



CITY OF
MONASH

Monash Open Space Strategy

Stage One – Open Space Distribution Analysis Report

Prepared by:

Thompson Berrill Landscape Design Pty Ltd

7 November 2013

Table of contents

	Page #
EXECUTIVE SUMMARY	3
1. INTRODUCTION	5
1.1 Project Purpose	
1.2 Council Profile	
1.3 Project scope and methodology	
1.4 Draft definition of open space	
2. STRATEGIC CONTEXT	11
2.1 Overview	
2.2 Relevant Victorian government strategies and policies	
2.3 Monash Planning Scheme	
2.4 Relevant City of Monash strategies	
3. HIERARCHY AND CHARACTER CLASSIFICATION SYSTEM	17
3.1 Open space hierarchy	
3.2 Typical facilities appropriate to each hierarchy of open space	
3.3 Draft character classification	
4. ANALYSIS OF EXISTING OPEN SPACE DISTRIBUTION	28
4.1 Existing open space	
4.2 Quantity of existing open space	
4.3 Distribution of open space in the City of Monash	
4.4 Quality of existing open space	
DRAWINGS	56
MNOSS-01 Existing Open Space Plan (Draft)	
MNOSS-02 Open Space Hierarchy Plan (Draft)	
MNOSS-03 Open Space Gap Analysis Plan (Draft)	
APPENDICES	
A Stage One Background Document Review	

Executive Summary

Value of the open space network

Open space significantly contributes to the environmental values, landscape character and community health and wellbeing of Monash. With more than 800 hectares of the city or approximately 10 per cent of it as open space, it is a significant community asset that Council has responsibility to effectively design, manage and maintain in the future.

Open space is valued at many different levels by the community for its inherent qualities including for its biodiversity values, as a place to relax and unwind outdoors, for playing or watching team sports, for exercising, relaxing in the shade, watching people and activity and catching up informally with neighbours and just enjoying the sense of space. These values contribute to the physical and mental health and wellbeing of our community. There is a growing body of research into the health benefits of open space and some of this is documented in the recent Inquiry into Environmental Design and Public Health in Victoria. This includes the links that research has established between access to green open space and reducing stress, boosting immunity, enhancing productivity and promoting healing.

The network of open space is extremely important and it is the combination of different types of spaces that offers value at a range of levels of use and accessibility for all. Some of the smaller spaces are highly valued for being close to home or work and easily accessible. Other larger spaces that we travel further to are designed for longer periods of stay with a variety of facilities. Linked spaces along waterways are valued for their linear connectivity and proximity to vistas and views, while other spaces are valued for treating urban stormwater while providing habitat for a range of native fauna. Planning for a diverse network of open space that meets a variety of needs is a key role of the open space strategy.

Summary of findings from Stage One of the Strategy

Monash has an extensive and diverse system of open space. Stage One has documented the quantity of open space at a municipal-wide level and then by precinct. This has identified significant variations in the quantity and distribution of open space across the different precincts, responding to the different land uses and periods of development. Key emerging issues and findings include:

- Significant differences in the quantity of open space in different precincts. This ranges from open space comprising 21.7 per cent of the total area of Wheelers Hill, compared to less than 1 per cent of the total area of Notting Hill.
- There are gaps in the distribution of open space in a number of areas, particularly in the south west parts of the city including Hughesdale, Oakleigh, Clayton, Notting Hill and the western parts of Mulgrave.

- Some of the key gaps in distribution of open space are in residential areas while others are in non-residential areas.
- The south west areas of the municipality have limited linear open space corridors due mainly to the lack of defined waterway corridors given the gently undulating topography. In the northern areas the topography is more steeply graded with defined waterway corridors including Scotchman's Creek and Gardiners Creek.
- While there are more gaps in open space provision in the south west, there is a good diversity of open space character types in this area.
- Overall the quality of the structured sporting facilities is excellent and there is an opportunity to increase the diversity of unstructured recreation and informal uses in some of the major reserves across the city.
- Many of the existing major open spaces are designed around access by car, and there is an opportunity to encourage cycle and pedestrian access into and within our open spaces.

Next steps

The next stages of the Strategy will focus on developing a robust direction for the future provision, design and management of open space. The key next steps will include:

- Consultation to understand the existing patterns of community use, reasons for visiting open space and suggested improvements that will encourage them to visit and use it more.
- Analysis of the forecast future change in the city and what is required to meet the open space needs of the forecast change including demographics and additional population.
- Develop a prioritised and costed program of actions to improve the open space network to better meet the existing and forecast community open space needs. This will include identifying where upgrades to existing open space are required, and the sub-precinct locations and the type of additional open space that may be required in future.
- Develop design and management guidelines to guide future changes and upgrades to open space.
- Develop criteria to guide future decision making to ensure that additional open space contributes positively to the network.
- Calculate a strategically based open space contribution rate as an integrated part of the Strategy so that the forecast of new population contributes fairly towards meeting their needs.

1. Introduction

1.1 Project purpose

The purpose of undertaking this Strategy is to:

- Provide a document that informs Council and the community about:
 - the current provision of open space,
 - issues concerning the community's open space needs and demands placed on open space, and
 - the strategic directions that need to be taken with respect to the open space network in the future.
- Provide a framework for future open space planning.
- Identify the key open space issues.
- Identify, protect and conserve areas of important visual amenity and conservation value.
- Assess the provision of existing open space.
- Identify how existing open space can be enhanced to benefit the community.
- Establish the basis for resourcing open space planning provisions and improvements.
- Review the provision and planning of facilities in open space including links between areas of open space.

The project is staged and will be completed over a number of years with this report being Stage One of the project only, with its primary purpose being to document the existing open space.

1.2 Council Profile

The City of Monash is 81.5 square kilometres, located 20km southeast of the Melbourne Central Business District, and contains the suburbs of Ashwood, Clayton, Hughesdale, Huntingdale, Glen Waverley, Mount Waverley, Mulgrave, Notting Hill, Oakleigh, Oakleigh East, Wheelers Hill and parts of Burwood, Chadstone, and Oakleigh South. Adjoining municipalities include the Cities of Glen Eira, Stonnington, Boroondara, Kingston, Whitehorse, Greater Dandenong and Knox.

The municipality is predominantly a residential area, with substantial industrial, commercial and recreational areas. It is served by the Monash Freeway, EastLink, Dandenong Road, North Road, Wellington Road and the Dandenong and Glen Waverley railway lines. Monash is also a centre for 'high tech' industry with a number of major companies based in the area, including Robert Bosch, NEC, Philips, Adidas, BMW, Telstra, Biota, Nestle Ice Cream and Toyota Research. Monash is also home to Melbourne's most substantial innovation cluster, with notable features including Monash University's Science Technology Research and Innovation Precinct, CSIRO, Australian Synchrotron, the Victoria Police Academy and the Monash Medical Centre. More than 16,300 workplaces

in the City of Monash provide approximately 119,000 jobs, making the City of Monash second only to the Melbourne CBD for job opportunities.

The City of Monash has reached a time of consolidation and faces the challenges posed by changes in demographics, housing types, community aspirations and diversity, business investment and social issues. Open space contributes to and is impacted by many of these challenges. The changing demographics show that the population is shifting to an older profile, with the fastest increase evident in the fifty and over age group. For open space this can mean that the design of our parks may need to change to meet the needs of the older age groups, particularly in the context that many of our parks were designed for young families.

Although there is a significant concentration of separate houses in the City, there is also a trend towards higher density dwelling development. This means that people have less private open space and rely more on public open space, for example; the large family gathering that may have once been held in the back yard is now held in the park. More recent research into health and wellbeing is also demonstrating the important link between people's access and use of open space and their physical and mental health and wellbeing.

Monash has an estimated resident population of 177,970, living in 65,498 households, making it one of the most populous municipalities in Melbourne. With around 45 per cent of residents born overseas, Monash continues to be a culturally diverse community and is in the top ten local government areas for new settlers to Australia. There is also significant diversity between different parts of the City, with much higher proportions of residents born overseas living in Clayton compared with Ashwood. Open space needs to respond to this diversity across the different parts of the city.

A maturing population, combined with broader local employment opportunities and the overall increased focus on the contribution open space makes to community health and wellbeing while we are at work and at home, contributes to the need to develop a strategy to guide Council's decisions about open space as the city consolidates and changes through to 2031.

1.3 Project Scope and Methodology

As noted previously, the Monash Public Open Space Strategy will be staged. The scope for Stage One of the project has primarily been to document the existing open space system. This includes:

- Prepare a Plan showing all the Existing Open Space in the City of Monash, differentiating areas that are currently zoned for Public Park and Recreation purposes or Public Conservation and Resource purposes, along with other areas that may also be used as open space shown in a different colour.
- Prepare a database of existing open space corresponding to those shown on the Existing Conditions Plan.
- Review existing Local, State and Federal government strategies relevant to open space.

- Prepare an overview of the existing open space system including the topography, waterways and public places.
- Develop an open space hierarchy system appropriate for Monash and apply this to all the existing open space.
- Map the hierarchy system and analyse the distribution of existing open space to provide high-level gap analysis.
- Develop a character classification system and apply this to the areas of open space assessed as part of Stage One.
- Analysis of the quantity of open space at the municipal-wide and precinct level.

The project has been undertaken in three key phases including:

Phase 1 Background research

Phase 2 Analysis and Issues including Draft Report

Phase 3 Final Report on Stage One

1.3.1 Scope of this report on Stage One

Stage One of the Open Space Strategy provides Council with an overview of the existing open space network. This is not a visioning document for the future provision of open space across the municipality as this will form part of Stage Two of the Strategy.

The existing open space system is quantified at an overview level in this report that will require further refinement in the precinct analysis during the next stage of the Strategy. The refinement of the network normally results in minor adjustments to open space quantity and hierarchy once the network is assessed at the more detailed level. It is anticipated that these refinements will slightly change the overall quantity of open space provision in the municipality that is documented in this Stage One report.

During the research phase, identification of the existing open space system has been a complex task due to the diversity of spaces that are currently considered open space by the City. Many of the spaces are referred to in this report as ancillary open space, as they form part of the public realm including streetscapes and other community facilities such as neighbourhood houses, child care facilities and community centres, but their primary purpose may not be open space. While the Active Monash Strategy identified there are 125 parks and reserves used for recreation and sporting activities, during this project to date approximately 500 open spaces have been identified. This is expected to be further refined in the next stages of the project. The working group identified that not all reserve names supplied to the project by Council are official reserve names. This will be further reviewed in the next stages of the project, once the more detailed precinct assessment work confirms the final list of open space to be referred to in the Strategy.

It is anticipated that this Stage One report will inform the next stages of the strategy and the information will be incorporated into the Draft Open Space Strategy when it is prepared during Stage Two.

1.4 Draft definition of open space

1.4.1 Overview

The following draft definition has been developed to date based on the project brief and discussions with the Project Working Group:

Open space for the purposes of this strategy is publicly owned land that is set aside, or has the potential in the future to be set aside primarily for outdoor recreation, nature conservation and passive outdoor enjoyment. This includes parks, reserves, gardens, waterways and urban plazas.

Open space forms part of what is commonly referred to as public realm. Other aspects of the public realm that are not included in the definition of open space include streets, car parks, public schools and universities. These other areas of public realm are primarily set aside and reserved for other purposes than those defined in the *Subdivision Act 1988* that include: '*...for public recreation or public resort; or as parklands; or for a similar purpose*'. There are other strategies, programs and sources of funding in place to support improvements to these other components of the public realm. While they will not be the focus of the future Monash Open Space Strategy, they will be considered and referred to in the context of their complementary use and connections to public open space, and will be referred to as ancillary open space.

There are also areas of private open space that are not included in this definition. The key areas of private open space that can be perceived as open space are the private golf courses. These occupy large areas of land in Monash and contribute to the landscape character and visual quality of an area, but are not included in the definition of open space given they are not in public ownership, or zoned for public recreation purposes.

Other private open spaces that can be present and not included in this definition and quantity of open space includes land in shopping precincts that have outdoor seating areas which are available for the public to use, but remain in private ownership. These areas of private open space are commonly referred to as publicly accessible private open space.

1.4.2 Public open space

Public open space is defined as described in 1.4.1, and includes:

- Open space that is owned and managed by Council, and is currently zoned for this purpose - either as Public Park and Recreation Zone (PPRZ) or Public Conservation and Resource Zone (PCRZ). This includes protecting and improving biodiversity values, as referred to in the definition above as 'nature conservation'.
- Open space owned by other government agencies, including Crown Land and managed by Council, for example Ashwood Reserve.
- Open space owned and managed by other government agencies including the extensive areas of open space along Dandenong Creek that are owned by the

Victorian government and managed by Parks Victoria including Jells Park and Shepherds Bush, or Police Road Retarding Basin, which is owned and managed by Melbourne Water.

- Public land that is managed for restricted recreation use on a fee paying or membership basis including golf courses, tennis courts and bowling greens.

1.4.3 Ancillary open space

Streets

Streets and urban spaces between buildings are used by people to socialise and exercise including walking and cycling, and while these are common to activities that are also undertaken in open space, the streets are primarily set aside for transport. However streets do contribute to the use and value of the open space network by providing links between them, therefore streets and right of ways will be recognised as providing this complementary role and referred to where they contribute to the open space system, but will not be identified as open space on the plans. The future Strategy is also recommended to recognise that a range of other plans and strategies guide these components of the public realm including structure plans, urban design frameworks, streetscape design plans and the street tree strategies.

School grounds/University campuses

The Strategy will also acknowledge the contribution that some school grounds and University campuses make to the open space system, especially where they partner with Council to provide access to these for community sports clubs, or are available for the public to use informally after school/university hours. However this land will not be added to the inventory of existing open space as these are not reserved for open space, are not under Council control and the open space areas within schools can be used for other purposes - e.g. built over or sold.

Railway land

Railway corridors and associated land can also be considered as ancillary open space. As with schools, the railway land is reserved for other purposes, but may also have an open space function including as open space with vegetation, particularly trees and also remnant bushland and local paths and shared trails etc. Where railway land is zoned PPRZ or includes open space infrastructure and planting that has been installed for recreational use, it is included as part of the open space system at this stage. While railway land can contribute to the open space values and connectedness, they are retained primarily for railway use and there is potential that they could be upgraded to accommodate additional infrastructure, thereby changing the environmental and recreational values. There is also potential that they can be sold where they are excess to railway requirements and redeveloped for other land use purposes including commercial and residential uses.

1.4.4 Publicly accessible private open space

Privately owned open space in many instances contributes to the landscape character of neighbourhoods and in some cases the habitat values and the public open space. Given they remain in private rather than public ownership their contribution to the public open space system and/or neighbourhood character cannot be guaranteed unless they are acquired for open space purposes. Where the privately owned open space is accessible to the public this will be referred to as publicly accessible private open space. In Monash the privately owned golf courses including Riversdale Golf Course, Huntingdale Golf Course and Metropolitan Golf Course fall into this category.

It is important the Strategy focuses on ensuring there is adequate provision of public open space and facilities that will be retained for future generations, without the ability for that land to be sold or converted to another use, unless there is clear demonstration that it is no longer required by the community as open space.

2. Strategic context

2.1 Overview

The following diagram provides an overview of the future Monash Open Space Strategy within the context of the other State and Council policy framework.

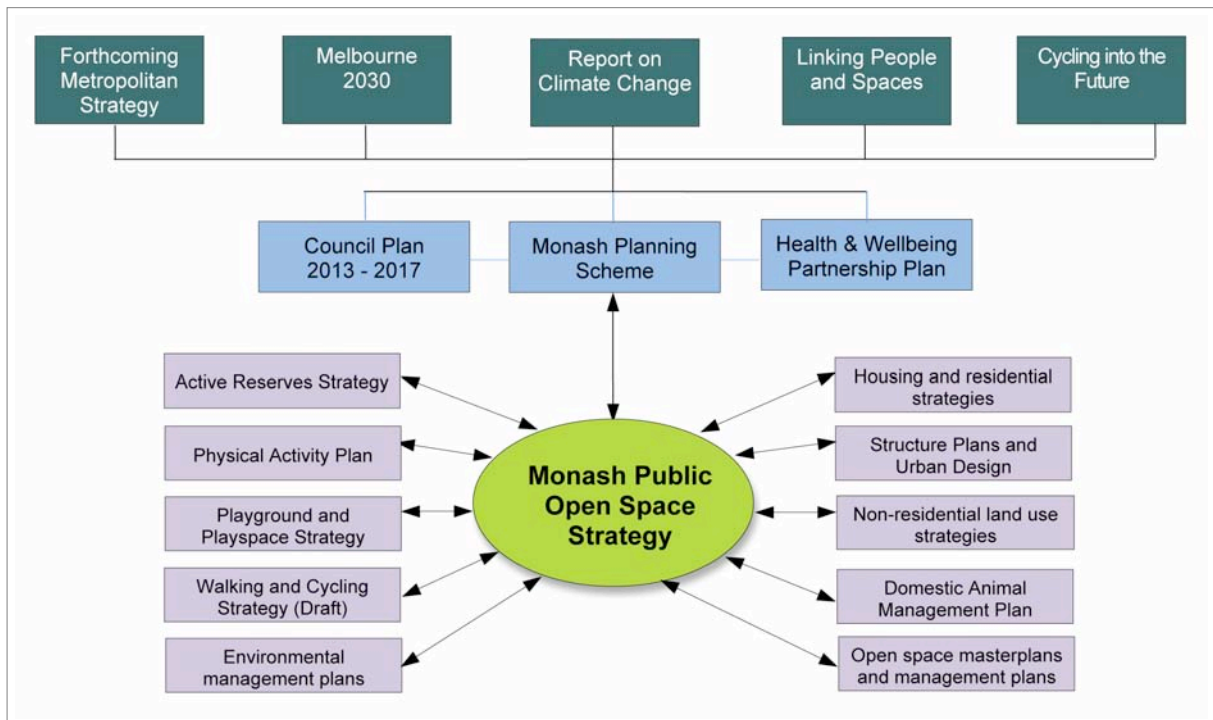


FIGURE 1 Policy framework for the future Monash Open Space Strategy

2.2 Relevant Victorian government strategies and policies

2.2.1 Melbourne 2030 (2002) and Melbourne @ 5 Million (2008)

Key directions and policies in *Melbourne 2030* which relate to open space planning include:

- A more compact city by building up high quality activity centres including; Glen Waverley (Principal), Clayton, Mount Waverley, Oakleigh (Major) and Monash University/Health Research Precinct Clayton (Specialised).
- A greener city by protecting and improving biodiversity and sustainability values and practices.
- A great place to be by improving the quality and distribution of local open space and ensure long term protection of open space.
- A fairer city by increasing access to recreation and social services and infrastructure

- Improve transport links and promote the use of sustainable personal transport options.
- The Parklands Code, Strategy 5.6 which includes an overall direction for diversity of open space hierarchy, character, and acceptable walking distances to open space.

A key feature of metropolitan planning policy is to limit outward expansion of Melbourne's growth by increasing housing in the established urban areas and managing housing in dispersed residential locations. The projected population increase of over 1 million to 2030 is now anticipated to occur by 2020 in *Melbourne @ 5 Million*. Under this scenario about half are planned to be accommodated in established areas, with more intense housing development located in and around activity centres, along tram routes, the orbital bus routes and on the Principal Public Transport Network in areas close to train stations.

Implications for the open space strategy

The principles and directions provided in Melbourne 2030 in relation to open space are consistent with directions for open space planning that are reflected in other Victorian government guidelines and documents.

2.2.2 Melbourne Let's Talk About the Future

Department of Planning and Community Development, 2012

The Melbourne Metropolitan Planning Strategy is currently under review. Key principles relevant to open space planning in the discussion paper include:

- Principle 1: A distinctive Melbourne – develop its own unique identity
- Principle 3: Social and economic participation – provide opportunities and capacity for residents to build a good life
- Principle 4: Strong communities – improve connections to help build strong communities and promote wellbeing
- Principle 5: Environmental resilience – respond to changing environmental and climatic conditions

The paper recognises that open space has an important role in creating local identity and character, contributing to economic vitality, encouraging social connectedness and participation, preserving native vegetation, and strengthening environmental resilience as climatic conditions change. The paper also discusses the aim for a "20 Minute" city to create accessible, safe and attractive local areas where people can meet most of their needs, and recognises the need for infrastructure investment including open space with continued urban growth.

