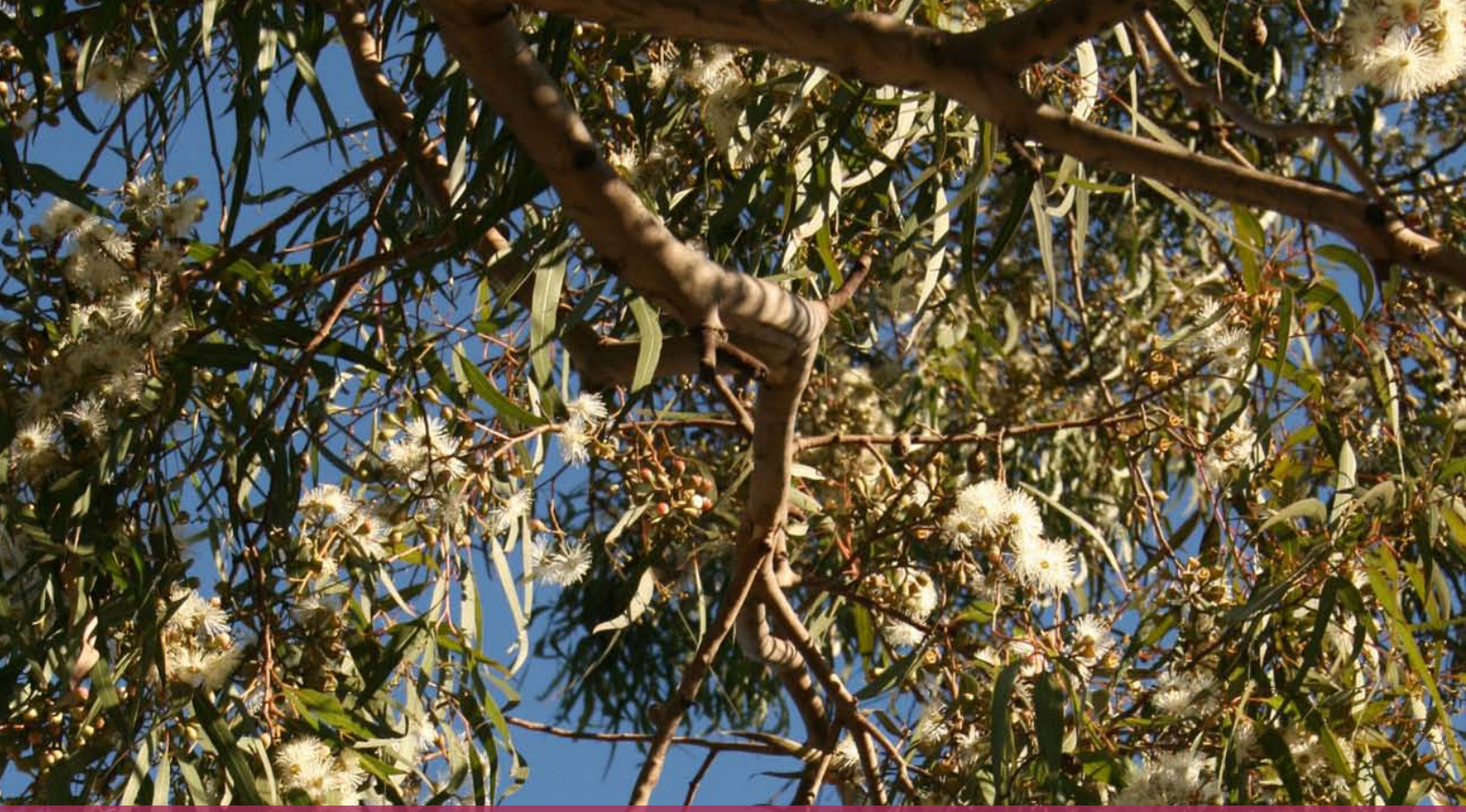
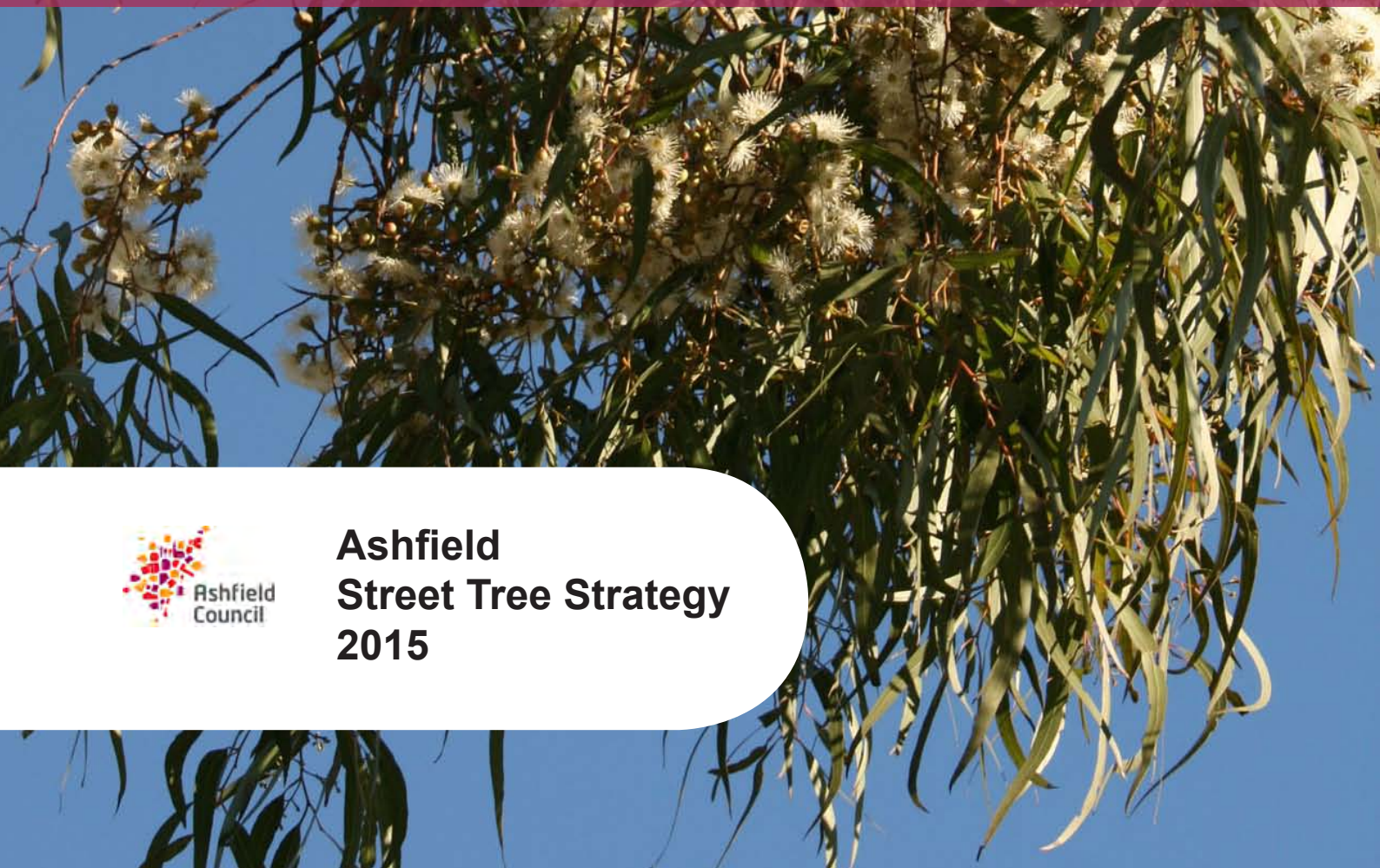


PART B - Street Tree Management Guidelines & Policies



Ashfield Council

Ashfield
Street Tree Strategy
2015

3.1 Street Tree Selection Criteria

Street trees are long term assets and investments that may live for between 50 to 120 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 Ashfield'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 Strategy 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 above general policy will therefore occur. These include trees and 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, and achieve higher canopy clearances, 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 the urban forest for areas where physical space, overhead wires, parking and traffic restrictions or exposure present overriding factors.

Our key tree selection objective is therefore 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 particular planting location.

However, there is no ‘perfect’ street tree, so every selection will have some compromise between positive and negative impacts. Council needs to make a balanced decision between native and exotic species, deciduous and evergreen species and the ultimate size of the tree.

Council's 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.

Figure 3.1 - Kensington Street, Summer Hill, one of the numerous historic and consistently planted streets (Photo Arterra)

3.2 Environmental Issues

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 potable 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 need to be particularly mindful when selecting future tree species. Typically the trees selected in this Strategy 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. Ashfield 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 are found in the northern parts of Haberfield and in particular Dobroyd Point. These are typically more shallow and sandy soils or sandy loams. This can produce frequent drought-like conditions for trees, unless they are in an area where they can seek out and access the more reliable groundwater reserves. Plants that are subject to prolonged or frequent water stress can be more susceptible to pests and diseases unless they are well adapted to these conditions. 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. Trees that adapt to a wide range of soil types and conditions are preferred in most 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 of a new pest or disease may have on the urban forest. 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.

Trees provide shelter, food and other habitat resources for a range of 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.

Other 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.

Species Diversity

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.

Native versus Exotic

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

There is frequently much community 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 substantially 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 urban 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. Native trees can also display a somewhat more variable habit or form that makes it difficult to establish and maintain clearances and 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 only 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 can be unreliable performers.

An advantage of using exotic species is that the quality of stock is usually very good due to sometimes hundreds of years of selective breeding. In addition, some are pollution tolerant, more resilient to root area compaction and damage during construction and repair 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.

3.3 Functional Issues

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 important 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 more 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 in all trees. Some trees that are particularly renowned for having brittle branches and regular branch drop will typically be avoided for use as a street tree, particularly on major roads.

Species that are renowned for large root flares or particularly large root systems that have the potential to cause pavement uplift will be avoided. We must bear in mind that no guarantee 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 when planting medium to large trees.

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 Section 7.10.

High pressure gas mains and electricity easements sometimes prohibit establishment of trees due to the depth of the services and potential liabilities if the services are 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 an appropriate tree species and street tree planting detail. 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.

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 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.

Figure 3.2 - Croydon Road, illustrating excellent example of consistent modern day street planting (Lagerstroemia indica) that works well even under wires. (Photo-Arterra)

Many of the costs associated with management of trees in the urban environment are at the early establishment 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.

3.4 Aesthetic & Design Issues

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.

The Ashfield LGA 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 or dead frond removal.

The best and most historically significant streets will typically be targeted for their continuation. Elsewhere they may be phased out over time.

Figure 3.3 - 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)

3.5 Fruit Trees

The desire for planting fruit trees in a verge often arises, particularly in built up urban areas. This could be where residential allotments are small and open space areas are often limited to confined courtyards or a cultural desire to plant trees such Olive Trees. Whilst fruit trees can be highly desirable, they are not typically appropriate for use as urban street trees due to a range of factors which are 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 conditions. 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 maintain and manage 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 planting, as outlined above, there may be some special circumstances when a fruit tree may be planted. Ultimately the decision to plant a fruit tree will be determined by Council on a case-by-case basis, and only when the other overall objectives of the Street Tree Strategy are not compromised and canopy coverage in the street is already well catered. Refer also to comments under Unique Planting Opportunities in the following section.

3.6 Unique Planting Opportunities

With any community and area as historically and environmentally diverse as Ashfield, 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 atypical street intersections or other such infrastructure. These 'atypical' areas and situations 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.

These unique spaces and planting opportunities should be celebrated. They may 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 Street Tree Strategy to identify or document every one 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 3.4 - Variegated Figs at the corner of Frederick Street and Liverpool Road in Ashfield. There are always unique areas with larger spaces that would allow more unique or special civic trees to be planted. These opportunities should be embraced (Photo Arterra)

Figure 3.5 - Areas such as Palace Street, Hurlstone Park, provide a unique opportunity to include more civic-scaled street planting that will provide long term character and a massive contribution to the urban canopy coverage of the area (Photo Arterra)

3.7 Master Species Listing

The following schedules provides a list of the proposed species to be used in the streets of Ashfield. 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 66 street tree species proposed for ongoing use in the LGA:-

Tree Origin
- 29 (42.4%) are exotic species;
- 38 (57.6%) are native species of which;
- 26 (18.2% of all tree types) are endemic to the Sydney area.

Tree Types
- 47 (71.2%) of the species are evergreen trees,
- 15 (22.7%) of the species are deciduous trees,
- 4 (6.1%) of the species are palms.

Tree Sizes
- 12 (18.2%) are large trees
- 31 (47.0%) are medium tree,
- 23 (34.8%) are small trees.

As mentioned, 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 Ashfield's streets is provided below.

Tree Origins	Approx % of streets where they are proposed
Native	70% (36% local)
Exotic	30%

Tree Sizes	Approx % of streets where they are proposed
Small	25%
Medium	47%
Large	28%

Tree Type	Approx % of streets where they are proposed
Evergreen	78%
Deciduous	21%
Palms	2%

Table 6 - PROPOSED MASTER TREE SELECTION LIST FOR ASHFIELD LGA

Botanical Name	Common Name	Origin	Foliage	No. of streets used
LARGER SIZED TREES				
Araucaria columnaris	Cooks Pine	exotic	evergreen	gateways
Araucaria cunninghamii	Hoop Pine	exotic	evergreen	2
Brachychiton discolor	Lacebark	native	deciduous	1
Corymbia maculata	Spotted gum	endemic	evergreen	16
Eucalyptus paniculata	Grey Ironbark	endemic	evergreen	4
Ficus microcarpa var. hillii	Hill's Weeping Fig	endemic	evergreen	2
Ficus rubiginosa	Port Jackson Fig	endemic	evergreen	5
Lophostemon confertus	Brush Box	native	evergreen	62
Schinus areira	Peppercorn Tree	exotic	evergreen	2
Syncarpia glomulifera	Turpentine	endemic	evergreen	1
Ulmus parvifolia 'Todd'*	Chinese Elm*	exotic	deciduous	7
Waterhousea floribunda 'Green Avenue'	Green Avenue Lilly Pilly	endemic	evergreen	22

Table 6 - PROPOSED MASTER TREE SELECTION LIST FOR ASHFIELD LGA (cont.)				
Botanical Name	**Common Name**	**Origin**	**Foliage**	**No. of streets used**
MEDIUM SIZED TREES				
Acacia binervia	Coastal Myall	endemic	evergreen	3
Acmena smithii	Creek Lilly-Pilly	endemic	evergreen	1
Angophora costata	Sydney Red Gum	endemic	evergreen	14
Angophora floribunda	Rough-barked Apple	endemic	evergreen	2
Banksia integrifolia	Coast Banksia	endemic	evergreen	3
Caesalpinia ferrea	Leopard Tree	exotic	deciduous	16
Casuarina glauca	Swamp She-Oak	endemic	evergreen	3
Corymbia eximia	Yellow Bloodwood	endemic	evergreen	12
Cupaniopsis anacardioides	Tuckeroo	endemic	evergreen	3
Elaeocarpus eumundi	Eumundi Quandong	native	evergreen	21
Eucalyptus haemastoma	Scribbly Gum	endemic	evergreen	2
Eucalyptus mannifera cv.	Brittle Gum	native	evergreen	2
Eucalyptus robusta	Swamp Mahogany	endemic	evergreen	4
Fraxinus pennsylvanica	Green Ash	exotic	deciduous	3
Glochidion ferdinandi	Cheese Tree	endemic	evergreen	3
Harpullia pendula	Tulipwood	native	evergreen	13
Jacaranda mimosifolia	Jacaranda	exotic	deciduous	2
Koelreutaria bipinnata	Chinese Rain Tree	exotic	deciduous	6
Lagerstroemia indica cv.	Crepe Myrtle	exotic	deciduous	15
Liriodendron tulipifera	Tulip Tree	exotic	deciduous	1
Melaleuca bracteata	Black Tea Tree	native	evergreen	5
Melaleuca leucadendra	Weeping Paper Bark	native	evergreen	2
Melaleuca styphelioides	Prickly Paperbark	endemic	evergreen	5
Phoenix canariensis	Canary Island Date Palm	exotic	palm	1
Pyrus ussuriensis	Manchurian Pear	exotic	deciduous	6
Robinia pseudoacacia 'Frisia'	Black Locust	exotic	deciduous	3
Sapium sebiferum	Chinese Tallow Tree	exotic	deciduous	3
Syzygium luehmannii	Riberry / Small-leaved Lilly-Pilly	native	evergreen	1
Syzygium paniculatum	Brush Cherry/Magenta Cherry	endemic	evergreen	10
Tristaniopsis laurina	Water Gum	endemic	evergreen	28
Zelkova serrata 'Green Vase'	Green Vase Zelkova	exotic	deciduous	16

Table 6 - PROPOSED MASTER TREE SELECTION LIST FOR ASHFIELD LGA (cont.)				
Botanical Name	**Common Name**	**Origin**	**Foliage**	**No. of streets used**
SMALL TREES				
Acmena smithii var. minor	Dwarf Creek Lilly-Pilly	endemic	evergreen	1
Angophora hispida	Dwarf Apple	endemic	evergreen	5
Backhousia citriodora	Lemon Scented Myrtle	native	evergreen	12
Banksia serrata	Old Man Banksia	endemic	evergreen	1
Buckinghamia celsissima	Ivory Curl Flower	native	evergreen	7
Butia capitata	Jelly Palm	exotic	palm	7
Callistemon viminalis cv.	Bottlebrush	native	evergreen	19
Camellia sasanqua	Camellia	exotic	evergreen	10
Elaeocarpus reticulatus	Blueberry Ash	endemic	evergreen	2
Fraxinus griffithii *	Evergreen Ash*	exotic	evergreen	1
Gordonia axillaris	Fried-Egg Plant	exotic	evergreen	6
Koelreutaria paniculata	Golden Rain Tree	exotic	deciduous	3
Livistona australis	Cabbage-tree Palm	endemic	palm	gateway (option)
Magnolia grandiflora 'Exmouth'	Bull Bay Magnolia	exotic	evergreen	3
Murraya paniculata	Mock Orange	exotic	evergreen	5
Photinia x fraseri 'Robusta'	Photinia	exotic	evergreen	3
Prunus cerasifera 'Nigra'	Purple Leaf Cherry	exotic	deciduous	6
Pyrus calleryana 'Chanticleer'	Callery Pear	exotic	deciduous	1
Synoum glandulosum	Scentless Rosewood	endemic	evergreen	7
Tibouchina lepidota 'Alstonville'	Lasiandra	exotic	evergreen	3
Washingtonia robusta	Mexican Fan Palm	exotic	palm	gateway (option)
Xanthostemon chrysanthus	Golden Penda	native	evergreen	2
Xylosma senticosum	Xylosma	exotic	evergreen	3

* *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.

4.1 General Design Guidelines

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

- Provide more consistency and visual uniformity for each street;
- Enhance the local character of distinctive 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
- Enhance habitat provision and biodiversity
- Allow the adjoining landscape to take precedence over the street tree planting where existing parks or bushland adjoin the street.

In adhering to these broad design principles consideration must be given to site 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 more specific detail in Appendix 8.2 Street tree supply and installation specifications and Appendix 8.3 Typical street planting details.

Consistency and Visual Uniformity for Streets

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 both scale and growth habit.

When Mixed Species are Specified

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 typically 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

Figure 4.1 - Mount Street, Hurlstone Park is an example of where consistent species have been used to good effect along the street. (Photo - Arterra)

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.

Planting Adjacent to Parks

Many of Ashfield'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.

Figure 4.2 - Street planting inroad planting of large evergreen trees provide excellent canopy coverage and streets that are cooler, shade cars and roads and are more pleasant to walk along during hot summer periods (Photo-Arterra)

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 and where there are 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.

4.2 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 prior to any street tree planting.

Even if the tree was small when the panels or receiver were installed, if it was reasonable for the mature size of the tree to be estimated and considered, then Council shall not be expected to prune the tree to maintain it at a smaller size.

If a resident currently relies on solar access for the operation of such a device Council will typically avoid planting a new tree that will unreasonably shadow the device. They may do this by repositioning 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 typically not prune or remove the tree to provide for increased solar access. The same will apply for any replacement tree planting. If the tree was originally large and shadowed the receiver, any replacement tree shall be also allowed to reach similar proportions without Council being expected or required to prune it.

