EAST MELBOURNE URBAN FOREST

PRECINCT PLAN

2013-2023

CITY OF MELBOURNE

EAST MELBOURNE URBAN FOREST

PRECINCT PLAN 2013 – 2023

A MESSAGE FROM THE CITY OF MELBOURNE

The City of Melbourne's urban forest comprises around 70,000 trees in streets and parks as well as approximately 20,000 trees located in the private realm, in addition to a growing number of green roofs and walls across the municipality.

The trees managed by the City of Melbourne in the public realm contribute significantly to the character and identity of Melbourne. An increasing body of evidence and research informs us that urban forests and green space are vital to supporting a healthy community as well as providing a means to adapting to climate change.

The *Urban Forest Strategy* completed in 2012 identified the need to generate a new legacy for Melbourne and create a forest for future generations. This urban forest is to be diverse, robust and resilient in the face of current and future challenges. The urban forest precinct plan documents are a key implementation tool of the *Urban Forest Strategy*, providing a framework for tree planting in streets that will meet the *Urban Forest Strategy* targets.

We have worked closely with the community and key stakeholders to generate this plan and are confident that it provides the basis for a street tree planting program that is consistent with neighbourhood character, the community's vision for the future urban forest, and the principles of the *Urban Forest Strategy*.

Robert Doyle
Lord Mayor

Cr Arron Wood
Chair Environmental portfolio

INTRODUCTION TO THE PRECINCT PLANS

Urban forest precinct plans guide tree planting and greening in City of Melbourne streets. Precinct plans are subsidiary documents to the City of Melbourne's 2012 *Urban Forest Strategy* and form a key component of the strategy's implementation. Melbourne is divided into 10 precincts.

Each precinct plan has been developed in collaboration with the community, and is grounded in the science underlying the *Urban Forest Strategy* and in sound urban design principles.

What is an urban forest?

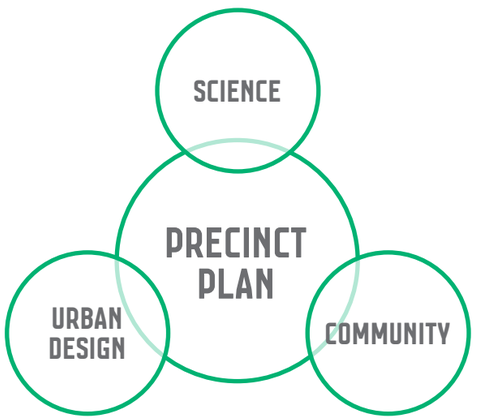
The urban forest comprises all of the trees and other vegetation – and the soil and water that supports it – within the municipality. It incorporates vegetation in streets, parks, gardens, plazas, campuses, river and creek embankments, wetlands, railway corridors, community gardens, green walls, balconies and roofs.

Why is the urban forest important?

The City of Melbourne is currently facing three significant challenges: climate change, urban heating and population growth. These will place significant pressure on the built fabric, services and people of the city.

A healthy urban forest will play a critical role in maintaining the health and liveability of Melbourne by:

- cooling the city
- improving and maintaining the health, well-being and happiness of urban dwellers
- improving social cohesion
- cleaning air and water
- sequestering and storing carbon
- attracting people to live, work and visit in Melbourne
- stimulating economic activity in retail and dining precincts
- providing habitat for native birds and pollinators



THE URBAN FOREST STRATEGY

Principles:

- Mitigate and adapt to climate change
- Reduce the urban heat island effect
- Design for health and wellbeing
- Create healthier ecosystems
- Design for liveability and cultural integrity
- Become a water sensitive city
- Position Melbourne as a leader in urban forestry

The targets set out in the Urban Forest Strategy are to:

Increase canopy cover

The City of Melbourne's canopy cover will be 40% by 2040.

Increase urban forest diversity

The City of Melbourne's urban forest population will be composed of no more than 5% of one tree species, no more than 10% of one genus and no more than 20% of any one family.

Improve vegetation health

90% of the City of Melbourne's tree population will be healthy by 2040.

Improve soil moisture and water quality

Soil moisture levels will be maintained at levels to provide healthy growth of vegetation.

Improve urban ecology

Protect and enhance urban ecology and biodiversity to contribute to the delivery of healthy ecosystem services.

Inform and consult the community

The community will have a broader understanding of the importance of our urban forest, increase their connection to it and engage with its process of evolution.

INTRODUCTION TO THE PRECINCT PLANS CONTINUED

Why are we concerned about climate change, urban heat island and population growth?

Climate change impacts to human health and wellbeing are a significant concern for our municipality. Climate change science indicates that Melbourne is likely to experience an increase in the frequency and severity of extreme weather events such as heatwaves, drought and flooding. Heat waves kill more people in Australia each year than any other natural disasters. The average annual temperature is expected to increase by approximately 2.6 C° and the number of hot days each year is expected to increase from nine to 20 by 2070.

The urban heat island effect (whereby urban areas are several degrees hotter than surrounding rural areas) means that central Melbourne will reach threshold temperatures for heat related illness in vulnerable populations more often and for a longer duration and, as a result, there will be a greater demand on health services in the City of Melbourne. Urban intensification also places additional pressure on public realm open space as the private realm becomes increasingly built-up (for more information see Melbourne's *Open Space Strategy*). Access to open space is critical to people's physical and mental health and wellbeing.

Thermal imaging of Melbourne, taken late at night, showing how paved, unshaded surfaces store heat from solar radiation and contribute to increased temperatures in urban areas.

Useful Life Expectancy mapped for City of Melbourne Trees.

What can the urban forest do?

Urban forests provide an array of environmental, economic and social benefits that contribute to creating resilient and sustainable cities that are enjoyable places for people to live and work. Some of the significant benefits that our tree canopy can provide to mitigate climate change impacts are shade, cooling and rainwater interception.

The urban forest and its associated benefits have been identified as one of the most cost-effective means of mitigating the potential impacts of climate change and heat on our city. The *Urban Forest Strategy* has established principles and targets for developing an urban forest that will meet Melbourne's needs and create a city within a forest.

HOW DOES MELBOURNE'S URBAN FOREST MEASURE UP?

In order to provide the benefits we need from our urban forest in a changing climate, our tree population needs to be healthy, diverse and resilient. To assess its current state we mapped the trees in our city to measure species/genus/family diversity, useful life expectancy and tree canopy.

Useful life expectancy

Useful life expectancy is an estimate of how long a tree is likely to remain in the landscape based on health, amenity, environmental services contribution and risk to the community. The recent period of drought and water restrictions triggered irreversible decline for many trees. This exaggerated the age-related decline of many significant elms and other trees. Modelling shows that within the next ten years, 23% of our current tree population will be at the end of their useful lives and within twenty years this figure will have reached 39%. Most dramatically, 55% of Melbourne's elms are in a state of severe decline and will likely need to be removed from the landscape within 10 years.

Tree diversity and vulnerability

At present, approximately 40% of our trees come from one family (Myrtaceae). Elm avenues line many Melbourne boulevards and plane trees dominate in many streets, particularly within the central city. Within streets 24% of trees are planes, 11% are elms and 8% are spotted gums. Reliance on a few species, and a lack of spatial diversity in species distribution, leaves the urban forest vulnerable to threats from pests, disease, and stress due to climate change.

Canopy cover

Increasing the provision of summer shade and biomass is important to combating the urban heat island effect, adapting to climate change and enhancing our streetscapes for the comfort of people. Canopy cover is a way of expressing, as a percentage, how much of any given area is shaded by trees. Currently, 77% of Melbourne's streets and parks are without natural shade, and the areas of the city with the highest population density have the lowest canopy cover. The City aims to double its canopy cover by 2040 and is currently planting 3,000 trees per year to achieve this target.

How can permeability, availability of water and soil volume be improved?

The urban environment is highly modified, with harsher conditions for plant growth than in natural landscapes. Tree health and the ability to maintain shade and cooling benefits are primarily influenced by the conditions in which trees are growing.

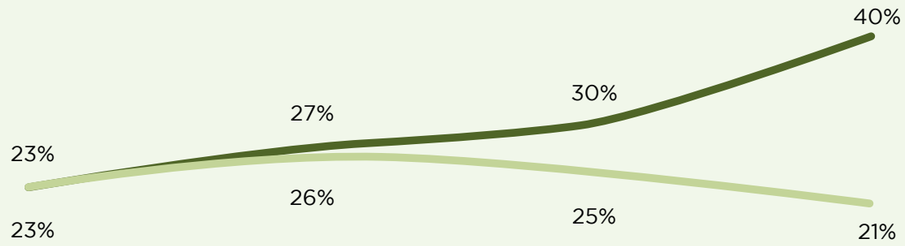
Access to ample soil moisture enables trees to actively transpire and cool the surrounding air. Adequate soil moisture is critical for healthy vegetation. A number of active and passive approaches are currently undertaken to replenish soil moisture and ensure it is maintained at levels to provide healthy growth. Our *Total Watermark Strategy* is being updated to strategically manage Melbourne's water catchment. In the meantime, we have implemented numerous water sensitive urban design projects to capture and store water that would otherwise go down the drain. This water is being used to water the vegetation in our urban landscapes.

