

# FISHERMANS BEND URBAN FOREST

## PRECINCT PLAN

2015-2025



CITY OF MELBOURNE

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## 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

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## Disclaimer

This report is provided for information and it does not purport to be complete. While care has been taken to ensure the content in the report is accurate, we cannot guarantee it is without flaw of any kind. There may be errors and omissions or it may not be wholly appropriate for your particular purposes. In addition, the publication is a snapshot in time based on historic information which is liable to change. The City of Melbourne accepts no responsibility and disclaims all liability for any error, loss or other consequence which may arise from you relying on any information contained in this report.

# 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?

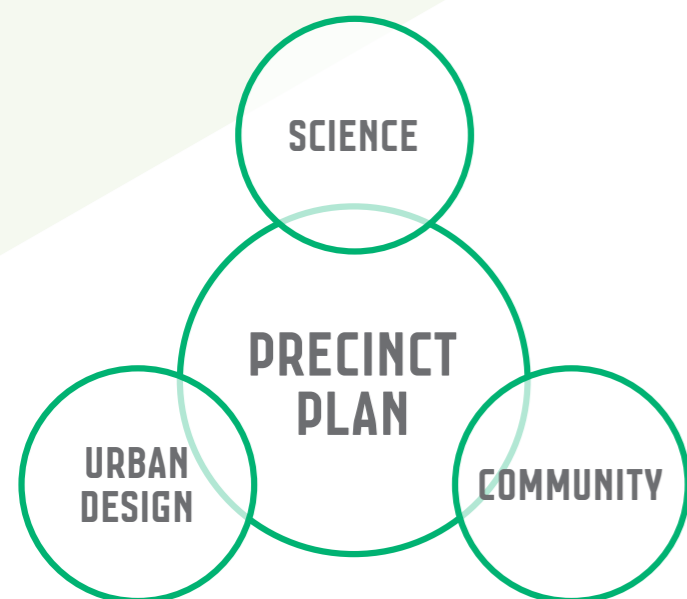
The urban forest comprises all of the trees and other vegetation – and the soil and water that supports it – within the municipality. It incorporates vegetation in streets, parks, gardens, plazas, campuses, river and creek embankments, wetlands, railway corridors, community gardens, green walls, balconies 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 heat waves, 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 than surrounding suburban and rural areas. The urban heat island is primarily a result of impervious hard surfaces that absorb heat, human activity that generates heat and low vegetation cover that fails to provide adequate shade and natural cooling.

Anticipated population growth and increasing urban intensification means that more people will be at risk during extreme weather events 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.

## 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.



Useful Life Expectancy mapped for City of Melbourne Trees.

# 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.

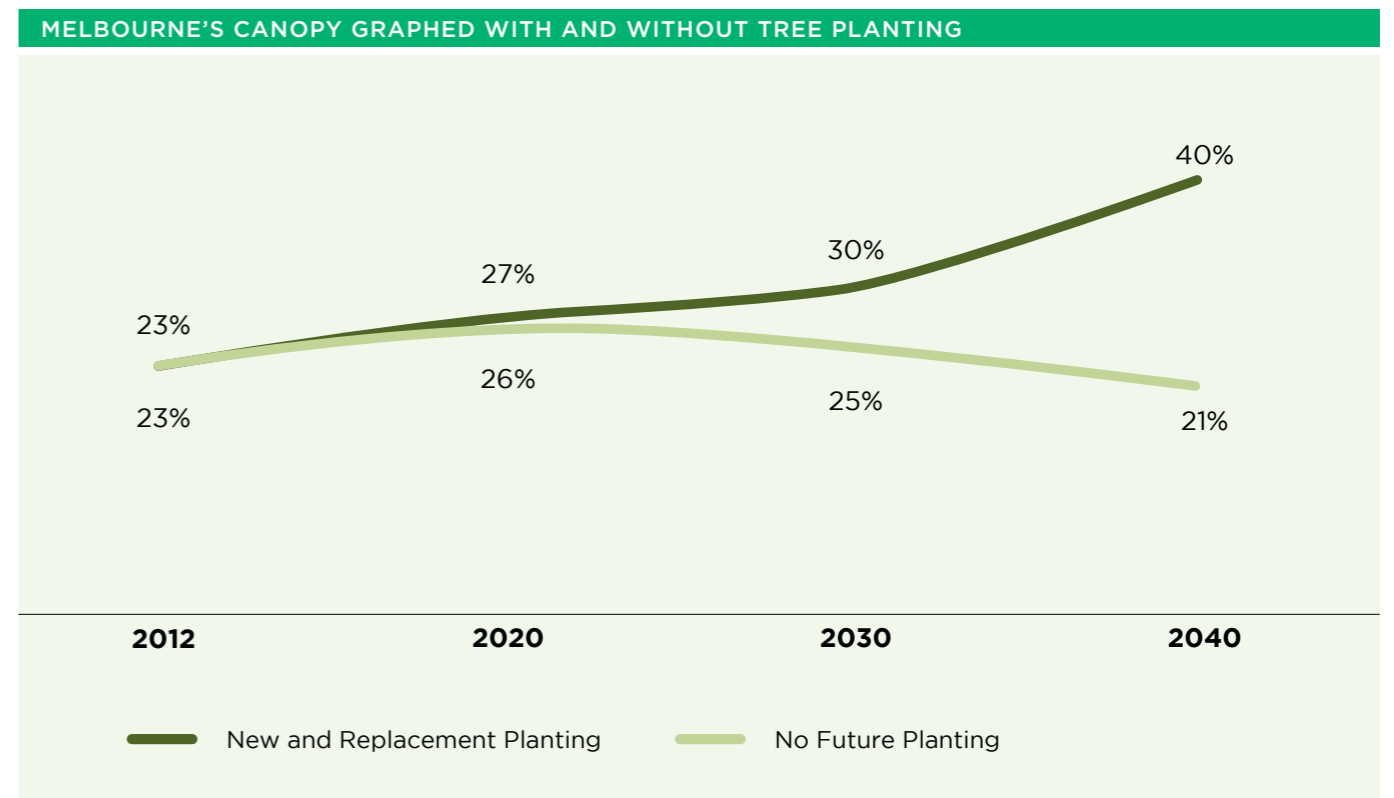
Access to ample soil moisture enables trees to actively transpire and cool the surrounding air. Adequate soil moisture is critical for healthy vegetation. A number of active and passive approaches are currently undertaken to replenish soil moisture and ensure it is maintained at levels to provide healthy 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.



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 strategy objectives, 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 other City of Melbourne policies are outlined in the Urban Forest Strategy. Geographically, the area covered by the Fishermans Bend Urban Forest

Precinct falls into the Fishermans Bend Urban Renewal Area (FBURA). FBURA was announced by the Victorian Government in July 2012. The Fishermans Bend Urban Forest Precinct area covers the 'Fishermans Bend Employment Precinct' and part of the 'Lorimer Precinct' in FBURA.

To guide the future development in FBURA, the 'Fishermans Bend Strategic Framework Plan' was released by the Metropolitan Planning Authority (MPA) in July 2014 amended April 2015).

A *Lorimer Structure Plan* is also being developed by the City of Melbourne with the MPA. This document will provide more detailed planning for the streets, public realm and open space for this area.



The City of Melbourne boundary is shown in grey and the Fishermans Bend Precinct is highlighted in orange.

## THE VISION FOR FISHERMANS BEND URBAN FOREST

**THE FUTURE URBAN FOREST IN FISHERMANS BEND WILL BE A RESILIENT AND REGENERATIVE ECOSYSTEM THAT CELEBRATES AND IS ADAPTED TO ITS RIVERINE ENVIRONMENT, AND CONNECTS PEOPLE AND NATURE.**

**IT WILL BE A VIBRANT DESTINATION THAT INCORPORATES SHADY, INCLUSIVE CIVIC SPACES THAT ENHANCE INDIGENOUS LANDSCAPES AND FOSTER A SENSE OF COMMUNITY.**



## 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 6% 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 land owners to plant trees by providing materials that advise on suitable trees and by seeking creative ways to encourage private land planting. We will also continue to educate residents on how they can contribute to the urban forest through our on-going community engagement work.

The City of Melbourne will also work with institutional and large holding land manager across the city to support and encourage the adoption of urban forest strategy principles on those lands. The Fishermans Bend precinct, includes large areas of private and state managed land that have already contributed and could support greater canopy cover. These include West Gate Park, Department of Defence, Port of Melbourne Corporation, GM Holden, Boeing, and Herald and Weekly Times.

Similarly, City of Melbourne will work closely with neighbouring municipalities to support and encourage the adoption of urban forest strategy principles in other jurisdictions.

### Historical and existing tree plantings

Fishermans Bend sits at the southernmost boundary of the City of Melbourne where the Yarra enters Hobsons Bay. The land is part of the Yarra River Delta and, prior to the arrival of European settlers, was comprised of salt water wetlands, salt lagoons and sand ridges extending from the Yarra to the Bay. Trees were not part of the Fishermans Bend landscape. The area would have supported fish and birdlife providing an important hunting resource for Boonwurrung people of the Kulin Nation. The abundance of wildlife these billabongs and lagoons supported would have been such that palaeontologist Tim Flannery has 'imagined the Melbourne area in 1830 as a sort of temperate Kakadu'.

Its low lying land, lack of fresh water and disconnection from early settlements of Melbourne, Sandridge and Williamstown meant that Fishermans Bend was not developed or populated by early European settlers with the exception of a few

isolated shacks. Early on, scattered noxious trades (i.e., abattoirs, bone mills, rendering plants etc.) and a pig farm were located along the river and in the late 1800s there was suggestion that all of these industries be concentrated in Fishermans Bend due to its lack of population. After much debate, it was eventually decided that noxious trades should instead be removed from the waterway as part of the Harbour Improvement Plan but the Bend has remained an industrial area.

The Coode Canal works bisected Fishermans Bend in 1887 to remove a major bend in the Yarra and speed shipping traffic. The northern tip of the precinct is now where the docks in West Melbourne are located. The land form has been substantially altered by docks and the canal, and fill covers most of the original sandy soils of Fishermans Bend.

