant.

Photo of a mature tree. (Photo. Arterra)

Photo of bark. (Photo. Arterra)

Botanic Name:
Eucalyptus haemastoma

Common Names:
Scribbly Gum

Family:
MYRTACEAE

Origin:
Sydney and Central Coast NSW

Typical Height:
10-15 metres

Typical Width:
10-12 metres

Typical Growth rate:
Fast.

Typical Habit:
Medium native evergreen tree with an open spreading crown and smooth white bark, usually with distinctive insect 'scribbles'.

Foliage:
Broad and stiff lanceolate leaves.

Flowers:
Showy clusters of creamy white flowers in winter to early summer.

Fruit:
Small urn-shaped capsule.

Site requirements:
Prefers shallow sandy soils but will tolerate a wide range of soils in a full sun position. Very drought tolerant.

Photo of a semi-mature tree. (Photo. Arterra)

Photo of bark. (Photo. Arterra)

Botanic Name:
Eucalyptus microcorys

Common Names:
Tallow Wood

Family:
MYRTACEAE

Origin:
Central Coast NSW to South-eastern QLD

Typical Height:
20-25 metres

Typical Width:
10-15 metres

Typical Growth rate:
Fast.

Typical Habit:
Large native evergreen tree with a dense spreading crown and soft fibrous reddish brown bark.

Foliage:
Long narrow lanceolate leaves.

Flowers:
Showy clusters of creamy white flowers in winter to early summer.

Fruit:
Small urn-shaped capsule.

Site requirements:
Tolerates a wide range of soils in a full sun position. Very drought tolerant once established.

Photo of a mature tree. (Photo. Arterra)

Photo of bark. (Photo. Arterra)

Botanic Name:
Eucalyptus paniculata

Common Names:
Grey Ironbark

Family:
MYRTACEAE

Origin:
Coastal NSW

Typical Height:
20-25+ metres

Typical Width:
10-15 metres

Typical Growth rate:
Fast.

Typical Habit:
Large and typically upright native evergreen tree with an open spreading crown and hard and deeply fissured dark grey-brown bark.

Foliage:
Narrow and broadly pendulous lanceolate leaves.

Flowers:
Showy clusters of creamy white flowers in winter to early summer at end of branchlets.

Fruit:
Urn-shaped capsule.

Site requirements:
Tolerates a wide range of soils in a full sun position. Very drought tolerant.

Photo of a mature tree. (Photo. Arterra)

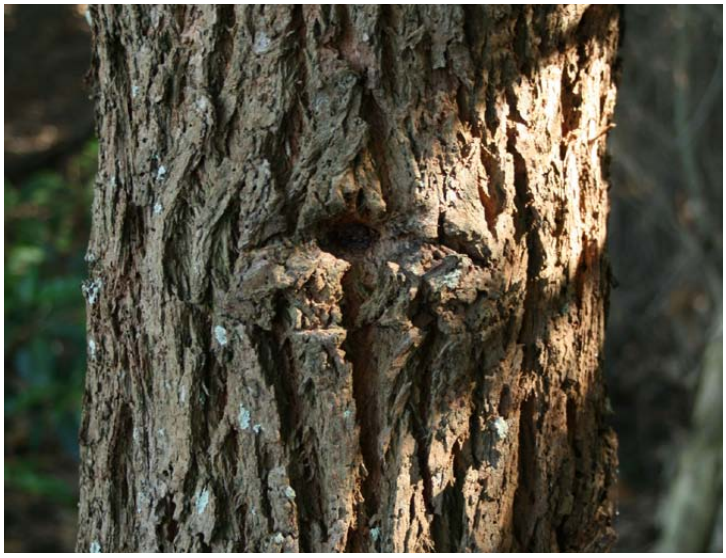


Photo of bark. (Photo. Arterra)

Botanic Name:
Eucalyptus robusta

Common Names:
Swamp Mahogany

Family:
MYRTACEAE

Origin:
South-eastern Australia

Typical Height:
12-18 metres

Typical Width:
8-12 metres

Typical Growth rate:
Fast.

Typical Habit:
Medium native evergreen tree with a dense canopy and deeply furrowed reddish brown persistent bark. Very similar to, and often confused with, *Eucalyptus botryoides*.

Foliage:
Large dark green leaves with a pale under side.

Flowers:
Bears white nectar rich flowers in spring to autumn.

Fruit:
Urn shaped capsule.

Site requirements:
Tolerates water logged or heavily compacted soils in a full sun position. Drought tolerant.

Photo of a semi-mature tree. (Photo. Arterra)

Close up of bark. (Photo. Arterra)

Botanic Name:
Eucalyptus sideroxylon

Common Names:
Red Iron Bark/ Mugga Mugga

Family:
MYRTACEAE

Origin:
South-eastern Australia

Typical Height:
18-25 metres

Typical Width:
8-12 metres

Typical Growth rate:
Fast.

Typical Habit:
Medium to large native evergreen tree with very dark (nearly black) deeply furrowed bark. Habit can be variable.

Foliage:
Drooping, narrow greyish green to blue leaves.

Flowers:
Showy flowers are usually white, however pink and red flowering forms are also fairly common.

Fruit:
Urn-shaped capsule.

Site requirements:
Tolerates a wide range of heavier soils in a full sun position. Extremely drought tolerant.