Urban development has increased the connectedness of impervious surfaces resulting in:

- decreased vegetation cover and below ground growing space;
- decreased infiltration of water into the ground;
- increased pollutant runoff; and,
- increased hard surfaces which contribute to the urban heat island.

Fundamentally, the city has low levels of water permeability (50%) and water has little opportunity to infiltrate the soil. Ground surfaces need to allow rainfall to enter the soil, a huge reservoir that is ready-made to provide for a healthy forest. We are increasingly using methods to increase permeability through the use of permeable pavement, structural soil cells and peeling back asphalt where possible to provide better growing conditions for trees and vegetation, and a better cooling outcome.

MELBOURNE'S CANOPY GRAPHED WITH AND WITHOUT TREE PLANTING



The lower line represents what is projected to happen to our canopy cover if we stop planting trees. The line above shows what will happen if we replace trees as they are lost and plant new trees at a rate of approximately 3,000 trees per year to 2040.

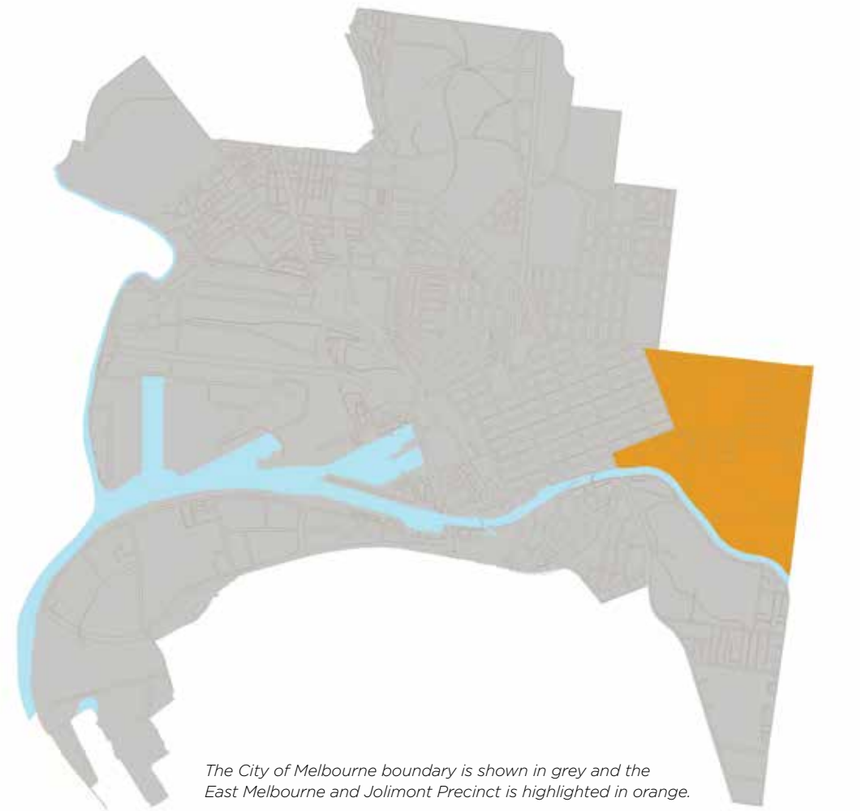
WHAT WILL THE PRECINCT PLANS ACHIEVE?

The precinct plans will help to guide implementation of the Urban Forest Strategy in Melbourne's streets. The information provided in the plans will direct the annual tree planting program to achieve Urban Forest Strategyobjectives, protect and enhance neighbourhood character, and to prioritise works and budgets within each precinct.

Within this document, specific direction is provided on the selection of appropriate trees for the precinct. The plans are performance based in that they establish the desired outcomes for streets but do not prescribe specific species for each location A set of high performance guidelines are being developed for Melbourne's urban landscapes and these will support the precinct plans with case studies and detailed guidance on how to achieve outcomes in streets that are consistent with the urban forest strategy. Park and significant boulevard trees will be planted using existing master plans and site specific plans.

Policy context

The relationships between the precinct plans and City of Melbourne policy documents are outlined in the Urban Forest Strategy. Within East Melbourne the heritage overlays and Open Space Strategy strongly influence the future character of the precinct.



The City of Melbourne boundary is shown in grey and the East Melbourne and Jolimont Precinct is highlighted in orange.

THE VISION FOR EAST MELBOURNE AND JOLIMONT'S URBAN FOREST

EAST MELBOURNE'S URBAN FOREST WILL BE HARMONIOUS WITH HERITAGE, DIVERSE, RICHLY LAYERED WITH SHAPE AND SEASONAL COLOUR, AND PROVIDE AMPLE HABITAT AND SHADE.

WHAT WILL THE PRECINCT PLANS ACHIEVE? CONTINUED

Complementary strategies

The precinct plans address tree planting in Melbourne's streets but there are many ways in which the private and public realm can contribute to meeting urban forest objectives and creating a city resilient to climate change. These include:

- Water sensitive urban design
- Tree planting in parks
- Private realm tree planting that contributes to urban forest canopy, diversity and connectivity
- Planting vegetation that enhances urban biodiversity
- Maximising permeable surfaces and growing space for trees
- Building green roofs and walls
- Greening balconies
- Implementing innovative green technologies

The City of Melbourne is working with stakeholders in both the public and private realm to support these outcomes.

Opportunities exist to enhance canopy cover in the private realm. The projected canopy cover for the entire precinct has included a potential doubling of private realm canopy cover to 8% by 2040. In order for this to occur, private and institutional land owners, and developers would need to actively create space for and plant trees.

The City of Melbourne will support private residents to plant trees by providing materials that advise on suitable trees to plant in small yards and by seeking creative ways to encourage private land planting. The City of Melbourne will also continue to educate residents on how they can contribute to and be involved in the urban forest through our ongoing community engagement work.

Within the East Melbourne and Jolimont precinct, the state government manages large areas of land associated with the sporting precinct that could potentially support greater canopy cover. The City of Melbourne will work with institutional and large holding land managers across the city to support and encourage the adoption of urban forest strategy principles on those lands. Similarly, the City of Melbourne will work with neighbouring municipalities to support and encourage the adoption of urban forest strategy principles in other jurisdictions.

Historical and existing tree plantings

Early tree planting was largely driven by the desire to create windbreaks and establish shade. The first significant street tree plantings in the East Melbourne precinct occurred in 1859 when Victoria Parade was planted with blue gums. While the species have changes, Victoria Parade has been continuously treed since that time. In response to calls from the public to beautify streets and plant for the health benefits of trees, Melbourne City Council initiated a program of systematic street tree planting in 1878, which saw Wellington Parade planted. Grey Street planting was budgeted for in 1890. Further beautification of boulevards occurred in the lead up to the Royal visit in 1901 and records suggest that tree planting was occurring in Melbourne streets from that period up until World War I. Gisborne Street was planted with planes around 1906. Major tree planting occurred in East Melbourne in the 1930s when the majority of the tree islands and medians were constructed. Images show mature trees in George Street in the 1940s, which were likely the elms that Melbourne City Council partially removed in the 1950s and replaced with ash trees.

East Melbourne and Jolimont character

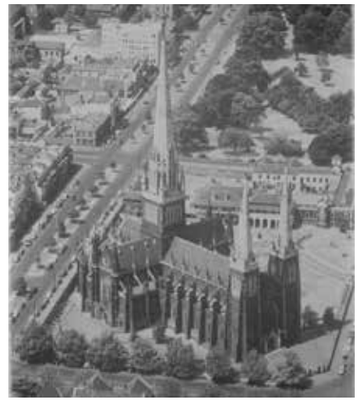
East Melbourne and Jolimont lie across a low ridgeline and have become a favoured residential location due to their elevated position, proximity to the CBD and enclosure on two sides by Fitzroy Gardens and Yarra Park. The precinct can be defined by four distinct geographic areas – the parliament precinct, eastern residential precinct, Jolimont precinct and the Yarra parklands and events precinct. The parks and gardens also contribute to the precinct's character in distinct ways, with Fitzroy and Treasury Gardens providing a formal garden landscape for passive recreation and Yarra Park having a more indigenous character and being intensively used as a sporting precinct. When asked, the community characterised East Melbourne and Jolimont's urban forest and green, shady and beautiful.

Important landscapes identified by the public included Treasury and Fitzroy Gardens, Powlett Reserve, Darling Square and, not under the management of the City of Melbourne, Bishopscourt and Yarra Park. The most valued streets were Albert, Powlett, Simpson, Hotham and Clarendon, which are wide streets with broad centre medians and mature tree plantings.

The gardens and squares in East Melbourne contain a mix of deciduous trees, conifers, evergreen natives and palms arranged either in formal avenues or as informal specimen plantings. Yarra Park contains formal avenue plantings (generally exotic trees) and specimen plantings of predominantly native trees, some of which predate European settlement. The site now called Yarra Park has always been an important place for Aboriginal people of the Kulin Nation to gather, and today it continues to function as an important gathering place for both Aboriginal and non-Aboriginal people.

