Report to the Future Melbourne (Environment) Committee **Agenda Item 6.2**

Urban Forest Precinct Plans 2013 – East Melbourne and Jolimont, Carlton, Central City and South Yarra. **19 November 2013**

Presenter: Ian Shears - Manager Urban Landscapes

Purpose and background

1. This report is seeking endorsement of the Urban Forest Precinct Plans for the precincts of Carlton, Central City, South Yarra, East Melbourne and Jolimont

2. The Urban Forest Strategy identifies that 10 precinct plans be developed in collaboration with the community over three years to spatially guide the implementation of the strategy's key targets which include doubling canopy cover and increasing diversity.

3. Over the past year four Urban Forest Precinct Plans (UFPPs) have been developed collaboratively with the community for the precincts of East Melbourne and Jolimont, Carlton, Central City and South Yarra (refer Attachments 3 - 6).

4. Work is currently underway to develop UFPPs for North and West Melbourne, Kensington and Docklands and is expected to be completed by June 2014.

Key issues

5. An extensive community engagement process was undertaken to develop the draft UFPPs from February 2013 to June 2013 to seek input from the wider community, including children and relevant stakeholders. (refer Attachment 2).

6. A range of methods were employed to ensure that consultation and communications were as wide reaching as possible. These included an online forum, intercept survey, direct stakeholder meetings and four precinct based community meetings.

    6.1. The precinct based community meetings were attended by 148 people.

    6.2. 428 people in Carlton and East Melbourne participated in street intercept surveys that explored perceptions of neighbourhood and urban forest character.

    6.3. The online forum received 4310 unique visitors and a total of 13905 page views. Documents from the site were downloaded 1113 times.

    6.4. The Urban Forest Visual site which allowed the community to engage with the tree data and workshop information (http://melbourneurbanforestvisual.com.au/). The site received 1329 visits.

7. Following consultation the UFPPs were drafted using information and feedback provided. The draft UFPPs were distributed to the public for comment for a period of three weeks in October.

8. In the three week period for additional comment, the documents were downloaded 357 times. Feedback was positive and supportive for the UFPPs.

Recommendation from management

9. That the Future Melbourne Committee:

    9.1. Endorse the Urban Forest Precinct Plans for the precincts of Carlton, Central City, South Yarra, East Melbourne and Jolimont.

Attachments:
1. Supporting Attachment
2. Attachment 2: Consultation report
3. Attachments 3-6: Urban Forest Precinct Plans

SUPPORTING ATTACHMENT

Legal

1. No direct legal issues arise from the recommendation from management.

Finance

2. There is an operational budget allocated to the Urban Forest Precinct Plans (UFPPs) which covers costs incurred through the running of community engagement events and preparation of the UFPPs.

3. The Annual Tree Planting and Adaptation Renewal budgets will need to be maintained in an ongoing manner to implement the UFPPs. This budget is $3.925 million for the 13/14 financial year.

Conflict of interest

4. No member of Council staff, or other person engaged under a contract, involved in advising on or preparing this report has declared a direct or indirect interest in relation to the matter of the report.

Stakeholder consultation

5. The City of Melbourne Parks and Gardens Advisory Committee has provided valuable input into the identification of issues to be addressed in the UFPPs.

6. Extensive external consultation was undertaken to prepare the drafts in collaboration with the community (refer Attachment 2 for full details of the consultation).

7. A range of methods were employed during the engagement process to ensure that consultation and communications were as wide reaching as possible. This included an online forum, intercept survey, direct stakeholder meetings and four precinct based community meetings.

Relation to Council policy

8. The UFPPs relate to and are consistent with the following policies and strategies:

    8.1. Council Plan 2013-2017 Goal: An Eco-City

    8.2. Urban Forest Strategy (2012)

    8.3. Open Space Strategy (2012)

    8.4. City North Structure Plan (2012)

    8.5. Climate Change Adaptation Strategy (2009).

9. Total Watermark; City as a Catchment (2008).

Environmental sustainability

10. Environmental sustainability issues have been a priority in the development of this report. The implementation of the UFPPs will:

    10.1 Increase canopy coverage and vegetation in each precinct toward the City's target of 40 per cent canopy cover by 2040.

    10.2 Decrease waste water generation, lower air pollution, increase carbon storage and sequestration, reduce energy consumption in summer months and mitigate the urban heat island effect through increased canopy cover.

    10.3 Will minimise the future maintenance costs while maximising the benefits provided by planting more trees in the city through appropriate species selection, permeable pavement, soil volume improvement and water sensitive urban design initiatives

    10.4 Provide an array of other environmental sustainability benefits including contributions to biodiversity, shading of surfaces, cooling, human mental and physical health benefits, a connection with nature, and promoting social cohesion.

Urban Forest Precinct Plan Consultation Report 2013

Public Review Period for Draft Plans 2
City of Melbourne Urban Forest Community Engagement analysis 4
Summary of the urban forest community engagement data analysis 5
Public Survey (Topline) Analysis 5
Community engagement workshops 11
Appendix 1 – Statistical analysis of Topline results 15
Carlton 16
Background 16
What We Were Told: Community Workshop, 2 March 16
What We Were Told: Children's Consultation 21
What We Were Told: Street Intercept Survey 23
What we were Told: Harmony Day March 21 24
What We Were Told: Online Conversation 24
Summary of Key Messages from Carlton Consultation 25
East Melbourne 26
Background 26
What We Were Told: Community Workshop, 6 April 26
What We Were Told: Street Intercept Survey 33
What We Were Told: Online Conversation 34
Summary of Key Messages from East Melbourne Consultation 35
South Yarra 36
Background 36
What We Were Told: Community Workshop, April 20 36
What We Were Told: Children's Consultation 41
What We Were Told: Online Conversation 42
Summary of Key Messages from South Yarra Consultation 42
Central City 43
Background 43
What We Were Told: Community Workshop, 4 May 43
What We Were Told: Online Conversation 48
Summary of Key Messages from Central City Consultation 49

Public Review Period for Draft Plans

The draft precinct plans were posted to Participate Melbourne from October 4 to October 25 2013. Emails announcing their release were sent to every person who attended a consultation event and to the urban forest email list (approximately 700 emails). Over the three week review period the documents were viewed 357 times. In total, 5 comments were submitted on the plans (4 to Participate Melbourne and 1 via email).

Comment submitted via email

1. Just a quick note to the effect that I think the plan should avoid trees/plants that contribute to seasonal rhinitis i.e. hay fever. In particular the plan trees that line many of our Carlton streets are an immense source of pollen. Melbourne has some of the highest rates of high pollen days and hay fever/asthma in the world causing persistent annual medical suffering and community expenses. These trees also dump a lot of pollen and other seed waste onto the streetscape from September to March. As such I think Plane trees should henceforth be banned from Carlton and other streets. Native trees do not contribute much to our dangerously high pollen counts nor allergy and so would be much better choices.

Plan response: The plans commit to reducing the number of plane trees in Carlton (and elsewhere) and do not propose their use in new tree plantings. Plane trees may be planted as replacements in limited locations where they are the best tree for that location.

Comments submitted via Participate Melbourne:

1. It is great to see that urban forest planning is being taken seriously!

Plan response: None required.

2. My thoughts/opinions are as follows:

First, I wholeheartedly agree that a greater diversity of trees is needed. We rely too heavily on a select few species. We currently have an excessive number of exotic trees (mainly elm trees and plain trees) throughout the city, mainly as a result of the Eurocentric garden culture that dominated well into the 1970s. We have since matured as a nation and as a city, and we should now be more patriotic in our choice of plantings (and more acutely aware of the greater environmental/ecological benefit of planting native trees rather than exotic trees). A diversity of native (preferably indigenous) trees must feature in future plantings. This is already occurring to some extent (e.g. the avenue of young Kauri Pines – Agathis robusta – in the Fitzroy Gardens) but needs to be made more of a priority. Perhaps the motto should be: "If it does not provide food/habitat for wildlife (i.e. native trees) or food for us (i.e. fruit trees), we should think twice about planting it!"

Second, I am very impressed by the rainwater harvesting projects that are going ahead. Keep up the good work!

Plan response: The plans do propose a mixture of both native and exotic species as future street tree plantings. Plantings with a focus on biodiversity are also proposed where appropriate. We cannot plant only trees that provide food or habitat because of the range of requirements for street tree plantings; however, those values are important in the urban forest and the plans do respond to that.

3. Excellent work urban foresters! The plan is progressive and tactically meticulous. My comments are as follows:

p6: Good use of contrasting pictures on Swanston St. This helps the community visualize a barren street.

p7: Is food production a good idea for street trees? Some may steal the fruit and possibly damage the trees in the process.

p9: It is not immediately clear how to read the Vegetation Health (ULE) infographic. Perhaps consider using a more intuitive illustration or explaining how to read it on p4.

p12: Can we phase out centre of road parking? I recognize the transit constraints. Maybe install raingardens that accommodate both infiltration systems and car parking. Under "Planting Types and Locations", is there literature that shows vegetation calms drivers?

p13: I look forward to council's creativity (para2). Should 'including' read 'include' (para3)? Can the low voltage powerlines be raised?

p14: What do to the asterisks represent in Map 3? They do not appear to be included in the legend.

p15: I do not understand why changes in building height controls influence tree planting. Is it the verandas? If so, are they built to support shrubbery?

p17: It is not clear what should stay/change. Perhaps a table format would be more appropriate.

Misc: How does the city plan to incentivize developers to plant? There also seems to be an absence of conifers in the strategy. I also disapprove of the repetitive use of the word 'whimsy' - simply my opinion.

These are comments from a novice; please forgive my ineptitude. The strategy is a step in the correct direction. Please continue to advise us on how we can help. Excellent work urban foresters!

Plan response: p7: Food production is highlighted as an important value by the community. Specific plantings of productive trees are not proposed in the plans but there is a statement supporting their use in appropriate locations where the community supports it. p9: Expanded in footnote p12: Outside plan scope p13: Corrected p14: Corrected p15: Expanded description p17: Expanded in body text.

4. Great plans, I like these. Especially the vision statements. I'd definitely like to see more diversity in the CBD but I also love the Plane trees, so keep planting those. Look at them now-so wonderful.

Plan response: Plan outlines where plane trees will be maintained within the CBD.

City of Melbourne Urban Forest Community Engagement analysis

Prepared for the City of Melbourne by the Australian Research Centre for Urban Ecology

Version: 1.0

Date: 9th June 2013

Contact: Dave Kendal, ARCUE, dkendal@unimelb.edu.au

Royal Botanic Gardens Melbourne

Australian Research Centre for Urban Ecology

CITY OF MELBOURNE

Summary of the urban forest community engagement data analysis

The survey of the public's values and preferences for the urban forest show that people highly both value and like the urban forest. There was strong support and recognition for the idea that planting trees with large canopies provide important services such as shade, clean water and air, irrespective of the origin or deciduousness of the tree. There was recognition of both natural heritage (native trees and wildlife) and European heritage (for aesthetic and cultural reasons) are important for some people in the community.

The public survey and the photo sorting exercise at the workshops showed that people strongly preferred streetscapes with large, spreading trees with high canopy cover irrespective of the origin (native or exotic) or the configuration (uniform or diverse species) of the trees. People strongly disliked streetscapes with small trees and low canopy cover. While there were some differences in the way native and exotic trees were preferred by the public, both were preferred by some people in the community. Similar tree images were preferred across the different precincts, with some small differences suggesting slightly different character preferences in each precinct.

There was some variation in what people liked based on the way they valued the forest. For example, people who valued ecosystem service provision tended to like large, spreading trees providing high canopy cover more, and people who valued natural heritage and wildlife habitat tended to like native trees more. While there were few demographic predictors of value or preference, people who had been residents longer tended to have stronger views (both positive and negative) across a variety of preference and value groups.

The future character of the urban forest expressed by workshop participants was consistent with the findings of the public survey. Through photo sorting and concept mapping exercises, participants expressed a wide range of views on what they would like the future urban forest to be like. The workshop exercises were a useful process that allowed participants to learn about and respect the views of others. Perhaps most importantly, the workshops highlighted the fact that incorporating community views into the decision making process will lead to a diverse forest (in species diversity, spatial configuration, etc).

Public Survey (Topline) Analysis

Two separate surveys of the general public were conducted as part of urban forest planning for the Carlton and East Melbourne urban forest precincts. Intercept surveys were conducted with randomly selected members of the public. A total of 253 surveys were conducted in Carlton and 179 in East Melbourne. Each survey included of a series of questions on urban forest 'values' (the things about the urban forest people think are important), some photos of streetscapes to find out how much people prefer (or like) different kinds of streetscapes, and some basic demographic questions.

Urban forest preferences

Statistical analysis identified four groups of urban forest images (see Appendix 1 for details of the statistical analysis). People tended to respond similarly to trees within each group, but may have had different responses to different groups.

Group 1: 'Exotic' This group includes small or young exotic trees with a variety of leaf colour and textures

Group 2: ‘Canopy’ This group includes large native or exotic trees with spreading canopies and good canopy coverage of the street using a single species

Group 3: ‘Mixed’ This group includes a mixture of large native and exotic trees with large, dense green canopies (although not spreading to cover the street)

Image J

Image L

Group 4: ‘Urban’ This group includes very small and young trees with poor canopy coverage of the street

Group 5: ‘Native’ This group includes mostly large gum trees with relatively narrow canopies in both single species avenues or more diverse configurations

Image K

Preference for urban forest images

The 'Canopy' and 'Mixed' urban forest images were the most preferred, and the 'Urban' group the least preferred (Figure 1). The 'Exotic' and 'Native' groups were moderately preferred. Participants from the Carlton and East Melbourne precincts had very similar preference with the exception of the 'Exotic' category (which was due to slight differences in the photos used between the surveys).

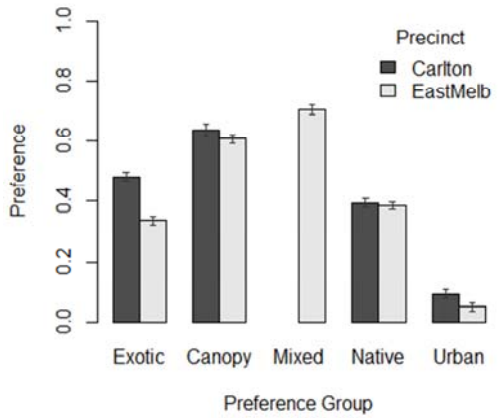


Figure 1 – Mean preference for each urban forest image group. Respondents from each precinct are shown separately. 95% confidence intervals are shown.

Urban Forest Values

Statistical analysis identified three groups of urban forest value questions that people responded to similarly (see Appendix 1 for details of the statistical analysis). The first group related to the ecosystem services provided by trees for people (Table 1). The second related to the use of native trees and provision of habitat for animals. The third related to the aesthetics of trees.

Table 1 – Urban Forest Value Groups.

Value questions	Carlton	East Melb
Group 1: Ecosystem Services		
Q8.Trees providing shade for cooling along streets	Y	Y
Q13.Having lots of trees to provide cleaner air	Y	Y
Q15.Having trees to provide contact with or access to the natural world	Y	Y
Q17.Having large trees to help absorb and clean rainwater	Y	Y
Q4. Having a large variety of tree species to reduce the vulnerability of the tree population to pest and disease	N	Y
Group 2: Nature		
Q9.Native trees that reflect the area's natural heritage	Y	Y
Q14.Trees that provide habitat for animals and birds	Y	Y
Q6. Trees that are evergreen to provide year round greenery	N	Y
Group 3: Aesthetics/culture		
Q11. Trees that lose their leaves in Autumn, which reflect the European cultural heritage of the area	Y	Y
Q10.Trees that vary in size, shape and colour	Y	N
Q12.Trees providing shade over outdoor dining and café space	Y	N
Q7. Having lots of trees to provide cleaner air	N	Y

Questions not included in any group

Q16.Evergreen pines, cypress or olives that reflect the Mediterranean cultural heritage of the area	Y	N

Values for the urban forest

All three value groups were considered important by participants, with the Ecosystem Service and Nature groups valued somewhat more than the aesthetic groups (Figure 3). Responses between participants in the Carlton and East Melbourne precincts were very similar.

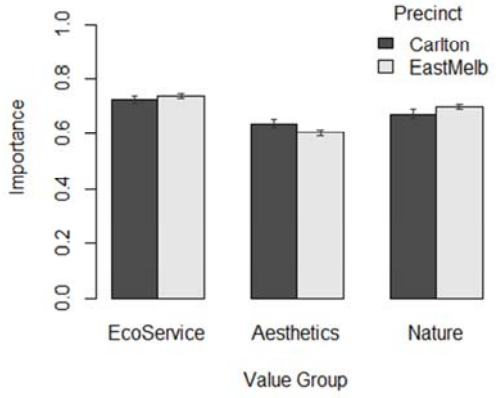


Figure 2 –Overall importance for each urban forest value group. 95% confidence intervals are shown

Relationship between preference and values

There were some weak but sensible relationships between the urban forest questions and the photo preferences (Table 2). This suggests that the public has fairly consistent preferences for different kinds of urban forest streetscapes that are modified slightly by the way they value the urban forest. People who valued the provision of ecosystem services preferred large, spreading canopies and mixed, dense canopies more than other people. People who valued the natural heritage and habitat values of the urban forest tended to prefer native trees, but not exotic trees or largely treeless images. People who valued aesthetic or cultural attributes of the urban forest tended to prefer large canopied trees but not native trees or trees with minimal tree cover.

Table 2 – Correlations between the urban forest question groups and the photo groups. -1 indicates a strong negative correlation, +1 a strong positive correlation, and 0 no correlation. Only correlations with a magnitude greater than 0.1 are shown

	Exotic	Canopy	Mixed	Native	Urban
Ecosystem Services	-0.14	0.16	0.15		-0.17
Aesthetics		0.18		-0.12	-0.11
Nature	-0.19		0.15	0.12	-0.13

Demographic factors

There were also some weak relationships between demographic factors and urban forest values and preferences (Table 3). Females value the Ecosystem Service and Nature attributes of the urban forest somewhat more than men. Older participants tended to value the Aesthetic/cultural values of the urban forest more than younger participants. People from a non-English speaking background tended to value the Ecosystem Service and Nature attributes of the urban forest somewhat less, but had higher preferences for Native trees. Residents preferred the Exotic group somewhat more than non-residents, although this declined with length of residence, while Ecosystem Service and Aesthetic/cultural values increased with length of residence. People living in apartments had somewhat lower values for the Ecosystem Service values of the urban forest.

Table 3 – Correlation between demographic variables and value/preference groups. Only correlations with a magnitude greater than 0.1 are shown

	Value groups			Preference groups				
	Ecosystem Service	Aesthetics	Nature	Exotic	Canopy	Mixed	Native	Urban
Gender (female)	0.22		0.27					
Age		0.18						
LOTE	-0.12		-0.13				0.14	
Resident				0.14				
Worker								
Visitor								
Years resident	0.15	0.17		-0.13				-0.22
Years worker		0.11	-0.12					
House								
Apartment	-0.11							
Garden								

Community engagement workshops

Participants were seated at tables, typically of 4-6 people. A variety of exercises were undertaken where each table could consider some options and present results back to the larger group.

Photo sorting exercise

Each table was asked to group photos according to their preferred future character of their precinct into three groups: matching their preferred character, not matching their preferred character, or unsure. A statistical analysis was used to see which photos people grouped together (see Appendix for details of the statistical analysis).

A wide range of trees were generally preferred by the community, with 13 tree images being preferred by more than 50% of all groups, and another 10 being preferred by more than 50% of groups at one of the precinct workshops (Table 4). The most preferred trees included a mix of exotic and native species, many images including high canopy cover, but also of smaller or sparser trees with colourful flowers or leaves, or interesting trunks. The least preferred images were almost all of streetscapes with low canopy cover, along with several images of trees more representative of other places (e.g. Palms, *Acacia pendula*, Turkish Hazel).

The most highly preferred images were preferred across most, if not all, the precincts. The few exceptions related to natives and to Plane Trees. Photo 27 (understory planting beneath natives) was not preferred in the Carlton and South Yarra workshops, although highly

preferred in the CBD and East Melbourne workshops. Photo 25 (*Corymbia citridora*s on two tree hill) was not preferred in East Melbourne. The Plane Tree images (Photo 32 & 21) were not preferred in the CBD and South Yarra respectively.

A number of images were preferred by only one or two precincts, suggesting characteristics that may be more specific to that region. In the CBD, Photo 17 (popup park) and Photo 33 (young Water Gums) were preferred. In Carlton, Photo 18 (high canopy Brush box avenue) was preferred. In East Melbourne, Photo 3 (German Avenue), Photo 19 (Flowering pears) and Photo 6 (mixed exotic species) were all preferred. In South Yarra, Photo 23 (Maples) and Photo 8 (Cork Oak) were preferred.

Visions of the future exercise

Each table was asked to write down a statement describing their vision of a preferred future urban forest on butcher's paper. These statements were then arranged on the floor in a logical fashion (statements that were more similar were placed closer together, and those that were more different were placed further apart). All participants were then asked to walk around the statements and consider them. They were then asked stand in a place that best represented their views in the 'map' of ideas.

The exercise was a useful and very visual way of showing how people viewed the future urban forest, and considered and responded to the views of others. There were two clear outcomes of the exercise:

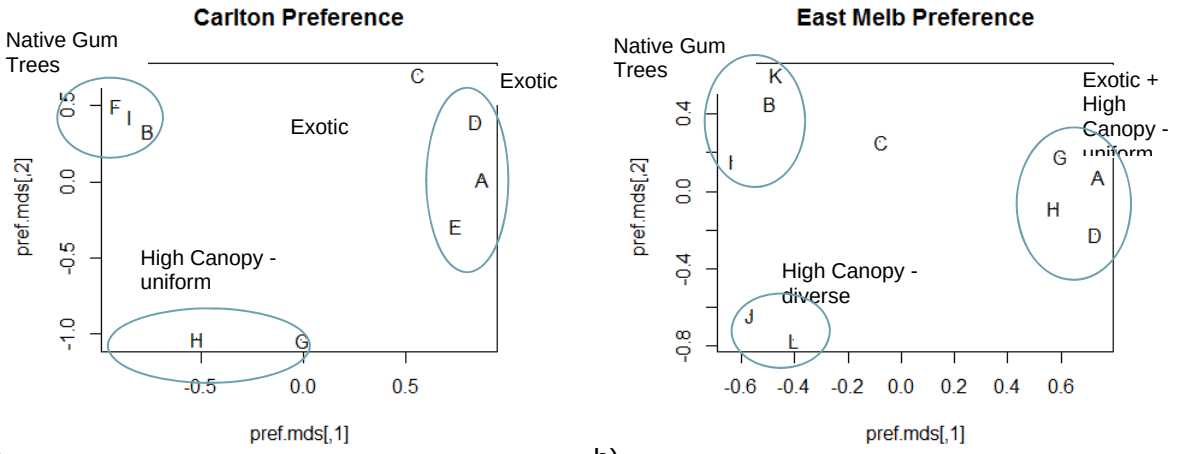
1. There was clearly a large proportion of people who gravitated towards the middle of the 'map', suggesting they were prepared to incorporate the views of others into their vision of the future. This shows that the public consultation process has been a useful way for people to hear and learn about the views of others.
2. The exercise also highlighted that a diverse forest is required to satisfy the range of views held by the public about the urban forest. The process of incorporating a wider range of decision makers (i.e. the general public) into urban forest planning will lead to more diversity in decision making, and consequently a greater diversity in outcomes (in species diversity, spatial configuration, etc).

Table 4 – Summary of photo sorting exercise, showing the proportion of groups at each engagement workshop preferring each photo, the total number of groups preferring each photo, and the biggest variation in preference across the groups. Bold values indicate more the half the groups preferred the tree image.

Photo	Carlton	CBD	East Melbourne	South Yarra	Total	Variation	Photo description
14	**100%**	**75%**	**83%**	40%	**75%**	60%	Yellow leaved ginkgo
9	50%	**88%**	**67%**	**80%**	**71%**	38%	Bottle trees
12	**67%**	**75%**	**100%**	40%	**70%**	60%	Zelkova avenue
4	**67%**	**75%**	**67%**	**60%**	**67%**	15%	Jacaranda avenue
5	**67%**	**75%**	**83%**	40%	**66%**	43%	Tillia avenue/stroll Prague
25	**67%**	**63%**	33%	**80%**	**61%**	47%	C. citriodoras on two tree hill
7	**67%**	38%	**67%**	**60%**	**58%**	29%	Cape chestnut flowering
27	33%	**88%**	**67%**	40%	**57%**	54%	Understory planting beneath natives
2	**83%**	50%	33%	**60%**	**57%**	50%	Royal parade elms, 60% canopy
24	50%	**63%**	50%	**60%**	**56%**	13%	Red leaved (turning) oak
31	50%	50%	50%	**60%**	**53%**	10%	Ficus rubiginosa, mature tree
32	**67%**	13%	**67%**	**60%**	**51%**	54%	Local image, plane trees in linear park setting
21	50%	50%	**83%**	20%	**51%**	63%	Plane tree avenue 80% canopy cover
1	33%	50%	50%	**60%**	48%	27%	Local street, mixed species, native and exotic, median, 20-30% canopy
28	50%	50%	33%	**60%**	48%	27%	Lygon Street
3	33%	50%	**67%**	20%	43%	47%	German avenue (poss elm, linden, aesculus), wooded parkland adjacent, 30-40% canopy
19	50%	13%	**67%**	40%	42%	54%	Pear trees in bloom
18	**67%**	13%	50%	40%	42%	54%	Brush box avenue 50 - 60%
10	50%	25%	50%	40%	41%	25%	Local street, mixed species, native and exotic, central parking/plots 20-30% canopy
6	33%	38%	**67%**	20%	39%	47%	Local street, mixed species, all exotic, median, 15-20% canopy
33	33%	**63%**	33%	20%	37%	43%	Tristaniopsis, young
23	33%	38%	17%	**60%**	37%	43%	Maple semi-mature
8	33%	0%	0%	**80%**	28%	80%	Cork oak

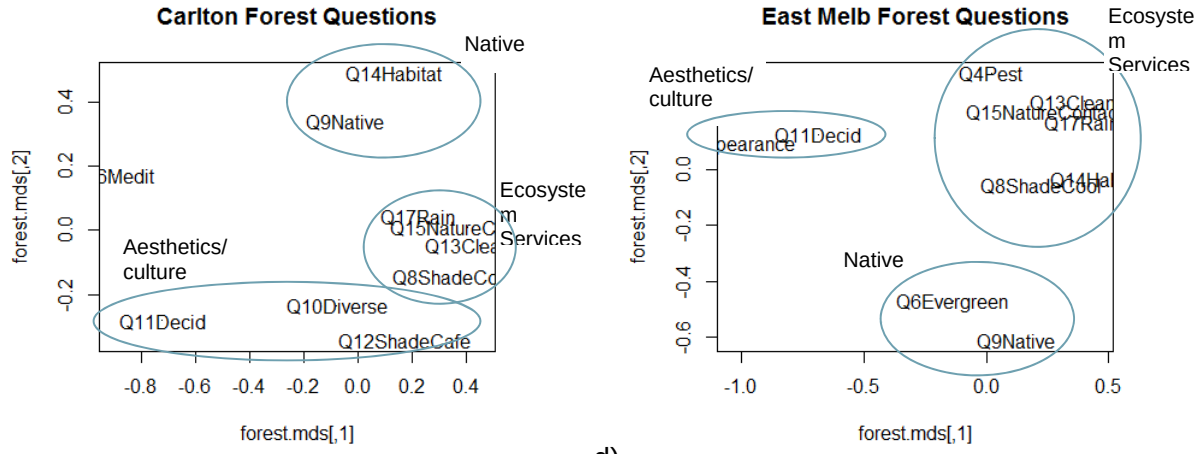
17	0%	**75%**	17%	0%	23%	75%	PARKing day popup park
20	33%	13%	17%	20%	21%	21%	Elliot avenue large sugar gums, park adjacent
15	17%	0%	17%	20%	13%	20%	Zelkova, semi-mature
11	0%	13%	17%	20%	12%	20%	Local street, native, median, 10% canopy
29	0%	13%	17%	20%	12%	20%	Palm avenue
16	0%	13%	33%	0%	11%	33%	Turkish hazel, semi-mature
26	17%	0%	17%	0%	8%	17%	Local street, young trees planted, canopy cover <10%
13	17%	13%	0%	0%	7%	17%	Acacia pendula
22	0%	0%	0%	20%	5%	20%	Local street gleditsias planted at roadside <10% canopy cover
30	0%	0%	0%	0%	0%	0%	Latrobe Street, no trees

Appendix 1 – Statistical analysis of Topline results



a) b)

Fig.A 1 Multi-dimensional scaling analysis of people's preference for urban forest images in a) Carlton and b) East Melbourne. Images that are closer together had more similar responses than those further apart



c) d)

Fig. A2 Multi-dimensional scaling analysis of people's responses to urban forest questions in a) Carlton and b) East Melbourne. Questions that are closer together had more similar responses than those further apart

Carlton

Background

The City of Melbourne has been collaborating with the community to develop an urban forest precinct plan to guide greening in Carlton for the next decade. Feedback to date has come from:

1. Community workshop at the Melbourne Museum, March 2
2. Intercept survey of 252 people on Carlton streets, February
3. Consultation with Carlton Primary grade 1&2 composite class, March 21
4. Consultation at Carlton Housing Estate during Harmony Day, March 21
5. Online conversation at melbourneurbanforest.com
6. Online conversation at melbourneurbanforest.crowdmap.com

These consultations have involved approximately 300 people in Carlton, including children, residents, visitors and workers.

What We Were Told: Community Workshop, 2 March

Important Landscapes

- Lygon Street, Grattan Street, Drummond St and Faraday Street sections that support outdoor alfresco dining
- Parks and squares for heritage and habitat (Carlton Gardens particularly as a World Heritage Site)
- Cemetery Road East and Two Tree Hill (roundabout with two heritage listed lemon scented gums adjacent to Melbourne University colleges and Melbourne Cemetery)
- Royal Parade, Cemetery Road East, Barkly Street and Barry Street canopies
- Princes Street and Elgin Street
- All existing green areas are valuable

Hopes for Issues to be Included in the Plans

- Heritage
- Iconic tree protection
- Tree risk and safety issues
- Places/trees for children to play on and around
- Managing drought and water
- Managing soil health
- Habitat (especially for native birds and indigenous plants)
- Use of productive trees (e.g., fruit and nut trees)
- Increasing tree canopy
- Including trees that are different (species diversity and visual diversity)
- Use a balance of exotics and natives (there are benefits from both)
- Managing concerns about removal and replacement of established trees as boulevards age
- How to achieve community aims
- Provision of information to the public (e.g., the plans, urban heat island mapping, presentations, consultation outcomes)
- Communicate the value of trees and consider economic values in the plans
- Use trees that work well for small businesses (e.g., provide good canopy but have low allergen, irritant, infrastructure conflict potential)
- Integration into broader planning documents - green strategy outcomes should be condoned more fully in planning approvals and urban streetscape planning.
- Continue to educate the broader communities including large rental population on the benefits of planting and ownership of their own local street trees.
- Need for balance between built form, large footprint buildings (eg., apartments and urban forest)
- Making sure that there is a seamless transition from what we have now to creating a diversified but multipurpose urban forest for all

Locations for More Greening

The map below shows the streets that workshop participants identified as important locations for more greening. The following notes were made to accompany those locations:

- Swanston Street: collaborate with private development of the old CUB site in terms of trees and landscaping
- Grattan Street: Showcase for international students/academics/visitors
- Lygon Street: Maintain and increase canopy but reduce allergen/irritant producing trees, manage stormwater, plant mixed species, prune
- Drummond Street: Enhance pedestrian amenity and green this area, especially adjacent to public housing, median planting opportunity
- Murchison Street and Owen Street: Great opportunity for understorey planting and more canopy cover. More of this across Carlton.
- Pelham Street: Rapid development and street traffic, opportunity for green strategy and pedestrian link to open space.
- Rathdowne Street and Elgin Street intersection: Want trees to be used to deal with road rage at this corner.
- Elgin Street: Need to provide more coverage/shade, trees look half alive

- Rathdowne Street: Important to provide greening where residents live in high rise, traffic and cycling needs should come second.

Streets Identified as a Priority by the Community

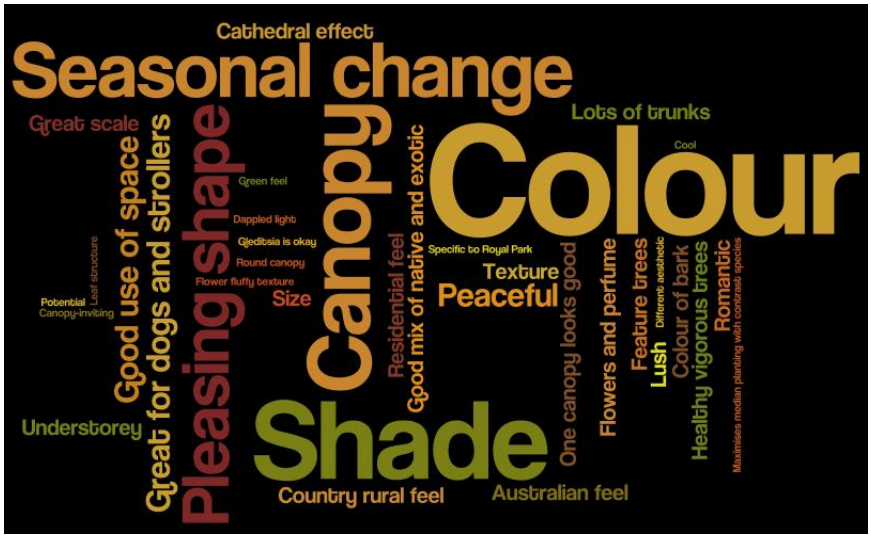
Carlton Neighbourhood Character and Preferences for the Future

Participants were asked to divide themselves across five tables. Each table was given a set of the same thirty three. The photos acted as prompts to convey ideas of a desired future. Each table was asked to divide the photos into three groups based upon the neighbourhood character they envisaged for Carlton. Photos were to be grouped into the following:

- Photos that best represent the future Carlton.
- Photos that represent the future you don't want.
- Photos you are unsure about or cannot agree upon.