Figure 4.3 - Solar collectors (Photo-Arterra)

4.3 A Precinct Based Approach

To aid in the overall management of street trees in the LGA and to allow maintenance programs and choices to be provided based on consistent and related streets, a number of discrete precincts for the LGA have been established. A vast multitude of factors have driven the precinct breakups. Twelve (12) precinct areas have been delineated based on the following factors:-

- Reasonably consistent street types, widths and residential characters that broadly define the particular area.
- Key heritage conservation area boundaries.
- Precincts that are neither too big or too small so that they can be presented with reasonably consistent scales and frames of reference.
- Precincts responding to major physical divisions such as the rail lines, as the streets often read and function completely differently on either side of such major divisions.
- Respect, as much as reasonable, the preset 'suburb' boundaries so that residents can still easily relate to the Precinct names and definitions.
- Council's desire for a maximum of 12 precincts which is a reasonable operational concern and objective. This too also drives having precincts that are neither too big or small so that the trees can be managed within similar time frames and resources on a 12 or 24 month rotational program.

Opposite is a list of the precincts that have been generated to facilitate the preparation, ongoing management and efficient communication of the STS initiatives. It also outlines their relationships by area and number of streets.

Table 7 - PRECINCTS AND THEIR BASIC STATISTICS

PRECINCT NAME	Area (ha)	Area (%)	Number of Assessed Street Sections	Number of Streets (% of total)
01. Ashfield Town Centre	45.1	5.4%	23	7.7%
02. Ashfield North	124.5	15.0%	37	12.4%
03. Ashfield South	101.6	12.3%	34	11.4%
04. Croydon North/ Ashfield West	88.3	10.7%	41	13.7%
05. Croydon South/ Croydon Park	59.1	7.1%	26	8.7%
06. Croydon Village	2.6	0.3%	7	2.3%
07. Dobroyd Point	94.5	11.4%	24	8.0%
08. Haberfield	137.5	16.6%	40	13.8%
09. Haberfield Village	4.5	0.5%	2	0.7%
10. Hurlstone Park	53.6	6.5%	22	7.6%
11. Summer Hill	111.9	13.5%	41	13.7%
12. Summer Hill Village	5.8	0.7%	2	0.7%
Grand Total	829.1 (8.291 km2)		299	

Figure 4.4 - Some streets and areas are influenced heavily by the history, land use and character of the area and the street planting needs to respect and reinforce the precinct objectives. Similarly new tree planting can help to define special qualities for precincts that don't currently have such character. (Photo -Arterra)

4.4 Street Typology Summary

The street typology of Ashfield LGA is extremely consistent across most of the precincts. There are always some exceptions but on the whole most roads have a verge that is approximately 2.4-3.5m wide with a grassed strip adjoining the road carriageway and a concrete pedestrian footpath close to the property boundary. Very surprisingly there are very few streets with verge widths in the 3.5m-5.0m range. There are a few streets that are very narrow and usually have fully paved verges. These are often difficult to plant and often represent the streets that currently have little or no street tree planting. Where footpaths are fully paved it is usually related to a narrow verge or a strip shopping or commercial area. Importantly there are a number of streets with very generous verges in excess of 5m in width with matching generous grassed areas that can, and often do, support the planting of larger trees. These should be treasured and continued.

In summary the LGA has:-

- 5% streets with verges >5m wide (considered large).
- 3% streets with verges between 5 and 3.5m wide (considered medium).
- 79% streets with verges between 3.5 and 1.8m wide (considered small) with the majority of these being closer to the 3.0 - 3.5m width.
- 12% streets with verges less than 1.8m wide and would be considered very narrow and potentially unsuitable for street tree planting.

Table 8 - EXISTING VERGE TYPE STATISTICS

Verge Type / Tree Surround Type	Number of Streets	% of Streets
Grass and Path	192	64.2%
Full Paved	105	35.1%
Grass Only	2	0.7%
Mulch/Garden	0	0.0%
Grand Total	299	100.00%

4.5 Locating Street 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 typically 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).

Table 9 - EXISTING VERGE WIDTH STATISTICS BASED ON PRECINCT

Precinct	Large (>5m)	Medium (3.5-5m)	Small (<1.8-3.5m)	Narrow (<1.8m)	Totals
01. Ashfield Town Centre	-	2	21	-	23
02. Ashfield North	1	-	26	10	37
03. Ashfield South	-	2	26	6	34
04. Croydon North/Ashfield West	4	-	30	7	41
05. Croydon South/Croydon Park	3	-	22	1	26
06. Croydon Village	-	-	5	2	7
07. Dobroyd Point	-	-	24	-	24
08. Haberfield	2	1	36	1	40
09. Haberfield Village	-	-	2	-	2
10. Hurlstone Park	4	5	11	2	22
11. Summer Hill	2	-	33	6	41
12. Summer Hill Village	-	-	1	1	2
TOTALS	16	10	237	36	299
	5%	**3%**	**79%**	**12%**	

Laneways Typically Not Suitable for Planting

The Ashfield LGA comprises a number of lane way / rear access style streets, which are concentrated in the suburbs of Summer Hill and Ashfield. 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) there shall be no street tree planting within lanes recommended.

Sight Lines and Distances from Infrastructure and Signage

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 (speed limits) of more major 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.

Table 10 - TREE PLACEMENT GUIDELINES

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
Stormwater inlet pit - distance from nearest edge of pit structure	2m
Driveway - distance from driveway edge on approach side	3m
Driveway - distance from driveway edge on non-approach side	2m
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
Street and traffic signs - minimum distance from sign to centre of tree trunk or obscuring foliage	3m
Parking signs - minimum distance from sign to centre of tree trunk or obscuring foliage	2m

Where possible, street trees should be located at least 3m (or 5m on 80km/h roads) from the edge of nearby travel lanes, but only when the verge is currently wide enough for this to reasonably occur. The width of roadside opportunities for parking or otherwise marked travel lanes can be taken into consideration when assessing this distance and does not necessarily mean the tree needs to be 3m from the edge of the "kerb". This distance is also a measurement to the centre of the new tree and not to the estimated edge of future trunk growth.

Bus Stops

Clearances and setbacks for trees near bus stops are to be determined typically on a case by case basis.

When a bus stop is proposed by other authorities to be installed in a street that currently has not had a bus stop or a bus stop is proposed to be relocated within a street, the existing street trees should be considered as a material constraint.

Existing street trees should not be unreasonably removed to facilitate a new bus stop unless all other possible alternatives have been explored. Where a bus stop is positioned adjacent to an existing street tree, the impacts to the trees roots and canopy shall be minimised to maintain the trees health and vitality.

Tree Pit Dimensions

As an absolute minimum, an access width of 900mm is needed between the back of any tree pit and the building or 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 roadways where parking is restricted or on 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.

4.6 Trees & Power Lines

Priority shall be given to some streets for ABC installation to allow larger trees to be planted or continue the growth of newly planted trees unimpeded by the wires. The table in Section 7.10 lists the streets that have been identified as a priority for a continued ABC program.

Priority is typically given to streets to allow larger trees to be planted or to allow existing trees to continue unimpeded under wires before disfiguring pruning is undertaken. Trees that have already been trained around the wires should not be targeted, as the conversion of these streets will have limited benefits.

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). The Ashfield 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 5 - 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 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.

Periodically Ausgrid may amend their policies, environmental codes and work practices. Recent examples of this include their adoption in 2015 of the Vegetation Management Common Requirement (Version 7.4) dated October 2014 and the Private Service Wire Defect Notifications Policy 2015. If residents receive correspondence from Ausgrid, or their authorised representatives, about requests for the pruning of trees and vegetation around private service wires, they should contact Ausgrid directly for any further information or clarification required. Council's Customer Service staff or Tree Management staff may also be able to provide limited advice and/or assistance to resolve resident's concerns.

Figure 4.5- Deakin St, Haberfield - example of ABC installation (Photo - Arterra)

Figure 4.6 - The installation of ABC cabling above street trees may assist with retaining trees that may otherwise need to be heavily pruned or removed as a result of power line clearances. (Example - Martin Street, Dobroyd Point) (Photo - Arterra)

Figure 4.7 - The installation of ABC cabling above street trees is an excellent way to achieve medium sized trees while maintaining the health, vigour and form of the trees. Formative pruning can achieve appropriate branching structures well before the lines are reached. This is a successful example of trees and ABC on the north side of Gardeners Road, in Rosebery (Photo - Arterra)

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. Ashfield 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.

4.7 In-Road Planting Opportunities

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 grass strips or where overhead wires would otherwise present great challenges to achieving successful tree planting.

Any in-road street planting proposed will need to 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 towards the tree planting together with adequate soil volumes, road pavement protection, and trunk protection where necessary via bollards or preferably barrier kerbs.

Table 16 in Section 7.11 lists the streets that have been identified as streets having an option to plant within the road carriageway. The objective here would be to plant larger canopy street trees that are away from overhead power lines and provide 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 is **subject to further investigation** and detailed design including the confirmation and location of underground services, drainage issues, and traffic considerations.

Figure 4.8 - Photomontage of Hanks Street, Hurlstone Park, illustrating the concept of pocket median planting of larger trees to shade and soften the street while maintaining access for driveways. (Image - Arterra)

Figure 4.9 - Greater use of in road planting can achieve substantial outcomes for canopy coverage and tree planting away from wires. It also can help to calm traffic and provide shade for parked cars. [Hughes St,Ashfield]

Figure 4.10 - The idea of pocket medians has been successfully used in other areas such as shown here at Rawson Street, Epping (Photo-Arterra)

Figure 4.11 Photomontage of Wood Street, Ashfield Town Centre. (Image - Arterra)

4.8 Narrow Streets & Verges

Council shall typically adopt new planting pit design and practices that are closer to best practices for tree planting, particularly for streets where space is constrained. This should improve overall plant establishment and result in healthier and more robust trees. It should also reduce infrastructure damage and resident complaints in the future.

Verges with less than 1.5-1.8 metres width occur in some streets. This becomes an acute issue for street tree planting in regard to pavement damage, pedestrian access, and impact with adjoining houses and overhead wires.

If the verge width is less than 1.5 metres from back of kerb to boundary, the following options are proposed to be adhered to in the future:-

(i) If currently no trees (or only a very small number of trees) then discontinue tree planting unless it can be done as in-road planting;

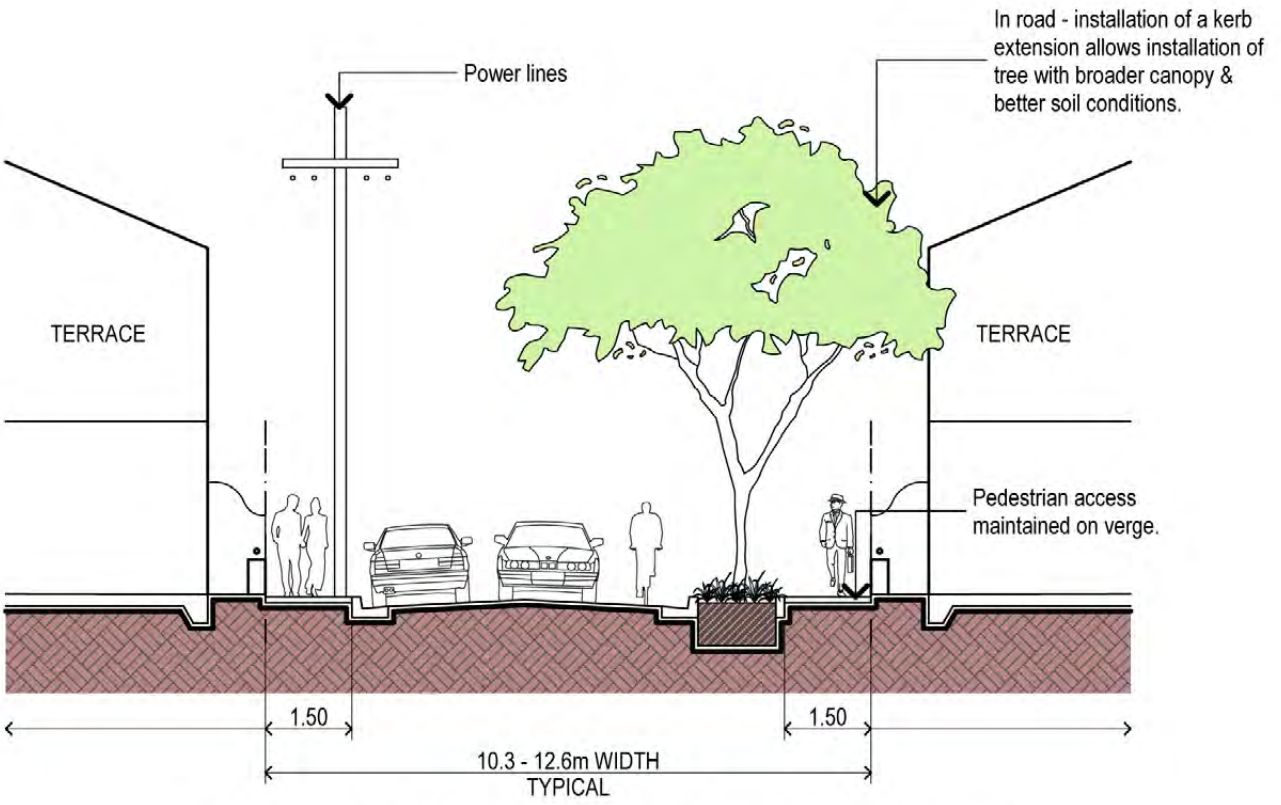
(ii) If already planted with trees then provide a replacement tree when necessary but only on one side of the road and only where the tree can be placed away from the wires, thereby keeping a treed character. Ensure that the new replacement tree is installed with better overall pavement and soil conditions, thus allowing one side of the street to be the main “accessible” walkway;

(iii) Convert to in-road planting with potential minor parking reductions but with the ability to provides fully accessible pathways on both sides of street and less infrastructure damage to pavement and adjoining houses. In-road planting usually allows the use of a medium sized tree that may provide an attractive canopy to the whole street, and may even increase the canopy cover compared to numerous small and poorly formed trees that may already exist.

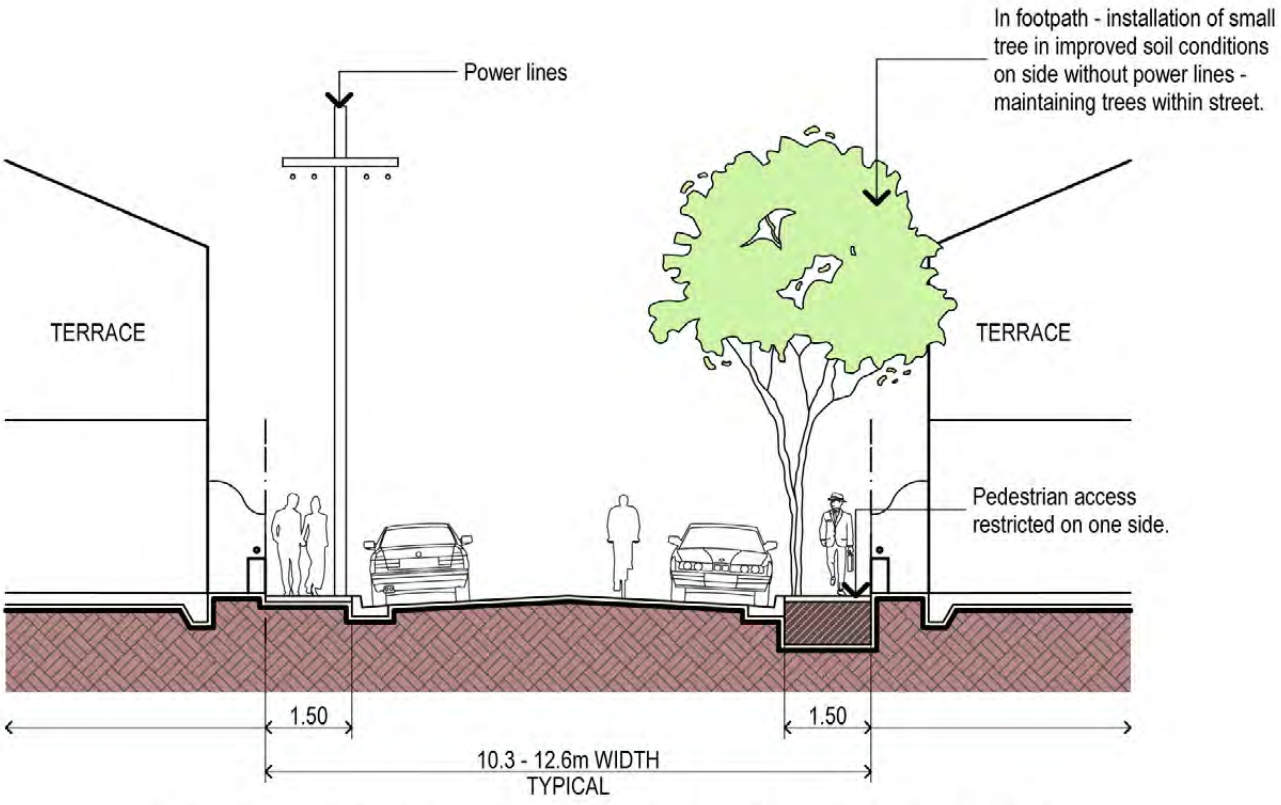
The proposed tree species palette for such instances referred to in (ii) may include:-

- *Melaleuca bracteata*
- *Caesalpinina ferrea*
- *Elaeocarpus eumundi*
- *Tristaniopsis laurina*
- *Synoum glandulosum*
- *Pyrus ussuriensis*
- *Lagerstroemia indica*
- *Zelkova serrata* ‘Green Vase’
- *Robinia pseudoacacia* ‘Frisia’

Figure 4.12 - Photomontage of Knocklayde Street, Croydon North, illustrating the concept of pocket median planting of larger trees to shade and soften the street while maintaining access for driveways. (Image - Arterra)



Narrow Verge - In road planting solution



Narrow Verge - In footpath planting solution

Figure 4.13- Proposed approach to narrow verge and street planting

4.9 Vehicle Sensitive In-Road Street Tree Protection

As identified in Part A - Section 1.6, there are many streets within the LGA that contain significant trees that were planted many decades ago. A great many of these have street trees that are located within the carriageway. These trees are now very mature and there is little ability to undertake pruning that allows clearances for larger trucks and busses without disfiguring or seriously impacting the trees' form and health.

The table below and map on the following page identifies the streets where preference will be given to protecting the existing street trees and their branching structure. For these streets Council will implement special management and access requirements where possible. These will typically include the following:-

- nominated restrictions on vehicle height and weight limits, particularly refuse collection trucks, to minimise the instance of branch-vehicle conflicts and damage.
- signage or line marking to indicate restrictions on street access for larger vehicles.
- nomination within Development Application consent conditions indicating special considerations that may be needed with regard to construction access, deliveries and cranage operations.
- Reminder notices to residents to place rubbish bins past line of trees for collection.

Table 11 - VEHICLE SENSITIVE STREETS	
Street Name	**Between Streets**
01. Ashfield Town Centre	
Beatrice Street	
Heighway Avenue	East of Frederick Street
Knox Street	
The Avenue	
02. Ashfield North	
Cecil Street	
Eccles Avenue	
Federal Avenue	
Grainger Avenue	North of Elizabeth Street
Oak Street	
Orpington Street	
Rectory Avenue	
Webbs Avenue	
03. Ashfield South	
Alma Street	
Carlisle Street	
Farleigh Street	
Hampden Street	
Hugh Street	
King Street	
Park Avenue	
Shepherd Street	
Tintern Road	
04. Croydon North/Ashfield West	
Banks Street	
Hammond Avenue	
Mackay Street	
Arthur Street	Greenhills Street and Milton Street
Beatrice Street	Milton Street North and Frederick Street
Holborow Street	
Leopold Street	
07. Dobroyd Point	
Barton Avenue	
Chelmsford Avenue	
Crane Avenue	
Dudley Street	
Empire Street	Waratah Street and Martin Street
Kingston Street	
Learmonth Street	
Loudon Avenue	
Minto Street	
Rawson Street	Waratah Street and Martin Street
Tillock Street	
Turner Avenue	
08. Haberfield	
Alt Street	Ramsay and Parramatta Road
Cove Street	
Deakin Avenue	
Denman Avenue	
Empire Street	Ramsay Street and Martin Street
Forrest Street	
Gillies Avenue	
Haberfield Road	
Hawthorne Parade	Parramatta Rd and Marion Street
Kingston Street	Ramsay Street and Barton Avenue
Logan Avenue	
Nicholls Avenue	
Northcote Street	
O'Connor Street	
Rawson Street	
Rogers Avenue	
Stanton Road	
Walker Avenue	
Winchcombe Avenue	
10. Hurlstone Park	
Goodwin Avenue	(north section only)
Griffiths Street	
Hillcot Street	
11. Summer Hill	
Carrington Street	
Hurlstone Avenue	
Kensington Road	
Sloane Street	Grosvenor Cres and Parramatta Road
Spencer Street	
Wellesley Street	

Figure 4.14- Map illustrating the Vehicle Sensitive In-Road Streets

5.0 Civic Planting, Gateways and Main Road Corridors

5.1 Overview

As with all urban areas, there is a hierarchy of roads from minor access streets through to major arterial roads. The design and operation of the more major roads is often controlled by the state government through the Road and Maritime Services (RMS) (formerly known as the RTA). These roads represent the public face of Ashfield. Most residents will have to use them and great volumes of traffic pass through them every day to get to parts of the City or to Greater Sydney. These roads are usually experienced from a vehicle and at speed. The planting needs to be a simple palette to read strongly in the landscape, be well spaced for visability, and to make an impact be as large and significant as possible.