Most streets in East Melbourne are 30 metres wide and incorporate broad central medians with relatively narrow footpaths and no nature strips. This unifying discipline of grid and medians gives a strong sense of streetscape homogeneity even through there is considerable variation in built form, era and style, and setbacks. The medians are also ideally suited to this situation as they break up the large areas of pavement, are generally clear of most underground and overhead services, and can accommodate large canopy trees without risk of damage to the adjacent historic houses. George and Gipps Street are the main exception to the street pattern with 20 m widths. Two small pockets of Jolimont appear leafy because of the surrounding parks, and their 10m to 15m street widths create a more intimate character.

The core tree genera (groupings of species) that form East Melbourne and Jolimont's urban forest are elms, planes, maples and corymbias (gums). Elms typify the East Melbourne precinct and link it to the Fitzroy Gardens, and it is important to preserve this established character. The evergreen Lemon Scented Gums in Lansdowne Street and the Brush Box in Albert Street provide a contrasting treatment along these major through-routes. Jolimont is planted with a mixture of mid-sized trees suited to the narrower streets.



St Patrick's cathedral showing Gisborne Street and Albert Street tree plantings taken between 1930 and 1939. Gisborne Street is thought to have been planted around 1906 and the Albert Street medians were constructed and planted in the 1930s [The Rose Series, State Library of Victoria].

A home in George Street photographed in 1967 showing a young ash tree planted in the street. Most of the mature elms were removed from George Street in the 1950s raising significant protest from residents. The street was then replanted with ash. The ash trees have since been replaced with Chinese elms.

COMMUNITY PRIORITIES

East Melbourne and Jolimont's urban forest precinct plan has been developed in collaboration with the community, which is reflected in the character, vision, planting plan and priorities defined for East Melbourne and Jolimont's urban forest.

Community consultation with East Melbourne and Jolimont residents, workers and visitors indicated that the urban forest within East Melbourne's streets, parks and gardens is highly valued. East Melbourne is green and beautiful today but opportunities for enhancement exist throughout the precinct.

Consultation with the East Melbourne community indicated a preference for trees that would provide large canopies and streets with understory planting. A mix of trees, and trees that would provide colour and seasonal interest were also preferred.

COLOUR

Images selected by the community as representing a preferred future for East Melbourne and Jolimont's urban forest that includes colour, shape, layers, diversity and canopy.

Desired future states defined by the community

- Large canopies, arching canopies, dappled shade
- Visual diversity in terms of colour, shape, seasonal change and contrasts, and understorey planting
- Urban food spaces
- Trees that are in scale with their location and are balanced along the street
- Maximum harmony between public and private landscapes
- Resilient, carefully maintained species
- Vermin free

Urban forest benefits highlighted through community consultation

- Shade
- Biodiversity
- Winter light
- Pedestrian safety
- Food production
- Aesthetic beauty

SHAPE, DIVERSITY AND LAYERS

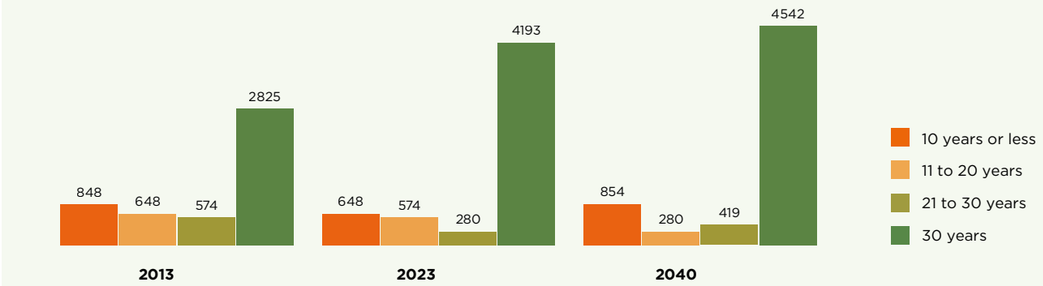
COMMUNITY PRIORITIES
CONTINUED

STREETSCAPE

East Melbourne and Jolimont community members developing priorities for planting in the precinct. (opposite)

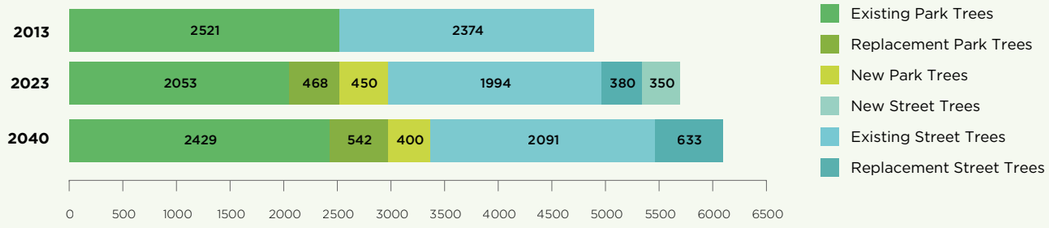
EAST MELBOURNE AND JOLIMONT'S URBAN FOREST IN 2013 AND ITS PROJECTED FUTURE

TREE HEALTH (ULE) – PUBLIC REALM



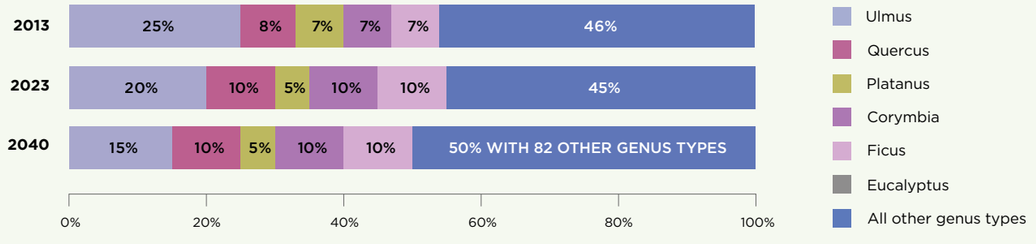
Tree counts for East Melbourne, categorised by useful life time expectancy (ule) in years

TREES – PUBLIC REALM



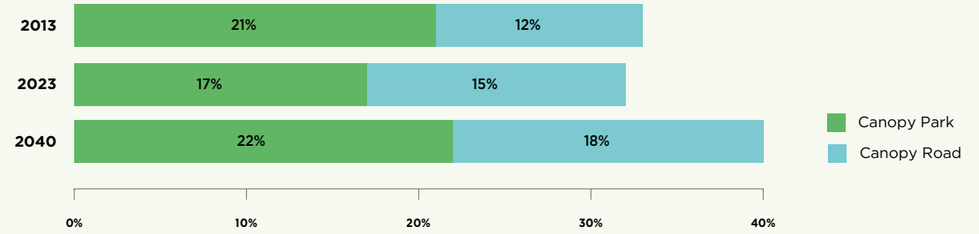
Tree counts and planting by City of Melbourne in East Melbourne

DIVERSITY (BY GENUS) – PUBLIC REALM



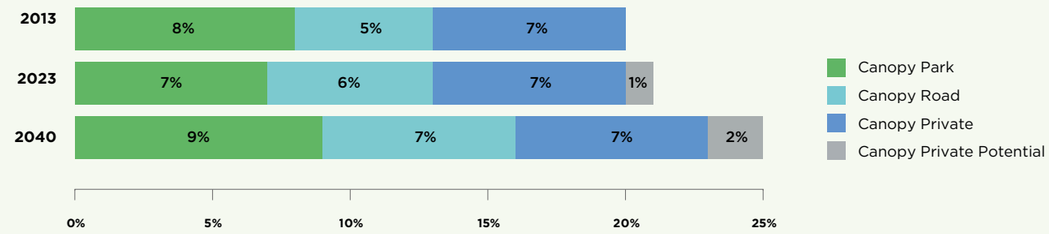
Main genus types for East Melbourne

CANOPY – PUBLIC REALM



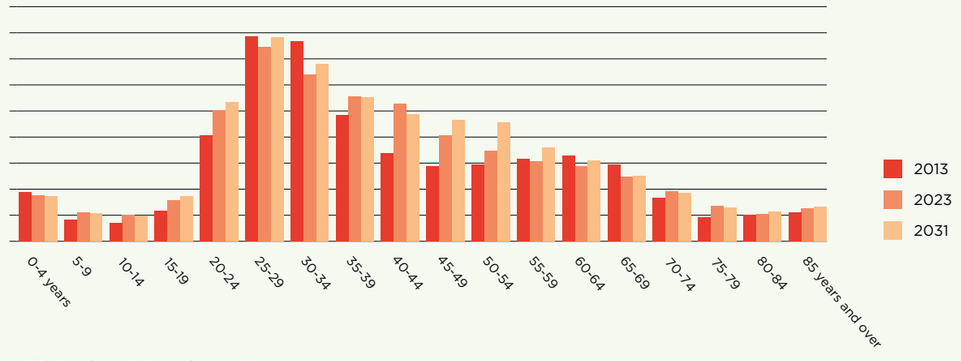
Tree canopy and locations for East Melbourne

CANOPY – ENTIRE PRECINCT



Tree canopy and locations for East Melbourne

PRECINCT POPULATION DISTRIBUTION – RESIDENTS



2013: Residents 5,219 Jobs 22,472
2031: Residents 5,999 Jobs 40,487

Projected resident population by age for East Melbourne

PRIORITISING TREE PLANTING IN STREETS

1. Streets with opportunities for planting or replacements

2. High density (>20) of vulnerable residents (<5 or >74 yo)

3. Community identified priority for greening

4. Hot and very hot streets

5. Tree replacements required in next 10 years

6. Canopy Cover < 20%

Map 1: Planting priorities

The priority for work in different streets has been determined using varied criteria and the associated timing is provisional only. The schedule for some streets may be brought forward or delayed by capital works, renewal projects or developments that affect tree planting or survival. Unforseen opportunities for streetscape improvement may also alter scheduled planting.