The photos that were generally agreed (by 4 out of 5 tables) to best represent the future Carlton were:

Participants were then invited to add a word or phrase on a post it notes to describe their photo. A summary of these key words from all the tables has been combined into the following wordle:



Comments for photos that represented a future that was not wanted:

- Powerline lopping
- Not enough shade
- Unsuitable tree for streetscape

The photos that were generally agreed (by 4 out of 5 tables) to represent an unwanted future:

Using the photos they had selected, each group was asked to draft a character statement and the results were as follows:

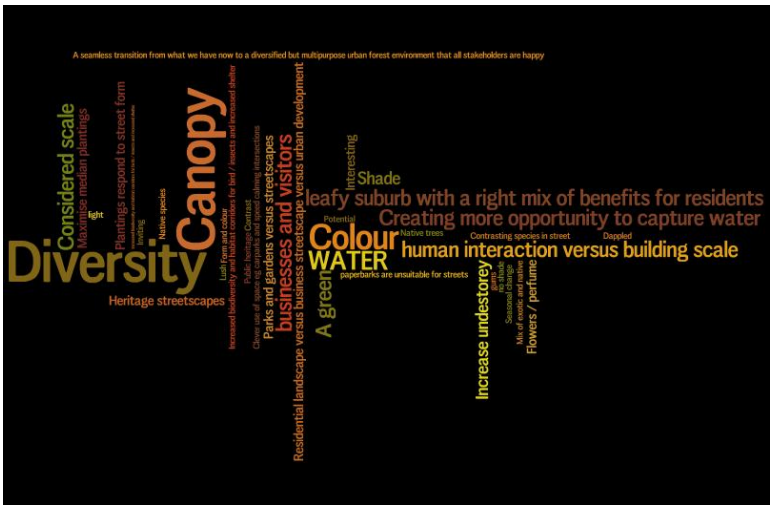
1. The character we want for Carlton is colour, seasonal change, considered scale (human and building), native species and increased biodiversity and habitat corridors for birds and insects.

2. Our ideal Carlton is a green, leafy suburbs with the right mix of benefits for residents, businesses and visitors. A diversified but multipurpose urban forest environment that all stakeholders are happy with.

3. The character we want for Carlton is compatible with heritage streetscapes, shade, public heritage in parks and gardens, flowers/perfume and increased water capture. Native trees are unsuitable for streets (no shade).

4. The character we want for Carlton is lush, diverse, contrasting in species, nativeness, form and colour, canopied, scaled to the street, clever in its use of space and includes understorey planting.

5. The character we want for Carlton is inviting, colourful, diverse, full of potential, interesting, canopied, dappled and increases water capture.



What We Were Told: Children's Consultation

At both the workshop and at Carlton Primary, City of Melbourne Park Rangers worked through a set of images with children and asked them to 'award' prizes to their favourites. A total of 33 photos that varied from streets with no or very few trees, to streets with high canopy cover and also a range of individual trees that varied in size and colour. The 33 images were the same set given to the adults in the workshop.

The 'prizes' award to the images were for shade, prettiness, colour or flowers, 'interesting' and cultural reminders (Christmas and Eid). The children's favourites are below:

Children were also asked to create their own miniature landscapes on pieces of linoleum, with leaves, nuts and pods, sticks and flowers provided. The children were asked to each talk about their own piece of work and explain what it was about. The main elements incorporated into the children's artwork which depicted or represented the types of environments they liked, and the shape or function of trees included:

- The element of play and an environment that they could explore
- Large, shady trees
- Productive fruit trees
- Deciduous trees that drop leaves in autumn
- Understory structure like bushes, flowers, rocks, grass
- Different types of trees that signified different things (e.g., a tree that reminded of Christmas, a tree that reminded of Eid, a conifer that reminded of North America, a deciduous tree, a tall tree and a fallen tree)
- Multiple elements grouped together e.g. ponds, bridges, boats
- Animals
- Streets with trees, cars and animals (a zoo) grouped together

What We Were Told: Street Intercept Survey

The intercept survey was designed to explore how the community perceives the character of Carlton and to determine how people respond to questions about green spaces and character. The survey captured opinions of residents, visitors and workers across a range of ages. The key findings were:

- When asked to describe the look of Carlton for someone who had never been there, the following words were prevalent:

- Respondents valued trees more highly for the role they play in providing shade and clean air than for their role in aesthetics and cultural heritage
- The words that came to mind when people were asked to think about trees in Carlton were:

When asked to review a set of nine images and rate them, people distinctly preferred images with higher canopy. Images with non-natives were slightly preferred over natives. The highly preferred photos were:

The image not preferred at all was:

What we were Told: Harmony Day March 21

Locations for More Greening

- Drummond Street: 'Cooks' in summer
- Drummond Street section adjacent to Princes: should be a 'mini urban forest' with a dense canopy, places to sit in the shade and artistic/cultural feature. Supported by residents of Building 522.
- Balconies: Provide funding to assist or teach residents to plant balcony gardens
- Palmerston and Canning Street Reserve: Was once a great place to sit and meet in the shade of a large walnut tree but it was removed (City of Melbourne Note: Trees were removed due to hazard and park has been replanted with Callery Pears which will restore shade when they mature)
- Queensberry Street: Add edible understorey planting to street tree pits
- Niell Street and Carlton Housing Estate: Provide shade by trees or other means, all the seats are in the sun
- Across Carlton: More shade

What We Were Told: Online Conversation

The online conversation is continuing at melbourneurbanforest.com. Comments to date support:

- Increasing diversity through use of new tree species
- Provision of shade and dappled light
- Continued use of plane trees
- Use of natives
- Understorey planting

The online conversation on our urban forest crowdmap is continuing at melbourneurbanforest.crowdmap.com. Comments to date support:

- Increasing shade on Drummond and Canning Streets
- Enhanced greening of Lygon Street between Princes and Elgin

Summary of Key Messages from Carlton Consultation

There are important landscapes in Carlton where the urban forest, and how it changes over time, should be managed in ways that are sensitive to heritage and existing uses.

The urban forest is highly valued and the community wants to see it thoughtfully managed and enhanced using approaches that meet community needs while improving urban forest health and diversity.

There are many opportunities for enhancing the urban forest in Carlton today.

Desired future states include:

- High canopy cover that provides shade and dappled light
- Visual diversity in terms of colour, shape, seasonal change and contrasts, and understorey planting
- Use of both native and exotic species in the right locations to deliver the benefits that different trees provide
- Species selection that results in mature trees that are in scale and harmony with the streetscape and its uses
- A healthy, lush and vigorous urban forest of big, beautiful, green trees

Important services for the urban forest to provide:

- Shade
- Biodiversity
- Water capture and storage
- Economic benefits to small business
- Psychological benefits (e.g., sense of calm, soothing etc.)
- Food production
- Aesthetic beauty
- Opportunities for play

East Melbourne

Background

The City of Melbourne has been collaborating with the community to develop an urban forest precinct plan to guide greening in East Melbourne for the next decade. Feedback to date has come from:

7. Community workshop at the East Melbourne Library, April 6
8. Intercept survey of 176 people on East Melbourne streets, March
9. Online conversation at melbourneurbanforest.com

These workshop consultation and intercept survey have involved approximately 220 people in East Melbourne, including residents, visitors and workers. The online consultation website received 4,371 separate visits over the consultation period.

What We Were Told: Community Workshop, 6 April

Important Landscapes

- Treasury Gardens
- Fitzroy Gardens
- Yarra Park
- Powlett Street
- Simpson Street
- Hotham Street
- Albert Street (specific tree)
- Clarendon Street
- East Melbourne Library
- George Street
- Bishops Court
- Powlett Reserve
- Treasury Place
- Darling Square

Hopes for the Workshop

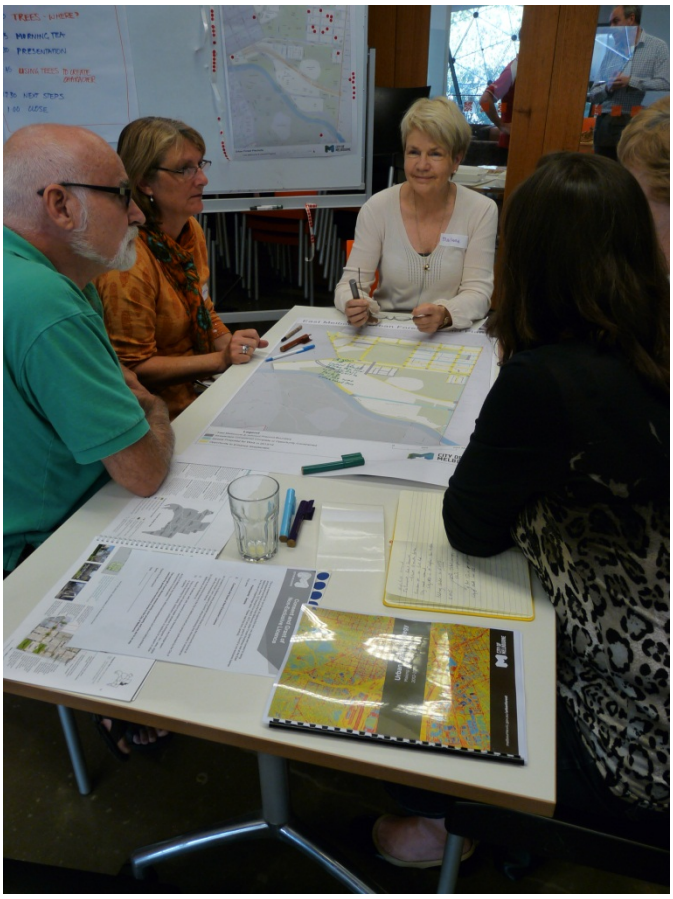
- Increase knowledge of urban forest.
- What can we do about lack of water?
- Increase/double the amount of green canopy.
- Retain nature strips (do not turn into parking).
- Replace old trees.
- More help and advice about appropriate trees for residential gardens.
- Place of edible landscapes.
- Have more trees in children's playgrounds.
- Put pressure to get cars out of Yarra Park to save the trees.
- Relationship of the current workshop to other workshops and to broader strategies beyond City of Melbourne.
- Support a new median strip in Gipps Street.
- Extend central planting in Hotham Street.
- Build multipurpose urban forest for all.

Locations for More Greening

The map below shows the streets that workshop participants identified as important locations for more greening. The following notes were made to accompany those locations:

- Albert Street: Better support for existing trees
- Along Yarra River (from Federation Square to Batman Avenue): More trees
- Around MCG: Green walls on buildings e.g. hospitals and public buildings. Green roofs on hospitals and businesses. Family parks and gardens surrounding
- Batman Avenue: Plant in green lawn, space for more root space, heat island – more trees
- Between Wellington Parade and Wellington Parade South and Flinders Street: Council should reassume this land from VicRail and convert to park. P.S. It has some established trees. Garden!
- Brunton Avenue back along Brunton Avenue: Get some tree planting space, improve rail reservation
- Cathedral Place
- Clarendon Street
- Darling Square: Supplementary green
- Fitzroy Gardens: Interplant edibles on the grassy parts – any spaces where we can put raised beds. Food forest.
- Fitzroy Gardens, Powlett Reserve and Darling Square: Possum and rat control
- Fitzroy Gardens: Food forest. Replace our mature elms. Branch drop is dangerous and suckers invade.
- From Punt Road to Flinders Street: Roof garden along railway line.
- George Street (between Clarendon Street and Powlett Street): Rain gardens/swales, native grasses in between trees.
- George Street and Gipps Street: Replicate No Left Turn to George and Gipps as per Grey Street.
- George Street: Canopy trees along medians in all these streets where possible (or roadside), replace the street tree in front of the library.
- Grey Street: Roundabout trees need more attention.
- Hoddle Street
- Hotham Street: I would like more bulbs planted here
- Lansdowne Street: Lots of footpath – so lots of space for planting.

- More levels of greenery: e.g. understorey, middle storey and canopy; shrubs; groundcovers; herbs/grasses; food forest
- More trees around childcare centre
- More trees over dining tables
- Old police station
- Olympic Boulevard: Path is too hot to walk on.
- On and between stadiums
- Park area adjacent to Birrarung Marr Tall spreading shade trees asap.
- Powlett Reserve: More trees around the playground.
- Powlett Street Bitumen paths – work towards replacing with permeable materials. Edible roundabout.
- Punt Road: Soil quality for medians, on Hoddle more trees with opportunity to succeed. Remove and replace street trees in footpath pushing up pavement.
- Simpson Street: Edible roundabout
- Trinity Place: Green wall? Currently white wall – intense heat. This big wall could be a green wall.
- Vale Avenue: Deceased palm
- Victoria Parade: Median opportunities
- Wellington Parade South: Garden here. Large canopy avenue. South side of Wellington Parade – trees. Shade trees for pedestrians and public transport users n middle of road where tram stop is. heat while waiting for public transport is dangerous (particularly younger and older users)
- St Patrick's Cathedral Are we using the water from this space – big water catchment



Streets Identified as a Priority by the Community

CITY OF MELBOURNE

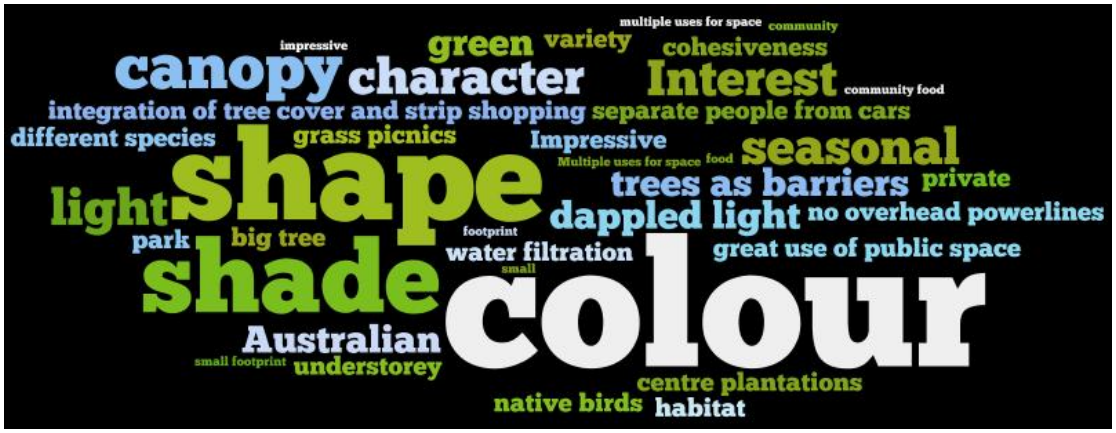
East Melbourne Neighbourhood Character and Preferences for the Future

Each table was given a set of the same thirty three. The photos acted as prompts to convey ideas of a desired future. Each table was asked to divide the photos into three groups based upon the neighbourhood character they envisaged for East Melbourne. Photos were to be grouped into the following:

- Photos that best represent the future East Melbourne.
- Photos that represent the future you don't want.
- Photos you are unsure about or cannot agree upon.

The photos that were generally agreed (by 5 out of 6 tables) to best represent the future East Melbourne were:

Participants were then invited to add a word or phrase on a post it notes to describe their photo. A summary of these key words from all the tables has been combined into the following wordle:



Comments for photos that represented a future that was not wanted:

- Sparse cover/No canopy
- Wrong character
- Roots

The photos that were generally agreed (by 5 out of 6 tables) to represent an unwanted future:

Using the photos they had selected, each group was asked to draft a character statement and the results were as follows:

6. We would like East Melbourne to be a place that:
    a. Has colour in its trees
    b. Separates people from cars
    c. Has interesting tree shapes
    d. Allows small scale gardens - grass in central nature strips
    e. Is green, calm and vermin free

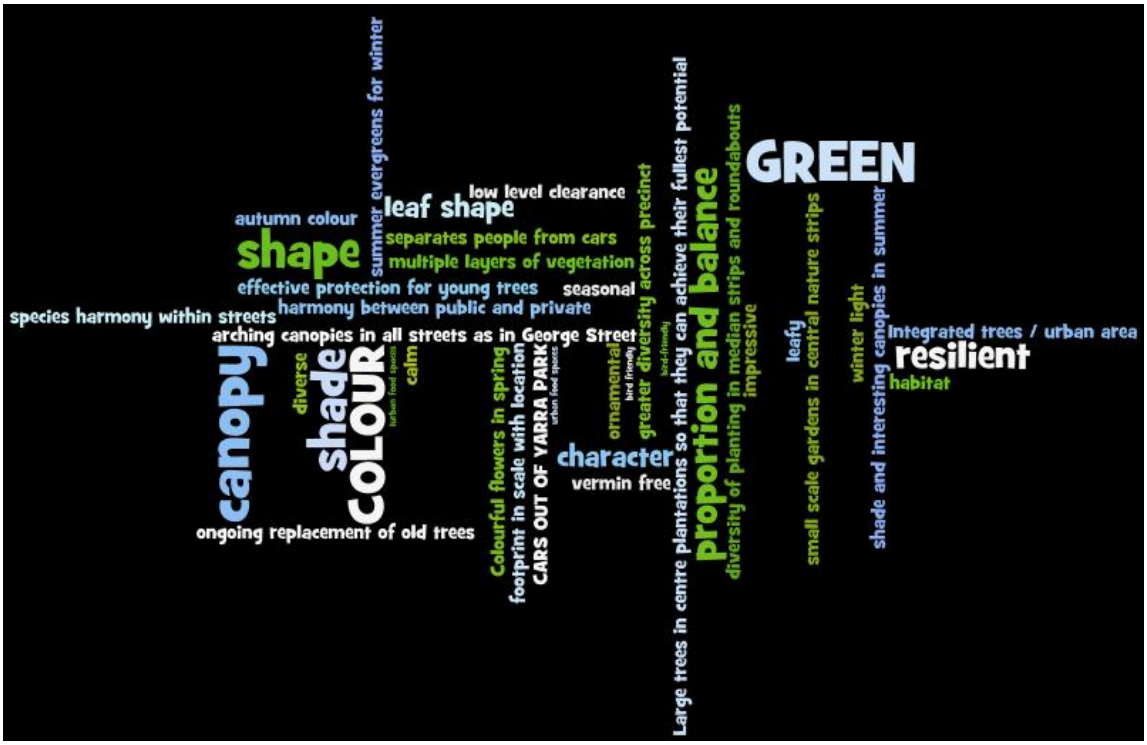
7. We would like East Melbourne to be:
    a. Green, colourful with large canopies
    b. Seasonal, diverse, impressive and interesting and resilient
    c. Including urban food spaces, leafy dappled shade and multiple layers of vegetation

8. We would like East Melbourne to have:
    a. Seasonal colour, canopy
    b. GREEN
    c. Integrated trees/urban area

9. We would like East Melbourne to have:
    a. Low level clearance
    b. Bird friendly (trees to attract native birds)
    c. Shade
    d. Shape
    e. Colour
    f. Character
    g. Winter light
    h. Footprint (in scale with location)
    i. Leaf shape
    j. Balance along street - select so that trees on one side only need pruning due to power lines
    k. Ornamental
    l. Large trees in centre plantations so that they can achieve their fullest potential
    m. Trees which provide shade, character, aesthetic, habitat proportion and balance along the street

10. The canopy in East Melbourne will double and will include:
    a. Greater diversity across precinct
    b. Species harmony within streets
    c. Arching canopies in all streets as in George Street
    d. Cool/cooling/shaded streetscapes
    e. Ongoing replacement of old trees
    f. Diversity of planting in median strips and roundabouts
    g. Effective protection for young trees
    h. Resilient carefully maintained species
    i. Maximum harmony between public and private
    j. No cars in Yarra Park

11. We would like East Melbourne to be:
    a. Colourful, flowers in spring
    b. Shade and interesting
    c. Canopies in summer
    d. Autumn colour
    e. Attractive shapes and summer evergreens for winter


GREEN
resilient
canopy
shade
COLOUR
shape
leaf shape
low level clearance
autumn colour
separates people from cars
multiple layers of vegetation
effective protection for young trees
seasonal
harmony between public and private
species harmony within streets
arching canopies in all streets as in George Street
ongoing replacement of old trees
diverse
calm
Colourful flowers in spring
footprint in scale with location
CARS OUT OF YARRA PARK
ornamental
character
vermin free
greater diversity across precinct
Large trees in centre plantations so that they can achieve their fullest potential
proportion and balance
diversity of planting in median strips and roundabouts
impressive
leafy
small scale gardens in central nature strips
winter light
shade and interesting canopies in summer
Integrated trees / urban area
habitat
summer evergreens for winter

What We Were Told: Street Intercept Survey

The intercept survey was designed to explore how the community perceives the character of East Melbourne and to determine how people respond to questions about green spaces and character. The survey captured opinions of residents, visitors and workers across a range of ages. The key findings were:

- When asked to describe the look of East Melbourne for someone who had never been there, the following words were prevalent:

- Respondents valued trees more highly for the role they play in providing clean air and shade than for their role in aesthetics and cultural heritage
- The words that came to mind when people were asked to think about trees in East Melbourne were:

- When asked to review a set of nine images and rate them, people distinctly preferred images with heavy tree prominence, wide canopy and light coloured foliage. Mixed versus monoculture was not important were these criteria were met. Whether the trees were native or non-native was not a discriminator of choice. The highly preferred photos were:

The image not preferred at all was:

What We Were Told: Online Conversation

The online conversation is continuing at melbourneurbanforest.com. Comments to date support:

- Use of native trees to benefit wildlife, particularly birds
- Increased protection for trees in parking lanes and medians being damaged by cars
- Increased protection for trees in parks being damaged by fitness equipment
- More trees
- Edible food forest
- Bush tucker

Summary of Key Messages from East Melbourne Consultation

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. Participants also identified opportunities for areas such as Yarra Park and the railway reserve that are not within the jurisdiction of the City of Melbourne.

Desired future states include:

- 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
- Resilient, carefully maintained species
- Vermin free

Important services for the urban forest to provide:

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

South Yarra

Background

The City of Melbourne has been collaborating with the community to develop an urban forest precinct plan to guide greening in South Yarra for the next decade. Feedback to date has come from:

10. Community workshop at South Yarra Primary School, April 20
11. Online conversation at melbourneurbanforest.com
12. Online conversation at melbourneurbanforest.crowdmap.com

The workshop included 20 adults and 2 children from the community. The online consultation website received 4,371 separate visits over the consultation period.

What We Were Told: Community Workshop, April 20

Important Landscapes

- Eucalyptus Cornuta (Bushy Yate) planted by Baron Von Mueller
- Morton Bay Fig in Fawkner Park
- Sugar Gum in Royal Botanical Gardens
- Royal Botanical Gardens
- Fawkner Park avenues of trees
- Paisley Street South trees
- Tree on Walsh Street (Exceptional Tree Register)
- Como Hill (not in City of Melbourne)
- Golden Elm (corner of Punt Road and Alexandra Avenue)
- Row of Plane trees that create avenue effect
- Liquidambars on Millswyn Street
- Interesting trunk on gums

Hopes for Issues to be Addressed in the Workshop and Precinct Plans

- To understand more about the Urban Forest Strategy (UFS)
- Contribute to the UFS
- Be heard
- Hear a range of opinions
- Sense of security and assurance that community will be consulted
- Keep European trees to provide large canopy
- Understand the placing of trees
- Discuss the type of trees – include natives, edible trees and clumping.
- Creating forest of trees
- Understand how things will change as trees are taken out
- Recognise that older trees need replacing
- Consider tree loss and the constraints of powerlines and underground pipes.
- Discuss ‘problem’ trees (e.g. declared weeds)
- Discussion of powerlines and putting them underground to allow trees to grow to maturity.
- Keep birds and provide nesting habitats

Locations for More Greening

The map below shows the streets that workshop participants identified as important locations for more greening. The following notes were made to accompany those locations:

- Millswyn Street: Maintain current tree character
- Punt Road: A real problem area needing greening. Plant natives, possibly shrubs.
- Park Street: Address issues with infrastructure conflicts, trip hazards and granitic sand.
- St Kilda Road: A priority to maintain elm trees.
- Alexandra Avenue: Protect what is there. Plant more trees.
- Walsh Street: No trees on the road, parking is at a premium.
- Fawkner Park: Add edible trees, plant more natives, shade kid’s playground. Increase planting without encroaching on sport fields. Create different environments including a forest clump, less ordered space on the edge or middle, connectivity between green spaces, big joining canopies.
- Toorak Road: Clumps of trees on both sides; natives.
- Commercial Road: Natives.
- Leopold Street: More trees in narrow streets, flexible to reduced parking.
- Batman Avenue: More trees.
- Clowes Street: Needs more watering, struggles in summer.
- Yarra River banks: space for avenue.
- General: Green roofs and walls, edible trees and plants, WSUD.
- Policy: Integrated planning, developers required to plant trees, talk to other councils to green the other side of South Yarra

Streets Identified as a Priority by the Community

South Yarra Neighbourhood Character and Preferences for the Future

Participants at each table were given a set of the same thirty three. The photos acted as prompts to convey ideas of a desired future. Each table was asked to divide the photos into three groups based upon the neighbourhood character they envisaged for South Yarra. Photos were to be grouped into the following:

- Photos that best represent the future South Yarra.
- Photos that represent the future you don't want.
- Photos you are unsure about or cannot agree upon.

The photos that were generally agreed (by 3 out of 4 tables) to best represent the future South Yarra were:

Participants were then invited to add a word or phrase on a post it notes to describe their photo. A summary of these key words from all the tables has been combined into the following wordle:

The photos that were generally agreed (by 3 out of 4 tables) to represent an unwanted future:

Using the photos they had selected, each group was asked to draft a character statement and the results were as follows:

1. We would like South Yarra to be:
   - Shady
   - With diversity and interest.
   - And large trees that make a statement (sculptural) in urban, residential and parkland spaces.
2. We would like South Yarra to have:
   - A variety of natives that is diverse, engaging and spectacular with interest through shape and colour. We'd like to see some fruit and nut trees or bushes.
   - An understorey that includes native grasses that provides movement and softness. Habitat for birds and other animals is considered and provided.
3. We would like South Yarra to have:
   - Shade, colour, leaves/flowers.
   - Large size/volume of plantings, form and canopy which provides character, protection and sense of peace.
4. We would like South Yarra
   - To be green, leafy with substantial and diverse.
   - To have trees with lush canopies.
   - To invite birds and bees and screen buildings, provide shade, camouflage powerlines and provide shadows in the evenings, whilst respecting the heritage and contemporary possibilities.

What We Were Told: Children's Consultation

At the workshop City of Melbourne Park Rangers worked through several urban forest activities and a set of images with children.

In one of the activities the children created their 'ideal' landscapes on lino with materials collected from the urban forest. The types of elements that they built included lots of trees, habitat, animals, leaves/nuts/branches on the ground and grass.

The photo exercise used the same set provided to adults. The children's favourites are below.

What We Were Told: Online Conversation

The online conversation is continuing at melbourneurbanforest.com. Comments to date support:

- Planting fruit trees
- Planting a canopy to cool the city in summer and allow light through in winter
- Creating an edible food forest

Comments on the urban forest crowdmap online conversation on our urban forest included:

- Identification of the Moreton Bay Fig near the tennis courts in Fawkner Park as a favourite tree for play
- The gum in Kings Domain at the north end of Domain Street is a favourite tree because it changes colour every month.

Summary of Key Messages from South Yarra Consultation

South Yarra is home to exceptional trees, tree avenues and open spaces that are central to the community identity and wellbeing. The community would like to see the heritage and character of South Yarra's urban forest respected while also creating opportunities to contemporise the landscape and increase the use of native trees that provide habitat for native birds.

There are opportunities to enhance South Yarra's urban forest, particularly on arterial roads and by reducing conflict with overhead utilities.

Desired future states include:

- Maintenance of existing tree character and important avenue plantings
- Tree planting on arterial roads and in narrow streets
- A diversity of trees that provide shade with green, leafy, lush canopies
- Use of native trees to provide habitat for birds and bees
- Visual interest that is diverse, engaging and spectacular through the use of shape, colour, shadows, productive trees and understorey planting
- Large trees and/or volume plantings that make a statement (sculptural) in urban, residential and parkland spaces

Important services for the urban forest to provide:

- Shade
- Biodiversity
- Food production
- Aesthetic beauty and screening
- Psychological benefits (e.g., sense of calm, soothing etc.)
- Opportunities for play

Central City

Background

The City of Melbourne has been collaborating with the community to develop an urban forest precinct plan to guide greening in the Central City for the next decade. Feedback to date has come from:

13. Community workshop at the Multicultural Hub, May 4
14. Online conversation at melbourneurbanforest.com
15. Online conversation at melbourneurbanforest.crowdmap.com

The workshop included 70 adults and 3 children from the community. The online consultation website received 4,371 separate visits over the consultation period.

What We Were Told: Community Workshop, 4 May

Important Landscapes

- Princes Bridge
- City Baths
- Carlton Hotel rooftop
- Melbourne Town Hall
- William Street (between Bourke Street and Collins Street)
- Collins Street (between Swanston Street and Spring Street)
- Highlander Lane
- Exhibition Street (between Bourke Street and Collins Street)
- Fitzroy Gardens
- Carlton Gardens South
- Parliament Reserve
- Small park on Howard Street
- Church garden on Bourke Street
- St Michaels garden
- State Library of Victoria (frontage) – warm, sunny, grass, trees
- Flagstaff Gardens – trees, open space , grass, sunshine
- ANZ Plaza
- City Square – a communal space; plane trees
- Southbank Promenade
- Vertical garden off Little Lonsdale Street
- Along the Yarra River at Birrarung Marr and Flinders Street Station
- Queen Victoria Village
- Patch gardens (NY style) often connected to historic monuments (e.g. St Michaels and Russel and Collins streets)
- Pop-up patches at Birrarung Marr – children/family access, growing gardens
- Canopy of plane trees on Queen Street (between Lonsdale Street and Little Collins Street)
- Plane trees in Bourke Street
- Elm trees on Collins Street
- Alexandra Gardens – trees, open space, sunshine
- Swanston Street trees
- Tree at Kino Cinema on Collins Street
- Lemon scented gums at Federation Square
- Treasury Gardens – fig trees, gum tree
- Botanic Gardens oak trees
- Gum tree at Federation Square on Princess Wharf

Hopes for the Workshop and Precinct Plans

- More trees, but a safe environment.
- No plane trees.
- Build on small spaces e.g. rooftops gardens, pop-up gardens; laneway gardens.
- Small gardens on lots of spaces.
- Tree species and possums.
- Elizabeth Street - creek
- Colour in our cities.
- Green wall gardens.
- Make hidden spaces more inviting.
- Keep oaks and elms.
- Native plants to provide habitat.
- Make it easier for governments to build rooftop gardens.
- Council to recognise every citizen as a custodian of the land.
- Bush corridors.
- Reuse wood that is cut down.
- Concern over loss of trees in private space.
- Concern about water sources.
- Aggressive renewal of avenues.
- Form guardianships to take care of areas.
- Contrasting, large and diverse species.
- Concern over sustainability of current forest.
- Temporary green spaces.
- Make more of public gardens for community gardens.
- Southern Cross Station - more green.
- A yearly report on the status of the forest (e.g. reporting on how many trees planted).
- Use walls of high rise car parks and make them green.
- Planning permits take into consideration Urban Forest Strategy (UFS) as a priority.
- Rail yards adjacent to Federation Square.
- Spencer Street - improve.
- Queen Victoria Market car park.

Locations for More Greening

Participants in table groups were invited to mark on a large map the areas they regarded as a priority for introducing trees, edible elements, improving soil, priority areas for birds and other green elements. Feedback indicated that the entire City should be considered for new opportunities and a complete list of the locations submitted is provided in Appendix 2.

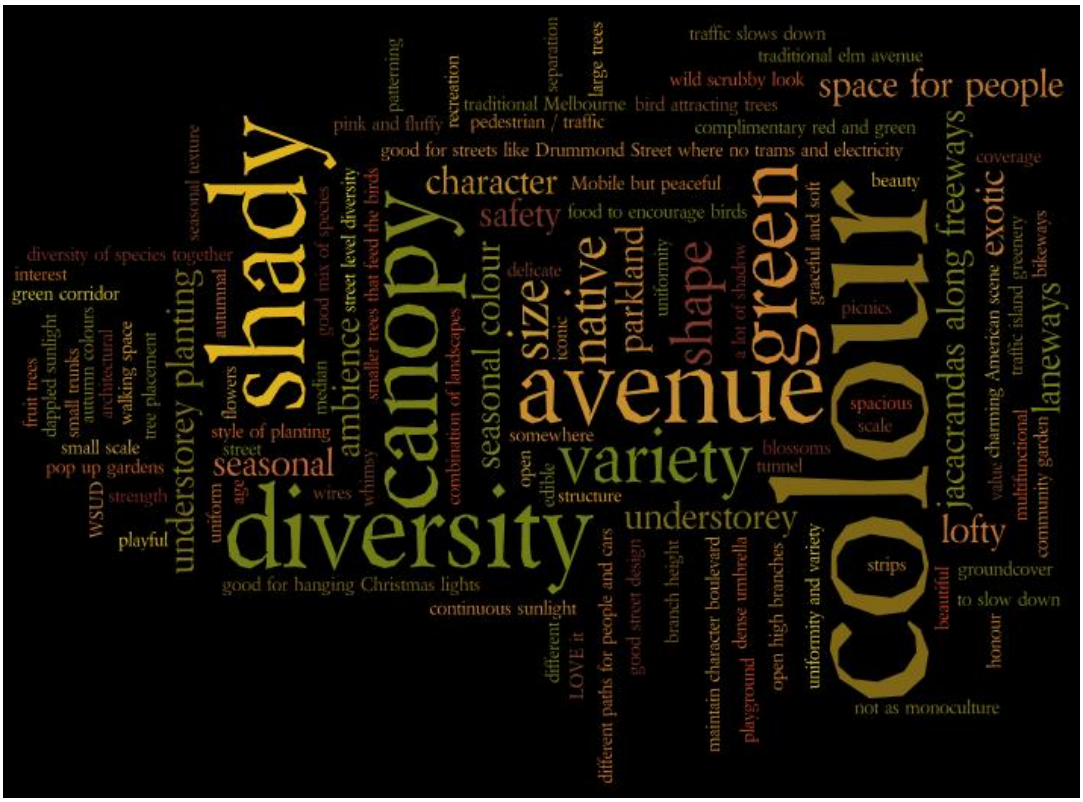
Central City Character and Preferences for the Future

Each table was given a set of the same thirty three. The photos acted as prompts to convey ideas of a desired future. Each table was asked to divide the photos into three groups based upon the urban forest character they envisaged the Central City. Photos were to be grouped into the following:

- Photos that best represent the future Central City.
- Photos that represent the future you don't want.
- Photos you are unsure about or cannot agree upon.