Photo of mature tree. (Photo. Arterra)

Close up of bark. (Photo. Arterra)

Botanic Name:
Eucalyptus tereticornis

Common Names:
Forest Red Gum

Family:
MYRTACEAE

Origin:
South-eastern Australia to Queensland

Typical Height:
18-25 metres

Typical Width:
10-15 metres

Typical Growth rate:
Fast.

Typical Habit:
Large native evergreen tree with smooth grey-white trunk with bark that sheds in short ribbons.

Foliage:
Broad tapering grey-green leaves.

Flowers:
Creamy white flowers in summer.

Fruit:
Small urn-shaped capsule.

Site requirements:
Tolerates a wide range of soils but prefers heavier clay soils in a full sun position. Frost and drought tolerant.

Photo of a mature tree. (Photo. Arterra)

Photo of a mature street tree. (Photo. Arterra)

Close up photo of fruit and leaves. (Photo. Arterra)

Botanic Name:
Ficus rubiginosa

Common Names:
Port Jackson Fig

Family:
MORACEAE

Origin:
South-eastern Australia

Typical Height:
15-20 metres

Typical Width:
15-20 metres

Typical Growth rate:
Moderate.

Typical Habit:
An erect, sturdy native tree with a heavy dense crown. The main trunk is buttressed and sometimes aerial roots are produced.

Foliage:
Dark green, smooth and ovate to elliptical shaped leaves up to 10cm long. Often rusty short hairs on the underside of leaf or sometimes smooth and without rusty colour when sourced from tropical northerly populations.

Flowers:
Insignificant.

Fruit:
Pairs of yellow globular figs. Mature in autumn

Site requirements:
Light to medium soils in an open, sunny position. Drought, frost and salt tolerant.

Photo of a mature tree. (Photo. Arterra)

Close up photo of foliage. (Photo. Arterra)

Botanic Name:
Fraxinus griffithii

Common Names:
Evergreen Ash

Family:
ULMACAEAE

Origin:
India, China, South-east Asia

Typical Height:
6-9 metres

Typical Width:
5-7 metres

Typical Growth rate:
Moderate.

Typical Habit:
A small to medium sized sturdy evergreen tree with a compact rounded shape.

Foliage:
Leaves are pale green above and silvery beneath.

Flowers:
White flowers appear in spring in long panicles at the branch tips.

Fruit:
Masses of single seeded winged samaras turning sandy-brown.

Site requirements:
Tolerates a wide range of soils in a full sun or part shade position.

Photo of a semi-mature tree. (Photo. Arterra)

Photo of bark. (Photo. Arterra)

Botanic Name:
Fraxinus pennsylvanica

Common Names:
Green Ash / Red Ash

Family:
ULMACAEAE

Origin:
North America

Typical Height:
12-18 metres

Typical Width:
8-10 metres

Typical Growth rate:
Moderate.

Typical Habit:
A medium to large robust deciduous tree with an attractive upright shape.

Foliage:
Leaves are dark green above and lighter beneath.

Flowers:
White flowers appear in spring in long panicles at the branch tips.

Fruit:
Single seeded winged samaras.

Site requirements:
Tolerates a wide range of soils in a full sun or part shade position. Very drought and frost tolerant.

Photo of a mature tree. (Photo.Arterra)

Photo of a semi-mature tree. (Photo.Arterra)

Close up photo of foliage and fruit. (Photo. Arterra)

Botanic Name:
Glochidion ferdinandi

Common Names:
Cheese Tree

Family:
EUPHORBIACEAE

Origin:
South-eastern Australia

Typical Height:
8-12 metres

Typical Width:
8-10 metres

Typical Growth rate:
Medium

Typical Habit:
Medium sized native evergreen tree with a spreading form and dense canopy. May require some formative pruning to achieve clearances and promote a single leader and tree form.

Foliage:
Dark green glossy leaves.

Flowers:
Insignificant white flowers in spring.

Fruit:
Small round white fruit in summer that ripen to reddish brown resembling a miniature cheese wheel, but they are not edible.

Site requirements:
Full sun to partial shade. Adaptable to most soils but prefer richer moist soil.

Photo of a mature tree. (Photo. Arterra)

Close up photo of a flower. (Photo. Arterra)

Botanic Name:
Gordonia axillaris

Common Names:
Gordonia/ Fried Egg Plant

Family:
THEACEAE

Origin:
Southern China

Typical Height:
5-8 metres

Typical Width:
5-8 metres

Typical Growth rate:
Slow.

Typical Habit:
Small tree with a broad rounded canopy and smooth mottled grey- brown bark. May require some formative pruning to achieve clearances and promote a single leader and tree form. Slightly brittle branchlets, easily prone to breakage.