Streets prioritised for work in Years 1 – 4 (2013 – 2016) include those:

1. already scheduled for work in the current planting season
2. which have a high number of vulnerable people with two or more occurrences of: community priority, very low canopy cover, temperature hot spot or replacements required.

Streets prioritised for work in Years 5 – 7 (2017 – 2019) include those which have a:

1. high number of vulnerable people with one occurrence of: community priority, very low canopy cover, temperature hot spot or replacements required.

Streets prioritised for work in Years 8 – 10 (2020 – 2023) include those with only:

1. High number of vulnerable people; or a combination of:
2. community priority
3. very low canopy cover
4. temperature hot spot
5. replacements required.

Prioritising tree planting in streets

When prioritising where to plant, it is important to focus resources in the locations that need it most. This includes consideration of where we have opportunities to plant new trees or replace trees, where the highest density of vulnerable people reside, which streets are the hottest in summer, and where very low canopy cover exists today.

Replacements are only identified for streets where the useful life expectancy of multiple trees is rated at less than 10 years. Census and mapping data were used to spatially define streets with these conditions and are defined on the maps overleaf.

HOW THE PRECINCT PLAN GUIDES ANNUAL PLANTING

Set annual planting program

Priorities (Map 1)

Streets Undergoing Unforsee Change (Eg. Infrastructure Project or Development)

Annual Budget

Define objectives for streetscape

Review guiding principles and considerations for tree planting (Map 2 - 7)

Define planting strategy

Maps 8 - 10

Select species

Review Streetscape objectives

Review What should change (Map 7)

Review Planting plans (Map 8, 9 & 10)

Review species pallette

Implement planting

Produce streetscape design options

Consult with residents

Plant

MAP 1: PLANTING PRIORITIES

LEGEND

- Years 1-4
- Years 5-7
- Years 8-10
- Timing not determined by precinct plan
- Section of land not mananged or maintained by City of Melbourne
- Assess opportunites for feature planting

GUIDING PRINCIPLES AND CONSIDERATIONS FOR TREE PLANTING

Planting in streets presents a variety of challenges, and there are important principles to use in responding to those challenges that will help to meet the Urban Forest Strategy targets. A complete and expanded set of these principles is included in the *Urban Forest Diversity Guidelines* and should be referred to when designing or planting any streetscape; however East Melbourne and Jolimont specific principles are outlined below.

East Melbourne's streets have been extensively planted in recent years and several innovative projects including the Darling Square and Fitzroy Gardens water harvesting projects, and the Gipps Street median have been implemented within the precinct. These projects are representative of how several of the principles described below have been translated into on-ground works.

Planting types and locations: Preference large canopy trees

A single large canopy tree provides greater benefits in terms of cooling, rainwater interception and other ecosystem services than multiple small trees totalling the same canopy extent. Prioritise the use of large canopy trees, with larger trees planted preferentially in centre medians or tree islands, then in the roadway and then the footpath. In the Albert Street median, consider inter-planting with large canopy trees to enhance the existing canopy cover and to provide a successional, broader spreading canopy to the existing brush boxes. Roundabouts and closed road ends should be considered as opportunities to plant large canopy specimen trees.

Narrow streets, including narrow footpaths and no nature strips, are best landscaped via tree planting within the parking lanes to either side, although this is partly limited by the need to maintain car parking spaces. Yarra Park provides important potential for larger scale tree planting on the streets bordering that residential neighbourhood. Along the streets that interface with Fitzroy and Treasury Gardens, there is a reliance on park plantings to provide canopy cover for those streets.

Low voltage overhead wires are present on one side of most residential streets. Where medians exist for large canopy tree planting, select small to medium trees on the side with overhead constraints. In streets where footpath trees provide the only canopy, select medium to large trees that can be effectively pruned around power lines. Always consider opportunities to bundle or underground power lines.

Outcomes that improve the pedestrian environment should always be prioritised. Wellington Parade and Albert Street function as entrances to the city for pedestrians, bicycles and vehicles. Both streets have been identified as having opportunities for enhancement. Albert Street is an important bicycle route into the city and the existing median plantings are not maximising the canopy potential of that street; however, there are opportunities to improve the canopy by inter-planting with a large canopy tree. Wellington Parade is a major vehicle and transit route with low canopy cover; however, several constraints within the street mean that planting alone will not achieve the desired level of improvement. The streetscape has been identified as an opportunity for re-design.

Roundabouts and closed road ends should be considered as opportunities to plant large canopy specimen trees.

GUIDING PRINCIPLES AND CONSIDERATIONS FOR TREE PLANTING CONTINUED

Planting patterns and species choice: Adopt planting patterns that increase overstory and understory diversity

Many of East Melbourne's streets have been planted relatively recently and therefore opportunities for extensive species change in these streets are limited. East Melbourne's urban forest character is also strongly connected to elms, and there will continue to be a higher population of elms in East Melbourne that in most other precincts. In terms of opportunities to increase diversity in streets, kerb outstands, roundabouts and road ends should be considered as opportunities to plant species drawn from a wider palette that are unique to that location or intersection and provide visual interest. These areas should also be considered as opportunities to create landmark feature landscapes and to support understorey planting.

In streets with heritage facades, deciduous trees should be given preference so that building facades are exposed over winter. Deciduous trees should generally be given preference in roadsides except where built form already obstructs solar access or where parks or setbacks create open space adjacent to the footpath.

The convention of planting avenues, or consistent lines of a single species, can limit species diversity. However, avenue plantings are important to local character in many streets and open spaces in Melbourne. To balance these two conflicting pressures, it is important to identify ways to minimise the extent of homogenous avenue planting while maintaining a strong design outcome. The following strategies can be used.

- Establish a hierarchy of streets/paths most important to plant with continuous avenues and limit use elsewhere
- Identify breaks in avenues at logical points along the length of streets, where species may change.
- Use asymmetrical treatments along some streets (e.g., local streets where there are power lines on one side only so large trees may fit on one side and small ones on the other).
- Use mixed avenues of two or more species of similar form and character where appropriate.
- Use informal mixes of species where acceptable (Eg. perimeters of parks and gardens, streets where most trees senescent but important established specimens remain, streets where vegetation from private gardens occasionally overhangs into street space.)

Opportunities to develop understory planting structure to enhance biodiversity have been identified in several streets within East Melbourne. Albert Street, Powlett Street and Simpson Street provide connections between open spaces and have wide medians that can support understory plantings to encourage native birdlife and pollinators.

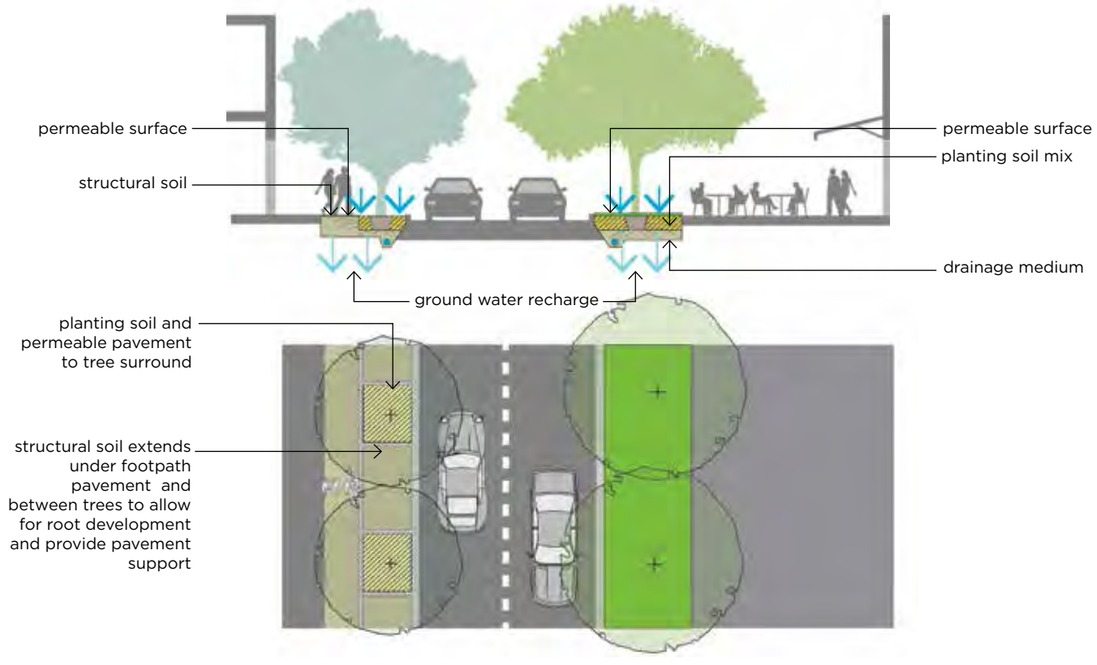
Use mixed avenues of two or more species of similar form and character where appropriate