These are often difficult environments for street planting. Greater distances are often required away from the travel lanes for safety reasons. Large vehicles such as trucks and buses use the kerb side lanes and therefore greater clearances are required for trees close to the road. They are also often conduits for major trunk services such as water, telecommunications and electricity. Often they may have started as wide road reserves, but over the years with the increasing volumes of traffic - lanes have been added or carriage ways widened, now making space for trees more challenging and difficult.

For the main road corridors, it is recommended that a long term vision be adopted with regard to tree planting. Whilst a strategic direction can take decades to achieve the desired impact in the long term, if consistently adhered to, can make the vision a reality and leave a legacy that defines Ashfield and indeed this era of tree planting. It is proposed the main connector roads are defined with a traditional planting approach using a constrained species palette to create better definition and continuity. By adhering to a more constrained palette, it will enhance the character of the road, and help visually define it as a main corridor and provide a strong landscape theme to Ashfield.

Since the streets are major through roads, with traffic travelling faster and in kerb side lanes, new trees should be positioned away from the edge of the road, at least 900mm (if not more). On RMS controlled roads, trees may need to at least 3m away. The tree species selected shall also need to be able to grow above the traffic (4.5m clear trunk), and be supplied and planted in larger sizes to allow for formative pruning and robustness. Where there are overhead wires, ABC should be undertaken as a priority, and wherever possible, to allow the installation and growth of the larger sized trees without the need for future disfiguring pruning. The species palette is to be robust, proven and a larger size for the best long term effects.

5.2 Gateway and Civic Tree Planting

Historically, special planting has often been used to signify the approach and entry to towns and define important areas. It can also serve as memorial planting commemorating special events. To serve the function of a gateway or marker, the tree planting needs to be of a size, form and scale that distinguishes it from the background. It also needs to be long lived to fulfil this purpose.

Most of the suggested gateway planting is located near adjoining open spaces and the placement of the tree may straddle the boundary between the road reserve and the public open spaces to allow the larger tree to be located further away from foot paths and infrastructure.

Figure 5.6 illustrates the major corridor planting together with the proposed key nodes and gateways that are to be planted with special or signature tree planting. This will:-

- Define, together with potential signage, the major entries to the Ashfield LGA and
- Provide a substantial legacy to following generations and hark back to an era where such planting and species were more commonly used.

So that people can interpret and read the gateways, and other civic planting, it is proposed to restrict the planting to two types of long lived, stately and tall, vertical trees. They need to be different in form and scale, and not commonly used except in the special corridors or gateways. The species proposed are:-

- *Araucaria columnaris* (Cook Pine)
- *Washingtonia robusta, Livistona australis or Butia* capitata (Mexican Fan Palm, Cabbage Tree Palms or Jelly Palm)

These are the few species that have proved to achieve a good proportion in the area with minimal impacts. Most other trees achieve only moderate proportions in the tough soil conditions or have too great an impact on surrounding infrastructure or residents.

Figure 5.1 - At key locations, signature civic scaled planting is proposed to mark the key entrance points into the LGA

Figure 5.2 - Photomontage of the park at the corner of Liverpool Road and Parramatta Road, illustrating the concept of civic planting of Cook Pine to define the key entries to the Ashfield LGA. (Image - Arterra)

Figure 5.3 - Photomontage of Carlton Crescent at Smith Street, illustrating the concept of civic planting of Cook Pine to define the key entries to the Ashfield LGA. (Image - Arterra)

Figure 5.4 - Photomontage at the corner of Liverpool Road and Victoria Street, illustrating the concept of civic planting of palms to define the key entries to the Ashfield Town Centre Precinct. (Image - Arterra)

Figure 5.5 - Photomontage of the park at the corner of Marion Street and Hawthorne Parade, illustrating the concept of civic planting of Cook Pine to define the key entries to the Ashfield LGA. Note that this ties in with Hoop Pine planting which has already been undertaken and shown in more mature form in this image (Image - Arterra)

5.3 State & Major Roads

The main road corridors throughout the municipality have been identified on Figure 5.6 and are highlighted in green and purple. Liverpool Road and Parramatta Road are both State Roads managed by RTA / RMS. The following vehicle movements have been identified:-
- Parramatta Road - 65,000-90,000 (vehicles per day) vpd.
- City West Link - 30,000-60,000 vpd.
- Liverpool Road 25,000-30,000 vpd.

For the main road corridors highlighted (other than Parramatta Road), 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 these streets as main corridors.

On main roads, new trees should be positioned away from the edge of the road by at least 800-900mm. The tree species selected shall be able to grow above kerb side traffic, and be supplied in larger sizes to allow formative pruning and robust installation. ABC should be undertaken wherever possible. Importantly the chosen species palette is to be robust, proven and of medium to larger size for best effect.

Table 12 - MAJOR ROADS WITHIN ASHFIELD LGA	
RMS Controlled Streets	**Council Controlled Streets**
Parramatta Road	Thomas Avenue
City West Link Road	Griffith Street (short part only)
Liverpool Road	Bland Street
Old Canterbury Road	Sloane Street
Frederick Street	Croydon Road
Georges River Road	Elizabeth Street
Norton Street	Edwin Street North
Milton Street	Hennessy Street
Marion Street	Arthur Street
Mortley Avenue	Brown Street
Dobroyd Parade	Grosvenor Crescent
Boomerang Street	Carlton Crescent
Dalhousie Street	Queen Street
Wattle Street	Holden Street
Ramsay Street	Prospect Road
Victoria Street (short part only)	Armstrong Street

5.4 Other Regional & Local Collector Roads

These other slightly less major roads also define the urban fabric of Ashfield. These roads may not be as well known or trafficked as the major roads, but they serve as collector roads feeding from the more residential areas, and leading residents and visitors into and throughout the area.

These are important roads to define from a landscape and tree planting perspective. Again they can serve to set the long term landscape 'tone' of the community. A long term and strategic approach to planting will signify Ashfield's commitment to street planting, canopy coverage and the urban forest as a whole. From an urban design perspective a holistic and more consistent approach to their planting will also serve to better define the roads as collector roads and assist the legibility of the area for visitors and locals alike.

We must remember, however, these are also primarily 'residential' streets rather than commercial, so we must consider the needs of adjoining residents. Too large a tree will merely make a maintenance burden for Council and residents and will increase the likelihood of it being diluted over time due to vandalism, forced removals and resident requests. The roads are still busy roads and we need to consider implications of potential tree failures or branch drop on busy streets. These streets are also more difficult to maintain than minor back streets, often involving special traffic considerations and traffic control during maintenance operations.

The most suitable species that have been proposed include :-
Lagerstroemia indica (Crepe Myrtle)
Elaeocarpus eumundi (Eumundi Quandong)
Caesalpinia ferrea (Leopardwood)

5.5 Commercial Centres

There are a number of small village centres and commercial areas through the LGA. Most of these are dealt with in the street listings that follow. Ashfield Town Centre is also currently subject to a detailed urban design study.

The Council may address the streetscape design of these specifically on a case by case basis and may implement a more specialised tree planting to highlight the centre or provide a site specific response for business or community needs or site constraints such seating areas, drop off zones, and awnings. Although consideration will be given to the objectives of this Strategy, tree species that are not specifically covered or nominated in this Strategy for these streets may be utilised in these relatively unique sites.

The most suitable species will typically include :-
Zelkova serrata 'Green Vase'
Pyrus calleryana cultivars (Callery Pear)
Butia capitata (Jelly Palm)
Livistona australia (Cabbage Tree Palm)
Washingtonia robusta (Mexican Fan Palm)
Harpullia pendula (Tulipwood)

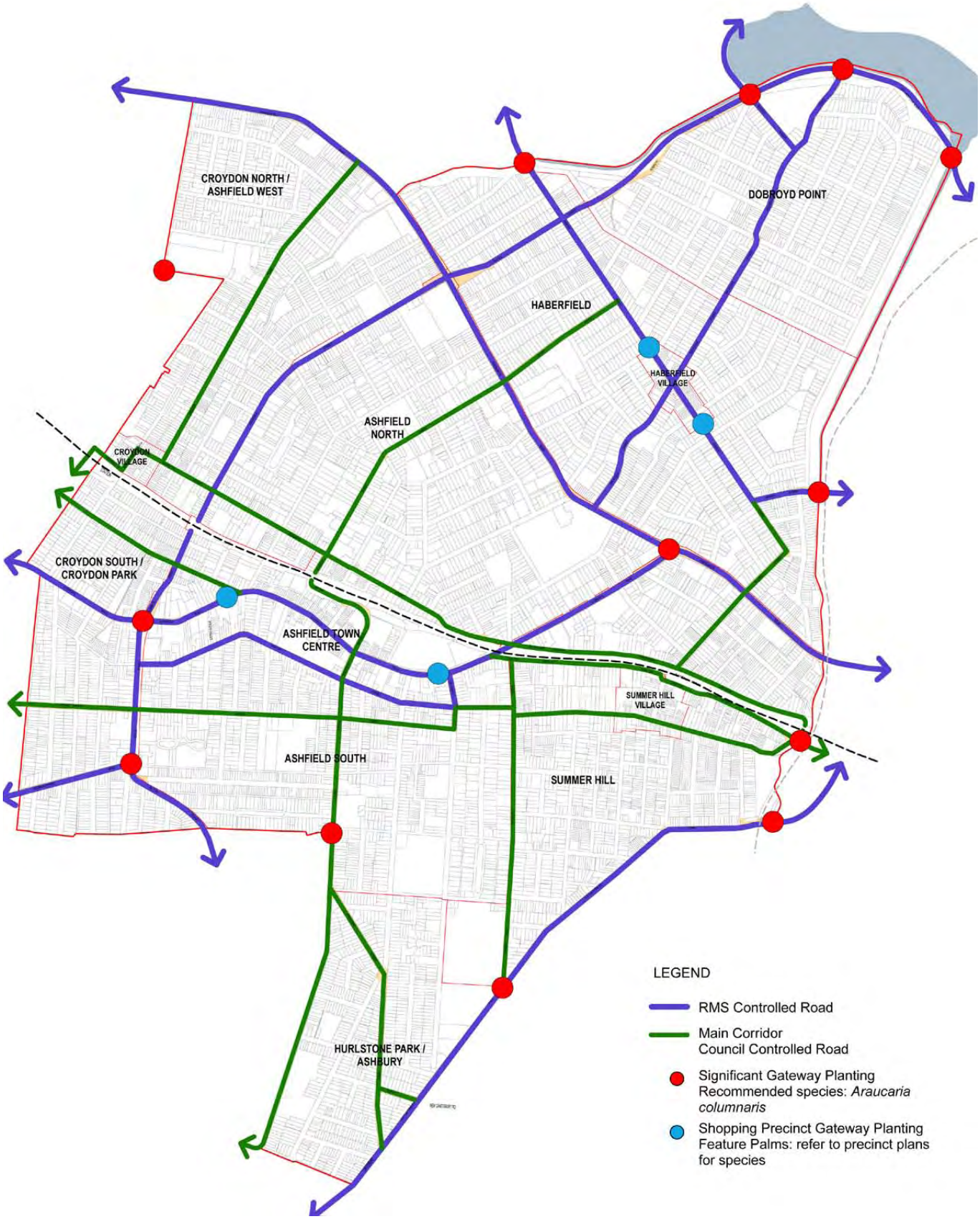


Figure 5.6 - Diagram depicting the main road corridors through Ashfield. With strategic and long term vision these, together with the 'gateways' could be highlighted and transformed into attractive and landmark streets that help define the character, historic quality and beauty of the area.

Figure 5.7- An example of Butia capitata (Jelly Pine) which could be transplanted from a street where its use and historical relevance is greatly reduced and provide new life for it as key gateway planting or to supplement streets with a great deal of palms left to maintain their character for many more years to come. (Photo - Arterra)

Figure 5.8- An example of Butia capitata (Jelly Pine) used in Hays Street, Hurlstone Park, where transplanted specimens from lesser steets could be relocated to maintain its character for many more years to come. (Photo - Arterra)

Figure 5.9 - A Photomontage illustrating the creation of a gateway to Haberfield Village using transplanted palms. (Image - Arterra)

6.0 Precinct Plans and Proposed Street Tree Species

This section of the Street Tree Strategy provides the main guide for future tree planting in Council's streets. The precinct based 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.

An aerial view taken at the same scale for each precinct allows comparison between development types and typical overall existing canopy coverage within each precinct.

Figure 6.1 below indicates the location and extent of the street tree planting precincts across the Local Government Area.

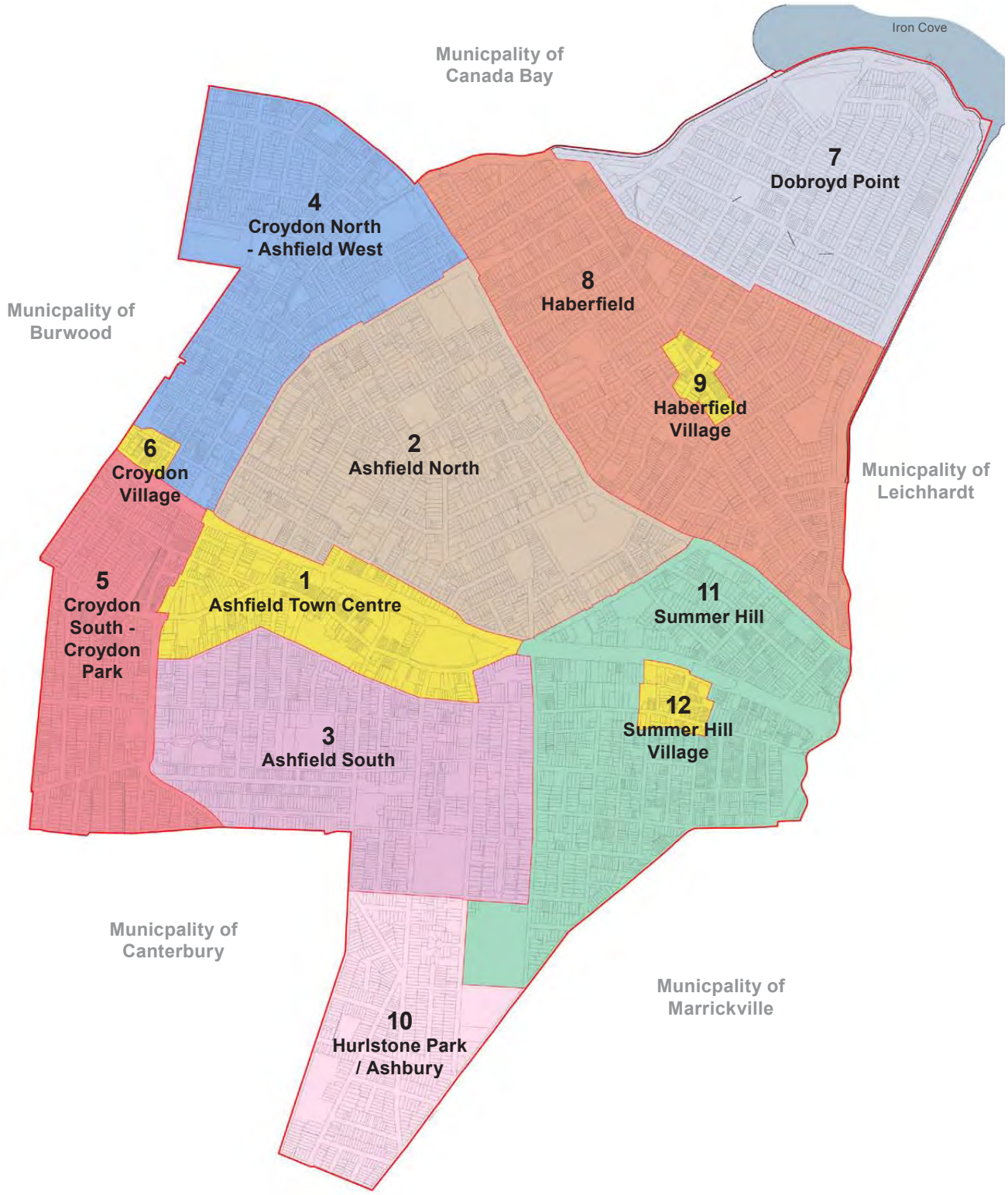


Figure 6.1- Map of the Precincts that have been used throughout the Street Tree Strategy

Figure 6.2 - Some of the great streets in Sydney, such as Kingston Street in Dobroyd Point are held in high esteem due to their regular and bold planting creating a leafy, cool and shaded street, well clear of the adjoining houses and enjoyed by all. They are characterised by the use of one or two species only, regular spacing of trees and the location of the trees within the road carriageway. (Photo - Arterra)

Figure 6.3 - It is increasingly rare for Council's to display the vision and political will to achieve the great streets of the future. Ashfield has some great opportunities to return to an era where such civic planting was undertaken and 'over time' define the landscape character of the area, such as here, in Victoria Street (Photo - Arterra)

6.1 Ashfield Town Centre

Land area: 45.1Ha

Context and History
Located 9km south-west of Sydney, Ashfield Town Centre is an established commercial area, located predominantly south of Ashfield railway station. It is bound by Elizabeth Street and the railway line to the north, Liverpool Road and Victoria Street to the east, Norton Street to the south and Frederick Street to the west.

Settlement of the area dates from 1794 when the first land grants were made. Population was minimal until 1838 when land was subdivided and the Village of Ashfield was established. Ashfield railway station was opened in 1855 and the area developed quickly with a thriving town centre. Growth continued into the early 1900s. Significant development occurred during the post-WWII years when many of the old buildings were demolished and replaced by high-rise units and flats, altering the character of Ashfield.

Ashfield Town Centre has a diverse mix of Victorian style commercial buildings, nestled along side new civic buildings, apartment blocks and some smaller Federation style houses.

Major features
Major features of the area include Ashfield Shopping Centre, Ashfield railway station, Ashfield Boys High School and Western Suburbs League Club.

Streets and Street trees
The town centre contains a mixture of street typologies. The railway line to the north and Norton Street to the south confine the linear arrangement of the town centre. Liverpool Road is the major road running east/west through the town centre, which creates a number of short and segmented streets predominantly running north/south off the main road. The main commercial sector is characterised by two storey mixed-use medium density streets. Over 70% of the streets are fully paved with little or no street tree planting. Hercules Street, however, has an excellent example of successful street tree planting, within a fully paved verge, in a commercial precinct using Chinese Elms (*Ulmus parvifolia).* This style of street planting complements and greatly enhances the character of the street.

The remaining streets are characterised by lower density residential streets with small <1.8m-3.5m wide verges, 1.5m wide footpaths and a resulting 1-1.5m wide grass strip in which the majority of the street trees are planted.

A small number of the streets have in-road planting, with some excellent examples of the early 1900 in-road street trees still retained, for example along The Avenue and Heighway Avenue. This distinctive heritage planting greatly enhances the character and success of these streets.

