

# URBAN FOREST ACTION PLAN

MARCH 2019

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# INTRODUCTION

## VISION:

A GREENER, MORE VIBRANT, CONNECTED BALLARAT WHERE TREES ARE VALUED AS A HIGH PRIORITY AND MANAGED THROUGH AN URBAN FOREST APPROACH THAT INCREASES CANOPY COVER TO MAXIMISE SOCIAL, ECOLOGICAL AND ECONOMIC BENEFITS

Ballarat's urban trees play an important role in the future livability, resilience and sustainability of our city. Through their many benefits such as shading, stormwater interception and provision of habitat for wildlife, the hundreds of thousands of trees and associated vegetation across our urban area form Ballarat's Urban Forest.

The Urban Forest Action Plan brings together community aspirations and existing policies and strategies in order to guide a new approach to protecting and enhancing Ballarat's Urban Forest. The plan sets out key targets and objectives to manage and maintain a healthy, resilient and thriving Urban Forest.

## THE STORY SO FAR

2015

In 2015, during Council's largest community conversation, Ballarat Imagine, the importance of urban greening, trees and biodiversity to the community was evident. As a result, the Ballarat Strategy 2040 was developed with a shared vision for Ballarat for a "Greener, more vibrant and connected Ballarat". The City has now committed to:

### Initiative 5.8

Plant more trees and work with the community to more than double Ballarat's canopy coverage to 40%

### Initiative 5.9

Support the management and rehabilitation of a network of living corridors across Ballarat, to properly manage our natural values in urban and township areas

2017

In 2017 Council released the discussion papepr, *Our Living City* to prompt discussion with the community around managing our urban trees through a more holistic approach. It identified key challenges facing Ballarat's urban forest and highlighted nine key priorities to help guide development of the draft action plan.

2019

In January 2019, Council released the Draft Urban Forest Action Plan for public comment. The plan considered feedback received through the discussion paper consultation to identify four key targets and six key objectives in implementing an urban forest approach.

# WHAT YOU SAID..

The Ballarat community were invited to provide feedback throughout the development of the Urban Forest Action Plan. In 2017, *Our Living City*: A discussion paper about greening Ballarat as an Urban Forest was released for public comment and in 2019 the Draft Urban Forest Action Plan was released.

This Urban Forest Action Plan is the result of those discussions and now provides a formal framework of actions that council and its partners need to

Detailed feedback from community members in response to the Urban Forest Discussion Paper and Draft Action Plan highlighted some common concerns and priorities that have been considered in developing a detailed urban forest planting and management program.

Key themes that emerged through both consultation processes were:

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PEOPLE RESPONDED TO THE URBAN FOREST DISCUSSION PAPER AND DRAFT ACTION PLAN



### BIODIVERSITY

The need to consider biodiversity, habitat pathways and conservation in the planning and overall principle of Ballarat's Urban Forest.



### FUNDING AND RESOURCING

A recognition that Council will need to provide adequate resourcing, skills and maintenance in managing the Urban Forest. There was a common perception that currently there is not enough.



### SPECIES SELECTION

Species selection: a range of factors will need to be considered when selecting species for certain locations such as heritage values, landscape characters, the role of native species, a recognition that certain species exacerbate allergies and that species planted now must be resilient in the face of changing climates.



### FOOD PROVISION

A desire for food provision to be one of the benefits afforded by Ballarat's Urban Forest either through food orchards or fruit trees in public spaces



### THE IMPACT OF DEVELOPMENT

The impact of development on Ballarat's Urban Forest: both protection of existing trees and provision of new trees in subdivisions



### EQUITABLE PLANTING

A targeted approach to tree planting that encompasses all suburbs across Ballarat and identifies areas most in need of canopy cover.



### COMMUNITY CONSULTATION

Clear communication and demonstration of tree planting being undertaken across Ballarat.

# AT A GLANCE

## KEY TARGETS

ESTABLISH A COMPREHENSIVE TREE INVENTORY FOR MEASUREMENT AND MANAGEMENT

INCREASE CANOPY COVER FROM OUR EXISTING 17% TO 40% BY 2040

ACHIEVE AN INCREASE OF 2 HECTARES (20,000M<sup>2</sup>) OF GREEN SPACE IN THE CBD

DEVELOP TREE PRECINCT PLANS FOR PRIORITY AREAS OF SOCIAL VULNERABILITY

## KEY OBJECTIVES

### 1 UNDERSTANDING OUR URBAN FOREST

Collect a full, clean and consistent set of data to establish a thorough understanding of the state of our existing urban forest

### 2 DELIVER A BEST PRACTICE URBAN FOREST MANAGEMENT PROGRAM

Improve existing resources, maintenance, reporting, technical guidelines

### 3 MORE GREEN FOR MORE BENEFIT

Prioritise increasing public canopy cover in areas of need and integrate planning with infrastructure

### 4 ENHANCE BIODIVERSITY

Prioritise the planting and restoration of urban habitat and living corridors

### 5 STRENGTHEN BALLARAT'S URBAN CHARACTER

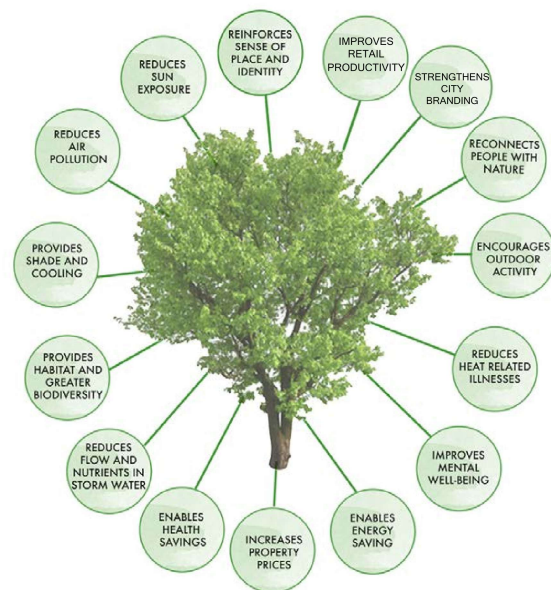
Enhance landscape, neighbourhood and heritage characters through provision of street trees and greening