The photos that were generally agreed to best represent the future Central City were:

Participants were then invited to add a word or phrase on a post it notes to describe their photo. A summary of these key words from all the tables has been combined into the following wordle:



The photos that were generally agreed (by 5 out of 6 tables) to represent an unwanted future:

Using the photos they had selected, each group was asked to draft a character statement and the results were as follows:

12. The Character we want for Central Melbourne is:
    a. Beautiful
    b. Honourable
    c. Safe
    d. Native
    e. Separation
    f. Valuable
    g. Different
    h. Robust
    i. Reliable
    j. Healthy
    k. Don't allow the past to disable the future

13. The character we want for Central Melbourne is:
    a. Wow
    b. Lofty and uniform shape
    c. With diverse trees
    d. Street level diversity - colour, shape
    e. Graceful and soft
    f. Ambience and green
    g. Variety, delicate
    h. Colour and flowers - blossoms
    i. Autumn colours for seasonal texture
    j. Traffic island greenery
    k. Mobile (street) but peaceful
    l. Good match of diversity
    m. Elegance
    n. Healthy, robust
    o. Future oriented, longevity

14. The character we want for Central Melbourne is:
    a. inviting spaces for people (cool summer/warm winter)
    b. for a variety of uses

c. with colour, diversity, lushness, abundance, beauty
d. the character of forest like a cathedral of vegetative whimsy
e. traffic slows down

15. The character we want for Central Melbourne is:
    a. big canopy
    b. some areas evergreen (wide road), some areas deciduous
    c. variety of trees - different for promenade, laneways, small parks
    d. water efficiency
    e. romantic spaces under trees
    f. movie-like trees, mysterious trees
    g. community tree - celebrate birthdays. Plaque - donation (individual and corporations)
    h. New building must plant 50 trees - doesn't have to be in front of it
    i. Planter boxes under trees - give another layer of greens

16. The character we want for Central Melbourne is:
    a. Good combination of different landscapes
    b. Habitat for humans - playful
    c. Seasonal colour
    d. Continuous green corridor
    e. Provide a sense of place - "identity", Iconic" tree

17. The character we want for Central Melbourne is:
    a. Fitting trees and plantings to the available space
    b. Giving:
    c. Variety
    d. Colour
    e. Diversity of species
    f. Shade
    g. Native habitat
    h. Low maintenance
    i. Understorey where possible
    j. Pedestrian friendly
    k. More open space to be created

18. The character we want for Central Melbourne is:
    a. Traditional - elms
    b. Colourful
    c. Variety - exotic and native
    d. Avenues
    e. With
    f. Structured
    g. Parkland suited for community gardens/playgrounds
    h. Laneways

19. Selection criteria:
    a. Variety of trees
    b. Centre planning
    c. Plantings at ground level other than grass - proper understorey
    d. Seasonal variety e.g. spring, autumn and deciduous
    e. Green
    f. Shady
    g. Colourful
    h. Integrated
    i. Sustainable buildings
    j. Deciduous
    k. Diverse plantings (source and scale)
    l. Under-planting
    m. Edible

What We Were Told: Online Conversation

The online conversation is continuing at melbourneurbanforest.com. Comments to date support:

- Increasing permeability
- Implementing incentives to encourage awning removals and use of long-term vacant land
- Greening tram tracks
- Increasing tree species diversity
- Understory planting
- More greening
- Low allergy species
- Edible trees
- Providing trees and other plantings to support native animals and birds
- Plant trees in Kingsway, Victoria Market carpark, Enterprise Park, Power Street, City Road, along the river adjacent to Flinders Street Station

Summary of Key Messages from Central City Consultation

The central city is full of opportunities for greening to create safe and inviting habitats for people. City spaces need to be multi-purpose, and tree planting or greening should be fit for purpose and creative. Achieving the vision for Melbourne's future urban forest is a shared responsibility and needs to be a collaborative effort between government, residents, developers, businesses and the community at large.

Desired future states defined by the community:

- Beautiful, safe, healthy, valuable, ambient, soft, elegant, whimsical, playful
- Diverse, different, colourful, seasonal, green - native, evergreen, deciduous
- Healthy, robust, long-lived, low maintenance
- Pedestrian amenity, inviting, multi-purpose
- Forest-like with greening everywhere

Urban forest benefits highlighted through community consultation:

- Shade
- Biodiversity
- Water capture and storage
- Food production
- Aesthetic beauty
- Opportunities for play and playfulness
- Pedestrian protection and traffic calming

Area Proposed for New Greening	Explanatory notes
Degraves Street	Replace umbrellas and heaters with trees
	Replacement of plane trees with some other trees (preferably indigenous). OHS issues/health
	Concern that climbing gardens will assist a fugitive/criminal (public safety concern)
	Use of planter boxes in high rises – Like Switzerland
	Have businesses “sponsor” a green area with their board as an advert
	Issues regarding maintenance of rooftop, vertical gardens etc.
	Soil quality – arsenic, lead and hydrocarbons. Where do you get clean soil?
Opposite Southern Cross Station	Make a garden out of bomb site.
Area bordered by Lonsdale Street, William Street Street, Collins Street and Spencer Street	Barren – Add green and colour
On edges of Flagstaff Gardens - Latrobe Street and William Street	Add plantings on edge
Little Bourke Street	Consider making some small streets pedestrian only so can put trees and green in the road.
Railway Place	Has high foot traffic and no trees for shelter. Noise barrier, aesthetics.
Swanston Street	Add colour. Add colour – like Town Hall
Victoria Street	Add plants
Wesley Church site - Lonsdale Street	Make public garden. Turn car park into green park/garden.
Area between Russell Street, Bourke Street and Little Collins Street	More Roof Gardens
150 Collins Street	Greening plans
Lane off Mackenzie Street	Trees were removed for development Requirements for developers: In the planning scheme must be compulsory to provide and maintain green spaces. E.g. developers not allowed to remove established trees
Carlton Gardens	No heavy structures for events
Balconies	Help citizens green balconies
Lanes bordered by Latrobe Street, Swanston Street, A’Beckett Street and Elizabeth Street	Need some greening
Building on corner of Flinders and Spring Street	Courtyard trees are all dying since govt depts. Took over the building.
Banana Alley	Greening the underpass
Extension of Bourke Street at intersection of Wurrundjeri Way and Harbour Esplanade	Pop-up gardens All need planters
Community gardens	Buildings in charge of rooftop gardens
Carlton Gardens	Fruit trees
More WSUD along footpaths	
St Francis Catholic Church	Make a park in car park

Area Proposed for New Greening	Explanatory notes
Pop-up gardens	Community based - If intersection too hot could use raised scaffold across a laneway to put garden for heat reduction on upper platform. Incentives for businesses to have pop up gardens outside shops/buildings under construction
Use fruit trees in various precincts	Beauty, amenity, fruit, deciduous, educational. E.g. Spanish towns
Parking areas on streets	Put stone paving with grass/vegetation. E.g. Gisborne Street
Parliament House	Grass, vegetation
Ensure all planning decisions are underpinned by environmental priorities.	
Identify every space and green it.	E.g. beside the MCG next to the railway line Approach private landowners to improve/create greening.
Queen Victoria Market car park	Put underground or a roof garden
Elizabeth Street	Bring back the creek
Vertical gardens throughout Central Melbourne	
Rooftop gardens throughout Central Melbourne	
West of Spencer Street	What a waste land
Old CUB site	Vertical garden
Errol Street primary school, Howard Street/Victoria Street, St Mary's church	rip up asphalt
City Square	Rainforest? Native fruit and nut trees e.g. plumpine, macadamia, lilly pilly
Plantings over train lines	
Identify empty spaces	Temporary gardens
Yarra River	How will bush corridors link river with parks?
	Cycle paths, but need somewhere to stop and enjoy sense of place
Elizabeth Street	Convert Elizabeth Street into water course with trams along the sides.
	Visitors require green spaces to sit and relax when visiting the city
Chinatown Plaza	Little pockets should be converted to green laneways
Small laneway off A'Beckett Street, near Elizabeth Street	Similar to the Hi Line in NYC. The Hi Line is a beautiful example of a run down space converted to a green urban master piece used by all New Yorkers.
Buildings opposite Southern Cross Station on Spencer Street	These eyesore buildings could be converted.
On all streets	Plants, as many trees as possible to make it a green promenade.
	Around current, new trees – surround them with lovely planter boxes like in Chicago and Vancouver. I've got photos if you want. y.singer@alfredorg.au

Area Proposed for New Greening	Explanatory notes
	On prominent street corners plant trees. No new buildings closer than 6 -2 metres to curb to open the streets.
	Grow more food, fruit trees, nuts, vegetables Experimental garden plots/character planting bees
Yarra River	Trees along the Yarra. Canopy will assist in reducing evaporation, create habitats for birds and other small species
Wurrundjeri Way and Collins Street	Trees here
Latrobe Street	add greenery, vertical garden?
Etihad Stadium	Adopt ideas from overseas cities
Tram stations	Small trees, flower boxes, “greenize” the tram stop, especially where there is only small trees
Facilities for bikes trailers on trams and trains	Vancouver – because has racks on buses This helps cyclists to halve their travel routes Also assigned carriages for bikes at rush hour times. This is so car spaces can be converted into tree plots. More streets can be converted into park and pedestrian spaces.
	Encourage people to adopt “sponsor a tree” to increase personal attachment to green space
Old CUB site	Big trees in centre
Corner of Swanston and Victoria Street	Green wall No Smoking
Alma Place	Planter boxes
Journey from CBD to Docklands is very barren!	
Over Victoria Street	Flowers in centre strip
Places where people working in the city can sit under a tree for lunch/coffee break/time out. On every corner!	
Latrobe Street (between Swanston Street and Elizabeth Street)	Plant trees on Copenhagen-style bike concrete pavement
ANZ plaza	Upgrade – lawn, herb boxes
Elizabeth Street	pedestrianised
Site opposite Southern Cross Station	Bomb site. Temporary pop-up garden
Flagstaff Gardens	More, better benches and BBQ Private property down pipes feed to WSUD of the park
Buildings off Little Bourke Street (near corner of Elizabeth Street)	Rankins Lane garden at end Garden on fire stairs Height of potted plants Public liability issues Type of plants Funds for gardens Rooftops and O/C Rates to allocate gardens Rebates? To encourage rooftop and wall gardens

Area Proposed for New Greening	Explanatory notes
State Library of Victoria	
	Our group didn't know how to actually do it as didn't know Council regulations. We think Council should appoint aperson to talk to residents/businesses about how to do greening. • Projects • Rebates
	Vertical coordination across precincts – other municipal governments.
	Small parks as productive space and social space. Small gardens – maintenance; ownership. Public space "regulation" for planting? Physical barriers regarding planting Security issues Watering Maintenance
City Square	More green, less granitic sand.
	Pop-up trees in planter boxes as on Southbank for instant greenery Rate/rebate for roof gardens please! More permeable pavement. Concrete waffles with grass in the spaces for car parks – best of both worlds.
Old CUB site	Interim space
Opposite Spencer Street plaza	Market garden
King Street, Queen Street, Russell Street, Exhibition Street, Spring Street, Flinders Street Station, Bourke Street (between Swanston and Elizabeth), A'Beckett Street, Franklin Street, Queen Victoria Market	Centre planting of big trees with water systems
William Street (between Bourke and Lonsdale), Elizabeth Street (between Collins and Bourke), Collins Street (between Exhibition and Russell)	Make alternate sections streets trams - no traffic – trees and seats etc.
Bourke Street	Replicate Collins Street - different trees
City Square, Southbank and Yarra Promenade	Naturalise porous surface. Naturalise the banks
	Consider open space in roof gardens with public access. If unable to set buildings back to create on open space.
RMIT, Suncorp Centre	More vegetation
Kavanagh Street	Urban forest
Flinders Street Station on Flinders Street	Trees or wall garden
Cardigan Street, Lygon Street, Drummond Street	Add park spaces
Add park space in redevelopments	
Elizabeth Street (between Collins and Flinders)	No trees resizing
Queen Victoria Market car park	Become an example of green car park Other carparks that we would like to see improvements - car park in Flinders Lane (near King Street) and Little Collins Street (near Spring Street)
Spencer Street	Greening Spencer Street because it is an important entry to Melbourne

Area Proposed for New Greening	**Explanatory notes**
Latrobe Street	More trees
Flinders Street	More trees
King Street	Vandalism is King Street. Trees damaged for over 10 years
Market Street	Space for big trees – less road
Temporary greening of development sites (tub trees)	
Tram stops - trees	
Coordination of greening/ permeation of surfaces with all other infrastructure activities	
Carlton Gardens	Vegetable and community garden
Apartment owners – “green” balconies to create green walls	
Latrobe Street (between Russell and Exhibition), Swanston Street	More trees
Queen Victoria Market, Flagstaff gardens	More seating for people
Elizabeth Street	Trees at tram stops
Flagstaff Gardens	Communal gardens in parks
William Street (between Lonsdale and Franklin)	Walls greened?
Public education re necessity for greening our City	

Attachment 3
Agenda item 6.2
Future Melbourne Committee
19 November 2013

CENTRAL CITY URBAN FOREST PRECINCT PLAN 2013 – 2023

CITY OF MELBOURNE

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.

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.

Signature inserted here

Robert Doyle
Lord Mayor

Signature inserted here

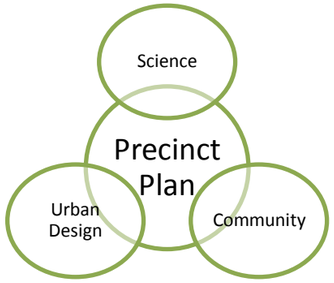
Cr Arron Wood
Future Melbourne (Eco-city) Committee Chair

Precinct Plan Content

Introduction to the Precinct Plans 3
How does Melbourne's Urban Forest Measure up? 4
What will the Precinct Plans Achieve? 5
The Vision for the Central City's Urban Forest 5
Community Priorities 7
The Central City's Urban Forest in 2013 and its Projected Future 8
Prioritising Tree Planting in Streets 10
Map 1: Priorities 11
Guiding Principles and Considerations for Tree Planting 12
Map 2: Key Planting Constraints and Opportunities 13
Map 3: Natural and Open Space Context 14
Map 4: Strategic Context 14
Map 5: Planting Sub-precincts 15
Map 6: Canopy Cover Outcomes 16
Map 7: What Should Stay and What Should Change? 17
Planting Strategies 18
Map 8: Long-term Planting Strategy 18
Map 9: 10-Year Planting Plan 19
Species Palette 20

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.



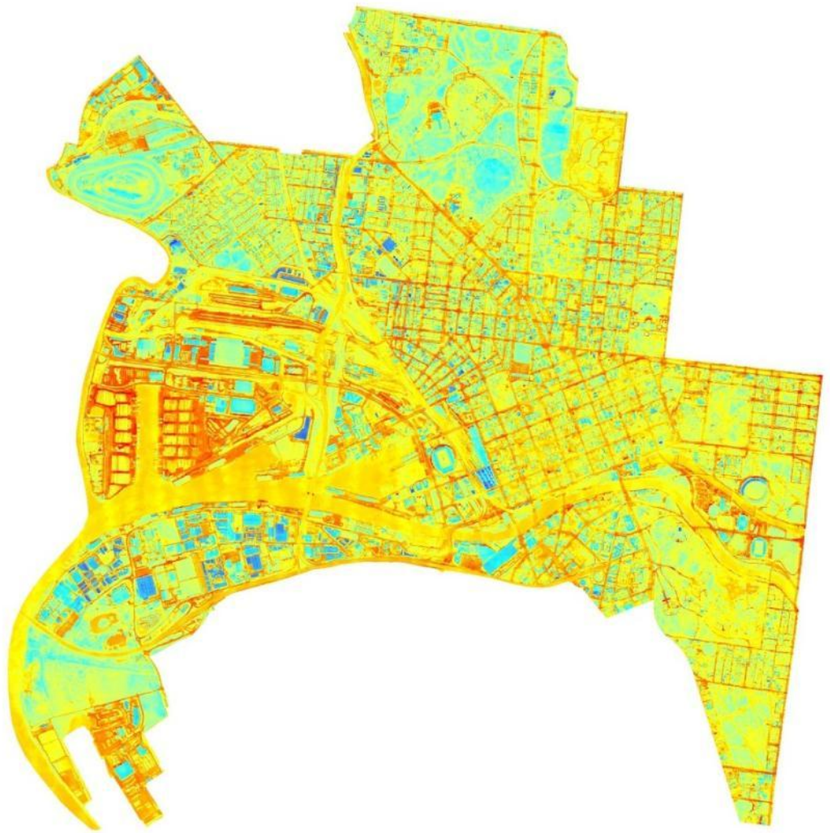
Each precinct plan has been developed in collaboration with the community, and is grounded in the science underlying the Urban Forest Strategy and in sound urban design principles.

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.



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

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

Why are we Concerned About Climate Change, Urban Heat Island and Population Growth?

Climate change impacts to human health and well-being are a significant concern for our City. 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. 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 9 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 well-being.

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 provide healthy and 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.

The Urban Forest Strategy

The directions and 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*

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.

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.

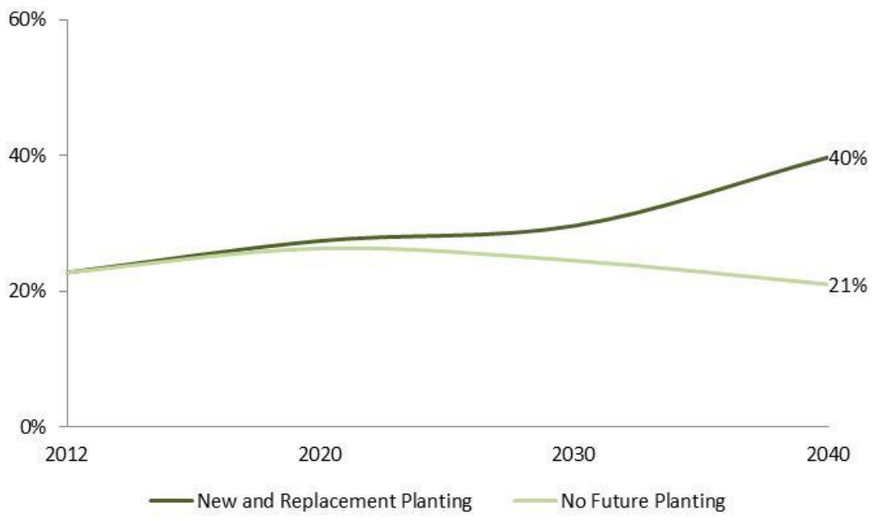
Useful Life Expectancy

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.

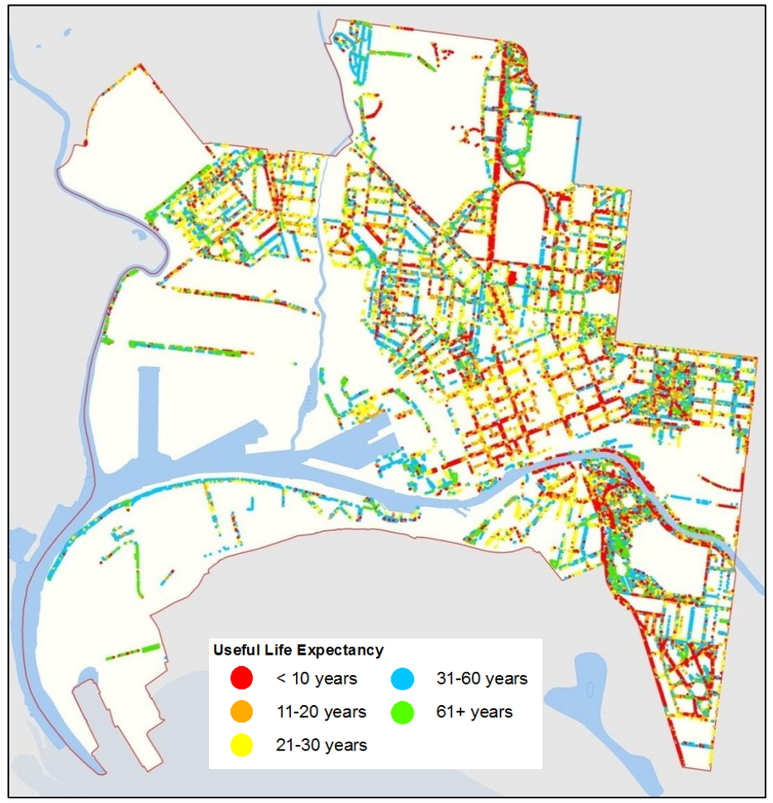
Canopy Cover

Increasing the provision of summer time 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.

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.



Useful life expectancy mapped for City of Melbourne Trees.

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. The City's *Total Watermark Strategy* is being updated to strategically manage Melbourne's water catchment. In the meantime, the City has 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:

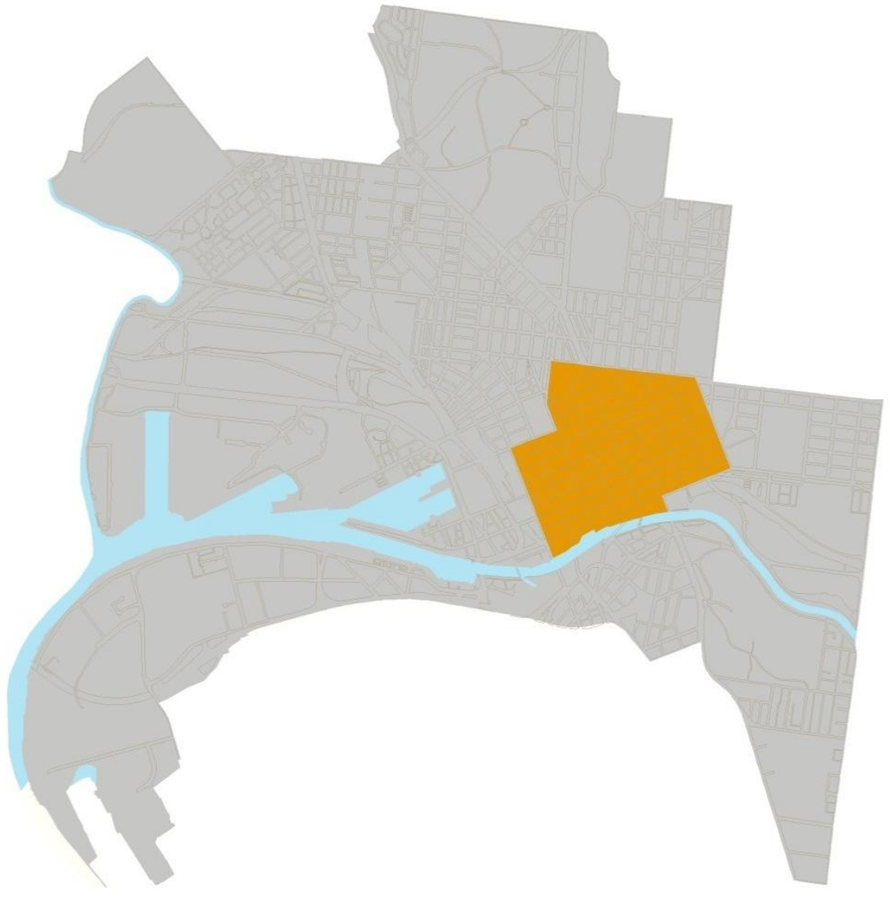
- Decreased vegetation cover and below ground growing space;
- Decreased infiltration of water into the ground;
- Increased pollutant runoff; and,
- Increased hard surfaces contributing to the urban heat island.

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. The City is 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.

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.



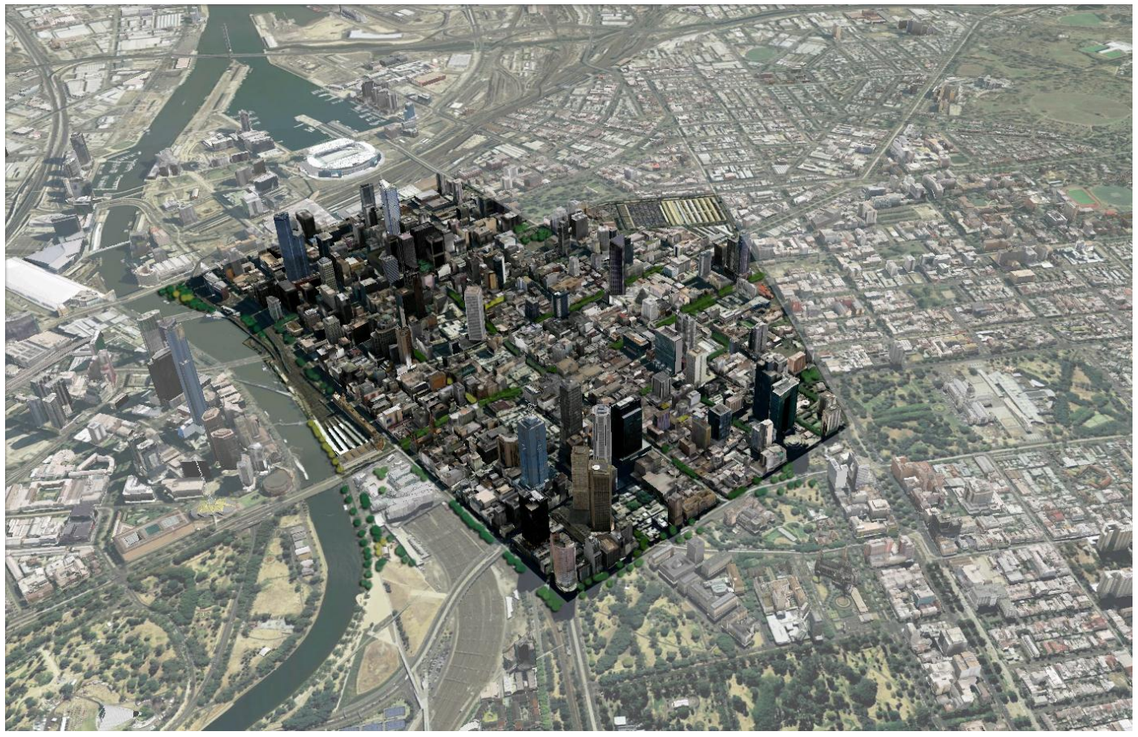
The City of Melbourne boundary is shown in grey and the Central City Precinct is highlighted in orange.

Policy Context

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

The Vision for the Central City's Urban Forest

The Central City's urban forest will provide a safe and inviting habitat for people. The forest will be beautiful, colourful and diverse, achieving whimsy in playful spaces and elegance along grand city streets.



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. Council 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.

In and adjacent to the Central City precinct, RMIT, the College of Surgeons, the State Library and state government manage large areas of land 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.

The setting and role of the CBD urban forest

The central city's streets are laid out in a uniform grid of wide (30m) main streets, subdivided by narrower (10m) east-west 'little' streets and a number of laneways. Expansive parklands and the Yarra River corridor adjoin the central city but there is little parkland within it; streets are the main public open spaces that people in the CBD use and enjoy. The amenity of streets is therefore especially important, and trees are vital contributors to that amenity. Given the height of many city buildings, quite large street trees are required to have a proportional visual impact that maintains a sense of human scale throughout the city.

Street conditions

Despite the uniformity of the grid as a whole, the 30m streets vary, with tramways in some and medians or centre-of-road parking in others, and relatively wide or narrow footpaths in different streets. Varied building heights and characters also make some streets sunnier or shadier, and more or less enclosed, but in general large buildings face directly onto the footpaths and create continuous walls along the sides of the street.

Historical and existing tree plantings

The first significant street tree plantings in central Melbourne occurred about 1875, when elms were planted in Collins Street near the Town Hall and towards the east end of the city. Plane trees were also planted in a number of streets in the following decades. However, many streets remained treeless throughout this period and beyond, and attention was lavished instead on pockets of land such as Gordon Reserve, which was heavily planted. Other tree species were planted in the twentieth century: for example, Ash trees were planted along much of Collins Street and next to St Pauls Cathedral in the 1940s, and Paperbarks were planted along Latrobe Street in the 1970s.

Despite these varied plantings in the past, the existing street tree population in the central city is now dominated by Plane trees (74%, being mostly *Platanus* x *acerifolia* with some other cultivars). Some of these have been here for decades, and mature Planes with their limbs arching over the roadway add greatly to the city's character and amenity. In the 1980s and 90s Planes exclusively were planted, replacing poorly performing Ash trees, healthy but under-scaled Paperbarks and a scattering of Elms in various streets.

While Planes have been favoured because of their large scale and robustness in harsh city growing conditions, the result is a virtual monoculture. Transforming from monoculture into a more diverse urban forest while respecting the formal dignity of the city's regular street grid is an important challenge for the precinct plan.

Little streets, lanes and plazas

Planting opportunities in little streets, lanes and the city's handful of plaza spaces contribute to their amenity. Some add important touches of local character, like the ginkgo in Cohen Place (Chinatown) and the Jacarandas in Brown Alley. The fronds of the *Phoenix reclinata* palms hanging over the back wall of the Melbourne Club's garden add significantly to Little Collins Street. However, these plantings are limited in number and require intensive site-specific investigation in proportion to the extent of greening provided, and are therefore not addressed in detail in this plan.

Latrobe Street c1870. Like many other CBD streets it remained treeless for decades. [Mitchell Library]

The east end of Collins Street, showing elms or planes planted in the 1870s.

Gordon Reserve, showing the changing plantings in the 1880s and 1930s. Small reserves like this, in combination with the larger public gardens, provide a green edge for the CBD.

Swanston Street in 1987 and 1995. The widening of footpaths in in 1991 created an opportunity to transform the street with new tree plantings.

Community Priorities

Central City'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 Central City's urban forest.

The central city is full of opportunities for greening to create safe and inviting habitats for people. City spaces need to be multi-purpose, and tree planting or greening should be fit for purpose and creative. Achieving the vision for Melbourne's future urban forest is a shared responsibility and needs to be a collaborative effort between government, residents, developers, businesses and the community at large.

Consultation with the Central City community indicated a preference for trees that would provide large, arching canopies over streets. Trees that would provide colour and seasonal interest were also preferred.

Desired future states defined by the community:

- Beautiful, safe, healthy, valuable, ambient, soft, elegant, whimsical, playful
- Diverse, different, colourful, seasonal, green - native, evergreen, deciduous
- Healthy, robust, long-lived, low maintenance
- Pedestrian amenity, inviting, multi-purpose
- Forest-like with greening everywhere

Urban forest benefits highlighted through community consultation:

- Shade
- Biodiversity
- Water capture and storage
- Food production
- Aesthetic beauty
- Opportunities for play and playfulness
- Pedestrian protection and traffic calming

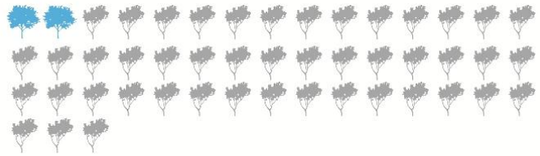
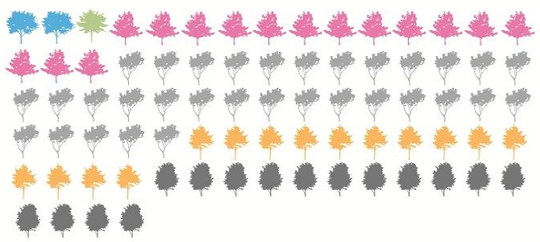
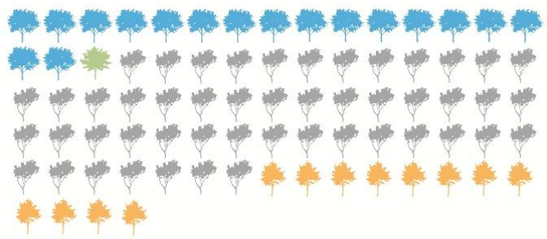
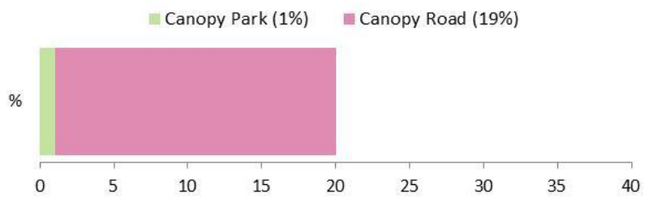
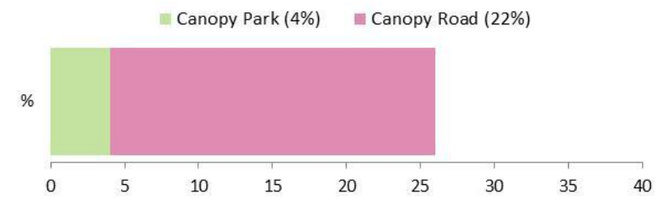
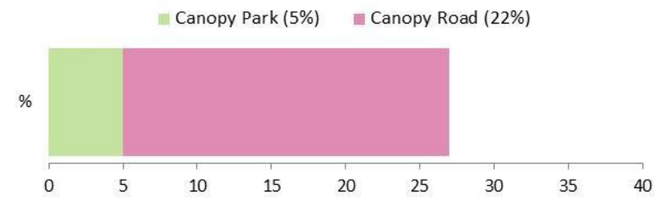
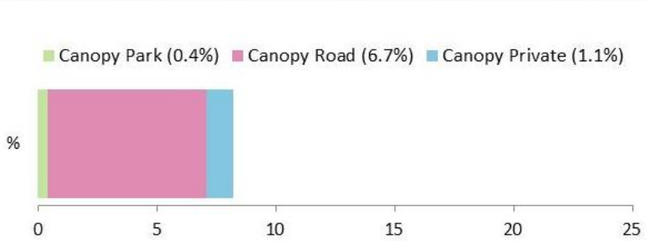
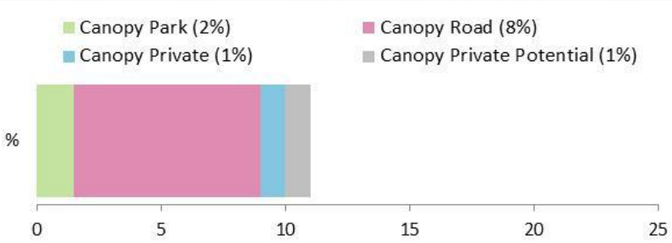
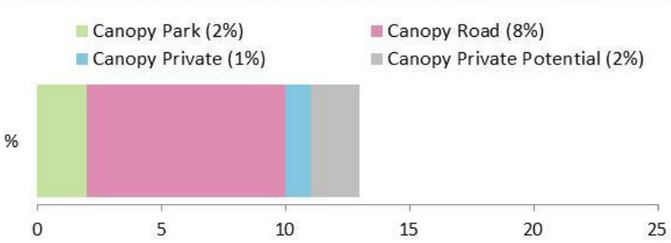
Colour

Streetscape

Interest

Images selected as representing a preferred future for the Central City urban forest that includes colour, canopy, shade, seasonal change and habitat.