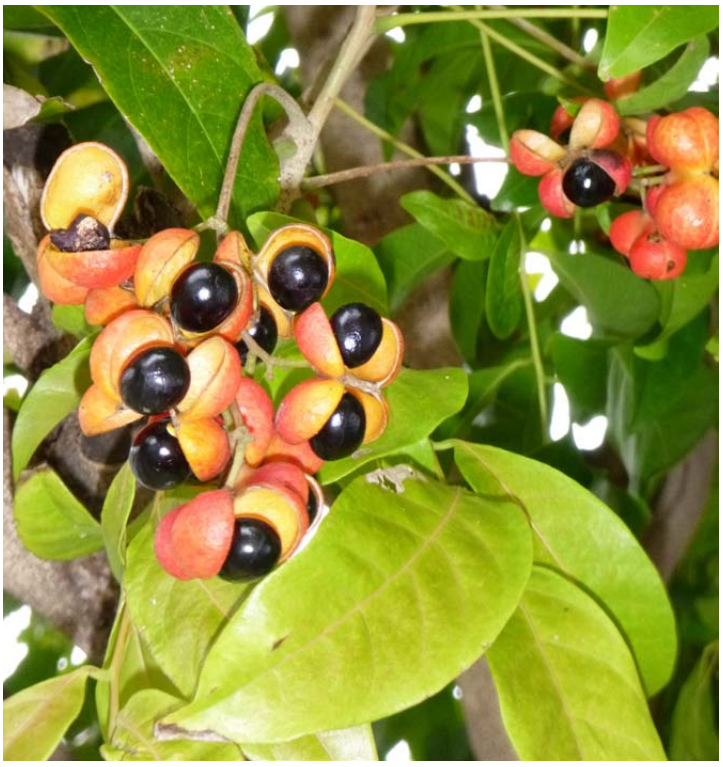
Foliage:
Large elongated dark green smooth glossy leaves.

Flowers:
The flowers have soft creamy white petals with central bright yellow- orange stamens, which give the appearance of a 'fried egg'.

Fruit:
The fruit is a dry five-valved capsule, with 1-4 seeds in each section.

Site requirements:
Prefers rich moist soils in a full sun or part shade position.

Photo of a mature tree. (Photo. Arterra)



Close up photo of foliage and fruit. (Photo. Arterra)

Botanic Name:
Harpullia pendula

Common Names:
Tulipwood

Family:
SAPINDACEAE

Origin:
Eastern Australia

Typical Height:
8-12 metres

Typical Width:
6-8 metres

Typical Growth rate:
Moderate.

Typical Habit:
Small - medium native evergreen rainforest margin tree with a dense canopy and light grey to almost white bark.

Foliage:
Dark green glossy leaves.

Flowers:
Greenish-yellow to white flower in summer.

Fruit:
Attractive 2-lobed capsules are yellow-orange to red at maturity and split open to reveal dark glossy black seeds.

Site requirements:
Light to medium soil types in an open sunny position. Prefers moist conditions.

Photo of a mature tree in full bloom. (Photo. Arterra)

Photo of a mature tree in leaf. (Photo. Arterra)

Botanic Name:
Jacaranda mimosifolia

Common Names:
Jacaranda

Family:
BIGNONIACEAE

Origin:
Brazil

Typical Height:
10-15 metres

Typical Width:
8-10 metres

Typical Growth rate:
Fast.

Typical Habit:
A medium sized attractive semi-deciduous tree with an upright but spreading shape.

Foliage:
Fern-like bipinnate mid green foliage, turning yellow in late winter and falling just before flowering in spring.

Flowers:
Prolific terminal clusters of bell shaped mauve- blue flowers on leafless stems in spring.

Fruit:
Flattened disc-like seed pods.

Site requirements:
Tolerates a wide range of soils in a full sun or part shade position.

Photo of a mature tree. (Photo. Arterra)

Close up photo of foliage. (Photo. Arterra)

Close up photo of flowers. (Photo. Arterra)

Botanic Name:
Koelreuteria bipinnata

Common Names:
Chinese Rain tree

Family:
SAPINDACEAE

Origin:
China

Typical Height:
10-15 metres

Typical Width:
8-10 metres

Typical Growth rate:
Slow.

Typical Habit:
An attractive medium-sized deciduous and wide spreading tree. It has a domed crown and furrowed bark.

Foliage:
Mid green leaflets turn deep golden yellow to orange in autumn. Bipinnate foliage about 60cm long.

Flowers:
Large cluster of yellow flowers with very large terminal panicles up to 30cm long appear in summer.

Fruit:
Fruit capsule appears as papery bladder-like pinkish brown pods.

Site requirements:
Well drained soil in full to part shade locations. Frost and drought resistant.

Photo of a mature tree. (Photo. Arterra)

Close up photo of foliage. (Photo. Arterra)

Botanic Name:
Koelreuteria paniculata

Common Names:
Golden Rain tree

Family:
SAPINDACEAE

Origin:
China, Korea, Japan

Typical Height:
7-9 metres

Typical Width:
7-9 metres

Typical Growth rate:
Slow.

Typical Habit:
An attractive small-sized deciduous and spreading tree. It has a domed crown and furrowed bark.

Foliage:
Mid green leaflets turn deep golden yellow to orange in autumn. Pinnate foliage about 30cm long.

Flowers:
Large cluster of yellow flowers with large terminal panicles up to 20cm long appear in summer.

Fruit:
Fruit capsule appears as papery bladder-like pinkish brown pods.

Site requirements:
Well drained soil in full to part shade locations. Frost and drought resistant.

Photo of mature tree. (Photo. Arterra)

Close up photo of flowers. (Photo. Arterra)

Photo of autumn foliage colour. (Photo. Arterra)

Botanic Name:
Lagerstroemia indica cv.
most suitable cultivars:- 'Biloxi' (Pale Pink), 'Natchez' (White), 'Tuscarora' (Dark pink)

Common Names:
Crepe Myrtle

Family:
LYTHRACEAE

Origin:
Japan, Korea, China

Typical Height:
7-10 metres

Typical Width:
4-7 metres

Typical Growth rate:
Moderate.