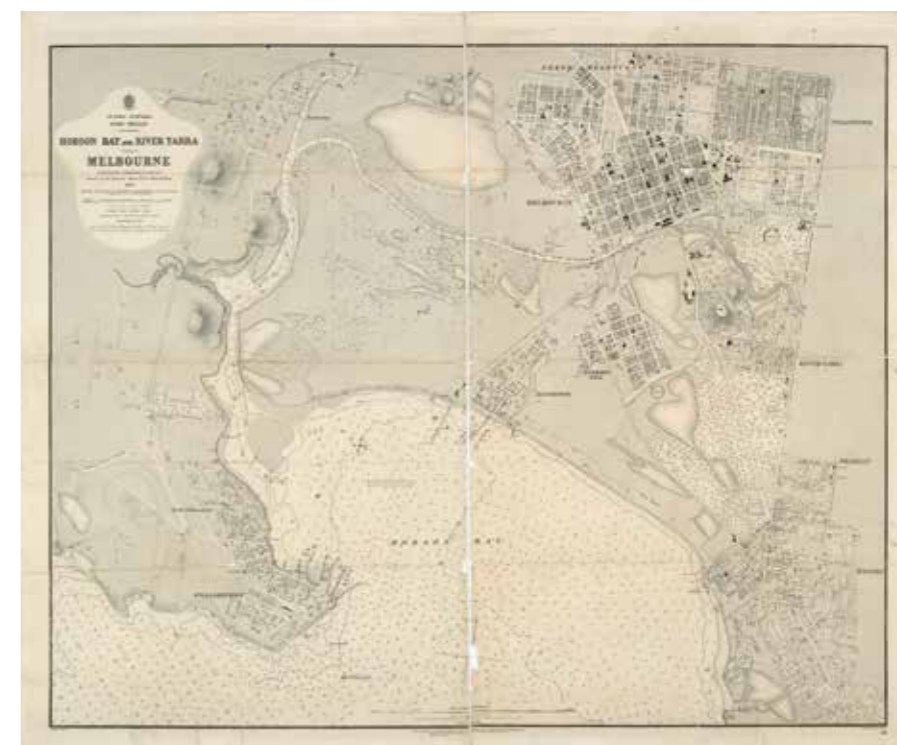
Since the early 1900s, the area has been used in a wide variety of ways including a rifle range in the 1920s, the Commonwealth aerodrome in the 1930s, a racetrack in the 1950s and then more recently for car manufacturing and small industry. Westgate Park is the major open space in the area and has been restored from industrial uses and afforested with native trees. Westgate Park support some of the only salt marsh flats remaining in the area. Some street tree planting has also occurred in the last decade. Today, canopy cover in Fishermans Bend is likely the highest it has ever been.

### Fishermans bend character

The Fishermans Bend precinct differs substantially from other city precincts in that it is changing from an area of traditional industry to a preferred location for mixed uses from clean, value-added manufacturing, high-profile office accommodation, to high density urban living. There are currently around 12,000 workers works in the area (ABS, 2011 Census Population and Housing, Workers database). With the upcoming urban renewal, the area is expected to accommodate thousands more workers and residents in the near future.

Among the most unique and valuable qualities of the precinct is its strong association with Melbourne's waterways, port and port activities. The existing large lot subdivision pattern has created sites capable of accommodating large floorplates, creating 'campus' like plans combining buildings with landscapes surrounds. This emphasises the need to coordinate public and private open space environments, including active frontages onto streetscapes where possible. Streetscape plantings will greatly assist in also providing consistency where building setbacks, lot sizes, functional specialisations or differentiation occur.

The existing urban forest in Fishermans Bend is characterised by a mix of large and medium evergreen Australian native trees along major corridors such as Lorimer Street and Todd Road. These form an important ecological corridor linking the waterfront to the indigenous planting in West Gate Park. There are some established deciduous trees mainly London planes along Salmon St, creating a 'tree-lined boulevard' which is rare in the area.



'Melbourne and Its Suburbs' compiled by James Kearney, draughtsman; engraved by David Tulloch and James D. Brown. Victoria. Surveyor-General [Melbourne]: Andrew Clarke, Surveyor General 1855: (part, State Library of Victoria collection)

# COMMUNITY PRIORITIES

Fishermans Bend 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 Fishermans Bend's urban forest. The community consultation highlighted that the urban forest planting in Fishermans Bend should celebrate and adapt to its waterfront connection; leverage the existing indigenous landscapes and create greater ecology corridor connecting people with biodiversity.

Our work with the community indicated a preference for trees that would add more shade, colour, biodiversity to the area, as well as indigenous species which are resilient in the changing climate.



## Desired future states defined by the community:

- Beautiful, connecting, diverse
- Resilient
- Indigenous landscape
- Vibrant destination
- Water sensitive
- Integrate with river frontage
- Socially active and connected

## Urban forest benefits highlighted through community consultation:

- Shady, people friendly, civic
- flood mitigation
- Supporting biodiversity and community
- Wildlife corridor
- Recreational and visually relaxing
- Safe

## DIVERSE, INDIGENOUS, LAYERED:



*Images selected by the community as representing a preferred future for Fishermans Bend urban forest that includes Diverse, Indigenous, Layered.*



# COMMUNITY PRIORITIES CONTINUED

## STREETScape



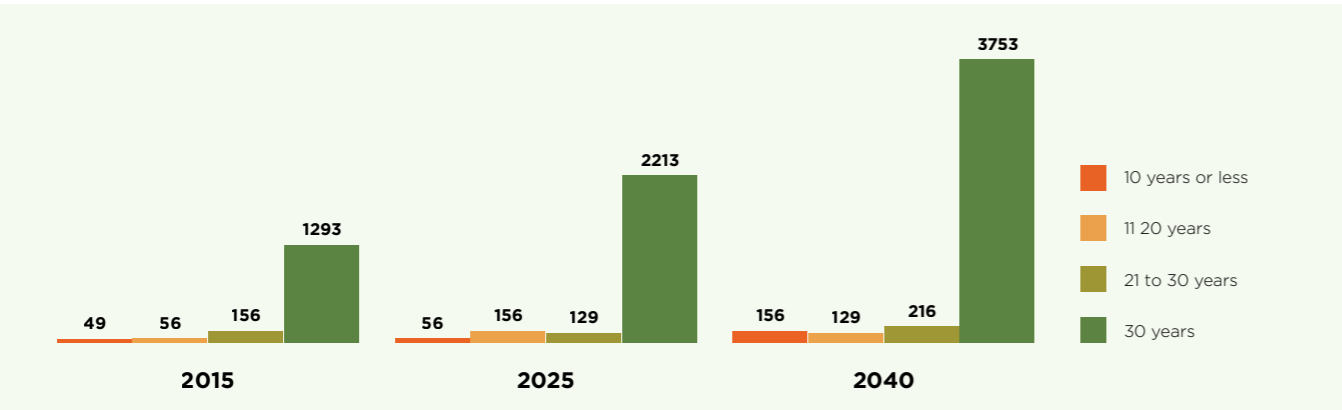
## COMMUNITY



Fisherman's Bend community members developing priorities for planting in the precinct.

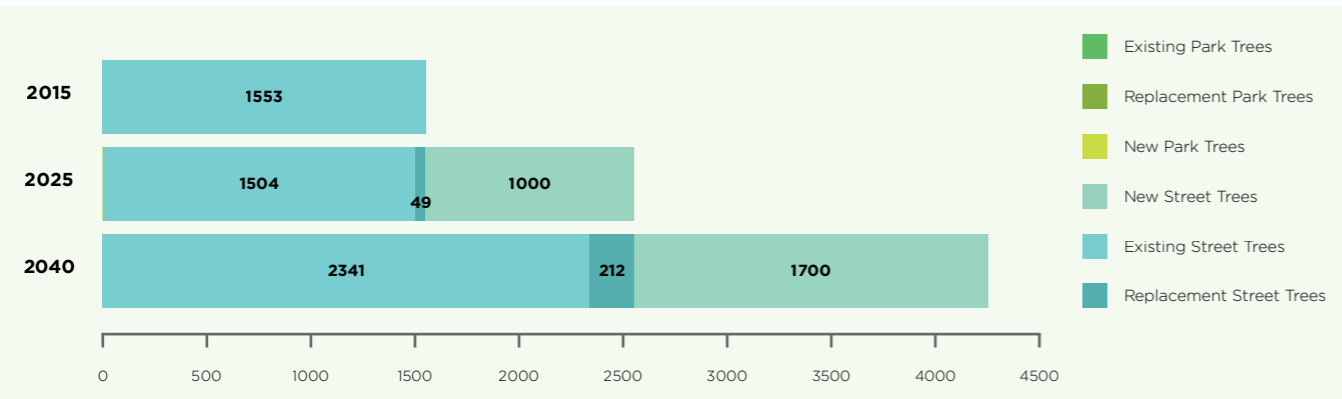
# FISHERMANS BEND URBAN FOREST IN 2015 AND ITS PROJECTED FUTURE

## TREE HEALTH (ULE) - PUBLIC REALM



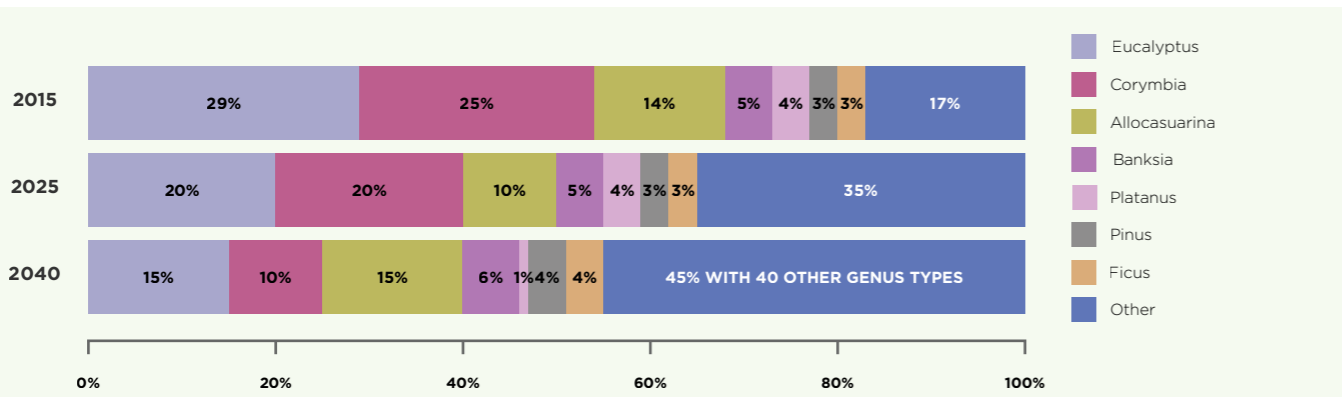
Tree counts for Fishermans Bend categorised by useful life time expectancy (ule) in years