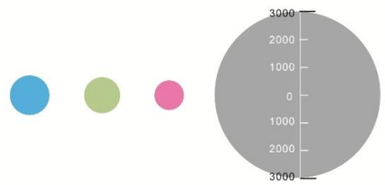
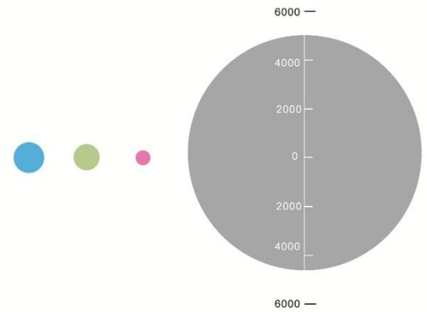
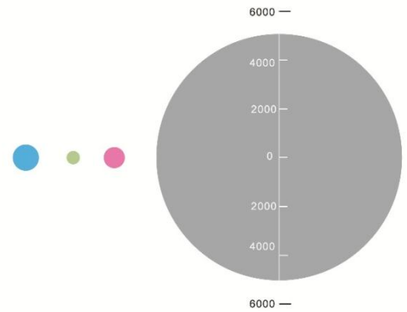
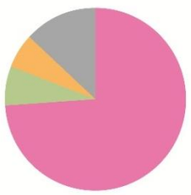
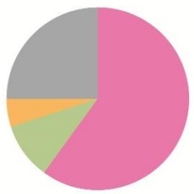
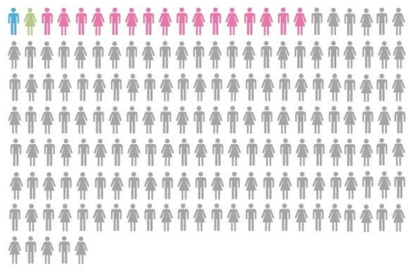
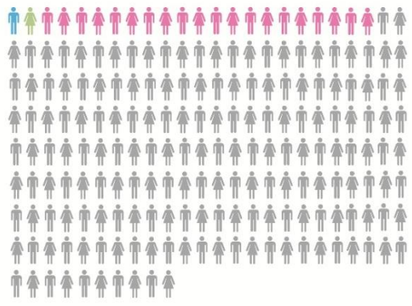
The Central City's Urban Forest in 2013 and its Projected Future

	Central City 2013	Central City 2023	Central City 2040
Trees Public Realm[1]	 Existing Park Trees (107) Existing Street Trees (2337)	 Existing Park Trees (92) Replacement Park Trees (15) New Park Trees (750) Existing Street Trees (1631) Replacement Street Trees (706) New Street Trees (750)	 Existing Park Trees (851) Replacement Park Trees (6) Existing Street Trees (2450) Replacement Street Trees (637)
Canopy Public Realm[2]			
Canopy Entire Precinct[3]			
Urban Ecology	Open spaces provide habitat value for native birds and pollinators but are not well connected by vegetated corridors.	Connectors between open space will have been strategically implemented with overstory and understory plantings to enhance biodiversity values in Central City streets.	Private realm gardens, public streets and open spaces form connected green corridors that provide habitat for native birds and pollinators.

[1] Trees Public Realm: These data are sourced from the tree inventory dataset, 2011 Useful Life Expectancy data and an estimate of planting opportunities across the precinct. Replacements and new trees planted in 2023 and 2040 are estimates only.

[2] Canopy Public Realm: These data are sourced from the tree inventory dataset, 2011 Useful Life Expectancy data, 2008 canopy mapping, and 2011 canopy mapping. Projections of future canopy are estimates only and are based on the anticipated distribution of average tree canopy areas by age class in future years with loss, growth of recent plantings, replacements and new plantings.

[3] Canopy Entire Precinct: These data are sourced from 2011 canopy mapping. Projections of future canopy are estimates only and are based on the proportional change expected in public canopy. No change was applied to private canopy given that no data is available on useful life expectancy of trees in the private realm. Canopy Private Potential is a representation of canopy gains that could be made if new plantings occur in the private realm and is symbolic only.

	Central City 2013	Central City 2023	Central City 2040
Tree Health (ULE) In the Public Realm[4]	 10 years or less 11 - 20 years 21 - 30 years > 30 years	 10 years or less 11 - 20 years 21 - 30 years > 30 years	 10 years or less 11 - 20 years 21 - 30 years > 30 years
Diversity (genus) Public Realm[5]	 Platanus (74) Corymbia (7) Waterhousea (6) Others (13) Others (13%): 27 genera	 Platanus (60) Corymbia (10) Waterhousea (5) Others (25) Others (25%): 35 genera	Platanus (25) Corymbia (10) Waterhousea (5) Others (60) Other (60%): 40 genera
Inform and Consult the Community[6]	Residents Younger than 5 (600) Residents older than 74 (310) Residents of all other ages (24,372) Workers (estimated jobs 253,110) Residents, workers and visitors to Central City have collaborated to develop the Urban Forest Precinct Plan. Residents are consulted on species choice in their street.	 Residents Younger than 5 (994) Residents older than 74 (475) Residents of all other ages (31,847) Workers (estimated jobs 310,457) Residents will be consulted on species choice in their street. Council will be providing guidance to, and working in partnership with residents, institutions, developers and businesses to enhance both public and private realm urban forest.	Forecast to 2031 only  Residents Younger than 5 (1,184) Residents older than 74 (633) Residents of all other ages (40,581) Workers (estimated jobs 360,001) Residents will be consulted on species choice in their street. Council will be providing guidance to, and working in partnership with residents, institutions, developers and businesses to enhance both public and private realm urban forest.

[4] Tree Health Public Realm: These data are sourced from the 2011 Useful Life Expectancy data. Projections of tree numbers are estimates based on the ULE for the existing tree population. Where ULE exceeded 30 years, 10% of the population was assumed to decline per 10 year period.

[5] Diversity (genus) Public Realm: These data are sourced from the tree inventory data set and 2011 Useful Life Expectancy data. Genus refers to groupings of related species and is a convenient scale at which to examine diversity, however species, family, spatial and structural diversity are also important to creating a resilient urban forest. Projections of future genus diversity are estimates only and are based on the expected losses within each genus as trees age and the assumption that many of the new and replacement trees planted will be selected from alternative genera.

[6] Population forecast sourced from Small Area Population Forecasts 2006 to 2031, City of Melbourne. Employment forecast sourced from SGS Economics and Planning Employment Forecasts, KSA1 Scenario.

How the Precinct Plan Guides Annual Planting

Inputs

Set Annual Planting Program

Priorities (Map 1)

Streets Undergoing Unforseen Change (e.g., 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 & 9

Select Species

Review Streetscape Objectives

Review What Should Change (Map 7)

Review Planting Plans (Map 8 & 9)

Review Species Pallette

Implement Planting

Produce Streetscape Design Options

Consult with Residents

Plant

Prioritising Tree Planting in Streets

When prioritising where and when to plant, it is important to focus resources in the locations that need it most. This includes consideration of where opportunities exist 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. Community priority is also used as a criterion in other precincts but, given that all streets in the Central City were highlighted as a priority in community consultation, it is not represented as a separate layer. Census and mapping data were used to spatially define streets with these conditions and are defined on the maps below.

1. **Streets with opportunities for planting or replacements**
2. **High density (>20) of vulnerable residents (< 5 or > 74 yo)**
3. **Hot and very hot streets**
4. **Tree replacements required in next 10 years**
5. **Canopy Cover < 20%**

Major streetscape redesign opportunities

There are opportunities for significant redesign in some streets, which should be resolved before any replanting of trees is undertaken in these locations. They may include:

Elizabeth St and William St: universal access tram stops

Lonsdale St: redesign post closure of power station and *The Age*

Dudley St-Franklin St: link across QVM car park

Victoria St: traffic downgrade following QVM link

Flinders St (Exhibition to Russell): widen footpath to incorporate plane trees now in carriageway

Exhibition St and Queen St: bike lanes and medians

Spring St at College of Surgeons: excess road space allows for greening and WSUD initiatives

Implementation 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. For example, development on the former Spencer Street power station and The Age sites are likely to damage trees in the western-most block of Lonsdale Street, although this otherwise stands out as a major short term planting opportunity. Conversely, the potential to radically improve growing conditions by rebuilding centre islands/medians with better subsoil preparation gives replacement of the central plantings in Exhibition, Russell, Queen and Lonsdale St a high priority even though these are relatively well shaded at present. 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; or,
2. Having a high number of vulnerable people with two or more occurrences of: very low canopy cover, temperature hot spot or replacements required.

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

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

Streets scheduled for Years 8 – 10 (2020 – 2023) include those with only:

1. High number of vulnerable people; or a combination of,
2. Very low canopy cover;
3. Temperature hot spot; or
4. Replacements required.

Map 1: Planting Priorities

High priority (years 1 - 4)

Moderate priority (years 5 - 7)

Lower priority (years 8 - 10)

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 Technical Notes and should be referred to when designing or planting any streetscape; however Central City specific principles are outlined below.

Planting Types and Locations: Preference large canopy trees

Most streets in Melbourne's CBD are heavily used and the area for planting is limited by competing demands for access, parking and other activities. To maximise canopy cover despite this constraint it is best to use large canopy trees that will spread across and shade wide carriageways without blocking access and visibility.

However, tree size may be limited by the position in a street. Large tree trunks simply won't fit in some narrow footpaths and retain adequate space for pedestrian access; some of the tree pits for mature Plane trees in Collins Street, for example, are wider than entire footpaths in other streets. Large trees also have large root systems and create the risk of lifting pavements and creating trip hazards in footpaths.

Map indicating footpath widths ranging from narrow (~3.6 m) to moderate (~5.4 m) to wide (~8.5 m).

Both overhead and underground factors commonly make planting in or near the centre of streets a lower-risk option than planting near the sides of a street. Underground services are a major consideration because there is a risk of damage to services by tree roots, and there is perhaps an even greater risk of damage to tree roots when works occur on services - excavations for services occur frequently in the CBD - and services are typically less of a constraint towards the centre of streets than near the edges. Trees located near or between traffic lanes are also more effective at shading road pavements than if they are located near the edge of the street reserve.

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

The convention of planting consistent avenues with a single kind of tree limits species diversity. However, avenue plantings are important to local character in many Melbourne streets and parks, not least in the CBD.

To balance these conflicting pressures, it is necessary to identify ways to minimise the extent of uniform avenues while maintaining a strong design outcome. A variety of approaches may be appropriate to do this, e.g.:

- Establish a hierarchy of streets identifying those that are most important to plant with continuous avenues and those where avenue plantings are less important.
- Avoid planting avenues where it they are unlikely to be successful in achieving uniformity. Factors that may interrupt avenues include underground or overhead services, roads traversing bridges, and overhanging trees from adjoining gardens.
- Identify logical points along the length of streets where species may change. This could include places where streets adjoin parks or important public spaces.
- Use asymmetrical treatments in narrow streets and where overhead wires affect only one side.
- Use informal mixes of species, e.g. along perimeters of parks, in streets where most trees are senescent yet important established specimens remain, and where vegetation from private gardens occasionally overhangs into the street.

Consistency of planting using a few species contributes importantly to the character of some precincts but works against species diversity objectives. It is therefore sometimes appropriate to maintain "over-representation" of key species in certain places, while minimising the use of these species elsewhere. London Plane trees are currently the dominant species in the CBD, and even if their use is substantially reduced it is likely that they will continue to be represent a much higher proportion of the tree population than the target maximum of 5% per species. This implies significant pressure to minimise the use of Planes in other precincts.

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

Most trees grow best where the soil can be emended to improve fertility, moisture retention, drainage, aeration and freedom of root growth. However, pavements limit access to improve soil. Where possible, it is desirable to improve soil conditions under paving to support tree growth e.g.:

- Undertake continuous trenching and soil improvement in medians and centre of road parking zones.
- Create structural soils below pavements that remain permeable despite compaction required to support the paving.

These concerns are particularly important in areas with bluestone paving, as the bluestone (on a concrete slab) is even less permeable than ordinary asphalt.

Passive irrigation using rainwater runoff should also be used to support tree growth while minimising use of mains water. Ways to achieve this include:

- Plant in or along low-lying locations and drainage zones where possible.
- Create permeable pavements in areas of low loading and risk, i.e. in footpaths, parking lanes.
- Construct rainwater infiltration pits located on the uphill side of side-entry or grated stormwater pits.
- Use planting pits that capture rainwater. These are particularly helpful for tree establishment.

There have been very few records of problems with tree growth in the CBD due to poor soil drainage. This might be a result of a multitude of underground services trenches that are backfilled with sand or screenings.

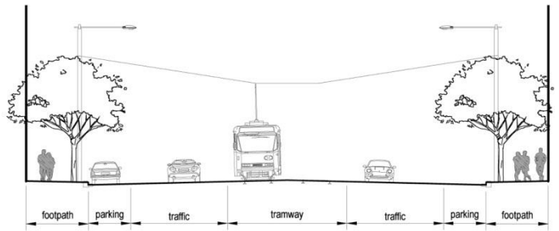
Planting Conditions, Constraints and Opportunities

In addition to the typologies of streets relating to trams, centre medians and footpath widths noted previously, several factors in different parts of the CBD affect tree planting. Despite the existing almost uniform planting of Plane trees, planting conditions across the city are not uniform. This, in part, explains the inconsistencies and variable success of existing trees.

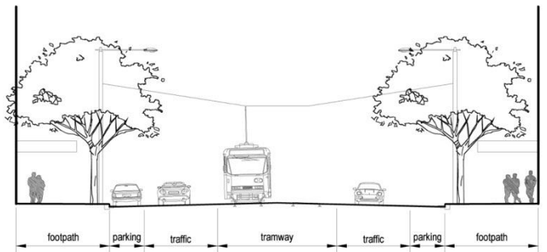
These factors will continue to affect tree planting and growth into the future. While they create gaps and defects in a scheme that now aims for uniformity of planting across the city street grid, they can be used positively to define new character for the urban forest, which aligns with other objectives.

Locations where planting is precluded by overhead and underground structures include rail loop stations, railway viaducts, tramways, streets on bridges and below pedestrian overpasses. In locations with areas on structural decks above railways, conventional tree planting is not sustainable. Locations with 30m wide main streets that do not carry tramways and feature central medians or centre-of-road parking interspersed with tree islands provide opportunities for large canopy trees.

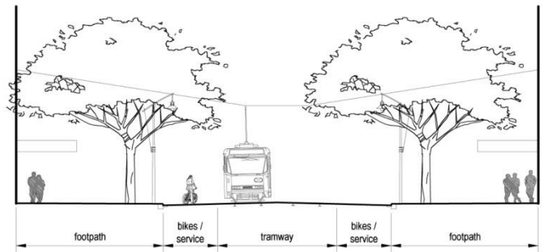
The cross sections at right illustrate typical arrangements of footpaths, tramways and traffic lanes in the 30m wide main streets of Melbourne's city centre. Footpath widths vary significantly even in these wide streets, and the presence of centre-of-road islands or medians opens up possibilities not present where there are tramways. Planting opportunities vary in relation to these typologies, and should influence the type of construction or excavation for planting as well as the selection of species.



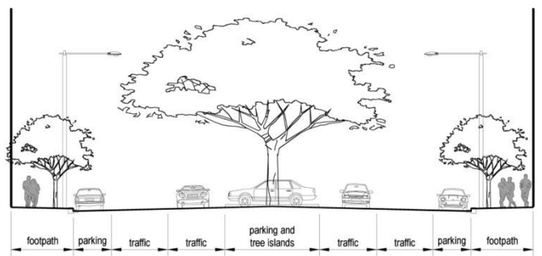
30m street with tramway + 3.6m footpaths (Flinders St, Latrobe St)



30m street with tramway + 5.4m footpaths (Collins, Bourke, Elizabeth)



30m street with tramway + 8.5m footpaths (Swanston St)



30m street with centre parking + 3.6m footpaths (Exhibition, Queen, etc.)

Map 2: Key Planting Constraints and Opportunities

Existing tram line with tram stop

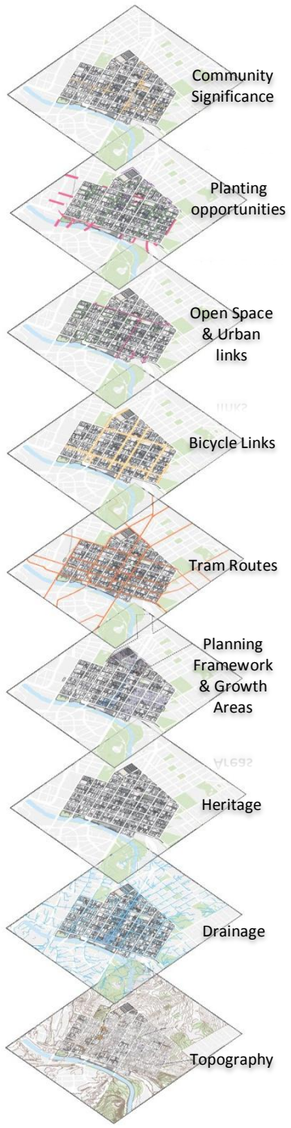
Low voltage powerlines

High voltage powerlines

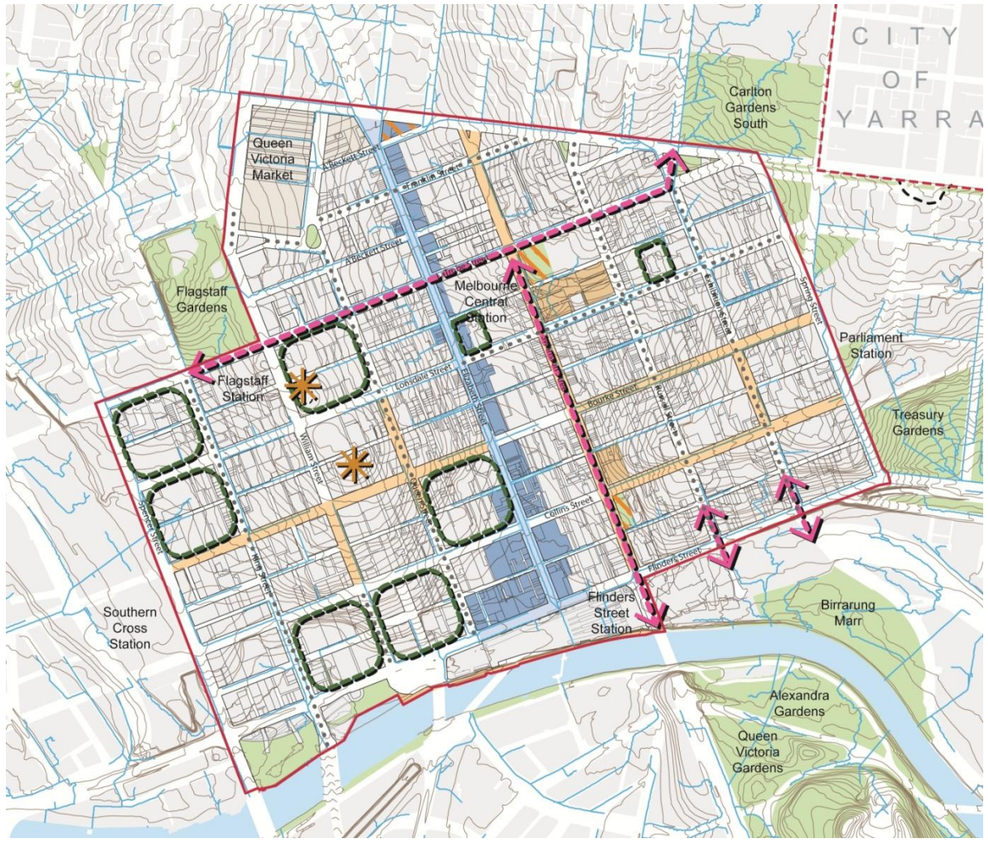
Areas on structure which limits planting

Central median planting opportunity

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



Map 3: Natural and Open Space Context



LEGEND

- Existing open space
- Significant open space identified by the community
- Significant section of street identified by community
- Special building overlay (buildings subject to flood damage adjacent to flood plain)
- Area for proposed open spce defined in CoM open space strategy
- Existing high point
- Existing Ridge line
- Proposed Open Space Links Horizontal / Vertical
- Median / Centre road
- Existing Contours 1m
- Existing Drainage Line
- Extent of City of Melbourne municipality boundary
- Boundary for CBD Precinct

Map 4: Strategic Context

LEGEND

- Existing Open Space
- Heritage listed property
- RMIT University Building
- RMIT University Building (with heritage overlay)
- State Library (with heritage overlay)
- City North Structure Plan Area Within CBD Boundary
- Retail core with relatively low building height limits
- Other areas with building height limits
- North South movement across streets
- Existing Bike Lane
- Boundary for CBD Precinct
- Extent of City of Melbourne municipality boundary

Balancing Diversity and Formal Structure

One issue that is particular to the CBD Precinct Plan, in comparison to implementation of the Urban Forest Strategy in other parts of Melbourne, is the challenge of defining a planting scheme that allows for far greater species diversity and interest than exists at present, while maintaining a design structure that gives the CBD a cohesive character and formal dignity appropriate to a place that is the state's premier office and retail centre, visitor destination, and seat of government.

Two major factors will shape this scheme: the typologies of streets (with or without trams, retail streets with wide footpaths, etc.) and the composite effects of factors that effectively break the central city into sub-precincts. These precincts are defined only from the perspective of tree planting (not on the basis of factor such as those used to define Chinatown or the Greek Precinct). In particular they reflect the factors noted on preceding pages, i.e.:

- Overhead and underground structures that preclude planting and growth of trees.
- Changes in topography.
- Changes in building height controls that affect light and wind conditions on the street.
- The presence or absence of significant parkland and green open spaces other than streets.

Map 5: Planting Sub-precincts

Parklands and civic open spaces

Parks and other open spaces are associated with the changing street alignments to the south, east and north of the CBD. A consistent planting approach for these areas, which contrasts with typical street tree plantings, will help to emphasise the identity of the CBD as a distinctive place.

Retail core

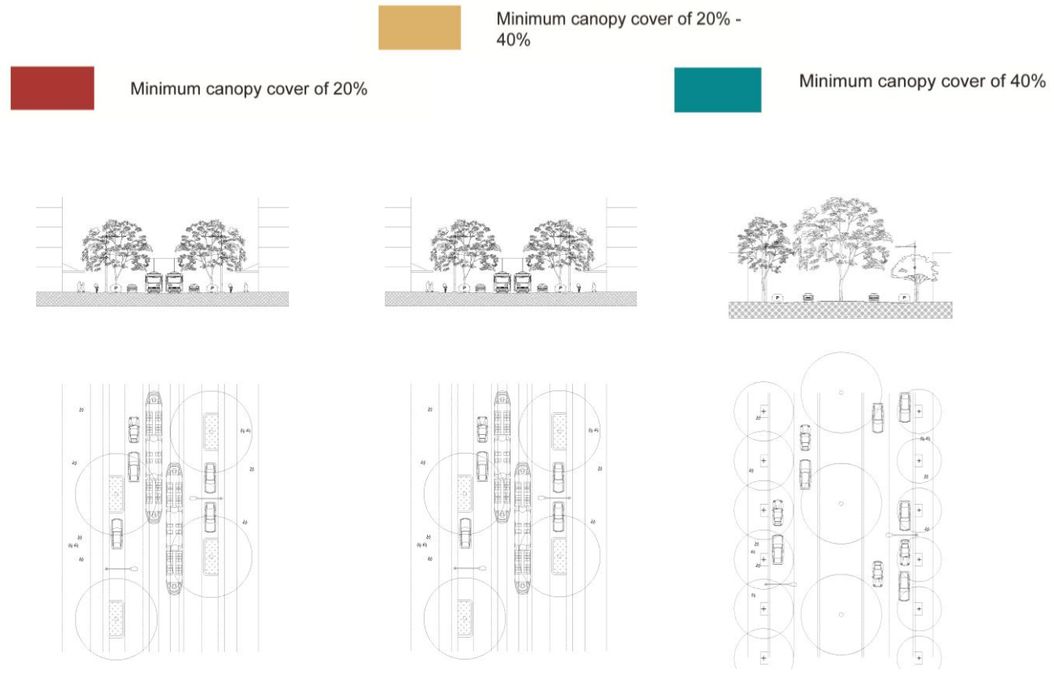
The central city's retail heart is distinct because of its situation in a valley between hills to the east and west ends of the city, lower building heights, the extensive pedestrian traffic crossing streets mid-block, the extent of verandas over footpaths that limit tree planting, and special treatment of the Bourke Street Mall.

Spencer Street railway decking

The link to Docklands over the Spencer Street railways is made up of streets and other spaces on structure, where conventional tree planting is not sustainable. Although Collins St and Latrobe St extend through the length of the central city and into Docklands, continuous uniform tree plantings along them are impossible.

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.



Map 6: Canopy Cover Outcomes

What Should Stay and What Should Change?

In general the following should change:

- Regular avenue plantings in locations suitable for incremental replacement as individual existing trees decline.
- Trees significantly damaged by construction projects, suitable for full removal and replacement.
- Trees requiring removal in existing centre tree islands with capacity for reconstruction (as continuous medians or separate islands) with radically improved subsoil conditions.
- Planes in relatively narrow and congested footpaths where scale is provided by centre median trees, to be replaced by smaller species.
- In little streets and laneways avoid using trees planted in the main streets.

In specific locations the following should remain the same:

1. Healthy Spotted Gums in Franklin St median/centre islands merit retention (ad hoc replacement of individual trees may be required).
2. Planes in Swanston St form a consistent and relatively healthy avenue and merit retention (ad hoc replacement of individual trees may be required).
3. Planes in key visitor/retail streets with wide footpaths, meriting retention with the same proven large-scale species (ad hoc replacement of individual trees may be required).
4. Senescent elms in Collins St are in need of short term replanting.

Map 7: What Should Stay and What Should Change?

Planting Strategies

This plan provides direction for new and replacement planting across the CBD. 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:

- In streets with tramways, the principle tree plantings will be in the footpaths.
- In streets without tramways, medians will accommodate the largest canopy trees in the CBD and help to create a visual structure that ties the sub-precincts of the Hoddle grid together as well as linking the civic and parkland precincts around its edges.
- Where large canopy trees in central medians are possible, smaller ornamental trees may be appropriate in the footpath if not precluded by verandas or other features.
- Where trees are in footpaths, deciduous trees should be favoured while trees in medians may be evergreens.
- A consistent visual structure should be created for the main street grid (30m streets) with consistent, regularly-spaced lines of trees along the length of each street.

Contrasting with this formal structure in the major grid, plantings in little streets, lanes and plazas should be highly varied both in species selection and planting arrangements, to add an element of surprise, whimsy and local colour as well as adding to species diversity. Planting arrangements in these areas will often need to be irregular and opportunistic.

Tram streets: Principal plantings in footpaths. Use deciduous species. Wide footpaths in key retail streets (Bourke, Collins, Elizabeth and Swanston) suit the largest reliable species: London Plane. Use other species in Flinders, Latrobe, Spencer and William Streets.

Median streets: Principal plantings in median / tree islands. Canopy height and breadth to be prioritised above other selection criteria (except hardiness) to ensure shading of the roadway. Evergreens an option. Trees at the side of the road, if any, may be smaller ornamental species.

Park-edge streets: On the park side, plant trees in the open space, not the footpath. In tram streets, plant trees in footpaths on the built side only. Plant medians as extensions of the adjoining park. Prioritise evergreens on the park side, deciduous on the built side.

Retail core: Species to contrast with those in the extensions of each street beyond the core.

Little streets, lanes and plazas: Select species as planting opportunities are identified. Aim to add to the diversity of species and vegetation type; species used in the main streets should not be used. Consider trees as small groups or individual specimens. Repetition of the same species should be limited in these smaller streets to encourage a sense of uniqueness when you step away from the larger streets. These trees can include some of those species less suited to avenue planting and can be quite dramatic in their seasonal change.

Map 8: Long-term Planting Strategy

10-Year Planting Plan

This plan provides direction on where new and replacement planting is to occur across the central city over the next 10 years. 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.

Map 9: 10-Year Planting Plan

Species Palette

The following species are provided for guidance and illustration only and do not preclude the use of other trees that suit the design criteria set out in the planting plan and other site-specific requirements that may be identified in the course of preparing detailed plans for specific locations. When available, larger stock should be planted in the central city so that tree canopies clear pedestrian height as soon as possible following planting.

Core Central City Trees (Limited New Plantings)
Platanus sp., plane

Dominant Species
Large Deciduous Trees for Tram Streets
Corylus colurna (trial), Turkish hazel
Flindersia australis (trial), Crow's ash (semi-deciduous)
Platanus x *acerifolia*, London Plane (for Collins, Bourke, Swanston and Elizabeth Streets)
Quercus cerris, Turkey oak
Quercus coccinea, Scarlet oak
Quercus frainetto, Hungarian oak
Quercus palustris, Pin oak
Ulmus procera, English elm
Zelkova serrata, Japanese zelkova

Large Evergreen Trees for Medians
Agathis robusta, Queensland kauri
Angophora costata, Smooth-barked apple
Corymbia maculata, Spotted gum
Corymbia citriodora, Lemon scented gum
Ficus rubiginosa, Rusty fig
Flindersia australis (trial), Crow's ash (semi-deciduous)

Retail Core Feature Trees
Ficus macrophylla, Moreton Bay fig
Phoenix canariensis, Canary Island date palm

Other Species
Medium Trees for Footpaths in Streets with Medians
Celtis australis, European nettle tree
Fraxinus americana, White ash
Ginkgo biloba, Ginkgo
Pyrus sp., Flowering pear
Tilia cordata, Small-leaved lime
Ulmus parvifolia, Chinese elm

Medium Trees for Footpaths in Small Streets and Laneways
Small streets and laneways provide opportunities for creative plantings and are not limited to this list:
Allocasuarina cunninghamiana, River she-oak
Calodentron capense, Cape chestnut
Ficus rubiginosa, Rusty fig
Livistonia australis, Cabbage tree palm
Populus simonnii, Chinese poplar
Stenocarpus sinuatus, Firewheel tree
Waterhousea floribunda, Weeping lilly-pilly
Washingtonia robusta, Mexican fan palm

Large trees for "park" edges and reserves

Agathis robusta, Queensland kauri
Araucaria heterophylla, Norfolk Island pine
Araucaria cunninghammi, Hoop pine
Cedrus deodara, Deodar cedar
Corymbia citriodora, Lemon scented gum
Ficus macrophylla, Moreton Bay fig
Jacaranda mimosifolia, Jacaranda
Phoenix canariensis, Canary Island palm
Pinus canariensis, Canary Island pine
Quercus canariensis, Algerian oak
Quercus ilex, Holm oak
Washingtonia robusta, Mexican 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 http://www.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. Council 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 melbourneurbanforest@melbourne.vic.gov.au.

I have seen a sick or damaged tree, or an empty tree plot. How can I tell Council 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 can be found at http://www.melbourne.vic.gov.au.

Attachment 4
Agenda item 6.2
Future Melbourne Committee
19 November 2013

EAST MELBOURNE & JOLIMONT URBAN FOREST PRECINCT PLAN 2013 – 2023

CITY OF MELBOURNE

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.

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.

Signature inserted here

Robert Doyle
Lord Mayor

Signature inserted here

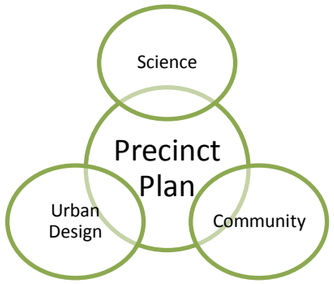
Cr Arron Wood
Future Melbourne (Eco-city) Committee Chair

Precinct Plan Content

The Purpose of the Precinct Plans 3
What is an Urban Forest? 3
How does Melbourne's Urban Forest Measure up? 4
The Vision for East Melbourne & Jolimont's Urban Forest 5
What will the Precinct Plans Achieve? 5
Community Priorities 7
East Melbourne & Jolimont's Urban Forest in 2013 and its Projected Future 8
Prioritising Tree Planting in Streets 10
Map 1: Planting Priorities 11
Guiding Principles 12
Map 2: Key Planting Constraints 13
Map 3: Natural and Open Space Context 14
Map 4: Strategic Context 14
Map 5: Planting Sub-Precincts 15
Map 6: Canopy Cover and Biodiversity Outcomes 16
Map 7: What Should Stay and What Should Change 17
Planting Strategies 18
Map 8: Long-term Planting Strategy 18
Map 9: 10-Year Planting Plan 19
Map 10: Guide to Species Change 20
Species Palette 21

The Purpose of 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.



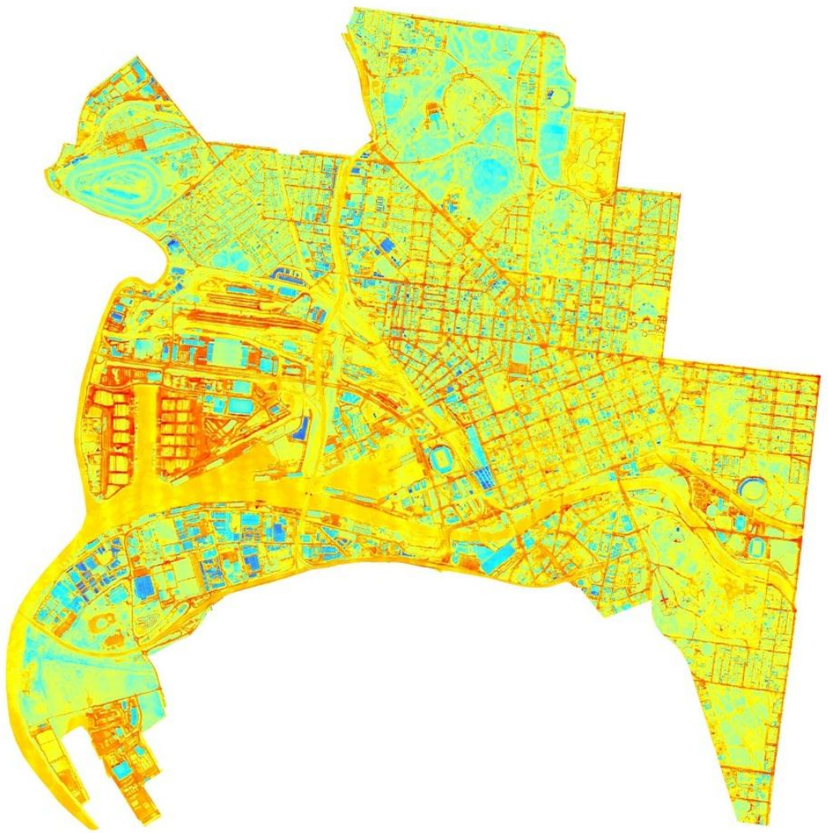
Each precinct plan has been developed in collaboration with the community, and is grounded in the science underlying the Urban Forest Strategy and in sound urban design principles.

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.



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

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

Why are we concerned about Climate Change, Urban Heat Island and Population Growth?

Climate change impacts to human health and well-being are a significant concern for our City. 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. 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 9 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 well-being.

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 provide healthy and 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.

The Urban Forest Strategy

The directions and 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*

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.

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.