Typical Habit:
A small deciduous tree with an open spreading rounded head. It has smooth beige coloured bark streaked red brown. Formative pruning may be required to achieve clearances.

Foliage:
Small oval leaves.

Flowers:
Papery frilly pale mauve, pink or white flowered cultivars. Flower heads appear at the tip of the current season's growth.

Fruit:
Rounded pea-sized woody capsules.

Site requirements:
Well drained soil in full sun locations. Forms a shapely vase-shaped tree without any pruning but also very tolerant of repeated and hard pruning if required.

Photo of a mature tree. (Photo. Arterra)

Botanic Name:
Leptospermum petersonii

Common Names:
Lemon-scented Tea Tree

Family:
MYRTACEAE

Origin:
South-eastern Australia

Typical Height:
5-7 metres

Typical Width:
5-7 metres

Typical Growth rate:
Fast.

Typical Habit:
An attractive evergreen small tree with a rounded spreading crown. May require some formative pruning to achieve clearances and promote a single leader and tree form. Can be susceptible to getting sparse in the canopy as it ages.

Foliage:
Attractive, mid green and fine-leaved foliage that provides a strong lemon fragrance when crushed. New tips can be red to purple.

Flowers:
Relatively inconspicuous small white-cream flowers.

Fruit:
Pea-sized brown woody capsule.

Site requirements:
Tolerates a wide range of soils in a full sun position.

Photo of a semi- mature tree. (Photo. Arterra)

Close up photo of leaves. (Photo. Arterra)

Botanic Name:
Liriodendron tulipifera

Common Names:
Tulip tree

Family:
MAGNOLIACEAE

Origin:
North America

Typical Height:
12-18 metres

Typical Width:
6-8 metres

Typical Growth rate:
Moderate.

Typical Habit:
Medium to large and columnar deciduous tree with upright branching.

Foliage:
Distinctly shaped-four shallow lobed, mid to lime green leaves up to 20cm long, turning to a rich golden yellow in autumn.

Flowers:
Lightly fragrant, tulip shaped flowers, greenish yellow in colouring with orange markings, late spring to early summer. Only produces flowers if greater than 7 years.

Fruit:
Samaras, borne in upright cone like clusters.

Site requirements:
Moist, well drained soil in full sun locations. Not tolerant of extreme or coastal exposure.

Photo of a mature tree. (Photo. Arterra)

Botanic Name:
Livistona australis

Common Names:
Cabbage Tree Palm

Family:
ARECACEAE

Origin:
Eastern Australia

Typical Height:
15-20 metres

Typical Growth rate:
Slow.

Typical Habit:
Tall palm tree, with a single study fibrous to smooth grey trunk and a compact head of fan shaped leaves. It has a slender trunk that shows scars left by the shed fronds.

Foliage:
Large semi- circular shiny dark green fronds with drooping tips are located at the apex of the trunk. Often the lower leaves in the crown persist for a short period even though they are dead or have turned brown. The frond stalks are long and have spikes.

Flowers:
Long sprays of yellow cream flowers are borne in spring.

Fruit:
Dull purple-black grape-sized globular fruit.

Site requirements:
Prefers moist but reasonably well drained, neutral acid soils. Will tolerant very shaded positions and coastal exposure.

Photo of a mature tree. (Photo. Arterra)

Close up photo of leaves and fruit. (Photo. Arterra)

Close up photo of flowers. (Photo. Arterra)

Botanic Name:
Lophostemon confertus

Common Names:
Brush Box

Family:
MYRTACEAE

Origin:
Eastern Australia north of Sydney

Typical Height:
15-20 metres

Typical Width:
8-12 metres

Typical Growth rate:
Fast.

Typical Habit:
A tall, sturdy evergreen native tree with rough bark at the base and smooth pinkish bark above peeling in summer to reveal greenish cream new bark. A densely spreading crown with domed head.

Foliage:
Deep green, ovate to acuminate and 15cm long.

Flowers:
White, dainty, 5 petalled and fragrant flowers with long fluffy stamens appearing in spring.

Fruit:
Small woody capsules.

Site requirements:
Sandy to medium soils in an open, sunny position, but tolerant of an extremely wide range of soils and conditions. Drought and frost tolerant.

Photo of a semi-mature tree. (Photo. Arterra)

Close up photo of the large and fragrant flowers. (Photo. Arterra)

Botanic Name:
Magnolia grandiflora 'Exmouth'

Common Names:
Southern Magnolia/ Bull Bay Magnolia

Family:
MAGNOLIACEAE

Typical Height:
8-12 metres

Origin:
Southern USA

Typical Width:
6-8 metres

Typical Growth rate:
Slow.

Typical Habit:
Medium evergreen tree with spreading conical crown.

Foliage:
Glossy green, ovate to oblong, leathery with undulating margins and burgundy brown underside.

Flowers:
Large cup shaped flowers, pale yellow or cream, 25cm across and fragrant, appearing in summer.

Fruit:
Cucumber-like woody pods with bright red seeds.

Site requirements:
Neutral to acid soils in an open, sunny position. Frost resistant but drought tender.

Photo of a mature tree. (Photo. Arterra)

Close up photo of flowers. (Photo. Arterra)

Botanic Name:
Melaleuca bracteata

Common Names:
Black Tea-Tree

Family:
MYRTACEAE

Origin:
Australia, north of Macleay River

Typical Height:
8-10 metres

Typical Width:
5-6 metres

Typical Growth rate:
Fast.