Existing Primary Street Trees
- *Brachychiton acerifolius*
- *Lophostemon confertus*
- *Syzygium paniculatum (topiaried)*
- *Ulmus parvifolia*
- *Lagerstromia indica*
- *Tristaniopsis laurina*
- *Melaleuca quinquenervia*
- *Callistemon viminalis cv.*

Figure 6.5 - Hercules Street, illustrating excellent example of street planting (Ulmus parvifolia) which is shown growing successfully within the commercial context. (Photo-Arterra)

Figure 6.4- Aerial view of Ashfield Town Centre illustrating current canopy cover and landuse density and patterns. (Source: 21st November 2014 NearMap)

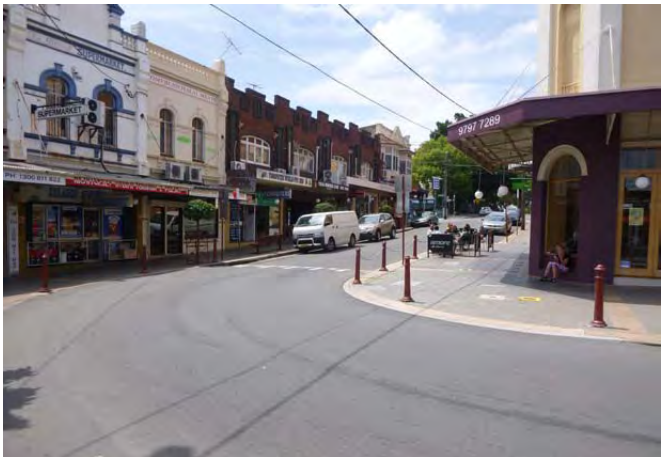


Figure 6.6 - Charlotte Street, illustrating some potential for strategic street planting. (Photo-Arterra)

SPECIES LEGEND

Evergreen

Bc	*Backhousia citriodora* (Lemon-scented Myrtle)
Ee	*Elaeocarpus eumundi* (Eumundi Quondong)
Wf	*Waterhousea floribunda 'Green Avenue'* (Weeping Lilly Pilly)
Sp	*Syzygium paniculatum* (Brush Cherry)

Deciduous

Kb	*Koelreuteria bipinnata* (Chinese Rain Tree)
Li	*Lagerstroemia indica* (Crepe Myrtle)
Up	*Ulmus parvifolia 'Todd'* (Chinese Elm)
Zs	*Zelkova serrata 'Green Vase'* (Japanese Zelkova)

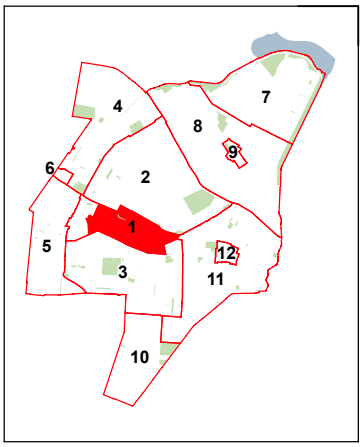
Palms

Bcap	*Butia capitata* (Jelly Palm)

LEGEND

Public open space

Railway



PRECINCT KEY PLAN

Figure 6.7
Precinct 1
Ashfield Town Centre

6.2 Ashfield North

Land area: 124.5Ha

Context and History
Located 9km south-west of Sydney, Ashfield North is an established residential area, with commercial areas along Parramatta Road and near the railway station. It is bound by Parramatta Road to the north, Liverpool Road to the east, Elizabeth Street and the railway line to the south, Frederick Street to the west.

Settlement of the area dates from 1794 when the first land grants were made. Population was minimal until 1838 when land was subdivided and the Village of Ashfield was established. Ashfield railway station was opened in 1855 and the area developed quickly with a thriving town centre and the suburb became an attractive area with Federation style houses, gardens and orchards with several good watering holes popular for family picnics. Growth continued into the early 1900s. Significant development occurred during the post-WWII years when many of the old houses were demolished and replaced by units and flats, altering the character of Ashfield.

Ashfield North has a diverse mix of Federation and Victorian style residential houses, nestled along side apartment blocks and flats. The precinct still retains some of the oldest and most significant open spaces within the LGA.

Major features
Major features of the area include Ashfield Park, Albert Parade Reserve, Bruce Street Reserve, Elizabeth Street Playground, Explorer's Park, Rotary Park, and De La Salle College.

Streets and Street trees
Apart from the major roads, there is a mixture of street typologies. Just over 30% form laneways, narrow streets and high-density residential streets with little or no street tree planting. The large majority of the streets in this area are characterised by low-density residential streets with small <1.8m-3.5m wide verges, 1.5m wide footpaths and a resulting 1-1.5m wide grass strip in which the majority of the street trees are planted. Albert Parade has been designed with a large attractive in-road planting median supporting a number of large trees.

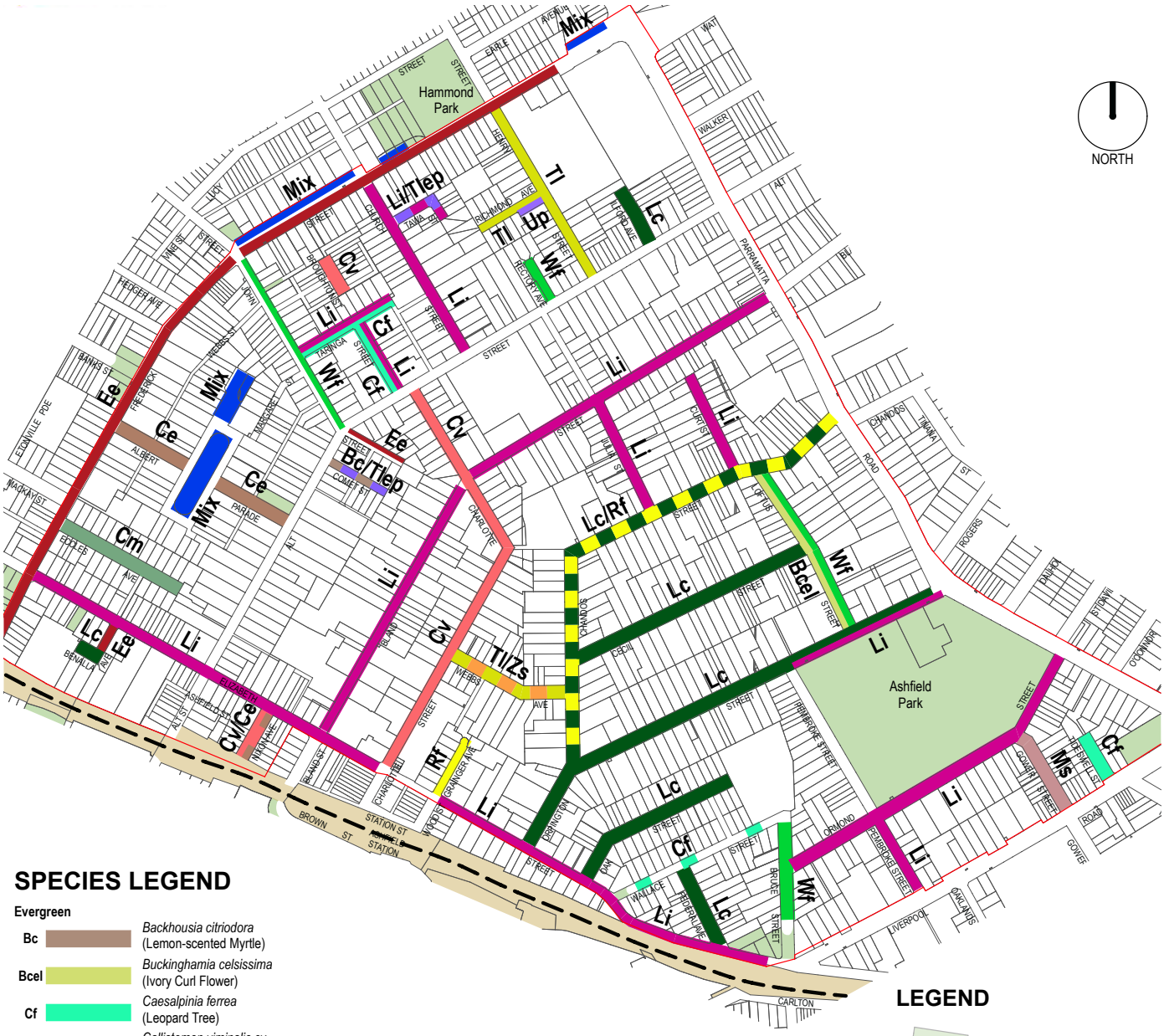
Over 35% of the streets have in-road planting, with some excellent examples of the early 1900s in-road street trees still retained, for example along Cecil Street, Federal Avenue, Oak Street and Orpington Street. This distinctive heritage planting greatly enhances the success and character of these streets.

Existing Primary Street Trees
- *Lophostemon confertus*
- *Callistemon sp.*
- *Melaleuca bracteata*
- *Lagerstromia indica*
- *Tristaniopsis laurina*
- *Melaleuca quinquenervia*
- *Callistemon viminalis cv.*
- *Phoenix canariensis*

Figure 6.9 - Oak Street, illustrating excellent example of historic street planting that has been renovated to meet modern requirements. (Photo-Arterra)

Figure 6.8- Aerial view of Ashfield North illustrating current canopy cover and landuse density and patterns. (Source: 21st November 2014 NearMap)

Figure 6.10 - Albert Parade, illustrating unique planting within the widened street median/ park. This allows valuable and larger scaled street planting without impacting adjoining residents (Photo-Arterra)



SPECIES LEGEND

Evergreen

Bc	*Backhousia citriodora* (Lemon-scented Myrtle)
Bcel	*Buckinghamia celsissima* (Ivory Curl Flower)
Cf	*Caesalpinia ferrea* (Leopard Tree)
Cv	*Callistemon viminalis cv.* (Bottlebrush)
Ce	*Corymbia eximia* (Yellow Bloodwood)
Cm	*Corymbia maculata* (Spotted Gum)
Ee	*Elaeocarpus eumundi* (Eumundi Quondong)
Lc	*Lophostemon confertus* (Brush Box)
Ms	*Melaleuca styphelioides* (Prickly Paperbark)
Tlep	*Tibouchina lepidota 'Alstonville'* (Lasiandra)
Tl	*Tristaniopsis laurina* (Water Gum)
Wf	*Waterhousea floribunda 'Green Avenue'* (Weeping Lilly Pilly)

Deciduous

Li	*Lagerstroemia indica* (Crepe Myrtle)
Rf	*Robinia pseudoacacia 'Frisia'* (Black Locust)
Zs	*Zelkova serrata 'Green Vase'* (Japanese Zelkova)

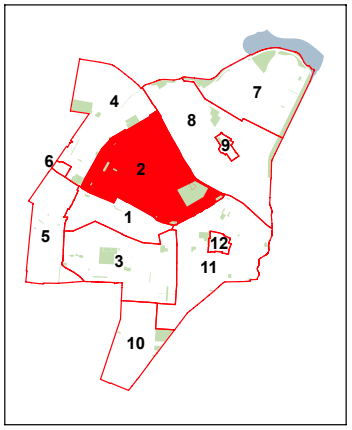
Mixed Species

Mix	*Refer to the street tree species schedule for details on the mixed tree species for this street location*

LEGEND

Public open space

Railway



PRECINCT KEY PLAN

Figure 6.11
Precinct 2
Ashfield North

6.3 Ashfield South

Land area: 101.6Ha

Context and History
Located 9km south-west of Sydney, Ashfield South is an established residential area. It is bound by Norton Street to the north, Prospect Road to the east, Seaview Street and Crimson Lane to the south and Milton Street to the west.

Settlement of the area dates from 1794 when the first land grant was made. The land was mainly used for farming and also formed part of Ashfield Park. The population was small until the land was subdivided and Ashfield railway station was opened in 1855. The area developed quickly with the nearby town centre and the suburb became an attractive area of Federation style houses, gardens and orchards. Growth continued into the early 1900s. Some significant development occurred during the post-war years altering the character when many of the older houses were demolished to make way for apartment dwellings.

Major features
Major features of the area include Pratten Park, Sydney Private Hospital, Brunswick Parade Reserve, Allman Park, Cecile Herman Reserve, Graham Reserve and Rose Street Playground.

Streets and Street Trees
There is a mixture of street typologies. Just over 15% take the form of narrow one-way streets and apartment style residential streets with little street tree planting. The majority of the streets in this area are characterised by lower density residential streets with small <1.8m-3.5m wide verges, 1.5m wide footpaths and a resulting 1-1.5m wide grass strip in which the majority of the street trees are planted. Several streets have also been designed with large attractive in-road planting medians supporting a number of larger trees.

Nearly 30% of the streets have in-road planting, with some excellent examples of the early 1900s in-road street trees still retained for example along Park Avenue, Shepherd Street, Carlisle Street and King Street. This distinctive and successful planting greatly enhances the character of these streets.

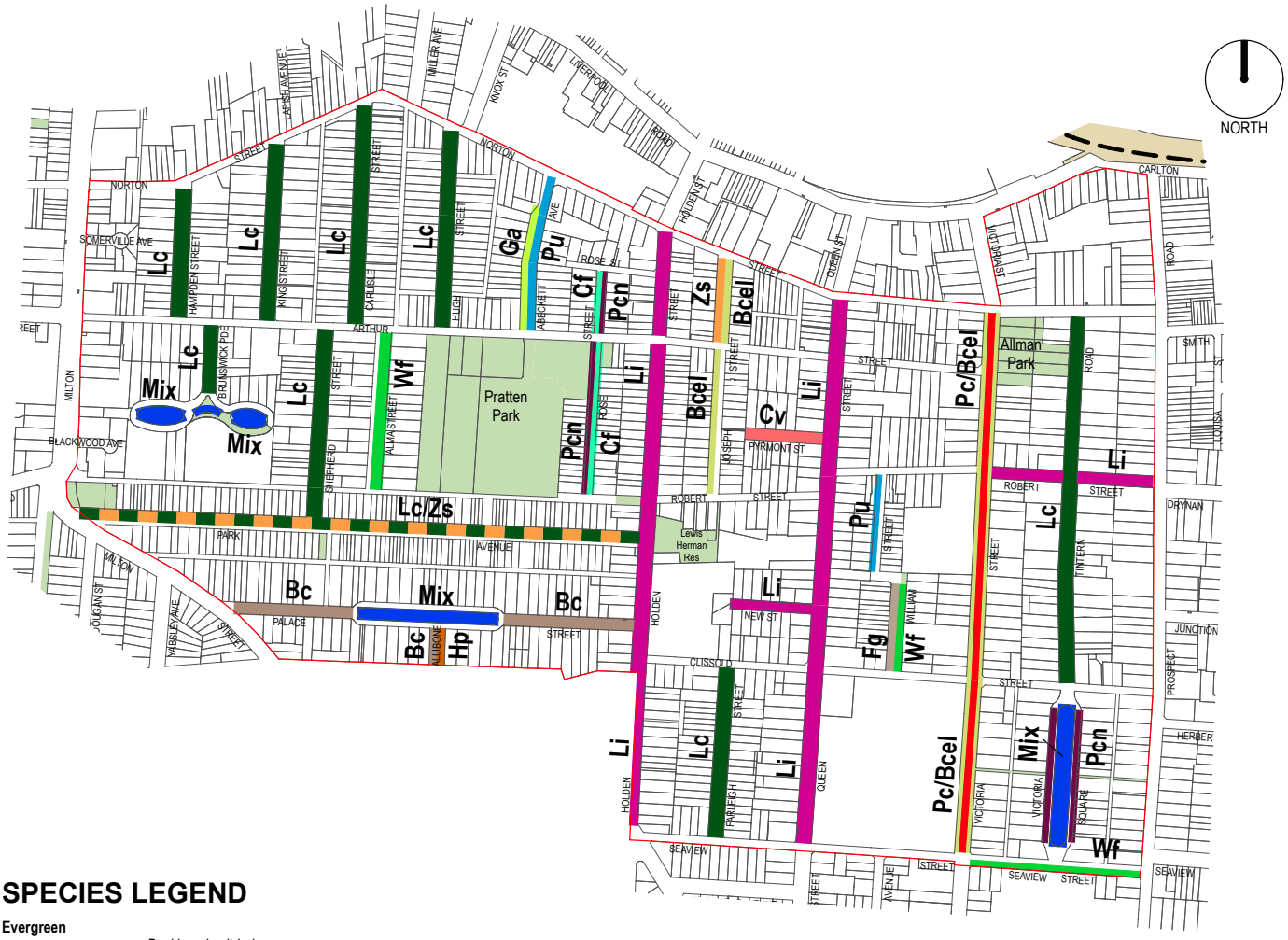
Existing Primary Street Trees
- *Lophostemon confertus*
- *Callistemon sp.*
- *Melaleuca bracteata*
- *Lagerstromia indica*
- *Tristaniopsis laurina*
- *Melaleuca quinquenervia*
- *Callistemon viminalis cv.*
- *Phoenix canariensis*

Figure 6.13 - Prospect Road, illustrating successful modern planting in the narrow verges opposite the wires. (Photo-Arterra)

Figure 6.14 - Tintern Road, illustrating historic Brush Box planting. (Photo-Arterra)

Figure 6.12- Aerial view of Ashfield South illustrating current canopy cover and landuse density and patterns. (Source: 21st November 2014 NearMap)

Figure 6.15 - Victoria Street, illustrating historic Phoenix Palms (Photo-Arterra)



SPECIES LEGEND

Evergreen

Bc	*Backhousia citriodora* (Lemon-scented Myrtle)
Bcel	*Buckinghamia celsissima* (Ivory Curl Flower)
Cf	*Caesalpinia ferrea* (Leopard Tree)
Cv	*Callistemon viminalis cv.* (Bottlebrush)
Fg	*Fraxinus griffithii* (Evergreen Ash)
Ga	*Gordonia axillaris* (Gordonia)
Hp	*Harpullia pendula* (Tulipwood)
Lc	*Lophostemon confertus* (Brush Box)
Wf	*Waterhousea floribunda 'Green Avenue'* (Weeping Lilly Pilly)

Deciduous

Li	*Lagerstroemia indica* (Crepe Myrtle)
Pcn	*Prunus cerasifera 'Nigra'* (Purple-leaf Cherry Plum)
Pu	*Pyrus ussuriensis* (Manchurian Pear)
Zs	*Zelkova serrata 'Green Vase'* (Japanese Zelkova)

Palms

Pc	*Phoenix canariensis* (Canary Island Date Palm)

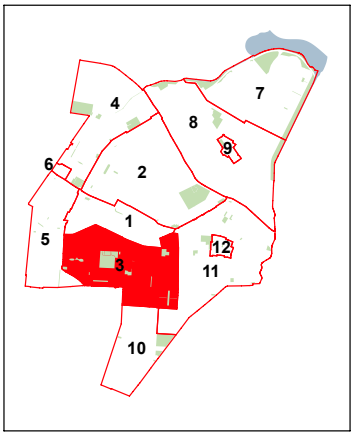
Mixed Species

Mix	*Refer to the street tree species schedule for details on the mixed tree species for this street location*

LEGEND

Public open space

Railway



PRECINCT KEY PLAN

Figure 6.16
Precinct 3
Ashfield South

6.4 Croydon North / Ashfield West

Land area: 88.3Ha

Context and History
Located 11km south-west of Sydney, Croydon North is an established residential area, with extensive commercial areas along Parramatta Road and some near the Croydon railway station. It is bound by Parramatta Road to the north, Frederick Street to the east, the railway line to the south and Queen Street and Lang Street to the west.

Settlement of the area dates from 1794 when the first land grant was made. From the 1860s to the 1890s Croydon, named after the borough in London, was a small village surrounded by large stately homes. The population was minimal until land was subdivided and the Croydon railway station opened in 1875. As the population increased the area was known for its attractive Federation-style bungalows and two-storey, freestanding Victorian terraces. More substantial growth took place in the post-WWII years when many of the old houses were demolished to make way for high-rise dwellings.

Croydon is a quiet suburb and has a diverse character, with a mix of residential types from medium density apartment blocks, to low density Federation style houses set back from the street with off street parking.

Major features
Major features of the area include Hammond Park, Ashfield Aquatic Centre, Centenary Sports Park, Anthony Street Reserve, Bede Spillane Gardens, Bridges Reserve, John Merrick Memorial Garden, J B McCartney Playground and the Croydon railway station.

Streets and Street trees
Apart from the major roads such as Parramatta Road, there is a mixed palette of street typologies. Over 70% of the streets in this area are characterised by low density residential streets with small <1.8m-3.5m wide verges, 1.5m wide footpaths and a resulting <1-1.5m wide grass strip in which the majority of the street trees are planted. In some cases the species selected for these narrow verges are too large for the space, which has started to cause some damage to the surrounding surfaces.