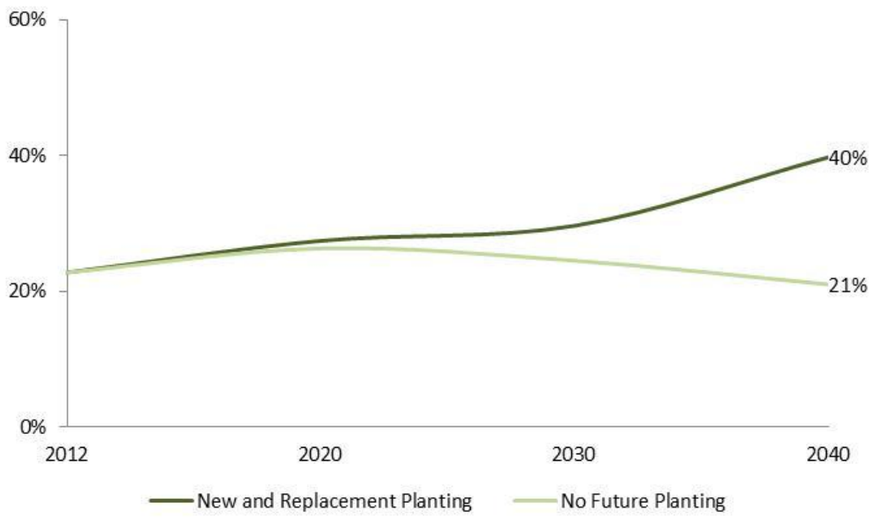
Useful Life Expectancy

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.

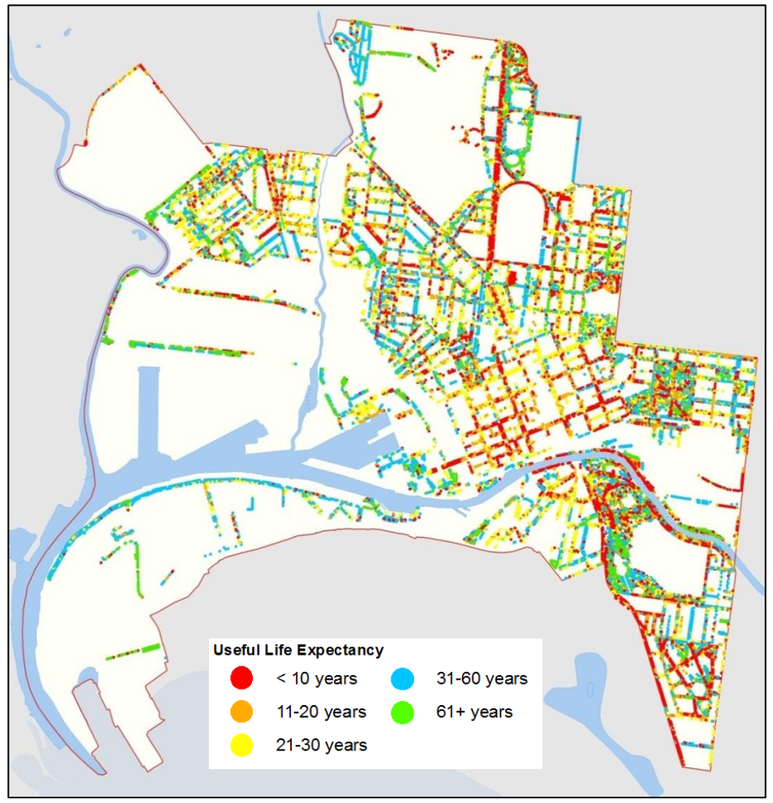
Canopy Cover

Increasing the provision of summer time 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.

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.



Useful life expectancy mapped for City of Melbourne Trees.

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. The City's *Total Watermark Strategy* is being updated to strategically manage Melbourne's water catchment. In the meantime, the City has 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 contributing 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. The City is 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.

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.

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

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 Vision for East Melbourne & 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.

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. Council 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 & 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 & Jolimont Character

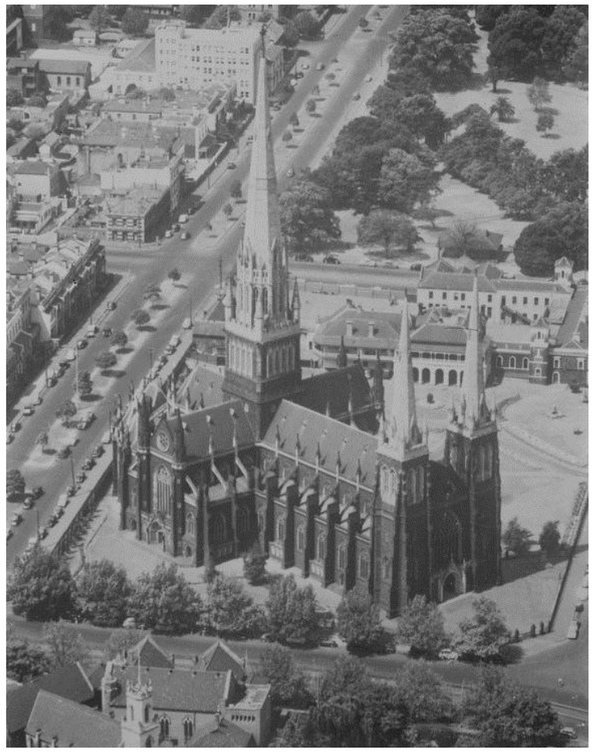
East Melbourne and Jolimont lie across a low ridgeline and have become a favoured residential location due to their elevated position, proximity to the CBD and enclosure on two sides by Fitzroy Gardens and Yarra Park. The precinct can be defined by four distinct geographic areas – the parliament precinct, eastern residential precinct, Jolimont precinct and the Yarra parklands & 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 & 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 & 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 & 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 & Jolimont's urban forest.

Community consultation with East Melbourne & 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.

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

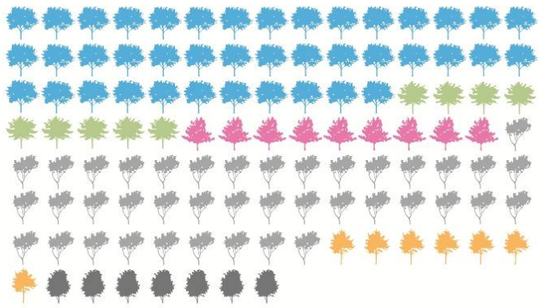
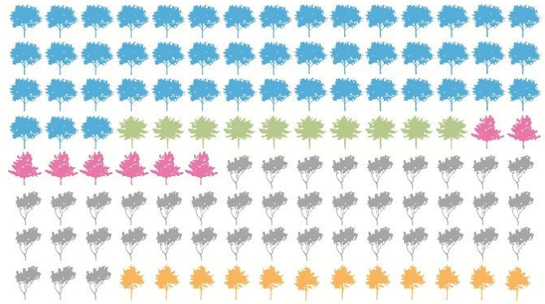
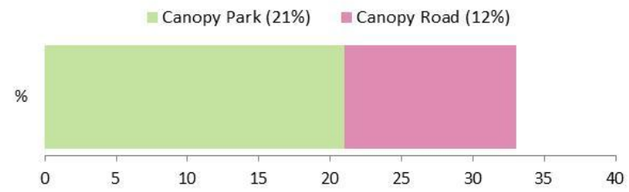
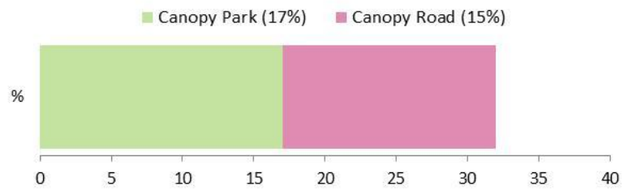
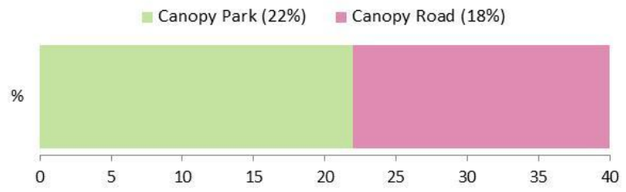
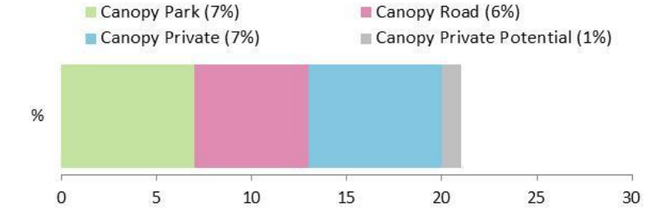
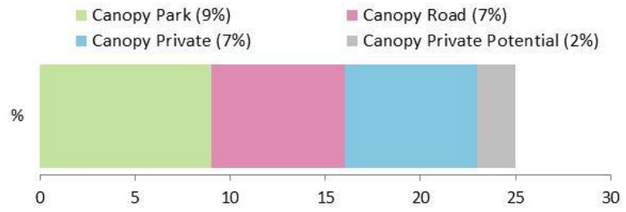
Seasonal colour

Shape, diversity and layers

Streetscape

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.

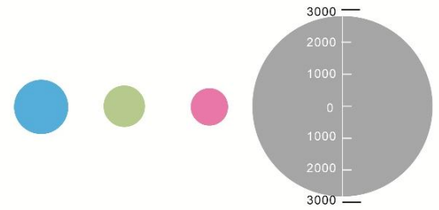
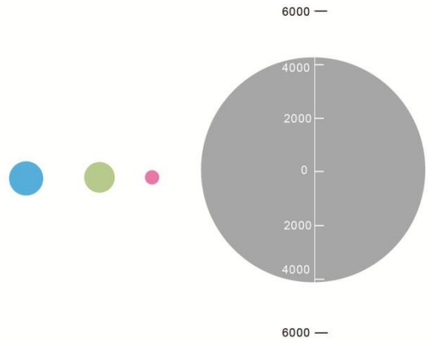
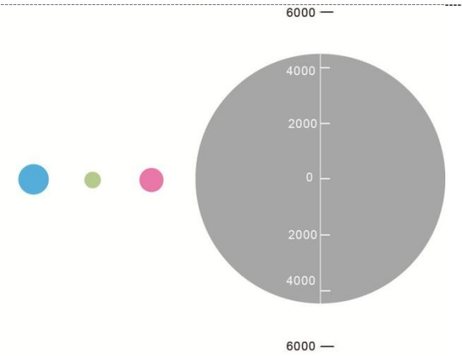
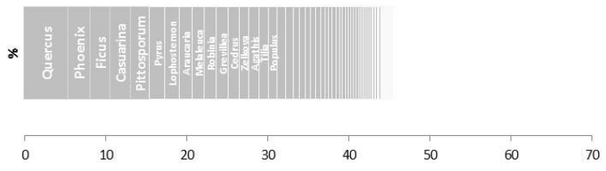
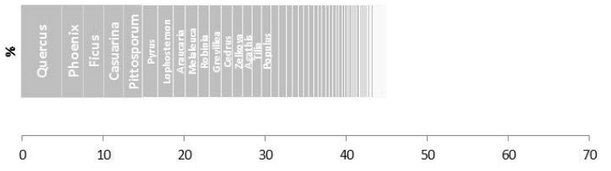
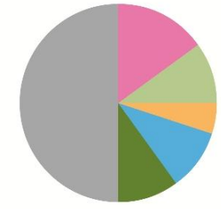
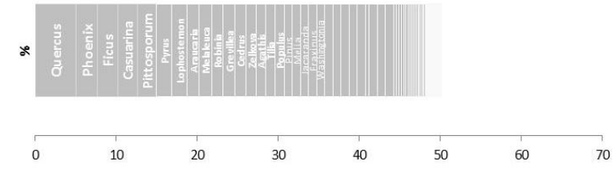
East Melbourne & Jolimont's Urban Forest in 2013 and its Projected Future

	East Melbourne & Jolimont Now 2013	East Melbourne & Jolimont Future 2023	East Melbourne & Jolimont Future 2040
Trees Public Realm[1]	Existing Park Trees (2521) Existing Street Trees (2374)	 Existing Park Trees (2056) Replacement Park Trees (465) New Park Trees (450) Existing Street Trees (2024) Replacement Street Trees (350) New Street Trees (350)	 Existing Park Trees (2429) Replacement Park Trees (542) New Park Trees (400) Existing Street Trees (2091) Replacement Street Trees (633)
Canopy Public Realm[2]			
Canopy Entire Precinct[3]			
Urban Ecology	Open spaces provide habitat value for native birds and pollinators but are not well connected by vegetated corridors.	Connectors between open space will have been strategically implemented with overstory and understory plantings to enhance biodiversity values in East Melbourne & Jolimont streets.	Private realm gardens, public streets and open spaces form connected green corridors that provide habitat for native birds and pollinators.

[1] Trees Public Realm: These data are sourced from the tree inventory dataset, 2011 Useful Life Expectancy data and an estimate of planting opportunities across the precinct. Replacements and new trees planted in 2023 and 2040 are estimates only.

[2] Canopy Public Realm: These data are sourced from the tree inventory dataset, 2011 Useful Life Expectancy data, 2008 canopy mapping, and 2011 canopy mapping. Projections of future canopy are estimates only and are based on the anticipated distribution of average tree canopy areas by age class in future years with loss, growth of recent plantings, replacements and new plantings.

[3] Canopy Entire Precinct: These data are sourced from 2011 canopy mapping. Projections of future canopy are estimates only and are based on the proportional change expected in public canopy. No change was applied to private canopy given that no data is available on useful life expectancy of trees in the private realm. Canopy Private Potential is a representation of canopy gains that could be made if new plantings occur in the private realm and is symbolic only.

	East Melbourne & Jolimont Now 2013	East Melbourne & Jolimont Future 2023	East Melbourne & Jolimont Future 2040
Tree Health (ULE) In the Public Realm[4]	 10 years or less 11 - 20 years 21 - 30 years > 30 years	 10 years or less 11 - 20 years 21 - 30 years > 30 years	 10 years or less 11 - 20 years 21 - 30 years > 30 years
Diversity (genus) Public Realm[5]	Ulmus (25) Corymbia (8) Platanus (7) Eucalyptus (7) Acer (7) Other (36)  Other (46%): 80 Genera	Ulmus (20) Corymbia (10) Platanus (5) Eucalyptus (10) Acer (10) Other (45)  Other (45%): 80 Genera	 Ulmus (15) Corymbia (10) Platanus (5) Eucalyptus (10) Acer (10) Other (50)  Other (50%): 80+ Genera
Inform and Consult the Community[6]	Residents Younger than 5 (189) Residents older than 74 (300) Residents of all other ages (4730) Workers (estimated jobs 23,696)	Residents Younger than 5 (176) Residents older than 74 (364) Residents of all other ages (5130) Workers (estimated jobs 29,601)	Residents Younger than 5 (174) Residents older than 74 (377) Residents of all other ages (5448) Workers (estimated jobs 40,487)
	Residents, workers and visitors to East Melbourne & Jolimont have collaborated to develop the Urban Forest Precinct Plan. Residents are consulted on species choice in their street.	Residents will be consulted on species choice in their street. Council will be providing guidance to, and working in partnership with residents, institutions, developers and businesses to enhance both public and private realm urban forest.	Residents will be consulted on species choice in their street. Council will be providing guidance to, and working in partnership with residents, institutions, developers and businesses to enhance both public and private realm urban forest.

[4] Tree Health Public Realm: These data are sourced from the 2011 Useful Life Expectancy data. Projections of tree numbers are estimates based on the ULE for the existing tree population. Where ULE exceeded 30 years, 10% of the population was assumed to decline per 10 year period.

[5] Diversity (genus) Public Realm: These data are sourced from the tree inventory data set and 2011 Useful Life Expectancy data. Genus refers to groupings of related species and is a convenient scale at which to examine diversity, however species, family, spatial and structural diversity are also important to creating a resilient urban forest. Projections of future genus diversity are estimates only and are based on the expected losses within each genus as trees age and the assumption that many of the new and replacement trees planted will be selected from alternative genera.

[6] Population forecast sourced from Small Area Population Forecasts 2006 to 2031, City of Melbourne. Employment forecast sourced from SGS Economics and Planning Employment Forecasts, KSA1 Scenario.

How the Precinct Plan Guides Annual Planting

Inputs

Set Annual Planting Program

Priorities (Map 1)

Streets Undergoing Unforseen Change (e.g., 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

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 opportunities exist 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 below.

1. Streets with opportunities for planting or replacements

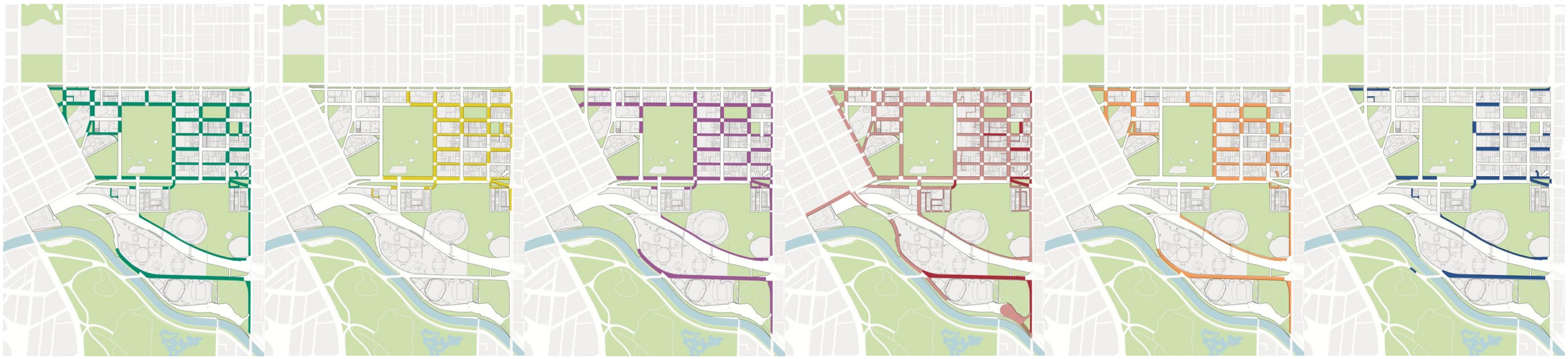
2. High density (>20) of vulnerable residents (< 5 or > 74 yo)

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; 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 (2017 – 2019) include those:

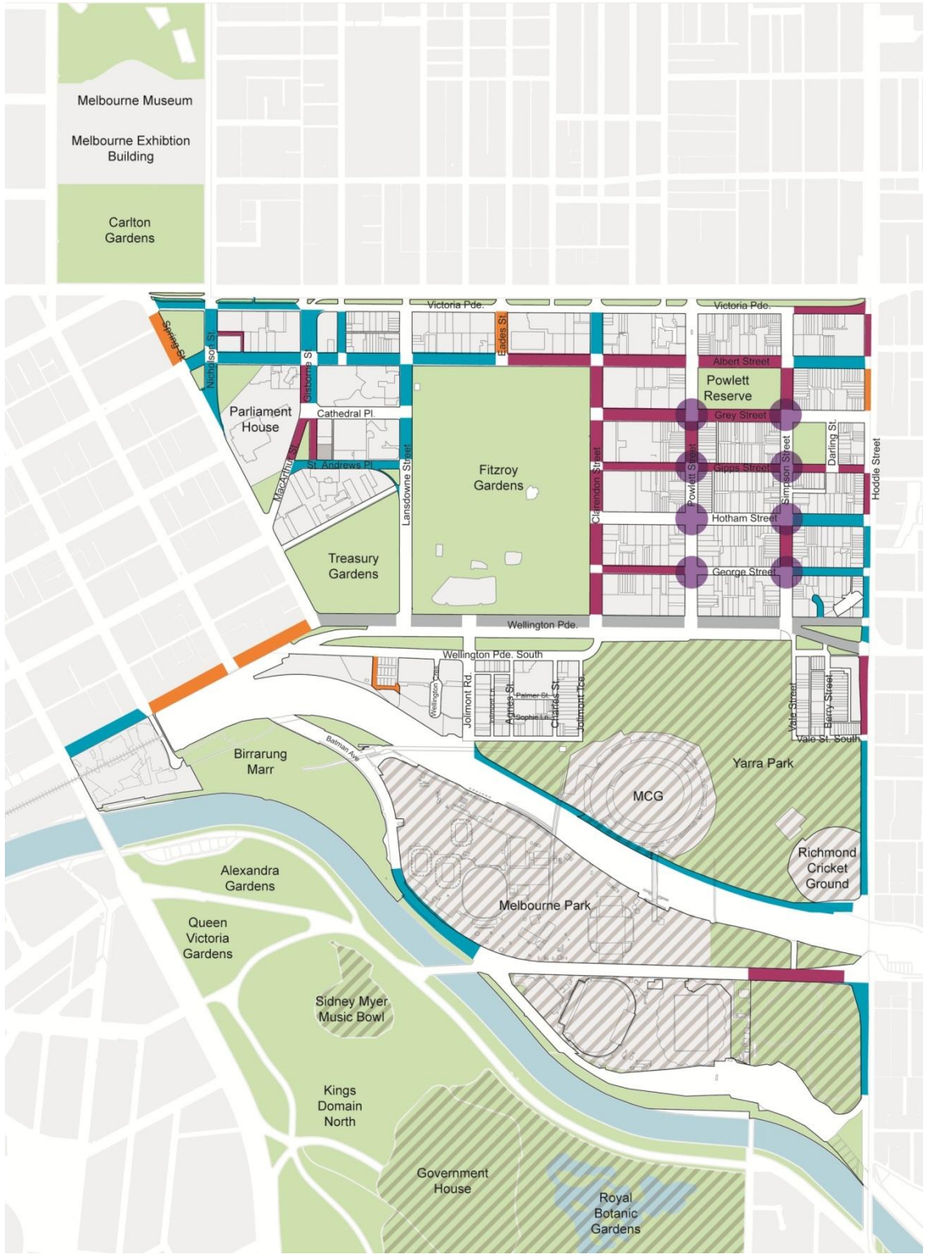
1. Having a high number of vulnerable people with one occurrence of: community priority, very low canopy cover, temperature hot spot or replacements required.

Streets prioritised for work in Years 8 – 10 (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; or
5. Replacements required.

LEGEND

- Years 1 - 4
- Years 5 - 7
- Years 8 - 10
- Timing not determined by precinct plan
- Section of land not managed or maintained by City of Melbourne
- Assess opportunities for future planning



Guiding Principles

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 Technical Notes and should be referred to when designing or planting any streetscape; however East Melbourne & 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 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.

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:

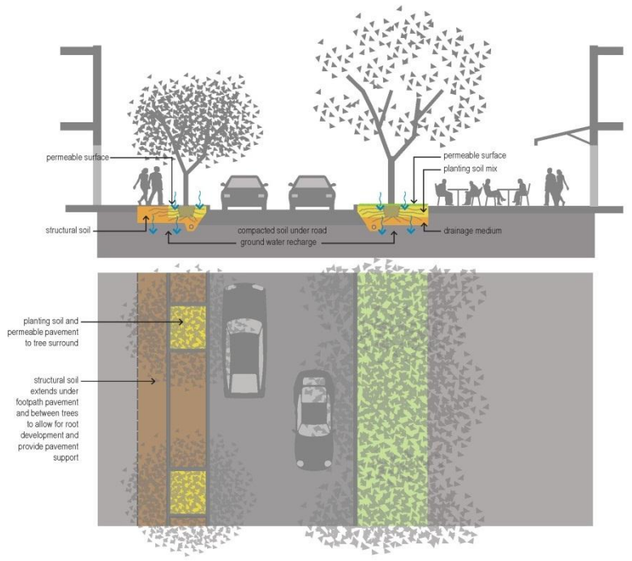
- Establish a hierarchy of streets/paths most important to plant with continuous avenues and limit use elsewhere;
- Identify breaks in avenues at logical points along the length of streets, where species may change;
- Use asymmetrical treatments along some streets (e.g., local streets where there are 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 (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.)

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.

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

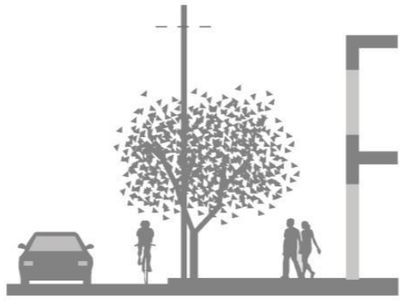


IMPROVING BELOW GROUND GROWING CONDITIONS FOR TREES IN STREETS

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.

Map 2: Key Planting Constraints

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.



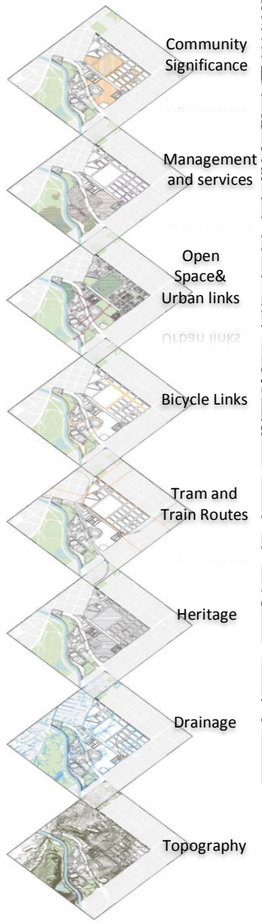
SMALL TREE UNDER POWERLINES

TREE TRIMMED UNDER POWERLINES

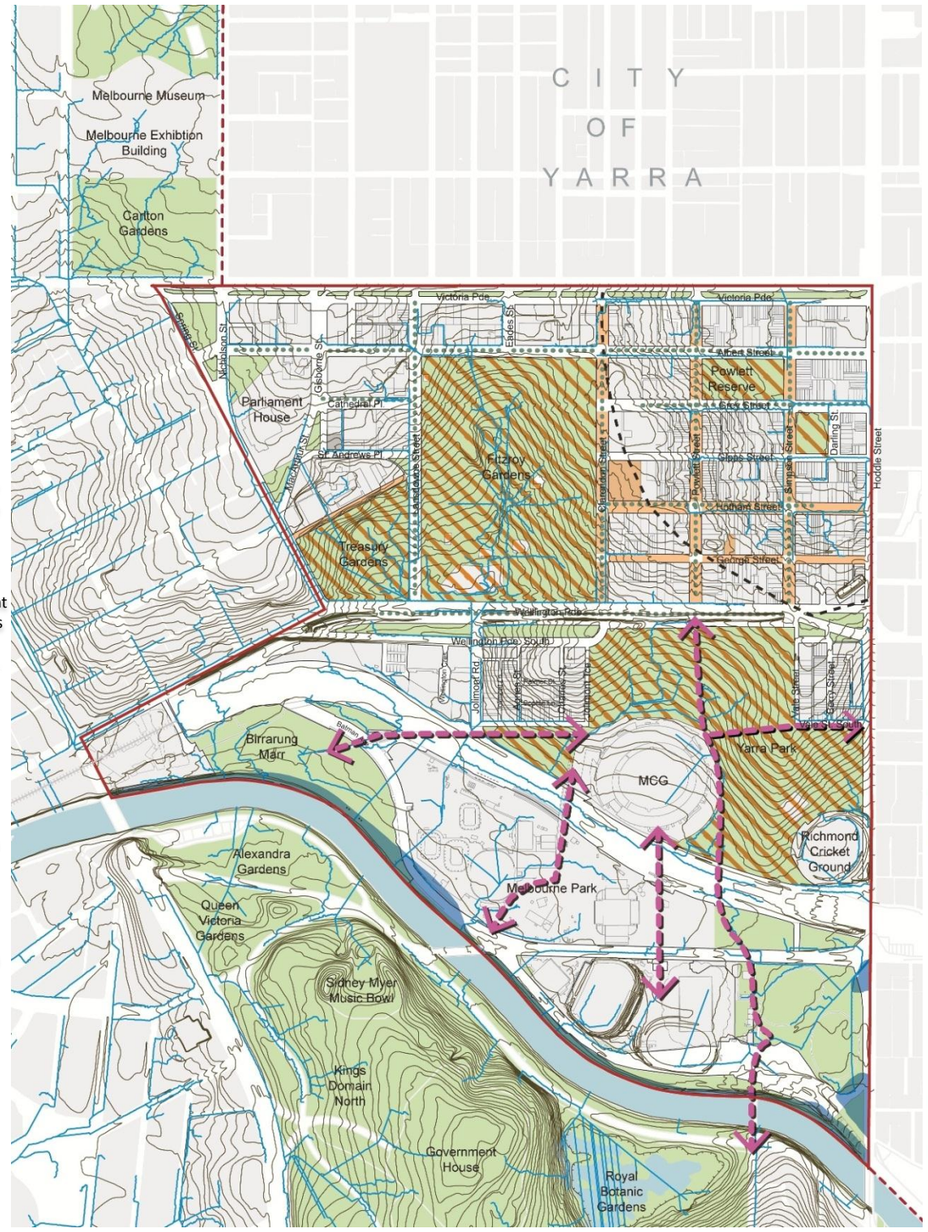
LEGEND

- Existing tram line with tram stop
- Low voltage powerlines
- High voltage powerlines
- Existing railway line
- Section of land not managed or maintained by City of Melbourne

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



Map 3: Natural and Open Space Context



LEGEND

- Existing open space
- Significant open space identified by the community
- Significant section of street identified by community
- Existing floodway
- Existing ridge line
- Proposed open space links horizontal / vertical
- Median / centre road
- Existing contours 1m
- Existing drainage line
- Extent of City of Melbourne municipality boundary
- Boundary for Carlton Precinct

LEGEND

- 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 Carlton precinct
- Extent of City of Melbourne municipality boundary

Map 4: Strategic Context

Map 5: Planting Sub-Precincts

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 & 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 & Events Precinct

The parklands of Yarra Park, Melbourne & 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.

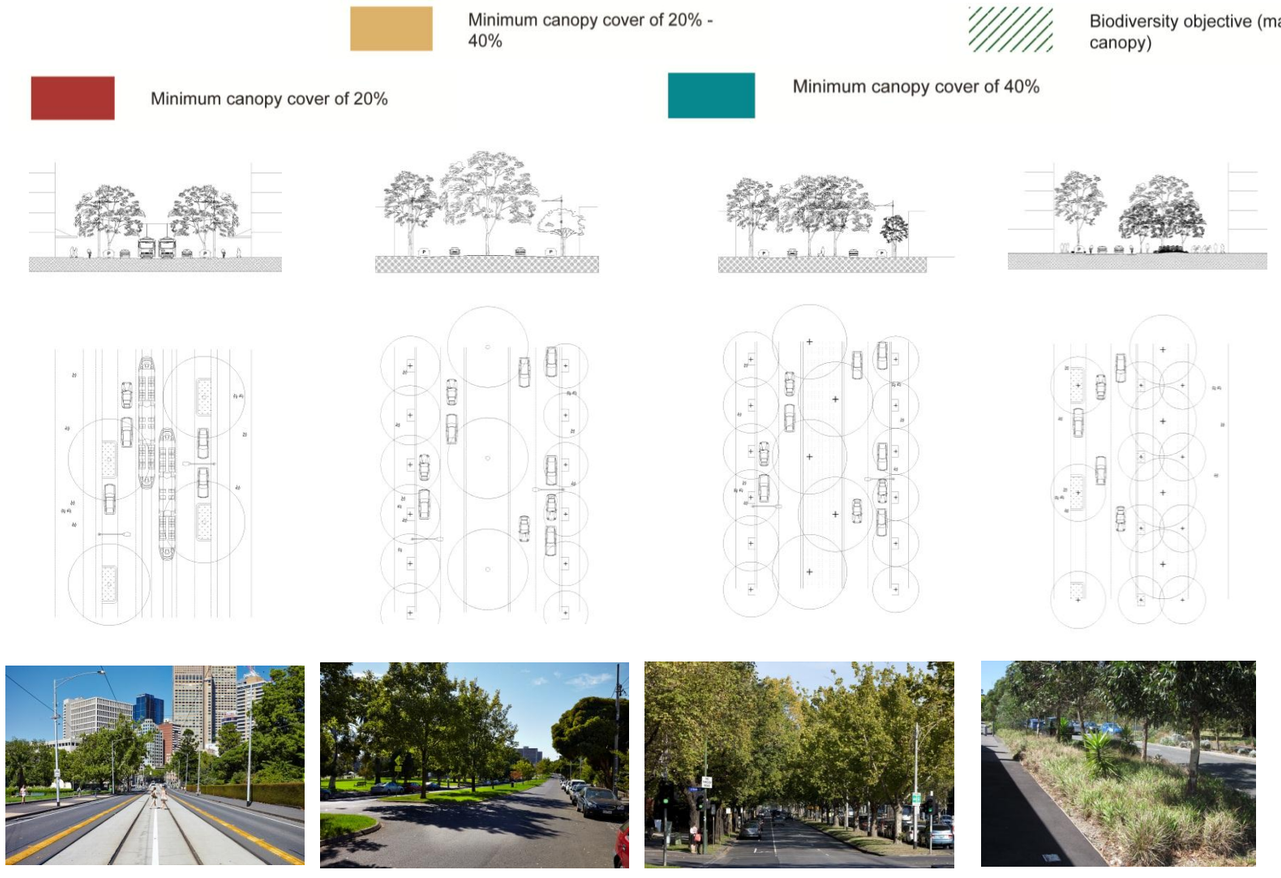
Map 6: Canopy Cover and Biodiversity Outcomes

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. Planting configuration should seek to maximise canopy cover in all cases.

Biodiversity

Opportunities to enhance biodiversity would include selecting bird and pollinator attracting species and adding layers of vegetation to provide structural diversity. Several streets in East Melbourne have been identified as opportunities to function as biodiversity connectors between open spaces. Albert Street presents an opportunity for inter-planting with a large tree species and also has wide medians that could potentially support understory planting. Powlett and Simpson Street are already planted in the tree layer but could potentially support an enhanced layer of understory.