### 6 EMPOWER AND SHARE

Educate, engage and involve the Ballarat community in acting as stewards for the Urban Forest and work with other landholders to embed urban forest objectives into their planning



# WHY PLAN FOR BALLARAT'S URBAN FOREST?



Ballarat's trees form the basis of our future Urban Forest. The Urban Forest is the sum of all urban vegetation across both private and public land. This includes parks, gardens, streets, roadsides, private yards, creek corridors, wetlands and recreation spaces.

However, ownership and therefore management of these various components of the Urban Forest is different. Council has management control over street and park trees, some trees are owned by other government agencies like VicRoads, VicTrack and Department of Education, others are owned by residential householders. Therefore, by having a shared overarching vision and a common set of goals for the Urban Forest, everyone can share responsibility for its stewardship and work together to help protect and enhance it.

Ballarat's Urban Forest delivers a range of diverse and much needed benefits to the urban environment. (Figure 1) The healthier and more resilient the trees and the broader the tree canopy, the greater the benefits provided.

Whilst all trees, large, small, native, exotic and indigenous, play a key role in the livability of Ballarat, it is worth noting that large, broad canopied trees can deliver 60-70 times the benefits of small trees (Nowak, 2009) such as air pollution amelioration, stormwater interception and shade provision.

*“The healthier and more resilient the trees and the broader the tree canopy, the greater the benefits provided.”*

Figure 1: Benefits of Trees (Adapted from Mullaney et al, 2015, Plant 2016, Pandit 2013, Norton et al, 2013)

## THE INTEGRATED URBAN FOREST APPROACH

By understanding the broad range of benefits offered by Ballarat's Urban Forest, stronger links between urban tree management and other broader Council and community priorities can be made. These links can provide a strong business case to invest in Urban Forest planning and management.

The benefits of an integrated Urban Forest include:

- Through its ability to cool the landscape and intercept stormwater, the Urban Forest helps Ballarat adapt to climate change and supports a transition to an integrated water management approach
- Through the equitable distribution of shade and amenity, the urban forest improves overall health and wellbeing within the community and is an important tool in encouraging active transport such as walking and cycling
- Key locations for native and indigenous tree species to provide habitat, food and movement corridors for Ballarat's wildlife
- Through the diversity of species and canopy structure, the Urban Forest contributes significantly to neighbourhood character, whether it be heritage, suburban or commercial types of character
- A well-managed Urban Forest also demonstrates good asset management, leadership and forward thinking

The City of Ballarat, other regional agencies and community groups have a range of existing priorities which can be influenced by a healthy, resilient Urban Forest.

These include:

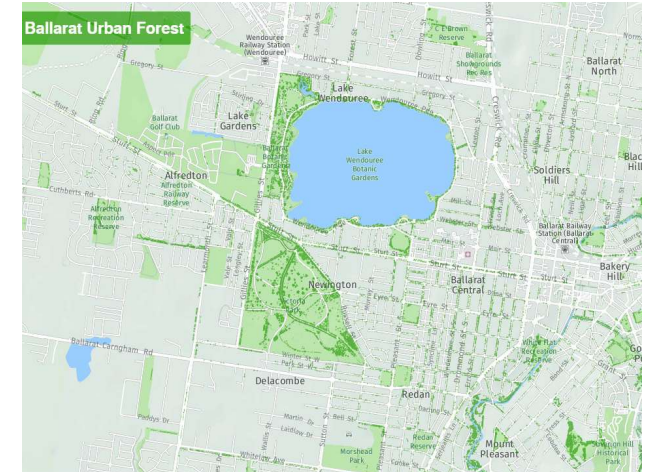
1. Community Health and Wellbeing: providing healthy and sustainable environments
2. Active and integrated transport: encouraging cycling and walking by increasing shade
3. Biodiversity: Planning scheme requirements and policies
4. Integrated Water Management: planning for water and vegetation together
5. Climate Change adaptation: cooling, interception of stormwater
6. Environmental Sustainability: enhancing biodiversity and creating healthy land and waterways
7. Residential development: quality housing form and surrounding landscapes, diversity and equity in communities through prioritising the planting of trees in areas of need
8. Heritage landscapes: enhancing heritage values with appropriate vegetation
9. Major infrastructure works and asset renewals: innovation, integrated planning, leveraging of budgets

The City of Ballarat recognises that the Urban Forest is a key asset for the future of our City. The Urban Forest must be included in the planning and implementation of works and programs across a range of departments and agencies. Further to this, a shared and overarching vision is needed to ensure everyone is working towards the same goals



# PART A WHAT WE KNOW ABOUT BALLARAT'S URBAN FOREST

## DATA IS THE FIRST KEY STEP



Above: A zoomed in image of the interactive public Urban Forest map

The City of Ballarat manages approximately 100,000 -120,000 trees across the streets, parks and waterways. Council has spatially mapped the location of 66,000 street and park trees which can be viewed in Ballarat's interactive Urban Forest map on the City of Ballarat's website.

Council has already set an ambitious target of reaching 40% canopy cover by 2040. To meet this target, Council will first need to understand the qualitative and quantitative information relating to the existing tree stock; the potential of the existing Urban Forest to grow and the sites and opportunities for new trees to be planted.

Unfortunately, the existing information recorded for these public trees is either missing, inconsistent or sometimes out of date, making analysis of the structure of the public Urban Forest difficult.