Soil and moisture conditions: Improve soil moisture conditions and select species appropriate to the site conditions

Always consider opportunities to undertake soil volume improvement in planting areas and to increase permeability or water infiltration where needed. Assessment for these interventions is particularly necessary at sites where trees are being replaced because they failed to thrive. Interventions to consider include:

- systematic trenching in landscaped areas, in medians, between tree plots and centre of road parking zones
- structural soils below permeable paving
- increasing soil volume
- WSUD tree pits or infiltration pits
- stormwater harvesting.

Several opportunities for water sensitive urban design have been exploited within the East Melbourne Precinct. That being said, soils may still be experience seasonal water logging in lower lying streets that are receiving moisture from higher elevation areas. Moisture receiving locations include the eastern boundary of East Melbourne bordered by Hoddle Street, Gipps St and Grey Street, Wellington parade and Jolimont Street, and Flinders Street. In streets where periodic waterlogging is expected or known to occur, select species tolerant to that condition.



Improving below ground growing conditions for trees in streets

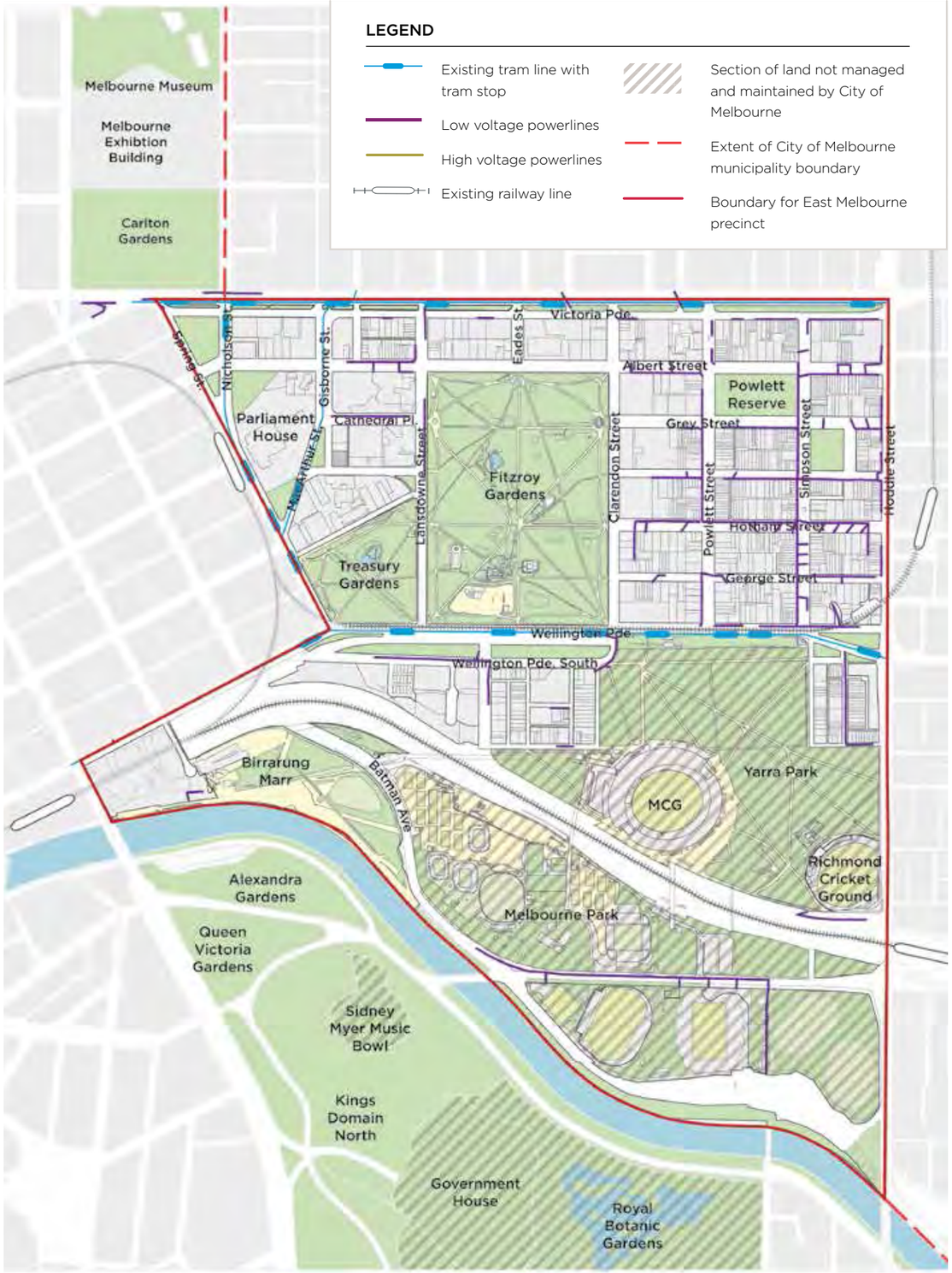
GUIDING PRINCIPLES AND CONSIDERATIONS FOR TREE PLANTING CONTINUED

This map indicates locations where overhead constraints have been identified and may impact tree selection and the maximum canopy cover that can be achieved. Low voltage overhead wires associated with electricity distribution and tram lines have minimum clearance distances from vegetation that must be maintained. When selecting which species to plant beneath overhead wires, ensure that the species chosen can be formatively pruned to create a pleasing canopy shape, or is at a mature height that it is a safe distance from overhead wires.

Small tree under powerlines

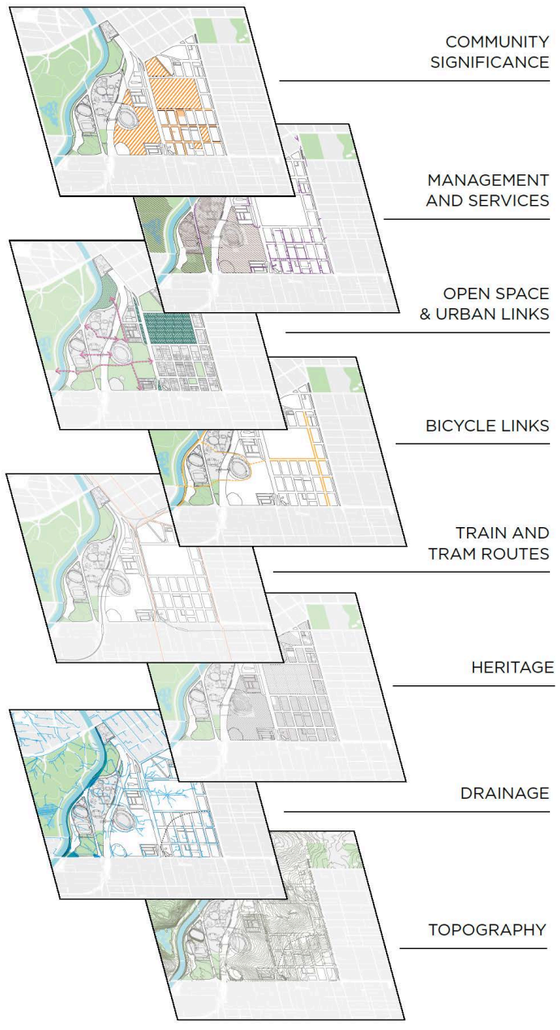
Tree trimmed under powerlines

MAP 2: KEY PLANTING CONSTRAINTS



GUIDING PRINCIPLES AND CONSIDERATIONS FOR TREE PLANTING CONTINUED

These maps show some of the many layers of information that influence the opportunities and objectives for tree planting in East Melbourne and Jolimont Streets.