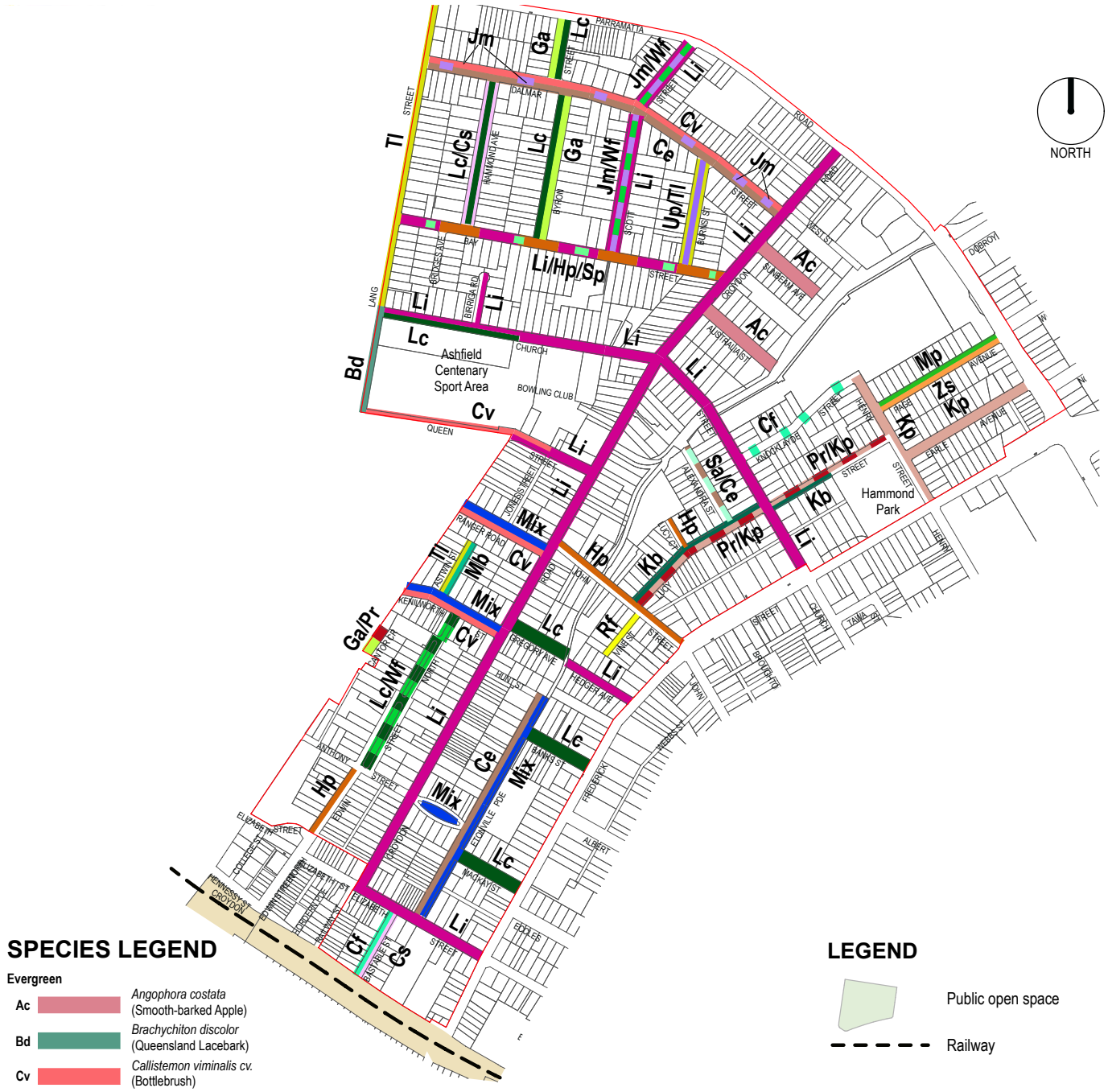
Around 20% are higher density residential streets and have narrow or fully paved footpaths, which typically do not support any street tree planting. A few streets display large verges with generous grass strips in which the street trees are planted. A good example of this is on Mackay Street and Gregory Avenue.

Existing Primary Street Trees
- *Lagerstromia indica*
- *Callistemon sp.*
- *Tristaniopsis laurina*
- *Melaleuca bracteata*
- *Lophostemon confertus*
- *Butia capitata*
- *Tibouchina lepidota 'Alstonville'*
- *Callistemon viminalis cv.*

Figure 6.18 - Croydon Road, illustrating an excellent example of modern street planting (Lagerstroemia indica). (Photo-Arterra)

Figure 6.17- Aerial view of Croydon North / Ashfield West illustrating current canopy cover and landuse density and patterns. (Source: 21st November 2014 NearMap)

Figure 6.19 - Byron Street, illustrating recent realignment of road infrastructure providing useful and suitable areas to create new and integrated street planting. (Photo-Arterra)



SPECIES LEGEND

Evergreen

Ac	*Angophora costata* (Smooth-barked Apple)
Bd	*Brachychiton discolor* (Queensland Lacebark)
Cv	*Callistemon viminalis cv.* (Bottlebrush)
Cs	*Camellia sasanqua cv.* (Camellia)
Ce	*Corymbia eximia* (Yellow Bloodwood)
Cf	*Caesalpinia ferrea* (Leopard Tree)
Ga	*Gordonia axillaris* (Gordonia)
Hp	*Harpullia pendula* (Tulipwood)
Kb	*Koelreutaria bipinnata* (Chinese Rain Tree)
Kp	*Koelreutaria paniculata* (Golden Rain Tree)
Lc	*Lophostemon confertus* (Brush Box)
Mb	*Melaleuca bracteata* (Black Tea-tree)
Mp	*Murraya paniculata* (Mock Orange)
Pr	*Photinia x fraseri 'Robusta'* (Photinia)
Sa	*Schinus areira* (Pepper Tree)
Sp	*Syzygium paniculatum* (Brush Cherry)
Tl	*Tristaniopsis laurina* (Water Gum)

Deciduous

Li	*Lagerstroemia indica* (Crepe Myrtle)
Jm	*Jacaranda mimosifolia* (Jacaranda)
Rf	*Robinia pseudoacacia 'Frisia'* (Black Locust)
Up	*Ulmus parvifolia 'Todd'* (Chinese Elm)
Zs	*Zelkova serrata 'Green Vase'* (Japanese Zelkova)

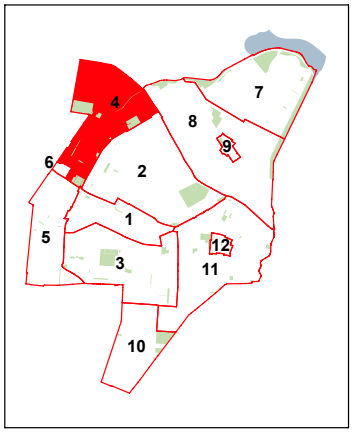
Mixed Species

Mix	*Refer to the street tree species schedule for details on the mixed tree species for this street location*

LEGEND

Public open space

Railway



PRECINCT KEY PLAN

Figure 6.20
Precinct 4
Croydon North / Ashfield West

6.5 Croydon South / Croydon Park

Land area: 59.1Ha

Context and History
Located 11km south-west of Sydney, Croydon (South) - Croydon Park is an established residential area. It is bound by the railway line to the north, Milton Street to the east, New Street in the south and Greenhills Street and Dickinson Avenue to the west.

Settlement of the area dates from 1794 when the first land grant was made. From the 1860s to the 1890s Croydon was a small village surrounded by large stately homes. The population was minimal until land was subdivided and the Croydon railway station opened in 1875. As the population increased the area was known for its attractive Federation-style bungalows and two-storey, freestanding Victorian terraces. More substantial growth took place in the post-WWII years when many of the old houses were demolished to make way for apartments.

Croydon South is a quiet suburb and has a diverse character, with a mix of residential types from apartment blocks, to low-density Federation style houses set back from the street, most with off street parking.

Major features
A major feature of the area is Croydon railway station, Wesley Hospital Ashfield and Sutherland Reserve.

Streets and Street trees
Apart from the major roads, just over 80% of the streets in this area are characterised by lower density residential streets with small 1.8m-3.5m wide verges with 1.5m wide footpath and a resulting 1-1.5m wide grass strip in which the majority of the street trees are planted. In some cases the species selected for these narrow verges have become too large for the space, which has started to cause some damage to the surrounding surfaces. A few streets have wider verges ranging between 3.5-5m+ with generous grass verges in which the street trees are planted.

There is a mixed palette of existing trees, some large and some small, often with little regard to whether they are under the wires or not. As a result, clearance pruning has significantly disfigured many of the larger trees. There is also evidence of street tree planting undertaken by residents in some locations.

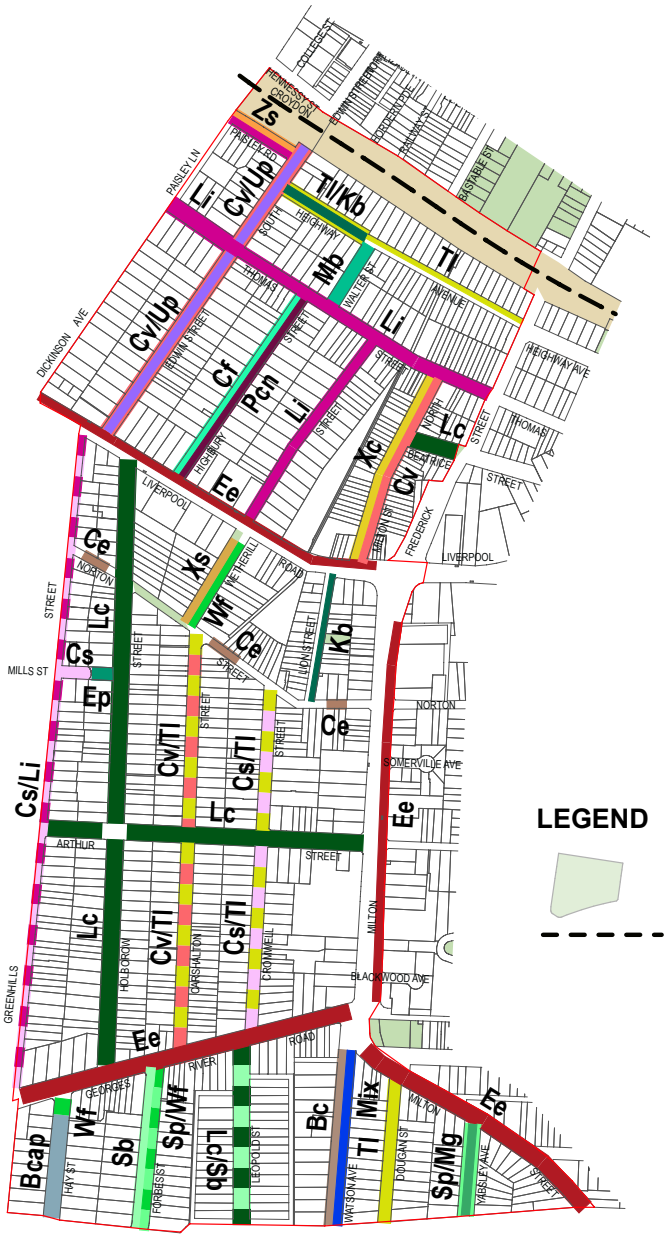
Figure 6.21- Aerial view of Croydon South / Croydon Park illustrating current canopy cover and landuse density and patterns. (Source: 21st November 2014 NearMap)

The existing historic theme of in-road planting has been retained in only a few streets, with good examples of the remnant historical Brushbox in-road planting dating from the 1900s along Holborow Street and Arthur Street. This distinctive and successful planting greatly enhances the character of these streets.

Existing Primary Street Trees
- *Lagerstromia indica*
- *Callistemon sp.*
- *Tristaniopsis laurina*
- *Melaleuca bracteata*
- *Lophostemon confertus*
- *Butia capitata*
- *Tibouchina lepidota 'Alstonville'*
- *Callistemon viminalis cv.*

Figure 6.22 - Arthur Street, illustrating historic Brush Box planting. (Photo-Arterra)

Figure 6.23 - A Photomontage (Norton Street) illustrating installation of a larger tree in an otherwise treeless street. (Image - Arterra)



SPECIES LEGEND

Evergreen

Bc	*Backhousia citriodora* (Lemon-scented Myrtle)
Cf	*Caesalpinia ferrea* (Leopard Tree)
Cv	*Callistemon viminalis cv.* (Bottlebrush)
Cs	*Camellia sasanqua cv.* (Camellia)
Ce	*Corymbia eximia* (Yellow Bloodwood)
Ee	*Elaeocarpus eumundi* (Eumundi Quondong)
Ep	*Eucalyptus paniculata* (Grey Ironbark)
Kb	*Koelreutaria bipinnata* (Chinese Rain Tree)
Lc	*Lophostemon confertus* (Brush Box)
Mg	*Magnolia grandiflora 'Exmouth'* (Bull-bay Magnolia)
Mb	*Melaleuca bracteata* (Black Tea-tree)
Sp	*Syzygium paniculatum* (Brush Cherry)
Tl	*Tristaniopsis laurina* (Water Gum)
Wf	*Waterhousea floribunda 'Green Avenue'* (Weeping Lilly Pilly)
Xc	*Xanthostemon chrysanthus* (Golden Penda)
Xs	*Xylosma senticosum* (Xylosma)

Deciduous

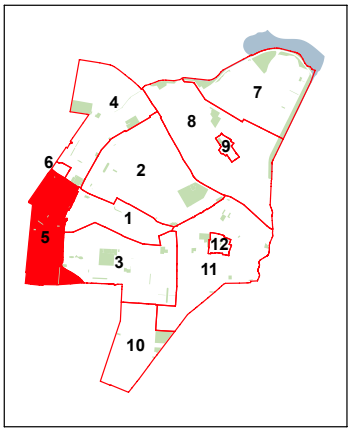
Li	*Lagerstroemia indica* (Crepe Myrtle)
Pcn	*Prunus cerasifera 'Nigra'* (Purple-leaf Cherry Plum)
Sb	*Sapium sebiferum* (Chinese Tallow Tree)
Up	*Ulmus parvifolia 'Todd'* (Chinese Elm)
Zs	*Zelkova serrata 'Green Vase'* (Japanese Zelkova)

Palms

Bcap	*Butia capitata* (Jelly Palm)

Mixed Species

Mix	*Refer to the street tree species schedule for details on the mixed tree species for this street location*



PRECINCT KEY PLAN

Figure 6.24
Precinct 5
Croydon South / Croydon Park

6.6 Croydon Village

Land area: 2.6Ha

Context and History
Located to the north of Croydon railway station, Croydon Village has a well established 'village' character supporting numerous small local businesses along Edwin Street North and Elizabeth Street near the railway station.

Settlement of the area dates from 1794 when the first land grant was made. From the 1860s to the 1890s Croydon was a small village surrounded by large stately homes. The population was minimal until land was subdivided and the Croydon railway station opened in 1875. As the population increased the area was known for its attractive two-storey Victorian terraces and Federation style houses.

Croydon Village is a busy local commercial hub with a diverse character, with a mix of business types.

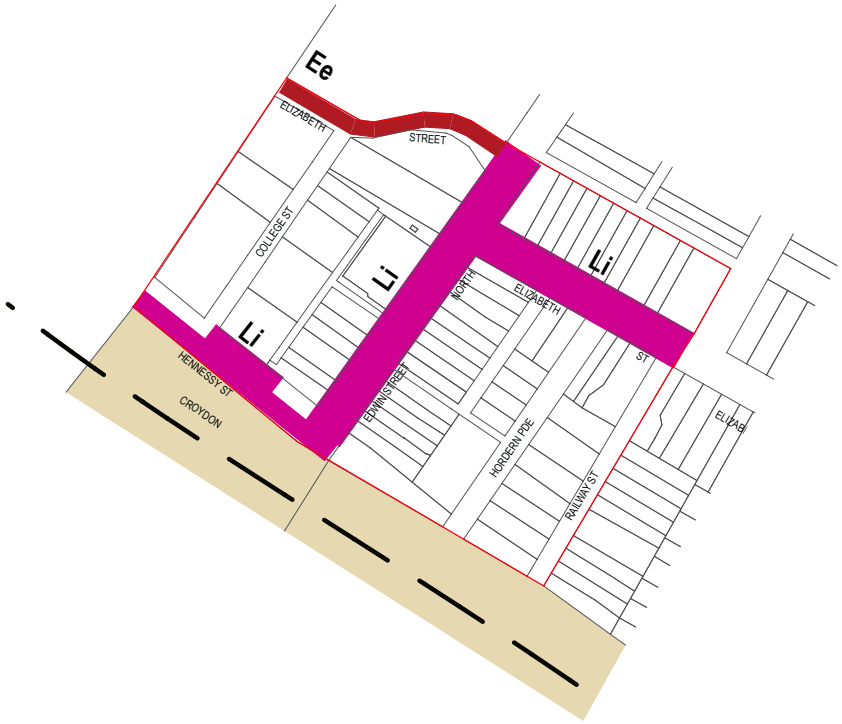
Major features
A major feature is the Croydon railway station and Presbyterian Ladies' College, Croydon.

Figure 6.25 - Edwin street North, illustrating recent street tree planting and street upgrades to define the village precinct. (Photo-Arterra)

Streets and Street trees
The majority of the streets in this area are characterised by mixed-use commercial properties and terrace style residential streets with small <1.8m-3.5m wide fully paved verges, and some street trees planting at key pedestrian crossing points. The remaining street typography are laneways that are too narrow to support tree planting.

Existing Primary Street Trees
- *Lagerstromia indica*

Figure 6.26 - Although outside of the Ashfield Council's jurisdiction, The Strand, within Croydon Village illustrates the appropriate use of signature planting such as these Washingtonia palms to define the commercial centre. (Photo-Arterra)



SPECIES LEGEND

Evergreen

Ee — *Elaeocarpus eumundi* (Eumundi Quondong)

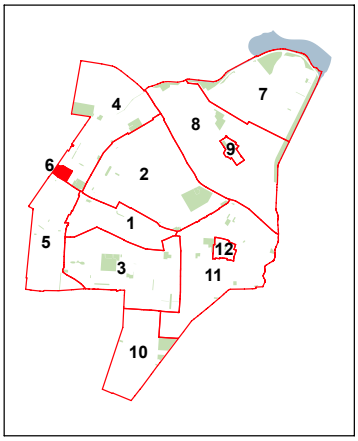
Deciduous

Li — *Lagerstroemia indica* (Crepe Myrtle)

LEGEND

Public open space

Railway



PRECINCT KEY PLAN

Figure 6.27
Precinct 6
Croydon village

6.7 Dobroyd Point

Land area: 94.5Ha
Context and History

Dobroyd Point is a well established residential area located immediately north of Haberfield. Dobroyd Point generally forms a peninsula fronting Iron Cove. It is bound by the Hawthorne Canal to the east, by Barton Avenue and Martin Street to the south, and Reg Coady Reserve and Iron Cove Creek to the west.

Settlement of the area dates from 1803, when Nicholas Bayly acquired the land as part of a grant. He named the area Dobroyd after the Yorkshire village in England where he was born. The land was originally used mainly for farming and a plant nursery. It was said he planted the first Norfolk pines seen in the area.

In the early 1900s the then famous Richard Stanton, appointed an architect to subdivide the area and to create a garden suburb. Each Federation style single-story house was designed, in a garden setting with trees planted along the streets. Dobroyd Point still retains much of this rich heritage of Federation era houses with large gardens, off street parking and established in-road street tree planting.

The entire suburb is heritage listed as a Conservation Area and is part of the Register of the National Estate of Australia.

Major Features
Major features of the area include Robson Park, Reg Coady Reserve and Richard Murden Reserve.

Streets and Street Trees
This area has low to moderate rolling topography with attractive views to Iron Cove. Apart from Dobroyd Parade/ City West Link all of the streets in this area are characterised by low-density residential streets with small <1.8m-3.5m verges with 1.5m wide footpaths and a resulting 1-1.5m wide grass strip. Over two-thirds of the streets have in-road planting, with some excellent examples of the original 1900s in-road Brushbox planting still retained. Examples include Crane Avenue, Kingston Street, Loudon Street and Dudley Street.