A comprehensive tree inventory will help to inform what level of funding and resources are required to manage the existing Urban Forest to its greatest potential, risk mitigation and for planting additional trees and maintaining them. To build a strong business case, the tree data can also be used to calculate dollar values for each tree to include amenity, structural and environmental values delivered by Ballarat's public trees.

Ballarat will therefore require:

- A full tree inventory of its street and park trees including details of each tree: species, age, health, structure, useful life expectancy, size (height, trunk width, canopy width) as a minimum
- An understanding of the number and location of vacant tree planting sites
- Data to inform the development of living corridors: e.g. biodiversity surveys, corridor opportunities, existing revegetation projects.

## WHAT TYPE OF DATA?

### TREE SIZE

Tree height and spread plays an important role in contributing to the urban forest's canopy cover. Simply put, the larger the tree the greater its canopy cover. The benefits of larger trees are that they:

- Create better shade to buildings as they are taller and can cast shadow over roofs and walls of buildings
- Provide maximum carbon sequestration
- Intercept larger amounts of particulate pollutants and rainfall due to significantly larger leaf areas
- Absorb more gaseous pollutants
- Can provide greater canopy cover with potentially less intrusion at the ground from stems, trunks and lower branches.

### SPECIES

The urban forest by its nature can be very vulnerable and at serious risk from pests, diseases and changes in climate.

Creating a forest with a wider range of tree species helps us to increase the resilience of the urban forest by mitigating the potential impact from changes in climate (heat, rainfall & storm events) and any new pest or disease incursion, ensuring any canopy cover loss from such events are minimised to manageable levels. Recording species data for existing trees will allow us to better plan our tree planting programs and ensure a diverse range of species is planted. Creating species diversity can also assist in improving the variety and abundance of native plants and animals.

### TREE CONDITION

A large proportion of Ballarat's trees are reaching the end of their lifespan in many of the City's older parks and streetscapes. Specific aged-tree management practices and/or timely replacement are critical to mitigating risk and maintaining canopy cover in these areas. Identification of areas where the age risk is high will help direct future tree planting programs.

There are four forms of data collected in relation to tree condition:

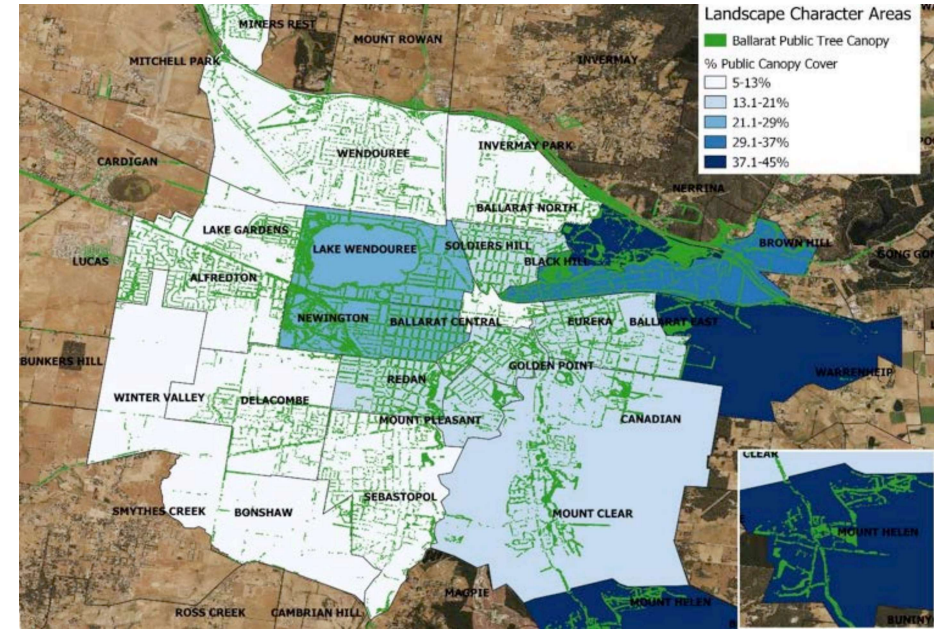
1. Health (Excellent, Good, Fair, Poor, Dead)
2. Structure (Excellent, Good, Fair, Poor)
3. Age Class (Decline, Mature, Semi-mature and Young)
4. Useful Life Expectancy (<5 Years, 5-15 Years, 15-40 Years and >40Years).

Health and Structure are measures of the viability and growth potential of individual trees and a strong indicator of future canopy cover and risk potential.

The Useful Life Expectancy (ULE) is an estimation of the number of years a tree is able to continue to grow well within a landscape.

A key objective in creating a sustainable urban forest is to ensure a spread of age classes. Too many trees becoming senescent at the same time means a large number of tree removals, gaps in streetscapes and parks.

By maintaining a mixture of age classes, maintenance costs and tree removal and replacement will be ongoing. This spreads the financial costs evenly as well as lessens the overall visual impacts. Importantly a mixture of age classes ensures the overall benefits provided by the urban forest are maintained over time, across the City.



Public canopy cover across Ballarat

## CANOPY COVER

Canopy cover is a common and useful measure of the urban forest. It can be measured at municipal scale, suburb level and even street or lot scale. Optimum canopy cover for a city depends on various factors e.g. climate, urban density, topography and governance. Targets should therefore be made based on individual town or city needs and opportunities (McPherson and Nowak, American Forests Science Advisory Board, 2018).

City of Ballarat's urban tree canopy cover was measured in 2014 at 17% (Jacobs et al). This is the extent of all tree canopy cover for the municipality of Ballarat. Whilst this figure is of interest, it does not consider specific areas where canopy is low or high.