LEGEND - MAP 3

- Existing open space
- Significant open space identified by the community
- Significant section of street identified by community
- Land subject to inundation (Victorian planning scheme)
- Existing ridge line
- Proposed open space links horizontal / vertical (Open space strategy)
- Median / centre road
- Existing contour 1m
- Existing drainage line
- Extent of City of Melbourne municipality boundary
- Boundary for East Melbourne Precinct

MAP 3: NATURAL AND OPEN SPACE CONTEXT

GUIDING PRINCIPLES AND CONSIDERATIONS FOR TREE PLANTING CONTINUED

LEGEND - MAP 4

- Existing open space
- Heritage listed open space
- Heritage listed church
- Heritage government building
- Heritage listed hospital
- Existing sport grounds
- Heritage listed sport grounds
- Heritage listed property
- Existing bike lane
- Existing bike lane - off road
- Existing roundabout
- Boundary for East Melbourne precinct
- Extent of City of Melbourne municipality boundary

MAP 4: STRATEGIC CONTEXT

GUIDING PRINCIPLES AND CONSIDERATIONS FOR TREE PLANTING CONTINUED

Parliament precinct

This precinct is dominated by formal gardens and public institutions and creates a separation between the Central Business district and the residential areas of East Melbourne.

The parklands and wide streets in this precinct create an important setting for the Parliament and Treasury buildings as well as St Patricks Cathedral. Fitzroy Gardens forms an extension of this parkland precinct and separates the residential area from the central city.

Eastern residential precinct

The residential precinct of East Melbourne is intermixed with a variety of civic and institutional facilities and the hospitals. There is a dominant heritage character to the precinct reflected in the housing and parkland reserves.

Jolimont precinct

This fine grained pocket of residential development occupies the former Jolimont Railyards and is defined by medium density housing surrounded by Yarra Park, the Wellington Parade South parklands and the rail corridors to the north and south. The narrow streets and lanes of this precinct are limited in their capacity to grow large trees with the exceptions of the Brunton Avenue city bypass route and Wellington Parade south.

Yarra parklands and events precinct

The parklands of Yarra Park, Melbourne and Olympic Parks and Birrarung Marr are a significant part of the capital city parklands and major destinations for sporting and cultural events in the city. The need to balance the intense use of these open spaces with sustaining healthy landscapes is an ongoing challenge for these parklands. These are some of the hottest spaces in the city due to the large expanses of hardscape that are created for events and gathering. Space for trees and other heat mitigating landscapes need to be provided in the ongoing management of these spaces. Olympic Boulevard and Citylink are important street landscapes and the vegetation in this precinct is an important part of the ecology of the Yarra River corridor. Some areas lie in the flood plain of the river and species selection in these areas will be important.

MAP 5: PLANTING SUB-PRECINCTS

GUIDING PRINCIPLES AND CONSIDERATIONS FOR TREE PLANTING CONTINUED

Canopy cover

Anticipated canopy cover at maturity is represented as shading in streets on the map. In some streets the maximum canopy cover is limited due to constraints such as tram routes. Planting configuration should seek to maximise canopy cover in all cases.

Biodiversity

Pelham Street has been identified as a connecter between open space with the potential to manage more specifically for biodiversity and pedestrian amenity. Opportunities to enhance biodiversity would include selecting bird and pollinator attracting species and adding layers of vegetation to provide structural diversity. Other streets may also provide opportunities for understorey planting.

LEGEND

- Minimum canopy cover of 40%
- Minimum canopy cover of 20% - 40%
- Minimum canopy cover of 20%
- Biodiversity corridor

MAP 6: CANOPY COVER AND BIODIVERSITY OUTCOMES

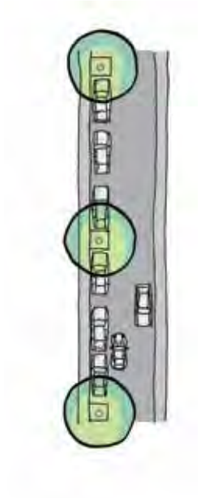
GUIDING PRINCIPLES AND CONSIDERATIONS FOR TREE PLANTING CONTINUED

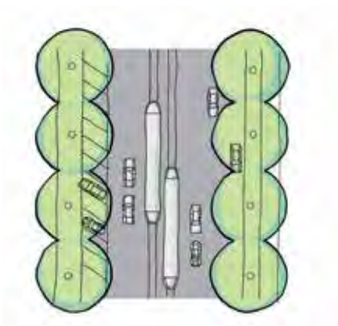
Minimum canopy cover of 20%

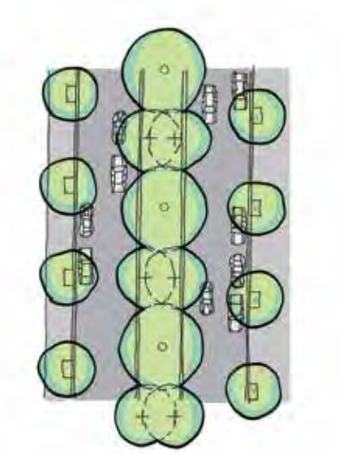
Minimum canopy cover of 20 - 40%

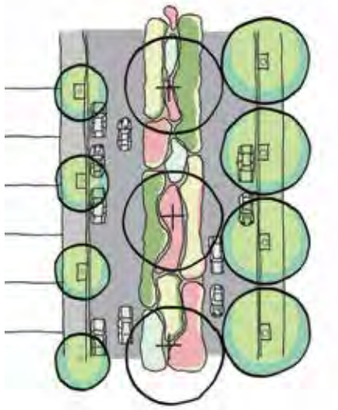
Minimum canopy cover of 40%

Biodiversity objective maximise canopy









GUIDING PRINCIPLES AND CONSIDERATIONS FOR TREE PLANTING CONTINUED

What should stay and what should change?

Elms, planes, maples, eucalypts and corymbias (gums) are core genera within East Melbourne and Jolimont's urban forest today. That is not proposed to change; however their dominance will be reduced by using alternative species for new plantings and, in the locations defined on this map, by breaking up spatial continuity. Interrupting spatial continuity is necessary to reduce vulnerability within the urban forest tree population and aids diversity targets by providing an opportunity to change species.

The use of elms will be limited to replacements in locations where they are already planted. Use of species within the Myrtaceae family should be targeted in locations where they can provide connecting corridors between open space for native birds and pollinators; however it is preferable that different genera and species be planted in segments or as mixed plantings to increase diversity.

LEGEND - MAP 7

- Existing open space
- Proposed genus change
- Section of land not managed or maintained by City of Melbourne
- Street with majority plane tree (*Platanus*) population
- Street with plane tree (*Platanus*) integrated with other tree species
- Street with elm tree (*Ulmus*) integrated with other tree species
- Street with majority elm tree (*Ulmus*) population
- Street with maple tree integrated with other tree species
- Street with majority maple tree population
- Street with *Eucalyptus* integrated with other tree species
- Street with majority *Eucalyptus* population
- Street with majority gum (*Corymbia*) population
- Street with gum (*Corymbia*) tree integrated with other tree species

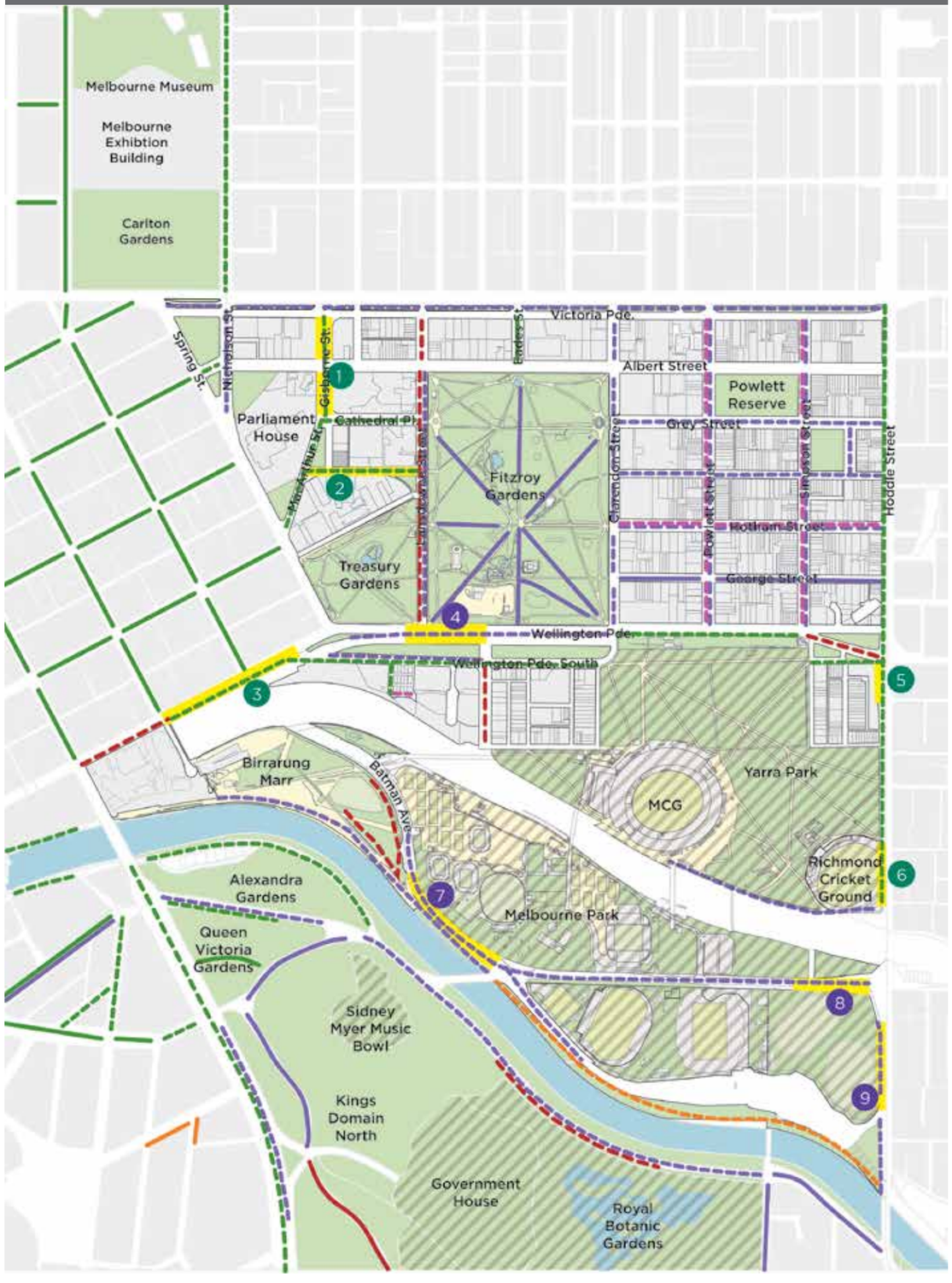
Change from planes:

1 2 3 5 6

Change from elms:

4 7 8 9

MAP 7: WHAT SHOULD STAY AND WHAT SHOULD CHANGE?



PLANTING STRATEGIES

Long-term Planting Strategy

This strategy provides the long-term direction for planting in the precinct. The selection of tree species for each street should respond to criteria including optimal size and other characteristics that relate to the street typology and its relationship to the major planting sub-precincts. Values of existing vegetation are also a factor in species selection.

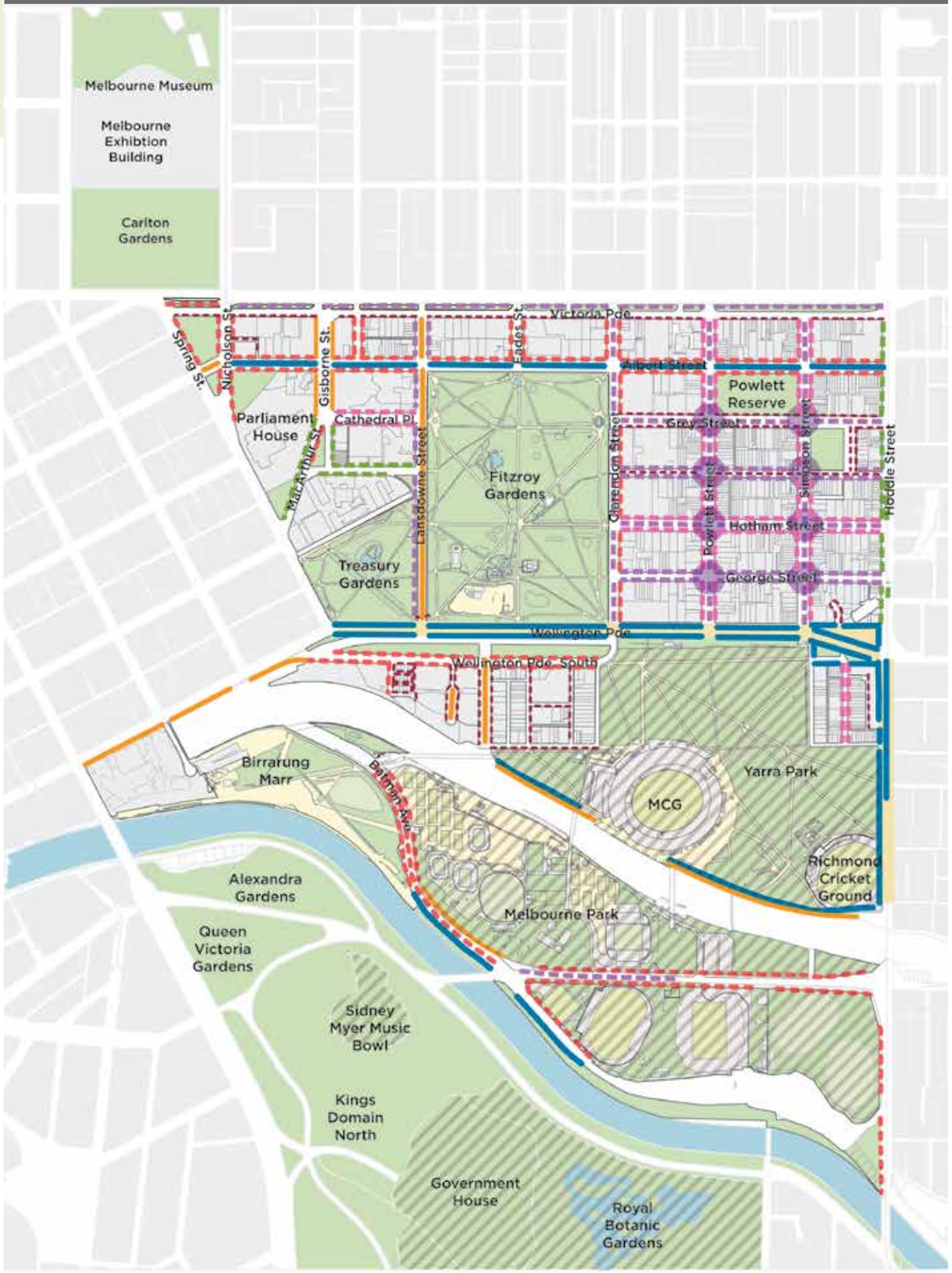
Overarching principles affecting the planting plan include the following.

- North-south and east-west avenues should have a consistent character but allow for the use of various species.
- Create streets that provide connections between open space both by maximising canopy cover and planting tree species or understory vegetation that enhances biodiversity values.
- Enhance the character of park perimeter streets though planting that responds to the character and scale of the park perimeter.
- Incorporate colour and seasonal change into species selections.

LEGEND - MAP 8

- Plane trees
- Elm trees
- Maple trees
- Medium deciduous species
- Large deciduous species
- Large evergreen species
- Other contrasting species
- Existing roundabout / proposed landmark specimen trees
- Section of land not managed or maintained by City of Melbourne
- Street redesign opportunity

MAP 8: LONG-TERM PLANTING STRATEGY



PLANTING STRATEGIES
CONTINUED

10-year Planting Plan

This plan provides direction on where new and replacement planting is to occur across East Melbourne and Jolimont. The size and evergreen/deciduous nature of the species to be used is also defined as a solid or dashed line (in the case of replacements this may be different to what is planted in that location currently). Species selection is left somewhat open; however, Map 7 and Map 8 provide guidance on where spatial diversity should be created and where core species should be retained. Streets with opportunities for re-design represent streets with a complexity of issues and where planting alone will not achieve a substantial improvement; these streets require a more comprehensive design process considering a range of functions. A species palette is provided at the end of this document.

LEGEND - MAP 9

- Existing open space
- Street re-design opportunities
- Section of land not managed or maintained by City of Melbourne
- Existing roundabout / proposed landmark specimen trees

