Northern Regional Trails Strategy

2016

Banyule City Council
City of Darebin
Hume City Council
Moreland City Council
Nillumbik The Green Wedge Shire
City of Whittlesea
Victoria State Government

Councils of Banyule, Darebin, Hume, Moreland, Nillumbik and Whittlesea

ARUP

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 237101-00

Arup
Arup Pty Ltd ABN 18 000 966 165

Arup
Level 17
1 Nicholson Street
Melbourne VIC 3000
Australia
www.arup.com

Contents

Tables

Figures

Appendices

Appendix A

Proposed Northern Regional Trails Network and multi-criteria analysis

Appendix B

Cost-benefit analysis

Appendix C

Aerial maps

Appendix D

Tourism attractions in northern LGAs

Appendix E

Full list of northern regional trails

Glossary and Abbreviations

Design guidelines	The preferred Northern Regional Trail Design Guidelines
GIS	Geographic Information System[1]
LGA	Local Government Area
PBN	Principle Bicycle Network
Region	The LGAs of Nillumbik Shire Council, Banyule City Council, Whittlesea City Council, Hume City Council, Darebin City Council, Moreland City Council and Yarra City Council
Regional trail	A trail is considered a regional trail if it provides a linkage across two or more LGAs of Melbourne's North
Strategy	The Northern Regional Trails Strategy

[1] ArcGIS 10.2.1 software was employed for all spatial analyses within this work

Executive Summary

Melbourne's north is a region undergoing significant transition, with a forecasted growth in population from one million to 1.6 million by 2050, coupled with an overall ageing of the population and an economic shift from a traditional manufacturing based economy. There is a critical need to identify and implement effective and appropriate infrastructure, which not only supports an expanding, increasingly dense urban footprint and population, but provides accessible recreation opportunities and promotes and supports a diverse range of employment and economic opportunities for the residents of Melbourne's north and Victoria more generally.

In recognition, the seven municipalities of Melbourne's north have come together to develop the Northern Regional Trails Strategy. The Strategy defines a vision and plan for the future of off-road recreational trails in Melbourne's north which has been endorsed by the Councils of Banyule, Darebin, Hume, Moreland, Nillumbik and Whittlesea.

Northern Regional Trails Vision

Melbourne's North is renowned for its integrated regional trail network that showcases the region's diverse natural and cultural heritage, provides for a range of recreation interests, connects people to places and contributes to community wellbeing.

The intent of the Strategy is to leverage the existing assets in the northern region to realise the true benefits of an integrated regional network. The potential trails have been assessed using spatial, multi-criteria and a cost-benefit analysis, with the Strategy identifying 120 existing off-road regional trails and 96 proposed trails (consisting of 121 individual projects), spanning 780 kilometres of accessible trails across the northern region.

To inform the design of the network, Northern Regional Trail Design Guidelines have been established to represent the minimum standards for developing a high quality trail network for the northern region:

- An aspirational (preferred) shared path width of **4 metres**; and
- A minimum shared path width of **3 metres.**

Once developed, the Northern Regional Trail Network will constitute a highly connected, functional off-road network with regional-scale economic, social and environmental value.

Benefits of a northern trails network

The benefits of off-road recreational trails in enhancing connectivity and access to open space, promoting recreation, health and wellbeing outcomes and supporting employment opportunities and a diversification of the economy are well documented. The opportunity for the northern region, is to capitalise on these inherent benefits and build on them further through the linking of existing tourism destinations.

Melbourne's North as a destination of choice

The northern region is already host to a number of key Victorian and national recreational trails, such as the Merri Creek Trail, Darebin Creek Trail, Upfield Rail Trail and Main Yarra Trail. However, there is significant potential to further improve the connectivity, attractiveness and local, regional and national visitor numbers to the area. There are a range of key tourist attractions in the region that the proposed trail network will serve and act as destinations to attract visitors including:

- Montsalvat;
- Organ Pipes National Park;
- Bear's Castle;
- Fairfield Boathouse;
- Ceres Community Environment Farm;
- La Trobe Wildlife Sanctuary; and
- Heidelberg Artist Trail.