Therefore, further detailed analysis of Ballarat's public urban tree canopy was undertaken in 2017. It measured individual canopies within road reserves and in parks and open space as shown above. The image highlights that public realm canopy cover is lowest i.e. between 8% and 13% in Sebastopol, Wendouree, Delacombe, Alfredton, Ballarat North and in the CBD.

*“City of Ballarat’s urban tree canopy cover was measured in 2014 at 17%,,*

# VALUING OUR URBAN FOREST

The Urban Forest is valuable from a range of perspectives. With appropriate base data, Ballarat's urban trees could be assessed to determine their monetary value and their environmental values.

### MONETARY VALUE :

Using a US based valuation tool called i-Tree Eco, one of the Algerian Oak's in Sturt Street Gardens was measured to demonstrate the tool at work.

Using i - Tree Eco the value of the Algerian Oak results were as below:

- Structural value \$36,300
- Carbon stored: 4 metric tons worth \$100
- 69 kgs of carbon sequestered per year
- 87 kgs of Oxygen produced per year
- 2m<sup>3</sup> of stormwater intercepted each year
- Combined environmental value of approximately \$10/yr



Above: The Algerian Oak in Sturt Street which has been valued through i-tree eco at \$36,000

### HOW DO WE COMPARE ?

When considering the value of all 120,000 public trees together, Council looks after tree assets worth tens of millions of dollars returning over \$1, 200, 000 in environmental benefits to the community each year.

Comparing similar local councils who have already valued their Urban Forest we can gain an understanding of the potential structural value of our Urban Forest.

- Geelong 75,000 street and 45,000 park trees = \$350m
- Dandenong 55,000 street trees = \$180m
- Dubbo 38,000 street and park trees = \$211m
- Moreland 59,000 street and 70,000 park trees = \$270m

*Based on the above information, the City of Ballarat's Urban Forest (120,000 trees) is conservatively estimated at*

**\$387m**



Above: The total value of the Algerian oak Tree in Sturt St is \$210, 630.88

### AMENITY VALUE :

The Amenity Value Formula used by the City of Melbourne was derived from the formula (by Dr.Peter Yau, 1990) of the Maurer-Hoffman Formula. The basic monetary value of the tree was taken from the internationally accepted table of values devised by the American Council of Tree and Landscape Appraisers and the International Society of Arboriculture, which in the base year 1988 was \$US27 per square inch trunk basal area

This value is currently used within the City of Melbourne to provide a monetary value of a tree that is being removed and to be paid for by the developer/applicant.

### CALCULATING AMENITY VALUE

$$\text{Value (V)} = \text{Basic Value (\$)} \times \text{Species (S)} \times \text{Aesthetics (A)} \times \text{Locality (L)} \times \text{Condition (C)}$$

Valuation method if we applied to same Algerian Oak in Sturt Street calculates a value of \$174,330.88

$$\text{Total Value Algerian Oak Sturt Street} = \text{Structural value } \$36,300$$

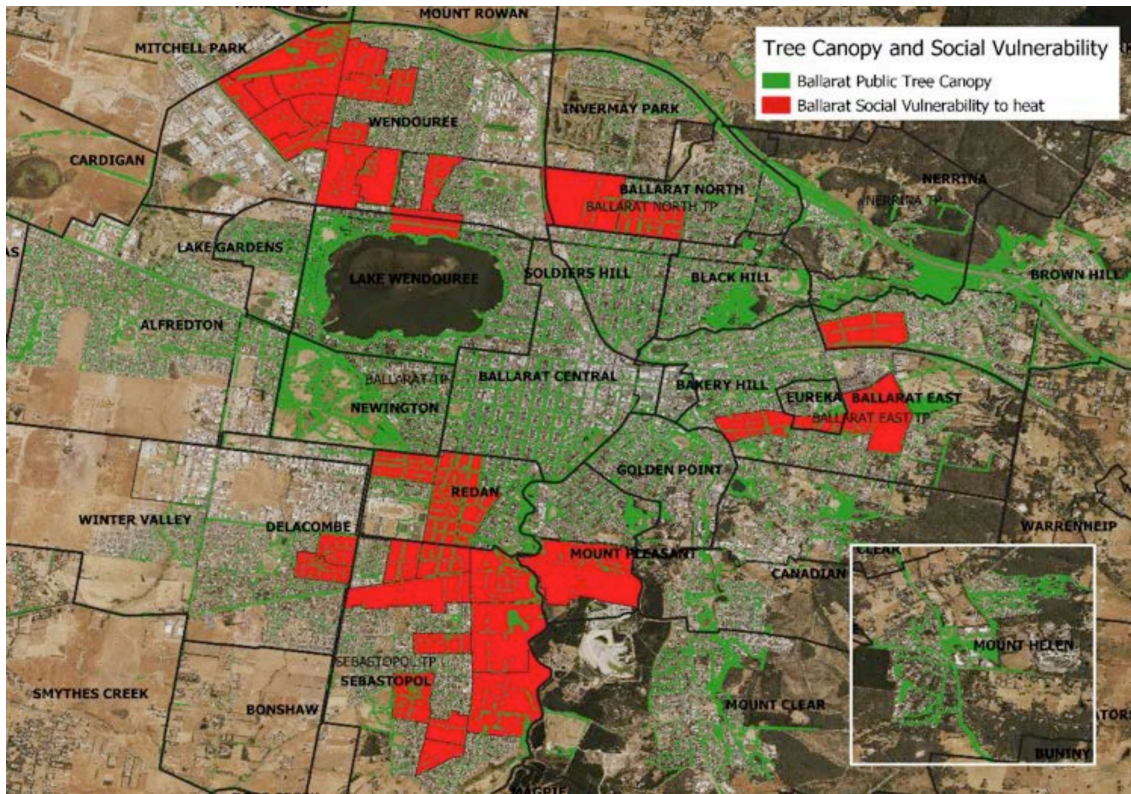
$$+ \text{Amenity Value } \$174,330.88$$

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$$\text{Total: } \$210,630.88$$

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Above: A map comparing areas of social vulnerability to heat and public tree canopy cover across Ballarat



Above: Marigold St, Wendouree has very low levels of canopy cover



Right: What Marigold St could look like in 2040 with increased tree planting

## IMPACTS OF HEAT

Heatwaves have been recognised as posing significant risks to human health and wellbeing, and climate change modelling shows us that these heatwaves are likely to occur more often (IPCC, 2012). However, a growing body of research and health statistics in Australia show that prolonged periods of days over 30 degrees, not just heatwaves, can have negative effects on our communities (Hughes et al, 2016) (Victorian State Government, 2018.) Victorian Government Health Statistics show that those over the age of 65 are one of the largest demographics negatively impacted by heat. Other groups are listed below.