Map 7: What Should Stay and What Should Change

Elms, planes, maples, eucalypts and corymbias (gums) are core genera within East Melbourne & 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

Change from Planes:

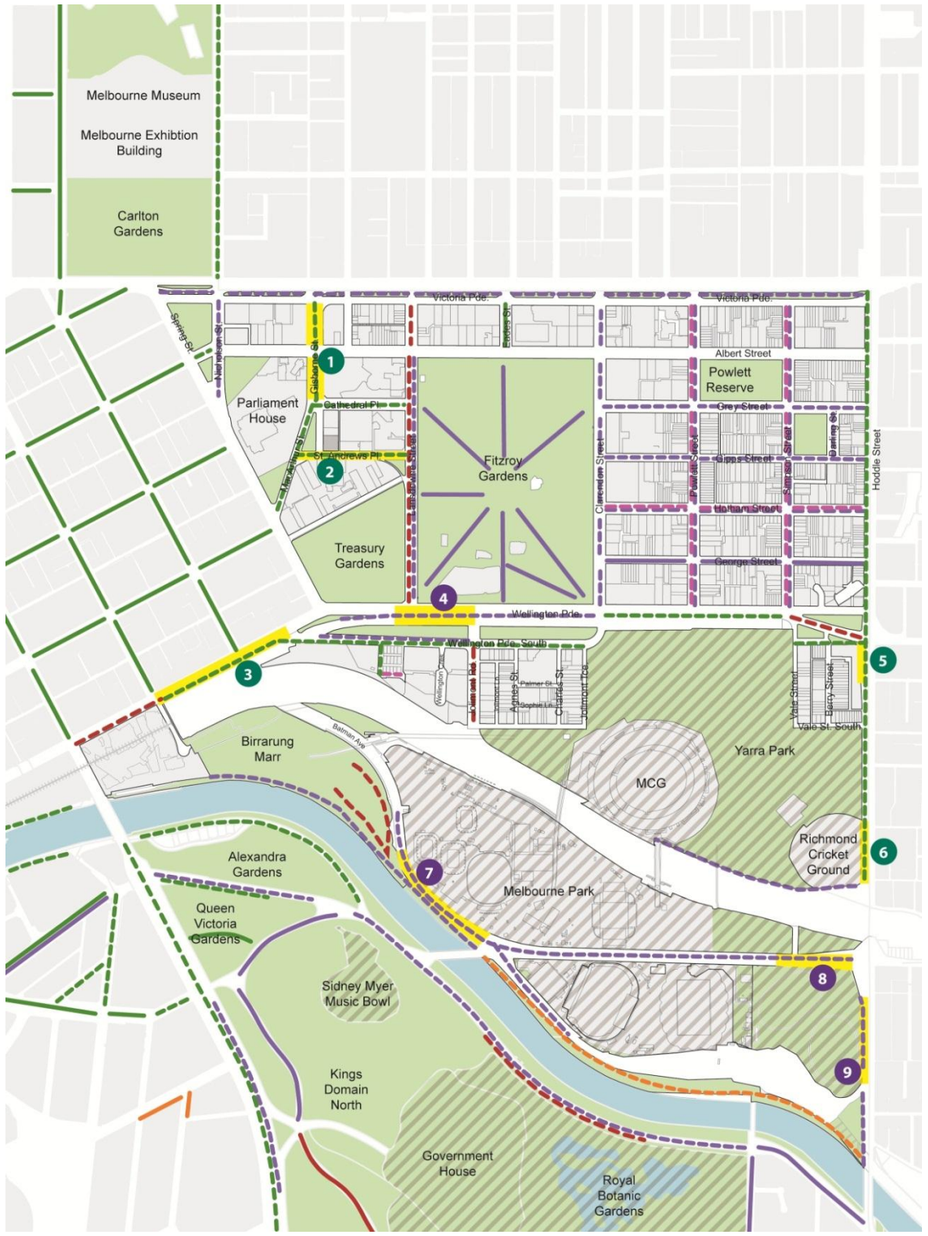
1 2 3 5 6

Change from Elms:

4 7 8 9

LEGEND

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



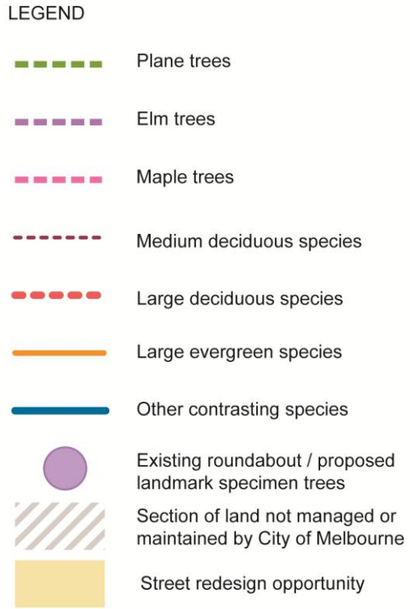
Planting Strategies

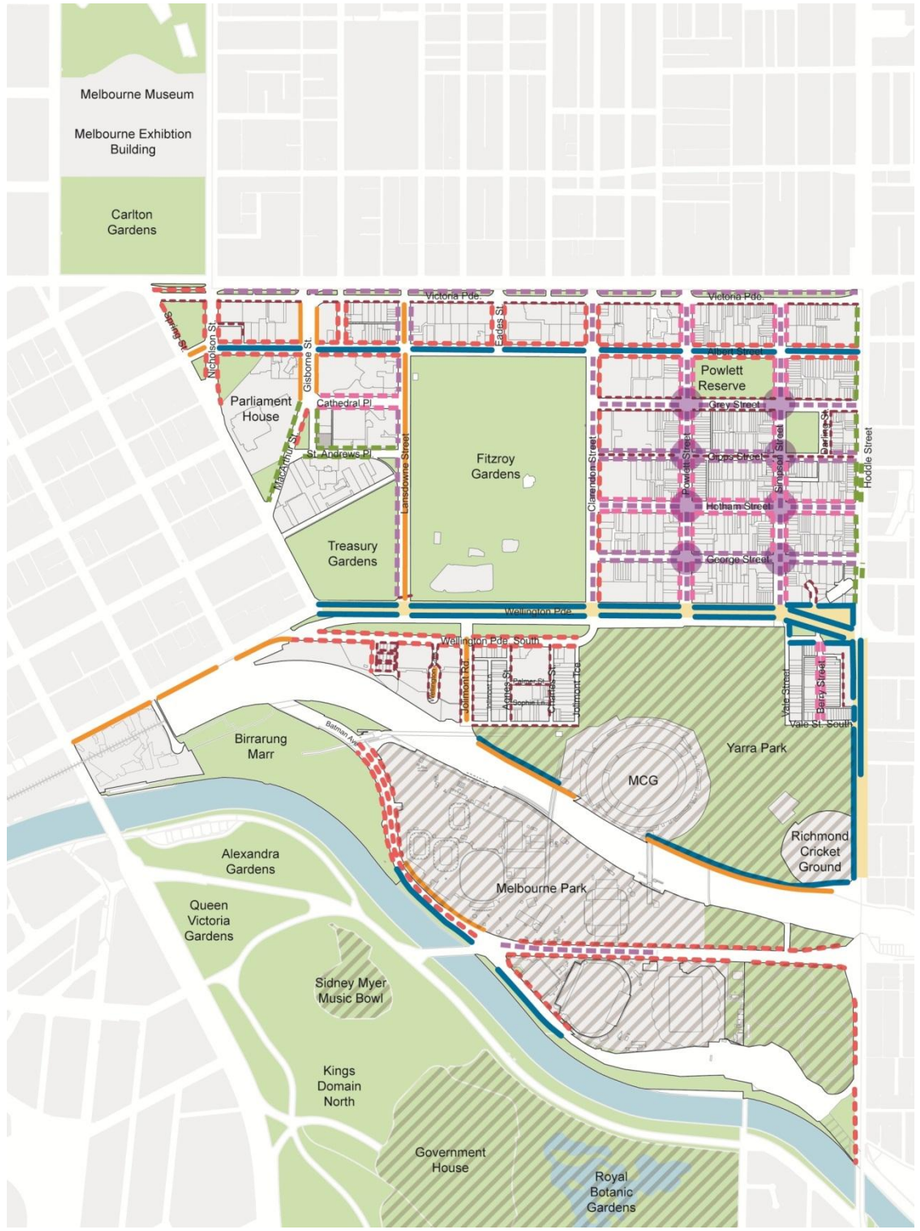
Map 8: Long-term Planting Strategy

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:

- 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.





Map 9: 10-Year Planting Plan

This plan provides direction on where new and replacement planting is to occur across East Melbourne & 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

Existing Open Space

Street Re-design Opportunities

Existing Roundabout / Proposed Landmark Specimen Trees

EXISTING

Large Evergreen Tree

Large Deciduous Tree

Medium - Small Deciduous Tree

REPLACEMENT

Large Evergeen Tree

Large Deciduous Tree

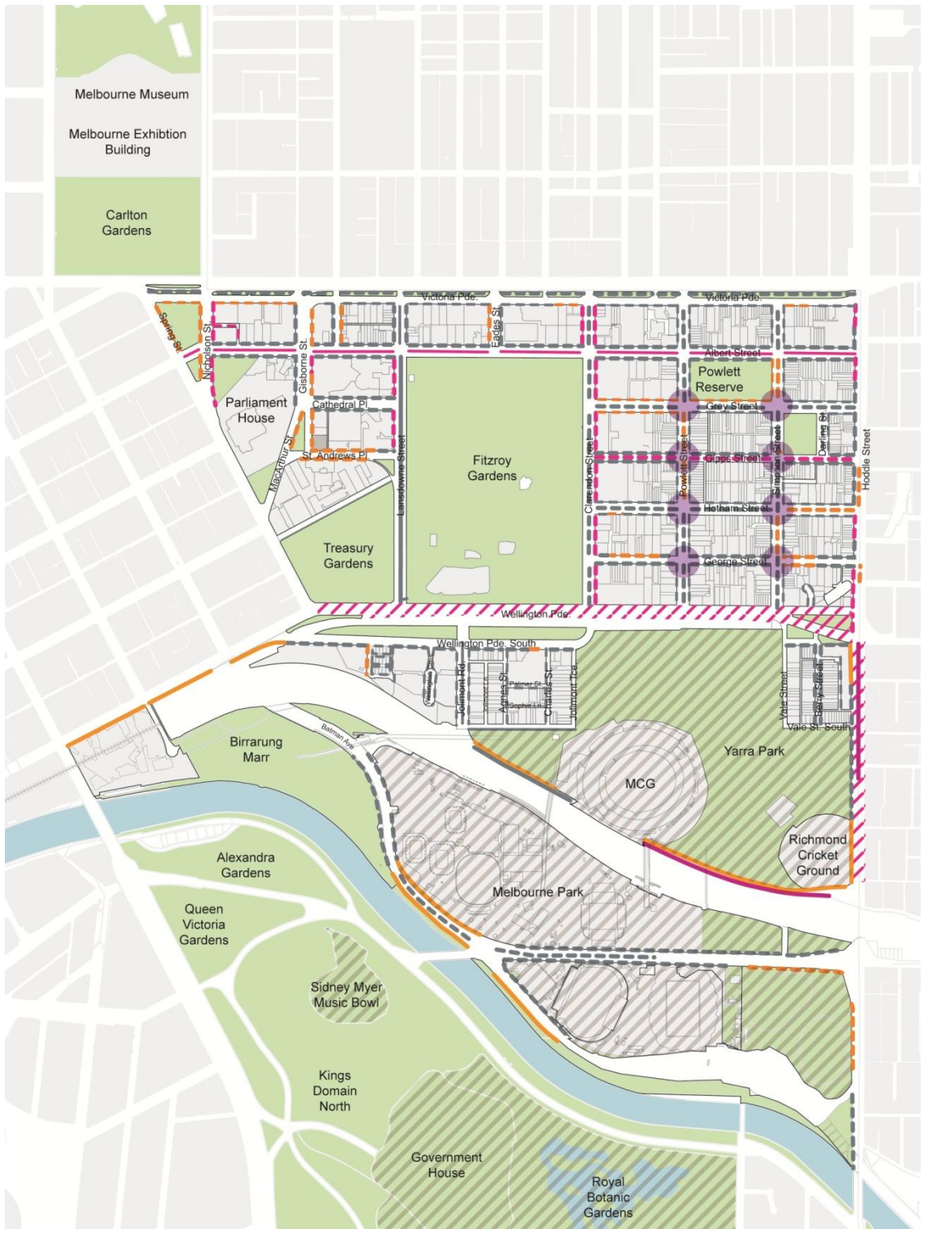
Medium -Small Deciduous

NEW

Large Evergreen Tree

Large Deciduous Tree

Medium - Small Deciduous Tree



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. 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.

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 & Jolimont, Guiding Principles and Planting Plan. Elms, maples, planes and gums are key genera within East Melbourne & 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 & 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
Fraxinus americana, White ash
Ginkgo biloba (male), Ginkgo
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), sickle-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
Celtis australis, European nettle tree
Cercis siliquastrum, Judas tree
Corylus colurna, Turkish hazel
Fraxinus pennsylvanica, Green ash
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 http://www.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. Council 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 melbourneurbanforest@melbourne.vic.gov.au.

I have seen a sick or damaged tree, or an empty tree plot. How can I tell Council 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 can be found at http://www.melbourne.vic.gov.au.

Attachment 5
Agenda item 6.2
Future Melbourne Committee
19 November 2013

SOUTH YARRA URBAN FOREST PRECINCT PLAN 2013 – 2023

CITY OF MELBOURNE

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.

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.

Signature inserted here

Robert Doyle
Lord Mayor

Signature inserted here

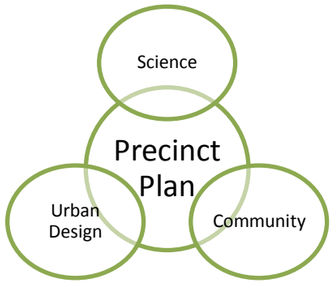
Cr Arron Wood
Future Melbourne (Eco-city) Committee Chair

Precinct Plan Content

Introduction to the Precinct Plans 3
How does Melbourne's Urban Forest Measure up? 4
What will the Precinct Plans Achieve? 5
The Vision for South Yarra's Urban Forest 5
Community Priorities 7
South Yarra's Urban Forest in 2013 and its Projected Future 8
Prioritising Tree Planting in Streets 10
Map 1: Planting Priorities 11
Guiding Principles and Considerations for Tree Planting 12
Map 2: Key Planting Constraints 13
Map 3: Natural and Open Space Context 14
Map 4: Strategic Context 14
Map 5: Planting Sub-Precincts 15
Map 6: Canopy Cover Outcomes 16
Map 7: What Should Stay and What Should Change? 17
Planting Strategies 18
Map 8: Long-term Planting Strategy 18
Map 9: 10-Year Planting Plan 19
Map 10: Guide to Species Change 20
Species Palette 21

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.



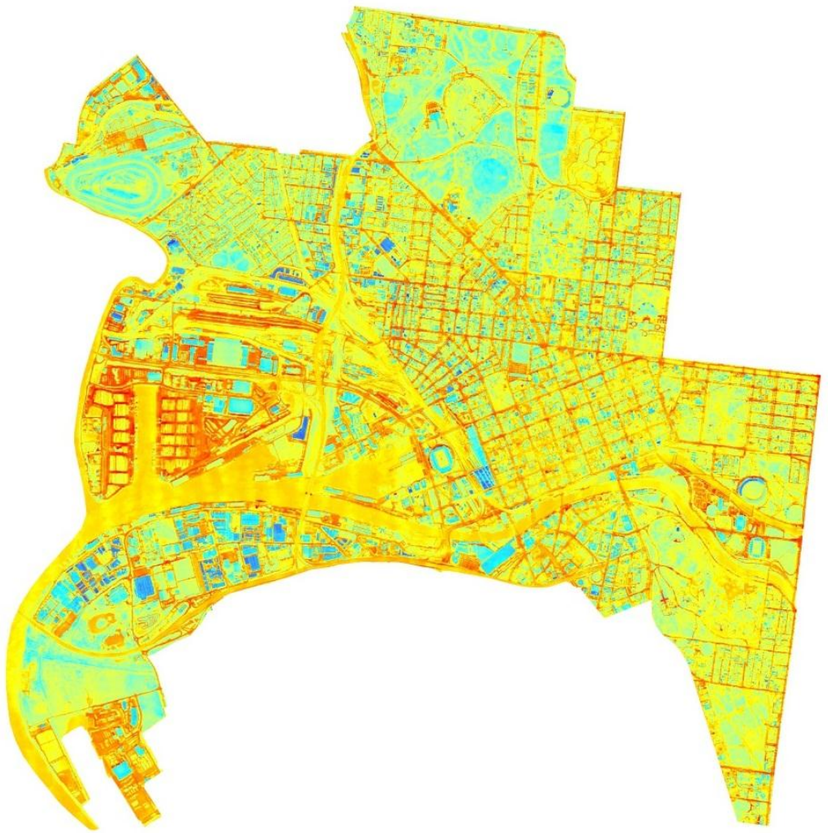
Each precinct plan has been developed in collaboration with the community, and is grounded in the science underlying the Urban Forest Strategy and in sound urban design principles.

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.



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

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

Why are we Concerned About Climate Change, Urban Heat Island and Population Growth?

Climate change impacts to human health and well-being are a significant concern for our City. 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. 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 9 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 well-being.

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 provide healthy and 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.

The Urban Forest Strategy

The directions and 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*

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.

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.

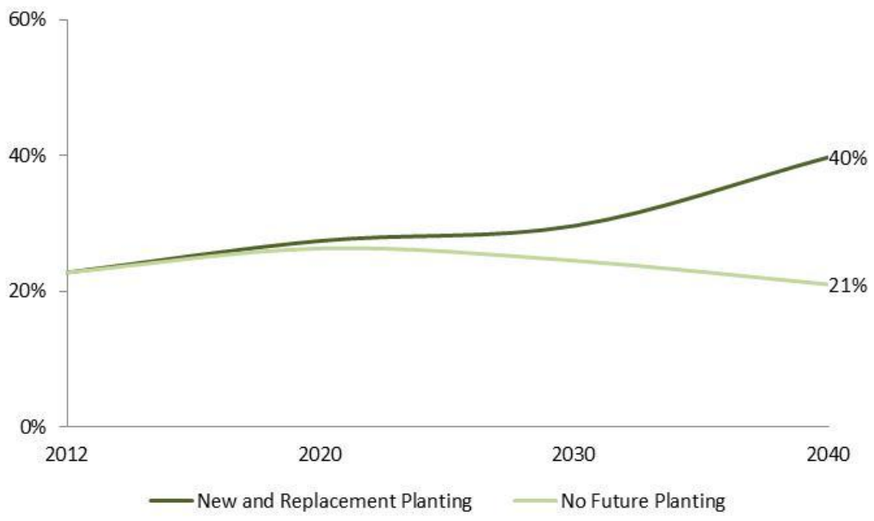
Useful Life Expectancy

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.

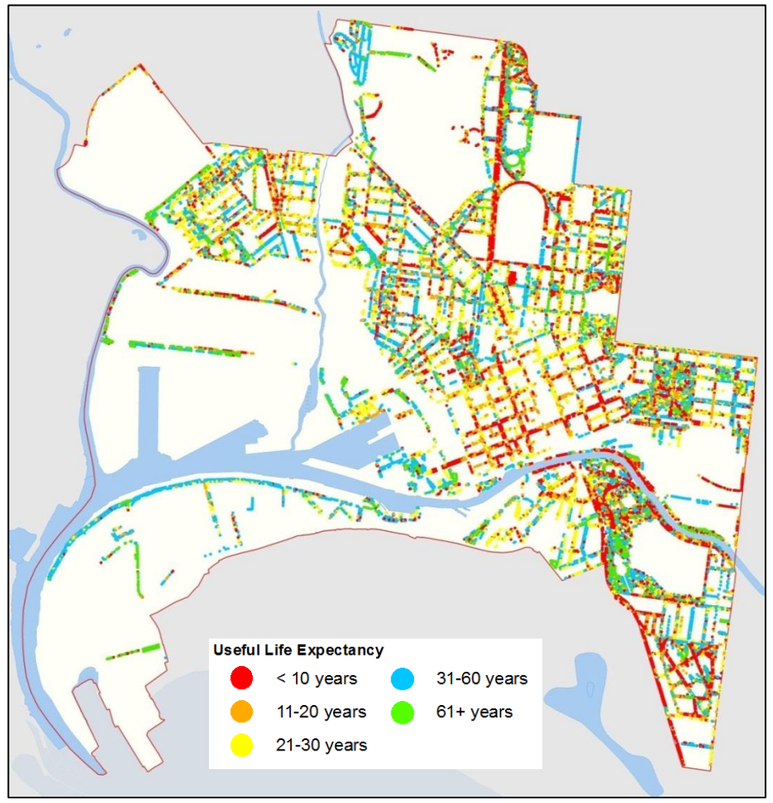
Canopy Cover

Increasing the provision of summer time 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.

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.



Useful life expectancy mapped for City of Melbourne Trees.

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. The City's *Total Watermark Strategy* is being updated to strategically manage Melbourne's water catchment. In the meantime, the City has 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 contributing 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. The City is 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.

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.

The City of Melbourne boundary is shown in grey and the South Yarra Precinct is highlighted in orange.

Policy Context

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

The Vision for South Yarra's Urban Forest

South Yarra's urban forest will be spectacular and engaging, providing interest through shape, colour and light. Canopies will be shady and lush, and understory will provide habitat for native birds and bees.

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. Council 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.

In and adjacent to the South Yarra precinct, the Royal Botanic Gardens, Government House and schools manage large areas of land 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 South Yarra precinct occurred in the 1850s when St Kilda Road was planted with fast growing blue gums and radiata pine, and, while the species have changes, St Kilda Road 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; however South Yarra streets do not feature in the records of those first plantings. Elm trees were planted along Alexandra Avenue in approximately 1900 after the Yarra River was straightened. The east side of Anderson Street was budgeted for planting 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 streets from that period up until World War I. Other significant periods of street tree planting occurred in the 1930s when many tree islands and medians were constructed, and then from the 1970s onward when native trees were used more widely. Historic photos indicate that many of the larger residential streets in South Yarra were planted prior to the 1940s.

South Yarra Character

South Yarra extends across the hill above the Yarra River and King's Domain. The area within the City of Melbourne consists of three primary land uses laid out on a strongly rectilinear, north-south oriented grid – a dense residential neighbourhood to the south of the Royal Botanic Gardens, the expansive open space of Fawkner Park, and high rise apartment blocks and institutions along the St Kilda Road and Commercial Road frontages.

The character of the urban forest in South Yarra is heavily influenced by the landscapes of the Royal Botanical Gardens (not managed by the City of Melbourne), Domain parklands and Fawkner Park. These landscapes contain an eclectic mix of evergreen natives, conifers, deciduous trees and palms and this character is reflected in the diverse mix of street tree plantings within the precinct. The precinct also contains quite a number of significant trees such as the Golden Elm on the corner of Punt Road and Alexandra Avenue, the *Eucalyptus cornuta* planted by Baron von Mueller and many others that are either heritage listed or on the City of Melbourne's Exceptional Tree Register.

There are limited areas of avenue planting within the streetscape of South Yarra. The community highlighted several streets as important, namely Millswyn Street, St Kilda Road and Alexandra Avenue, which are all planted with large-canopied, mature trees. Pasley Street South was also highlighted during consultation and this street stands in contrast to most others in the precinct in that it is planted entirely with native trees. The core tree genera (groupings of species) that form South Yarra's urban forest are elms and planes, with the remainder of the forest being quite diverse.

South Yarra's narrow streetscapes contain the highest density of development and largest proportion of private flats within the Melbourne municipal area. A notable point of differentiation from other precincts is the adoption of high, solid fences which adds to streetscape enclosure and reduces the interplay between buildings and the street. The residential courts and cul-de-sacs are also a distinctive feature of South Yarra's street pattern.

As the roadways and footpaths throughout the precinct are relatively narrow (15 m), the majority of trees need to be located to either side of the streetscapes, either within the footpaths or parking lanes, balanced with on-street parking needs. While the use of medians or central tree islands is largely precluded in South Yarra due to the street widths, a particular opportunity exists in Toorak Road west of Park Street.

View to Alexandra Avenue looking towards Anderson Street probably in the early 1900s and showing young trees planted on the road side [Essendon Historical Society Collection, State Library of Victoria]

View down St Kilda Road from Domain Interchange to Fawkner Park showing young and mature street trees, taken between 1920 and 1940 [State Library of Victoria].

Community Priorities

South Yarra'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 South Yarra's urban forest.

Consultation highlighted that South Yarra is home to exceptional trees, tree avenues and open spaces that are central to community identity and wellbeing. The community would like to see the heritage and character of South Yarra's urban forest respected while also creating opportunities to contemporise the landscape and increase the use of native trees that provide habitat for native birds.

Our work with the South Yarra community indicated a preference for trees that would provide large canopies, colour and habitat for native birds.

Desired future states defined by the community:

- Maintenance of existing tree character and important avenue plantings
- Tree planting on arterial roads and in narrow streets
- A diversity of trees that provide shade with green, leafy, lush canopies
- Use of native trees to provide habitat for birds and bees
- Visual interest that is diverse, engaging and spectacular through the use of shape, colour, shadows, productive trees and understorey planting
- Large trees and/or volume plantings that make a statement (sculptural) in urban, residential and parkland spaces.

Urban forest benefits highlighted through community consultation:

- Shade
- Biodiversity
- Food production
- Aesthetic beauty and screening
- Psychological benefits (e.g., sense of calm, soothing etc.)

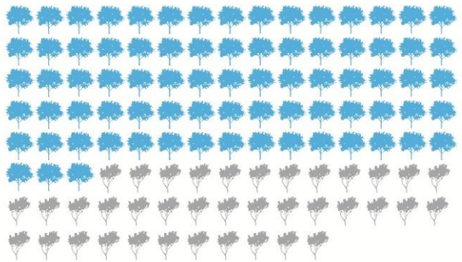
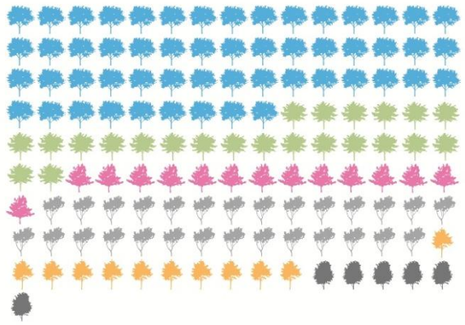
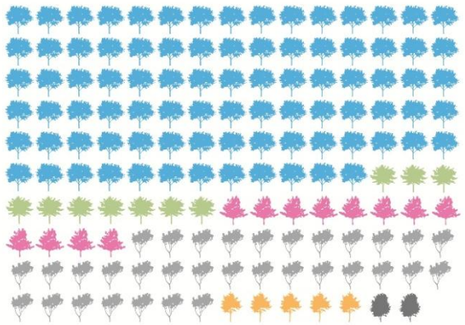
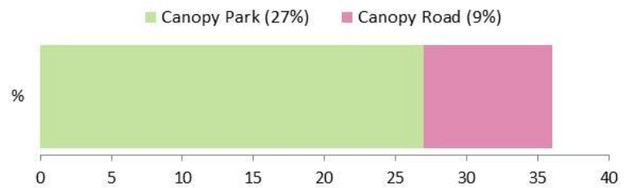
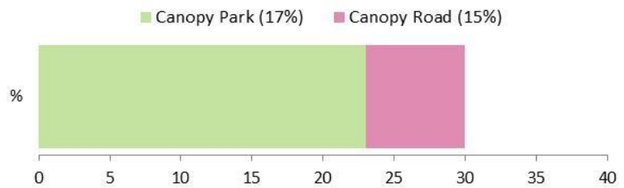
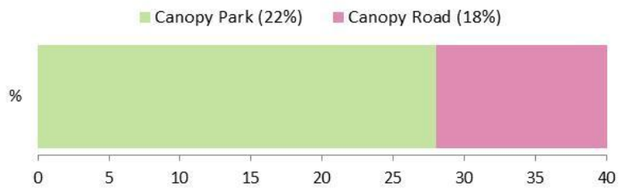
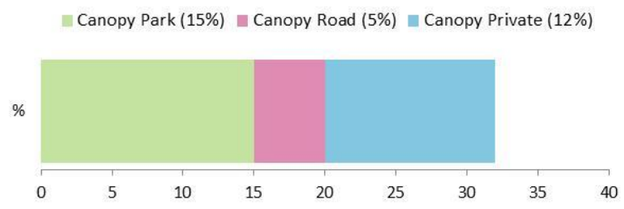
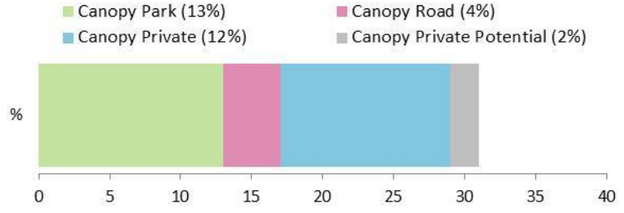
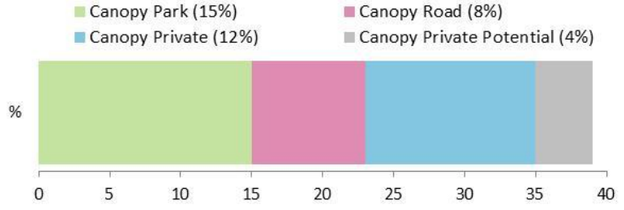
Colour

Shape

Streetscape

Images selected as representing a preferred future for South Yarra's urban forest that includes colour, canopy, shade, seasonal change and habitat.

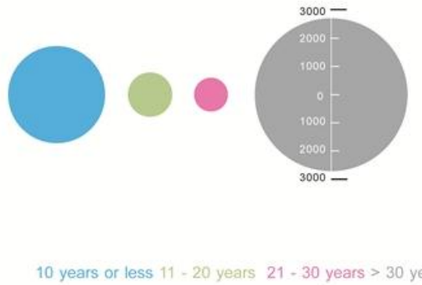
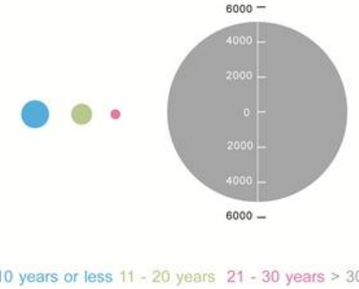
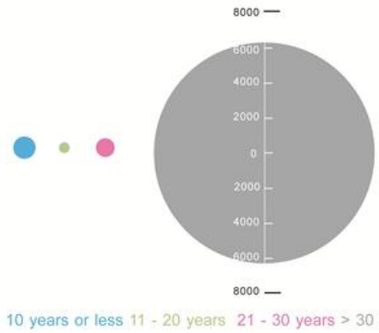
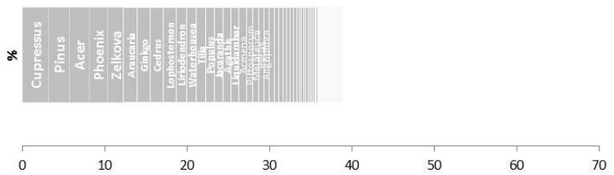
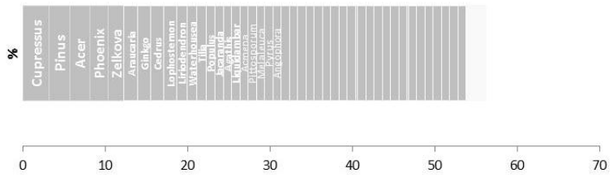
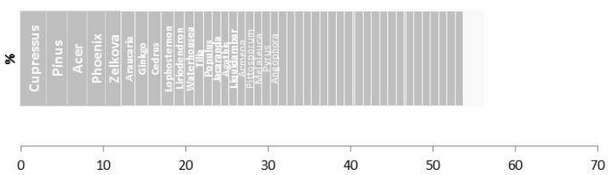
South Yarra's Urban Forest in 2013 and its Projected Future

	South Yarra Now 2013	South Yarra 2023	South Yarra 2040
Trees Public Realm[1]	 Existing Park Trees (3911) Existing Street Trees (1901)	 Existing Park Trees (2720) Replacement Park Trees (1191) New Park Trees (700) Existing Street Trees (1386) Replacement Street Trees (515) New Street Trees (300)	 Existing Park Trees (4371) Replacement Park Trees (540) New Park Trees (600) Existing Street Trees (1655) Replacement Street Trees (246) New Street Trees (100)
Canopy Public Realm[2]			
Canopy Entire Precinct[3]			
Urban Ecology	Open spaces provide habitat value for native birds and pollinators but are not well connected by vegetated corridors.	Connectors between open space will have been strategically implemented with overstory and understory plantings to enhance biodiversity values in South Yarra streets.	Private realm gardens, public streets and open spaces form connected green corridors that provide habitat for native birds and pollinators.

[1] Trees Public Realm: These data are sourced from the tree inventory dataset, 2011 Useful Life Expectancy data and an estimate of planting opportunities across the precinct. Replacements and new trees planted in 2023 and 2040 are estimates only.

[2] Canopy Public Realm: These data are sourced from the tree inventory dataset, 2011 Useful Life Expectancy data, 2008 canopy mapping, and 2011 canopy mapping. Projections of future canopy are estimates only and are based on the anticipated distribution of average tree canopy areas by age class in future years with loss, growth of recent plantings, replacements and new plantings.

[3] Canopy Entire Precinct: These data are sourced from 2011 canopy mapping. Projections of future canopy are estimates only and are based on the proportional change expected in public canopy. No change was applied to private canopy given that no data is available on useful life expectancy of trees in the private realm. Canopy Private Potential is a representation of canopy gains that could be made if new plantings occur in the private realm and is symbolic only.

	South Yarra Now 2013	South Yarra 2023	South Yarra 2040
Tree Health (ULE) in the Public Realm[4]			
Diversity (genus) Public Realm[5]	 	 	 
Inform and Consult the Community[6]	 Residents, workers and visitors to South Yarra have collaborated to develop the Urban Forest Precinct Plan. Residents are consulted on species choice in their street.	 Residents will be consulted on species choice in their street. Council will be providing guidance to, and working in partnership with residents, institutions, developers and businesses to enhance both public and private realm urban forest.	Forecast to 2031 only Residents will be consulted on species choice in their street. Council will be providing guidance to, and working in partnership with residents, institutions, developers and businesses to enhance both public and private realm urban forest.

[4] Tree Health Public Realm: These data are sourced from the 2011 Useful Life Expectancy data. Projections of tree numbers are estimates based on the ULE for the existing tree population. Where ULE exceeded 30 years, 10% of the population was assumed to decline per 10 year period.

[5] Diversity (genus) Public Realm: These data are sourced from the tree inventory data set and 2011 Useful Life Expectancy data. Genus refers to groupings of related species and is a convenient scale at which to examine diversity, however species, family, spatial and structural diversity are also important to creating a resilient urban forest. Projections of future genus diversity are estimates only and are based on the expected losses within each genus as trees age and the assumption that many of the new and replacement trees planted will be selected from alternative genera.

[6] Population forecast sourced from Small Area Population Forecasts 2006 to 2031, City of Melbourne. Employment forecast sourced from SGS Economics and Planning Employment Forecasts, KSA1 Scenario.

How the Precinct Plan Guides Annual Planting

Inputs

Set Annual Planting Program

Priorities (Map 1)

Streets Undergoing Unforseen Change (e.g., 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

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 below.

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; 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 (2017 – 2019) 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 (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; or
5. Replacements required.

LEGEND

- Years 1 - 4
- Years 5 - 7
- Years 8 - 10
- Timing not determined by precinct plan
- Section of land not managed or maintained by CoM
- Assess opportunities 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 Technical Notes and should be referred to when designing or planting any streetscape; however South Yarra 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. South Yarra's narrow streets mean that the large canopy trees must generally be planted in the footpath or roadway. A limited number of streets have nature strips that provide a planting opportunity. Given the limited sites available for tree planting, the largest tree appropriate for the site should be selected to maximise the canopy and shade potential.

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. Consider extending the character of the gardens into the surrounding streetscapes to create linkages between open spaces.

Low voltage overhead wires are present in many South Yarra streets and are continuous on the major roads and present in all small streets between Toorak Road and Domain Road. High voltage wires are also present on Commercial Road and limit the potential for large, natural canopy growth. 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. Leopold Street and Punt Road are constrained in terms of both below ground and above ground services. Alternative 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.

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.).