Typical Habit:
A small to medium, erect evergreen tree with white to cream papery/ spongy dark coloured bark, spreading pendant branches on older trees and a finely foliaged crown.

Foliage:
Small and thin lanceolate leaves, 1-2cm long.

Flowers:
Small white-cream, bottle brush-like flowers appearing throughout spring and summer.

Fruit:
Small woody capsules on a spike.

Site requirements:
Prefers moist soils in an open, sunny position, but tolerates a very wide range of soils and conditions. Drought tolerant.

Photo of a mature tree. (Photo. Arterra)

Close up photo of foliage. (Photo. Arterra)

Close up photo of bark. (Photo. Arterra)

Botanic Name:
Melaleuca linariifolia

Common Names:
Snow-in-Summer, Flax Leaved Paperbark

Family:
MYRTACEAE

Typical Height:
6-9 metres

Origin:
Eastern Australia

Typical Width:
5-6 metres

Typical Growth rate:
Fast.

Typical Habit:
A small to medium, erect evergreen tree with white to cream papery coloured bark, spreading branches on older trees and a finely foliaged crown. Tendency to hold dead twigs in lower canopy.

Foliage:
Small and thin soft lanceolate leaves, 2-3cm long.

Flowers:
Small white-cream, bottle brush-like flowers, often prolific, appearing throughout spring and early summer in the upper canopy.

Fruit:
Small globular clusters of woody capsules on stems.

Site requirements:
Prefers moist soils in an open, sunny position, but tolerates a very wide range of soils and conditions. Drought tolerant.

Photo of a mature tree. (Photo. Arterra)

Close up photo of leaves. (Photo. Arterra)

Close up photo of flowers. (Photo. Arterra)

Botanic Name:
Melaleuca styphelioides

Common Names:
Prickly Paperbark

Family:
MYRTACEAE

Origin:
Eastern Australia

Typical Height:
7-10 metres

Typical Width:
6-8 metres

Typical Growth rate:
Moderate.

Typical Habit:
Medium evergreen tree with creamy white papery bark.

Foliage:
Small slightly twisted leaves with a sharp pointed tip.

Flowers:
Small but profuse white 'bottlebrush' like flowers in summer.

Fruit:
The fruit are small nut-like capsules which are retained on old stems.

Site requirements:
Light soil types in an open sunny position. Salt tolerant and drought resistant.

Photo of a mature tree. (Photo. Arterra)

Photo of a semi-mature tree. (Photo. Arterra)

Close up photo of flowers and foliage. (Photo. Arterra)

Botanic Name:
Murraya paniculata

Common Names:
Orange Jessamine / Mock Orange

Family:
RUTACEAE

Origin:
India

Typical Height:
4-6 metres

Typical Width:
3-4 metres

Typical Growth rate:
Fast.

Typical Habit:
Small tree or large shrub with a broad rounded canopy and smooth mottled grey-brown bark. Formative pruning may be required to achieve suitable tree shape and clearances.

Foliage:
Bright green, smooth and glossy leaves.

Flowers:
The small but fragrant flowers have soft creamy-white petals variously throughout the year.

Fruit:
Inconspicuous small elliptical hairy seeds.

Site requirements:
Prefers rich moist soils in a full sun or part shade position, but adaptable to an extremely wide range of conditions.

Photo of a mature tree. (Photo. Arterra)

Close up photo of a flower and foliage. (Photo. Arterra)

Botanic Name:
Photinia x faseri 'Robusta'

Common Names:
Photinia

Family:
ROSACEAE

Origin:
Japan, China ('Robusta' hybrid originated in Sydney)

Typical Height:
4-6 metres

Typical Width:
4-6 metres

Typical Growth rate:
Moderate.

Typical Habit:
Small exotic tree with a broadly domed crown and compact form and multiple trunks. May require some formative pruning to achieve clearances and promote a single leader and tree form.

Foliage:
Leathery very dark green leaves. New growth often vibrant red to bronze colouring.

Flowers:
Small creamy white flowers held in dense clusters in spring to early summer, but may spot flower at other times.

Fruit:
The fruit are small firm and reddish brown pea sized pomes.

Site requirements:
Tolerates an extremely wide range of soils in a full sun or partly shaded position. Very drought and frost resistant.

Photo of semi-mature trees. (Photo. Arterra)

Photo of autumn foliage. (Photo. Arterra)

Botanic Name:
Pistacia chinensis

Common Names:
Chinese Pistachio

Family:
ANACARDIACEAE

Origin:
China, Taiwan, Philippines

Typical Height:
9-15 metres

Typical Width:
9-12 metres

Typical Growth rate:
Fast.

Typical Habit:
A medium sized attractive deciduous tree with a domed shape. May require some formative pruning to achieve clearances and promote a single leader and tree form.

Foliage:
Bipinnate mid green foliage, usually turning bright red to orange in Autumn.

Flowers:
Small creamy white-green flowers.

Fruit:
Pea sized round seed pods.

Site requirements:
Tolerates a wide range of soils in a full sun or part shade position.