The opportunity for the northern region is, in providing linkages to these existing key destinations, to make the Northern Regional Trail network a destination in its own right.

Economic benefits

Compared to other infrastructure projects, off-road trails constitute a relatively low-cost investment with strong economic return and when delivered at network scale, these benefits increase significantly. Ultimately, a comprehensive, connected regional network of trails will enhance community access, increasing the magnitude of social, transport, economic and environmental benefits that any individual trail alone can provide. Specifically, the Heart Foundation (Heart Foundation, 2004) recommend as a design objective in relation to walking and cycling the provision of:

> *'an accessible integrated network of walking and cycling routes for safe and convenient travel to local destinations and points of interest.'*

In terms of economic benefits, the trails represent a tourist attraction, employment opportunity (associated with the required construction and maintenance) and can improve the liveability of communities. A cost-benefit analysis to quantify these benefits has been undertaken, considering the capital and operational costs and benefits associated with increased, commuting on recreational trails, recreation opportunities and tourism. The assessment also considered the benefits of constructing the trails in terms of additional job creation, measured as full time equivalent (FTE) employees.

As illustrated in Table 1, it has been estimated that the implementation of the entire trail network will cost between $169 million - $217.5 million and will deliver combined benefits valued at between $159 million - $250 million over the first 12 months and $2.9 billion - $4.6 billion over a 30 year period.

Table 1 Entire network benefits and costs

	Period	Cost ($)	Benefits ($)	Benefit-Cost Ratio	FTE creation (construction phase)
Trail width: 3 metres	1 year	169,227,000	159,103,000	**0.9**	650
	30 years	294,658,000	2,926,224,000	**9.9**	
Trail width: 4 metres	1 year	217,488,000	250,019,000	**1.1**	870
	30 years	384,729,000	4,598,353,000	**12.0**	

The results of the cost-benefit analysis therefore demonstrate that over the long-term, every dollar invested in the trail network will yield $12 in value[2].

Societal and environmental benefits

Trails can bring about health benefits by increasing opportunities for active recreation which has been linked to improved physical and mental health and wellbeing for users. The trails can also facilitate modal shift away from motor vehicles and towards active transport in a spatially efficient manner as the trails require less land relative to other transport modes. Environmental value of the region is also enhanced by the trails through increasing opportunities for users to experience natural and cultural features of interest along the trails and a reduction in environmental impacts associated with motor vehicles.

Priority trails

Based on comprehensive multi-criteria analysis, 29 of the 96 proposed trails have been identified as 'priority trails', as they have the greatest alignment to regional priorities and strongest potential for immediate implementation. The criteria, individual scores and overall evaluation of the multi-criteria analysis was reviewed by each council to ensure accuracy, transparency, and alignment with council's nominated priorities. Cost-benefit analysis was also undertaken to estimate potential costs, monetised benefits and an indicative cost-benefit ratio for each of the 29 priority trails identified in the Strategy.

Strategic alignment

The importance and potential benefits associated with an integrated trail network across the region have been recognised in a range of local policy and recent government strategies. Specific relevant objectives include supporting the strategic objective in *Plan Melbourne* to create healthy and active neighbourhoods to maintain Melbourne's identity as one of the world's most liveable cities and the need for an integrated trail network has been identified as a priority project in *Northern Horizons – 50 Year Infrastructure Strategy for Melbourne's North*.

With consideration to long term success and whole-of-network implementation, this Strategy also provides recommendations to support northern municipalities and agency landowners in implementing regional trail projects and addressing

[2] Based on a network trail width of 4 metres over 30 years

the challenges of governance, funding, ownership and long-term management. A set of agreed government principles, as recommended by the Department of Transport, Planning and Local Infrastructure, would provide assurance that the trail network would be supported and maintained to an appropriate standard in accordance with the Northern Regional Trail Design Guidelines. This would facilitate the delivery of the social, economic and environmental benefits across the northern region.

Development of the Strategy was funded and delivered by Banyule City Council, Darebin City Council, Hume City Council, Moreland City Council, Nillumbik Shire Council, Whittlesea City Council and Yarra City Council in partnership with the Victorian Government, with support from Sport and Recreation Victoria. This Strategy is fully endorsed by Banyule City Council, Darebin City Council, Hume City Council, Moreland City Council, Nillumbik Shire Council and Whittlesea City Council.