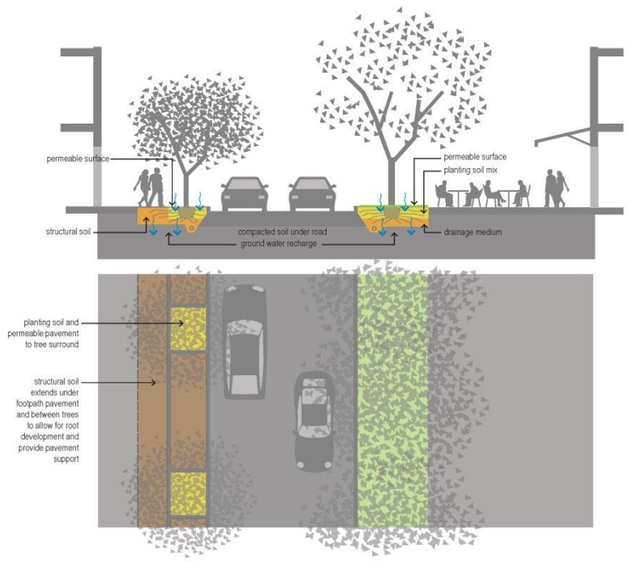
Use a balance of proven and trial species to increase diversity but limit the use of trial species in streets to less than 10% of the precinct tree population.

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

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



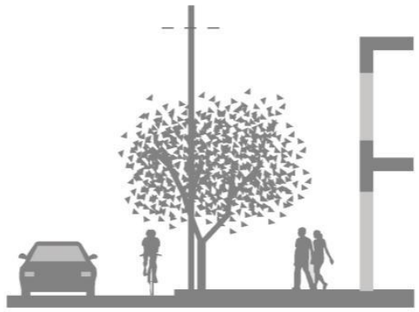
IMPROVING BELOW GROUND GROWING CONDITIONS FOR TREES IN STREETS

The native soils in South Yarra were formed from Silurian and Tertiary deposits. Clay soils derived from Silurian mudstone are located adjacent to the Yarra River (to approximately 200 m south) and in the eastern end of Toorak Road and surrounds. Sandy loam soils are capped over mudstone in the remainder of the precinct. The water table is relatively shallow (1-2m) in the area near Toorak Road and St Kilda Road and this is likely to be the case throughout the lower lying parts of the precinct. However, urban areas tend to have been highly disturbed so soil conditions are likely to have been altered in many locations. For example, the area from the Arts Centre to Princes Bridge is located on fill, which was brought in to raise the height of land well above the river.

The Yarra River forms the northern edge of the South Yarra precinct and the surrounding streetscape and private realm vegetation can play a role in supporting the ecology of the river corridor. Species selection to provide habitat can be incorporated with initiatives for capturing water and runoff for filtration prior to entering the waterway.

Map 2: Key Planting Constraints

This map indicates locations where overhead constraints or tramlines 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.



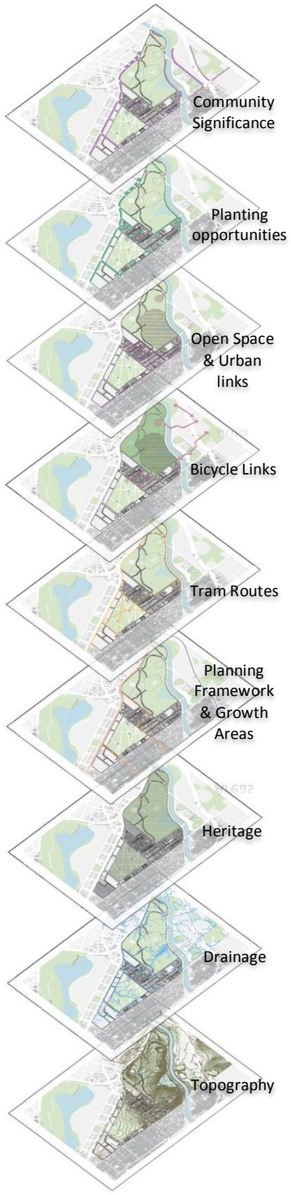
SMALL TREE UNDER POWERLINES

TREE TRIMMED UNDER POWERLINES

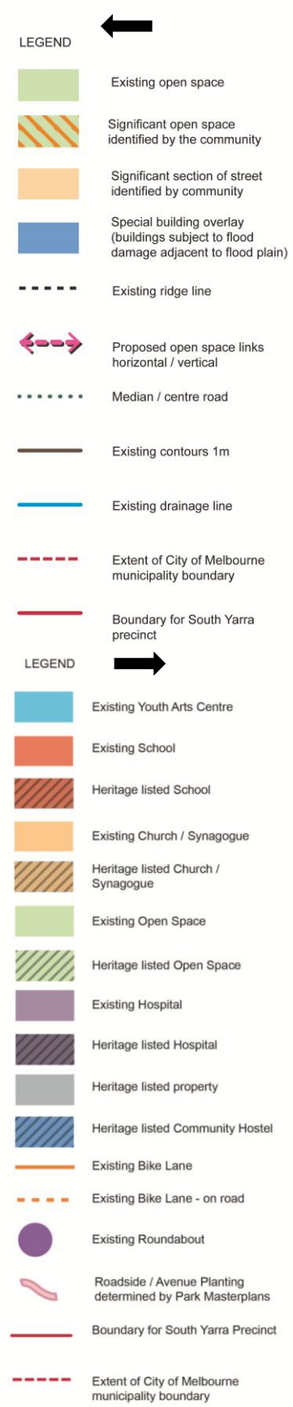
LEGEND

- Existing tram line with tram stop
- Low voltage powerlines
- High voltage powerlines
- Section of land not managed and maintained by CoM

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



Map 3: Natural and Open Space Context



Map 4: Strategic Context

Map 5: Planting Sub-Precincts

Domain & Botanic Gardens

A significant portion of the South Yarra Precinct is occupied by the parklands of Domain and Botanic Gardens, and the southern banks of the Yarra River. The avenues in this precinct are predominantly part of the parklands and as such are informed by the park masterplans for these and are not directly addressed within this Precinct Plan. These landscapes contribute to the character and amenity of the South Yarra precinct, and their significant heritage character is important in considering the character of planting with the adjoining streets.

North Residential Precinct

The residential area east of Anderson Street and Leopold Streets is located at the top of the hill with a ridgeline running through the centre of the precinct. The northern section slopes towards the Yarra with long views to Melbourne's north and east. The residences in this precinct have wide frontages and comprise a mixture of heritage properties and more contemporary dwellings as well as a number of courts and cul-de-sacs. Planting on Punt Road the frontage is compromised by the traffic lanes and services, with no planting on the eastern side of the road (which is part of City of Stonnington).

Central Residential Precinct

This finer grained area of South Yarra includes the small commercial precinct at the intersection of Domain Road and Park Street. The north south streets connect between the Domain and Fawkner Park open spaces and provide key linkages for pedestrian and cycle traffic. The properties in this area have predominantly narrow frontages. These north streets could provide linkages between the parklands to the north and south.

West Precinct

This precinct is west of Domain Street and comprises Melbourne Grammar School and a pocket of residential and mixed use properties that front St Kilda Road and Domain Road. There is good existing canopy spread due to the wider streets and the median on Domain Street. The grouping of figs at the west end of Toorak Road is a landmark at this large traffic junction.

Fawkner/St Kilda Rd Precinct

This precinct includes the large land lots that front St Kilda Road and, south of Commercial Road, extend back to Punt Road. These are a mix of commercial, residential and institutional land use and with their considerable setbacks, their forecourt and garden landscapes contribute to the greening of the streets. The St Kilda Road Boulevard defines the western boundary of this precinct and is supported by the building setbacks and grounds of the schools, hospitals contribute to the landscape character of the precinct. There are no street trees currently on the north side of High Street and the street relies on the planting within the adjacent Wesley School Grounds for canopy and shade to the footpath.

Fawkner East Precinct

This small precinct has a strong connection to Fawkner Park and is somewhat disconnected from the rest of the South Yarra Precinct. There is a significant contrast between the streetscape amenity of the properties that front Punt Road and those that overlook the parkland. There is an opportunity to create both a strong connection and contrast between the park and streets through the scale and character of planting.

Map 6: Canopy Cover 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. Planting configuration should seek to maximise canopy cover in all cases.

Map 7: What Should Stay and What Should Change?

Elms, oaks, planes, corymbias (gums), figs and eucalypts are core genera within South Yarra's urban forest today. That is not proposed to change; however their dominance will be reduced by using alternatives 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 at streets where they can provide connecting corridors between open space for native birds, however it is preferable that different genera and species be planted in segments or as mixed plantings to increase diversity.

Change from elms:

1 2 3

Change from planes

4

LEGEND

- Existing open space
- Proposed genus change
- Street with majority plane tree (*Platanus*) population
- Street with plane tree (*Platanus*) integrated with other tree species
- Street with majority elm tree (*Ulmus*) population
- Street with elm tree (Ulmus) integrated with other tree species
- Street with majority oaktree (Querus) population
- Street with oak tree integrated with other tree species
- Street with majority Eucalyptus population
- Street with Eucalptus integrated with other tree species
- Street with majority gum (Corymbia) population
- Street with gum (Corymbia) tree integrated with other tree species
- Street with majority ficus population
- Street with ficus tree integrated with other tree species
- Section of land not managed or maintained by CoM
- Roadside / avenue planting determined by park masterplans

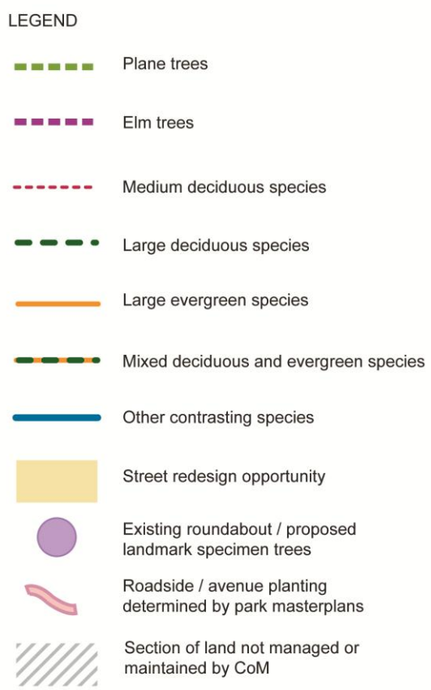
Planting Strategies

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 contribution of the streetscape to the ecology of the Yarra River corridor.
- Create streets that provide connections between open spaces.
- Incorporate 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 South Yarra. 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 park expansions or new medians.

LEGEND

Existing open space

Street re-design opportunities

Section of land not managed or maintained by CoM

Existing roundabout / proposed landmark specimen trees

Roadside / avenue planting determined by park masterplans

EXISTING

Large evergreen tree

Large deciduous tree

Medium - small deciduous tree

REPLACEMENT

Large evergeen tree

Large deciduous tree

Medium -small deciduous

NEW

Large evergreen tree

Large deciduous tree

Medium - small deciduous tree

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 power lines 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.

LEGEND

- 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
- Precinct boundaries
- Ridge Line
- Roadside / avenue planting determined by park masterplans

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 South Yarra, Guiding Principles and Planting Plan. Elms and planes are key genera within South Yarra, 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 South Yarra'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 South Yarra Trees (Limited New Plantings)
Platanus sp., Plane
Ulmus sp., Elm

Large Trees for Streets
Evergreen
Angophora costata, Smooth-barked apple
Araucaria sp.
Cedrus sp., Cedars
Ficus benjamina sp., Benjamin's fig
Flindersia australis (trial), Crow's ash
Deciduous
Acer x freemanii, Freeman maple
Acer rubrum, Red maple
Fraxinus americana, White ash
Ginkgo biloba (male), Ginkgo
Lirodendron tulipifera, Tulip tree
Liquidambar styraciflua, Liquidambar
Tilia sp.
Toona ciliata (trial), Australian red cedar
Zelkova serrata, Japanese zelkova

Medium to Small Trees for Streets
Evergreen
Afrocarpus falcatus (trial), Sickle-leaved yellowwood
Brachychiton sp
Buckinghamia celsissima, Ivory curl tree
Callodendron capense, Cape chestnut
Cupaniopsis anarcardiodes, Tuckeroo
Eucalyptus leucoxylon subsp. megalocarpa, Red flowering gum
Ficus rubiginosa, Port Jackson fig
Harpullia pendula (trial), Tulipwood
Lithocarpus densiflorus (trial), Tanoak
Lophostemon confertus, Queensland brush box
Magnolia grandiflora, Southern magnolia
Podocarpus elatus, Plum pine
Tristaniopsis laurina, Kanooka
Waterhousea floribunda, Weeping lilly-pilly
Deciduous
Albizia julibrissin (trial), Persian silk-tree
Brachychiton sp.
Catalpa bignoniodes, Catalpa
Celtis australis, European nettle tree
Cercis siliquastrum, Judas tree
Corylus colurna, Turkish hazel
Fraxinus pennsylvanica, Green ash
Geijera parviflora, Wilga
Jacaranda mimosifolia, Jacaranda
Koelreuteria sp.
Lagerstroemia indica, Crepe myrtle
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
Angophora floribunda, Rough-barked apple
Araucaria sp.
Cedrus sp., Cedar
Eucalpytus chapmaniana, Bogong gum
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., Pines
Quercus virginiana, Californian live oak
Ulmus glabra, Golden Elm
Washingtonia robusta, Mexican fan palm

Medium to Small Feature Trees
Acacia melanoxylon, Blackwood
Acmena smithii, Lilly pilly
Banksia sp,
Brachychiton sp,
Callitris glaucophylla, White cypress pine
Casuarina sp./Allocasuarina sp.
Cuppressus sempivirens, Mediterranean cypress
Eucalyptus cornuta, Bushy yate
Eleocarpus reticulatus, Blueberry ash
Ficus rubiginosa, Rusty fig
Hymenosporum flavum, Australian frangipani
Maclura pomifera, Osage-orange
Olea europea, Olive
Washingtonia filifera, Desert fan palm
Davidia involucrata, Dove tree

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 http://www.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. Council 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 melbourneurbanforest@melbourne.vic.gov.au.

I have seen a sick or damaged tree, or an empty tree plot. How can I tell Council 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 can be found at http://www.melbourne.vic.gov.au

Attachment 6
Agenda item 6.2
Future Melbourne Committee
19 November 2013

CARLTON URBAN FOREST PRECINCT PLAN 2013 – 2023

CITY OF MELBOURNE

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.

Signature inserted here

Robert Doyle
Lord Mayor

Signature inserted here

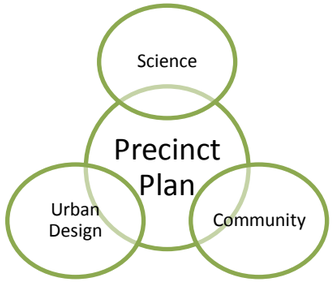
Cr Arron Wood
Future Melbourne (Eco-city) Committee Chair

Precinct Plan Content

Introduction to the Precinct Plans 3
How does Melbourne's Urban Forest Measure up? 4
What will the Precinct Plans Achieve? 5
The Vision for Carlton's Urban Forest 5
Community Priorities 7
Carlton's Urban Forest in 2013 and its Projected Future 8
Prioritising Tree Planting in Streets 10
Map 1: Planting Priorities 11
Guiding Principles and Considerations for Tree Planting 12
Map 2: Key Planting Constraints 13
Map 3: Natural and Open Space Context 14
Map 4: Strategic Context 14
Map 5: Planting Sub-precincts 15
Map 6: Canopy Cover and Biodiversity Outcomes 16
Map 7: What Should Stay and What Should Change? 17
Planting Strategies 18
Map 8: Long-term Planting Strategy 18
Map 9: 10-Year Planting Plan 19
Map 10: Guide to Species Change 20
Species Palette 21

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.



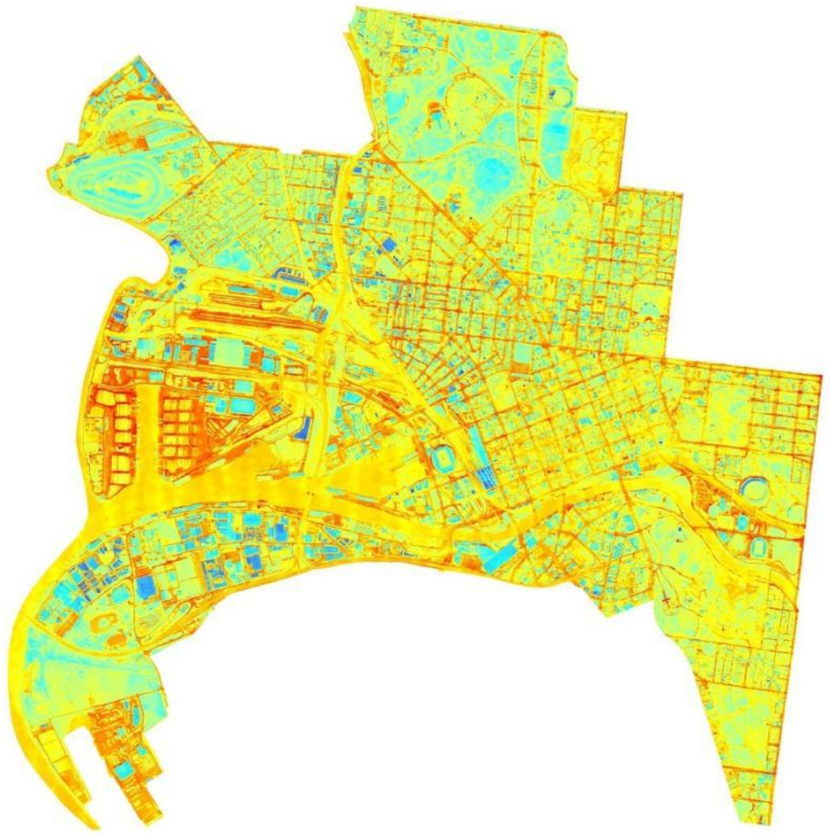
Each precinct plan has been developed in collaboration with the community, and is grounded in the science underlying the Urban Forest Strategy and in sound urban design principles.

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.



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

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

Why are we Concerned About Climate Change, Urban Heat Island and Population Growth?

Climate change impacts to human health and well-being are a significant concern for our City. 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. 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 9 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 well-being.

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 provide healthy and 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.

The Urban Forest Strategy

The directions and 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*

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.

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.

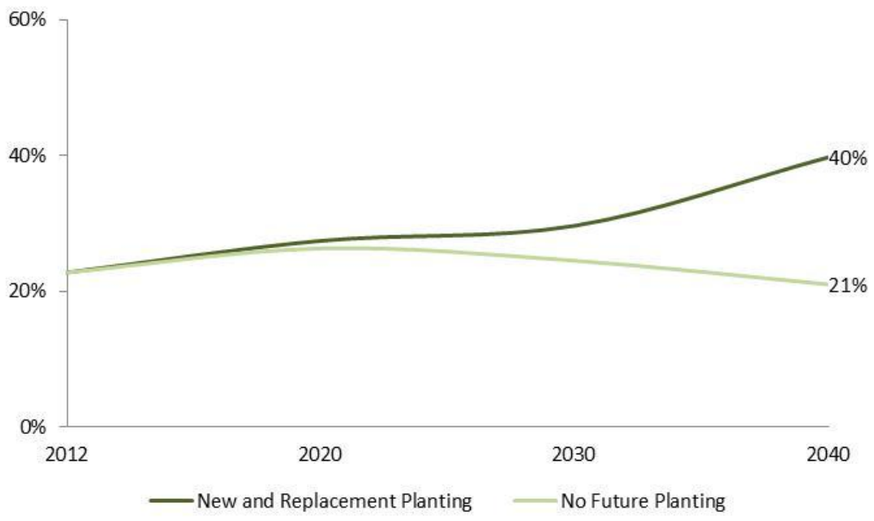
Useful Life Expectancy

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.

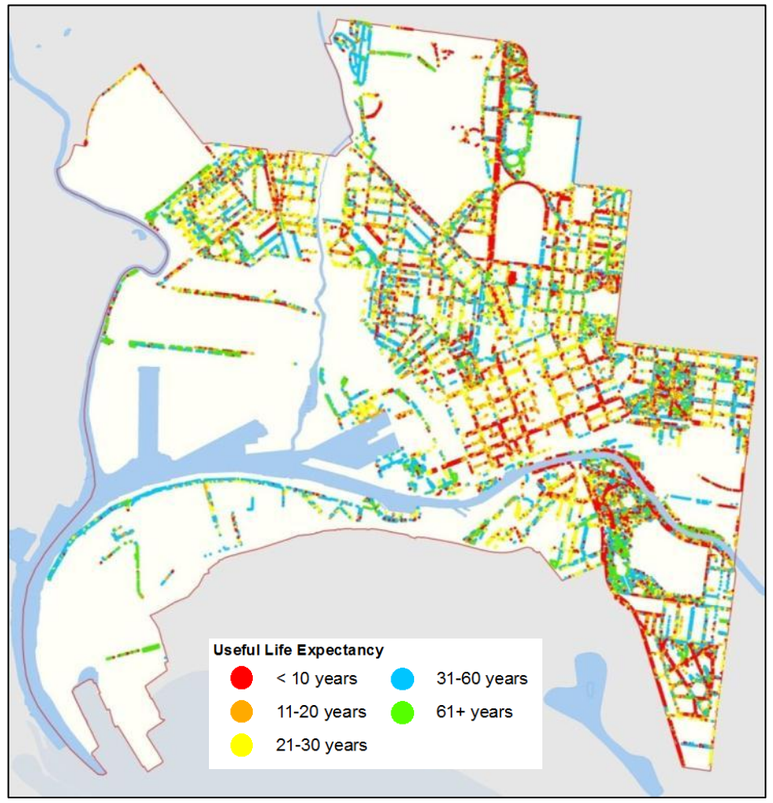
Canopy Cover

Increasing the provision of summer time 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.

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.



Useful life expectancy mapped for City of Melbourne Trees.

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. The City's *Total Watermark Strategy* is being updated to strategically manage Melbourne's water catchment. In the meantime, the City has 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:

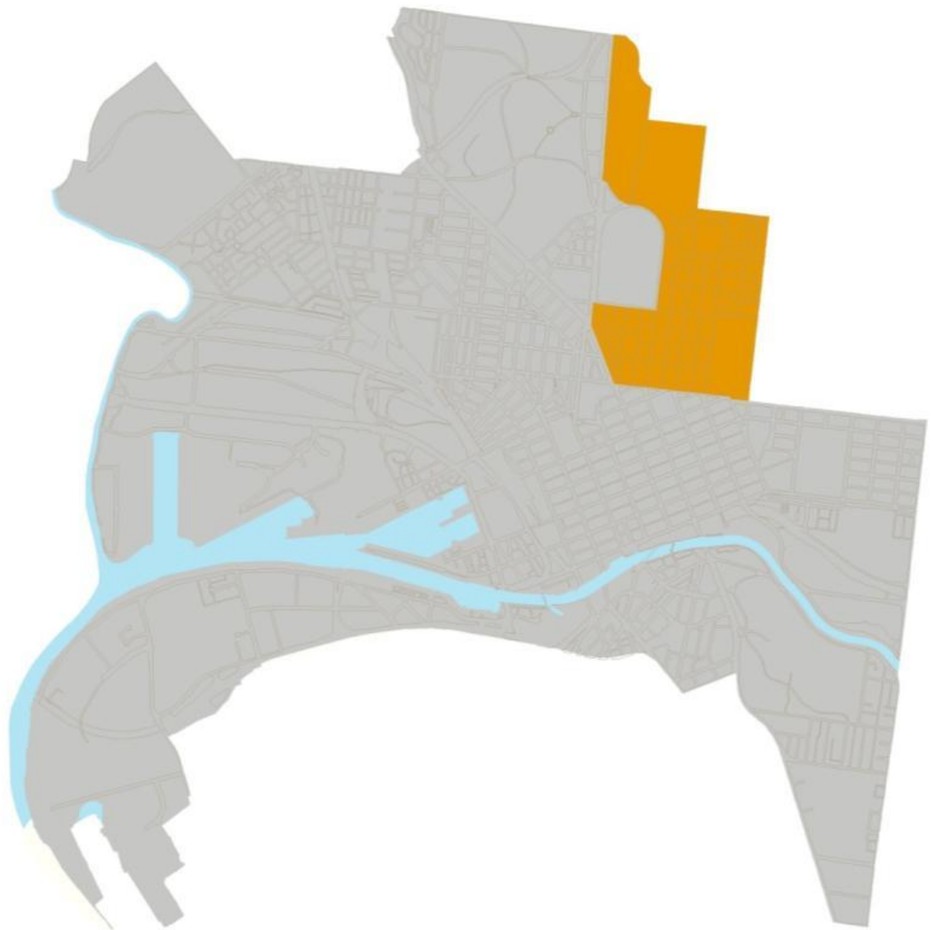
- Decreased vegetation cover and below ground growing space;
- Decreased infiltration of water into the ground;
- Increased pollutant runoff; and,
- Increased hard surfaces contributing to the urban heat island.

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. The City is 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.

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.



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

Policy Context

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

The Vision for Carlton's Urban Forest

Carlton's urban forest will be healthy, diverse and resilient, supported by an integrated approach to managing water, soil and species selection across the landscape. The urban forest will be colourful and connected, providing shade for people and habitat for native birds and pollinators. It will strengthen the character of the heritage precincts and create a public realm that supports the public life of Carlton.

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. Council 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.

In and adjacent to the Carlton precinct, the Melbourne Cemetery and the University of Melbourne manage large areas of land 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 Carlton precinct occurred in the 1850s when Royal Parade (then Sydney Road) was planted with fast growing blue gums and radiata pine, and, while the species have changes, Royal 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; Swanston Street (Madeline St), Drummond Street and Sydney Road (Grattan to Brunswick Road) were budgeted for planting. An 1879 Argus letter to the editor calls for higher tree guards in Carlton due to horses and cows feeding on young elms. Historic photos indicate College Crescent (then Madeline St) was planted with elms in the 1880s or 1890s and that planting had occurred outside the Children's Hospital in Rathdowne Street around that time as well. Further beautification of boulevards occurred in the lead up to the Royal visit in 1901 and records suggest that tree planting was occurring in streets from that period up until World War I. Other significant periods of street tree planting occurred in the 1930s when many tree islands and medians were constructed. Much of this work occurred in Carlton, with Neill Street, Kay Street, Rathdowne Street, Palmerston Street, Keppell Street and Drummond Street reportedly planted as part of this program. Another wave of planting occurred from the 1970s onward and this period saw a greater emphasis on the use of native trees.

Carlton Character

Carlton is home to Lygon Street with its relaxed café and restaurant culture and a vibrant university community. When asked, the community characterised Carlton's urban forest as green, shady, big and beautiful. Important landscapes identified by the public include the Carlton Gardens and squares, Two Tree Hill, Royal Parade and College Crescent.

Carlton's urban forest is characterised by formal park and street tree plantings. These parks and avenues contain stately trees of both Australian and exotic origin. The Carlton Gardens contain an eclectic mix of evergreen natives, conifers, deciduous trees and palms arranged in either formal avenues or as informal specimen plantings. The squares tend to contain formal avenues or border plantings of large deciduous trees. Two Tree Hill is notable for the two stately lemon-scented gums planted on the expansive, grassy roundabout adjacent to the Melbourne Cemetery. Royal Parade and College Crescent are planted with a dense canopy of elms. These landscapes were planted in the late 1800s and early 1900s, and represent some of the founding plantings of Melbourne's urban forest. The core tree genera (groupings of species) that form Carlton's urban forest are elms, oaks, planes and corymbias (gums).

Carlton's urban intensity, arising largely from its dense subdivision pattern, stands in contrast to the four broad land uses in and adjacent to the precinct – Princes Park, Carlton Gardens, Melbourne Cemetery and the University. These large, open or relatively low density areas provide important opportunities for enhancing canopy cover for Carlton and surrounding precincts.

The Carlton precinct is distinguished by several inherent geometries in its streetscapes – a north-south oriented grid, strong diagonals, crescents, and notably the five formally laid out squares which form an integral part of the street system. Most streets in Carlton are 30 metres wide, with relatively narrow footpaths and no nature strips (Grattan Street being an exception). Centre medians, roundabouts and tree islands are present in the majority of streets. This configuration provides fantastic opportunities for planting large trees in streets.

In its built form, terraces and semi-detached dwellings with parapet facades and small setbacks lend consistency to many streetscapes within the residential and heritage areas of the precinct. The blocks to the south and east of the university are characterised by larger buildings and the height and density of the built form is expected to increase throughout this part of the precinct. Some densification is also occurring in the vicinity of the existing housing estates in Carlton. Beyond these areas of more significant change, the character of Carlton's built form and streetscapes is expected to remain consistent.

View of the cemetery showing planting on College Crescent occurred in the 1880s or 1890s [State Library of Victoria]

An unidentified street in Carlton in the 1940s showing roadside tree planting and island plots. [State Library of Victoria]

Community Priorities

Carlton'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 Carlton's urban forest.

Community consultation with Carlton residents, workers and visitors indicated that there are important landscapes in Carlton where the urban forest, and how it changes over time, should be managed in ways that are sensitive to heritage and existing uses. Carlton's urban forest is highly valued and the community wants to see it thoughtfully managed and enhanced using approaches that meet community needs while improving urban forest health and diversity.

Consultation with the Carlton community indicated a preference for trees that would provide large, arching canopies over streets. Trees that would provide colour and seasonal interest were also preferred.

Desired future states defined by the community:

- High canopy cover that provides shade and dappled light
- Visual diversity in terms of colour, shape, seasonal change and contrasts, and understorey planting
- Use of both native and exotic species in the right locations to deliver the benefits that different trees provide
- Species selection that results in mature trees that are in scale and harmony with the streetscape and its uses
- A healthy, lush and vigorous urban forest of big, beautiful, green trees

Colour

Shape

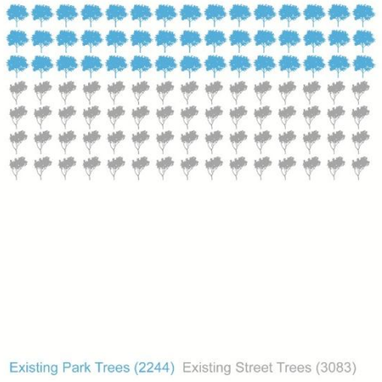
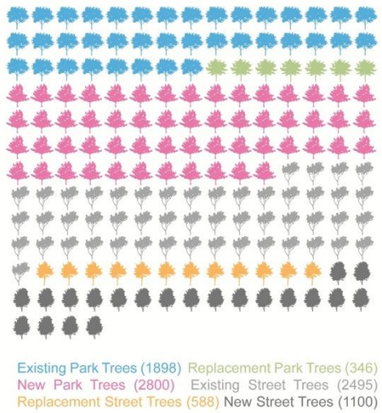
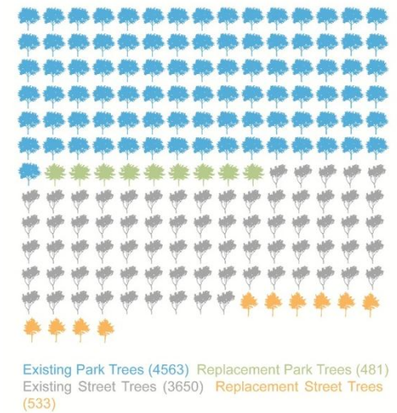
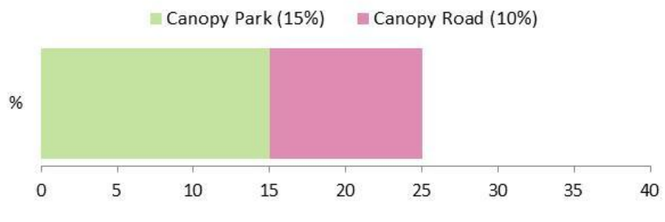
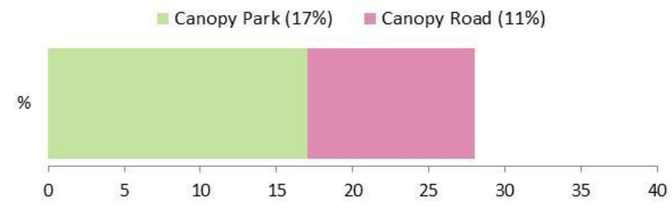
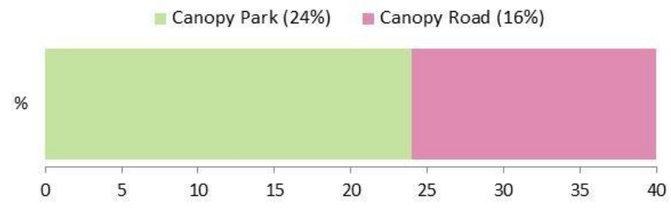
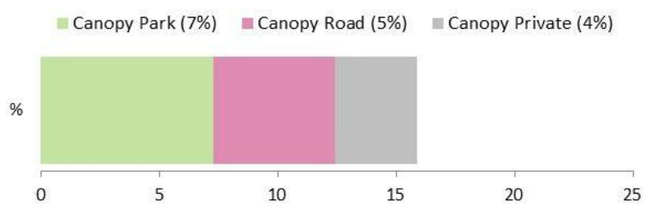
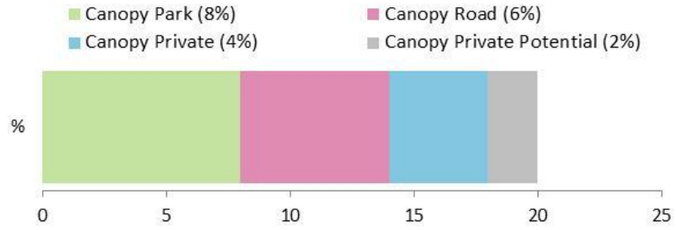
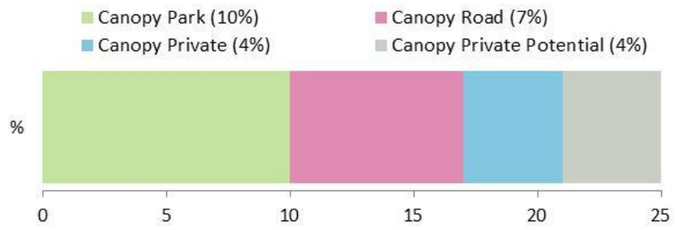
Streetscape

Images selected as representing a preferred future for Carlton's urban forest that includes colour, canopy, shade, seasonal change and shape.