Implications for the open space strategy

The directions in the forthcoming Melbourne Metropolitan Strategy will inform the overall directions in the next stages of this Strategy.

2.2.3 Open Space Strategies Practice Note | 70

In July 2013, the Department of Transport, Planning and Local Infrastructure released a Practice Note guide to preparing open space strategies. Key features of a strategy are to include:

- Provide an overview of existing open space resources and future needs.
- Provide a basis for decision making about future open space provision and development.
- Assist financial and resource planning and asset management.
- Identify areas of under-provision of open space and articulate strategies for how land could be acquired or disposed of for the purpose of open space.
- Facilitate a coordinated approach to open space planning.
- Articulate community and local government aspirations in relation to open space provision and development.

The Practice Note recommends that the final strategy includes:

- Introduction of the brief and methodology.
- Vision.
- Overview of supply of open space.
- Overview of existing and future demand for open space.
- Key issues and opportunities.
- Actions

The strategies and actions set out in a strategy should generally relate to publicly owned and/or managed open space.

Implications for the open space strategy

The scope of stage one of this Strategy is consistent with the key directions in this Practice Note.

2.2.4 Report on Climate Change and Greenhouse Gas Emissions in Victoria

Department of Sustainability and Environment, 2012

Greenhouse gas emissions

The *Climate Change Act 2010* sets a target of a 20 per cent reduction in greenhouse gas emissions measured against the levels in year 2000. For the period of 2000 to 2009, overall greenhouse gas emissions for Victoria grew by 0.9% with energy industries and transport proportionately the largest greenhouse gas emission sectors.

Climate change

The Intergovernmental Panel on Climate Change 2007 assessment concluded:

- The average global temperature has warmed and is likely to continue to do so as a result of greenhouse gas emissions arising from human activity.
- Increase in the frequency and severity of very hot temperatures and decrease in the frequency and severity of very cold temperatures
- Annual average rainfall is likely to decrease, meaning the extent and frequency of droughts in Victoria may more than double by 2050.

Implications for the open space strategy

The predicted changes to climate will have a direct impact on the future design, management and maintenance of open space in the municipality. Open space can play a positive role in combating global warming including mitigating urban heat island effect, encouraging people to walk and cycle rather than using private vehicles, and more sustainable maintenance practices contributing to reductions in greenhouse gas emissions.

2.2.5 Linking People and Spaces (2002)

In parallel with *Melbourne 2030*, Parks Victoria has prepared *Linking People and Spaces*, a strategy and vision for the continued growth and improvement of our open space network across Melbourne. *Linking People and Spaces* provides a strategic context for long-term planning and management of open space within the metropolitan region. Although *Linking People and Spaces* is strongly focused on meeting the recreational needs of Melbournians, it also considers the environmental priorities identified in Victoria's Biodiversity Strategy and the *Port Phillip and Westernport Native Vegetation Plan*.

Implications for the open space strategy

The priorities and directions for metropolitan open space in Monash, including Jells Park, will be incorporated into the open space strategy where relevant.

2.3 Monash Planning Scheme

2.3.1 Municipal Strategic Statement - Clause 21

The Municipal Strategic Statement (MSS) provides a profile for the municipality including location, population, regional context, overview of land use areas, garden city character, open space, and other environmental, social and economic factors. It provides an overview of the existing open space within the municipality including areas of active and passive open space, playgrounds, linear trails, riparian corridors and privately operated golf courses. Monash has extensive areas of public open space, of which over 90 per cent are owned and managed by Council. The following is a summary of the key objectives outlined for open space within the municipality:

- Encourage provision of a diverse and integrated network of public space to meet the sporting, recreational, health and environmental needs of the community and enhance the image of Monash as a quality environment to live, work and visit.
- Protect, preserve and enhance the conservation, recreation, heritage and other open space values including the creek lines and areas with natural and remnant indigenous flora or fauna of significance.
- Provide safe, appealing and accessible open space within easy walking distance of the majority of residents.
- Provide opportunities for the community to pursue recreational and sporting endeavours.
- Recognise, promote and enhance the metropolitan role of the Dandenong Valley open space network in conjunction with Parks Victoria.

- Maximise opportunities to add to the open space network in all new development and redevelopment in the municipality.
- Recognise the impact of urban consolidation on open space resources.
- Minimise the impact of pest plants and animals on the environmental values of open space areas.
- Enhance all open space for present and future generations.

2.3.2 Clause 52.01

This clause states that a person who proposes to subdivide land must make a contribution to the council for public open space in the amount specified in the schedule to this clause.

The schedule to Clause 52.01 states the following:

Type or location of subdivision		Amount of contribution for public open space
Dwellings:	3 lots	2%
	4 lots	3%
	5 lots	4%
	6 or more lots	5%
Other		5%

Stage Two of the Open Space Strategy project will review the relevant clauses from the Monash Planning Scheme in more detail, when the forecast growth and changes are considered and a Planner is included on the project team.

2.4 Relevant City of Monash strategies

2.4.1 Council Plan 2013-2017

- The Council Plan 2013-2017 outlines the direction for its priorities over the next four years.
- The theme and direction is Feel the difference. This encourages an active Monash community to confidently explore all there is on offer, and to get to know new people.
- The Vision for Monash:
An inviting city, diverse and alive with activity, designed for a bright future.
- The Key Directions are:
 - *Ensuring our city has inviting places and spaces*
 - *Achieving a healthy and active Monash*
 - *Fostering confident connected communities*
 - *Taking action for our future.*
- Relevant Community Outcomes for open space:
 - *Enhanced parks, open spaces and trails across Monash*
 - *Our natural and built environment is protected*
 - *Increased use of the parks, spaces and leisure facilities*

- *Residents inspired to remain physically active and healthy*
- A new Public Open Space Strategy is one of the key strategies to deliver the outcomes.

Implications for the open space strategy

The council vision and priorities will inform the development of the draft vision and directions in the Open Space Strategy. The Open Space Strategy is one of the key actions identified to respond to the Direction - *Ensure our City has inviting places and spaces* - and can also contribute to delivering outcomes across the other three key directions.

2.4.2 Health & Wellbeing Partnership Plan 2013-2017

Victorian Local Governments are required by the State Government to continuously examine and address the health and wellbeing of their communities. This four year Health and Wellbeing Plan aims to build a community in which people can achieve their optimum health and wellbeing.

The plan identifies that Council and its partners have set three priority areas for action including:

- *Active and Healthy Monash*
Council seeks to maximise the health of its community and assist in the prevention of chronic disease by promoting physical activity, healthy eating and creating healthy and inviting environments.
- *Engaged, Confident and Connected Monash*
Council embraces a community that fosters diversity; where all people are given the same opportunity to lead healthy, socially engaged and fulfilling lives.
- *A Safe and Respectful Monash*
Council will build neighbourhoods, cultures and organisations that are gender equitable and support a violence-free community. We commit to fostering safe environments which promote community engagement, celebration of diverse cultures, and positive health and wellbeing

Implications for the open space strategy

The Open Space Strategy can support all three priorities in this plan, as open space is a key public asset that positively contributes to the health and wellbeing of the community in many ways. Open space that is well designed and managed can encourage people of all ages and abilities outside to exercise, meet their neighbours and local community, thereby fostering social contact and celebrate cultural diversity. Open space strengthens biodiversity and contributes positively to addressing the impacts of climate change by mitigating urban heat build up.

2.4.3 Other relevant City of Monash strategies

For all other relevant City of Monash strategies refer to the Background document review in Appendix A.

3. Hierarchy and character classification system

3.1 Open space hierarchy

3.1.1 Purpose of the hierarchy

The purpose of developing an open space hierarchy system is to define the intended catchment of users for the different types of open space, and therefore the level of facility development appropriate in each type. The hierarchy is based on both the existing or intended catchment of users and its relative size to adequately cater to its existing and intended use. The purpose of the hierarchy is to provide the following:

- Guide the analysis of the spatial distribution of open space in the City of Monash.
- Direct appropriate facility development and maintenance levels in different types of open space reserves. For example, if a new tennis club and courts are being considered, by preference they will be located in Municipal open space as the level of other facilities will usually support this type of facility - e.g. adequate car parking, lighting and surrounding residential areas already used to higher levels of activity with structured recreation facilities. The hierarchy provides a transparent and clear process for the community and council regarding appropriate levels of development in the different types of open space.
- Guide appropriate levels of funding to open space, including external funding.

The purpose of having a hierarchy is to provide clarity for the community and council officers as to what types of facility and levels of use are applicable in each open space. This allows some structure for council to work towards in relation to different types of open space. For example, the decision to provide barbecues in open space is preferably guided by the levels of use of the particular open space. The hierarchy can provide a reference tool for this - e.g. barbecues are appropriate to provide in Regional, Municipal, Neighbourhood and potentially some Local open space, but not Small Local or Local Links.

3.1.2 Existing open space planning principles

The following is a summary of the open space planning guidelines currently in place that influence the open space hierarchy, catchments and travel distances.

Open Space Strategies Practice Note|70

The Practice Note identifies there are various ways to decide on an open space classification system that suits the needs of an open space strategy. In relation to catchment it notes:

Open space type	Description
Local	Spaces that are predominantly provided to serve an immediate local catchment.
District	Parks that generally serve a neighbourhood or group of suburbs.
Regional	Areas that serve regional catchments (that is, the whole of or broader than the municipality).

Clause 56.05-2 Public open space in the Monash Planning Scheme

There are no specific benchmarks for open space provision in the planning system that would be applicable to the existing urban areas of Monash. Clause 56.05-2 Public open space provision objectives of the Planning Scheme include objectives in accordance with *Melbourne 2030*, which can be used in planning the future open space network in the municipality:

- *To provide a network of quality, well distributed, multi-functional and cost-effective public open space that includes local parks, active open space, linear parks and trails, and links to regional open space.*
- *To provide a network of public open space that caters for a broad range of users.*
- *To encourage healthy and active communities.*
- *To provide adequate unencumbered land for public open space and integrate any encumbered land within the open space network.*
- *To ensure land provided for public open space can be managed in an environmentally sustainable way and contributes to the development of sustainable neighbourhoods.*

Clause 56.05-2 also details current standards that appear to have a focus on open space provision in the greenfield growth areas of Melbourne where a new open space system in its entirety is being planned for. Extracts from this clause that inform the travel distances applied to the open space hierarchy include:

- *Local parks within 400 metres safe walking distance of at least 95 percent of all dwellings.*
- *Additional small local parks or public squares in activity centres and higher density residential areas.*
- *Active open space of at least 8 hectares in area within 1 kilometre of 95 percent of all dwellings.*
- *Linear parks and trails along waterways, vegetation corridors and road reserves within 1 kilometre of 95 percent of all dwellings.*

Open space strategies best practice guidance (2009)

These guidelines were prepared by the Commission for Architecture and the Built Environment (CABE) Space and the Mayor of London. These were prepared in recognition of the importance of open space to meeting a range of social, environmental and health benefits as well as making areas more attractive as a vital part of planning our neighbourhoods. As part of these, they included the hierarchy for London's open space system, which is a useful reference and is summarised below:

London's public open space hierarchy

Open space categorisation	Size guidelines	Distance from home
Regional parks	400 hectares	3.2 to 8 kilometres
Metropolitan parks	60 hectares	3.2 kilometres
District Parks	20 hectares	1.2 kilometres
Local parks and open spaces	2 hectares	400 metres
Small open spaces	Under 2 hectares	Less than 400 metres
Pocket parks	Under 0.4 hectares	Less than 400 metres
Linear open space	Variable	Wherever feasible

The State of Victoria has consistently followed international norms in its open space planning. The London CAGE guidelines provide a useful international best practice benchmark.

Other relevant recent research to distribution of open space

Research undertaken for the *Action for Young Australians Report (2009)* by Australian Research Alliance for Children & Young in relation to how far children will confidently travel independently to open space has found that 300 metres is the maximum. Children being able to socialise with other children in open space without their parent's supervision is identified as an important aspect of social learning. This concurs with the distances nominated in the different clauses above that small open spaces should be provided within 400 metres safe walking distance from home or workplace.

3.1.3 Open space hierarchy for Monash

Table 3.1 Open space hierarchy, size and purpose

Open space	Size	Purpose of open space
Regional	Unlimited	Primarily caters to a broader regional population, including residents and workers in Monash, and/or protection and enhancement of environmental values in a regional context.
Municipal	Generally a minimum of 3 hectares	Primarily caters to the municipal population of Monash and also usually provides facilities that are used by people from neighbouring municipalities. Municipal open space can also be areas with environmental values of Regional significance. Generally these areas of open space provide facilities that appeal to people from across the municipality - for example, they may include sporting facilities, historical gardens or major recreational facilities such as playgrounds or skate facilities that people will travel further to reach

Open space	Size	Purpose of open space
		(i.e. beyond walking distance).
Neighbourhood	1 to 3 hectares	Provides for Neighbourhood use within walking distance of home/work, with a range of facilities on the larger area of land that allows for a longer stay at the reserve. These facilities are usually unstructured recreation and informal facilities, however, some may have structured sporting use like tennis courts. Examples include Highview Park in Glen Waverley and Galbally Reserve in Hughesdale.
Local	Less than 1 hectare to 0.26 hectares	Located within easy walking distance of home and large enough to provide for two activities in the one open space reserve - for example, a playground and open grassed area with seats.
Small Local	From 0.25 hectares to 0.03 hectares, generally a minimum width of 10 metres	Located within easy safe walking distance of home and generally able to accommodate a single use, for example seats in a small park or garden or a small play area. These spaces also have a potential role in urban heat mitigation where they are capable of supporting shade trees, with natural green features interspersed in higher density neighbourhoods.
Small Local Link	Usually less than 0.03 hectares	These areas of open space provide improved connectivity between streets and open space reserves. They are less than 0.03 hectares in size and only provide for the single use of a path connection between streets or open space reserves.

Table 3.2 Open space hierarchy walking distances used in the Gap Analysis

Open Space	Travel distance to open space
Regional	No specific travel distance is included as this is provided for the Melbourne-wide population including those living and working in the City of Monash. 500 metre walking distance applied for use of Regional open space by the local community for unstructured recreation and informal use. This walking distance includes primary and secondary arterial roads and railways as barriers to access.
Municipal	1 kilometre travel distance applied for structured sporting facilities. 500 metre walking distance applied for use of Municipal open space by the local community for

Open Space	Travel distance to open space
	unstructured recreation and informal use. This walking distance includes primary and secondary arterial roads and railways as barriers to access.
Neighbourhood	500 metre safe walking distance without crossing primary and secondary arterials, major roads or railways.
Local	300 metre safe walking distance without crossing primary and secondary arterials, major roads or railways.
Small Local	200 metre safe walking distance without crossing primary and secondary arterials, major roads, collector roads and railways.
Small Local Link	Not applicable.

3.2 Typical facilities appropriate to each hierarchy of open space

The hierarchy of open space indicates how open space is used, including the level of use and length of stay at each type of reserve. The facilities within the open spaces should be matched to the hierarchy.

The major facilities designed for high visitor numbers or specialist facilities are appropriate in the Regional and Municipal open space. Other smaller facilities can also be also appropriate in these major reserves to encourage a diversity of uses.

The facilities appropriate to Neighbourhood, Local and Small Local open space are smaller in scale to suit the needs of the more local catchment. It is usually inappropriate in these smaller spaces to locate facilities that attract higher visitor numbers, as this create conflicts and impact on broader neighbourhood amenity - e.g. noise and or light spillage levels and traffic movement and volumes.

Table 3.3 provides a guide for the type and level of facilities that could potentially be appropriate in each hierarchy of open space. This does not mean that each open space should contain all the facilities listed as appropriate to the hierarchy - but is a guide for which types of facilities are appropriate in them.

The use of this table is intended to assist guide Council and community expectations and understanding of the level of facilities appropriate in the different types of open spaces. It is a useful guide to the future planning for individual open spaces and the starting point for referring to during the design process for individual reserves. This table is a Preliminary Draft only, and will be reviewed in Stage Two of the Strategy.

Table 3.3 Typical facilities appropriate in each hierarchy - preliminary draft only

Facilities	Regional	Municipal	N'Hood	Local	Small Local
Barbecues	✓	✓	✓		
Car parking	✓	✓			
Dog off-lead areas	✓	✓	✓		
Drinking taps	✓	✓	✓	✓	
Feature garden beds	✓	✓	✓	✓	
Large open grassed areas	✓	✓	✓	✓	
Lighting	✓	✓			
Paths - shared	✓	✓	✓	✓	
Paths - pedestrians/informal	✓	✓	✓	✓	✓
Picnic shelters	✓	✓	✓		
Playground - regional	✓	✓			
Playground - large	✓	✓	✓		
Playground - medium	✓	✓	✓	✓	
Playground - minor			✓	✓	✓
Rubbish bins	✓	✓	✓	✓	
Seating	✓	✓	✓	✓	✓
Skate/BMX facilities - major	✓	✓			
Structured indoor recreation and leisure facilities	✓	✓			
Structured outdoor recreation and leisure facilities	✓	✓	✓		
Toilets	✓	✓	✓		
Unstructured sport facilities incl. tennis wall, basketball half court, cricket nets	✓	✓	✓		
WSUD features/infrastructure	✓	✓	✓	✓	✓

3.3 Character classification

3.3.1 Purpose of the character classification

The quality of open space is extremely important as it influences whether the open space is well used, appreciated and meets its intended function and use. There are no standards for the quality and character of open space and each one is influenced and formed by a range of factors including its size, form, use, position, design and history. These factors are also considered in the context of whether the open space is meeting the community's needs, as identified in the consultation outcomes, and its nature conservation purposes regarding habitat protection.

There are different character types of open space influenced by the inherent natural and physical character of the open space, the facilities in them, the urban context in which it is located, the cultural heritage values that have influenced its provision, the design and layout of the open space. Open space character ranges from structured sporting reserves to bushland reserves. These different characters appeal to different parts of the community including young and old, and in other instances provide important habitat and biodiversity protection. Diversity in character generally assists in meeting the diverse needs of the community, and maximising accessibility of open space to the community and places for habitat protection.

The character classification system for open space assists with the following:

- Assess the diversity of different character types of open space across the municipality and within each precinct. This will identify if there are gaps in the open space character types or an oversupply of the same type. The Strategy will therefore identify if there is a need to increase this diversity where feasible. This can often occur in a neighbourhood where three or four smaller open spaces are located and all have very similar characters.
- Assist with future design and management direction for each open space. For example, if the open space has 'Nature conservation' as its primary classification, future decisions regarding the facilities, revegetation and management of the open space will be guided by whether they are consistent with the nature conservation values.

The following character classification has been proposed to assess the provision and distribution of different types of reserves within the municipality. Each open space is assigned a 'primary' classification and many also with one or more 'secondary' classifications.

The character classifications are listed in alphabetical order, and may be subject to some change as the detailed site visits are undertaken in Stage Two of the Open Space Strategy project.

Character	Description
Botanical	Where there is a significant botanical collection or where there are significant trees with botanical interest. This applies to non-indigenous trees only. Significant indigenous trees are included in the Nature conservation classification.
Bushland	Where areas of remnant or planted bushland are present and contribute to the character of the open space. This includes three levels of vegetation including overstorey, mid-storey and understorey vegetation. The bushland classification can be applied to reserves that have a range of uses with bushland being a component of it, or to reserves where bushland is the dominant feature.
Community garden or horticulture	Where members of the community are encouraged to participate in horticultural activities such as growing vegetables, flowers, fruit or propagation of indigenous vegetation for use in conservation reserves. This can include community gardens where plots are assigned in public open space for individuals to grow their own plants. The majority of these areas are fenced and available for use by those who have become a member of a community group or been assigned garden plots. Some of these form a restricted open space use.
Formal	Where the facilities and overall open space layout are set out in a formal style.
Heritage/Cultural	Where the Indigenous or non-Indigenous history, and or contemporary cultural values of the site make a significant contribution to the open space character and use, and/or where there is an existing Heritage Overlay (HO) for the open space. This classification includes open space that has been identified as having heritage values in existing studies.
Informal	Where the facilities and overall open space layout is not highly structured or formal.
Linear	Where the open space is part of linear network of open spaces or continuous reserve that is used primarily for travelling through or along. These typically include a shared path, seating, resting points and vegetation. These are mainly located along the waterways, service easements and railways.
Linking space	Where the open space provides a local pedestrian/cycle link between streets, individual open spaces or to a key destination like a railway station and is not part of a broader linear network.