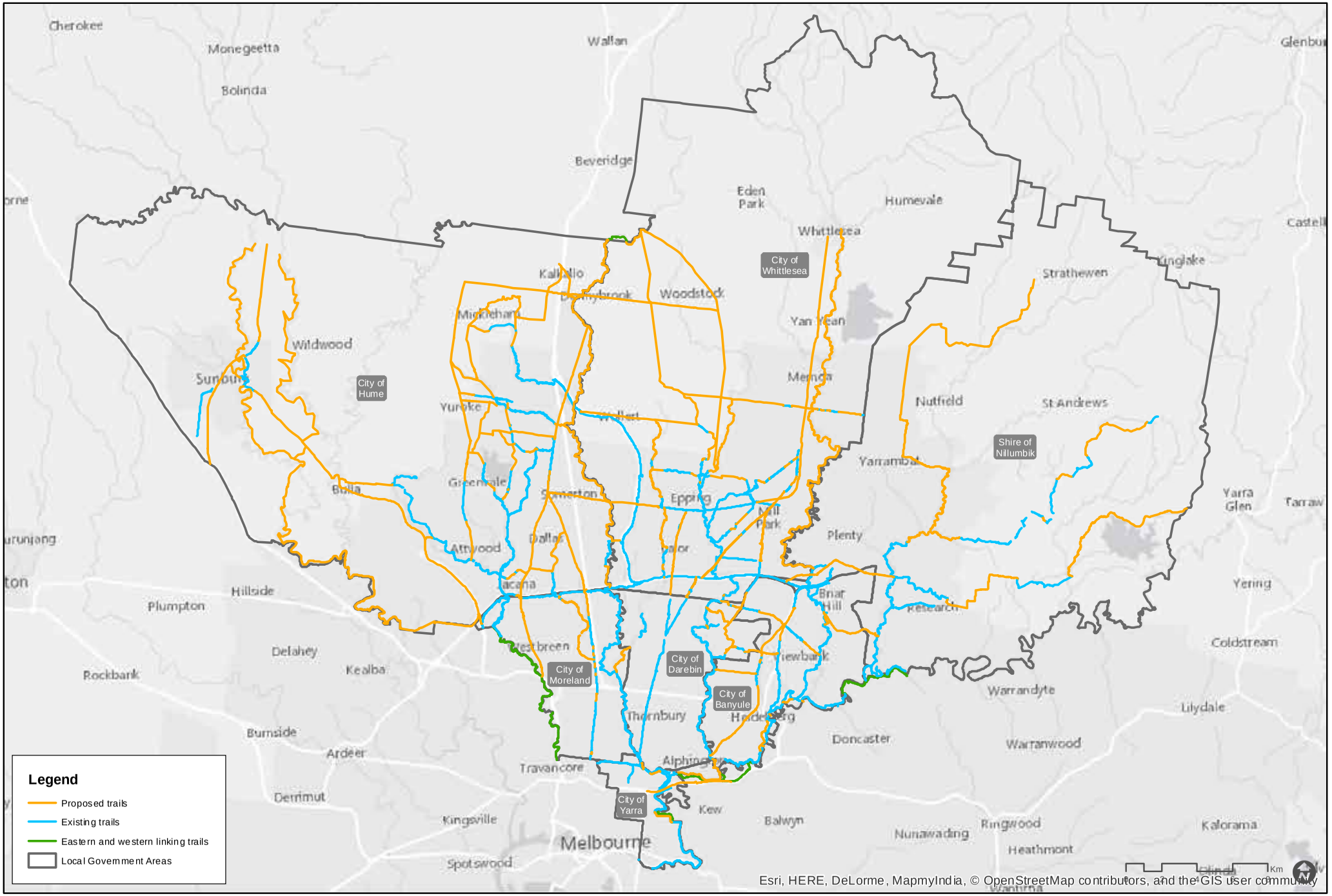


Figure 1 - Northern Regional Trails Strategy

ARUP

1 Introduction

Over coming decades, Melbourne's north will experience rapid growth in its population, economy and urban footprint. While the north is currently home to just under one million residents; by 2050 this is forecast to increase to 1.6 million people (Victoria in Future, 2014).