## TREES - PUBLIC REALM



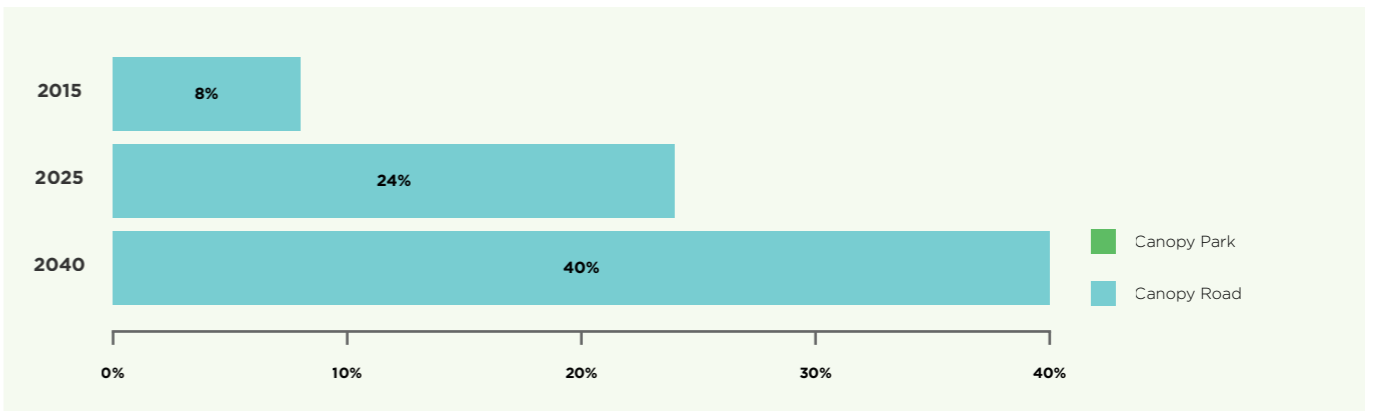
Tree counts and planting by City of Melbourne in Fishermans Bend

## DIVERSITY (BY GENUS) - PUBLIC REALM



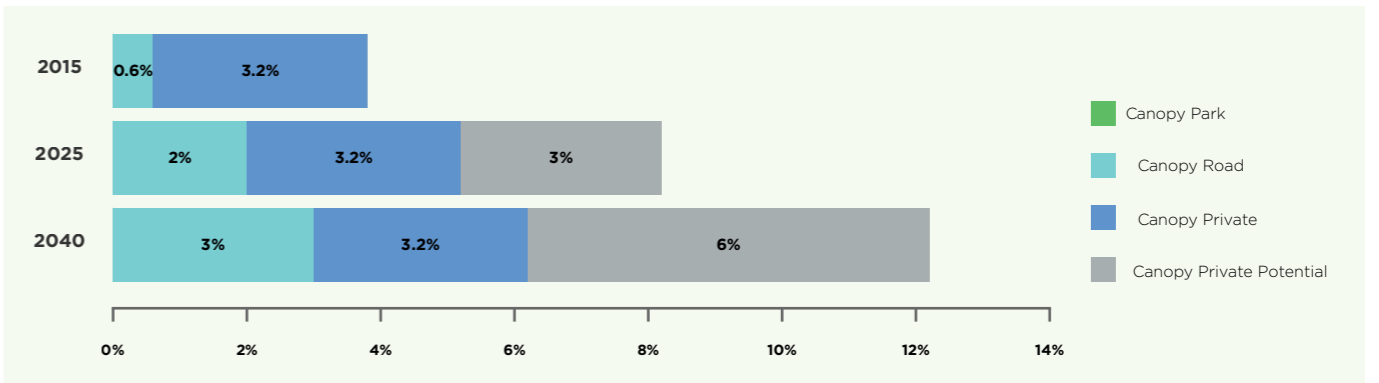
Main genus types for Fishermans Bend

## CANOPY - PUBLIC REALM



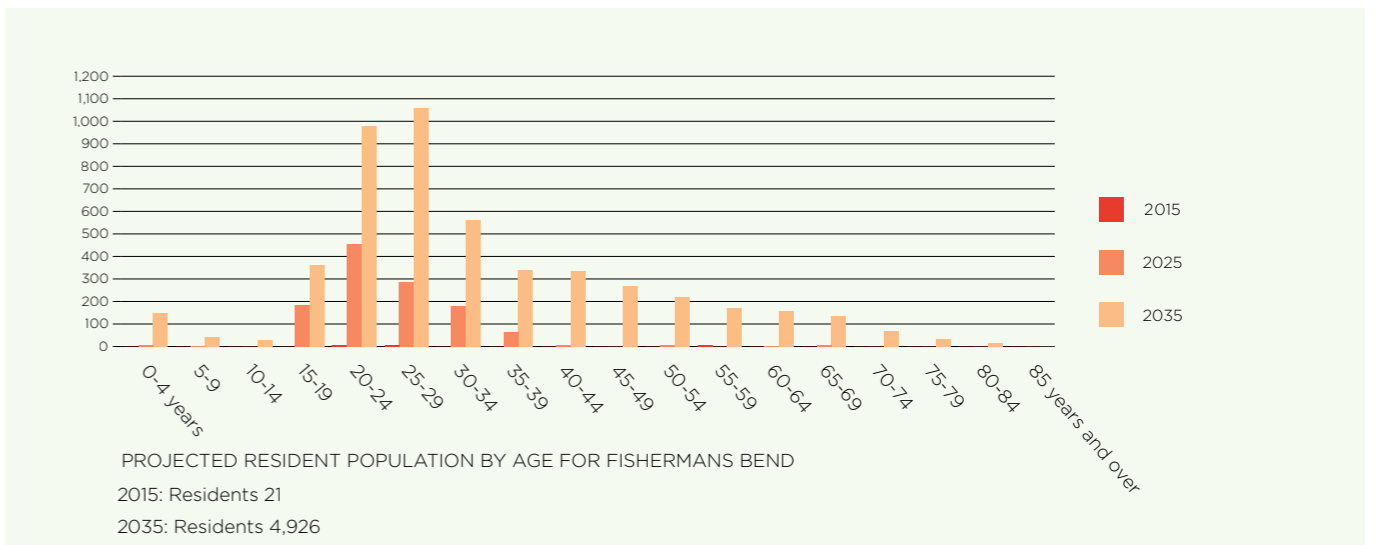
Tree canopy and locations for Fishermans Bend

## CANOPY - ENTIRE PRECINCT



Tree canopy and locations for Fishermans Bend

## PRECINCT POPULATION DISTRIBUTION - RESIDENTS



Projected resident population by age for Fishermans Bend

Data source: City of Melbourne 2013-2036 Population Forecast, Geografia (last updated March 2015)

# PRIORITISING TREE PLANTING IN STREETS

1. Streets with opportunities for planting or replacements



2. Community identified priority for greening



3. Hot and very hot streets



4. Tree replacements required in next 10 years



5. Canopy Cover < 20%



## MAP 1: PLANTING PRIORITIES

City of Melbourne has prioritised the work in different streets by using varied criteria and the 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. Unforeseen opportunities for streetscape improvement may also alter scheduled planting.

### Streets prioritised for work in Years 1 - 4 (2015 - 2018) include those:

1. Already scheduled for work in the current planting season; or,
2. Having 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 (2019 - 2021) include those:

1. Having a 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 (2022 - 2025) 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; or
5. Replacements required.

## Prioritising tree planting in streets

When prioritising where to plan, 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 areas where there is a very low canopy cover. Replacements

are only identified for streets where the useful life expectancy of multiple trees is rated at less than 10 years.

Due to the considerable change with redevelopment of the Lorimer Precinct in particular, new plantings in these zones will be informed by development proposals and timing. We used census and mapping data to spatially define streets with these conditions. We defined these 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

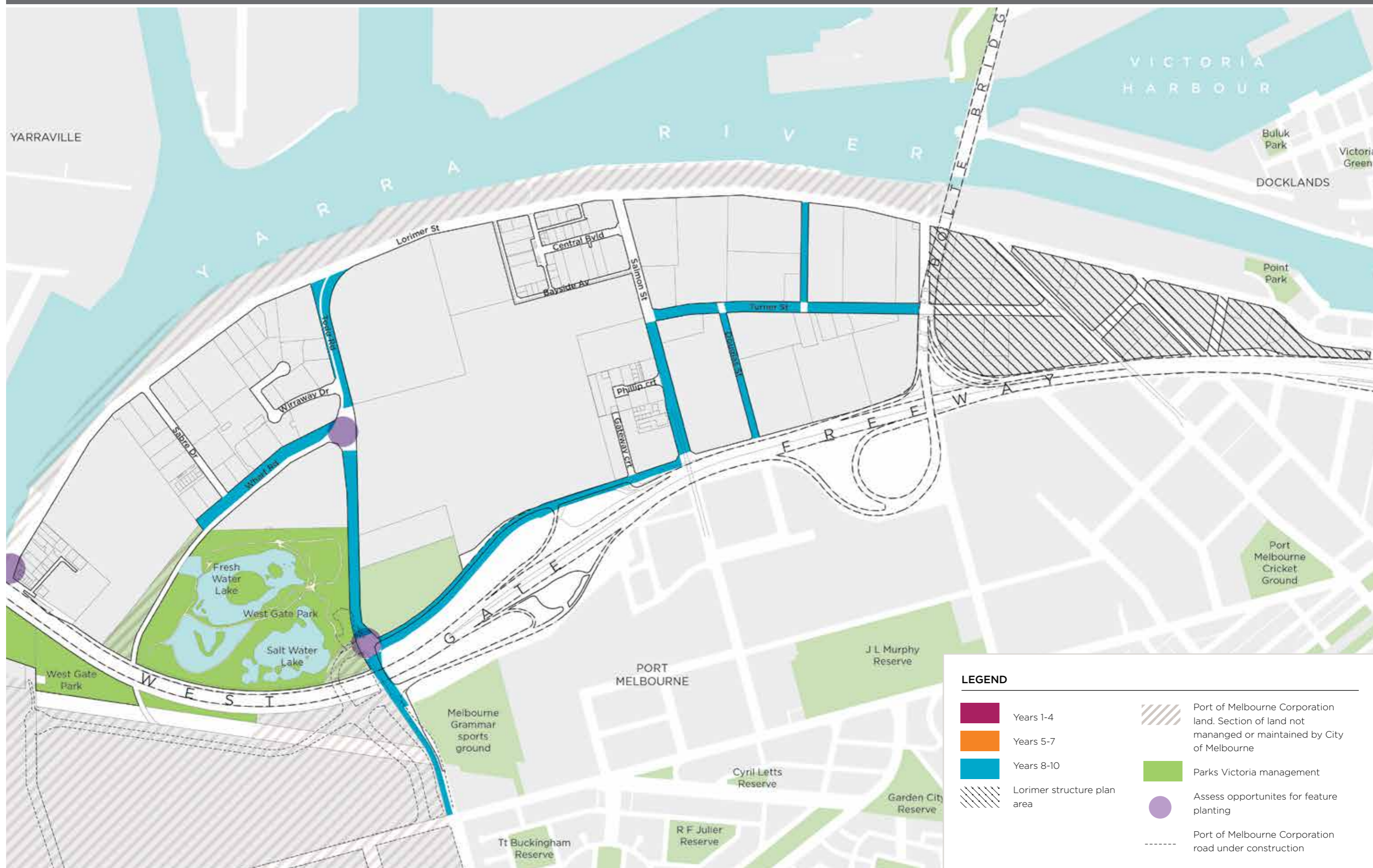
- Review Streetscape objectives
- Review What should change (Map 7)
- Review Planting plans (Map 8, 9 & 10)
- Review species palette



### Implement planting

- Produce streetscape design options
- Consult with residents
- Plant

MAP 1: PLANTING PRIORITIES



## PRIORITISING TREE PLANTING IN STREETS CONTINUED

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 Fishermans Bend specific principles are outlined below.