Character	Description
Nature conservation	Where the purpose of the open space is protecting and/or improving the biodiversity and habitat values and/or where there is a Vegetation Protection Overlay (VPO) for the open space. This may include reserves with existing value or those identified to have potential to provide for this in the future in existing environmental and biodiversity strategies and plans.
Open woodland	Where remnant indigenous or planted native trees are managed with a mown or modified understorey to retain views and/or access between them.
Public garden	A designed space set aside for the display, cultivation and enjoyment of plants and used for recreation.
Railway easement/reservation	Open space (other than linear) where the railway use significantly influences the open space's future use and design.
Restricted sporting/recreation	Available on a club membership or fee-paying basis only and not available for general public use at any time. This includes tennis courts, bowling clubs and community garden (refer Community Garden classification).
Service easement	Open space where the level of use, design and management is influenced by the presence of services in the reserve.
Significant road reservation	Road reserves of a significant size or width that will permanently contribute to the open space network for nature conservation, visual landscape or recreational use. For example, the shared pathway north of Wellington Road from Jells Road to Dandenong Creek. This classification does not refer to the roadway itself but to land either reserved as open space or with the potential for this, whilst recognising vehicle transport has a major influence on the open space. This can include a wide central median, or a major area at an intersection to the sides of the roadway that is capable of permanently accommodating recreational use, or significant stands of vegetation.
Sporting	Primarily provides for organised club based sporting use and the outdoor grounds and facilities are available for general public use when no organised sporting events are in progress.
Undeveloped	Open space which has not been developed and may appear as 'left over space' without facilities or a specific identified purpose.

Character	Description
Urban plaza	The surrounding urban setting significantly influences the character and function of the space. These spaces are primarily located in civic, commercial or business precincts, and are publicly owned and are free and accessible for the public to use at any time. They are of a size that can provide for recreational use including social gatherings. A range of other urban design strategies and planning frameworks can also influence these spaces.
Waterways	The presence of a waterway makes a significant contribution to the character, value and use of the open space including the riparian zone.
Wetland/WSUD	The presence of a wetland or other WSUD feature contributes and influences the character and use of the open space. This can include other WSUD including rain gardens and underground water storage tanks.

3.3.2 Summary of Primary character classification for existing Regional and Municipal open space

This Stage included the assessment of all the Regional and Municipal open space along with some Neighbourhood open space. The results of this assessment have informed the character discussion in this report. Further assessments of the Neighbourhood, Local and Small Local open space network will be undertaken during Stage Two of the Strategy and this will confirm and refine the character assessments of the Regional and Municipal open space.

The following tables indicate the proportion of different character types of open space across the Regional and Municipal open space in Monash.

Table 3.4 Proportion of Primary character classification assigned to Regional open space in Monash

Primary character classification	Area Ha	% of total Regional open space area
Informal	129.37	34%
Restricted sport & recreation	75.90	20%
Nature conservation	65.42	17%
Sporting	54.82	15%
Waterway/wetland	50.37	13%
Total	375.88	100.0%

Table 3.5 Proportion of Primary character classification assigned to Municipal open space in Monash

Primary character classification	Area Ha	% of total Municipal open space area
Sporting	149.14	51%
Nature conservation	50.94	18%
Service easement	33.02	11%
Waterway/wetland	22.80	8%
Informal	18.31	6%
Restricted sport & recreation	0.90	0.3%
Community garden	6.21	2%
Linear	5.04	2%
Cultural/Heritage	3.64	1%
TOTAL	290.00	100.0%

4. Analysis of existing open space distribution

4.1 Existing open space

The existing public open space has been mapped and quantified in an existing database where it meets the definition of open space as defined in Section 1.4 of this report. Refer to Drawing MNOSS-01 for the spatial mapping of all the existing open space identified during Stage One of the Strategy.

The plan differentiates the various types of open space with different shades of green. These are shown in the drawing key, and below is a more detailed description of what the different types of open space are that have been included:

- Existing open space that is currently zoned in the Monash Planning Scheme as Public Park and Recreation Zone (PPRZ). The major areas of council owned open space are within this category.
- Existing open space that is currently zoned in the Monash Planning Scheme as Public Conservation and Resource Zone (PCRZ). The PCRZ recognises the conservation values of the open space and is applied to some of the larger regional open spaces along the Dandenong Creek including Corhanwarrabul Wetlands, Shepherds Bush, Bushy Park Wetlands and the riparian and wetland areas of Jells Park.
- Existing open space that is not zoned PPRZ or PCRZ. This is public land that is in the database system as public open space but is not currently zoned for this purpose. Further refinement of this layer of data will be undertaken at the Draft Precinct Analysis phase as part of a further stage of this Open Space Strategy Project to clarify if these are areas of public open space.
- Existing open space restricted refers to open space that is zoned for recreation purposes but access to and use of the area requires either payment or membership of a club, and for the majority of time is not available for people to access and use for a range of recreational purposes. In some instances the open space may be fenced and secured from public access, and in other instances such as with the golf courses, people can walk through these areas outside of times when golf is being played.
- Melbourne Water owned land shown on the plan is potentially available for public access and use as open space. This land is not zoned for recreation purposes, but is a public use zone that permits access and use.
- Future open space is that identified by Council officers to be provided in the future, but is either not yet built or handed over to council for their management and maintenance. These are not yet included in the total quantities for open space described in this report.

Figure 2 on the following page is a diagram illustrating the distribution of the existing open space across the municipality, without the detail of the different areas of open space nominated above.

4.2 Quantity of existing open space

An assessment and analysis of existing open space has been undertaken for this project, using the Council supplied database as a starting point. The database supplied includes public land that is not reserved for recreation purposes. This includes land with community facilities located on it, roads, nature strips, freeway reservations and water reservoirs. The initial database supplied included more than 900 entries.

The project team and Council have undertaken work to refine the database to include land that meets the definition of open space for this Strategy. This includes land that may not currently be zoned for PPRZ or PCRZ purposes, but meets the definition of open space, albeit in some instances encumbered open space.

These existing areas of open space are shown on Drawing MNOSS-01 attached to this Report, noting that Restricted open space is not included in the total quantities for open space. The assessment is ongoing and will be refined during the site assessments and Draft Strategy phase.

Monash has approximately 494 open space reserves covering approximately 800 hectares, which equates to 9.8 per cent of the municipality. Included in this are some areas of restricted open space, including the two public golf courses and some other reserves with fenced club-based uses. The combined restricted open space comprises approximately 76 hectares.

Provision of open space quantity has been assessed in the following ways:

- Quantity of open space area as a proportion of the total land area of the municipality at both a municipality-wide level and a suburb level.
- Quantity of open space area per person, both at the municipality-wide level and the suburb level.

The rationale for assessing the quantity in these two ways is to measure how changes in the number of residents can impact on the quantity of people using these reserves.



FIGURE 2 Existing open space network Source: Drawing MNOSS-01, attached to this report

4.2.1 Quantity of open space as a proportion of the total land area

The following Table 4.1 quantifies the total open space area as a proportion of the total area of each suburb and of the total municipality.

Table 4.1 Quantity of open space in Monash

PRECINCT NAME	No. of open spaces	Total open space Ha	Proportion of o/space of total precinct area	Proportion of total open space in the municipality
Ashwood	12	33.26	12.9%	4.1%
Burwood	15	14.70	14.6%	1.8%
Chadstone	16	21.91	7.0%	2.7%
Clayton	17	17.00	2.2%	2.1%
Glen Waverley	128	220	13.1%	27.5%
Hughesdale	4	3.43	1.7%	0.4%
Mount Waverley	97	129.34	8.5%	16.1%
Mulgrave	84	78.65	7.3%	9.8%
Notting Hill	11	2.13	0.9%	0.2%
Oakleigh Huntingdale	19	32.96	9.5%	4.1%
Oakleigh East	11	10.14	3.6%	1.3%
Oakleigh South	8	14.42	3.8%	1.8%
Wheelers Hill	72	224.44	21.6%	28.0%
TOTALS	494	802.85	9.8%	100.0%

Note: Precincts rather than suburbs are referred to in this table as some suburbs have been combined, and it is likely that others will during the Draft Strategy to be consistent with the population forecasts.

There is significant variation in open space provision across the different precincts in the municipality. The quantities are measured as a percentage of each precinct area, and also as a percentage of the total amount of open space in the municipality. Overall, the areas north and east of the Monash Freeway have a greater proportion of open space than the areas south of the freeway.

Notting Hill has only 0.9 per cent of the total precinct area as open space which is the lowest in the municipality. Residential land use area within Notting Hill is concentrated to the east of Blackburn Road, with non-residential land use predominantly to the west. The majority of the existing open space is located within the residential part of Notting Hill. Hughesdale has the second lowest amount relative to the precinct area at 1.7 per cent. Hughesdale is predominantly residential land use and established earlier than some of the areas of the municipality that have larger amounts of open space such as Wheelers Hill, Burwood and Glen Waverley. Wheelers Hill has the largest quantity of open space with 21.6 per cent of the precinct being open space, however this is mainly due to the large areas of Regional open space along the Dandenong Creek corridor, that are provided for a much broader population.

Accessibility to open space is also a key influence on its use and benefit to the community that surround it, so the assessment of its distribution relative to accessibility is also analysed and described in Section 4.3, along with the quality of the space as described in Section 4.4.

4.2.2 Open space relative to population density

The following tables highlight the provision of open space relative to population density. Table 4.2 is based on the forecast population in 2013.

Table 4.2 Quantity of open space relative to 2013 estimated residential population

PRECINCT NAME	Total open space Ha	Proportion of o/space of total precinct area	Total resident population estimated 2013	Sqm of open space per person 2013
Ashwood	33.26	12.9%	8,860	54
Burwood	14.70	14.6%	Incl in Ashwood	54
Chadstone	21.91	7.0%	8,306	26
Clayton	17.00	2.2%	19,283	10
Glen Waverley	220	13.1%	41,010	54
Hughesdale	3.43	1.7%	7,437	5
Mount Waverley	129.34	8.5%	33,463	39
Mulgrave	78.65	7.3%	19,390	41
Notting Hill	2.13	0.9%	Incl in Clayton	10
Oakleigh Huntingdale	32.96	9.5%	7,978	41
Oakleigh East	10.14	3.6%	8,205	12
Oakleigh South	14.42	3.8%	5,194	28
Wheelers Hill	224.44	21.6%	19,875	113
TOTALS	802.85	9.8%	179,001	45

Note: the total estimated population figures included in the Table 4.2 are taken from the .id Forecast website and represent the residential population only.

Hughesdale has the lowest proportion of open space per person at 5sqm followed by Clayton and Notting Hill at 10sqm. This correlates with the low proportion of open space shown in Table 4.1. Wheelers Hill has the largest amount at 113sqm per person given its proximity to the Regional open space along the Dandenong Creek, and in particular Jells Park which is managed by Parks Victoria for the visitors from across Melbourne. While the local residents benefit from having this Regional open space nearby, the management priority and facility provision is targeted at the regional visitor rather than the local needs.

Mount Waverley is the only suburb where the quantity of open space relative to the suburb area is lower (ranked 7 out of 13 suburbs from the most to least), yet has a higher proportion when measured per person. This is likely to be due to the larger proportion of non-residential land use in the suburb meaning there is a lower residential population. Four precincts have less than 20sqm of open space per person and a further five are below the municipal average of 45sqm per person.

This table highlights the difference in open space provision across the municipality. It is important to also consider whether the open space is accessible and whether the design contributes to the quality of the open space system as a whole. This is assessed in Section 4.4.

4.2.3 Quantity of open space compared with other municipalities

Table 4.3 Comparison of Monash open space quantity with adjoining municipalities

Municipality	Total open space sqm	Total municipal land area sqm	Total estimated resident population 2013	Open Space sqm per person	% of open space as a proportion of total land area
City of Monash	8,021,114	81,446,000	179,001	45	9.8%
Boroondara	5,782,000	60,190,000	170,242	34	9.6%
Glen Eira	1,796,000	38,670,000	140,320	13	4.6%
Greater Dandenong	9,102,000	129,600,000	144,680	63	7.0%
Kingston	12,406,000	91,310,000	149,772	83	13.6%
Knox	21,932,000	113,760,000	155,785	141	19.3%
Stonnington	1,800,000	25,600,000	89,883	20	7.0%
Whitehorse	6,397,000	64,250,000	157,282	41	10.0%

Table 4.3 is a comparative overview of the provision of open space in the City of Monash with adjoining municipalities. The data has been sourced from the VEAC Metropolitan Melbourne Investigation, as this is the only consistent source of data available across all the adjoining municipalities. The population forecasts and total area of each municipality is sourced from the .id forecast websites.

The comparative table should be taken as indicative only. The total quantity of open space shown for the City of Monash is taken from the database compiled for this project, and not from the VEAC Report, as the data compiled for this project is a more accurate reflection of the open space in the municipality and correlates with the total quantities shown elsewhere in this report.

When comparing open space as a proportion of the total municipal area Whitehorse, Monash and Boroondara have similar results in the order of 9 to 10%. As a contrast, Glen Eira has the lowest proportion of open space. Monash is comparable with Whitehorse, while Boroondara and Glen Eira have less open space reflecting the higher densities in parts of both those municipalities.

The table illustrates the following:

- **Boroondara** has some large Regional open space along the Yarra River, however the open space corridor along Gardiners Creek is relatively narrow, meaning there is a lower amount of Regional open space by comparison with some other adjoining municipalities. With a total of just over 575 hectares, other key areas of open space include the Outer Circle Linear Open Space that runs north south through the municipality and linear open spaces along the waterway tributaries. In terms of proportion of open space to municipal area, Boroondara is similar to Monash, however the higher urban densities in Boroondara means there is a lower amount of open space per person.

- With a total of just under 180 hectares of open space, Caulfield Racecourse is the largest area of open space in **Glen Eira**. The lack of waterway corridors in Glen Eira means there is no Regional open space, with the largest open spaces being their large parks including Caulfield and Princes Parks. The combination of lower amounts of open space and areas of higher urban densities results in the lowest amount of open space per person compared to all other adjoining municipalities.
- **Greater Dandenong** is the largest municipality and has around 900 hectares of open space. Greater Dandenong has large extents of non residential industrial land use including the Eastern Treatment Plant. Large areas of open space include parts of Lysterfield Park, Churchill Park, Police Paddocks, open space along the Dandenong Creek and Eumemmering Creek.
- With just over 1,200 hectares of open space, **Kingston** is second to Knox in terms of total quantity of open space. Kingston is located to the south of Monash and extends south to Port Phillip Bay. Major areas of Regional open space includes; the foreshore from Mordialloc through Aspendale, Edithvale and Carrum. Additionally the large system of Edithvale and Wannarkladdin Wetlands located inland from the coast. Braeside and Karkarook Parks are other major metropolitan parks located in Kingston.
- **Knox** has the largest quantity of open space when compared with all the adjoining municipalities with just under 2,200 hectares of open space. There are some large Regional open spaces in Knox including part of the Lysterfield Park and Dandenong Valley Parklands. Compared with the size of the Regional open space along Dandenong Creek in Monash, the Dandenong Valley Parklands are substantially larger in Knox compared with the Monash side of the creek. The lower density residential land use combined with the significant areas of Regional open space influences the highest proportion of open space per head of population.
- **Stonnington** is in a similar situation to Boroondara with relatively narrow corridors of Regional open space along the waterways, and only a short section of frontage to the Yarra River. The lower amounts of Regional open space along with the higher urban densities result in the second lowest amount of open space relative to the population densities compared to the other adjoining municipalities.
- **Whitehorse** has similar urban development characteristics to Monash, with the western areas of the municipality being from the early 1900s extending east to more recently established suburbs during the 1960s through to the 1980s. With just under 640 hectares, the key large areas of open space in Whitehorse include Wattle Park, and open space along the Dandenong Creek floodplain, Blackburn Lake and some open space along Mullum Mullum Creek. Other smaller linear open space corridors exist along the waterways including Gardiners Creek and Koonung Creek. As a comparison, Whitehorse has a very similar quantity of open space relative to municipal area as Monash, and total quantity of open space per person.

As noted above, of all the adjoining municipalities to Monash, Whitehorse is the most comparable. These comparative figures are only a snapshot and do not assess the design and function of open space. Included in these lump sum figures is the restricted open space which includes golf courses, etc, and Regional open space which is not necessarily accessible to all, as in some

locations it is set aside primarily for biodiversity protection. Most municipalities have their own policy or strategy to direct the future provision, management and design of open space, and it is anticipated that there will be variations in the totals listed above over the coming years.

The adequacy of the open space system is measured by more than quantity only. The character, function and quality and accessibility of open space are critical to the analysis and assessment of its suitability.

4.3 Distribution of open space in the City of Monash

4.3.1 Overview

The distribution of open space across the municipality is significantly influenced by patterns of historical and current land use.

The areas of non-residential land use traditionally did not include much provision of open space, and where this land use is present in Mulgrave, Notting Hill, Oakleigh and Clayton open space is not well distributed through all of these suburbs. Some of the residential areas in these suburbs have not necessarily had an even distribution of different types of open space provided through them either.

Throughout some of the predominantly residential suburbs there are gaps in open space provision including in Hughesdale and Glen Waverley. These historical discrepancies will be taken into account in future stages of the Open Space Strategy, however, there is a recognition that retrofitting additional open space into existing established urban areas can be difficult to achieve. In some gap areas, ancillary open space including schools are present, however these cannot be relied on as a replacement for public open space as schools can change priorities and change over time. For further information about ancillary open space refer Item 1.4.3.

Open space planning principles in Australia and overseas identify that the community should be able to easily walk to some public open space without the need to cross busy roads or drive to them. This distance is generally agreed to be approximately 400 to 500 metres to a Neighbourhood park and 150 to 300 metres to a Local park. These are described in Section 3 of this report.

The open space distribution analysis - referred to as the gap analysis, is an assessment of the distribution of existing open space across the municipality to identify if there are any locations where open space is not within reasonable reach of the population. This analysis is one method to identify localised areas without safe walking distance access to any open space.

In addition to assessing walking access to open space, the future Open Space Strategy will also be looking at the issue of whether this open space is meeting the social, recreation and environmental needs of the municipality.

4.3.2 Gap analysis

The open space gap analysis shows there are some areas of the municipality where people do not have easy and safe walking access to any public open space. Refer to Drawing Number MNOSS-03 for these locations attached to this report. Major barriers to safe and easy walking access include major roads and railways. The barriers vary according to the type of open space people are travelling to. For Small Local open spaces close to home, barriers to safe and easy access include collector roads, as these are a barrier for some members of the community to cross on their own including young children and the elderly. While pedestrian crossings and traffic lights etc may improve accessibility, the barrier can still be a concern. The analysis of the gaps and future solutions to them take into account the more detailed features such as the location of pedestrian crossings, the adjoining open space etc, and recommendations made to suit these. This will be undertaken in later stages of this Open Space Strategy.

Gaps occur across different types of land use areas including the residential, education, retail, office/commercial and industrial precincts. The impact of these gaps relative to the different land uses will be taken into consideration in future stages of the Strategy. Overall the north eastern areas of the municipality have less gap areas compared with the south western areas.

A summary of the analysis finds:

Municipal open space

Municipal open space is generally well distributed through the municipality. Applying an approximate 1 kilometre travel distance to Municipal open space, the only gaps in the provision of Municipal open space fall in the south central part of the Municipality where it is predominantly non-residential land use. The residential precinct of Notting Hill and the north-western area of Huntingdale fall outside the 1 kilometre travel distance.

Neighbourhood open space

There are some gaps in the provision of Neighbourhood open space across the municipality, however, it is recognised that a number of the Municipal open spaces either do or have the potential to perform a Neighbourhood function by including neighbourhood facilities in them.