Overall there is a high proportion of larger and successful street tree planting.

A few streets have a mixed palette of existing trees, of varying sizes, often planted with little regard to whether they are under the wires or not. As a result clearance pruning has significantly disfigured many of the larger trees on one side of the road.

Existing Primary Street Trees

- *Lophostemon confertus*
- *Callistemon sp.*
- *Casuarina sp.*
- *Lagerstromia indica*
- *Melaleuca bracteata*
- *Tristaniopsis laurina*
- *Melaleuca quinquenervia*

Figure 6.29 - Kingston Street, Haberfield is one of the more historically important and prominent streets within the precinct. (Photo-Arterra)

Figure 6.28- Aerial view of Dobroyd Point illustrating current canopy cover and landuse density and patterns. (Source: 21st November 2014 NearMap)

Figure 6.30 - Hawthorne Parade, Haberfield is a major road and the adjoining open space allows the planting of larger native trees that can also contribute to the biodiversity of the nearby Greenway and help define the streetscape. (Photo-Arterra)

SPECIES LEGEND

Evergreen

Ac	*Angophora costata* (Smooth-barked Apple)
Ah	*Angophora hispida* (Dwarf Apple)
Bcel	*Buckinghamia celsissima* (Ivory Curl Flower)
Cs	*Camellia sasanqua cv.* (Camellia)
Cp	*Cupaniopsis anacardioides* (Tuckeroo)
Ga	*Gordonia axillaris* (Gordonia)
Hp	*Harpullia pendula* (Tulipwood)
Lc	*Lophostemon confertus* (Brush Box)
Mb	*Melaleuca bracteata* (Black Tea-tree)
Ml	*Melaleuca leucadendra* (Weeping Paperbark)
Mp	*Murraya paniculata* (Mock Orange)
Sg	*Synoum glandulosum* (Scentless Rosewood)
Tl	*Tristaniopsis laurina* (Water Gum)
Wf	*Waterhousea floribunda 'Green Avenue'* (Weeping Lilly Pilly)
Xs	*Xylosma senticosum* (Xylosma)

Deciduous

Li	*Lagerstroemia indica* (Crepe Myrtle)
Pcn	*Prunus cerasifera 'Nigra'* (Purple-leaf Cherry Plum)
Pu	*Pyrus ussuriensis* (Manchurian Pear)
Zs	*Zelkova serrata 'Green Vase'* (Japanese Zelkova)

Palms

Bcap	*Butia capitata* (Jelly Palm)

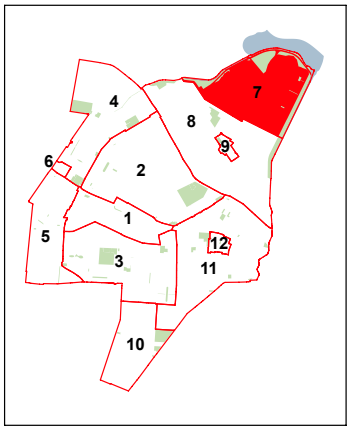
Mixed Species

Mix	*Refer to the street tree species schedule for details on the mixed tree species for this street location*

LEGEND

Public open space

Railway



PRECINCT KEY PLAN

Figure 6.31
Precinct 7
Dobroyd Point

6.8 Haberfield

Land area: 137.5Ha

Context and History
Located 9km south-west of Sydney, Haberfield is an established residential area, with some commercial land use along Ramsay Street and Parramatta Road. It is bound by the Hawthorne Canal to the east, Parramatta Road to the south, Iron Cove Creek to the west and Martin Street and Barton Avenue to the north.

Settlement of the area dates from 1803, when Nicholas Bayly acquired the land as part of a grant. The land was originally used mainly for farming and orchards.

In 1901 Haberfield was subdivided and was marketed as the 'Model Suburb'. Being based upon the City Beautiful Movement, Haberfield soon become known as the 'Garden Suburb' by the early decades of the 20th century. Today Haberfield retains its key 'garden suburb' concepts of its tree-lined streets, neighbourly gardens and period architecture.

The entire suburb is heritage listed as a Conservation Area and is part of the Register of the National Estate of Australia.

Major features
Major features of the area include Algie Park, Jegorow Reserve, Hawthorne Canal Reserve and Richard Murden Reserve.

Streets and Street trees
This area has low to moderate rolling topography. Apart from the major roads, a large majority of the streets in this area are characterised by low-density residential streets with small <1.8m-3.5m verges with 1.5m wide footpaths and a resulting 1-1.5m wide grass strip. A few streets, such as Tressider Street, have large verges with wide generous grass strips > 3.5m within which the majority of the street trees are planted.

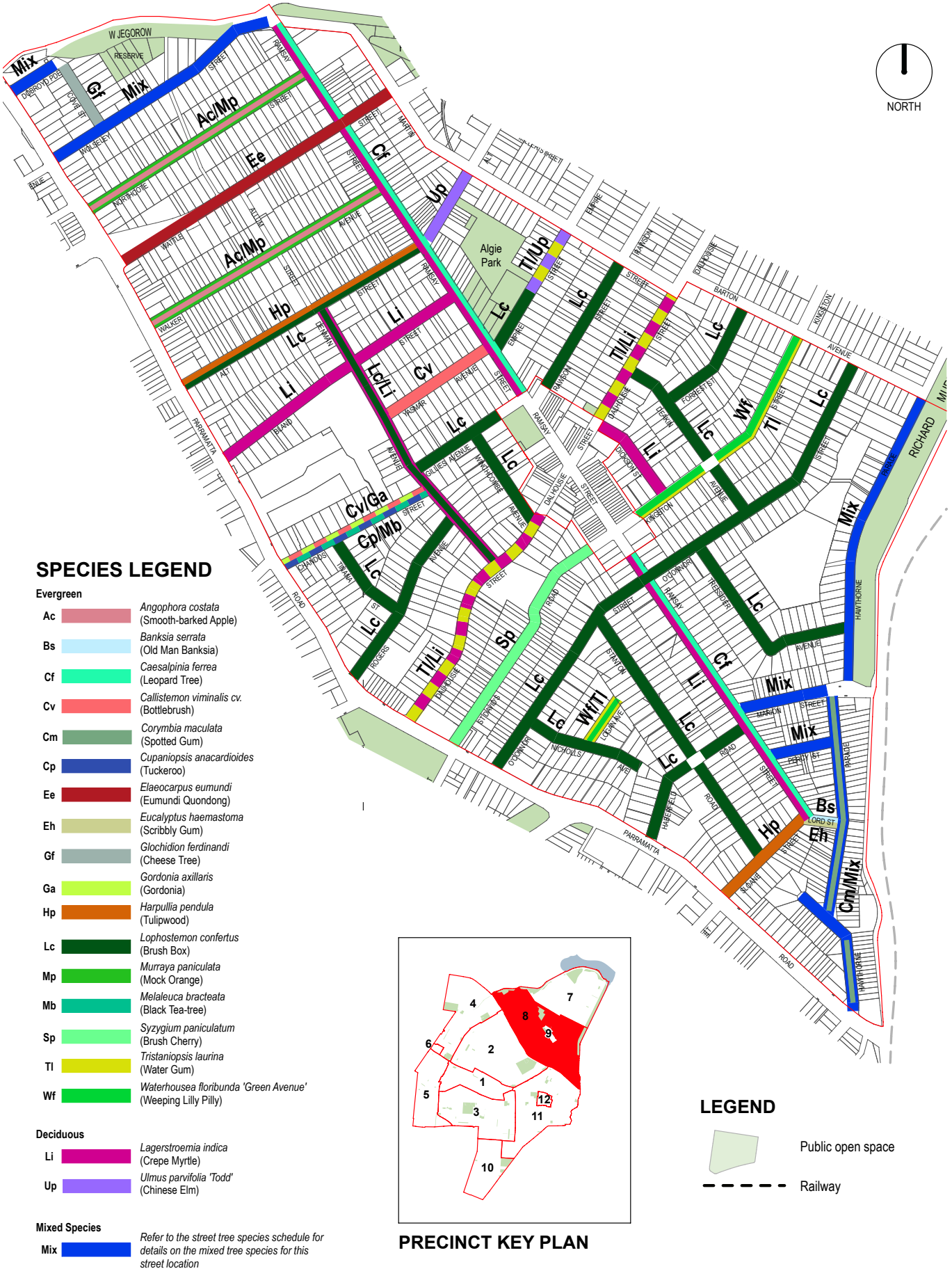
Over two-thirds of the streets have in-road planting, with some excellent examples of the original 1900s in-road street trees still retained on a number of streets for example along Haberfield Road, Kingston Street, Northcote Street and O'Connor Street. This distinctive and successful planting greatly enhances the character of these streets.

Overall there is a high proportion of successful street tree planting.

Existing Primary Street Trees
- *Lophostemon confertus*
- *Callistemon sp.*
- *Casuarina sp.*
- *Lagerstromia indica*
- *Melaleuca bracteata*
- *Tristaniopsis laurina*
- *Melaleuca quinquenervia*

Figure 6.32- Aerial view of Haberfield illustrating current canopy cover and landuse density and patterns. (Source: 21st November 2014 NearMap)

Figure 6.33 - Haberfield Road is an excellent example of the character and style of planting that defines the 'Garden Suburb' of Haberfield, (Photo-Arterra)



SPECIES LEGEND

Evergreen

Ac	*Angophora costata* (Smooth-barked Apple)
Bs	*Banksia serrata* (Old Man Banksia)
Cf	*Caesalpinia ferrea* (Leopard Tree)
Cv	*Callistemon viminalis cv.* (Bottlebrush)
Cm	*Corymbia maculata* (Spotted Gum)
Cp	*Cupaniopsis anacardioides* (Tuckeroo)
Ee	*Elaeocarpus eumundi* (Eumundi Quondong)
Eh	*Eucalyptus haemastoma* (Scribbly Gum)
Gf	*Glochidion ferdinandi* (Cheese Tree)
Ga	*Gordonia axillaris* (Gordonia)
Hp	*Harpullia pendula* (Tulipwood)
Lc	*Lophostemon confertus* (Brush Box)
Mp	*Murraya paniculata* (Mock Orange)
Mb	*Melaleuca bracteata* (Black Tea-tree)
Sp	*Syzygium paniculatum* (Brush Cherry)
Tl	*Tristaniopsis laurina* (Water Gum)
Wf	*Waterhousea floribunda 'Green Avenue'* (Weeping Lilly Pilly)

Deciduous

Li	*Lagerstroemia indica* (Crepe Myrtle)
Up	*Ulmus parvifolia 'Todd'* (Chinese Elm)

Mixed Species

Mix	*Refer to the street tree species schedule for details on the mixed tree species for this street location*

PRECINCT KEY PLAN

LEGEND

Public open space

Railway

Figure 6.34
Precinct 8
Haberfield

6.9 Haberfield Village

Land area: 4.5Ha

Context and History
Known for its atmosphere, cafes and local food offerings and rich Italian heritage, Haberfield Village is located in the centre of Haberfield at the junction between the major roads of Dalhousie Street and Ramsey Street. The area has a rich heritage and protected local architecture. The village character is well defined and characterised by a diverse mix of small locally independent businesses and wide pedestrian friendly streets.

The entire suburb is heritage listed as a Conservation Area and is part of the Register of the National Estate of Australia.

Streets and Street trees
The main roads are characterised by small commercial businesses with over-hanging awnings and fully paved verges 3.5m wide. Some blister planting is located at the end of the parking bays.

Existing Primary Street Trees
- *Cinnamomum camphora*
- *Lagerstromia indica*
- *Butia capitata*

Figure 6.35 - Dalhousie Street (Photo-Arterra)

Figure 6.36 - Ramsay Street (Photo-Arterra)

Figure 6.37 - Ramsay Street (Photo-Arterra)


Figure 6.38 - Ramsay Street (Photo-Arterra)

SPECIES LEGEND

Evergreen

Lc — *Lophostemon confertus* (Brush Box)

Wf — *Waterhousea floribunda 'Green Avenue'* (Weeping Lilly Pilly)

Deciduous

Li — *Lagerstroemia indica* (Crepe Myrtle)

Palms

Bcap — *Butia capitata* (Jelly Palm)

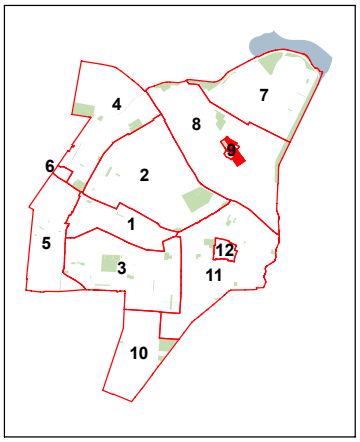
Mixed Species

xx — *Refer to the street tree species schedule for details on the mixed tree species for this street location*

LEGEND

Public open space

Railway



PRECINCT KEY PLAN

Figure 6.39
Precinct 9
Haberfield Village

6.10 Hurlstone Park / Ashbury

Land area: 53.6Ha

Context and History
Located in the south-eastern part of the LGA, Hurlstone Park and Ashbury is an established residential area with a mixture of detached housing and some small areas of commercial development fronting Canterbury Road. It is bound by Seaview Street to the north, Trinity Grammar School, Old Canterbury Road and Canterbury Road to the east, Princess Street in the south, and Holden Street to the west.

The area was first settled in the 1790s, with land being mainly used for farming. Residential growth took place in the late 1800s, following the construction of the main roads and street patterns that still exists today. Further significant residential development occurred during the post-WWII years.

Major features
Major features of the area include Yeo & Gough Park and Canterbury Boys High School.

Streets and Street trees
This area has low to moderate rolling topography. Apart from the major roads, just over 50% of the streets in this area are characterised by lower density residential streets with small 1.8m-3.5m wide verges with 1.5m wide footpath and a resulting 1-1.5m wide grass strip in which the majority of the street trees are planted. The remaining streets have wide verges ranging between 3.5-5m+ with generously wide grass verges.

There is a mixed palette of existing trees, some large and some small, often with little regard to whether they are under the wires or not. As a result, clearance pruning has significantly disfigured many of the larger trees. There is distinct evidence of street tree planting undertaken by residents in some locations.

Figure 6.40- Aerial view of Hurlstone Park illustrating current canopy cover and landuse density and patterns. (Source: 21st November 2014 NearMap)

The existing theme of in-road planting has been retained on a number of streets, with particularly good examples of the remnant historical Brushbox in-road planting from the 1900s being recorded along Goodwin Avenue and Hillcot Street and Jelly Palm (*Butia capitata*) in-road palm planting being retained along Victoria Street.

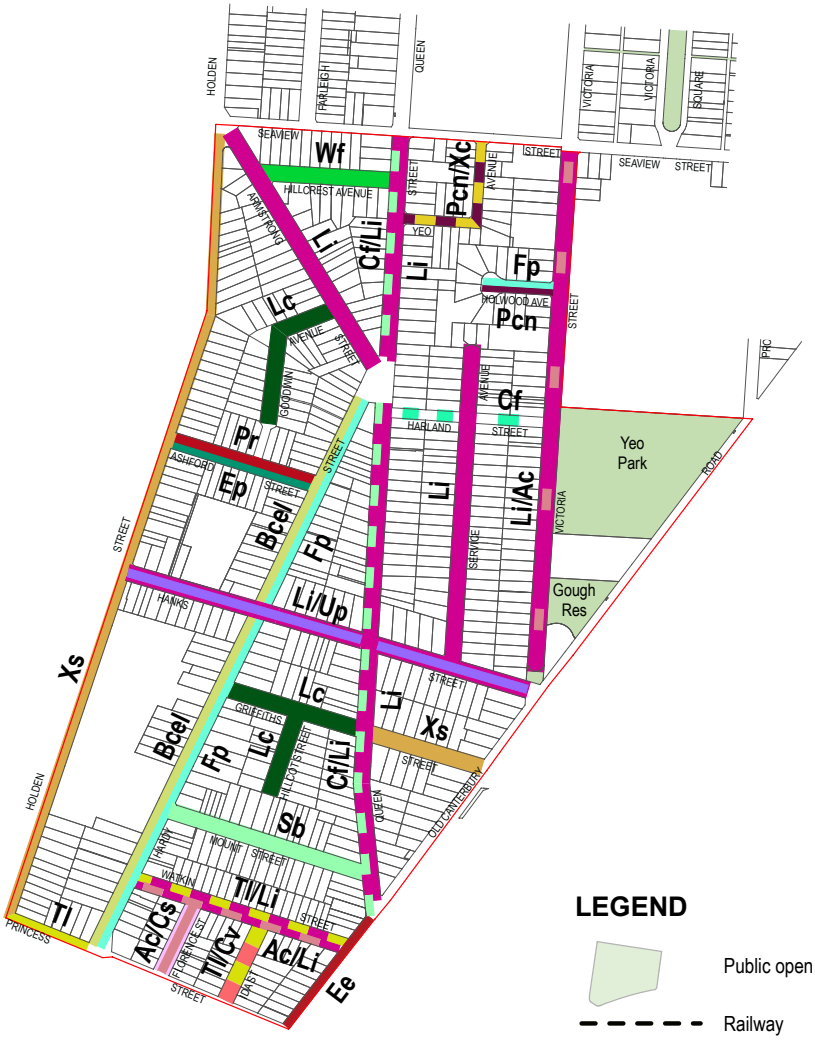
Service Avenue has an exceptional example of an avenue of single species of Crepe Myrtle (*Lagerstromia indica*) all with a consistent form and habit. This distinctive and successful planting greatly enhances the character of this street.

Existing Primary Street Trees
- *Lophostemon confertus*
- *Callistemon sp.*
- *Melaleuca bracteata*
- *Lagerstromia indica*
- *Tristaniopsis laurina*
- *Melaleuca quinquenervia*
- *Leptospermum petersonii*

Figure 6.41 - Hurlstone Park contains some of the great streets of the area such as Goodwin Ave. These need to be protected and continued as important historical streets and excellent contributors to the areas canopy coverage (Photo-Arterra)

Figure 6.42 - Service Avenue, illustrating an excellent example of modern and consistent street planting that now marks a memorable and desirable street. (Photo-Arterra)

NORTH



SPECIES LEGEND

Evergreen

Ac	*Angophora costata* (Smooth-barked Apple)
Bcel	*Buckinghamia celsissima* (Ivory Curl Flower)
Cv	*Callistemon viminalis cv.* (Bottlebrush)
Cs	*Camellia sasanqua cv.* (Camellia)
Cf	*Caesalpinia ferrea* (Leopard Tree)
Ee	*Elaeocarpus eumundi* (Eumundi Quondong)
Ep	*Eucalyptus paniculata* (Grey Ironbark)
Lc	*Lophostemon confertus* (Brush Box)
Pr	*Photinia x fraseri 'Robusta'* (Photinia)
Sb	*Sapium sebiferum* (Chinese Tallow Tree)
Tl	*Tristaniopsis laurina* (Water Gum)
Wf	*Waterhousea floribunda 'Green Avenue'* (Weeping Lilly Pilly)
Xc	*Xanthostemon chrysanthus* (Golden Penda)
Xs	*Xylosma senticosum* (Xylosma)

Deciduous

Fp	*Fraxinus pennsylvanica* (Green Ash)
Li	*Lagerstroemia indica* (Crepe Myrtle)
Pcn	*Prunus cerasifera 'Nigra'* (Purple-leaf Cherry Plum)
Up	*Ulmus parvifolia 'Todd'* (Chinese Elm)

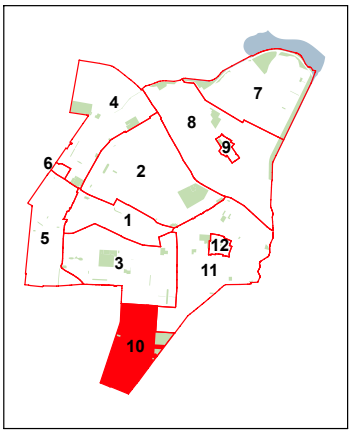
Mixed Species

Mix	*Refer to the street tree species schedule for details on the mixed tree species for this street location*

LEGEND

Public open space

Railway



PRECINCT KEY PLAN

Figure 6.43
Precinct 10
Hurlstone Park and Ashbury

6.11 Summer Hill

Land area: 111.9Ha

Context and History
Located 8km west of Sydney, this precinct contains an established residential area, with some commercial and industrial land use around the railway station and along Parramatta Road and Liverpool Road. Summer Hill is bound by Liverpool Road and Parramatta Road to the north, the Hawthorne Canal in the east, Old Canterbury Road to the south and Prospect Road in the west. The suburb of Haberfield is located to the north, Lewisham to the east, to the south is Dulwich Hill, and to the west is Ashfield (south).