### 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. Fishermans Bend's wide streets provide opportunities for median planting as well as the reuse of existing road corridors as new open space links.

Kerb outstands 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. Roundabouts and closed road ends should be considered as opportunities to plant large canopy trees and create landmark feature landscapes with supporting understorey planting.

The prevalence of overhead wires throughout Fishermans Bend limit the potential for large, natural canopy growth.

Where medians or nature strips 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.

Creative strategies for greening these streets, including the potential contribution of the private realm, will need to be considered.

Outcomes that improve the pedestrian environment should always be prioritised. Opportunities for understorey planting with a biodiversity and pedestrian environment objective should be considered where possible.

The wide streets throughout the precinct are ideally suited to central median plantations; however movements by large trucks through some of the key streets will constrain the available extent of median construction.

Growing conditions in the precinct are relatively harsh, due to the soil and exposure to coastal wind, therefore a range of hardy, largely native, species will be required.



*Roundabouts and closed road ends should be considered as opportunities to plant large canopy trees and create landmark feature landscapes with supporting understorey planting.*



*Small tree under powerlines: The prevalence of overhead wires throughout Fishermans Bend limit the potential for large, natural canopy growth.*



*Tree trimmed under powerlines*

## PRIORITISING TREE PLANTING IN STREETS CONTINUED

### Planting Patterns and Species Choice: Adopt planting patterns that increase diversity

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 (e.g., 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, etc.).

Fishermans Bend presents a range of challenges for tree growth due to the underlying soil conditions, wind exposure, saline air, and with increased urban density solar access will also be an important consideration. Planting site preparation, stock selection and to an extent species trials are critical to establishing the successful future urban forest for Fishermans Bend. Use a balance of proven and trial species to increase diversity but limit the use of trial species in streets to less than 10% of the precinct tree population.

Select 'shorter-lived' (~50 years) species in approximately 10% of each sub-precinct to better balance future age distribution across Fishermans Bend. These selections should be focused in areas or planting positions where losses will have a lower impact on shade provision (e.g., where there are large, long-lived trees in medians or on one side of the street, or in landmark/biodiversity plantings).



Use informal mixes of species where acceptable (e.g., perimeters of parks and gardens, streets where most trees senescent but important established specimens remain, streets where vegetation from private landscapes occasionally overhangs into street space, etc.).

### 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 or cells below permeable paving
- increasing soil volume
- WSUD tree pits or infiltration pits
- stormwater harvesting
- improving existing soil quality and water holding capacity

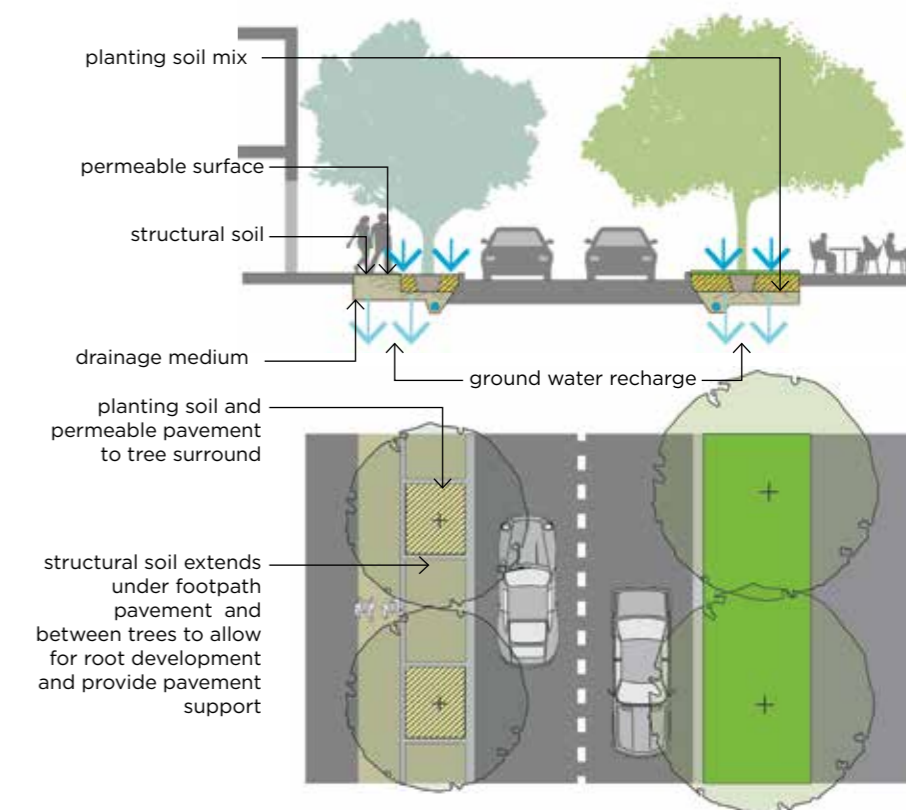
Fishermans Bend is located on what was the Yarra River Delta with native soils of fine to medium sand overlying Coode Island Silt, overlying Fishermans Bend Silt. Soil texture near the surface would have varied from sandy to silty or sandy clay. However, the soils in the precinct today are likely to consist of variable fill deposited to raise the low lying land above sea level. Some fill is likely to have been sourced from deepening the Yarra, and therefore Coode Island Silts and Fishermans Bend Silts may have been deposited on the surface.

The water table is expected to be relatively shallow throughout the precinct. Periodic inundation with saline water and waterlogging may be encountered due to Fishermans Bend's low, flat elevation, proximity to the river and low water table.

Tree planting and growing conditions may be challenged by natural salinity levels and potential soil and ground water contamination from past site uses. Where this is the case, soil amelioration may be required to support healthy tree growth.



Water infiltration, permeable paving and structural soil or cells provide opportunities to grow larger, healthier trees in paved areas



Improving below ground growing conditions for trees in streets

# GUIDING PRINCIPLES AND CONSIDERATIONS FOR TREE PLANTING

## MAP 2: KEY PLANTING CONSTRAINTS

There are a range of constraining factors that influence opportunities for planting in Fishermans Bend.

**Map 2** illustrates some of the complex site conditions as well as underground and overhead infrastructure which need to be considered when looking at opportunities for planting

This map indicates locations where overhead and underground 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 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.

(Refer Map 2 on page 30)



*Small tree under powerlines*



*Tree trimmed under powerlines*

## MAP 3 & 4: PLANTING OPPORTUNITIES

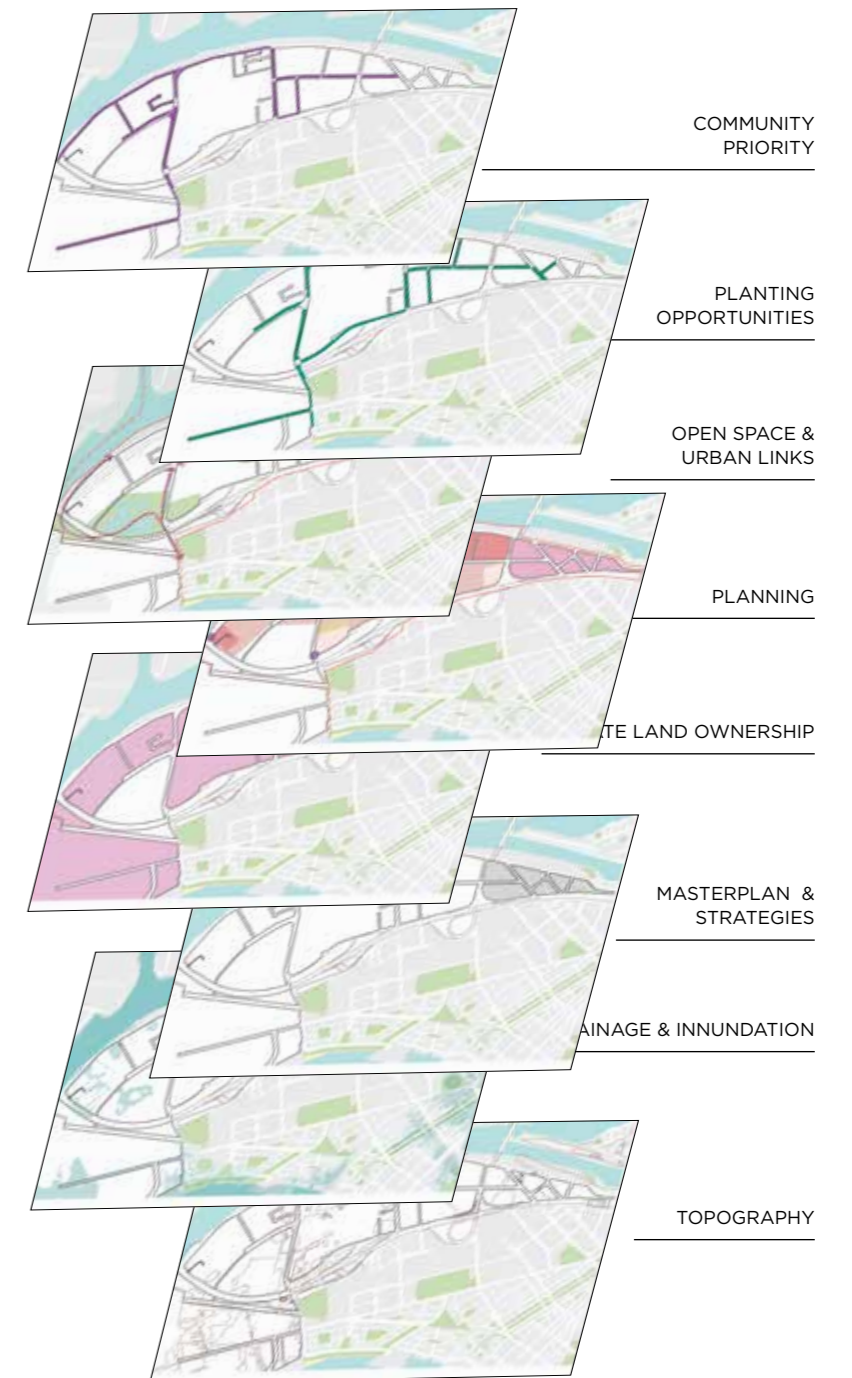
These maps show some of the many layers of information that influence the opportunities and objectives for tree planting in Fishermans Bend's Streets.