There is a direct correlation between the amount of hard dark surfaces (roads, footpaths, dark roofs) and urban heat (Coseo and Larsen, 2014). It is not surprising therefore that the Urban Forest through its ability to shade, is one of the most cost effective and efficient mechanisms for reducing heat in our cities (ACEEE, 2014) (Norton et al, 2013). Understanding where these vulnerable communities are situated is an important first step in developing a targeted and effective tree planting program.

The Cool It Project, managed by the Central Victorian Greenhouse Alliance in 2018 mapped Ballarat's most vulnerable communities to impacts of heat. In the map to the left, the areas in red show where

*“...the Urban Forest through its ability to shade, is one of the most cost effective and efficient mechanisms for reducing heat in our cities. „*

there are multiple indicators of social vulnerability to heat. This was done using publicly available 2016 census data. Indicators include highest concentrations of:

- Children aged 0-4
- Older persons (over 65)
- Older persons living alone
- Those scoring below 900 on the SEIFA index of disadvantage (the most disadvantaged)
- Those not fluent in English
- Those who rent social housing

Of greatest interest is how these vulnerable communities correlate very closely with areas of low canopy cover: Sebastopol, Delacombe, Wendouree and Ballarat North. Additionally the CBD which is not considered socially vulnerable shows very low canopy cover. It contains high pedestrian intensity and therefore a very high risk of heat exposure to many people during the day.

Therefore, those that need the benefits of the Urban Forest the most in socially vulnerable areas and high activity areas do not have access to adequate shade.

# MAINTAINING OUR URBAN FOREST

## CREATING A RESILIENT FOREST

To achieve a healthy and thriving urban forest it is important to ensure there is a level of species diversity across the municipality. Selecting a range of species increases the resilience of the urban forest and its ability to combat the impacts of climate change, pest and diseases.

For instance, selecting species with broad canopy covers increases the amount of shade cast by the tree, helping to cool the surrounding landscape and reduce the effects of climate change. In addition the formality and mono-culture nature of tree plantings across Ballarat increases the risk of infestation or infection which could have devastating consequences on our urban tree populations. Creating a more species diverse urban forest minimises the risk of tree plantings being completely wiped out.

Again it is critical here that we obtain data of our existing species diversity so that our tree selection considers not only relevant site conditions but also surrounding vegetation.

## OVERHEAD POWER INFRASTRUCTURE: BALANCING RISK WITH TREE PLANTING

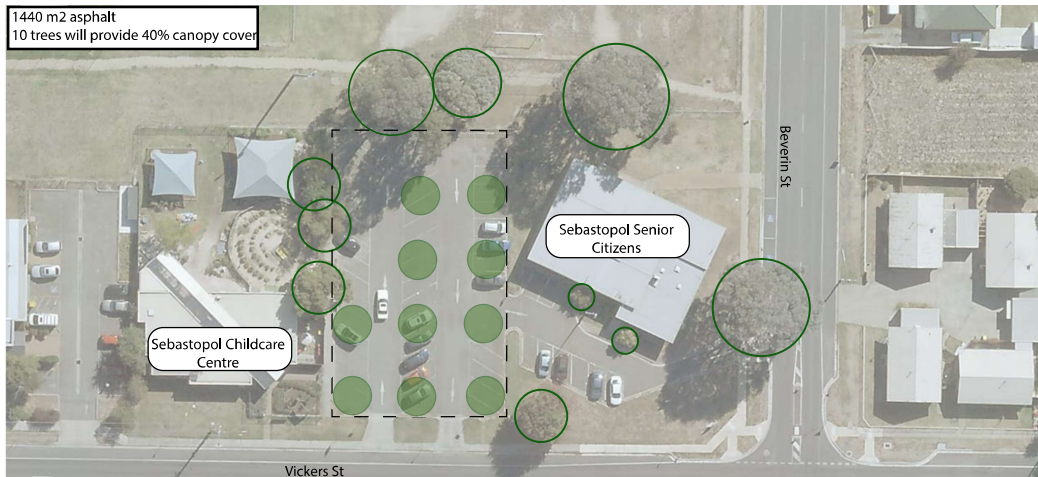
One of the major infrastructure threats to the urban forest is the competition for space created by power lines. Overhead utilities can limit the available space for street tree planting and large volumes of canopy are periodically removed to provide clearances for overhead power lines. Ideally overhead power lines would be placed underground; the financial costs of such a program to the asset owner can be prohibitive without funding support.

Whilst potentially too expensive to implement right across Ballarat, it could be possible to identify key streets where electrical structures could be located underground to avoid restrictions. Such locations may include areas where trees play a significant role in the historic landscape or in areas with lower socio economic communities.

Crucial to any new tree plantings under powerlines will be ensuring the correct species is selected to minimise damage to surrounding infrastructure, such as footpaths, and to the tree itself. Road design and tree plantings should be integrated to maximise opportunities for trees to be located away from the powerlines and other infrastructure where possible.