Based on this assumption, a spatial analysis has been undertaken to determine if there are any gaps in distribution of Neighbourhood open space (i.e. where Municipal open space is not within walking distance either). Refer to Table 4.4 for a summary list of these areas by suburb.

Table 4.4 Gaps in distribution of Neighbourhood open space

The following gaps are described by suburb and the suburbs are listed in alphabetical order.

Suburb	Existing gaps in distribution of Neighbourhood open space
Chadstone	Between Waverley Road and the Monash Freeway, there is Local and Small Local open space but no other larger areas of open space within safe and easy walking distance.
Clayton	Between North Road and the Princes Highway and east of Blackburn Road, this is a combination of residential and non-residential land use and includes Small Local and Local open space. The closest Municipal open space is Fregon Reserve, south of the Princes Freeway.
	Between North Road and the railway and west of Clayton Road, this area is predominantly residential land use with one Small Local open space - Fiona Road Reserve. Princes Highway Reserve is located approximately 500 metres north of North Road and is the nearest Municipal open space to the gap area.
	East of Blackburn Road and north of Wellington Road, this area is non-residential land use and has no open space. The nearest open spaces are the Local and Small Local open space reserves in Notting Hill to the north.
	South of Princes Highway, in the vicinity of McNaughton Road, the land use is predominantly non-residential and currently has no open space. The nearest Municipal open space is Fregon Reserve located to the west, which is more than 1 kilometre from this area.
Clayton	In the south of Clayton, east of Clayton Road and south of the railway, this residential area currently has no open space. The nearest Municipal open space is Fregon Reserve located to the north which is more than 1 Kilometre from this area.
Glen Waverley	In the north and east of Springvale Road, there is an area that has access to Small Local open space only within safe walking distance. Larpent Reserve is the closest Municipal open space, between 500 metres and 1 kilometre away from this area.
	North of Waverley Road and east of Springvale Road to Glen Waverley Public Golf Course. To the north Hinkler Reserve is up to 1 kilometre from this area, and there is one Small Local and Local open space to the south.
	The south western extent of the suburb bounded by the Monash Freeway to the north, Blackburn Road to the west and Ferntree Gully Road to the south. This small area is predominantly residential land use and there is no other large open space within easy reach of it.
Hughesdale	Between the Princes Highway and the railway, this predominantly residential precinct has no open space. The nearest Neighbourhood open space is Galbally Reserve located south of the railway which is accessible via the street network and a level crossing on Poath Road and Paddington Street, however in both instances this will result in further than a 500 metre walk to the reserve.

Suburb	Existing gaps in distribution of Neighbourhood open space
Mount Waverley	East of Stephenson's Road and between the Monash Freeway and Ferntree Gully Road.
Mulgrave	Between the proposed Nantilla Road and Springvale Road, this non-residential area has one Local open space. There is a small area of residential land use to the south which has two Small Local open spaces, but no larger area of open space.
Notting Hill	The whole suburb has Small Local and Local open space with Carlson Avenue Reserve being the nearest Municipal open space to the west of Notting Hill.
Oakleigh	South of the railway and east of Warragul Road, this predominantly residential area has Local and Small Local open space, with Jack Edwards Reserve being the closest Municipal open space located north of the railway.
Wheelers Hill	East of Springvale Road, bounded by the Monash Freeway to the south west and Ferntree Gully Road to the north this gap area includes Brandon Park Shopping Centre. This does include the linear open space reserve along the Melbourne Water pipe track, however no other open space is provided there.

Local and Small Local open space

There are some areas where there are gaps in the existing open space network including the Local and Small Local open space. Essentially these are areas where the community does not have easy access to any type of open space, and where additional open space may need to be provided in the future. These are illustrated on Drawing No. MNOSS-03.

4.3.3 Gap analysis by suburb

A detailed gap analysis has been prepared for the existing open space network in Monash. This is shown in Figure 3, Figure 4 and in detail on Drawing MNOSS-03, attached to this report. Gaps in open space provision are locations where there is no destination type open space within the prescribed walking distances for each type. Restricted open space, Small Local links and some of the narrow service easements where there is no room to provide any facilities other than a walking path may occur in the gap areas.

Figure 3 illustrates the hierarchy and relative walking distance to each for each suburb. When reading the gap analysis for each suburb, refer to Figure 3 for detail of the different types of open space, and Figure 4 for a diagrammatic representation of it.

In Figure 4 each gap area has a numerical code allocated to it, which corresponds to the description in the Gap Analysis descriptions in this report. Stage Two of the Strategy will take into consideration forecast future change and will then determine appropriate recommendations to address each of these gap areas.

Refer to the Gap Analysis Diagrams on the following pages.

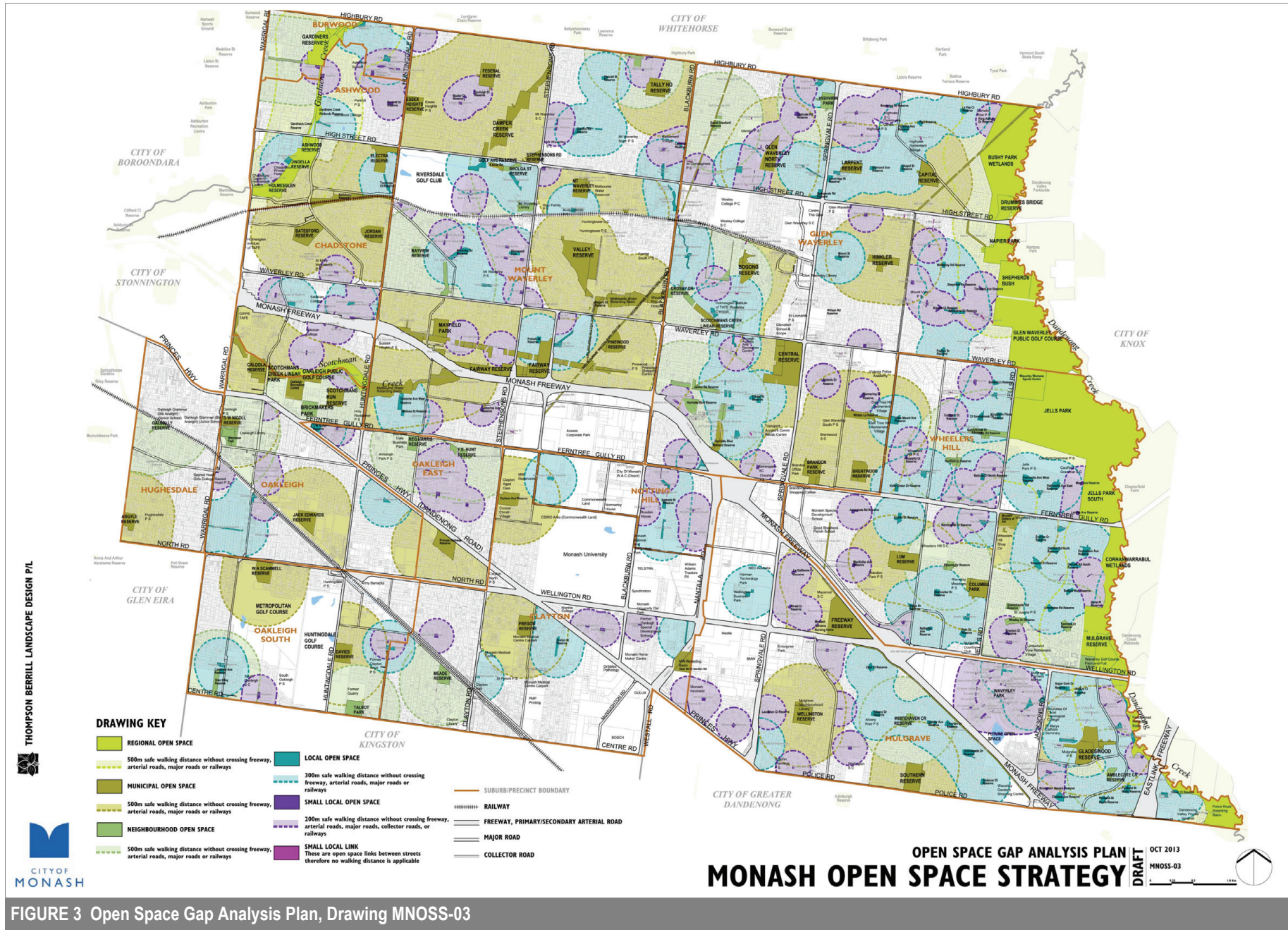


FIGURE 3 Open Space Gap Analysis Plan, Drawing MNOSS-03

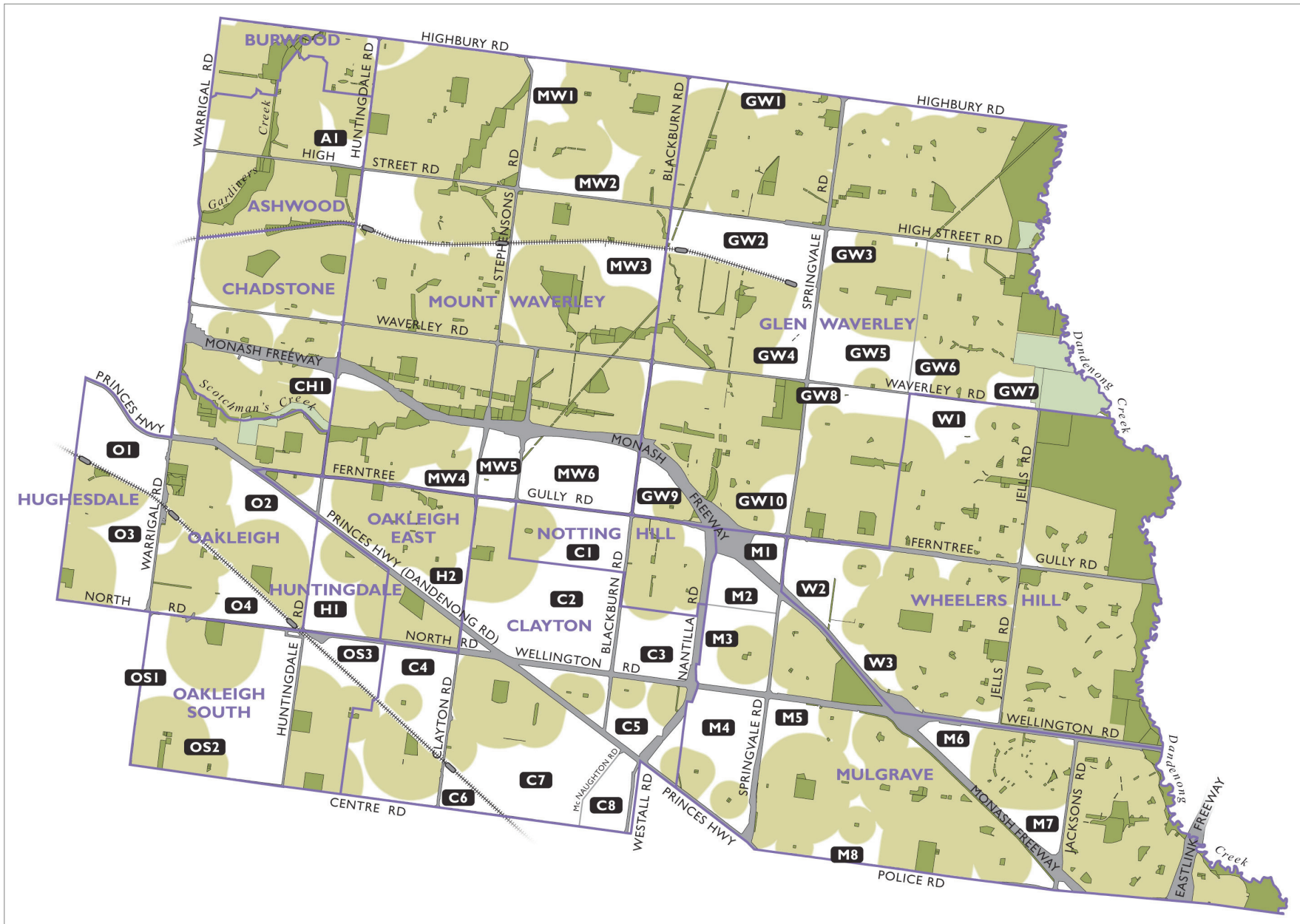


FIGURE 4 Existing gap areas diagram open space distribution Source: Drawing MNOSS-03

Ashwood/Burwood

Gap area	Existing gaps in distribution of any open space
A1	Located adjacent to Huntingdale Road and High Street, this gap area is east of Ashwood College and Parkhill Primary School. Ashwood College provides some ancillary open space including a large oval, a smaller oval and 12 outdoor netball courts. These open space facilities can be accessed via High Street Road, Farmer Street and Cassinia Avenue out of school hours.

Clayton/Notting Hill

Gap area	Existing gaps in distribution of any open space
C1	Located south of Ferntree Gully Road and south west of Monash City Council's depot, the dominant land use is non-residential including office/manufacturing/commercial/industrial use. There is currently no open space within this gap area. The nearest type of open space to the gap area is a Local open space (Business Park Drive Reserve) which contains a fenced tennis court and seating area surrounded by native revegetation, for workers within the area. Monash University provides some ancillary open space south of the gap area.
C2	East of Blackburn Road and north of Wellington Road, Monash University is the dominant land use in this gap area and provides ancillary open space within the campus. The western extent of this gap area is residential with medium to high density housing along the frontage of Wellington Road. Single detached dwellings and some medium density town house developments are present within this residential area west of Monash University. Outside of the gap area is a Municipal open space (Carlson Ave Reserve) located to the north west along Clayton Road. This open space is further than safe walking distance, however can be reached via the local street network without any major physical barriers to access.
C3	Bounded by Blackburn Road, Wellington Road and Nantilla Road the dominant land use is office/manufacturing/commercial/industrial use. There is currently no open space within this gap area. A Melbourne Water concrete channel extends from Wellington Road to Duerdin Street, however this does not have capacity to include any open space facilities that encourage a diversity of uses.
C4	Bounded by North Road, Clayton Road and the railway, this gap area is located within a residential area. The nearest type of open space to the gap area is one Small Local open space (Flora Rd Reserve), which is an informal open space reserve containing some playground equipment, native trees and mown grass. This open space is further than safe walking distance from the gap area, however can be reached via the local street network without any barriers to access.
C5	East of Blackburn Road and north of Princes Highway, the dominant land use is office/manufacturing/commercial/industrial use with retail/commercial use to the west. Outside of this gap area is an undeveloped Small Local open space (Cambro Rd Reserve), adjacent to the former Oakleigh Special Development School. The Cambro Rd Reserve contains a set of swings and a slide located on a mown grass standard residential block surrounded by residential boundary fences.

Gap area	Existing gaps in distribution of any open space
C6	Bounded by Clayton Road, Centre Road and the railway, this gap area is located within a residential area, with a small area of land for retail/commercial use, adjacent to Clayton Road. There is currently no open space within this gap area.
C7	Located south of Princes Highway, west of McNaughton Road and north of Centre Road, the dominant land use is industrial use, with a residential area located between the industrial use areas. The nearest type of open space to the gap area is a Local open space (Evelyn St Reserve) located to the north. This linear open space contains a mixture of scattered native and exotic trees within mown grass. A small playground with a seat is located in the centre of the linear open space. Further north of the gap area is a Municipal open space (Fregon Reserve). Both these open spaces are further than safe walking distance, however can be reached via the local street network without any major physical barriers to access.
C8	This gap area is bounded by Princes Highway, Westall Road, Centre Road and McNaughtons Road, and the dominant land use is zoned industrial use. There is currently no open space within this gap area.

Chadstone

Gap area	Existing gaps in distribution of any open space
CH1	South of the Monash Freeway and west of Huntingdale Road, the dominant land use in this gap area is residential. Outside of the gap area is a Small Local open space (Adrian St Reserve) to the west and the restricted open space of the Oakleigh Public Golf Course, to the south. These open spaces are further than safe walking distance, however can be reached via the local street network without any barriers to access. Sussex Heights Primary School is located to the east of Huntingdale Road and visually contributes to the open space character but does not provide ancillary open space use as it is fenced from public use.

Glen Waverley

Gap area	Existing gaps in distribution of any open space
GW1	Located south of Highbury Road, the dominant land use in this gap area is residential use. The nearest open space to the gap area is a Small Local open space (Canova Ave Reserve) to the east. Glendal Primary School is located to the south of the gap area and provides ancillary open space to the area. Glendal Primary School visually contributes to the open space character and provides informal access after hours. A Melbourne Water pipe track extends from High Street to Highbury Road providing additional ancillary open space west of this gap area. These open spaces are further than safe walking distance, however can be reached via the local street network without any barriers to access.
GW2	Bounded by Blackburn Road to the west, High Street Road to the north, Springvale Road to the East and the railway line to the south,

Gap area	Existing gaps in distribution of any open space
	this gap area is located between areas of retail/commercial land use including the busy shopping precinct The Glen, along with the shopping retail strip along Blackburn Road. Wesley College and Glen Waverley Secondary College are also located within this gap area, providing some ancillary open space. These schools visually contribute to the open space character of the area, however they are fenced so provide no informal access after hours. No other open space currently exists within this gap area.
GW3	Adjacent to High Street and Springvale Road, the dominant land use of this gap area is Glen Waverley Primary School, surrounded by residential use. Outside of the gap area is a Small Local open space to the east (Danien St Reserve), a Local open space to the south (Mount St Reserve), and a Municipal open space to the south east (Hinkler Reserve). These open spaces are further than safe walking distance, however can be reached via the local street network without any physical barriers to access. Glen Waverley Primary School is located within the gap area south of High Street Road and visually contributes to the open space character, but does not provide ancillary open space as it is fenced from public use.
GW4	Located west of Springvale Road and north of Waverley Road, this gap area contains areas of residential use surrounded by the Glen Waverley Library, St Leonards Primary School and Glennallen School, providing some ancillary open space which visually contribute to the open space character, but the school's do not provide informal access for use as they are fenced.
GW5	Located between Springvale Road and Gallaghers Road, residential use is the dominant land use in this gap area. An area of industrial use is located to the west along Springvale Road. The nearest type of open space outside the gap area is one Small Local open space along Waverley Road (Viewpoint Ave Reserve). This Small Local open space contains a few items of play equipment, surrounded by mown grass and scattered mature trees. This open space is bounded to the north and east by residential rear property boundaries. This open space is further than safe walking distance, however can be reached via the local street network without any major physical barriers to access.
GW6	Bounded by Gallaghers Road and Waverley Road, residential use is the dominant land use in this gap area. The nearest type of open space to the gap area is a Local open space (Paxton Dr Reserve) to the west. This open space is further than safe walking distance, however can be reached via the local street network without any physical barriers to access. Mount View Primary School is located to the north of the gap area and provides some ancillary open space. The recent residential development (approximately early 2000's) surrounding the school's oval, front directly on and overlook the large open grass mown oval. This area visually contributes to the open space character, provides long views to the Dandenong Ranges and provides informal access after hours.
GW7	The gap area north of Waverley Road is a residential area which adjoins the Glen Waverley Public Golf Course to the east. The golf course provides restricted open space and visually contributes to the open space character. A Local open space (Paxton Dr Reserve) is also located outside the gap area to the west. This open space is further than safe walking distance, however can be reached via the

Gap area	Existing gaps in distribution of any open space
	local street network without any physical barriers to access.
GW8	Located between Gallaghers Road, Waverley Road and Springvale Road, the dominant land use in this gap area is the Victorian Police Academy, which provides restricted ancillary open space and visually contributes to the open space character. Located to the west of the Police Academy is residential use. The nearest type of open space to this gap area is a Small Local open space (Botanical Dr Reserve) located to the south. This open space contains a playground, mown grass, and a few scattered trees and is bounded by residential rear boundary fences. This open space is further than safe walking distance, however can be reached via the local street network without any physical barriers to access.
GW9	Bounded by Blackburn Road, Ferntree Gully Road and the Monash Freeway, the dominant land use in this gap area is residential with a small area of retail/commercial use along Blackburn Road. Outside this gap area there is one Small Local open space (McKenna Rd Reserve) and one Local open space (Ferntree Gully Rd Reserve) which are located further east of the gap area. McKenna Rd Reserve has a playground, mown grass and scattered mature trees. Ferntree Gully Rd Reserve is mown grass and located under transmission lines. These open spaces are further than safe walking distance, however can be reached via the local street network without any physical barriers to access.
GW10	Located to the north of Ferntree Gully Road and to the west of Springvale Road, the dominant land use in this gap area is residential land with the Victoria Rehabilitation Centre to the north. The nearest type of open space outside the gap area is a Small Local open space (Woodlea Drv Reserve) located to the south west. This open space has a small playground, mown grass and scattered trees with rear boundary fence lines to three sides. This open space is further than safe walking distance, however can be reached via the local street network without any physical barriers to access.