EXISTING

- Large evergreen tree
- Large deciduous tree
- Medium – small deciduous tree

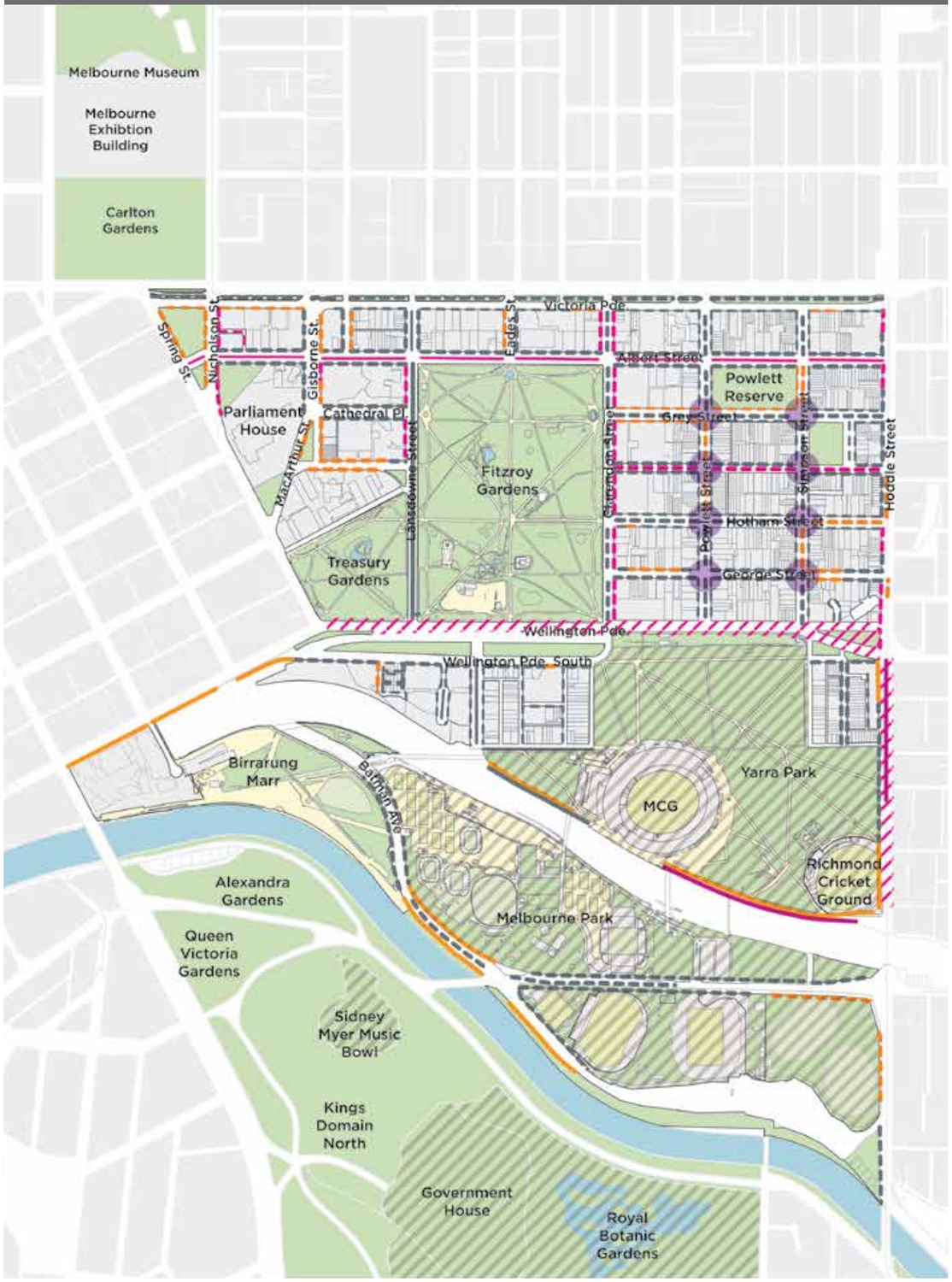
REPLACEMENT

- Large evergreen tree
- Large deciduous tree
- Medium – small deciduous tree

NEW

- Large evergreen tree
- Large deciduous tree
- Medium – small deciduous tree

MAP 9: 10-YEAR PLANTING PLAN



PLANTING STRATEGIES
CONTINUED

Guide to species change

This map indicates locations along streets where a change in species is logical based on sub-precinct boundaries, topographic factors or objectives defined for streets within this plan. The colours do not indicate species distribution or specific species. Rather, they represent points of species change, with similar colours along a street indicating use of a range of species that will achieve a consistent character for that street.

Select or match species to form, colour and seasonal themes for streets to unify character even where species are varied. Along Hoddle Street, use the ridgeline to signal a species change. When appropriate to extend the character of parks and gardens, use informal mixes of species along perimeters or where vegetation from private gardens overhangs the streets.

LEGEND - MAP 10

- Existing roundabout / proposed landmark specimen trees
- North south avenues - consistent character with various species
- East West Streets - consistent character with various species
- City entry boulevards- new sections of avenue with character species
- Avenue - perpetuation of existing avenues
- Open space link - extending park character to the streetscape - mixture of species
- Section of land not managed or maintained by City of Melbourne
- Biodiversity corridor
- Ridge Line

MAP 10: GUIDE TO SPECIES CHANGE

SPECIES PALETTE

The following species are provided for guidance only and do not preclude the use of other trees that are consistent with the character of East Melbourne and Jolimont, Guiding Principles and Planting Plan. Elms, maples, planes and gums are key genera within East Melbourne and Jolimont, forming an important part of the existing character of its urban forest. While this character will be maintained, species from many different genera will also be planted to increase diversity and reduce vulnerability within East Melbourne and Jolimont's urban forest population. Feature trees refer to trees that might be used in roundabouts, kerb outstands, road ends or that could add structure for biodiversity enhancement in locations with adequate space. Productive trees or edible landscapes may be considered in locations such as medians or feature landscapes where they conform to City of Melbourne policy and the community actively provide support for the project.

Core East Melbourne Trees (Limited Future Use)

Evergreen

Corymbia sp., Gum

Deciduous

Acer sp., Maple
Platanus sp., Plane
Ulmus sp., Elm

Large Trees for Streets

Evergreen

Araucaria sp.
Angophora costata, Smooth-barked apple
Cedrus sp., Cedars

Deciduous

Celtis australis, European nettle tree
Fraxinus americana, White ash
Fraxinus pennsylvanica, Green ash
Lirodendron tulipifera, Tulip tree
Quercus coccinea, Scarlet oak
Quercus palustris, Pin oak
Quercus rubra, Red oak
Tilia sp.
Toona ciliata(trial), Australian red cedar
Zelkova serrata, Japanese zelkova

Medium to Small Trees for Streets

Evergreen

Afrocarpus falcatus (trial), ickle-leaved yellowwood
Brachychiton sp.
Eucalyptus leucoxylon subsp. megalocarpa, Red flowering gum
Ficus rubiginosa, Port Jackson fig
Podocarpus elatus, Plum pine
Tristaniopsis laurina, Kanooka

Deciduous

Albizia julibrissin (trial), Persian silk-tree
Brachychiton sp.
Buckinghamia celsissima, Ivory curl tree
Catalpa bignoniodes, Catalpa
Cercis siliquastrum, Judas tree
Corylus colurna, Turkish hazel
Ginkgo biloba (male), Ginkgo
Jacaranda mimosifolia, Jacaranda
Koelreuteria sp.
Magnolia grandiflora, Southern magnolia
Melia azedarach, Australian white cedar
Pistacia chinensis, Chinese pistachio
Phellodendron amurense (trial), Amur cork tree
Sapium sebiferum, Chinese tallow tree
Stenocarpus sinuatus, Firewheel tree
Styphlonobium japonica, Pagoda tree
Tipuana tipu, Rosewood
Nyssa sylvatica, Tupelo

Large Feature Trees

Agathis sp.
Cedrus sp.
Eucalyptus tricarpa, Red ironbark
Ficus macrophylla, Moreton Bay fig
Livistonia australis, Cabbage tree palm
Metasequoia glyptostroboides, Dawn redwood
Phoenix canariensis, Canary Island date palm
Pinus sp.
Quercus accutissima, Sawtooth oak
Taxodium distichum, Swamp cypress
Ulmus glabra, Golden elm
Washingtonia robusta, Mexican fan palm

Medium to Small Feature Trees

Buckinghamia celsissima, Ivory curl tree
Brachychiton sp,
Callitris glaucophylla, White cypress pine
Cuppressus sempivirens, Mediterranean cypress
Davidia involucrata, Dove tree
Dracenea draco, Dragon blood tree
Ficus rubiginosa, Rusty fig
Grevillia hilliana, White silky oak
Maclura pomifera, Osage-orange
Parrotia persica, Persian Iron wood
Washingtonia filifera, Desert fan palm

FREQUENTLY ASKED QUESTIONS

Where can I find out more information about Melbourne's urban forest?

A wide range of information about Melbourne's urban forest can be explored at melbourne.vic.gov.au/urbanforest

What can I do to contribute to Melbourne's urban forest?

If you have a garden or room for a tree, you can contribute by planting in your own yard. If you own or manage a building, development, or institution you can contribute by planting in the grounds or by greening walls, roofs or balconies.

You can also contribute by staying informed about the urban forest and by talking to others about the benefits of having trees in our urban areas. The City of Melbourne will continue to provide opportunities for the community to volunteer their time and ideas to help achieve urban forest objectives. If you would like to be added to our mailing list, or have an urban forest idea you'd like to share, please email your details to **urbanforest@melbourne.vic.gov.au**

I have seen a sick or damaged tree, or an empty tree plot. How can I tell City of Melbourne about it?

Please email the location and a description of the issue to **treeplanning@melbourne.vic.gov.au.**

Can I plant a tree in a public space?

Trees can only be planted on public land with council authorisation or through a sanctioned public planting activity. However, if there is a location where you would like to see a tree planted then you can send a request for tree planting to **treeplanning@melbourne.vic.gov.au.**

Can I make a garden in a public space?

Please refer to the City of Melbourne's Street Garden Guidelines, which you can find at **melbourne.vic.gov.au**

How to contact us

Online: melbourne.vic.gov.au

In person:
Melbourne Town Hall - Administration Building
120 Swanston Street, Melbourne
7.30am to 5pm, Monday to Friday
(Public holidays excluded)

Telephone: 03 9658 9658
7.30am to 6pm, Monday to Friday
(Public holidays excluded)

In writing:
City of Melbourne
GPO Box 1603
Melbourne VIC 3001
Australia

Fax: 03 9654 4854

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03 9280 0725	Việt Ngữ
03 9280 0726	All other languages

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9am to 5pm, Monday to Friday
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CITY OF MELBOURNE