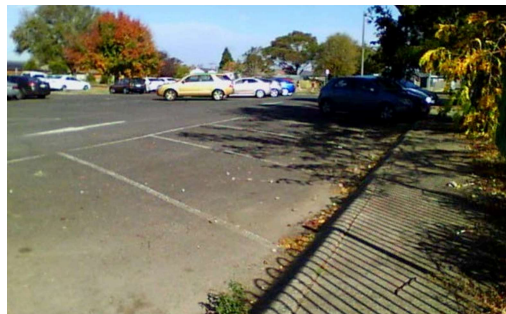


Top: Water Street Ballarat , shows the impact of powerlines on tree growth.



Above: A carpark in Vickers Street Sebastopol, servicing both elderly and young children. The map depicts the number of trees needed to increase canopy cover to 40%

The photographs on the right were taken in Ballarat on a hot day in early 2018. The thermal camera shows that surface temperatures for the exposed asphalt road are around 40 degrees. The asphalt shaded by tree canopy records lower surface temperatures between 20 and 25 degrees Celsius. Ballarat's trees have the capacity to cool surface temperatures on streets by up to 20 degrees.



Top Right: A carpark in Vickers Street Sebastopol on a hot day showing unshaded and shaded

Below Right: The same location using a thermal camera showing the 15-20 degree variation in surface temperatures between the shaded and unshaded asphalt



Where tree planting cannot be achieved, particularly in built up areas such as Ballarat's CBD, options to mitigate heat effects should include replacing hard surfaces with grass or low lying vegetation. Water Sensitive Urban Design should be included within these areas to add more cooling benefits.

## PUBLIC TREE MANAGEMENT

Council currently plants approximately 1000 street and park trees a year and removes approximately 200-400 trees each year, providing a small net gain each year. However, to make in-roads into the vacant sites, Council will need to dramatically increase the number of trees planted per year but also allocate effective resources and budgets for ongoing maintenance. A comprehensive street and park tree inventory is required as a foundation for the Urban Forest in order to achieve these key targets and allocate resources.

Current tree management practice includes:

- Newly planted trees are provided with two years of establishment care such as watering and formative pruning
- Existing trees are managed on a routine inspection and maintenance program as guided by Council's Tree Management Plan
- Public trees are protected from development through planning permit conditions
- Public landscape outcomes, including the planting of streets trees in residential subdivisions are prescribed through Council's Infrastructure Design Manual (IDM). Council receives Developer Open Space Contributions from all residential subdivisions which directly ensures that there is adequate open space for future communities, including space for trees
- Currently, trees under powerlines are managed by the City of Ballarat Electrical Line Clearance Plan 2017/2018. Trees are inspected annually and pruned by contractors in accordance with the Plan

## PRIVATE TREE MANAGEMENT

The number of trees and therefore canopy cover on land not owned or managed by Council is yet unknown.

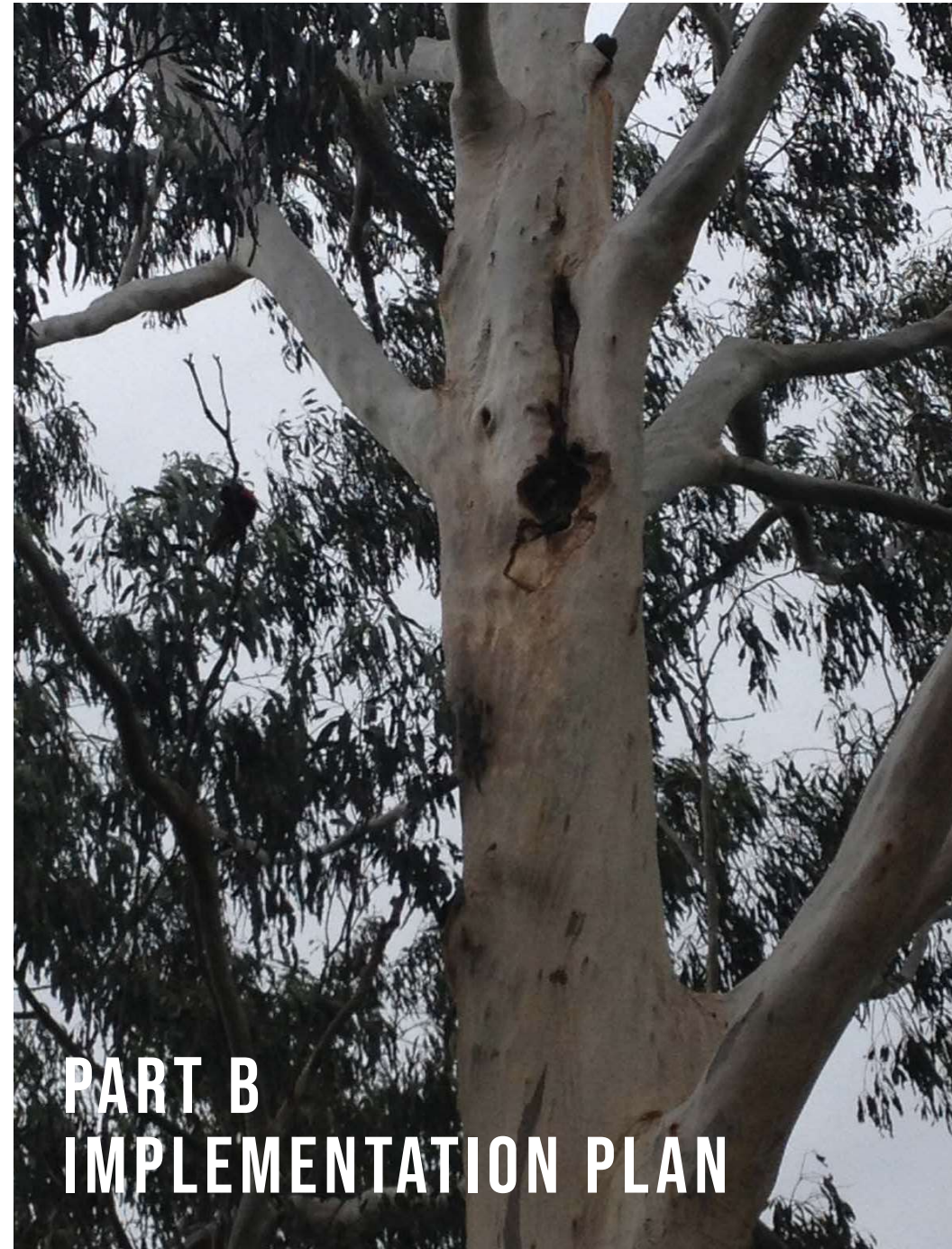
Other land not managed by Council includes:

- private residential property
- commercial and industrial land
- agricultural land
- waterways
- conservation reserves
- other authorities e.g. VicRoads, VicTrack, Department of Education etc.

Ballarat's Planning Scheme operates the legislation covering privately owned land. Currently, the mechanisms in place to protect private trees include:

1. Environmental Significance Overlay, Koala Overlay -ESO 5)
2. Vegetation Protection Overlays
3. Heritage Overlay

Given the paucity of data on private trees, it is unknown whether tree canopy over private property is increasing or decreasing over time. This information is required in order to develop appropriate actions to preserve existing tree stocks and encourage canopy cover on private land.

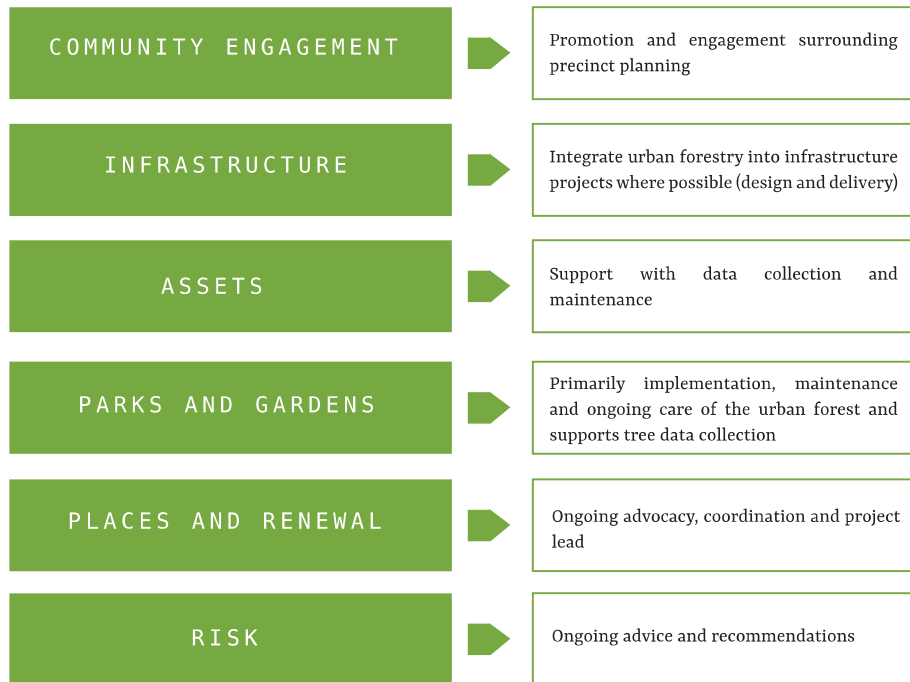


# PART B IMPLEMENTATION PLAN

## A HOLISTIC APPROACH

Considering key challenges facing the urban forest, community feedback and targets set, the following set of key actions have been developed in order to implement an urban forest approach.

Central to the success of implementing these key actions is ensuring that all departments, officers and managers involved are co-ordinated in their management approach. The below diagram depicts the departments involved with the management and growth of our urban forest and their associated roles in implementing an urban forest approach:



## OBJECTIVE

### 1 UNDERSTANDING OUR URBAN FOREST

Collect a full, clean and consistent set of data to establish a thorough understanding of the state of our existing urban forest

#### ACTIONS:

- 1.1 Compile an Urban Ballarat Street and Park tree inventory, including vacant sites
- 1.2 Integrate tree inventory into Council's asset management system
- 1.3 Review management contracts for better planting, establishment, formative pruning and inspection performance-based outcomes
- 1.4 Using the tree inventory as a baseline, set in place procedures to update tree data on a regular basis to include tree works, new plantings and removed trees
- 1.5 Develop a 10-year proactive maintenance program based on results of inventory
- 1.6 Develop a business case for increased funding/resources to accommodate the 10-year planting plan using calculated tree amenity and environmental values from I-Tree Eco. Resources needed for inspections, pruning and maintenance

#### TIMEFRAME

Immediate

Ongoing

Ongoing

Ongoing

0-5 Years

Ongoing

## OBJECTIVE

2

### DELIVER A BEST PRACTICE URBAN FOREST MANAGEMENT PROGRAM

Improve existing resources, maintenance, reporting, technical guidelines

#### ACTIONS:

- 2.1** Develop a suite of technical guidelines for the ongoing management of Ballarat's street and park trees, including water sensitive urban design, species selection matrix, Australian standards and best practice management protocols
- 2.2** Update and adopt Ballarat's tree planting species list to account for resilience to climate change, viability in Ballarat's climate and availability of stock
- 2.3** Develop a targeted 10-year street and park tree planting program to consider the following (see other actions below for preliminary work required to inform 10-year plan)
- Areas of need: low canopy, heat, social vulnerability
  - Results from the Cool It Project
  - Biodiversity and Living Corridors
  - Water sensitive urban design
  - Landscape Character Assessments (2013)
  - Heritage plan 2017-2030
- 2.4** Ongoing consultation with the community regarding the 10-year planting plan
- 2.5** Review of Landscape Design Manual to include better tree protection based on Australian Standards
- 2.6** Review Exceptional Tree Register and its implementation, particularly its effectiveness in protecting trees and educating the community.
- 2.7** Review and update Landscape Guidelines for Development to include standard design specifications and typologies, tree protection measures and planting