**Map 3** illustrates the Natural and Open Space Context which considers the geographic aspects of the precinct as well as open space opportunities.

**Map 4** identifies the Strategic Context for Fishermans Bend. This plan combines planning and urban design factors, land use and connectivity.

The combination of all of these factors will influence the design for streets, the varied role of planting in these streets and species selection.

(Refer Maps 3 & 4 on pages 32 & 34)

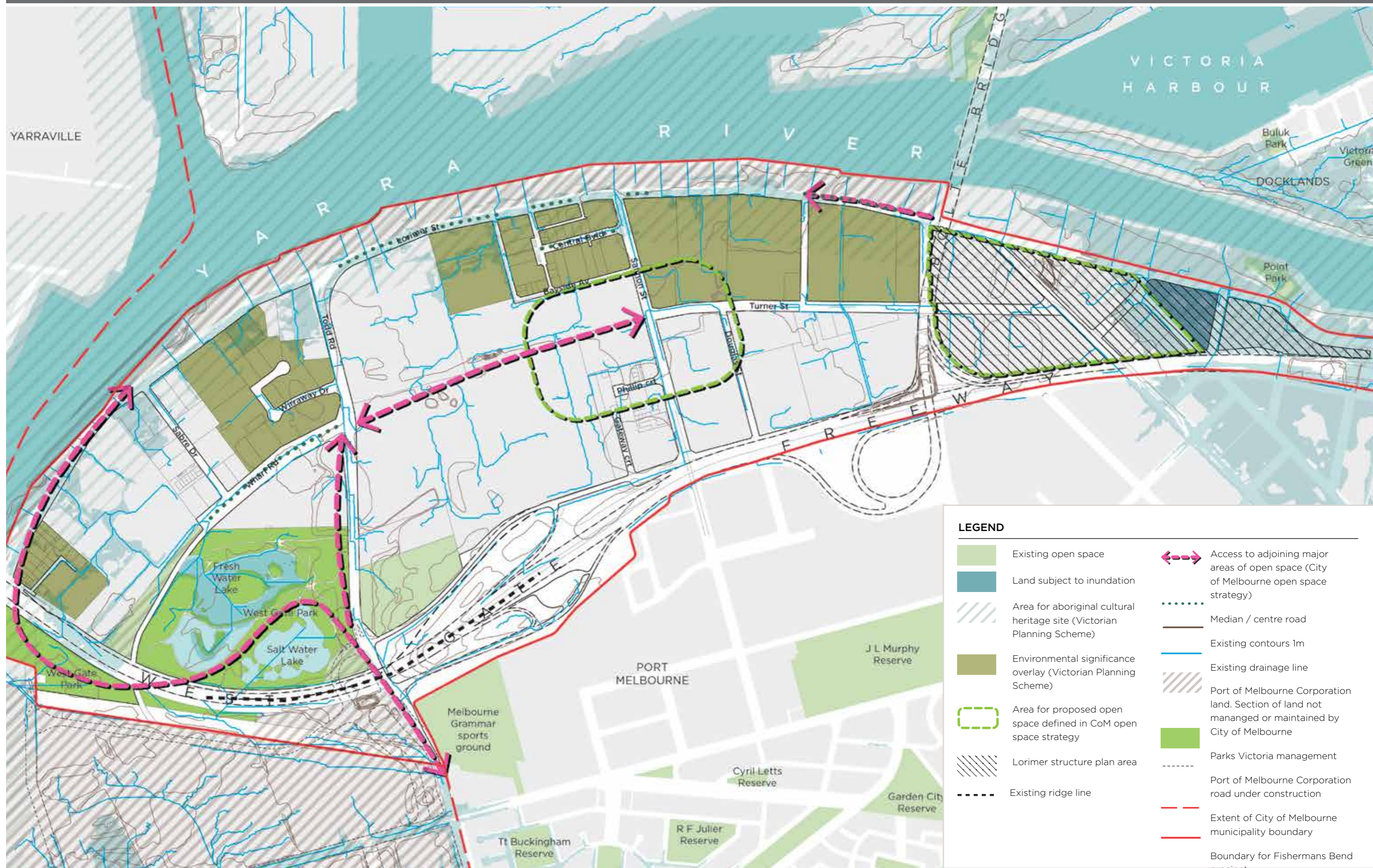


MAP 2: KEY PLANTING CONSTRAINTS

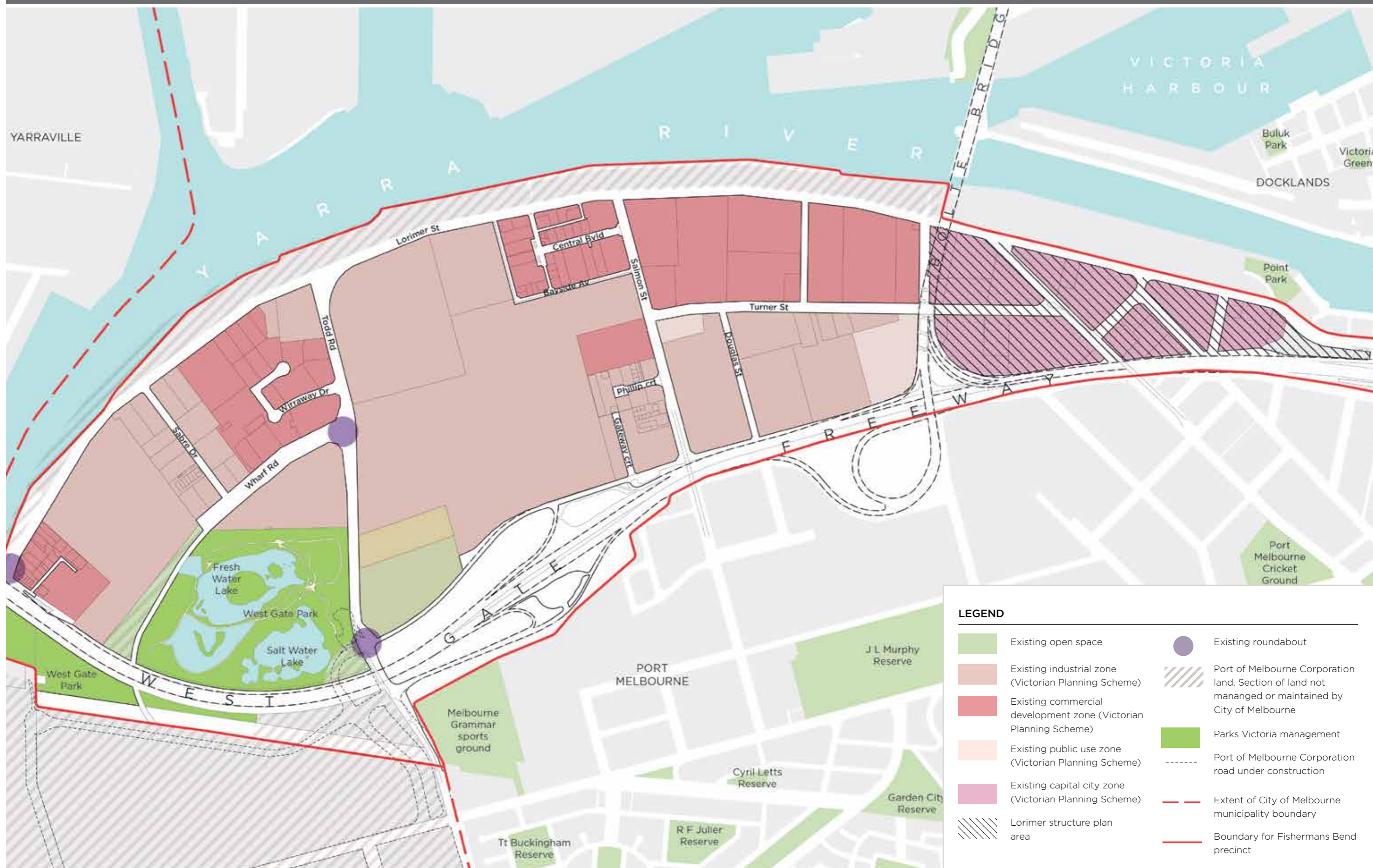




MAP 3: NATURAL AND OPEN SPACE CONTEXT



LEGEND	
	Existing open space
	Land subject to inundation
	Area for aboriginal cultural heritage site (Victorian Planning Scheme)
	Environmental significance overlay (Victorian Planning Scheme)
	Area for proposed open space defined in CoM open space strategy
	Lorimer structure plan area
	Existing ridge line
	Access to adjoining major areas of open space (City of Melbourne open space strategy)
	Median / centre road
	Existing contours 1m
	Existing drainage line
	Port of Melbourne Corporation land. Section of land not managed or maintained by City of Melbourne
	Parks Victoria management
	Port of Melbourne Corporation road under construction
	Extent of City of Melbourne municipality boundary
	Boundary for Fishermans Bend precinct



# GUIDING PRINCIPLES AND CONSIDERATIONS FOR TREE PLANTING **CONTINUED**

## MAP 5: PLANTING SUB-PREINCTS

The following sub-precincts identify opportunities for creating diversity in the Urban Forest to increase canopy cover, enhance ecological diversity and manage risk factors.

### Westgate Park Precinct

The significant ecological value of Westgate Park (managed by Parks Victoria) is central to the character of Fishermans Bend and to the important role of the broader precinct in supporting its ecosystem. The amenity and recreational value of the park should be extended and better connected with the surrounding urban fabric as was highlighted by the community through the consultation process.

### Waterfront Precinct

Whilst much of the Fishermans Bend waterfront is under Port of Melbourne Corporation management, the publicly accessible section of the river edge at the western end highlights the potential for improvement of both the ecological and amenity value at this important interface.