Mulgrave

Gap area	Existing gaps in distribution of any open space
M1	Bounded by Ferntree Gully Road, Springvale Road and the Monash Freeway, this gap area is located within an industrial area. No open space is located within or nearby this gap area.
M2	Bounded by the Monash Freeway, Springvale Road and Nantilla Road, the dominant land use in this gap area is non-residential office/manufacturing/commercial/use. No open space exists within or nearby this gap area.
M3	Bounded by Springvale Road, Nantilla Road and Wellington Road, the dominant land use is office/manufacturing/commercial use. The nearest type of open space to the gap area is a Local open space (Gilda Ct Reserve) located to the west within the Wellington Business Park.
M4	Bounded by Springvale Road and Wellington Road, the dominant land use is office/manufacturing/commercial use. To the south of the gap

Gap area	Existing gaps in distribution of any open space
	area are two Small Local open spaces (Wilma Ave Reserve and Kilmna Ave Reserve).
M5	Bounded by Springvale Road and Wellington Road, the dominant land use is office/manufacturing/commercial/industrial use; Enterprise Park. The nearest type of open space to the gap area is the Mulgrave Neighbourhood Library and a Municipal open space (Wellington Reserve). This open space is further than safe walking distance, however can be reached via the local street network without any major physical barriers to access.
M6	Located south of Wellington Road and east of the Monash Freeway, this gap area is within land zoned industrial use zone (IN1Z) with large scale industrial sites including distribution centres. No current open space exists within this gap area.
M7	Located west of Jacksons Road and north of the Monash Freeway and south of the recent medium to high density housing development on the Waverley Park site, this gap area is adjacent to a potential future wetland and open space to be provided as part of that development.
M8	Located north of Police Road and east of Wanda Street the dominant land use in this gap area is the Wellington Primary School, providing ancillary open space out of school hours. The school oval can be used informally after school hours with access via Singleton Drive, and the school grounds contribute to the open space character of the local area. Surrounding the primary school is residential use. The nearest type of open space to the gap area is a Small Local open space (Knell St Reserve) to the north. A Municipal open space is also located outside the gap area to the east (Southern Reserve). These open spaces are further than safe walking distance, however can be reached via the local street network without any major physical barriers to access.

Mount Waverley

Gap area	Existing gaps in distribution of any open space
MW1	Bounded by Stephensons Road to the west and Highbury Road to the north, the dominant land use in this gap area is residential, with large single detached dwellings. The nearest type of open space to the gap area is a Small Local open space (Marianne Way Reserve) to the south and a Local open space (Pascal St Reserve) to the east. These open spaces are further than safe walking distance, however can be reached via the local street network without any barriers to access.
MW2	Located to the north of High Street Road, this gap area contains Mt. Waverley Secondary College to the west and Mt. Waverley North Primary School to the north, providing ancillary open space out of school hours and which visually contribute to the open space character. Outside of the gap area is a Local open space to the north (Gordon Rd Reserve) which contains a shared off road path through a linear reserve linking Gordon Road, Marianne Way and Headingly Road, with dense plantings of predominately native trees. This open space is further than safe walking distance, however can be reached via the local street network without any barriers to access.

Gap area	Existing gaps in distribution of any open space
MW3	Located west of Blackburn Road and south of the railway line, the dominant land use in this gap area is retail/commercial land use. Syndal Primary School is located on the southern boundary of this gap area providing some ancillary open space which visually contributes to the open space character and provides informal access after hours. Valley Reserve is the closest Municipal open space located to the west of the gap area and can be reached via the local street network without any major physical barriers to access.
MW4	West of Stephenson's Road and north of Ferntree Gully Road, the dominant land use in this gap area is residential. Outside the gap area, one small open space (Catherine Ave Reserve) provides a path link between streets and a small playground. This open space is further than safe walking distance, however can be reached via the local street network without any major physical barriers to access.
MW5	Bounded by the Monash Freeway to the north, Stephenson's Road and Ferntree Gully Road, the dominant land use is non-residential land use including office/manufacturing/commercial use. There is a small section of residential land along Kingsley Grove adjacent to Stephenson's Road. There is no current existing open space nearby this gap area.
MW6	Bounded by the Monash Freeway, Stephenson's Road and Ferntree Gully Road, this gap area is located within the large Axxess Corporate Park where the dominant land use is office/manufacturing/commercial/industrial use. There is no current existing open space in this gap area.

Hughesdale

Gap area	Existing gaps in distribution of any open space
O1	Located south of Princes Highway, west of Warrigal Road and north of the railway line, the dominant land use in this gap area is residential. There is no existing open space in this gap area, and adjoining areas of open space are not easily accessible due to major physical barriers including major roads and railways. The only two school sites in this gap area are private schools and they do not provide any ancillary open space use as they are closed out of school hours.
O2	Located south of Princes Highway and west of the Oakleigh Library and shopping precinct, the dominant land use in this gap area is residential. The nearest type of open space is a Municipal open space (D W Nicoll Reserve) and Neighbourhood open space (Warrawee Park) to the west of the gap area. These open spaces are further than safe walking distance, however can be reached via the local street network without any major physical barriers to access.
O3	West of Warrigal Road, north of North Road and south of the railway line, the dominant land use is residential, with Sacred Heart Girls College to the north and Hughesdale Primary School to the west that provide some ancillary open space out of school hours. These schools visually contribute to the open space character but do not provide ancillary open space use as they are fenced from public use. Outside of the gap area is a Municipal open space (Argyle Reserve) to the south west and a Neighbourhood open space (Galbally Reserve) to the

Gap area	Existing gaps in distribution of any open space
	north. These open spaces are further than safe walking distance, however can be reached via the local street network without any major physical barriers to access.

Oakleigh-Huntingdale

Gap area	Existing gaps in distribution of any open space
O4	Bounded by the railway line and North Road, the dominant land type in this gap area is residential. The nearest type of open space to the gap area is a Local open space (Cambridge St Reserve) to the north. This open space is further than safe walking distance, however can be reached via the local street network without any major physical barriers to access.
H1	Bounded by Huntingdale Road, North Road and Princes Highway, the dominant land use is industrial to the south along North Road and retail/commercial land use surrounding the Huntingdale Station. The nearest type of open space to the gap area is one Local open space (Vernon St Reserve). This open space is to the north of the gap area and is located between a roadway with grassed areas and some revegetation areas. This open space is further than safe walking distance, however can be reached via the local street network without any major physical barriers to access.
H2	Located to the west of Clayton Road and north of Princes Highway, the dominant land use in this gap area is residential. Outside the gap area there are two Small Local open spaces to the north (Strelde Ave Reserve) and north west (Baynton St Reserve). These open spaces are further than safe walking distance, however can be reached via the local street network without any major physical barriers to access.

Oakleigh South

Gap area	Existing gaps in distribution of any open space
OS1	Located east of Warrigal Road, south of North Road and west of Golf Road, the dominant land use in this gap area is retail/commercial use to the north west and residential use adjacent to the Metropolitan Golf Course. The nearest open space is a Neighbourhood open space (Stan Riley Reserve) to the south. This open space is further than safe walking distance, however can be reached via the local street network without any major physical barriers to access.
OS2	Bounded by North Road, Huntingdale Road and Centre Road, the dominant land use is Huntingdale Golf Course which visually contributes to the open space character of the area. Huntingdale Primary School is located to the north, South Oakleigh Primary School and South Oakleigh Secondary School are located to the south, which provide ancillary open space with informal access after hours and the grounds visually contribute to the open space character of the area.
OS3	Bounded by North Road and the railway line, the dominant land use in this gap area is industrial and the Army Barracks. There is currently no open space within or nearby this gap area.

Wheelers Hill

Gap area	Existing gaps in distribution of any open space
W1	<p>Located south of Waverley Road and east of View Mount Road, the dominant land use in this gap area is low density residential. To the south of the gap area is a Local open space (View Mount Ave Reserve) and while further than safe walking distance it can be reached via the local street network without any major physical barriers to access.</p>
W2	<p>Bounded by Ferntree Gully Road to the north, Springvale Road to the west and the Monash Freeway to the south, this gap area includes Brandon Park Shopping Centre, Monash Special Development School, Good Shepherd Parish Primary School and a section of Melbourne Water Pipe Track. The Primary School visually contributes to the open space character but does not provide ancillary open space as it is fenced from public use. The Melbourne Water Pipe Track runs from Good Shepherd Primary School to Brandon Park Drive but is fenced from public access at both ends. The nearest open space is a Small Local open space (Jacaranda Rd Reserve) to the east and is further than safe walking distance, however can be reached via the local street network without any major physical barriers to access.</p>
W3	<p>Located north-west of the Monash Freeway, the dominant land use in this gap area is residential. Brandon Park Primary School is located to the north which contributes to some ancillary open space outside of school hours and visually contributes to the open space character of the area. Outside of the gap area is a Small Local open space (MacKellar Ave Reserve) to the north west. This open space is further than safe walking distance, however can be reached via the local street network without any major physical barriers to access.</p>

4.4 Quality of existing open space

4.4.1 Overview

The quality and character of open space is extremely important as it influences whether the open space is well used, appreciated, contributes to the character of the neighbourhood and meets its intended function and use. There are no standards for the quality and character of open space and each one is influenced and formed by a range of factors including its size, form, use, position, design and history. These factors are considered in the context of whether the reserve is meeting the community's needs - both health and wellbeing and intangible qualities of open space, that have been identified as important by the community.

The main methods used to gather data on the quality of open space are the site assessments, background research and the open space survey outcomes (Stage Two of the Strategy), with the combined results influencing the quality assessment of open space. The outcomes of the survey (Stage Two of the Strategy) will add significant value to the future direction for open spaces within each suburb and allow the Strategy to differentiate works required to meet the needs of the existing population and those for the forecast future population.

Quality refers to the adequacy of access, design and infrastructure for its intended purpose along with the management of uses and the maintenance of the open space.

In Stage Two of the Strategy project, the quality of open space will be reviewed in the context of site assessments, community consultation and the forecast future population change. Where the quality of the open space is considered to be adequate, no specific recommendations will be made for its upgrade or change. The Strategy will assume that there will be an ongoing open space maintenance and renewal program to replace infrastructure when it is beyond its useable life. Where the quality of an existing open space is assessed to be inadequate to meet the existing and forecast population needs, the Strategy will make recommendations for upgrading the open space.

4.4.2 Brief summary of the existing open space character in Monash

Topography, historical periods of urban development and urban context significantly influence the open space character in Monash. The Dandenong Creek flanking the eastern boundary of the city provides the largest Regional open space corridor in the municipality and contributes a diversity of spaces and characters to the network. This spine is strengthened by the presence of the large open space corridor on the eastern side of Dandenong Creek in the City of Knox, which in combination forms the regional Dandenong Valley Parkland system. Shared paths connect through to the north and east to the Dandenongs and downstream to the centre of Dandenong. Other smaller waterways in the northern parts of the municipality provide linear open space corridors with bushland and nature conservation characters.

The northern parts of the municipality respond to the undulating topography, being located both along waterways and in elevated locations. Many of the large reserves away from the waterways have a sporting character, with sports fields and associated sports facilities, lighting, relatively new or refurbished pavilions, sealed carparks and mature trees planted to the perimeter of the reserves. Many of these have some limited informal facilities including playgrounds and seating. Examples of this type of open space include Jordan Reserve, Pinewood Reserve and Capital Reserve.

The south western parts of the municipality are gently undulating by comparison with the north, without defined waterway corridors. Overall there is less open space, however there is a greater diversity of character within the Municipal and Neighbourhood open space network other than sporting use. The diversity includes open spaces with heritage character such as Brickmakers Park, spaces with an informal character such as Talbot Park, and spaces with a public garden character such as Warrawee Park.

Investigations into future growth and population, and survey results undertaken during Stage Two of the Open Space Strategy, will assist in identifying the demand for the type and quantity of open space in the south and south west of the municipality, where open space is currently sparse and or difficult to access due to road and train line barriers.

During this Stage One of the project, there has only be scope to assess the Regional and Municipal open space, and during Stage Two the Neighbourhood, Local and Small Local open space will be assessed at the precinct level. These smaller spaces offer diversity in the open space network and complement the larger spaces where often the structured sporting needs dominate, due to the need for larger land area for sports fields.

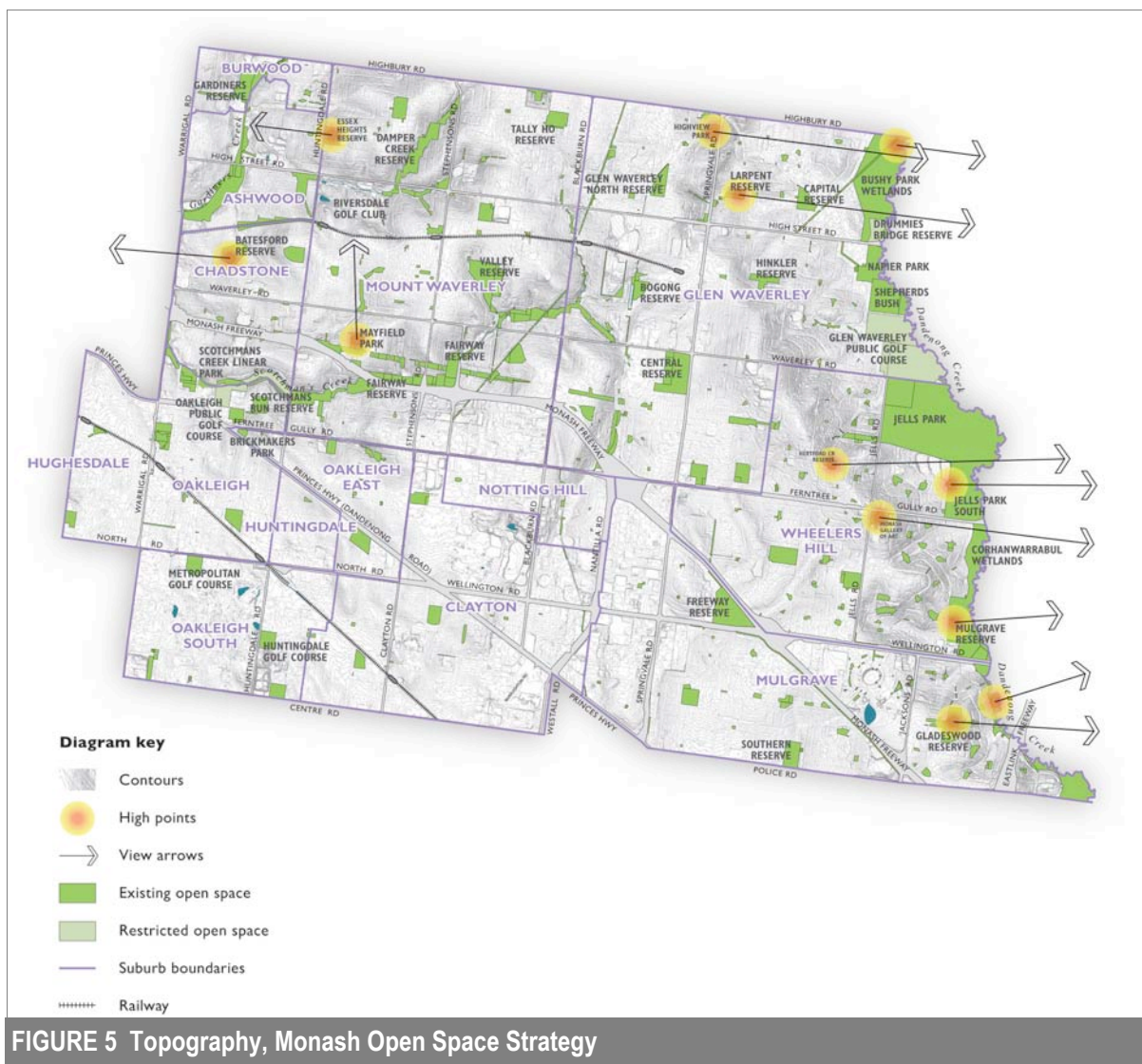
4.4.2a Topography

The City of Monash has a defined ridgeline which extends from the north east in Glen Waverly in a south easterly direction towards Mulgrave. The northern suburbs of Burwood, Ashwood, Chadstone and Mount Waverley are comprised of steep rises and valley's, primarily along Gardiners Creek and Damper Creek. These waterways are key topographic features, with adjoining open space being mainly located along waterway valley lines forming linked linear open space reserves.

This defined rise and fall of topography provides visual interest and diversity in the open space reserves providing elevated views. Some of these key views are illustrated on Figure 5. Some of these elevated reserves include Highview Park, Larpent Reserve, Hertford Cres Reserve and Gladeswood Reserve, all of which provide views to the east towards the Dandenongs. Essex Heights Reserve and Batesford Reserve offer views west towards the Melbourne city skyline.

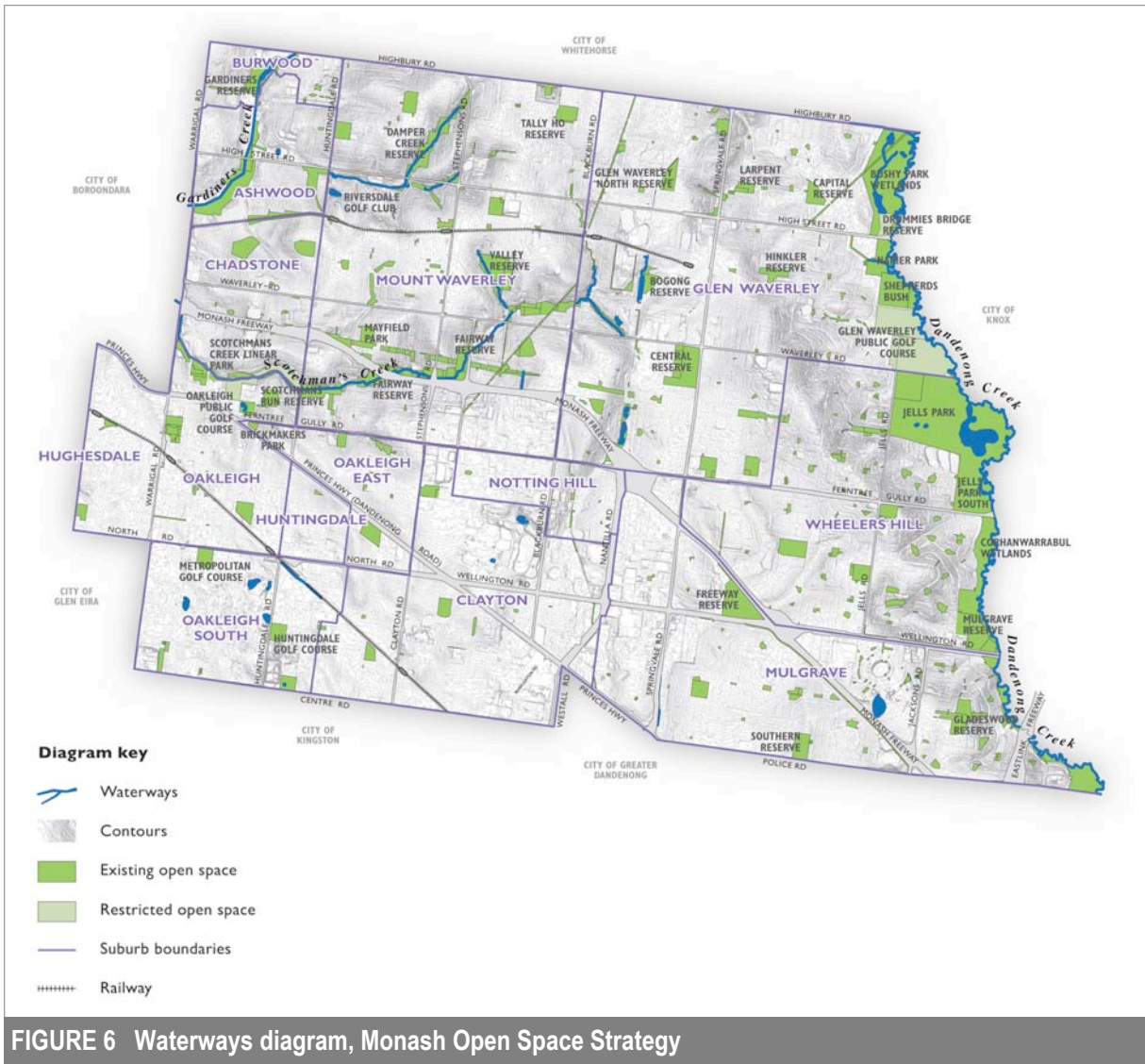
The land is gently undulating within the suburbs of Hughesdale, Oakleigh and Huntingdale. It is relatively flat through the middle and southern parts of the municipality across Notting Hill and Clayton, making it suitable for the larger scale

industrial and non-residential land use. These areas do not have the defined waterways like those located further north, and therefore the linear systems of open space have not historically been set aside through this part of the municipality.