Urban forest benefits highlighted through community consultation:

- Shade
- Biodiversity
- Water capture and storage
- Economic benefits to small business
- Psychological benefits (e.g., sense of calm, soothing etc.)
- Food production
- Aesthetic beauty
- Opportunities for play

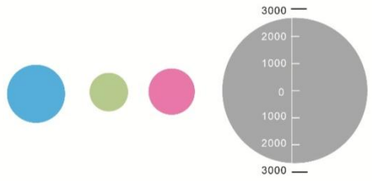
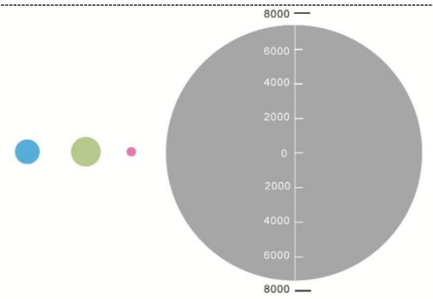
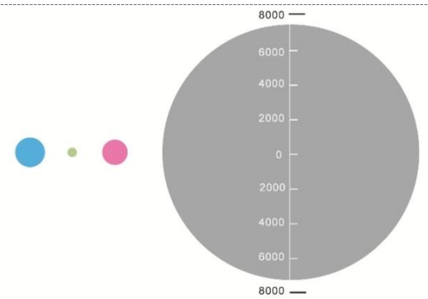
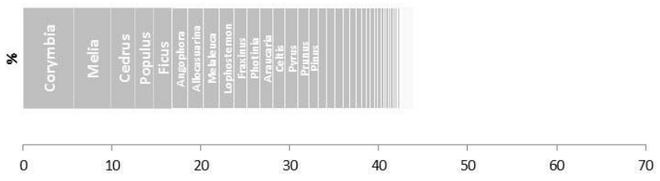
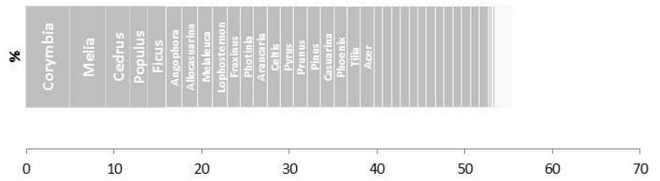
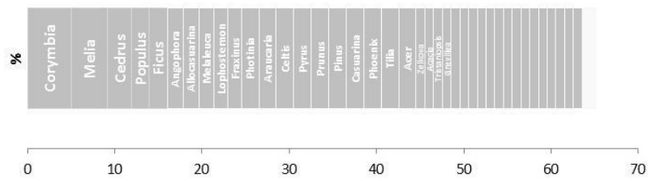
Carlton's Urban Forest in 2013 and its Projected Future

	Carlton 2013	Carlton 2023	Carlton 2040
Trees Public Realm[1]			
Canopy Public Realm[2]			
Canopy Entire Precinct[3]			
Urban Ecology	Open spaces provide habitat value for native birds and pollinators but are not well connected by vegetated corridors.	Connectors between open space will have been strategically implemented with overstory and understory plantings to enhance biodiversity values in Carlton streets.	Private realm gardens, public streets and open spaces form connected green corridors that provide habitat for native birds and pollinators.

[1] Trees Public Realm: These data are sourced from the tree inventory dataset, 2011 Useful Life Expectancy data and an estimate of planting opportunities across the precinct. Replacements and new trees planted in 2023 and 2040 are estimates only.

[2] Canopy Public Realm: These data are sourced from the tree inventory dataset, 2011 Useful Life Expectancy data, 2008 canopy mapping, and 2011 canopy mapping. Projections of future canopy are estimates only and are based on the anticipated distribution of average tree canopy areas by age class in future years with loss, growth of recent plantings, replacements and new plantings.

[3] Canopy Entire Precinct: These data are sourced from 2011 canopy mapping. Projections of future canopy are estimates only and are based on the proportional change expected in public canopy. No change was applied to private canopy given that no data is available on useful life expectancy of trees in the private realm. Canopy Private Potential is a representation of canopy gains that could be made if new plantings occur in the private realm and is symbolic only.

	Carlton 2013	Carlton 2023	Carlton 2040
Tree Health (ULE) In the Public Realm[4]	 10 years or less 11 - 20 years 21 - 30 years > 30 years	 10 years or less 11 - 20 years 21 - 30 years > 30 years	 10 years or less 11 - 20 years 21 - 30 years > 30 years
Diversity (genus) Public Realm[5]	Eucalypts (10) Planes (15) Elms (20) Oaks (10) Other (45)  Other (45%): 66 genera	Eucalypts (10) Planes (10) Elms (15) Oaks (10) Other (55)  Other (55%): 66+ genera	Eucalypts (10) Planes (5) Elms (10) Oaks (10) Other (65)  Other (65%): 66 ++ genera
Inform and Consult the Community[6]	Residents Younger than 5 (491) Residents older than 74 (314) Residents of all other ages (14,963) Workers (estimated jobs 23,228)	Residents Younger than 5 (757) Residents older than 74 (507) Residents of all other ages (21,594) Workers (estimated jobs 21,594)	Forecast to 2031 only Residents Younger than 5 (913) Residents older than 74 (626) Residents of all other ages (25,547) Workers (estimated jobs 30,383)
	Residents, workers and visitors to Carlton have collaborated to develop the Urban Forest Precinct Plan. Residents are consulted on species choice in their street.	Residents will be consulted on species choice in their street. Council will be providing guidance to, and working in partnership with residents, institutions, developers and businesses to enhance both public and private realm urban forest.	Residents will be consulted on species choice in their street. Council will be providing guidance to, and working in partnership with residents, institutions, developers and businesses to enhance both public and private realm urban forest.

[4] Tree Health Public Realm: These data are sourced from the 2011 Useful Life Expectancy data. Projections of tree numbers are estimates based on the ULE for the existing tree population. Where ULE exceeded 30 years, 10% of the population was assumed to decline per 10 year period.

[5] Diversity (genus) Public Realm: These data are sourced from the tree inventory data set and 2011 Useful Life Expectancy data. Genus refers to groupings of related species and is a convenient scale at which to examine diversity, however species, family, spatial and structural diversity are also important to creating a resilient urban forest. Projections of future genus diversity are estimates only and are based on the expected losses within each genus as trees age and the assumption that many of the new and replacement trees planted will be selected from alternative genera.

[6] Population forecast sourced from Small Area Population Forecasts 2006 to 2031, City of Melbourne. Employment forecast sourced from SGS Economics and Planning Employment Forecasts, KSA1 Scenario.

How the Precinct Plan Guides Annual Planting

Inputs

Set Annual Planting Program

Priorities (Map 1)

Streets Undergoing Unforseen Change (e.g., 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

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 below.

1. Streets with opportunities for planting or replacements

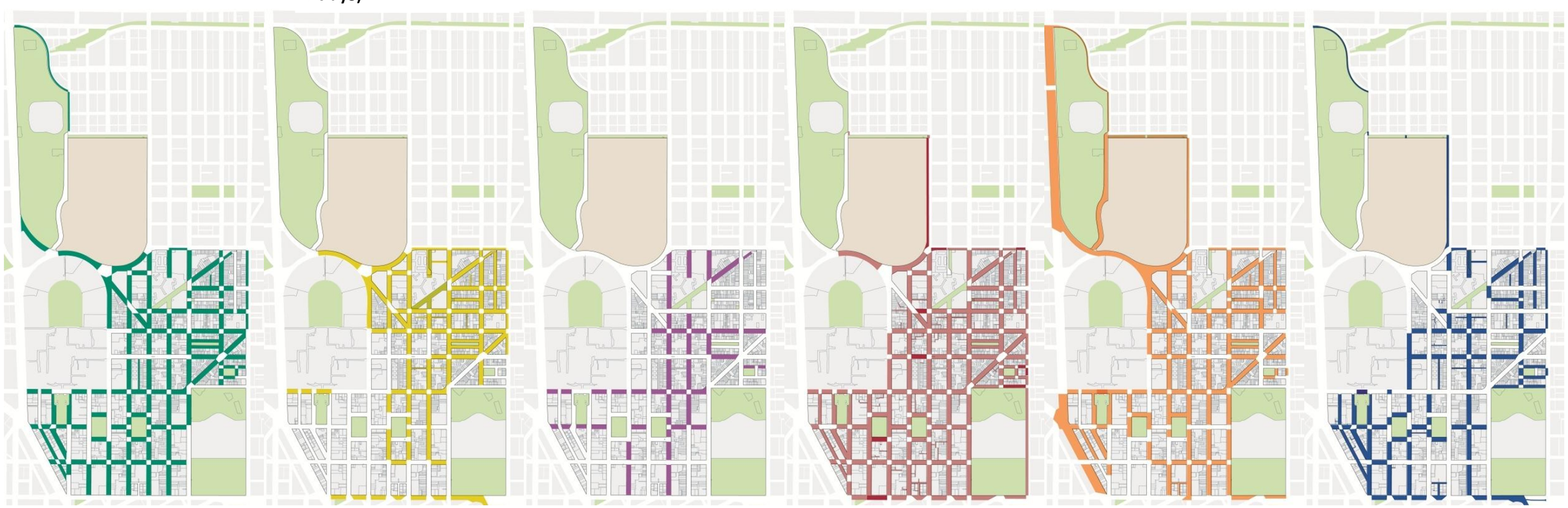
2. High density (>20) of vulnerable residents (< 5 or > 74 yo)

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; 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 (2017 – 2019) 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 (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; or
5. Replacements required.

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 Technical Notes and should be referred to when designing or planting any streetscape; however Carlton 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. 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 wide medians, consider planting in two staggered rows to maximise canopy spread over hard surfaces.

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 (e.g, the gums on Two Tree Hill). Consider extending the character of the parks, gardens and squares into the surrounding streetscapes to create linkages between open spaces.

Low voltage overhead wires are present in many Carlton streets and are generally continuous on one side of Nicholson, Canning, Rathdowne, Drummond and Cardigan 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 and outdoor dining environment should always be prioritised.

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

In heritage areas, 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. In north-south streets in heritage areas, maintain deciduous plantings in the centre in response to the extensive oak plantings in those streets. In east-west streets, give preference to evergreen plantings in the medians in order to create opportunities for native trees and conifers.

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.).

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

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. Use of unproven species should generally be restricted to short streets, streets where frontages are limited or where strong centre plantings provide continuity and canopy cover for the street.

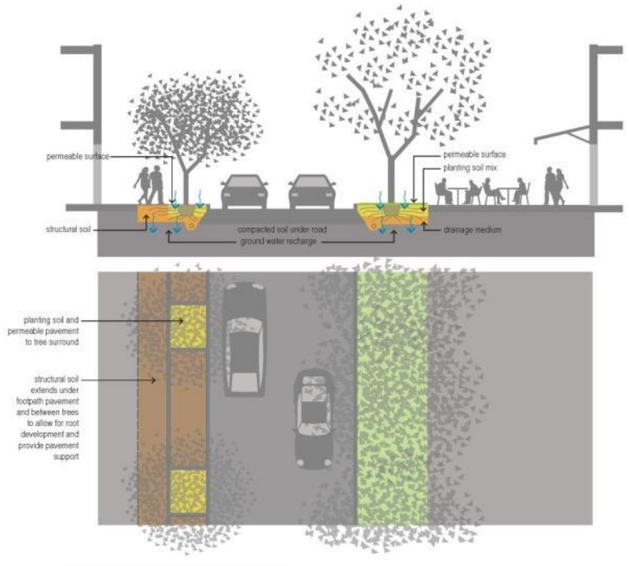
Soil and moisture conditions: Improve soil moisture conditions and select species appropriate to the site conditions

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

The native soils in Carlton tend to consist of a layer of grey silt-clay to about 30 cm and then a layer of yellow mottled heavy-textured clay on top of the bedrock. These clay soils are associated with more difficult conditions for tree growth including poor drainage and compaction. A perched water table has also been encountered in parts of Carlton. Either consider soil improvements or select species that do well in clay where these soils are found.

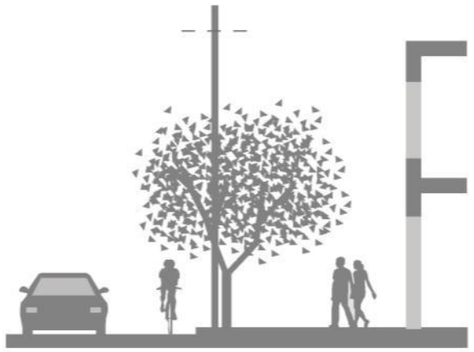
Periodic water logging of soils can be expected in northeast Carlton in the vicinity of Princes St, Niell St, Nicholson St and Station St. Similar conditions are expected in south-west Carlton in the vicinity of Bouverie St, Victoria St and Elizabeth St. Both of these areas are moisture receiving low-points that historically drained to wetlands. Select species tolerant of periodic waterlogging in these locations and increase permeability and water capture at higher elevations in the catchment.



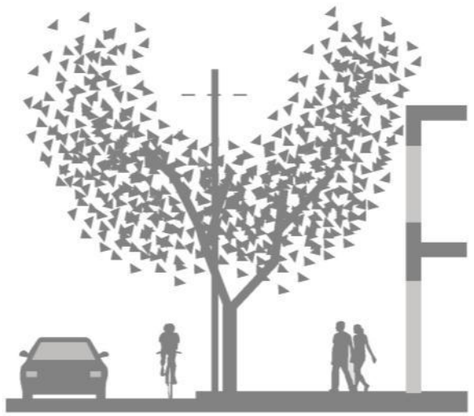
IMPROVING BELOW GROUND GROWING CONDITIONS FOR TREES IN STREETS

Map 2: Key Planting Constraints

This map indicates locations where overhead constraints or tramlines 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.



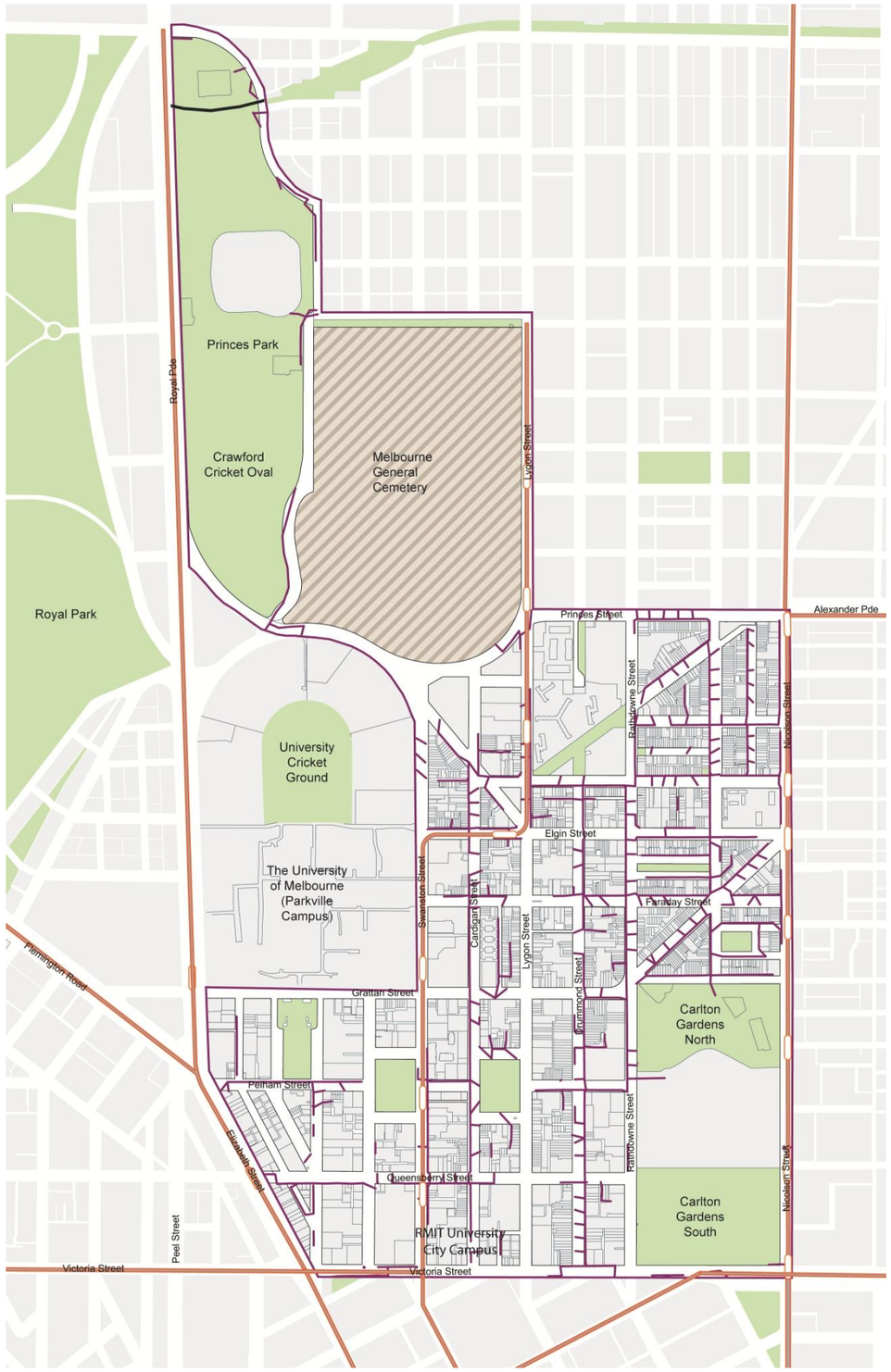
SMALL TREE UNDER POWERLINES



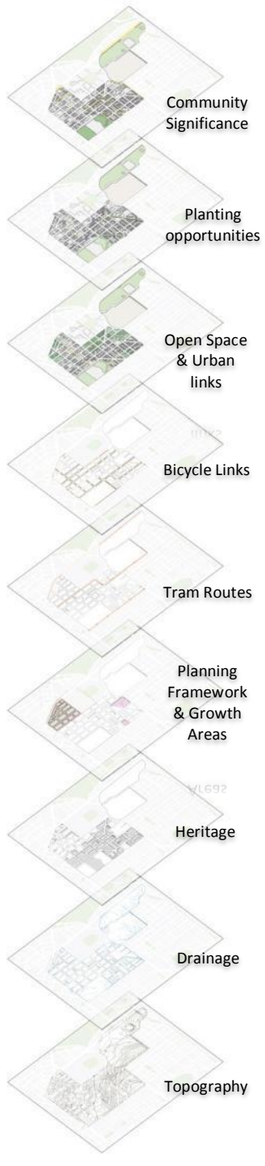
TREE TRIMMED UNDER POWERLINES

LEGEND

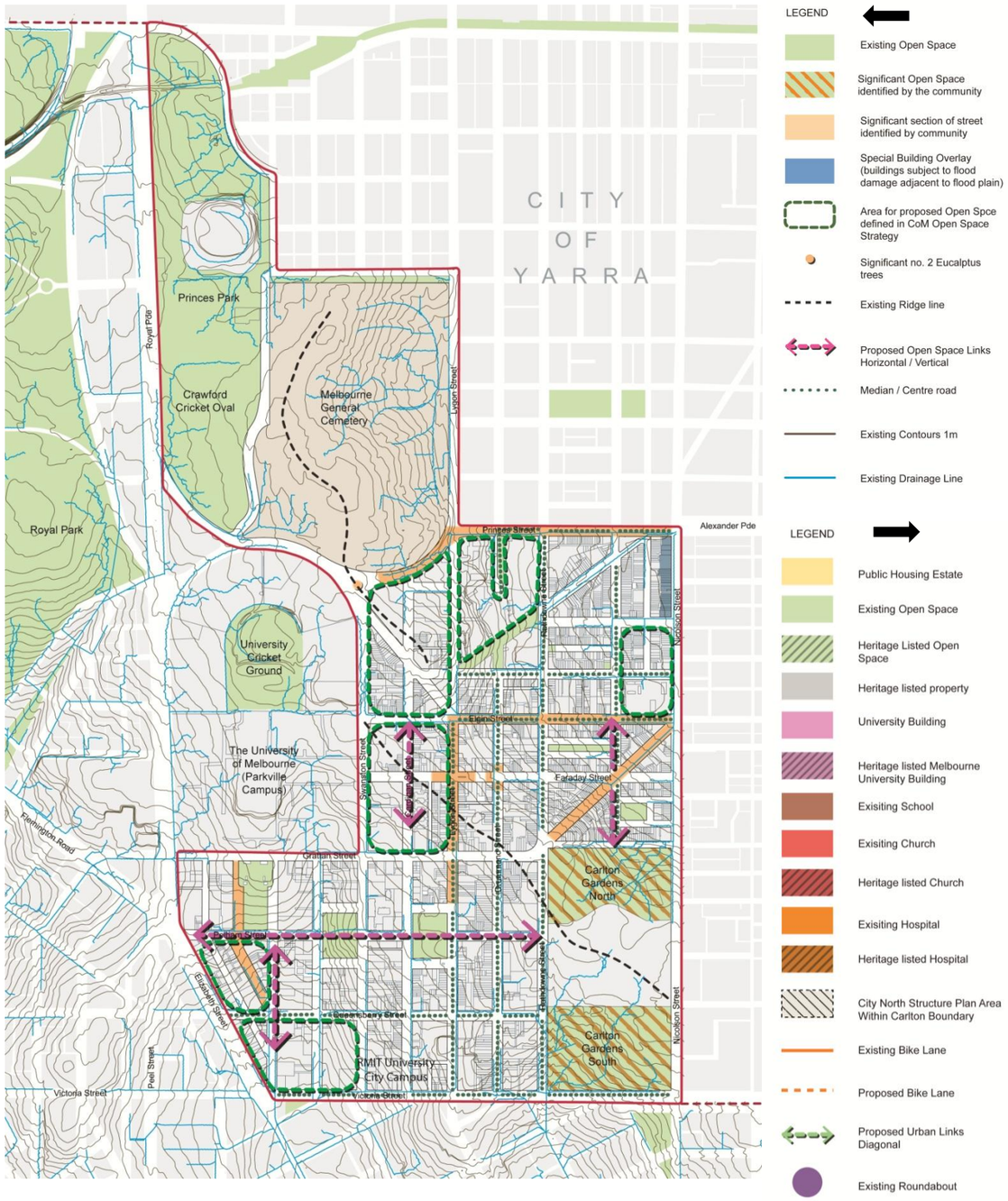
- Existing tram line with tram stop
- Low voltage powerlines
- High voltage powerlines
- Section of land not managed and maintained by City of Melbourne



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



Map 3: Natural and Open Space Context



Map 4: Strategic Context

Map 5: Planting Sub-precincts

City North Growth Area

This precinct will undergo a greater degree of change than other areas of Carlton. Increased building height and density will create a varied microclimate at street level with the public realm design and planting needing to respond to issues of wind, building shade and providing pedestrian amenity and comfort. Enhancing the precinct's formal squares and providing a strong east west connector along Pelham Street will increase the permeability and open space amenity within this precinct.

Central Campus Precinct

Between Swanston & Cardigan Streets, this precinct is defined by its larger lot and building sizes, and its high concentration of University related buildings throughout the precinct and its cross connections to Lygon Street. The selection of trees and streetscape design in this precinct will respond to the building scale and pedestrian activity in this area. The open space strategy also identifies the need for a new small open space in the north end of this precinct.

Lygon Street Precinct

Lygon Street and its cross streets are a focus for outdoor dining and retail trade in Carlton. The urban forest in this precinct needs to provide appropriate microclimate for outdoor dining, and enhance the character of this destination precinct.

East Gardens & Squares Precinct

This area is defined by its heritage terraces which are of a grander scale to the finer grained residential precinct to the north. The interfaces with the squares and with world heritage Carlton Gardens provide the opportunity for the streetscapes to reflect the botanic character and stately avenue formality of the heritage parks.

North Residential Precinct

Predominantly low rise heritage residential. This precinct also includes the large public housing estates. There are opportunities to integrate the public housing through open space, improve open space connections and reinforce the diagonals. The Open Space strategy identifies the need for some new smaller open spaces in this precinct.

North Park Interface

This precinct includes significant streetscapes of Royal Parade and College Crescent, and is dominated by Princes Park. The opportunities include working with City of Yarra and the Melbourne Cemetery to provide increased canopy cover both within the cemetery and to the interfaces at the City of Melbourne boundary.

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. 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.

Map 7: What Should Stay and What Should Change?

Elms, planes, oaks and eucalypts are core genera within Carlton's urban forest today. That is not proposed to change; however their dominance will be reduced by using alternatives 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 and planes will be limited to replacements in locations where they are already planted. New plantings of oaks, except as feature trees, should generally be limited to those streets where they are completing an avenue. Use of species within the Myrtaceae family should be targeted at streets where they can provide connecting corridors between open space for native birds, however it is preferable that different genera and species be planted in segments or as mixed plantings to increase diversity.

LEGEND

Change from elms:

1 2 3 4 7 10

Change from planes in roadside:

5 6 11

Change from planes:

8

Change from planes in centre (retain in roadside):

9

LEGEND

- 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 majority elm tree (*Ulmus*) population
- Street with elm tree (Ulmus) integrated with other tree species
- Street with majority oak tree (*Quercus*) population
- Street with oak tree (Quercus) integrated with other tree species
- Street with majority Eucalyptus population
- Street with Eucalptus integrated with other tree species

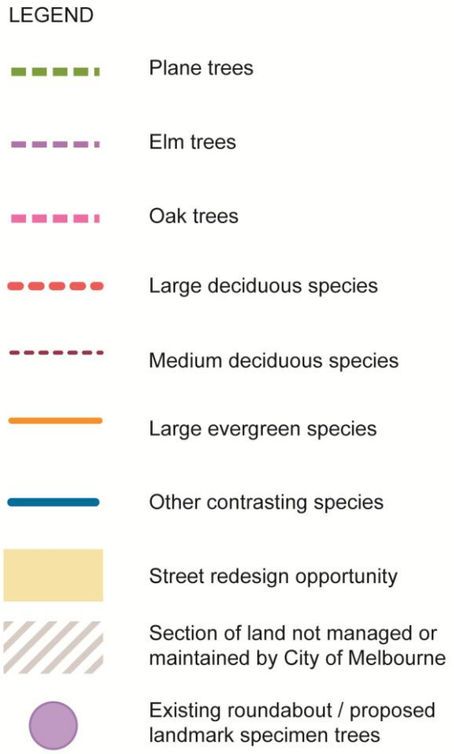
Planting Strategies

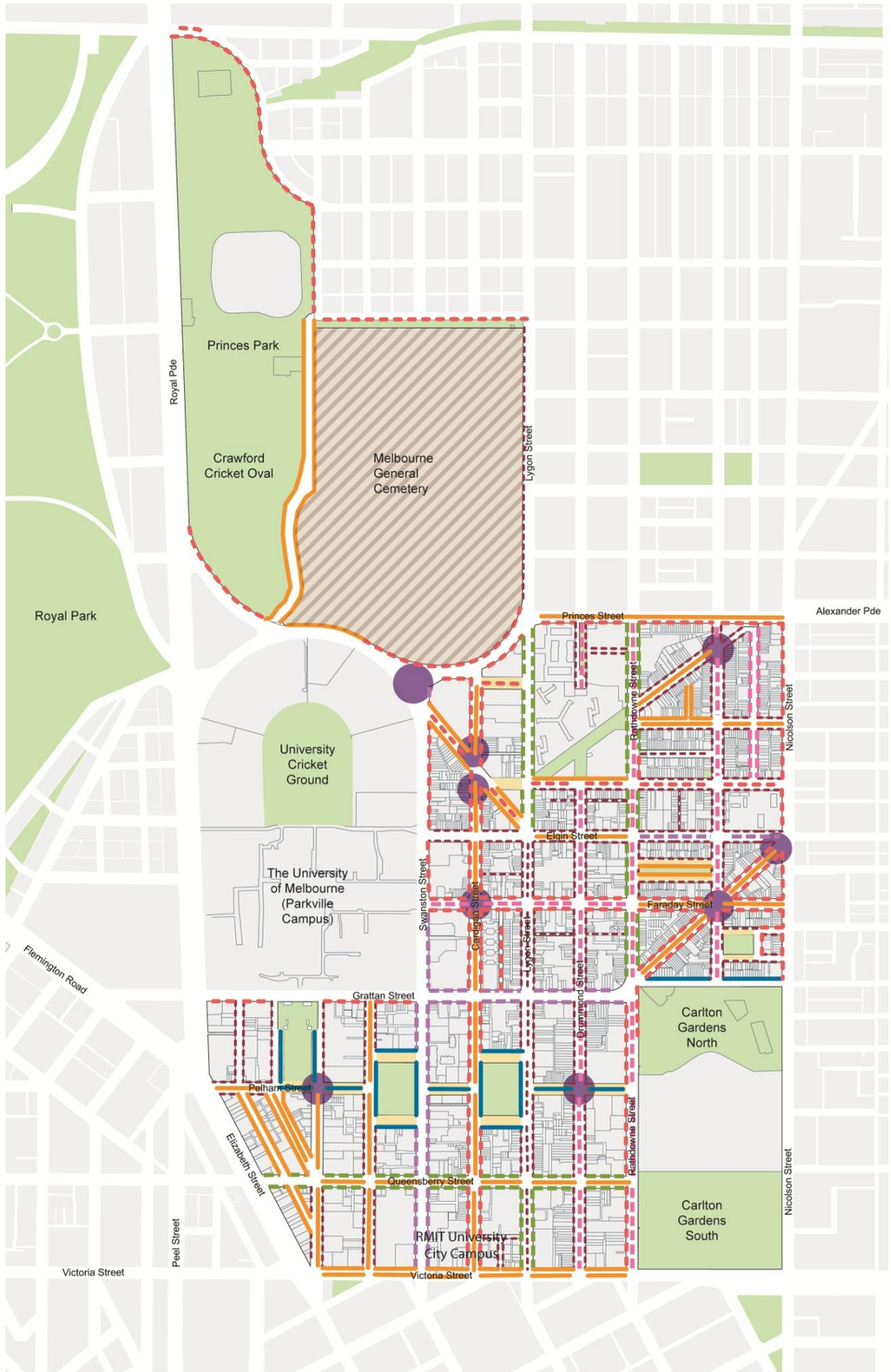
Map 8: Long-term Planting Strategy

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:

- In streets with tramways, the principle tree plantings will be in the footpaths.
- Where large canopy trees in central medians are possible, smaller ornamental trees may be appropriate in the footpath if not precluded by verandas or other features.
- Where trees are in footpaths, deciduous trees should be favoured while trees in medians may be evergreens.
- Long north south tree avenues should have consistent form and character in centre and roadside plantings with species changing at sub-precinct boundaries and at the ridgeline that cuts across the centre of Carlton.
- East west street blocks should contain species with a consistent canopy form and can be varied from block to block.
- Landmark specimen trees at key roundabouts and intersections should provide way finding and diversity.
- Green park connector streets should include a diversity of tree and understorey plantings. These streets will provide connections between Carlton's open spaces, highlight the diagonal streets and reinforce the botanical nature of Carlton's squares and gardens.
- Incorporate 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 Carlton. 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 park expansions or new medians.

LEGEND

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 evergeen tree

Large deciduous tree

Medium -small deciduous

NEW

Large evergreen tree

Large deciduous tree

Medium - small deciduous tree

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 short east-west blocks, kerb outstands, roundabouts and road ends. Long north south tree avenues should have consistent form in centre and roadside plantings with species changing at sub-precinct boundaries and at the ridgeline that cuts across the centre of Carlton. In long streets with roadside plantings, use a single species for multiple segments then change between sub-precinct or topographic boundaries, or consider the use of two alternating species of similar form, scale and colour. In narrow streets and where there are power lines 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.

LEGEND

- Existing Roundabout / Proposed Landmark Specimen Trees
- North South Avenues - consistent character with various species
- East West Streets - consistent character with various species
- Crescent Avenue - new sections of avenue with character species
- Diagonal Streets- distinctive species to highlight diagonals
- Heritage Avenue - perpetuation of existing avenues
- Open Space Link - extending park character to the streetscape - mixture of species
- Precinct Boundaries
- Ridge Line

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 Carlton, Guiding Principles and Planting Plan. Elms, planes, oaks and Corymbias are key genera within Carlton, 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 Carlton'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 Carlton Trees (Limited New Plantings)
Evergreen
Corymbia sp., Gum

Deciduous
Platanus sp., Plane
Quercus sp., Oak
Ulmus sp., Elm

Large Trees for Streets
Evergreen
Angophora costata, Smooth-barked apple
Araucaria sp.
Cedrus sp., Cedars
Flindersia australis, Crow's ash

Deciduous
Acer x freemanii, Freeman maple
Acer rubrum, Red maple
Fraxinus americana, White ash
Ginkgo biloba (male), Ginkgo
Lirodendron tulipifera, Tulip tree
Liquidambar styraciflua, Liquidambar
Populus simonii, Simonii poplar
Tilia sp.
Toona ciliata(trial), Australian red cedar
Zelkova serrata, Japanese zelkova

Medium to Small Trees for Streets
Evergreen
Afrocarpus falcatus (trial), Sickle-leaved yellowwood
Brachychiton sp.
Callodendron capense, Cape chestnut
Cupaniopsis anarcardiodes, Tuckeroo
Eucalyptus leucoxylon subsp. megalocarpa, Red flowering gum
Ficus rubiginosa, Port Jackson fig
Geijera parviflora, wilga
Lithocarpus densiflorus (trial), Tanoak
Magnolia grandiflora, Southern magnolia
Podocarpus elatus, Plum pine
Tristaniopsis laurina, Kanooka
Waterhousea floribunda, Weeping lilly-pilly

Deciduous
Acer campestre, Hedge maple
Albizia julibrissin (trial), Persian silk-tree
Brachychiton sp.
Catalpa bignoniodes, Catalpa
Celtis australis, European nettle tree
Cercis siliquastrum, Judas tree
Corylus colurna, Turkish hazel
Fraxinus pennsylvanica, Green ash
Jacaranda mimosifolia, Jacaranda
Koelreuteria sp.
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
Angophora floribunda, Rough-barked apple
Araucaria sp.
Cedrus sp.
Eucalyptus tricarpa, Red ironbark
Ficus macrophylla, Moreton Bay fig
Livistonia australis, Cabbage tree palm
Phoenix canariensis, Canary Island date palm
Pinus sp., Pines
Quercus virginiana, Californian live oak
Washingtonia robusta, Mexican fan palm

Medium to Small Feature Trees
Acacia implexa, lightwood
Acacia melanoxylon, Blackwood
Banksia sp
Brachychiton sp,
Callitris glaucophylla, white cypress pine
Callistemon viminalis, weeping bottlebrush
Casuarina sp./Allocasuarina sp.
Cuppressus sempivirens, Mediterranean cypress
Davidia involucrata, Dove tree
Dracenea draco, dragon blood tree
Eucalyptus forrestiana, fuchsia gum
Eucalyptus platypus, round-leaved moort
Ficus rubiginosa, rusty fig
Grevillia hilliana, white silky oak
Hakea sp.
Leptospermum petersonii, lemon scented tea tree
Maclura pomifera, Osage-orange
Olea europea, olive
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 http://www.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. Council 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 melbourneurbanforest@melbourne.vic.gov.au.

I have seen a sick or damaged tree, or an empty tree plot. How can I tell Council 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 can be found at http://www.melbourne.vic.gov.au.