This is one of only very few areas downstream of the CBD which has a natural interface with the waters edge. Substantial planting has been undertaken here which helps support overall habitat provision.

### Holden Precinct

This precinct comprises several finer grain subdivisions in addition to the expansive factory sites. Whilst most of these sites are dominated by factories, buildings and paved surfaces, the vegetation within the private realm contributes to the urban forest. Future development of this precinct should look to link the west and east ends of Fishermans Bend, and at how this mixed use employment land uses can integrate green infrastructure and open space, in both the public and private realm.

### Salmon Precinct

Central to Fishermans Bend, the Salmon Precinct is a mix of commercial uses to the north of Turner Street and industry to the south. The Kraft factory is iconic to this precinct. Turner Street's green verge provides the opportunity for linkage between the east and west sides of the Bolte Bridge which divides this precinct from the proposed capital city development in the Lorimer Precinct. Undergrounding of overhead powerlines is necessary to create more opportunities for tree planting and to allow for natural canopy growth.



West gate park precinct: Fresh water lake West Gate park (top) Sabre Street (below)



Waterfront precinct: Yarra river view towards Fisherman's Bend



Salmon precinct: Salmon Street

The following sub precincts are within the Lorimer Redevelopment Precinct with changes to be governed by the Lorimer Structure Plan.

### Turner Street Precinct

Redevelopment of this area will see the transformation of Turner Street into an open space corridor with new adjoining street layouts with a much finer grain than the current industrial area. Access for light to the open spaces will be a key consideration for the new urban form, as will balancing the needs for open space amenity and activity with ensuring these new spaces play a key role as green infrastructure particularly for water management.

### Lorimer Central Precinct

This zone is anticipated to be the community hub of the densified urban development. The new public realm will need to ensure that streetscapes and open spaces provide comfortable microclimates for people, with tree selection to be informed by the need for seasonal light, wind protection, wayfinding and character.

### Lorimer East Precinct

This low lying area to the east of the Lorimer Precinct will be more prone to flood inundation. The new urban fabric will need to include open spaces designed to manage and be resilient to these events, including plantings adapted to these variable conditions.



Proposed Lorimer open space network



Lorimer central precinct : Lorimer Street



Lorimer East precinct : Lorimer Street



# GUIDING PRINCIPLES AND CONSIDERATIONS FOR TREE PLANTING **CONTINUED**

## MAP 6: CANOPY COVER AND BIODIVERSITY OUTCOMES

### 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 and other infrastructure that limits the opportunities for tree planting. Planting configuration should seek to maximise canopy cover in all cases.

### Biodiversity

The Yarra River and Westgate Park are a critical part of the city's ecology corridors and the Precinct Plan will look to enhance habitat and biodiversity connections along the waterways, drainage lines and through connected open space.

Opportunities to enhance biodiversity would include selecting bird and pollinator attracting species and adding layers of vegetation to provide structural diversity. Avenue and linear open space corridors along Lorimer Street and Turner Street will also play a key role.


Other streets may also provide opportunities for understory planting.

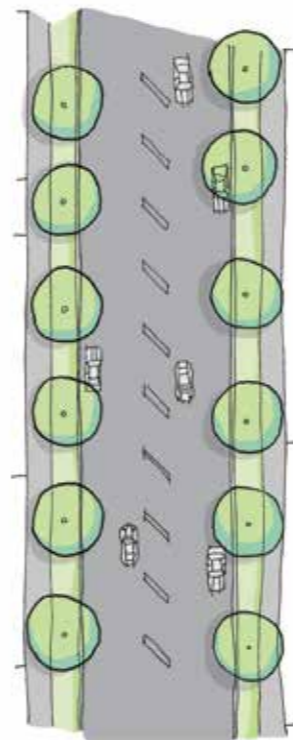
Species choices for understory planting should factor in light conditions, competition with existing plantings and maintenance requirements related to irrigation and access.


(See adjacent images for examples of canopy cover and biodiversity outcomes)

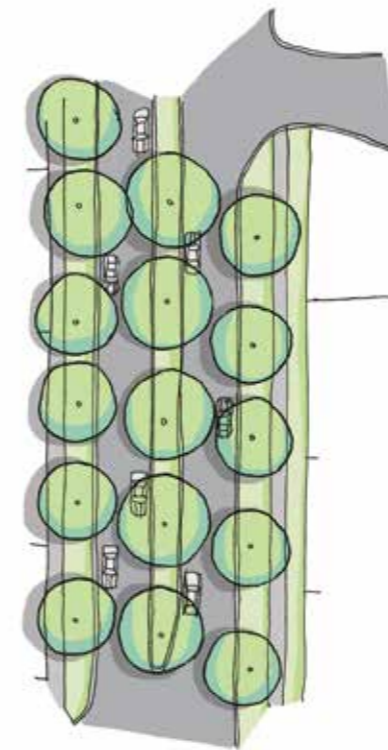
## MAP 7: WHAT SHOULD STAY AND WHAT SHOULD CHANGE?


Native trees should be planted in streets where there is an opportunity to link or provide biodiversity corridors. To increase diversity, it is preferable that a variety of native trees from different genera and species are planted, with targeted use of species from the family Myrtaceae. Planting trees in segments or as mixed groups will also improve spatial diversity.