The northern municipalities already face significant challenges in ensuring that infrastructure is properly planned, funded and delivered to support social, economic and environmental outcomes. As the urban footprint of the north expands and becomes increasingly dense, competition for open space to accommodate recreation and tourism will pose a significant challenge. Equitable community access to public open space and recreation will become increasing difficult to maintain. Similarly, existing challenges relating to social cohesion, health, and transport congestion will become more acute.

These issues are further compounded by a shift in demographic profile which is forecast to occur alongside population growth. In many municipalities, the population will age significantly over the next 30 years, placing increased demand on health and aged care services. To minimise the associated cost impact to all levels of government and maintain community wellbeing, it will be essential to provide a high level of access to public open space for low-impact recreation and exercise options such as trail walking.

Given constraints around infrastructure funding and implementation; all new infrastructure should be flexible, where-ever possible servicing a diverse range of community needs. Recreational trails can provide among the most socially beneficial and flexible infrastructure investment opportunities available to the north. They provide unrivalled opportunity on a regional scale to increase access to open space and recreation; attract tourism investment; improve community health and cohesion; enhance connectivity; and reduce traffic congestion.

In 2014, the case for developing and implementing a strategic, regional approach to identifying and implementing off-road trails in the north was further demonstrated; with the Northern Regional Trails Strategy identified as a priority short term project in the NORTH Link *Northern Horizons – 50 Year Infrastructure Strategy for Melbourne's North.*

The Northern Regional Trails Strategy ('the Strategy') provides a blueprint and strategic framework for the future development and maintenance of a recreational off-road trail network; known as the Northern Regional Trail Network ('the Network'). The Northern Regional Trail Network comprises the 120 existing regional trails, together with the proposed 96 regional trails, as identified in Appendix A1. The Strategy recognises the strong potential of a highly connected regional trail network in supporting and enhancing economic growth, social wellbeing and environmental quality across the north.

The Strategy has been developed by the municipalities of Melbourne's North (Banyule City Council, Darebin City Council, Hume City Council, Moreland City Council, Nillumbik Shire Council, Whittlesea City Council and Yarra City Council), in partnership with the Victorian Government and with funding from Sport and Recreation Victoria. This Strategy is fully endorsed by Banyule City Council,

Darebin City Council, Hume City Council, Moreland City Council, Nillumbik Shire Council and Whittlesea City Council.

The Strategy is focused on delivering regionally significant trails that connect multiple municipalities and regionally significant features while providing wide scale, quantifiable benefits. The vision of the strategy is defined as follows:

> *Melbourne's North is renowned for its integrated regional trail network that showcases the region's diverse natural and cultural heritage, provides for a range of recreation interests, connects people to places and contributes to community wellbeing.*

The objective of the Strategy is to leverage existing recreational off-road assets in the north to build a cohesive, integrated, regional trail network. This will be undertaken by addressing existing gaps in the network; by extending existing network corridors; and by implementing new trail corridors in response to urban development, densification and population growth.

The Strategy aligns closely and supports the intent and direction of the strategic plan for Melbourne, *Plan Melbourne.* Finalised in May of 2014, *Plan Melbourne* provides a vision for Melbourne's growth to 2050; identifying a pipeline of major infrastructure, services and projects. Melbourne's cycling network is recognised as a crucial aspect of an integrated regional transport network which will underpin regional growth.

Plan Melbourne recognises the important role infrastructure plays in supporting economic growth, population growth and social population wellbeing in Melbourne. Infrastructure provision will need to be staged and distributed so as to provide the best support for rapidly expanding communities in outer growth areas. Likewise, infrastructure will be need to respond to increasing pressures on legacy infrastructure and service delivery in dense inner and middle ring areas.