Photo of a small mature tree. (Photo. Arterra)

Close up photo of leaves and fruit. (Photo. Arterra)

Botanic Name:
Platanus x acerifolia 'Bloodgood'
(Syn. Platanus x hybrida)

Common Names:
London Plane Tree

Family:
PLATANACEAE

Origin:
Hybrid between North America and Europe

Typical Height:
18-25 metres

Typical Width:
10-15 metres

Typical Growth rate:
Fast.

Typical Habit:
A large vigorous, wide crowned deciduous tree with a stout trunk and broadly ascending branches. It has an attractive flaking, mottled bark which is shed in winter.

Foliage:
Large maple like foliage divided into 3, 5 or 7 lobes. The leaves turn yellow to brown in autumn. Species is currently susceptible to Sycamore Lace Bug and other pests which can cause premature leaf fall.

Flowers:
Insignificant.

Fruit:
Comprises bristly brown seed balls about 3cm across which are carried in groups of 2 - 3 on a short stalk, typically held on the tree after the foliage has fallen in Autumn.

Site requirements:
Very tolerant of a wide range of soil conditions and pollution, but needs a generous planting area.

Photo of a mature tree. (Photo. Arterra)

Close up photo of leaves and flowers. (Photo. Arterra)

Botanic Name:
Pyrus calleryana 'Chanticleer'

Common Names:
Callery Pear / Glens Form Pear

Family:
ROSACEA

Origin:
China, Korea, Japan

Typical Height:
6-8 metres

Typical Width:
3-4 metres

Typical Growth rate:
Moderate.

Typical Habit:
A small sized upright deciduous tree. It has attractive foliage and a dense habit.

Foliage:
Lustrous dark green leaves to 8cm long that turn gold to plum in autumn.

Flowers:
Masses of white flowers to 20mm wide produced in spring.

Fruit:
Small, dull gold to russet coloured fruit.

Site requirements:
Frost tolerant, drought tender.

Photo of a mature tree. (Photo. Arterra)

Close up photo of leaves. (Photo. Arterra)

Botanic Name:
Pyrus ussuriensis

Common Names:
Manchurian Pear

Family:
ROSACEA

Origin:
China, Korea, Japan

Typical Height:
8-12 metres

Typical Width:
8-10 metres

Typical Growth rate:
Moderate.

Typical Habit:
A medium sized spreading deciduous tree. It has attractive foliage and a dense habit.

Foliage:
Lustrous dark green leaves to 8cm long that turn gold to plum in autumn.

Flowers:
Masses of white flowers to 20mm wide produced in spring.

Fruit:
Small, dull gold to russet coloured fruit.

Site requirements:
Frost tolerant, but can be drought tender.

Photo of a mature tree. (Photo. Arterra)

Photo of autumn foliage. (Photo. Arterra)

Botanic Name:
Sapium sebiferum
(Syn. Triadica sebiferum)

Common Names:
Chinese Tallow Tree

Family:
EUPHORBIACEAE

Origin:
Southern China

Typical Height:
10-12 metres

Typical Width:
6-8 metres

Typical Growth rate:
Fast.

Typical Habit:
An attractive medium sized deciduous tree with a domed spreading crown.

Foliage:
Soft bright green leaves are heart shaped with a pointed tip. Turns to a deep orange-red in autumn. Can be susceptible to white waxy scale.

Flowers:
Spikes of greenish to yellow flowers in late spring.

Fruit:
White round pea sizes seed pods.

Site requirements:
Tolerates a wide range of soils in a full sun or part shade position.

Photo of a mature tree. (Photo. Arterra)

Close up photo of foliage and flower. (Photo. Arterra)

Botanic Name:
Stenocarpus sinuatus

Common Names:
Firewheel Tree

Family:
PROTEACEAE

Origin:
Eastern Australia

Typical Height:
8-12 metres

Typical Width:
6-8 metres

Typical Growth rate:
Moderate.

Typical Habit:
Medium evergreen rainforest tree with smooth grey to brown bark.

Foliage:
Long shiny leathery dark green leaves with a dull green underside.

Flowers:
Deep orange to red flowers in an umbel or wheel like arrangement that gives the tree its name. Summer through to autumn.

Fruit:
The fruit is a long seed pod that contains flat papery seeds.

Site requirements:
Despite its sub-tropical to tropical origin it is adaptable to a range of climates and will even succeed in dry areas. Sunny or partly shaded location. Salt tolerant and drought resistant.

Photo of a mature tree. (Photo. Arterra)

Close up of bark. (Photo. Arterra)

Botanic Name:
Syncarpia glomulifera

Common Names:
Turpentine

Family:
MYRTACEAE

Origin:
East Coast Australia

Typical Height:
12-18 metres

Typical Width:
8-10 metres

Typical Growth rate:
Moderate.

Typical Habit:
Large dense native tree with broadly columnar form with horizontal branching structure.

Foliage:
Stiff and dark dull green leaves with a grey furry underside.

Flowers:
Profuse fluffy white flower clusters in summer.

Fruit:
Hard, marble-sized globular wood capsule.

Site requirements:
Tolerates a wide range of soils but prefers heavier clay based soils in a full sun or part shade position.

Photo of a semi-mature tree. (Photo. Arterra)

Close up photo of foliage. (Photo. Arterra)

Botanic Name:
Synoum glandulosum

Common Names:
Scentless Rosewood

Family:
MELIACEAE

Origin:
East Coast Australia

Typical Height:
6-8 metres

Typical Width:
4-5 metres

Typical Growth rate:
Moderate.