4.4.2b Waterways

The Dandenong Creek forms the eastern boundary of the municipality providing a highly valued natural environmental corridor and a linked regional system of open space. The Dandenong Creek flows north south and extends well beyond the municipal boundaries, flowing from the Dandenong Ranges to the north east and extending downstream through Dandenong and out to Port Phillip Bay. The regional network of open space reserves and shared trail system provides access to a much broader network of trails. The Dandenong Valley Parklands to the east of Dandenong Creek (within the City of Knox) are of regional conservation significance, with the Dandenong Creek providing important remnants of local native vegetation communities and associated flora. These areas provide habitat for a wide range of bird species including internationally significant Ramsar and Lamba species.



Scotchmans Creek flows from the ridgeline that separates the Dandenong Creek and Yarra River catchments in Glen Waverley in a generally westerly direction to Gardiners Creek, which flows in to the Yarra River. The system of open space reserves along the valley line includes some remnant bushland areas and recreational reserves including the Scotchmans Creek Linear Park and Oakleigh Public Golf Course.

Damper Creek is another tributary to Gardiners Creek and flows from the north western part of Mount Waverly near Stephenson's Road in a south westerly direction to join Gardiners Creek downstream of High Street Road, in Ashwood Reserve. The main stem of Gardiners Creek flows from the larger catchment upstream in the City of Whitehorse, through Burwood and Ashwood in a south easterly direction. The section of Gardiners Creek through Monash is contained in a trapezoidal concrete channel and is fenced from access due to high flow velocities and safety. Gardiners Creek flows under Warrigal Road and continues in the south westerly direction through the Cities of Stonnington and Boroondara to its confluence with the Yarra River in Hawthorn.

As an overview, significant areas of the existing open space network are located along the waterways, particularly Dandenong Creek. Areas of indigenous vegetation and bushland are present along the waterway corridors, and other areas of significant remnant indigenous vegetation are located through the municipality.

The Dandenong Creek is within an area of Cultural Heritage sensitivity. Gardiners Creek, Damper Creek and Scotchman's Creek have lower Aboriginal archaeological sensitivity due to previous disturbance in the area. Melbourne Water is the management authority for the bed and banks of the waterways in Monash. Council assists with bed and bank revegetation and manages the majority of open space adjoining the creeks.

Along the Dandenong Creek, Council manages some of the large reserves and one public golf course, Glen Waverley Public Golf Course, while Parks Victoria manages Bushy Park Wetlands, Shepherds Bush Reserve, Jells Park and the Corhanwarrabul Wetlands. Refer to Figure 6.

A number of Agencies are responsible for different parts of the open space corridor along Dandenong Creek, Gardiners Creek and Scotchmans Creek. In some locations this results in discontinuity of trails and management directions, resulting in a disjointed corridor in some locations. Stage Two of the Strategy will identify this issue and develop recommendations to address the gaps and lack of continuity in management approach and standards in the future.

4.4.2c Sporting reserves

Monash has an excellent distribution of major sporting reserves across the municipality to both the north and south of the Monash Freeway. The character classification system for Monash includes sporting as the primary character type for at least one Municipal open space in each suburb of the municipality. These are illustrated in Figure 6.

There are a total of approximately 125 open space reserves used for sport and recreation purposes including walking, cycling, cricket, football, soccer, rugby, bocce, croquet, archery, baseball, athletics, fitness training, dog obedience training, school sport and informal social activities. Only the reserves where sporting use rather than unstructured recreational use is dominant have sporting as the Primary character classification. Just over 50% of the total Municipal open space has Sporting as the Primary character classification, and 35% of the Regional open space is either Restricted Sport and Recreation or Sporting. In some reserves, Sporting has been allocated as a Secondary character classification, particularly where the dominant use or character may be Informal recreation or Nature conservation.

In previous community consultation undertaken by Council, it was noted that there is a growing demand for unstructured recreational activities and Council will be addressing these opportunities in the future. It was also noted that a number of the structured sporting facilities are at capacity and require upgrade and improvement.

Many of the open space reserves with Sporting as the Primary character lack a diversity of other unstructured recreational facilities. Examples include Meade Reserve, Brentwood Reserve and Capital Reserve. In some of these reserves where informal facilities are included, their siting and design did not encourage neighbourhood use - with their design and layout being designed primarily for arrival at the park by vehicle rather than encourage pedestrian and cycle path access for the local community.

Stage Two of the Open Space Strategy will further analyse of the open space network to identify locations where unstructured recreation can be encouraged and additional facilities provided to complement the structured sporting use.

Stage Two of the Strategy will also take into consideration the forecast future population change including, changes in demographics and population numbers to inform the future provision and design of open space. Figure 7 below illustrates the current distribution of major sporting reserves across the municipality.

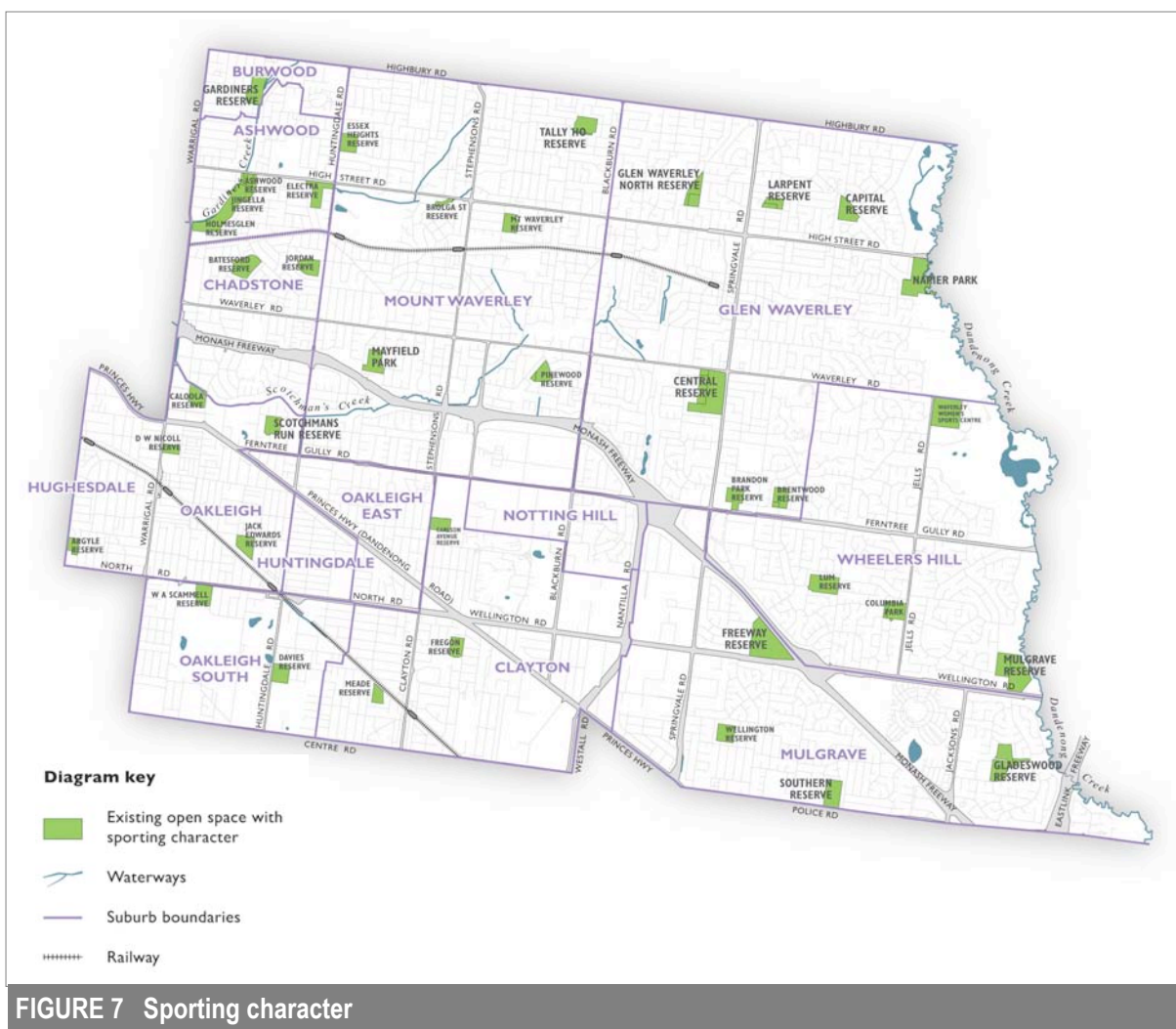
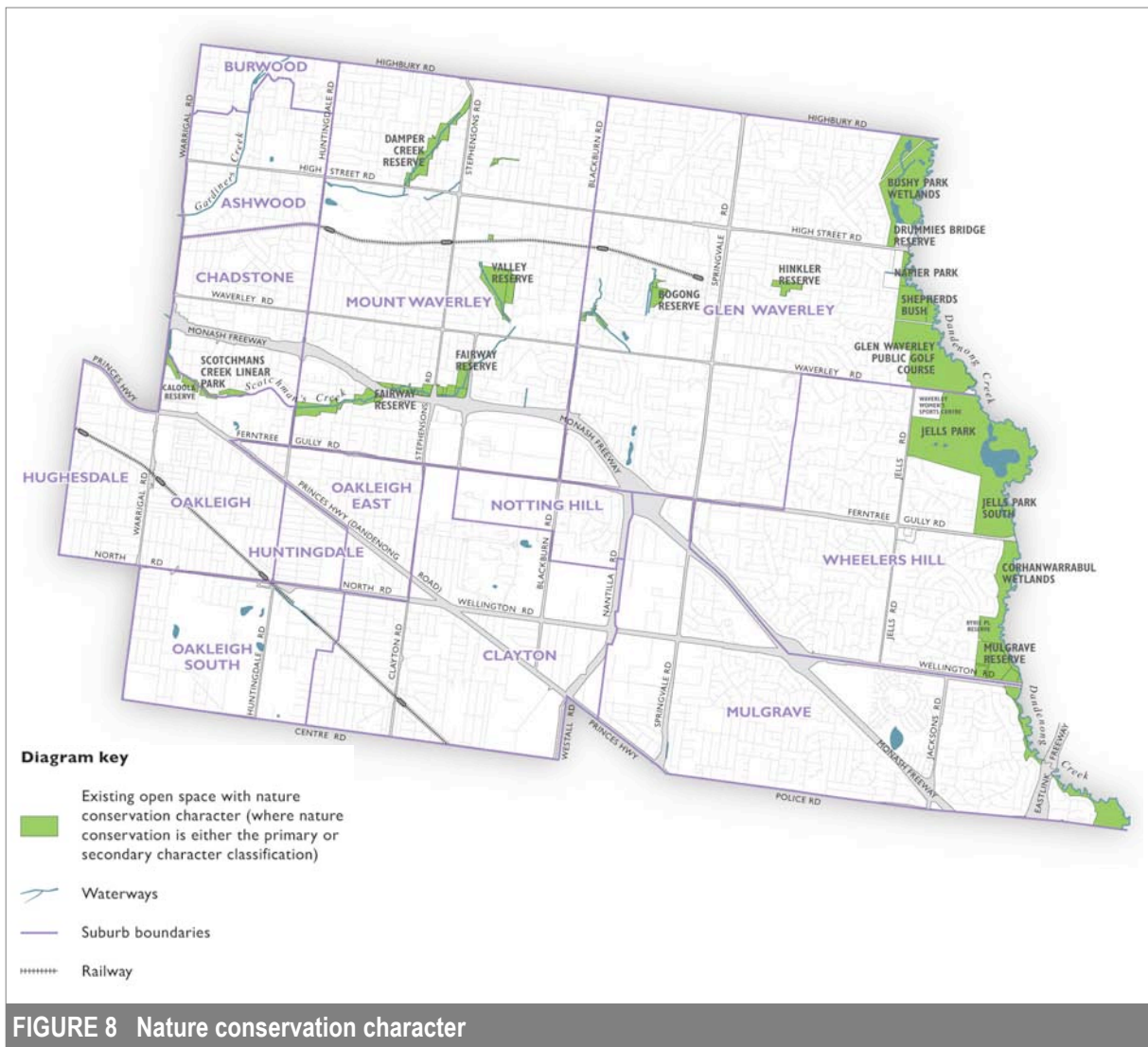


FIGURE 7 Sporting character

4.4.2d Nature Conservation reserves

Monash has a number of existing Regional open spaces in the east located primarily along Dandenong Creek, where nature conservation is a key influence on open space character and values. A number of Municipal open spaces with Nature conservation as the Primary character classification are located in Mount Waverley and Glen Waverley, with remnant indigenous vegetation as described in the *Bushland Reserves Management Strategy* (2006). Nature conservation as the Primary character classification has been attributed to 19 reserves across the Municipality identified in this Strategy. These include Damper Creek Reserve, Valley Reserve, Bogong Reserve and sections along the Scotchmans Creek Linear Park. Additionally to these are some open space reserves adjoining the Dandenong Creek and Damper Creek. These are shown in Figure 8.



In the south-west part of the municipality Nature conservation has not been identified as a Primary character classification for any reserves. Talbot Park in Oakleigh South and Brickmakers Park in Oakleigh have WSUD landscape treatments and planted areas of native and indigenous vegetation which provides some biodiversity character and value within the open space, however this is not their Primary character.

Stage Two of the Strategy will assess the smaller areas of open space and this may add to the network of open space with Nature conservation as its Primary classification. Stage Two will also identify if there are open spaces with the potential to improve their nature conservation values with the aim of adding them to the network in the future.

4.4.4e Linear reserves

Monash has over 50 kilometres of off-road walking and cycling pathways and trails, many of which are located in open space. The most extensive system of linear open space is the Dandenong Creek, forming the eastern boundary of the municipality. There is potential to improve the open space connectivity along the Dandenong Creek corridor for both biodiversity and recreational values. Scotchmans Creek, Gardiners Creek and Damper Creek provide linked systems of open space along the valley lines in the western parts of the municipality.

Scotchmans Creek is a major waterway corridor flowing east to west through the centre of the municipality. Although more highly modified than the Dandenong Creek, there are extensive biodiversity and recreational values along this linear open space corridor including some more recently constructed water quality treatment wetlands, and the Valley Reserve remnant bushland.

The environmental and recreational connectivity along Damper Creek is excellent in the sections upstream of Stephenson's Road through to High Street Road. Through the Riversdale Golf Club, the creek has been highly modified as part of the golf course landscape, and downstream from there it has been piped through the remaining sections to Gardiners Creek. A habitat corridor continues with planted and some remnant vegetation remaining through open space reserves downstream.

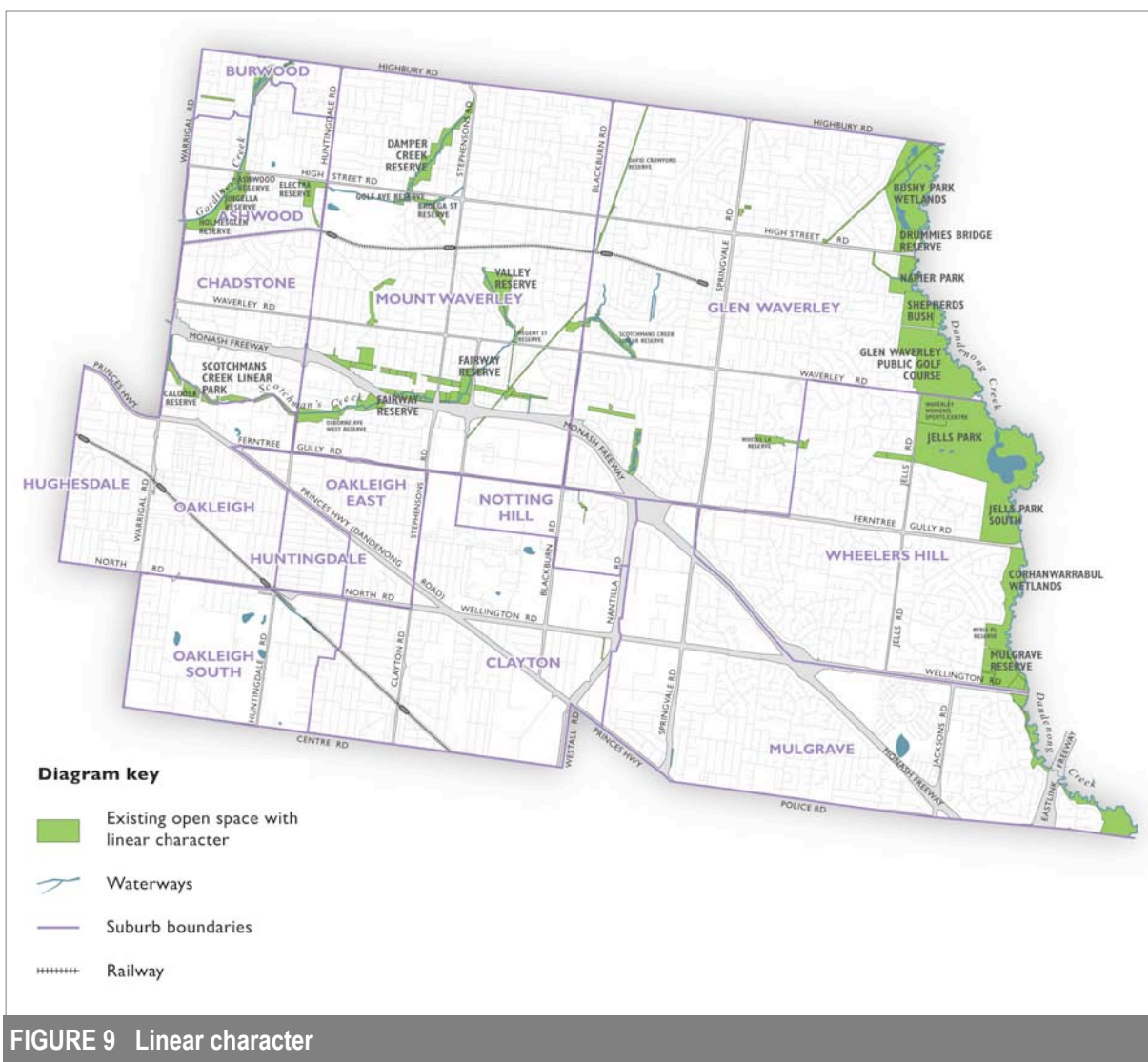
The Monash Freeway forms a major physical barrier between the north and south of the municipality. The Princes Highway and Cranbourne and Pakenham railway line dissect the east-west and north-south major road grid across the municipality. These major roads and railway lines form barriers to safe and connected walking and cycling links within the municipality.