Further, Chapter 4 of *Plan Melbourne* identifies a range of initiatives to support the creation of healthy and active neighbourhoods to maintain Melbourne's identity as one of the world's most liveable cities. Central to this is the concept of a 20 minute neighbourhood, where a community has access to the goods and services it requires within 20 minutes of a walking, cycling or public transport journey and there are readily available, regional connections, between these neighbourhoods. Improving walkability, cycling and safety to provide healthier communities is identified as the first principle for local government to consider in assisting to realise the vision of a 20 minute neighbourhood.

Complementing this is development by the Metropolitan Planning Authority (MPA) of a new open space strategy. This Strategy provides a significant contribution to the development of an open space strategy for Melbourne through the identification of priority regional trails and their key characteristics.

In developing this Strategy, many hundreds of existing and proposed off-road trail projects were reviewed and refined into a strategic network of regionally significant assets. Implemented as a whole, the network will provide an invaluable recreational and tourism resource to support economic growth and social wellbeing across Melbourne's North, the wider Melbourne Metropolitan area and Victoria.

Identification and analysis of existing and proposed regional trails was undertaken using a range of technical analyses. Trails recognised as 'regional' were then assessed and refined through multi-criteria analysis and cost-benefit analysis. In recognition that the overall network must be delivered over the long-term in a number of stages, 29 priority trails have been identified for short-term implementation.

This report is structured as follows:

Section 2 Value of recreational trail networks: an overview of the range of benefits associated with implementation of a regional trail network, with particular consideration to Melbourne's north.

Section 3 Trail identification: an overview of the approach adopted for identification of existing and proposed off-road regional trails.

Section 4 Multi-criteria analysis: a summary of the approach and outcomes of the multi-criteria analysis used to refine and prioritise regional trail projects.

Section 5 Cost-benefit analysis: a summary of the calculated costs, benefits and benefit-cost ratio associated with implementation of the overall Network.

Section 6 Priority trail projects: an individual summary of each of the 29 priority trail projects. Individual cost-benefit analysis is also provided for each priority project.

Section 7 Implementation: an overview of governance and implementation considerations for the wider network, with consideration to land ownership and long term management.

Development of this Strategy was supported by extensive collaboration and engagement with local government, state government agencies, and a range of other community and private sector stakeholders. Strategy delivery was supported by a Project Control Group, local government Project Working Group, and an External Reference Group.

This report constitutes an implementation strategy and a crucial advocacy document to ensure the successful delivery of a regionally significant, integrated off-road trail network for Melbourne's north. The Strategy provides a path forward to support and enhance regional recreation and tourism over coming decades.

2 Value of recreation trail networks

The Northern Regional Trails Strategy is underpinned by recognition of the significant value trails bring to the economy, community and environment. Trails are most fully realised when they form a cohesive network, providing opportunity for both recreation and transportation.

This section provides a summary of the key benefits of recreation trails according to four broad themes: **social**, **transport, economic** and **environmental** value.

2.1 Social value

Recreational trails create strong social value for communities through improved health, opportunity for community participation, and social connectedness.

The Heart Foundation publication, *Healthy by Design* (Heart Foundation, 2004), notes that 'engaging in regular physical activity reduces the risk of diseases such as cardiovascular disease, type II diabetes, osteoporosis, colon cancer, obesity and injury' and has the potential to alleviate depression and anxiety and increase social interaction and integration.

Trail networks provide a location for active recreation; including walking, running, cycling, horse-riding and orienteering. Participation in these activities improves physical and mental health (WA DSR, 2008). Off-road trails also improve safety for pedestrians and cyclists (AECOM, 2010) and encourage those who would not otherwise participate in recreation and exercise to do so.

Participation in trail activities encourages social interaction and engenders a greater sense of community involvement (Renmark Paringa Council, 2014).This may include incidental interactions with other path users, or more formalised groups such as walking, trail maintenance and conservation groups. These interactions foster engagement between trail users and with the wider community.

As the population of Melbourne's north ages over coming decades (DTPLI, 2014), provision of safe and accessible recreational options will become increasingly important. A well-connected regional trail network constitutes a highly efficient and functional solution to providing equitable access to active open space across increasingly dense urban environments.