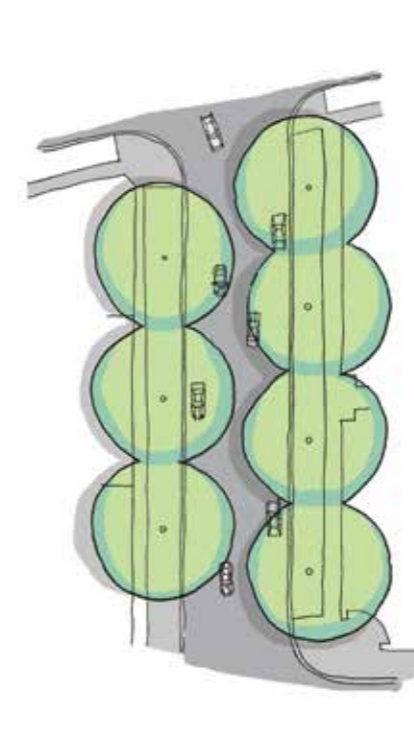
 Minimum canopy cover of 20%



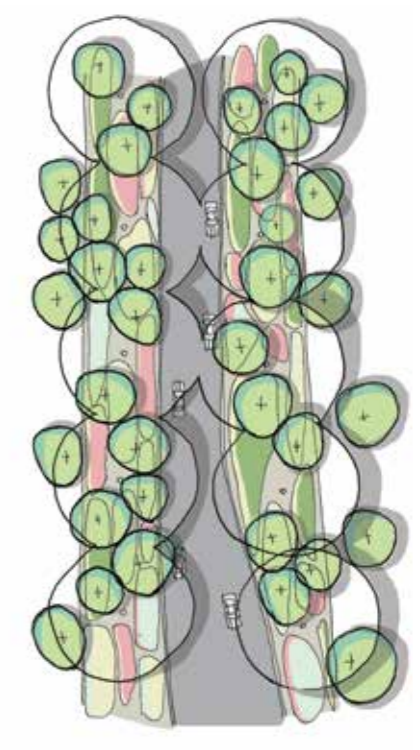
 Minimum canopy cover of 20 - 40%



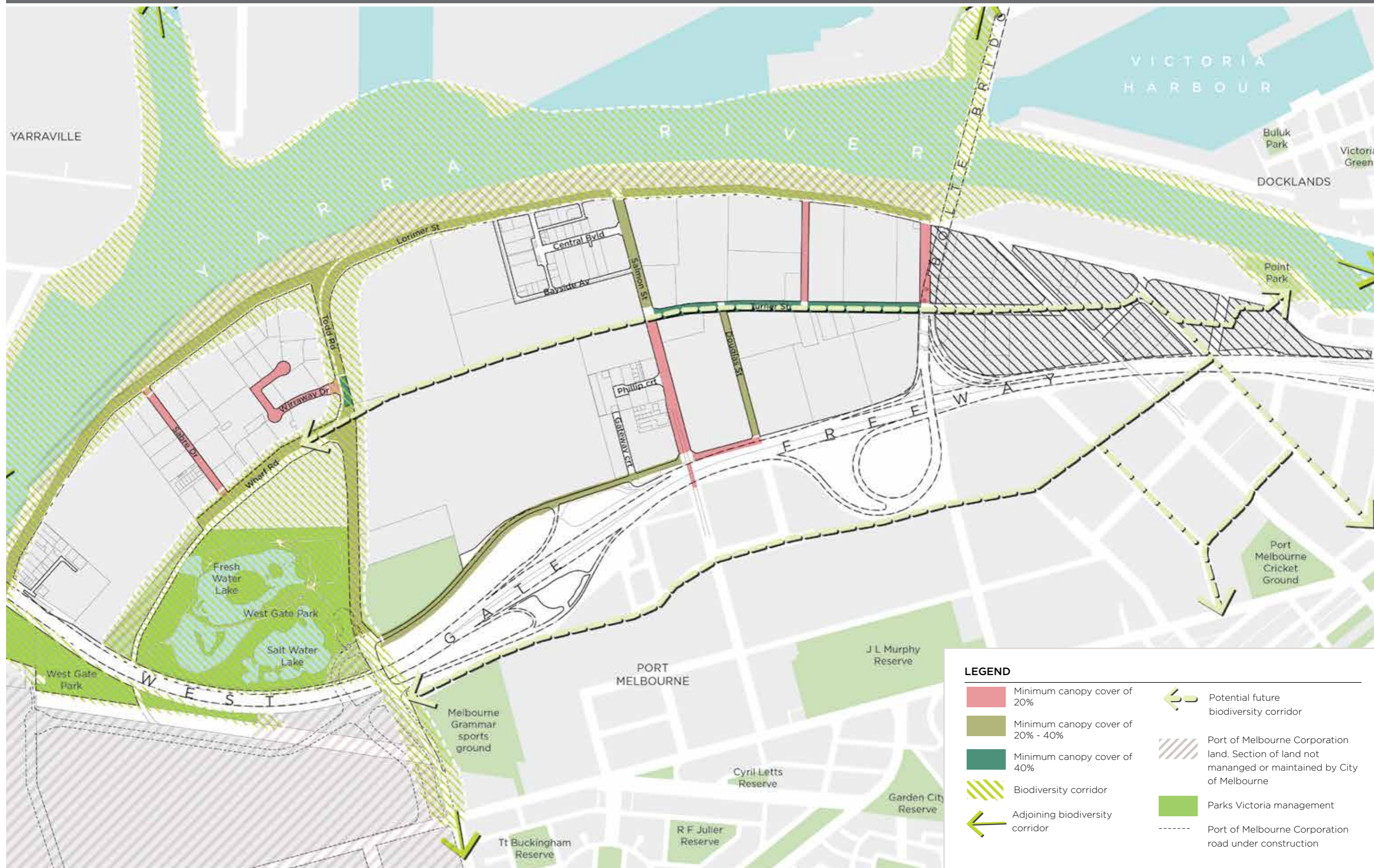
 Minimum canopy cover of 40%



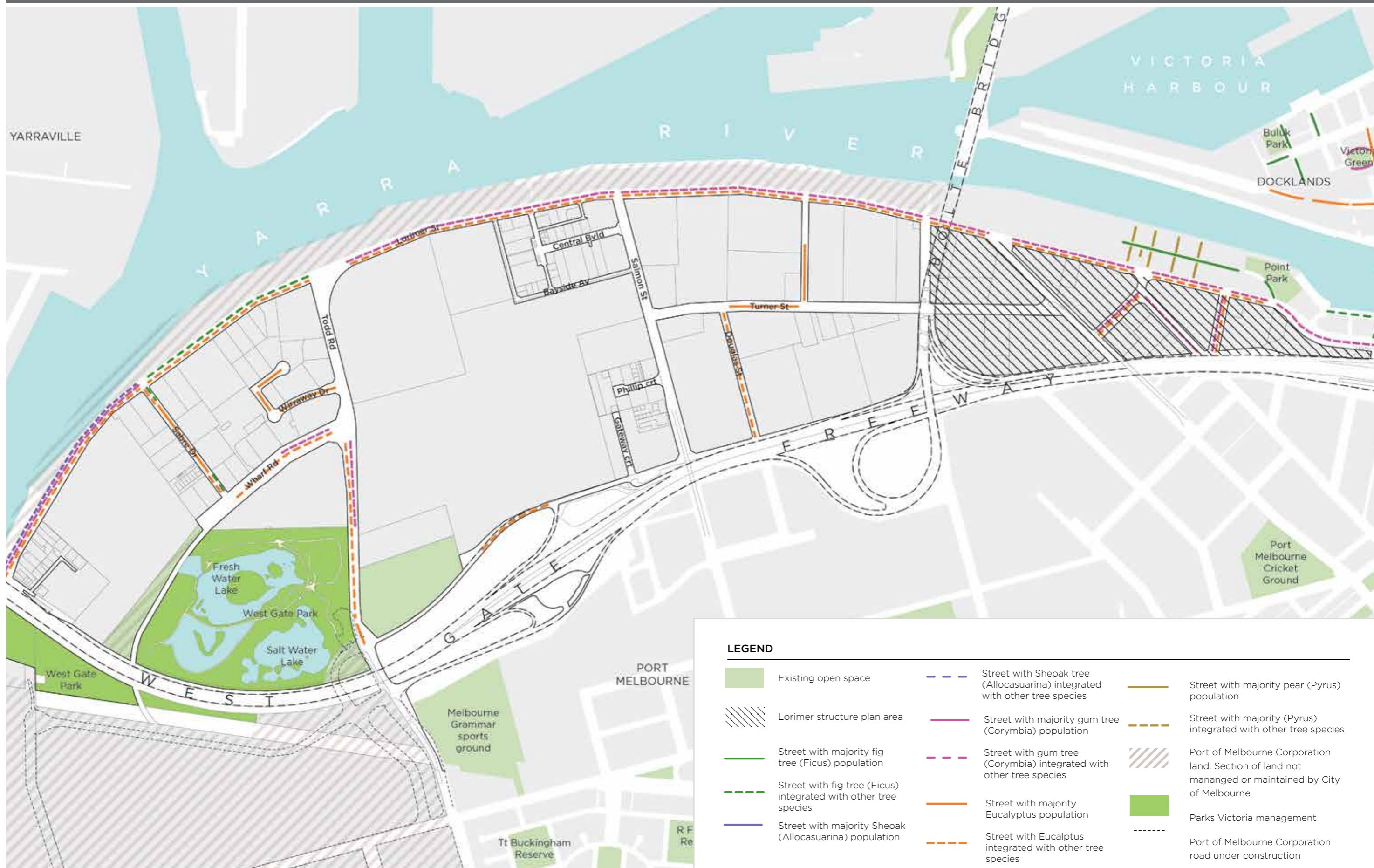
 Biodiversity objective maximise canopy


















MAP 6: CANOPY COVER AND BIODIVERSITY OUTCOMES



MAP 7: WHAT SHOULD STAY AND WHAT SHOULD CHANGE?



**LEGEND**

- |   |   |   |  |   |  |
|---|---|---|--|---|--|
|  | Existing open space   |  | Street with Sheoak tree (Allocasuarina) integrated with other tree species |  | Street with majority pear (Pyrus) population   |
|  | Lorimer structure plan area                                     |  | Street with majority gum tree (Corymbia) population                        |  | Street with majority (Pyrus) integrated with other tree species                                    |
|  | Street with majority fig tree (Ficus) population                |  | Street with gum tree (Corymbia) integrated with other tree species         |  | Port of Melbourne Corporation land. Section of land not managed or maintained by City of Melbourne |
|  | Street with fig tree (Ficus) integrated with other tree species |  | Street with majority Eucalyptus population                                 |  | Parks Victoria management  |
|  | Street with majority Sheoak (Allocasuarina) population          |  | Street with Eucalyptus integrated with other tree species                  |  | Port of Melbourne Corporation road under construction  |

# PLANTING STRATEGIES

The following set of plans specifically identifies outcomes for tree planting. They provide the framework for change within each street in the precinct with design outcomes informed by all of the other factors outlined in the previous maps.

## MAP 8: 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:
- Enhance the character of park perimeter streets through plantings that respond to the character and scale of the park perimeter.
- Maximise the potential for tree canopy where planting opportunities are limited.
- Enhance the connections of the streetscape to the ecology of the Yarra and Maribryngong River corridors and Westgate Park, and connections to adjacent municipalities.
- Create streets that provide connections between open spaces.
- Incorporate diversity, colour and seasonal change into species selections.

## MAP 9: 10-YEAR PLANTING PLAN

This plan provides direction on where new and replacement planting is to occur across Fishermans Bend. 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 where permeability could be improved through interventions such as new open spaces, park expansions or new medians.

## MAP 10: GUIDE TO SPECIES CHANGE

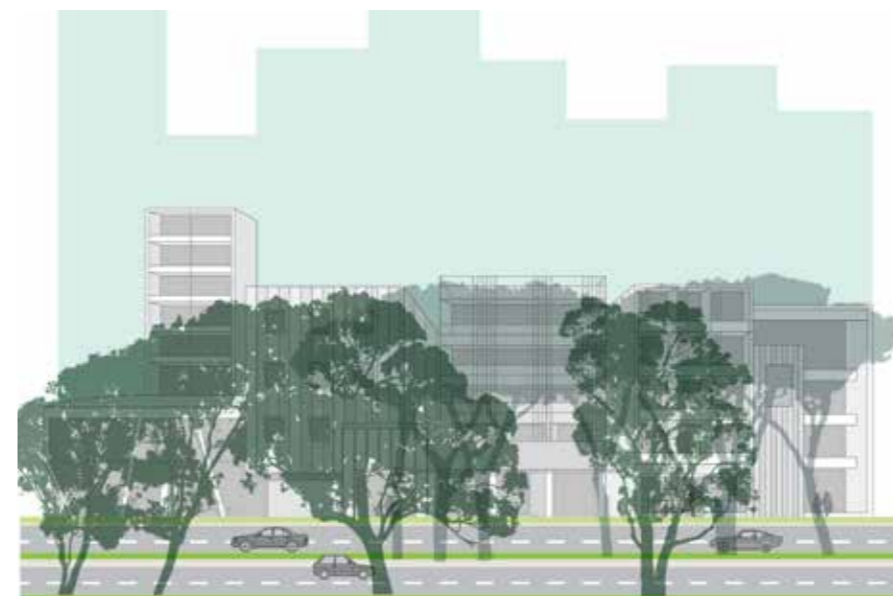
This map indicates locations along streets where a change in species is logical based on sub-precinct boundaries, topographic factors or objectives defined for streets within this plan. The colours do not indicate species distribution or specific species. Rather, they represent points of species change, 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. Introduce greater diversity in kerb outstands, roundabouts and road ends. In streets use a single species for multiple segments then change between sub-precinct boundaries, or consider the use of two alternating species of similar form, scale and colour. In narrow streets and where there are powerlines on one side only use asymmetrical plantings of different species on each side of the street. When appropriate, use informal mixes of species along perimeters of parks and gardens or where vegetation from private gardens overhangs the streets.

These illustrations provide an example of how these three aspects would apply in a particular street.