In addition to the shared trails through the open space network, a system of shared trails extend along some of the major road reservations including north along Wellington Road in Wheelers Hill and south of the Monash Freeway in Mulgrave. These contribute to the overall walking and cycling network within the south eastern suburbs.

Service easements include the Melbourne Water Pipe Tracks and the Transmission Line easements. These service easements equate to only a small proportion (approximately 9%) of the total area of Municipal open space land. The Melbourne Water pipe tracks are generally long linear grassed verges, bounded by rear boundary fences with standard Melbourne Water signage and maintenance access gates where the pipeline intersects a roadway. Although very steep in sections through Mount Waverley, the pipe tracks currently do and have the potential to provide improved open space linear links.

Stage Two of the Strategy will identify issues and opportunities associated with the linear open space network, including opportunities for improved links and connections identified where required, consistent with the *Monash Walking and Cycling Strategy*. This strategy has recommended completing gaps along the Scotchmans Creek Trail, providing direct on-road and off-road routes to Jells Park, Chadstone Shopping Centre, Monash University and Holmesglen TAFE as high priorities. Links to these major trails from local neighbourhoods and from other major trail networks have also been highlighted as priorities.

Figure 9 below shows some of the preliminary linear open space reserves in Monash.



Drawings

Drawing No.	Description
MNOSS-01	Existing Open Space (Draft) October 2013
MNOSS-02	Open Space Hierarchy Plan (Draft) October 2013
MNOSS-03	Open Space Gap Analysis Plan (Draft) October 2013

APPENDIX A

Background document review Stage One Monash Open Space Strategy

Prepared for City of Monash by TBLD P/L
October 2013

1. Relevant State government strategies and policies

1.1 Melbourne 2030 (2002) and Melbourne @ 5 Million (2008)

Key directions and policies in *Melbourne 2030* which relate to open space planning include:

- A more compact city - including building up activity centres as a focus for high quality development, activity and living for the whole community, and locate a substantial proportion of new housing in or close to activity centres
- A greener city - including consideration of protecting biodiversity values in open space, sustainable water use, improve water quality in receiving waterways, reduce greenhouse gas emissions
- A great place to be - including improve the quality and distribution of local open space and ensure long term protection of open space, rectify gaps in the metropolitan open space network, promote attractive, walkable, diverse and safe neighbourhoods, improve environmental health of catchments and protect heritage places and values
- A fairer city - including increase access to recreation and social services and infrastructure
- Better transport links - give more priority to cycling and walking and promote the use of sustainable personal transport options.
- The Parklands Code, Strategy 5.6 which includes an overall direction for diversity of open space hierarchy, character, and acceptable walking distances to open space
- Activity Centres including:
 - Principal Activity Centre - Glen Waverley
 - Major Activity Centres - Clayton, Mount Waverley, Oakleigh
 - Specialised Activity Centres - Monash University/Health Research Precinct Clayton

A key feature of metropolitan planning policy is to limit outward expansion of Melbourne's growth, especially into the green wedges, by increasing housing in the established urban areas in and around strategic redevelopment sites and

activity centres, and managing housing in dispersed residential locations by incremental change. *Melbourne 2030* assumed a population increase of over 1 million to 2030. Due to higher than anticipated population growth, these figures have been superseded in *Melbourne @ 5 Million*, which was released in 2008.

Melbourne @ 5 Million uses accelerated population increases compared to *Melbourne 2030*. The previous projection of over 1 million people is anticipated to occur by 2020, not 2030. Under this scenario about half are planned to be accommodated in established areas. To manage this growth and preserve livability, the focus will be on locating more intense housing development in and around activity centres, along tram routes and the orbital bus routes on the Principal Public Transport Network in areas close to train stations.

Implications for the open space strategy

The principles and directions provided in *Melbourne 2030* in relation to open space are consistent with directions for open space planning that are reflected in other Victorian government guidelines and documents.

1.2 Melbourne Let's Talk About the Future

Department of Planning and Community Development, 2012

The Melbourne Metropolitan planning strategy is currently under review. A discussion paper has been released for government, industry and community comment. This Discussion Paper has been prepared by the Ministerial Advisory Committee for the Melbourne Metropolitan Planning Strategy.

Key principles relevant to open space planning in the discussion paper for a future Melbourne include:

- Principle 1: A distinctive Melbourne
Throughout its history Melbourne has responded to new challenges and opportunities by building on the best of its past, looking to the future and developing its own unique identity.
- Principle 3: Social and economic participation
Social issues affect a person's capacity to contribute to the economy and community. Melbourne should continue to provide opportunities and capacity for residents to build a good life.
- Principle 4: Strong communities
Connection to family, friends and neighbours across generations is important in building strong communities and promoting wellbeing.
- Principle 5: Environmental resilience
Melbourne needs to be able to respond to changing environmental and climate conditions and ensure development does not undermine natural values.

The paper recognises that open space has an important role in creating local identity and character, contributing to the economic vitality of the municipality, encouraging social connectedness and participation in community activities and healthy living, preserving native vegetation, and strengthening environmental resilience as climatic conditions change.

Other key points relevant to open space include:

- Recognise suburban job clusters that are nationally significant places of economic activity and innovation; these can drive economic growth and urban renewal.
- Aim for a “20 Minute” city – accessible, safe and attractive local areas where people can meet most of their needs.
- With an increasing population in outer suburbs and growth areas, parts of Melbourne’s established suburbs are well-placed to play a greater economic and housing role.
- Infrastructure investment including open space will be needed with urban growth.
- Use open space as places to preserve native vegetation.
- Improve the environmental performance of Melbourne’s suburbs.

1.3 Report on Climate Change and Greenhouse Gas Emissions in Victoria

Department of Sustainability and Environment, 2012

Greenhouse gas emissions

The *Climate Change Act 2010* recognises that Victoria's climate is changing and it prescribes a biennial report on climate change and greenhouse gas emissions in Victoria and this is the first of these. The Act sets a target of a 20 per cent reduction in greenhouse gas emissions measured against the levels in year 2000. For the period of 2000 to 2009 (the period reported in this report), overall the greenhouse gas emissions for Victoria grew by 0.9%. This varies across different sectors, with some increasing and others decreasing as follows:

Sector	Proportion of Victoria's total GGH emissions	% change between 2000 and 2009
Energy industries	68.7%	+ 4%
Transport (excl. metro train & trams)	15.7%	+ 4.7%
Agriculture	10.7%	- 14.5%
Industrial process	2.6%	+ 58%
Waste	2.4%	- 6%

Energy industries and transport are proportionately the largest greenhouse gas emission sectors, so targeting a reduction in power use and reliance on private vehicle transport in this open space strategy will assist meeting the overall 20 per cent reduction target for Victoria.

Carbon stored in Victoria's public land

- Living vegetation and soil both store carbon and remove emissions from the atmosphere. Victoria is the first state to model the amount of carbon stored in public forests, parks and reserves using the National Carbon Accounting System.
- Modelling shows that land carbon tends to be greater in places of high rainfall. The model also shows the impact of recent fires on reducing the carbon

stocks in comparison to unburnt areas. Overall the average carbon stock on public land in Victoria is approximately 717 million tonnes of carbon. It also suggests that the year after the Black Saturday fires in 2009, the carbon store was reduced to approximately 680 million tonnes.

Climate change

- The Intergovernmental Panel on Climate Change 2007 assessment concluded:
 - the average global temperature has warmed and is continuing to do so
 - most of this is very likely caused by greenhouse gas emissions arising from human activity
 - continued greenhouse gas emissions at or above the current level will very likely cause further warming and result in many more changes to the global climate system.
- Since 1910 the Victorian average annual mean temperature has increased by 0.87°C.
- The frequency and severing of very hot temperatures has increased, and the frequency and severity of very cold temperatures has decreased since the beginning of the 20th century.
- The 13 year drought from 1997 to 2009 is considered the worst drought on record for south-eastern Australia.
- The extreme heat during the 2009 heat wave had severe impacts on human health and critical infrastructure in Victoria.
- The annual average rainfall is likely to decrease, predominantly in winter.
- The changes in climate may result in substantial increases in the frequency of very high fire danger days and sea level rise of 0.5 to 1.1 metres by 2100.
- Likely to see stream flow reductions.
- The extent and frequency of droughts in Victoria may more than double by 2050.
- The number of days over 35°C in Melbourne may increase.
- Fewer and heavier rainfall days and more consecutive dry days.

Implications for the open space strategy

The predicted changes to climate will have a direct impact on the future design, management and maintenance of open space in the municipality, and can play a positive role in contributing to greenhouse gas emission reductions.

1.4 Cycling into the future 2013-23

Department of Planning and Community Development, 2012

The plan recognises there has been a strong growth in cycling over the last 10 years with more than 1.08 million Victorians riding a bike each week. Cycling is the fourth most popular recreational form of exercise and increasingly people are commuting to work. The positive benefits of cycling are outlined including improving the health of Victorians, contributing to liveability by improving accessibility in local areas, reducing congestion on the roads and public transport, and contribute to reducing greenhouse gas emissions by encouraging people to travel by bike rather than by car.

The strategy aims to develop a more coordinated and strategic approach to cycling that responds to the diversity of cycling needs. It brings together the planning for the Principal Bicycle Network and the Metropolitan Trail Network together to help target investment and programs. The Government has recently released the updated Principal Bicycle Network in November 2012.

Implications for the open space strategy

The updated Principal Bicycle Network plan will be noted in the open space strategy.

1.5 Linking People and Spaces (2002)

In parallel with *Melbourne 2030*, Parks Victoria has prepared *Linking People and Spaces*, a strategy and vision for the continued growth and improvement of our open space network across Melbourne. *Linking People and Spaces* provides a strategic context for long-term planning and management of open space within the metropolitan region. Although *Linking People and Spaces* is strongly focused on meeting the recreational needs of Melbournians, it also considers the environmental priorities identified in Victoria's Biodiversity Strategy and the *Port Phillip and Westernport Native Vegetation Plan*.

Implications for the open space strategy

The priorities and directions for metropolitan open space in Monash - including Jells Park will be incorporated into the open space strategy where relevant.

2. City of Monash strategies and reports

2.1 Monash 2021 "A Thriving Community"

Prepared by the City of Monash, 2011

Brief summary of relevant information

- Monash 2021 is a long-term strategy that identifies goals for the future, informing the Council Plan. A snapshot report will be prepared every three years.
- *A thriving community now and in the future* is Council's vision for the City of Monash. This vision has four primary areas of focus:
 - *A fair and healthy community*
 - *A planned and connected city*
 - *An inclusive and safe community*
 - *A green and naturally-rich city*
- Under the area of '*A green and naturally-rich city*', the community value:
 - *A clean, green community environment*
 - *Reserves and wetlands*
 - *Open space, revegetated bushlands and tall trees*
 - *Walking and cycling paths*
 - *Tree lined streets*
- Other relevant information includes:
 - The document contains some key milestone projects since the City of Monash was formed in 1994. This includes the establishment of galleries, netball centre, bicycle network and Gardiners Creek wetlands.
 - The original inhabitants of Monash were the Bunurong people, one of four tribes that made up the Kulin Nation.
 - European settlement was first recorded in 1839 near Jells Park.

Implications for the open space strategy

The community vision will guide the development of the draft vision and principles for the Open Space Strategy.

2.2 Draft Council Plan 2013-2017 (Draft)

Prepared by the City of Monash

Brief summary of relevant information

- The Draft Council Plan 2013-2017 (Draft document) is a four year plan which outlines the direction for its priorities.
- The Councillors' vision for Monash is '*An inviting city, diverse & alive with activity, designed for a bright future*'.
- Summary of key statistics about Monash as at 2012:
 - Estimated 177,970 residents living in 65,000 dwellings
 - More than 45% of residents are from more than 45 countries
 - Skilled and well-educated workforce
 - Diverse and cosmopolitan city

- High proportion of residents aged over 64
- Remains a desirable place for families due to the leafy character, schools and tertiary institutions and a broad range of sporting, recreation and community facilities.
- The Key Directions are:
 - *Ensuring our city has inviting places and spaces*
 - *Achieving a healthy and active Monash*
 - *Fostering confident connected communities*
 - *Taking action for our future*
- Relevant Community Outcomes for open space:
 - *Enhanced parks, open spaces and trails across Monash*
 - *Increased use of the parks, spaces and leisure facilities*
- The first Strategic Direction to ensuring Monash has inviting places and spaces has identified the need for the following strategies:
 - *Review the accessibility and quality of public open spaces across Monash - for development of a new Public Open Space Strategy for Monash*
 - *Improvements to walking and cycling trails, including connections between existing public open spaces and links to activity centers*
 - *Further develop amenities and facilities within parks and reserves*

Implications for the open space strategy

The council vision and priorities will inform the development of the draft vision and directions in the Open Space Strategy.

2.3 Physical Activity Plan 2010-2015

Prepared by the City of Monash

Brief summary of relevant information

- This plan supports a sustainable and healthy future for Monash, and requires action to encourage more residents to become active more often.
- Recreation and sporting activities in Monash include walking, cycling, cricket, football, soccer, rugby, bocce, croquet, archery, baseball, athletics, fitness training, dog obedience training, school sport and informal social activities.
- Consultation was undertaken to better understand sport and recreation needs and aspirations of the community. This led to preparation of two plans - the Physical Activity Plan which focuses on unstructured passive recreation activities such as walking, cycling, swimming and dog walking, and the Active Reserves Strategy which focuses on structured sport.
- The community consultation undertaken for the plan included survey of 5,000 households. Over 1,000 surveys were completed and results indicate:
 - There is a growing demand for increased casual physical activity opportunities, including those that are unstructured and noncompetitive in nature. The top seven activities including walking, swimming, fitness, cycling, tennis, golf and running share a common characteristic; they can be performed in an unstructured setting and without the need for organized competitions.

- Changing lifestyle patterns resulting in many individuals having little time for recreation, and individual schedules being incompatible with organised activities.
- Climate change and energy use are of concern to the community. This may restrict access to and levels of use of some open space in the future.
- There is an increasing demand for a greater range of recreation opportunities. The emergence of “pay as you play” sporting competitions has increased in popularity.
- Key Recommendations of the Physical Activity Plan include:
 - Form partnerships with existing community organisations including walking and cycling groups to increase opportunities for residents to become active.
 - Identify partnership organisations to build on or establish new physical activity programs.
 - Consider upgrading the Glen Waverley Skate Park at Central Reserve.
 - Undertake a feasibility study for the development of a significant playground in Monash.
 - Establish an ‘Active Monash’ brand.
 - Provide additional resources for the development and maintenance of supporting infrastructure at parks and reserves to enhance passive recreation opportunities.
 - Review existing walking and cycling strategies to enhance active transport opportunities and linkages.
 - Develop an over-arching public space action plan that provides guidance for future infrastructure development at Council’s parks and reserves.
 - Commence the development of outdoor fitness equipment at two key parks.
 - An increase in masters programs is being experienced by a number of sports as people return to interests that may have been deferred as a result of family or work. Open spaces and community venues will become crucial facilities for older adults for gentle exercise, casual recreation and social activity.

Implications for the Open Space Strategy

The recommendations will inform the overall analysis of sport and recreation activity and use of open space in the strategy.

2.4 Active Reserves Strategy Stage 1

Prepared by the City of Monash, 2010

Brief summary of relevant information

- The Strategy provides direction for the future provision of sport and sporting facility development within the municipality.
- Stage 1 of the Strategy focuses on the licensed clubs at sporting fields and addresses issues in relation to carrying capacity and facility development.
- Main trends across most sports were an increase in junior participation, the introduction of new modified games and an increasingly narrow focus on master’s competition.

- The Strategy provides direction on a range of sport related issues including:
 - Carrying capacity
 - Sporting precincts and hubs
 - Synthetic surfaces
 - Warm season games
 - Lighting
 - Storage
 - Water harvesting
 - Joint funding
 - Club development and planning
 - Social connectedness.

Implications for the Open Space Strategy

This Strategy will inform the future stages of the open space strategy in relation to the expansion of facilities in major reserves, the integration of non-sporting infrastructure in the open space, and consideration of specific issues such as additional facilities in the context of the broader open space network.

2.5 Active Reserves Strategy Stage 2 Draft

Prepared by the City of Monash 2010

Brief summary of relevant information

- The *Active Reserves Strategy 2010-2015 (Stage 1 and 2)* provides an overview of the needs of existing sports clubs and guides the future provision of sport and sporting facility development in Monash.
- Stage 2 Strategy primarily looks at Council's leased sport and recreation facilities to document their use, identify the potential trends and growth patterns of tenant clubs/groups, establish the existing and future needs and requirements of clubs at these facilities, identify where usage areas can be improved and develop recommendations in relation to capital works.
- The following are brief summaries of key outdoor sports, the current sporting grounds/venues and the sports/venues future requirements relevant to open space:
 - Tennis
Total of 99 courts across 28 tennis venues (17 on venues are on council owned or controlled land). Benchmarking indicates that Monash has a below average rate of court provision in relation to the population base and higher rates of membership per venue and court.
 - Bowls:
Five venues (four venues on Council owned or controlled land and one private venue being the Mulgrave Country Club). Existing clubs have capacity to meet demand.
 - Golf
Two public and three private golf courses. Existing courses and clubs have the capacity to cater for future demand.

2.6 Sport and Recreation in Monash 2010-2015

Prepared by the City of Monash

Brief summary of relevant information

- The document is an overview summary paper of the other more detailed strategies for sport in the municipality. It outlines why Monash is a great place to get active, Council's planning for the future, Council's aspirations and principles, and how the framework links with the bigger picture for Monash.
- The document notes a healthy and sustainable future for Monash requires action to encourage more people to become more active more often, and the importance of and the need to build active communities.
- Vision is to create inclusive environments, programs and facilities that reflect the values of the community and empower people to live a more healthy and active lifestyle.
- The plan aims to encourage those who are least likely to participate, encourage inactive people to participate, enhance opportunities for those who are already active and encourage life-long participation.
- Council has developed a new Active Monash brand to increase awareness and encourage residents to proactively participate in physical activity. It is an integrated branding tool for the Monash Aquatic and Recreation Centre, Oakleigh Recreation Centre, Clayton Aquatics and Health Club, Oakleigh and Glen Waverly golf courses, active reserves and parks, running and cycling paths and recreation programs.

Implications for the Open Space Strategy

Refer to the Active Reserves Strategy Stages 1 and 2 and the Physical Activity Plan 2010-2015

2.7 Monash's Walking and Cycling Strategy

Prepared by the City of Monash

Brief summary of relevant information

- Council is committed to a city that is walking and cycling friendly and one where residents of all ages and abilities can easily walk and cycle as their preferred form of exercise and transport.
- The strategy provides a framework and principles for the planning, design, improvement and management of Council's network of pathways and trails. A further objective is to provide a framework for encouraging greater involvement of residents, community organisations and government in the development of walking, cycling and other pathway related activities and opportunities.
- The strategy is informed by community consultation that included a survey, forums with stakeholders and consultation with adjoining councils and agencies.
- Key findings and analysis from the consultation include:
 - Both walkers and cyclists stressed the need to identify and complete gaps in the pathway network as the highest priority for the next five years.

- Cyclists also identified the lack of continuous and safe on-road routes as a major deterrent.
- Completing gaps along the Scotchmans Creek Trail, providing direct on-road and off-road routes to Jells Park, Chadstone Shopping Centre, Monash University campus and Holmesglen TAFE were highlighted as priorities. Links to these major trails from local neighbourhoods and from other major trail networks were also highlighted as priorities.
- The strategy considers opportunities to better cater for the needs of all people who use pathways including people in wheelchairs, parents/carers with prams, young children on scooters, as well as cyclists and walkers.
- The strategy recognises that often people walk and cycle for very different reasons including commuting, exercise and relaxation.
- The City of Monash has over 50 kilometres of off-road walking and cycling pathways and trails.
- Actions include:
 - Identify and map proposed off-road and on-road trails.
 - Identify short, medium, and longer-term initiatives to enhance the Scotchman’s Creek Trail.
 - Identify opportunities to rectify existing on-road cycling infrastructure
 - Commence an audit of signage.
 - Line mark nominal shared pathway and bicycle lanes, starting with Gardiners Creek Trail.
 - Construct link between Holmesglen and Jordanville Railway Stations - Waverley Rail Trail.
 - Investigate the level of interest in re-establishing the Monash Bicycle Users Group.
- The objectives and principles include:
 - For residents to access ‘activity centres’ safely and directly on foot or by bicycle.
 - For residents to access open space and recreation opportunities within comfortable walking distance from home.
 - To create a safe and sustainable transport system by integrating land-use and public transport interchanges.
 - To address perceptions of safety.
 - To link to the broader walking, cycling and open space networks in the region.
 - To enhance the appeal, accessibility and safety of pathway environments.
 - To cater for a range of different walking and cycling needs.
 - To add to the diversity of open space and recreation environments.
 - To protect and enhance vegetation and wildlife environments.
 - Provide basic convenience facilities such as drinking fountains, toilets and bicycle racks.