Settlement of the area dates from 1794 when the first land grant was made. The population was small until the railway station opened in 1879. Over the next 50 years the area grew and developed into a distinguished suburb with many neat Victorian houses and spired churches. During the post-war years, the area transitioned into a more working-class suburb and significant development occurred when many large estates were subdivided and mansions were demolished and replaced with smaller houses, terraces and apartment blocks.

Summer Hill still retains a rich heritage and has a large number of protected local architecture and remnant industrial heritage in the former flourmill site. It has a diverse character, with a mix of residential types from medium density apartment blocks and terraces near the Summer Hill railway station, to detached Federation style houses set back from the street with off street parking and tree lined streets.

Figure 6.44- Aerial view of Summer Hill illustrating current canopy cover and landuse density and patterns. (Source: 21st November 2014 NearMap)

Figure 6.45 - Sloane Street (Photo-Arterra)

Major features
A major feature of the area is the Main Western Railway Line, which dissects Summer Hill in half from east to west, creating Summer Hill north and Summer Hill south. Other features of the area also include Trinity Grammar School, Darrell Jackson Gardens, John Paton Reserve, Summer Hill Skate Park, the Summer Hill railway station and Western Gower Street Reserve.

Streets and Street trees
This area has low to moderately rolling topography. Apart from the major roads, the majority of the streets in this area are characterised by low-density residential streets with narrow to small <1.8m-3.5m verges with 1.5m wide footpaths and a resulting 1-1.5m wide grass strip which two-thirds of the street trees are planted. In some cases the species selected for these narrow verges are too large for the space, which has started to cause some damage to the surrounding surfaces. The remaining streets have in-road planting.

Evidence of historical in-road planting has been retained with some very good examples along Kensington Street and Sloane Street. This distinctive and successful planting greatly enhances the character of these streets and are historically important to the Summer Hill heritage.

There is a mixed palette of existing trees, some large and some small, often with little regard to whether they are under the wires or not. As a result, clearance pruning has significantly disfigured many of the larger trees on one side of the road.

Existing Primary Street Trees
- *Lophostemon confertus*
- *Melaleuca bracteata*
- *Melaleuca quinquenervia*
- *Callistemon sp.*
- *Elaeocarpus reticulatus*
- *Callistemon viminalis cv.*
- *Prunus sp.*
- *Tristaniopsis laurina*
- *Schinus areira*
- *Melaleuca styphelioides*

Figure 6.46 - A photomontage of Carlton Crescent, Summer Hill illustrating a potential change to the street trees and street treatments that could significantly soften the street and screen the adjoining railway corridor. (Image - Arterra)

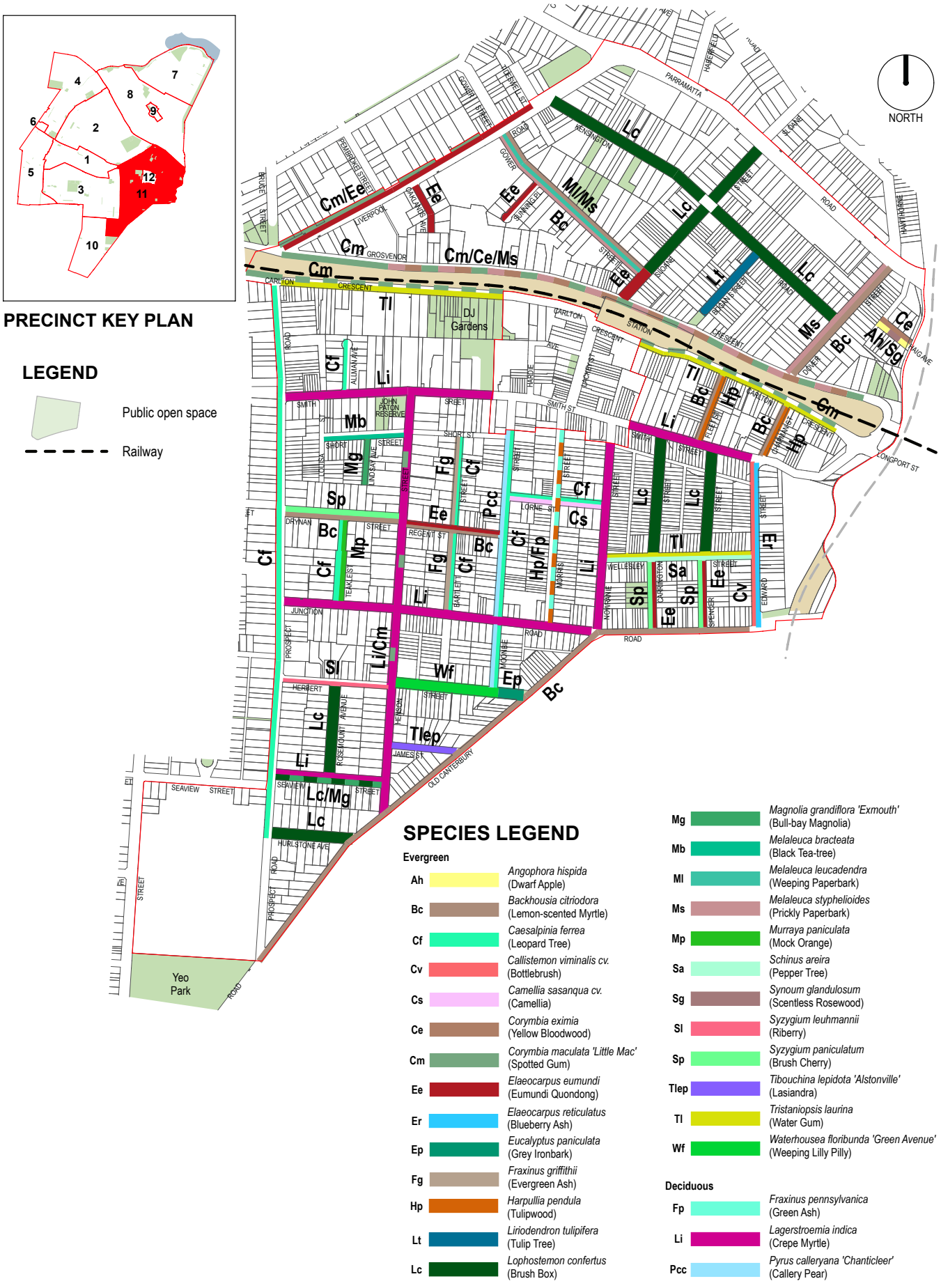


Figure 6.47
Precinct 11
Summer Hill

6.12 Summer Hill Village

Land area: 5.8Ha

Context and History
Summer Hill Village is located in the centre of the Summer Hill precinct and to the south of Summer Hill railway station. The area is known for its atmosphere, cafes, local food and old world charms. It has a rich heritage and protected local architecture. Three pedestrian friendly streets form the distinct village character, which comprises a diverse mix of small locally independent businesses dominated by cafes and restaurants. The streets form a square enclosing a small plaza and a tree-lined carpark.

Settlement of the area dates from 1794 when the first land grant was made. The population was small until the railway station was opened in 1879. Over the next 50 years the area grew and developed into a distinguished suburb with neat Victorian houses and spired churches until the 1920s.

Major features
A major feature of the area is the Summer Hill railway station and Inner West & Southern Train lines.

Streets and Street trees
The main roads are characterised by small commercial businesses with small fully paved verges between 1.8-3.5m wide. Some street tree planting is located within the paved footpaths in individual tree pits with resin-bonded gravel infill.

The trees planted within the central carpark add to the character of the area.

Existing Primary Street Trees
- *Pyrus calleryana cv.*

Figure 6.48 - Morris Street (Photo-Arterra)

Figure 6.49 - Smith Street (Photo-Arterra)

Figure 6.50 - Lackey Street (Photo-Arterra)

Figure 6.51 - Smith Street (Photo-Arterra)

Figure 6.52
Precinct 12
Summer Hill Village

7.0 Street Tree Action Plan and Implementation

7.1 Overview

Ashfield has a demonstrated commitment to street tree planting. In many areas it could be considered by most people to be well treed, although in many areas the trees are typically small and heavily pruned for power line clearance. The vast majority of streets are already planted and some streets present very well. There are some very historic street tree avenues that contribute significantly to the beauty, character and enjoyment of Ashfield.

Despite this, longer term or strategic thought has not been given to some of the previous planting initiatives. Moving forward, it is important that the street planting of Ashfield seeks to:-

- Maintain and reinforce important heritage streets and avenues.
- Maintain and improve its substantial in-road planting assets and procedures.
- Plant the right tree in the right place with emphasis on planting medium sized trees compared to smaller trees to improve the look of the streets and improve overall canopy cover.
- Implement a much more proactive program of ABC installations in strategic streets to allow medium trees to be installed and/or continue past the wires.
- Place more emphasis on appropriate and best-practice planting details to improve success of the trees and reduce future infrastructure damage.
- Provide better integration of street planting with soil improvement, pavement replacement programs, expanded tree pit surrounds and maintaining in-road planting opportunities.
- More closely scrutinised planting in very narrow grass strips or narrow fully paved verges in the light of the many factors such as physical space for the ultimate tree size and passing vehicle clearances.

Often it takes only a very small shift from the established norms to achieve a much better outcome for the tree, the community and the environment.

7.2 Inventory Maintenance

An inventory is a very important management tool and the street tree inventory currently prepared by Council should be maintained and continue to be regularly updated as any existing trees are removed and replaced. It should also be subject to comprehensive re-verification done every 5-10 years. The best way to achieve this is on a continuous/cyclic review basis, updating one or two separate precincts each year thereby delivering a complete review and update every 10 years.

7.3 Tree Removals and Replacements

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, 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 use by 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 still be avoided where possible.

Figure 7.1 - Trees are important investments and their management and care can represent a substantial ongoing funding commitment by Council. (Photo-Arterra)

Street Tree Removals and Replacements

Council aims 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, or unacceptably disfigured or poorly formed.
- 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 cannot 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.

If an owner is claiming that damage is being caused by a Council street tree, the owner must furnish reasonable proof that the damage is directly attributable to the tree. Root and species identification may be necessary if more than one tree may be contributing to the damage.

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 a deteriorating sewer or drainage line 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 suitable 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 Strategy. 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.

Notification of Tree Removals

Where practicable and feasible the Council will provide at least 7 days notice for the planned removal of significant or heritage street trees. This notification will typically be via a notice on the Councils website and a notice attached to the tree. For emergency removal or minor street tree removal, typically no notice will be provided.

Palm Transplanting or Removals

As part of this strategy, the transplanting of some palms has been identified. Priority will typically be given to palms that:-

- are already causing conflicts with over head power lines.
- are in streets where only a few palms remain and they are not identified to be continued.

The following streets have been identified as priority streets:-

- Loftus street - Ashfield North
- Kenilworth Street - Croydon North/Ashfield West
- Ranger Road - Croydon North/Ashfield West
- Edwin Street South - Croydon North/Ashfield West
- Heighway Avenue - Croydon South/Croydon Park
- Stanton Road - Haberfield

Major Upgrades and Removal Timing and Strategies

The method that removals will be approached in any given street is a complex consideration and will be dependent on a number of important and inter-related factors:-

- Size and significance of the trees being replaced
- Whether they are part of a consistent avenue planting
- The nature of the problem that they may be causing
- The nature of the replacement trees being suggested and whether there will be room under other existing trees for the new planting.

For particularly significant trees or isolated trees that are not part of a recognised avenue planting, they will typically be removed one at time and replaced with a suitable new tree. This allows the trees to be replaced gradually without significant impacts to the overall amenity of the area.

This may not be effective if the trees are part of a larger grouping or if major street changes or improved planting techniques are proposed. In such cases, Council will be seeking to achieve economies of scale in the new works and flexibility in addressing new footpaths, services or road works, that may otherwise damage existing trees.

When the trees are part of a group or avenue, the Council will typically remove the identified problem or substandard trees as small groups. For long avenues this will typically be in a 'block' style replacement leaving some groups or 'blocks' remaining in between the new planting. This keeps the overall integrity of the street planting while replacements begin to mature. As the new planting matures the Council will return to remove the remaining 'blocks'. Depending on the size of trees being replaced and the length and importance of the avenue, this process will usually be completed over a 5-8 year program in either 2-3 stages, leaving 2-3 years between removals and replacements. This length of time is important so that Council can properly program and budget the works and also to allow time for the new trees to reach a suitable size before removing further trees.

7.4 New Tree Planting Program

The implementation of any new street tree planting needs to be carefully planned and considered. This will involve the critical elements below:-

- the quality and species of the trees planted
- the size they are planted and
- the way it is physically planted and cared for in the first few weeks and months.

Planting time is also important. Most, if not all tree planting in Ashfield, should be undertaken in either Autumn or Winter. This will greatly increase the success of the planting and reduce the establishment maintenance burden. Staff (or their chosen contractors) should focus on planting during these times and then focus on after care activities, such as watering, weeding and formative pruning in the summer months.

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 and its roots are in optimal condition when delivered and planted.

An important aspect of the implementation of this Strategy will be to also 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 high quality stock, free of above and below ground 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 commercial 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 8.2 of the STS detail the specific requirements for the supply and transportation of trees. Council should undertake inspections of the stock prior to, or upon delivery, and reject any trees that fail to adhere to these specifications.

Tree Sizes

Tree size at installation is a critical issue. Too small and the tree may take a very long time to reach a worthwhile size and is more susceptible to accidental damage and vandalism. The bigger the tree at installation the harder and the larger the cost to install it and replace it if it is damaged. There needs to be balance between size and cost.

Figure 7.2 - Advanced growing contracts for trees allows for the proper supply of plants in the varieties, sizes, quantity and quality that Council requires. (Photo - Arterra)

The following guidelines are proposed as part of this Plan. The sizes given are nominal container sizes and it is assumed that stock will be grown and supplied under the Natspec guide to purchasing landscape trees (Clark, 2003).

Table 13 - TREE INSTALLATION SIZING

Minimum Plant Container Size	Location Parameters
45L	Minimum typical street planting size for minor access streets or other areas of minimal use and where vandalism is unlikely
75-100L	Collector Roads and areas where casual vandalism is likely
150-200L	For major roads or areas where damage to smaller trees is highly likely
400L and above.	For special, high profile areas or civic or gate way planting sites

Tree Planting

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.

Similarly each tree planting site needs to be carefully assessed for potential future conflicts with existing or planned infrastructure. Future issues and unnecessary tree removals and pruning can be avoided if the tree is not put too close to street lighting, signage, walls, bus stops etc. Refer to section 4.5 for further guidance. Of course some of these final decisions will need to be judgement calls based on the benefit of the tree, the traffic volumes of the street and the

Figure 7.3 - Quality control of trees supplied for planting is critical to the success of any planting program. Unless checked, many defects can be 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. (Photo-Arterra)

nature of the conflict. Council officers shall have the final say on whether a tree is planted or not. Council officers may also use discretion and change from the scheduled species for the street to deal with some isolated and specialised planting considerations (such as underground services) in an attempt to still provide tree planting in a given location.

Planting method and approach is also an important aspect in the final success of any tree planting, but especially street tree planting. For Ashfield, planting shall typically adhere to the standard tree planting details and specifications provided in Part C -Section 8.2 and 8.3.

The following shall be observed and implemented during typical street tree planting:-

- Quality Imported Backfill Soil shall be applied to the soils surrounding and within the tree planting pit to aid in the establishment of the new tree.
- Soil wetting agent shall be applied to the soils surrounding and within the tree planting pit to aid in the effectiveness and uptake of water by the new tree
- Planting pits (particularly within pavement) shall be made as large as possible to facilitate air and water exchange with the root system and prevent unnecessarily early interaction between roots and pavements. The bigger the planting area to start with the more likely roots will be to divide and be smaller by the time they need to travel under pavements. Porous pavements should only be used as a last resort and under special circumstances. These are more applicable to retaining large and mature trees, where pavement needs to be replaced.
- Pre-planting root pruning shall be undertaken for each tree upon planting. Trees grown in containers will nearly always have circling and kinked roots growing at the edge of the container. This is the very last chance we have for these to be corrected and provide a better quality, radial root pattern to develop in the mature tree. This is a critical step. Every tree should have the outside 5-10mm of the root ball shaved off with a sharp spade at the time of planting and just before backfilling.
- Consideration may be given to localised root barriers between trees and adjoining kerbs to deflect and direct surface roots away and under critical infrastructure, particularly in very flat areas or in median planting.
- Install protective staking around the trees, to identify it as new planting and protect it from casual and accidental interference. This staking is not to support the tree, as the new trees should be self supporting upon supply from the nursery. More permanent guards may be warranted in very high use or vandal prone areas. In very exposed or high wind areas, separate support staking directly around the plant may be needed in the first few months. This shall be via 2 stakes placed just outside the rootball and a figure 8 hessian tie placed loosely around the trunk. All stakes should be removed within 6-12 months. If this does not appear possible, the tree should be thoroughly inspected and replaced as the failure to become self supporting is likely to indicate a serious defect in the root system or root collar.
- The surrounds of each tree should be mulched. This is important to help retain moisture, and inhibit weeds. Over time this may be either continued or allowed to return to grass, depending on the location and the adjoining owners preferences. The mulch will help reduce the incidence of mower and/or whipper snipper damage to the young tree. Grass also has a far greater capacity to intercept rain water and therefore should be discouraged around the base of the tree, particularly when younger. Regardless, each new tree should be supplied with an expandable plastic collar guard when planted within grassed surrounds.
- The tree needs to be thoroughly watered upon planting and then at regular intervals. The amount and frequency will be dependent on the season and size that the tree was installed. Each species will be different but as a rule of thumb the plant will need to be watered weekly for the first 8 weeks, then fortnightly for the next 12 weeks (4 months total). After this time the tree should have started to develop roots into the wider environment and become self sufficient. Further water should only need to be applied in severe conditions. The amount of water is also important. Approximately 50% of the volume of the original container volume should be applied at each watering (ie. 45L tree should have 20-30L applied and a 200L tree should have 100L applied at each watering). The water should also be directly to the original root ball and not to the surrounding soil. All the roots of the tree are largely within the immediate vicinity of the original root ball when it is young and may take some time to expand outwards.
- Finally the tree should be assessed for the need for formative pruning. Refer to the section 7.5 following.

7.5 Tree Establishment and Formative Pruning

Many defects that lead to later tree problems and failures are present in the tree upon delivery from the nursery and the initial planting. For example:-

1. Included branches
2. Co-dominant and tri-dominant stems
3. Congested branching architecture
4. Crossing and rubbing branches
5. Leans
6. Poor root development and girdling roots

Proper tree procurement as outlined in the previous sections goes an enormous way to preventing many of these issues but cannot deal with all of them.

At an early age many of these problems seem insignificant and unimportant. The tree, branches and defects are relatively small. These branches, however are often the trunks and branches that are the major branches of the tree when it matures and as it grows, so do the size of the trunks and these branches. A 25-50mm branch today will be the 200mm branch in 10 years time. Likewise, branches are typically at the same point in the tree in the mature tree as they are when young. Plants elongate from the ends, and the early trunks and stems just expand in girth, they do not move upwards in the tree. For example, if the tree currently has a major branch at 1.5m high, that major branch will always be emanating from about 1.5m high on the tree. When it is small that may not be an issue, but when the tree is mature this may not be desirable for clearances around and under the tree.

So small defects can become more serious and much larger as the tree grows. If failure occurs in maturity, the greater the damage or injury the failure may inflict. Also when a tree is mature, the ability to rectify these defects becomes substantially more difficult and costly. It also involves removing potentially very large branches, large amounts of foliage and pruning into heartwood and leaving substantial wounds that the tree expends substantial reserves trying to compensate for and seal around the wounds. It also opens up avenues for decay organisms to enter and affect the structural integrity of the tree. The result of failures later in a trees life usually results in excessive tearouts and trunk wounds and subsequently, poorly formed trees for the remainder of their life.