*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.*

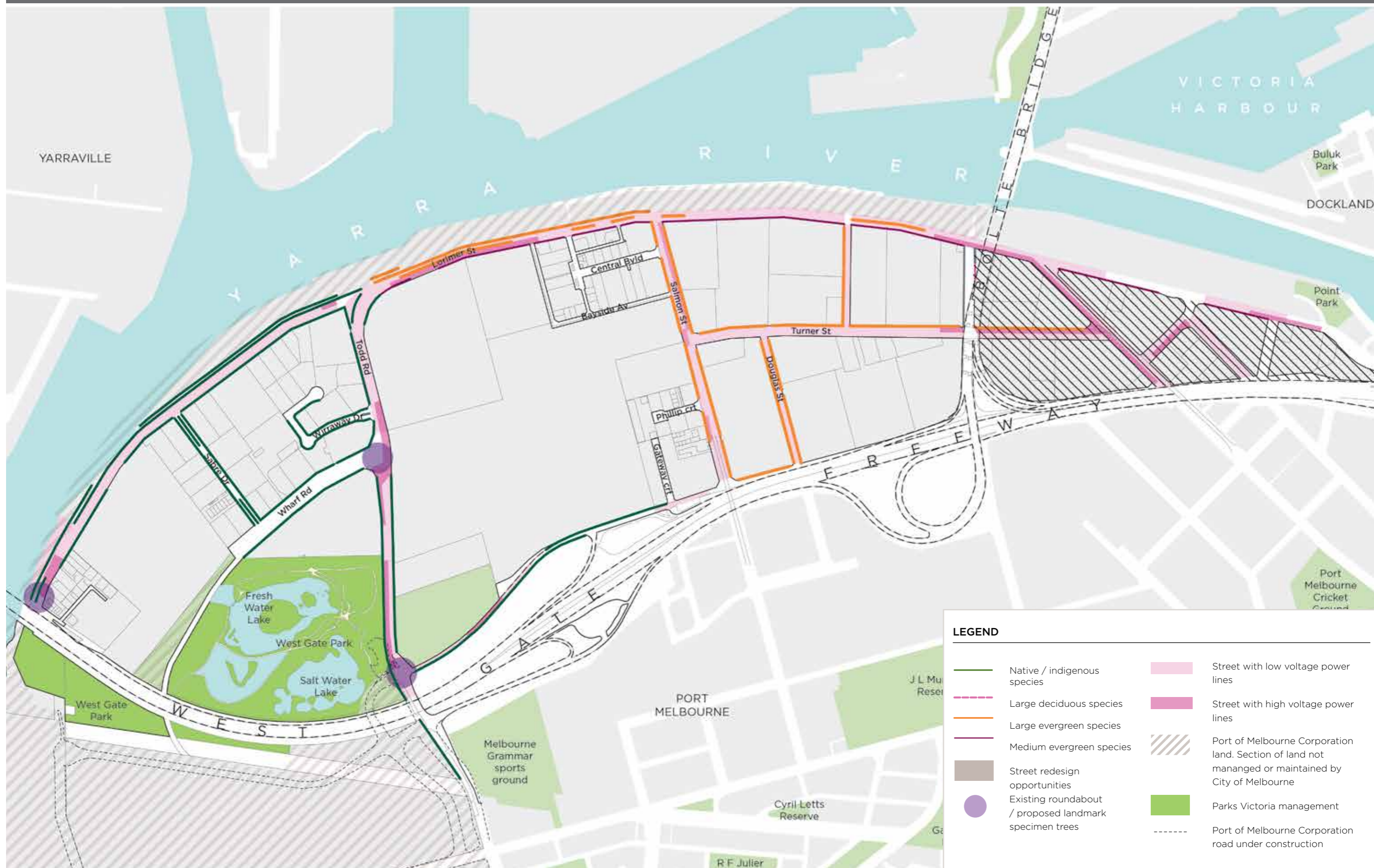


*Long term planting plan: This strategy provides the long-term direction for planting in the precinct*



*10-year planting plan: New and replacement planting is to occur across Fishermans bend*

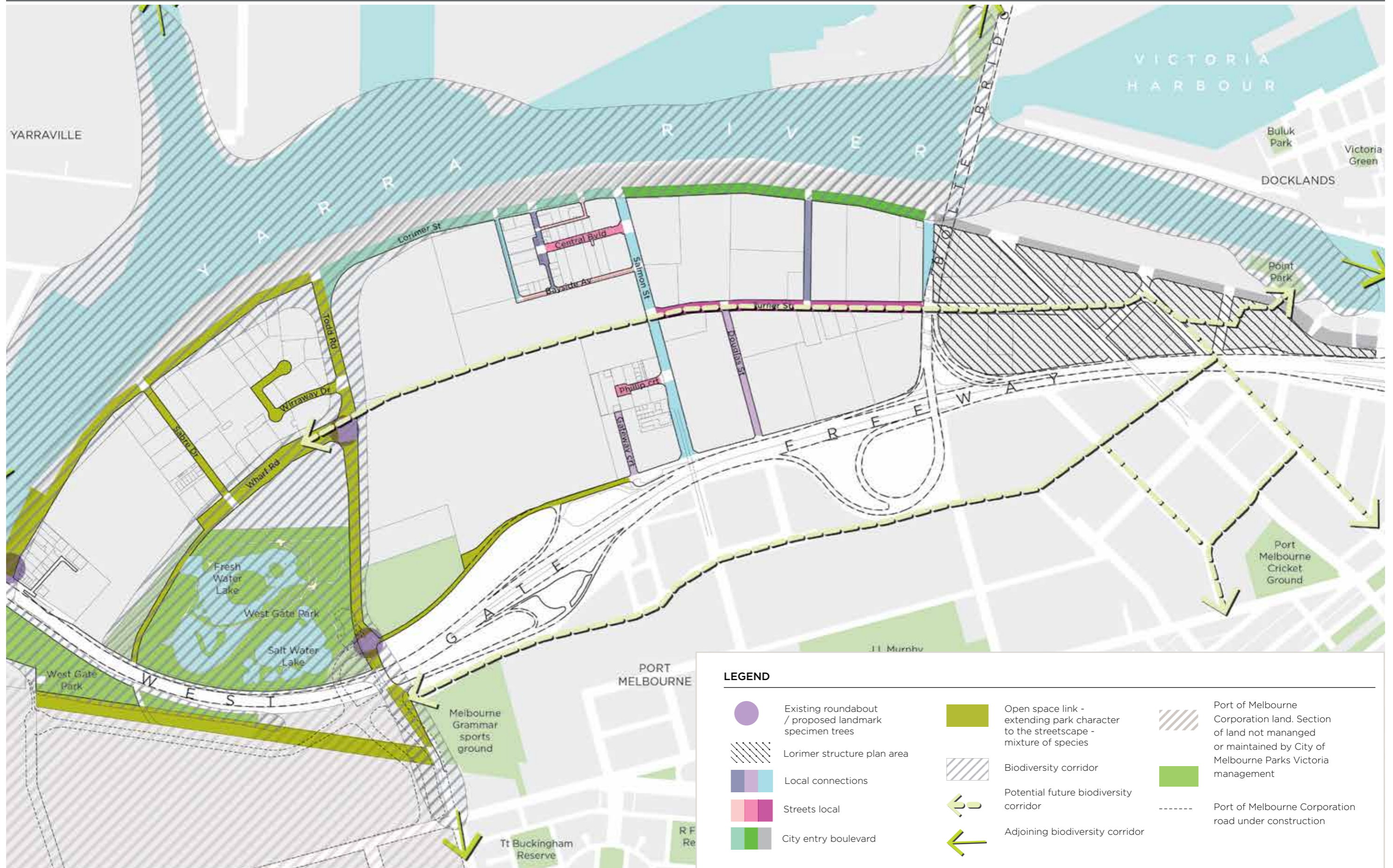






**LEGEND**

	Existing open space		EXISTING Large evergreen tree
	Lorimer structure plan area		Large deciduous tree
	Existing roundabout / proposed landmark specimen trees		Medium - small deciduous tree
	Port of Melbourne Corporation land. Section of land not managed or maintained by City of Melbourne		REPLACEMENT Large evergreen tree
	Parks Victoria management		Large deciduous tree
	Port of Melbourne Corporation road under construction		Medium - small deciduous tree
			NEW Large evergreen tree
			Large deciduous tree
			Medium - small deciduous tree



# 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 Fishermans Bend.

## Guiding Principles and Planting

Allocasuarina, Eucalyptus and Corymbia are key genera within Fishermans Bend forming an important part of the 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 Fishermans Bend 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 Fisherman's Bend Trees

- *Allocasuarina ssp.*
- *Eucalyptus spp.*
- *Corymbia spp.*

## Large trees for streets

### Evergreen

- *Calodendron capense* (Cape Chestnut)
- *Casuarina cunninghamiana* (River She-oak)
- *Cinnamomum camphora* (Camphor Laurel)
- *Eucalyptus leucoxylon* subsp. *connata* (Yellow Gum)
- *Ficus macrophylla* (Moreton Bay Fig)
- *Ficus platypoda* (Rock Fig)
- *Grevillea robusta* (Silky Oak)
- *Harpephyllum caffrum* (South African Wild Plum)
- *Schinus terebinthifolius* (Brazilian Pepper Tree)
- *Vitex lucens* (Puriri)

### Deciduous

- *Acer platanoides* (Norway maple)
- *Maclura pomifera* 'Wichita' (Wichita Osage Orange)
- *Taxodium distichum* (Bald Cypress)
- *Tipuana tipu* (Rosewood)
- *Quercus cerris* (Turkey Oak)
- *Quercus phellos* (Willow Oak)
- *Quercus ilex* (Holm oak)

## Medium to small trees for streets

### Evergreen

- *Banksia integrifolia* (Coast Banksia)
- *Cupaniopsis anacardioides* (Tuckeroo)
- *Ceratonia siliqua* (Carob Tree)
- *Eucalyptus torquata* (Coral Gum)
- *Harpulia pendula* (Tulipwood)
- *Hibiscus tiliaceus* (Coast Cottonwood)
- *Metrosideros excelsa* (New Zealand pohutukawa)
- *Olea europaea* (Olive)

### Deciduous

- *Fraxinus velutina* (Velvet Ash)
- *Fraxinus pennsylvanica* (Green Ash)
- *Gleditsia triacanthos f. inermis* (Thornless Honey Locust)
- *Pyrus calleryana* (Callery Pear)
- *Sapium sebiferum* (Chinese tallow tree)
- *Koelreuteria paniculata* (Goldenrain tree)

## Large feature trees

- *Araucaria columnaris* (Cook's Pine)
- *Araucaria heterophylla* (Norfolk Island Pine)
- *Butia capitata* (Jelly palm)
- *Ceiba speciosa* (Silk-floss Tree)
- *Dracaena draco* (Dragon Tree)
- *Eucalyptus viminalis* subsp. *pryoriana* (Gippsland Manna Gum)
- *Phoenix reclinata* (Senegal Date Palm)
- *Pinus halepensis* (Aleppo Pine)
- *Pinus nigra* (Black Pine)
- *Pinus pinea* (Stone Pine)
- *Quercus suber* (Cork Oak)

## 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](http://melbourne.vic.gov.au/urbanforest)

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

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 learn more about the Citizen Forester volunteer program, please email your details to [melbourneurbanforest@melbourne.vic.gov.au](mailto:melbourneurbanforest@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 [melbourneurbanforest@melbourne.vic.gov.au](mailto:melbourneurbanforest@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 [melbourneurbanforest@melbourne.vic.gov.au](mailto:melbourneurbanforest@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](http://melbourne.vic.gov.au)

## How to contact us

**Online:** [melbourne.vic.gov.au](http://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

**Translation services:**

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03 9280 0725	Việt Ngữ
03 9280 0726	All other languages

**National Relay Service:** If you are deaf, hearing impaired or speech-impaired, call us via the National Relay Service: Teletypewriter (TTY) users phone 1300 555 727 then ask for 03 9658 9658 9am to 5pm, Monday to Friday (Public holidays excluded)

[melbourne.vic.gov.au](http://melbourne.vic.gov.au)



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