Implications for the Open Space Strategy

The strategy principles will be included in the open space strategy, along with specific recommendations that are relevant to be implemented through the open space strategy.

2.8 Playground and Playspace Strategy 2010-2015

Prepared by the City of Monash

Brief summary of relevant information

- Playground and Playspace Strategy 2010-2015 provides a strategic direction for the planning, development and maintenance of playgrounds and play spaces in the City of Monash.
- Council's Vision for playgrounds and playspaces: *'The City of Monash will provide a diverse range of quality, fun, accessible, well designed and maintained playgrounds and playspaces that assist children's physical, cognitive, social and emotional development as well as providing a community meeting point that encourages interaction, understanding and community well being.'*
- Monash currently has 124 Council owned and managed playgrounds.
- Playgrounds were managed by an Asset Renewal Program with replacement schedules and did not explore the demand or need for playgrounds in particular areas.
- Key Objectives include:
 - Review the design standards of all playgrounds throughout the City, as they fall due for upgrading/reconstruction, by focusing on play value (fun & diversity), accessibility, and integrated park design.
 - Provide an equitable distribution of playgrounds across the City and identify gaps and excess supply.
 - Reclassify all playgrounds to ensure infrastructure and facilities meet the determined hierarchy (Pocket, Local, Neighbourhood, Regional and Natural).
 - Improve community consultation processes to ensure meaningful, creative consultation processes in the development and replacement of playgrounds.
 - Ensure playgrounds reflect cultural and/or heritage issues relevant to the local area.
- The Strategy identified three key issues with recommendations to address these including:
 - 1. Enhancing play design
 - 2. Increasing play opportunities
 - 3. Improving play management

Implications for the Open Space Strategy

Preliminary analysis for the open space strategy has identified that playgrounds require better integration in open space including their position in the park, the design of them, the play experiences they offer and the integration with other areas of the park. The open space strategy will refer to the playground strategy for the program of works and overall principles recommended in it.

2.9

City of Monash Golf Course Strategy

Prepared by Ernst and Young for the City of Monash

Brief summary of relevant information

- The Golf Course Strategy provides an overview of the current and future golf market in terms of golf participation levels and trends together with a detailed analysis of the Glen Waverley and Oakleigh Golf Courses from a financial and property perspective.
- Key operational challenges relate to risk management, declining boundary infrastructure, tight course boundaries and improvements in golf club and golf ball technologies; all contributing factors to increasing owner and operator liability and risk issues. It is highly likely that eventually the cost to mitigate these concerns will not be able to be recouped by the operation of the facility.
- The City of Monash own two public golf courses in the municipality including:
 - Glen Waverley Public Golf Course
 - Oakleigh Public Golf Course
- It was noted that the golf venues attract players who typically live close to the course. 63% of players live within 10kms, while almost 40% live within 2kms.
- Council's courses compete for patronage from courses outside the municipality including Morack, Ringwood and Malvern Valley.
- The strategy includes recommendations that have implications for the open space strategy including future divestment/reuse of surplus land at Glen Waverley Golf Course and development opportunity for the club house at Oakleigh Golf Course.

Implications for the Open Space Strategy

The open space strategy will consider the Golf Strategy recommendations in the context of other open space needs and issues and identify if there are any conflicts between the recommendations and open space objectives.

2.10

Environmental Sustainability Road Map 2011-2015

Brief summary of relevant information

- The document aims to enhance Monash's sustainable journey that will connect the three principles of sustainability being environmental, social and economic. The intent is to improve the environment, the health and wellbeing of the community and promote a sustainable local economy.
- The document outlines the actions that Monash City Council will undertake to make Monash a more sustainable place to live, work and play.
- There is a focus on achieving targets that are challenging, realistic and measurable and those relevant to open space include:
 - Energy - aim for a 20% reduction in Council's consumption by 2020 compared with 2010 levels
 - Water - 20% reduction in potable water use by 2015
 - Natural environment - plant 100,000 trees, shrubs and groundcovers per annum

- Planning and design - all new council buildings to meet a 5 star NABERS rating
- Transport - 10% reduction in production of CO2 compared to 2010 by the council fleet by 2015.
- Horticulture is noted as the largest water consumers through the irrigation of sports grounds and recreation facilities such as Monash Aquatic and Recreation Centre, Clayton Aquatics and Health Club and the Oakleigh Recreation Centre.
- Some relevant actions include:

Water

- Expand the program of installing low water use grasses to sports fields and other ornamental grassed areas.
- Implement stormwater harvesting at Mt Waverley Reserve.
- Implement stormwater harvesting projects at other appropriate sporting reserves.
- Investigate the treatment of water from Reg Harris Reserve to expand its use to nearby reserves and facilities.
- Continue to use drought tolerant plants in parks and reserves.
- Replace grass surfaces with synthetic or artificial grassed surfaces at appropriate locations.
- Expand the rehabilitation of existing wetlands to ensure ongoing water quality improvements.
- Continue to support water conservation initiatives at tennis and bowls clubs (e.g. rainwater tanks and warm seasons grass conversions).

Natural Environment

- Develop an open space strategy action plan.
- Continue to enhance the street tree planting program.
- Continue to seek funding to further develop the creek revegetation program.
- Continue to support friends groups.
- Interpretive signs at bushland and heritage areas promoting the vegetation species and their benefits and purpose.
- Natural shade around or near new or upgraded playgrounds.
- Continue with the development of the Gateway enhancement along arterial roads.

Transport

- Improve active transport linkages and opportunities through the continued development of Council's shared path program and a review of Council's priorities.
- Continue the construction of linking the footpath network to improve active transport opportunities.
- Implement the walking and cycling strategies to enhance active transport opportunities.
- Advocate for park and ride facilities at public transport nodes.
- Expand the provision of bike racks to support bicycle riders at activity centres and Council facilities.

Planning and Design

- Develop a Sustainable Development Policy to incorporate into the planning scheme.

Implications for the open space strategy

The open space strategy will refer to the environmental sustainability roadmap regarding the design and management recommendations.

2.11 Information about bushland reserves on the City of Monash website

City of Monash Website - Last updated: 17 January 2013

Brief summary of relevant information

- Bushland reserves provide important revegetation corridors and a habitat for native wildlife.
- These reserves are home to 151 different species of birds and animals including the southern bell frog (listed as being of national significance), the flying fox, peregrine falcon, sugar glider, river blackfish and eastern snake-necked tortoise.
- Every year, Council plants around 100,000 trees, shrubs and groundcovers across the city, the majority in the bushland reserves.
- Significant Bushland Reserves within the municipality include
 - Damper Creek
Natural bush setting and walking track, playground, dog off-leash area. Covers an area of 11 hectares. Council and the Friends of Damper Creek have been restoring the creek environment since 1993.
 - Gardiners Creek
Ashwood Wetlands with water features, bird observatory, boardwalks. No dogs or cats permitted. Dog off-leash area at Ashwood Reserve and Gardiners Reserve
 - Valley Reserve
Small waterfall and pond, BBQs, picnic tables
 - Scotchmans Creek
Dog off-leash areas at Caloola Reserve and Scotchmans Run Reserve. Playground at Allen Street Reserve.

Implications for the open space strategy

This information will inform the open space strategy including the character classifications developed as part of the strategy.

2.12 Information about Dandenong Creek Corridor on the City of Monash website

City of Monash Website - Last updated: 22 February 2011

Brief summary of relevant information

- Indigenous vegetation communities along Dandenong Creek are represented by substantially intact remnants, which are among the best fauna habitats in south-east Melbourne.

- Manna Gum (*Eucalyptus viminalis*) is now severely depleted and was the dominant floodplain eucalypt of tall open forest along the creek. This formed a Floodplain Forest community with Swamp Gum (*Eucalyptus ovata*).
- Dandenong Creek supports a range of aquatic habitats, including the creek itself and Wetland Herbfields. These aquatic habitats support a diversity of fauna micro-habitats including open water, submergent and emergent aquatic vegetation (e.g. *Phragmites*), seasonally inundated grassland and open, sandy areas.
- The diversity of aquatic habitats provides the best habitat for frogs, waterbirds, fish and some mammals
- There are areas of excellent revegetation beneath scattered remnant eucalypts, especially between Shepherds Bush and Jells Park, but also between Ferntree Gully Road and Wellington Road. In time, these areas will provide a vegetated corridor running along Dandenong Creek through most of the City of Monash management area.

Implications for the open space strategy

This information will inform the open space strategy including the character classifications developed as part of the strategy.

2.13 Aboriginal Cultural Heritage

Prepared by Lucy Amorosi and Andrea Murphy of Tardis Enterprises P/L
November 2002

Brief summary of relevant information

- This report is a desktop study of the Aboriginal cultural heritage values within the City of Monash. The study reviews the Aboriginal cultural heritage background of the municipality and is supplemented by a brief site inspection, predictive statements regarding areas of Aboriginal cultural heritage potential and a strategy for future management of these cultural values. The study includes a summary of the natural features and history of the area.
- The study area is likely to have been an area where territorial rights existed for at least two clans - one Boon wurrung and the other Woi wurrung.
- The resources available for Aboriginal subsistence would have been rich with the study area surrounded by regions that contain a variety of productive ecological zones that would have been attractive for hunter gatherers.
- Most likely the areas associated with water bodies and drainage systems were the focus of exploitation by Aboriginal people. This includes the Dandenong Creek and its tributaries, Scotchmans Creek, Gardiners Creek and Damper Creek.
- The Dandenong Creek and its extensive wetlands would have provided habitat for a large number and variety of fauna, many of which would have congregated seasonally. Prior to European settlement, animals such as kangaroo, possum, wallaby, emu and many species of small marsupials and waterfowl would have been common in the woodland and along the creek lines. As the abundance of fauna within the Dandenong Creek floodplain would have been seasonal, the greatest concentrations would have occurred near the creek during the summer periods.

- Squatters occupied different parts of Monash in the early 1800s, although few were occupying the Dandenong Valley in the late 1830s when the first substantial occupation of the region occurred. This was the Native Police Corps at Dandenong Creek, and it was reported that Aboriginal men selected the site that became the headquarters of the first Native Police Corps between 1837 and 1838. The subsequent history of this site saw the function and size of the Police Paddocks change on a number of occasions.
- 1850 saw the first towns in the district of Oakleigh, Dandenong and a small village of Black Flat near the junction of Springvale and Waverly Roads established. The first economic activities in the district were pastoral and this remained the dominant land use through to the 1900s. By the early 1900s the land use had changed from large scale pastoral to small scale intensive horticulture, with orchards, market gardens and some grazing.
- The impacts of European settlement on the environment would have impacted on the Boon wurrung and Woi wurrung, with clearing of native vegetation and stock grazing reducing access to food, medicine, shelter and fresh water.
- Aboriginal archaeological sites have been recorded in the Dandenong Creek region including scarred trees, isolated artefact scatters and a site at the Dandenong Police Paddocks.
- Due to urbanisation of the area west of Dandenong Creek, there is very little of the land surface in its original condition.

Implications for the open space strategy

The open space strategy will reference this study, and any later studies into the Aboriginal cultural heritage of Monash. The strategy will include and acknowledge these values and incorporate any relevant recommendations regarding protection of these values and appropriate interpretation if applicable.

2.14 Information about the Heritage of Monash from the City of Monash website

City of Monash website - *Last updated: 22 February 2011*

Brief summary of relevant information

- Pre 1945:
 - Agricultural landscapes typically consisted of rectangular paddocks with boundary plantings of conifers
 - Brickworks and sandpits, the former more widespread in the early period. A number of Mulgrave buildings were constructed from bricks produced in the local area.
 - Streets of small wooden houses in tight rectangular grids were constructed in Oakleigh.
 - Dense concentrations of small factories, workshops and timber yards, particularly near Oakleigh station and along the rail line to Clayton.
 - Parks and reserves, especially the Recreation Reserve along Scotchman's Creek were developed as picturesque gardens.
- 1945-1995:
 - In this era, the scale of development changed significantly. During the first century of non-Indigenous settlement, the area was principally shaped by

its role as market gardens and small farms supplying Melbourne with produce. After World War II suburban development, principally of detached dwellings with gardens replaced the market gardens and small farms.

- Major housing estates were an important feature of suburban growth in Monash. Beginning with the Housing Commission at Jordanville, the development pattern was subsequently followed by AV Jennings.
- Large estates were planned as a whole with a road layout of courts, crescents and curves, designed to provide variety and prevent through traffic.
- The shared suburban vision of this era was reflected in the planning regulations of the time including the building codes. Development proposals were largely anglo-celtic and middle class, with detached houses, individual gardens and owner-occupiers. Residents invested enormous amounts of time and money in their individual gardens and planted tens of thousands of trees.
- 1950s - 1960s
 - Growth in car ownership during this time was accompanied by the growth of a range of drive-in suburban environments. Notable examples in the City of Monash include Monash University, a number of shopping centres, substantial industrial estates and Waverley Park. The original rectangular road grid accommodated the growth in motor vehicle traffic.
 - Individuals and organisations planted trees in the public and private landscapes, with fashions changing over time from exotic to native trees.
- Recent times
 - Restoration of landscapes in parks, particularly along creek beds has been undertaken including protection of remnant indigenous vegetation and the revegetation.

Implications for the open space strategy

This provides a plotted and brief history of Monash. For the strategy it is assumed that a more comprehensive study would be available for reference.

2.15 Information about the History of Monash from the City of Monash website

City of Monash website - last updated: 22 February 2011

Brief summary of relevant information

- The City of Monash was created in December 1994.
- The original inhabitants of the area were the Bunurong tribe, which were one of four tribes that made up the Kulin nation that lived in what was to become Melbourne and surrounding areas
- In 1853, the Parish of Mulgrave was surveyed and the first blocks of land were sold in Oakleigh in the same year.
- The first subdivision of land in Mt Waverley occurred in 1854.

- In 1857, the Oakleigh and Mulgrave District Roads Board were formed to raise money to turn dirt tracks into roads for carts, pedestrians and other traffic.
- By 1861 there were 15 brick or stone houses, 167 wooden houses, 8 tents and 25 slab, bark or mud huts and a population of 1,108.
- The Shire of Oakleigh was proclaimed in 1871 with the cessation of the Roads District and in 1879 a pivotal event occurred in the area's development - the Oakleigh to Melbourne rail line was opened.
- While the Railway Workshops at Oakleigh became the major industry in the area, dairy farms, orchards and market gardens began to dominate at the turn of the century. Market gardens were particularly important around Clayton, growing everything from flowers to cauliflowers. Local dairy farmers and orchardists began to export their produce nationally and internationally as early as the 1890s. Brick works, pipe making and sand mining were also important.
- Residential and industrial developments boomed after the Second World War in areas such as Clayton, Mulgrave and Mt Waverley. In 1949 the Housing Commission became a major contributor to development in the Jordanville area, building 1,785 homes up until 1962.
- In March 1961, Monash University was established in Clayton
- In 1968 the then Victorian Football League unveiled its plans for a new premier football ground to be known as Waverley Park.

Implications for the open space strategy

This provides a plotted and brief history of Monash. For the strategy it is assumed that a more comprehensive study would be available for reference.

3. Summary of relevant overlays from the Monash Planning Scheme

Below is a summary of the existing planning scheme overlays that apply to existing open space in the City of Monash.

3.1 Heritage Overlay

Some existing open space reserves have heritage overlays over all or part of them as noted in the following table.

Precinct	Open space	HO No.	Description & relevant controls
Mount Waverley	Tally Ho Reserve	HO7	Pine windrow at Tally Ho Reserve Tree controls apply.
Glen Waverley	Highview Park	HO41	Highview Park (former quarry site) No controls apply
Oakleigh	Warrawee Park	HO24	Oakleigh Pioneer Memorial Park Tree controls apply
Oakleigh	DW Nicoll Reserve	HO92	Residential, Commercial and Civic Area north of railway station – Drummond Street Oakleigh No controls apply
Mount Waverley	Sherwood Park	HO68	Public areas Tree controls apply
Glen Waverley	Mount Street Reserve	HO54	Large Araucaria tree Tree controls apply
Glen Waverley	Central Reserve	HO70	Cenotaph, memorial gates and window. Tree controls apply
Mulgrave	Waverley Park	HO88	Included on the Victoria Heritage Register under the Heritage Act 1995, Ref H1883

3.2 Neighbourhood Character Overlay

The Neighbourhood Character Overlay affects Waverley Park by covering the Waverley Park neighbourhood/residential area.

Precinct	Sub precinct	NCO No.	Description & relevant controls
Mulgrave	Waverley Park neighborhood	NCO1	The area of Waverley Park covered by the Neighbourhood Character Overlay is zoned R1Z (Residential 1 zone). The preferred character of the residential area is for a concentrated and intensive built form of individual dwellings, terraces and townhouse and multi-storey apartment buildings within a framework of local

Precinct	Sub precinct	NCO No.	Description & relevant controls
			streets, prominent precinct parks and a broader open space and pedestrian circulation system. The existing oval will be retained and the main road pattern reminiscent of the previous radial street layout. The precincts will be based on structured open spaces and clearly delineated circulation paths that provide permeability, passive surveillance of public areas and greater safety.

3.3 Vegetation Protection Overlay

The Vegetation Protection Overlay affects open spaces within Burwood, Ashwood, Mount Waverley, Glen Waverley, Wheelers Hill and Mulgrave.

Precinct	Sub precinct	VPO	Description & relevant controls
Burwood	<ul style="list-style-type: none"> West of Gardiners Creek 	VP01	Conservation, retention and protection of existing canopy trees/treed environments and to ensure new development compliments the Garden City Character of the existing neighborhood.
Ashwood	<ul style="list-style-type: none"> West of Gardiners Creek 	VPO1	Conservation, retention and protection of existing canopy trees/treed environments and to ensure new development compliments the Garden City Character of the existing neighborhood.
Mount Waverley	<ul style="list-style-type: none"> North of High Street Road South of High Street Road between Riversdale Golf Club, railway line and Stewart Street Stephensons Road to Blackburn Road, south of railway line to Monash Freeway 	VPO1	Conservation, retention and protection of existing canopy trees/treed environments and to ensure new development compliments the Garden City Character of the existing neighborhood.
Glen Waverley	<ul style="list-style-type: none"> West of Dandenong Creek to Blackburn Road, north of High Street Road excluding corner of Blackburn Road and High Street Road West of Dandenong 	VPO1	Conservation, retention and protection of existing canopy trees/treed environments and to ensure new development compliments the Garden City Character of the existing neighborhood.

Precinct	Sub precinct	VPO	Description & relevant controls
	<p>Creek to Springvale Road, north of Waverley Road to High Street Road</p> <ul style="list-style-type: none"> • East of Blackburn Road to Deirdre Street • North of Ferntree Gully Road, east of Watsons Road to Victoria Police Academy 		
Wheelers Hill	<ul style="list-style-type: none"> • West of Dandenong Creek to View Mount Road north of Ferntree Gully Road and to Lum Road south of Ferntree Gully Road 	VPO1	Conservation, retention and protection of existing canopy trees/treed environments and to ensure new development compliments the Garden City Character of the existing neighborhood.
Mulgrave	<ul style="list-style-type: none"> • West of Dandenong Creek to Jacksons Road and Monash Freeway 	VPO1	Conservation, retention and protection of existing canopy trees/treed environments and to ensure new development compliments the Garden City Character of the existing neighborhood.