#### TIMEFRAME

0-2 Years

0-2 Years

0-5 Years

Ongoing

Ongoing

Ongoing

2-5 Years

## OBJECTIVE

3

### MORE GREEN FOR MORE BENEFIT

Prioritise increasing public canopy in areas of need and integrate planning with infrastructure

#### ACTIONS:

- 3.1** Review and update Ballarat Water Sensitive Urban Design Guidelines 2011 to include trees and vegetation
- 3.2** Seek to encourage the innovative use of stormwater for tree planting, particularly in highly urbanised locations. Refer Ballarat Green Blue Plan
- 3.3** Develop a CBD urban greening plan to inform regeneration plan: street and park trees, green walls, green roofs, pocket parks, increased permeability. Integrate into asset renewal and capital works projects and 10-year planting program
- 3.4** Prioritise all streets across the Municipality in need of greater shade to inform 10-year planting plan: low canopy, social vulnerability to heat, high pedestrian areas, bike paths
- 3.5** Integrate the Urban Forest Action Plan as part of the design rationale for all new infrastructure projects and seek to retrofit other areas where possible eg. car parks, road ways, industrial areas
- 3.6** Implement a food tree trial planting in conjunction with the development of Ballarat's Food Strategy.
- 3.7** Ensure best practice urban forest management across all tree maintenance activities eg/ power-line clearance, pruning, tree planting, risk management

#### TIMEFRAME

2-5 Years

Ongoing

0-2 Years

0-5 Years

Ongoing

0-2 Years

Ongoing

# OBJECTIVE

## 4 ENHANCE BIODIVERSITY

Prioritise the planting and restoration of urban habitat and living corridors

### ACTIONS:

- 4.1** Spatially map opportunity sites for living corridors: criteria could include existing native vegetation, proximity to waterway/conservation reserve, width of road reserve to accommodate structural vegetation. This should inform 10-year planting plan above
- 4.2** Develop a Living Corridors 10-year plan (a subsection of the 10-year tree planting program) detailing locations and species to be planted to create habitat. Include responsibilities of other landholders
- 4.3** Explore the use of Citizen Science in acquiring biodiversity data for urban Ballarat. See City of Melbourne BioBlitz e.g. presence of certain species, opportunity sites, street nomination
- 4.4** Explore a program or develop guidelines to encourage residents to plant certain species of plants to enhance biodiversity within their own properties

| TIMEFRAME |  |
|-----------|--|
| 2-5 Years |  |
| 2-5 Years |  |
| 2-5 Years |  |
| Ongoing   |  |

# OBJECTIVE

## 5 STRENGTHEN BALLARAT'S URBAN CHARACTER

Enhance landscape, neighbourhood and heritage characters through provision of street and greening

### ACTIONS:

- 5.1** Review Our People Culture and Place: A plan to sustain Ballarat's heritage 2017-2030 to determine appropriate street and park tree outcomes in heritage areas to inform the 10-year planting plan
- 5.2** Prepare precinct planting plans that reflect urban character and provide for climate change robust species
- 5.3** Encourage initiatives that support planting on private land that reinforce and/or enhance neighbourhood character and the Urban Forest objectives and actions
- 5.4** Ensure the Urban Forest strategy is integrated across relevant strategic documents
- 5.5** Maintain the Exceptional Tree Register and consider formal protection measures

| TIMEFRAME |  |
|-----------|--|
| 0-5 Years |  |
| 0-2 Years |  |
| Ongoing   |  |
| Ongoing   |  |
| Ongoing   |  |

# OBJECTIVE

## 6 EMPOWER AND SHARE

Educate, engage and involve the Ballarat community in acting as stewards for the Urban Forest Work with other landholders to embed urban forest objectives into their planning

### ACTIONS:

- 6.1** Strategic Planning: review existing and explore appropriate planning mechanisms for best possible protection of trees in the private realm. Structure Plans: Seek to include Urban Forest objectives in strategic planning stage and ensure checkpoints for delivery
- 6.2** Investigate a pilot project for a vegetation study to determine appropriate planning controls to ensure protection of vegetation with the view to rolling out city wide.
- 6.3** Developers: Identify early adopter/innovator developers to encourage a subdivision development with an Urban Forest planning approach
- 6.4** Asset renewal and capital works: Seek to include Urban Forest objectives in all projects and programs where possible. Coordinate an integrated asset planning working group or advisory group = infrastructure, water, urban greening outcomes
- 6.5** Community: develop a suite of engagement/education tools for use by the community to encourage active participation in its growth. Improve communication of current and projected tree planting programs. Examples include (but not limited to):
  - Update Council's website with up to date Urban Forest approach
  - Continue to host and update Councils interactive Urban Forest canopy map
  - Resident notification postcards or letters for new street tree plantings
  - Community and school planting days
  - Gardens for wildlife brochures
- 6.6** Partner with and educate other land holders to improve Urban Forest outcomes on their land:
  - VicRoads: Identify entranceway and boulevards owned by VicRoads where canopy could be increased
  - Department of Education (shade tree planting in schools)
  - Central Highlands Water
  - CMA (planting along waterways)
  - Department of Health and Human Services (shade tree planting on public housing estates)
  - VicTrack

### TIMEFRAME

2-3 Years

0-1 Year

Ongoing

Ongoing

Ongoing

Ongoing

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