Typical Habit:
Small bushy rainforest margin native tree. May require formative pruning to achieve clearances and promote a single leader and tree form.

Foliage:
Small glossy mid-green leaves.

Flowers:
Inconspicuous white flowers in late summer.

Fruit:
Reddish three-lobed capsule.

Site requirements:
Tolerates a wide range of soils but prefers rich moist soil in a full sun or part shade position.

Photo of a mature tree. (Photo. Arterra)

Close up photo of foliage and fruit. (Photo. Arterra)

Botanic Name:
Syzygium leuhmannii

Common Names:
Riberry

Family:
MYRTACEAE

Origin:
East Coast Australia

Typical Height:
8-10 metres

Typical Width:
5-6 metres

Typical Growth rate:
Moderate.

Typical Habit:
Small bushy rainforest native tree. May require formative pruning to achieve clearances and promote a single leader and tree form.

Foliage:
Small glossy dark green leaves with a prominent pointed tip. Flushes of new growth in pale pink to red.

Flowers:
Bird attracting small fluffy white flowers in summer.

Fruit:
Small pink round shaped fleshy fruit, sometimes prolific.

Site requirements:
Tolerates a wide range of soils but prefers rich moist soil in a full sun or part shade position.

Photo of a semi-mature tree. (Photo. Arterra)

Photo of a mature tree. (Photo. Arterra)

Close up photo of foliage and fruit. (Photo. Arterra)

Botanic Name:
Syzygium paniculatum

Common Names:
Brush Cherry, Magenta Lilly Pilly

Family:
MYRTACEAE

Origin:
Coastal NSW

Typical Height:
9-15 metres

Typical Width:
6-9 metres

Typical Growth rate:
Fast.

Typical Habit:
Small to medium bushy rainforest native tree. May require some formative pruning to achieve clearances and promote a single leader and tree form.

Foliage:
Glossy dark green leaves with coppery new growth.

Flowers:
Bird attracting small fluffy white flowers in summer.

Fruit:
Small pink pear shaped fleshy fruit.

Site requirements:
Tolerates a wide range of soils in a full sun or part shade position.

Photo of a mature tree. (Photo. Arterra)

Close up photo of foliage and flower. (Photo. Arterra)

Botanic Name:
Tristaniopsis laurina

Common Names:
Water Gum

Family:
MYRTACEAE

Origin:
Eastern Australia

Typical Height:
7-10 metres

Typical Width:
5-6 metres

Typical Growth rate:
Moderate to fast.

Typical Habit:
Very hardy small sized native evergreen tree with a dense canopy.

Foliage:
Oblong glossy dark green leaves with a pale underside.

Flowers:
Nectar rich small yellow flowers in summer.

Fruit:
Small round green fleshy fruit.

Site requirements:
Tolerates a wide range of soils in a full sun or part shade position.

Photo of a mature tree. (Photo. Arterra)

Close up photo of foliage. (Photo. Arterra)

Botanic Name:
Ulmus glabra 'Lutescens'

Common Names:
Golden Elm

Family:
ULMACEAE

Origin:
Northern Europe

Typical Height:
7-10 metres

Typical Width:
7-10 metres

Typical Growth rate:
Moderate.

Typical Habit:
An attractive small domed-shaped and spreading deciduous tree with a smooth grey bark.

Foliage:
Relatively large and obviously serrated, gold to lime green leaves.

Flowers:
Inconspicuous yellow-green papery flowers.

Fruit:
Small brown winged seeds that mature in autumn.

Site requirements:
This is a relatively hardy tree that tolerates a wide range of soil conditions, but is somewhat intolerant of very hot or extreme drought conditions.

Photo of a mature tree. (Photo. Arterra)

Close up photo of foliage. (Photo. Arterra)

Botanic Name:
Ulmus parvifolia 'Todd'

Common Names:
Chinese Elm

Family:
ULMACEAE

Origin:
China, Japan, Korea

Typical Height:
10-12 metres

Typical Width:
8-10 metres

Typical Growth rate:
Moderate.

Typical Habit:
A medium domed spreading semi -deciduous tree. It has a two toned grey, reddish brown scaly bark.

Foliage:
Small serrated, leathery dark green leaves which are smooth and shiny on top.

Flowers:
Yellow- green papery flowers.

Fruit:
Small brown winged seeds that mature in autumn.

Site requirements:
This is a very hardy tree that tolerates wind, pollution and a wide range of soil conditions.

Photo of a mature tree. (Photo. Arterra)

Botanic Name:
Washingtonia robusta

Common Names:
Mexican Fan Palm

Family:
ARECACEAE

Origin:
California USA

Typical Height:
20-25 metres

Typical Width:
4-6 metres

Typical Growth rate:
Moderate.

Typical Habit:
A tall palm tree with a thin trunk which flares at the base. Spent fronds can persist on the trunk for some time. Older specimens have smooth grey trunks.

Foliage:
Shiny bright green circular fronds with prominent red brown basal sheaths and cottony threads.

Flowers:
Small white flower clusters at intervals on long flowering branches that arch out well beyond the lower fronds.

Fruit:
Tiny brown berry-like fruits.

Site requirements:
Full sun, however will tolerate some shade, and salt laden winds and poor soil.