The far better and more cost effective way to manage the younger and newly planted street trees is to undertake a targeted and comprehensive 'formative pruning' program. The time and resources to remove a few 20-50mm diameter branches is miniscule compared to the cost of removing the same defects in a mature tree 10-20 years later, where chainsaws, traffic control and chippers are required. It will also ultimately result, in the long term, in a far better formed tree, free of defects as it grows and one that will positively contribute to the landscape and pose minimal hazard and risk to the residents and public for many years. Research has consistently shown the return on investment is hugely disproportionate, when comparing formative pruning with that of tree care in later life. (Ryder and Moore 2013)

The Council shall adopt a yearly program of formative pruning, targeting all newly planted and younger trees for a period of 3 years after installation. Although it may seem drastic, all major inclusions should be removed and lower lateral branches should be either removed or subordinated on the trees to force a much stronger central leader that is both ultimately higher and more dominant than would otherwise be if the tree was left untrimmed. This will mean that when the tree is gradually crown raised to provide better clearances for pedestrians and vehicles the cuts are quite small and easily accommodated, (rather than removing very large branches and potentially exposing the heartwood of the branches and tree trunk if left to later).

Likewise, once a reasonable lower clearance is achieved, trees that need to fit under power lines should start to be trained as soon as possible. They should not be left until they are amongst the wires. If pruned early and well under the wires a better shape can be provided with increased branching that will enable the tree to be easily managed under the wires or provide far greater opportunity to train outer branches around the wires, if need be.

The dividends from such a program will be repaid ten-fold in the future via trees with better basic structures and health and requiring less pruning and intervention as they mature. This ultimately leads to less risks of failure due to defective parts that were easily removed when the tree was young (Gilman 2012).

Formative pruning, although straight forward in theory, does require individual assessment and decisions based on each trees specific needs. It is both ‘art’ and ‘science’ and should be conducted by an experienced arboricultural professional and in line with AS4373 Pruning of Amenity Trees. Experiences from professionals such as Gilman indicate that in younger trees, foliage removal in the order of 40-50% is not an unacceptable figure and may be necessary in achieving the longer term desired outcomes. For older trees this should be reduced to 15-20% maximum.

The basic premise Council will follow is to 'prune early and prune often' until the desirable form of the tree is achieved

Figure 7.4 - Defects such as congested branching and included bark at major branches will be present in the tree forever unless removed. Removing these is an easy and cost effective process when the tree is young. If left, it becomes increasingly costly and detrimental to the tree. If left untreated these can lead to catastrophic consequences in later life. (Photo-Arterra)

and most obvious structural defects are removed. Finally, if formative pruning is not realistically achievable due to extreme pre-existing defects then it is far better to remove and replace the tree when it is young, rather than expecting the defects to unrealistically remedy themselves and then having to remove the tree in 10 years time or worse, remove the tree due to an otherwise preventable failure.

Some species are particularly pre-disposed to the formation of included bark branch unions at various points. This is most serious when it occurs in the major lower limbs and first order branch junctions. This type of union is often a weak branch attachment and is more inclined to failure as the tree matures. Larger and end-weighted branches are therefore prone to failure in heavy rains and strong winds. Trees such as Robinia that are inclined to such inclusions will not be as widely used. They can be managed, however, to try and alleviate the issue and reduce the likelihood of any serious failures.

Figure 7.5 - Like any asset, trees will still require ongoing management and maintenance, particularly as they age and should be factored into Council's ongoing management programs. (Photo-Arterra)

7.6 Mature Tree Pruning and Ongoing Management

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 7.6 below for a diagram that graphically illustrates the proposed clearances and offsets for mature tree pruning. This is a guideline illustration only and actual clearances required will depend on individual site constraints.

Council will not typically prune a tree for the provision of views or creation of unreasonable solar or digital receiver 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 pre-existing solar or digital receiver access.

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.

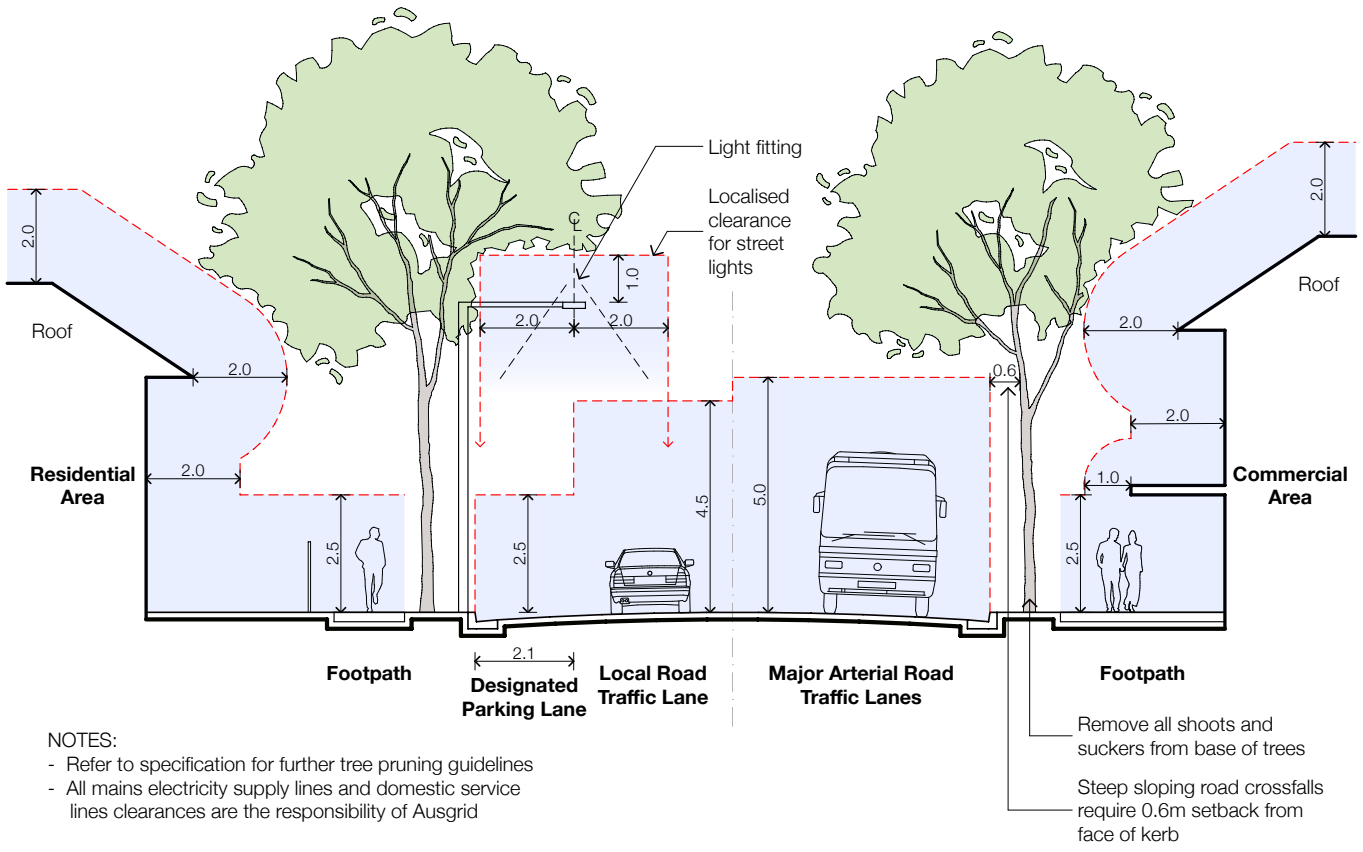


Figure 7.6 - Council's standard pruning clearances to be applied.

Unauthorised (Resident) 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.

It may also represent an unacceptable maintenance burden to Council, or a cost to later remove the tree and result in the strategic vision of the Strategy not being achieved. Council therefore, does not permit planting of trees on Council land by persons other than Council staff or contractors and Council may remove any such trees without notice.

Tree Vandalism and Unauthorised Removals or Use of Street Trees

In accordance with Clause 5.9 of the Ashfield Local Environmental Plan 2013 it is an offence to damage, prune or remove a Council street tree. Any persons found guilty of tree vandalism will be prosecuted.

Residents shall also not attach items to a street tree or use a street tree for unauthorised purposes. As an example residents must not:-

- attach signs, flags, bunting or banners to trees.
- place wires, ropes or lights within the canopy.
- erect tree houses or other structures within or around the tree.
- attach swings or rope ladders etc.
- cut or otherwise damage roots or trunks at ground level to undertake edging or gardens.

Figure 7.7 - Resident planting - inappropriate species and spacing of unauthorised planting on Council land without approval from Council raises many serious issues regarding long term liability and maintenance obligations. It also can represent lost opportunities for Council to achieve more strategic visions and objectives. (Photo-Arterra)

7.7 Street Tree Action Plan and Priorities

This Strategy provides Council with a clear direction to the ongoing management of street trees in Ashfield. 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 Ashfield area.
- Commitment to ongoing maintenance of an accurate and up-to-date inventory of street trees
- Commitment to a visionary program of gateway and civic scaled tree planting in key areas (refer to Part B-Section 5)
- Reinforcement and improved tree planting along the identified major road corridors (refer to Part B-Section 5).
- Identification of streets where the implementation of ABC (Aerial Bundled Conductors) overhead wiring should be budgeted and prioritised (refer to Part B-Section 7.10 for detail).
- Investigation and implementation of further in-road planting opportunities particularly in narrow streets or in very wide streets with small trees. (refer to Part B-Section 4.7, 4.8 and 7.11).
- Implementation of improved approaches and methods to tree planting techniques with particular focus on achieving greater soil volumes and space for trees, more generous tree surrounds, integration of paving, services and tree planting and appropriate species selection. (refer to Part C-Section 8.2 & 8.3)
- Improved, consistent and documented procedures to deal with larger and problematic existing street trees. (refer to Sections Part A-2.7 and 2.8)
- Commitment to a recognised and probabilistic method for tree risk assessment (ie. the QTRA method).
- 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.
- Consideration to the implementation of a register of significant park and street trees.
- Undertaking a valuation of the urban forest as an overall asset using a suitable broad scale measurement tool such as "i-Tree™".
- Commitment to the potential Palm relocation program.
- 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 response to resident requests for street planting where it is in keeping with the Strategy and ability to supply quality nursery stock.
- Develop an online street tree planting or maintenance request form.
- 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 implementation of the above actions should be equally spread across all precincts, as far as reasonably practicable, to avoid some precincts receiving no attention for some years.

7.8 Costs and Resourcing

The priorities set out in this Strategy will 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 Strategy to achieve the objectives and allow the implementation of key priorities.

To achieve this Strategy Council will need to consider:-

- Allocating or employing suitable Council staff to oversee and co-ordinate all street tree planting programs, including advanced plant procurement, supply methods and contracts, and the appropriate scheduling and resourcing of planting programs and early after care.
- Allocating a small standing committee involving at least a landscape architect, arborist, civil engineer and a traffic engineer to investigate and further develop and design the identified in-road planting opportunities.
- Allocating appropriate one-off and recurrent funding to the achievement of this Plan. A broad estimate of potential funding requirements is outlined below to assist and guide Councils priorities.
- Maintaining suitably resourced and appropriately trained staff (or contractors) concerned with the ongoing management and pruning of mature street trees.

Table 14 - GENERAL ESTIMATES OF BUDGETARY COST

Priority Item	Description	Estimated Budget Rates
ABC Installation	Allowance to negotiate with Ausgrid and facilitate installation of segments or lengths of ABC where currently none exists, with priority given to the streets identified in this Plan. Aim to achieve 20-30% streets ABC'd by 2030. (5-6 average streets per year)	$ 7,000 / span
New Street Tree Planting (includes tree supply, delivery and installation, tree pit preparation, excavation and tree surrounds, staking, traffic control etc.)	45 L Tree planting (small tree supply and install)	$ 250 / tree
	75 - 100 L Tree Planting (medium tree supply and install)	$ 1,200 / tree
	150 - 200 L Tree Planting (large tree supply and install)	$ 2,500 / tree
	400 L (and above) Tree Planting (special feature tree supply and install)	$ 5,000 / tree
	Allowance for in-road Installation and creation of median and blisters, necessary road work, signage, lane marking, services installation and re-directions	$ 250,000 / street
Establishment and Formative Pruning	Allowance for watering, weeding and annual formative pruning for the above tree planting (per year)	$ 10 / tree
Council Works Around Problematic Trees	Allowance for undertaking work around existing problematic trees to facilitate their retention, such as kerb and path realignments	$ 10,000 / tree
Tree Hazard Abatement	Allowance for undertaking work around existing problematic trees to facilitate their retention, such as services upgrades, compensation for private property damage, tree pruning.	$ 10,000 / tree
Palm Relocation	Allowance for undertaking transplant and relocation of palms, including preparation, cranage, transport and post transplant care	$ 5,000-10,000 / tree depending on numbers, complexity and distance moved.
Tree Removals (includes cranage, EWP, traffic control, chipping and removal stump grinding etc.)	Allowance for large and problematic tree removals and on major roads (per year)	$ 7,500 / tree
	Allowance for small to medium problematic and substandard tree removals on minor streets (per year)	$ 600 / tree
	Allowance for emergency tree removals and pruning (per year)	$ 4,500 / tree
Street Tree Inventory Maintenance/Update	Allowance for continuing cyclic update of existing street tree inventory - updating and reviewing 1-2 precincts per year.	$ 10,000 / year
Street Tree Promotion and Education	Allowance for community based activities and promotions and development of an on-line street tree planting or maintenance request form	$ 25,000 / year

7.9 New Planting Areas - Priority Streets and Upgrades

During fieldwork and review for the preparation of the Street Tree Strategy 2015 the following streets were identified for priority planting. Council needs to continue to be proactive and actively target some streets where trees are failing and respond by providing a very holistic and integrated solution to engineering, services, soil and trees. (eg. Byron St, Oak Street should be the models for renovating similar streets). Possible streets that may be targeted in the next 3-5 years include:-

- Shepherd Street, Ashfield South
- Alt Street (between Martin and Waratah St), Haberfield
- Australia St, Croydon
- Northcote St, Haberfield
- Etonville Pde, Croydon North
- Bland Street, Ashfield

Figure 7.8- Oak St, Ashfield North an excellent example of how existing in-road planting can be sensitively upgraded with minimal impact to trees and retain the character and beauty of the street. This should be a model for similar streets requiring redevelopment or major replanting programs.

Figure 7.9- Byron St, Croydon North - a good example of how streets can be renewed proving good integration of trees, parking, carriageways and pathways.

Figure 7.10- Etonville Pde, Croydon North - an example of a street that should be upgraded and planted to improve amenity and biodiversity

Figure 7.11- Northcote St, Haberfield - an example of a street requiring upgrade and replanting.

Figure 7.12- Shepherd St, Ashfield South - an example of a street requiring upgrade and replanting.

Figure 7.13- Bland St, Ashfield South - an example of a street that could be planted with a defining and consistent treatment that indicates it as important collector road similar to Croydon Road.

7.10 ABC Priority Streets

During fieldwork and review for the preparation of the Street Tree Strategy 2015 the following streets were identified as 'priority' streets for the expansion or the introduction of Aerial Bundled Conductor (ABC) 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.

Table 15 - ABC PRIORITY STREETS	
Street Name	**Bewteen Streets**
01. Ashfield Town Centre	
Holden Street	
Knox Street	
Liverpool Road	Queen Street and Lapish Ave
Liverpool Road	Frederick Street and Lapish Ave
Miller Avenue	
Queen Street	Liverpool Road and Norton Street.
Victoria Street	Liverpool Road and Norton Street
02. Ashfield North	
Bruce Street	
Chandos Street	
Eccles Avenue	
Richmond Avenue	
Tideswell Street	
03. Ashfield South	
Allibone Street	
Brunswick Parade	
Carlisle Street	
Farleigh Street	
Hugh Street	
King Street	
Tintern Road	
04. Croydon North/Ashfield West	
Australia Street	
Banks Street	
Earle Avenue	
Etonville Parade	
Scott Street	
Sunbeam Avenue	
Vine Street	
05. Croydon South/Croydon Park	
Forbes Street	
Georges River Road	Greenhills St and Milton St
Hay Street	
Walter Street	
Watson Avenue	
Wetherill Street	Liverpool Road and Thomas St.
06. Croydon Village	
Elizabeth Street	West of Edwin Street North.

Table 15 - ABC PRIORITY STREETS (cont.)	
Street Name	**Bewteen Streets**
07. Dobroyd Point	
Dobroyd Parade/City West Link	
Empire Street	Waratah Street and Martin Street
Minto Street	
Rawson Street	Waratah Street and Martin Street
08. Haberfield	
Cove Street	
Denman Avenue	
Empire Street	Ramsay Street and Martin Street
Forrest Street	
Logan Avenue	
Nicholls Avenue	
Northcote Street	
Ramsay Street	
Sloane Street	Ramsay St and Parramatta Road
Tressider Avenue	
Wolseley Street	
10. Hurlstone Park	
Goodwin Street (south section)	
Hillcrest Avenue	
Mount Street	
Watkin Street	
11. Summer Hill	
Allman Avenue	
Bogan Street	
Carrington Street	
Kensington Road	
Moonbie Street	
Oaklands Avenue	
Rosemount Avenue	
12. Summer Hill Village	
Lackey Street	

7.11 In-Road Planting Opportunities

During research for the preparation of the STS 2015, some streets were identified where new in-road planting or re-aligned kerbs should be explored. This reduces conflict with overhead power lines, reduces the perceived width of street, may allow biodiversity shrub planting under canopy trees, and allows for larger trees to be planted.

In-road planting can also allow tree planting where verges are otherwise too narrow and where there would otherwise be no trees at all in a street. They do not have to be regularly or closely spaced, as even a few trees can make a huge difference to how a street looks and feels.

The streets listed below have been identified as streets having opportunities to plant within the current road carriageway, with the objective to plant larger canopy street trees that are further away from overhead power lines and thereby reduce the apparent width of the road carriageway, calming traffic and/or providing a more aesthetically pleasing street. This also allows trees to be planted further away from nearby houses. Many of these opportunities could be combined with rearrangement of parking and provisions for perpendicular or angled parking to minimise parking loss, and in some instances even increase the parking opportunities.

Water Sensitive Urban Design (WSUD) opportunities may also be identified with some of these proposals, subject to the installation of suitably drained tree pits, and consideration of drainage and other raingarden/ biofiltration parameters. It should be noted, the viability of in-road planting / WSUD installation for each of the streets identified will be **subject to further detailed investigation** including most importantly the proper location of underground services, subsoil drainage, and traffic and parking considerations.

Table 16 - STREETS FOR POTENTIAL NEW IN ROAD PLANTING OR KERB REALIGNMENTS			
Precinct Name	**Street Name**	**Between Streets**	**Potential for implementation of WSUD, rain gardens etc.**
01. Ashfield Town Centre	Station Street		-
01. Ashfield Town Centre	Wood Street		-
02. Ashfield North	Nixon Avenue		Yes
02. Ashfield North	Richmond Avenue		-
02. Ashfield North	Taringa Street		Yes
02. Ashfield North	Tideswell Street		-
02. Ashfield North	Wallace Street		Yes
04. Croydon North/Ashfield West	Australia Street		-
04. Croydon North/Ashfield West	Bay Street		-
04. Croydon North/Ashfield West	Burns Street		Yes
04. Croydon North/Ashfield West	Etonville Parade		Yes
04. Croydon North/Ashfield West	Knocklayde Street		Yes
05. Croydon South/Croydon Park	Lion Street		-
05. Croydon South/Croydon Park	Norton Street	Milton Street and Carshalton Street	-
05. Croydon South/Croydon Park	Thomas Street	Frederick Street and Dickinson Avenue	-
05. Croydon South/Croydon Park	Yabsley Avenue		Yes
07. Dobroyd Point	Alt Street		Yes
07. Dobroyd Point	Crescent Street		Yes (subject to drainage and rock)
07. Dobroyd Point	Dobroyd Parade		-
07. Dobroyd Point	Martin Street	Ramsay Street and Dobroyd Parade.	Yes
07. Dobroyd Point	Martin Street	Dalhousie Street and Dobroyd Parade.	Yes
09. Haberfield Village	Dalhousie Street	Dickson Street and Winchcombe Avenue	-
10. Hurlstone Park	Florence Street		Yes
10. Hurlstone Park	Hanks Street		-
10. Hurlstone Park	Harland Street		-
11. Summer Hill	Carlton Crescent	Prospect Road and Smith Street	Yes
11. Summer Hill	Chapman Street		-
11. Summer Hill	Fleet Street		-
11. Summer Hill	Henson Street		Yes

7.12 References

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