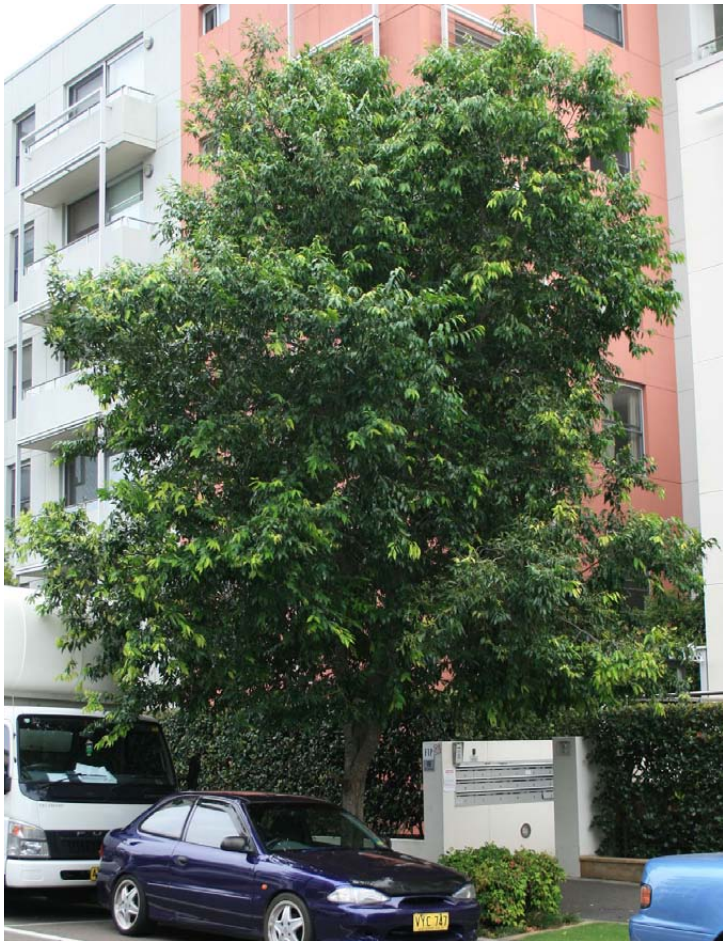


Photo of a semi-mature tree. (Photo. Arterra)

Close up photo of foliage and flowers. (Photo. Arterra)

Botanic Name:
Waterhousea floribunda 'Green Avenue'

Common Names:
Weeping Lilly Pilly

Family:
MYRTACEAE

Origin:
Eastern Australia

Typical Height:
18-20 metres

Typical Width:
10-12 metres

Typical Growth rate:
Fast.

Typical Habit:
Very hardy medium sized native evergreen tree with a dense pendulous canopy. Formative pruning may be required to achieve clearances and promote a single leader and tree form.

Foliage:
Glossy dark green leaves with paler underside and slightly wavy margins.

Flowers:
Nectar rich small white flowers in summer.

Fruit:
Small round and green berry-like fleshy fruit.

Site requirements:
Tolerates a wide range of soils but prefers rich moist soil in a full sun or part shade position.

Photo of a semi-mature tree. (Photo. Arterra)

Close up photo of foliage. (Photo. Arterra)

Botanic Name:
Xanthostemon chrysanthus

Common Names:
Golden Penda

Family:
MYRTACEAE

Origin:
North-eastern Australia

Typical Height:
7-10 metres

Typical Width:
5-8 metres

Typical Growth rate:
Moderate.

Typical Habit:
An attractive evergreen small tree with a rounded spreading crown.

Foliage:
Attractive, glossy mid green foliage.

Flowers:
Conspicuous and often prolific yellow flowers.

Fruit:
Brown woody capsule.

Site requirements:
Tolerates a wide range of soils in a full sun position, but frost sensitive.

Photo of a mature tree (pruned under wires). (Photo. Arterra)

Close up photo of foliage. (Photo. Arterra)

Botanic Name:
Xylosma senticosum
(Syn. Xylosma congestum)

Common Names:
Xylosma

Family:
SALICACEAE

Origin:
Southern China

Typical Height:
6-8 metres

Typical Width:
4-6 metres

Typical Growth rate:
Fast.

Typical Habit:
An attractive evergreen small tree with a rounded spreading crown. Formative pruning may be required to achieve clearances and promote a single leader and tree form.

Foliage:
Attractive, weeping, slightly serrated foliage, the orange and bronze tipped new leaves which age to a glossy mid green.

Flowers:
Inconspicuous small fragrant yellow flowers.

Fruit:
Small purple-black berry.

Site requirements:
Tolerates a wide range of soils in a full sun position, and capable of withstanding frequent hard pruning to any shape with minimal impact.

Photo of a semi-mature tree. (Photo. Arterra)

Photo of bark. (Photo. Arterra)

Close up photo of foliage and flowers. (Photo. Arterra)

Botanic Name:
Zelkova serrata 'Green Vase'

Common Names:
Japanese Zelkova

Family:
ULMACEAE

Origin:
Japan and Korea

Typical Height:
10-12 metres

Typical Width:
8-10 metres

Typical Growth rate:
Moderate.

Typical Habit:
An attractive deciduous tree with a wide spreading crown.

Foliage:
Pointed oblong serrated leaves are mid to dark green, turning yellow in autumn.

Flowers:
Small greenish flowers borne in spring and lightly perfumed.

Fruit:
Round insignificant seed pods.

Site requirements:
Tolerates a wide range of soils in a full sun position.