Trails also enhance social cohesiveness and community resilience (UK FPH 2010). By facilitating a wide range of pastimes, trails can introduce people to new healthy activities as well as opportunities to participate in social groups linked to the paths. This increases the general liveability of the nearby areas (Tourism Victoria, 2014).

Quantifying the health benefits of trails

Public health

The cost-benefit analysis (see Section 5) quantifies the benefits associated with the construction of the Network. For public health benefits, this is based on a benefit per kilometre walked or cycled. This data is sourced from a Queensland study of the benefits of inclusion of active transport in infrastructure projects (Queensland Department of Transport and Main Roads, 2011).

The benefits in this study were based on the cost of physical inactivity in Australia and the reduced cost of morbidity and mortality due to increased trail activities.

Reduce absenteeism and improved worker productivity

Improved health through increased walking and cycling provides direct benefits to employers and the economy through reduced absenteeism and improved worker productivity (AECOM, 2010). This is quantified through reduced sick days as a result of increased physical activity.

2.2 Transport value

As a part of the wider transportation network, trails can provide numerous benefits in facilitating mode shift away from motorised transport, providing the community with a viable alternative to car dependence (City of Greenwood, 2009).

Trails provide linkages between suburbs and journey destinations, which allows for the use of active transportation forms such as cycling and walking (DTPLI, 2012). In some instances, the provision of an off-road trail may provide a crucial link and increase accessibility to a location.

By encouraging cycling and walking as convenient and pleasant transport options, a good trail network can reduce traffic and parking congestion (EnercitEE, 2013). Trails encourage the use of alternative forms of transport such as walking and cycling for shorter trips, which reduces the costs associated with transport. This includes reduced expenditure on car maintenance, fuel and parking (AECOM, 2010).

As a space efficient form of transport infrastructure, trails facilitate mobility while requiring less land than other forms of transport (European Communities, 1999).In terms of parking, up to 10 bikes can fit into one car parking space (Deakin University, 2007).

Quantifying the transport benefits of trails

Reduced road congestion

When car users switch to bicycle, the high congestions costs of peak periods are reduced. This has been measured as the reduction of journey costs incurred in congested conditions compared to when traffic is freely flowing (AECOM, 2010; Price Waterhouse Coopers, 2009).

Savings in user costs

Commuters who cycle rather than drive to work each day will avoid vehicle operating costs including fuel, type repair, maintenance and depreciation (Price Waterhouse Coopers, 2009). These costs are quantified on a per kilometre basis in the cost-benefit analysis.

2.3 Economic value

Recreation trails can stimulate economic and tourism activity by attracting trail users to the area.

Recreation trails provide a tourist attraction, and may generate tourism spending from local, regional, interstate or overseas visitors. Visitors to the area spend money in communities and businesses located near trails (DTPLI, 2012). Businesses in areas surrounding recreational trails can capitalise on the support of trail users by providing relevant services such as rentals, guided tours, restaurants and lodging (USDA, 2010)

The construction and maintenance of trails also provides employment opportunities in the local area (USDA, 2010).

Trails contribute positively to the liveability of a community, and these lifestyle benefits for residents can translate into increased land value in areas near trails (Connecticut DEEP, 2013). This in turn attracts increased expenditure within a community.

The use of recreation trails provides health and transport improvements (as detailed in previous section), which reduces the expenditure required to alleviate health problems in these areas (AECOM, 2010). Increasing government expenditure to address non-communicable diseases, such as cardiovascular and diabetes, represents a significant challenge over coming generations.

Quantifying the economic benefits of trails

Tourism

Cycle tourism is a niche but growing market in Victoria, with total related expenditure of $362 million in 2010 (Tourism Victoria, 2011). The completion of the priority trails in the Northern Regional Trails Network will represent a 6% increase in the total length of trails in Victoria – which will increase tourism value within the region. The tourism benefits of the network have been quantified on the basis of the entire network, rather than per trail.

There are also benefits accrued due to other forms of trail activities such as walking or horse-riding, however they have not been quantified in the cost-benefit analysis.

Increased employment

The value of increased employment was quantified as the number of additional full time jobs created as a result of investment in the construction of trail infrastructure. This is on the basis that one job is created per $250,000 of capital expenditure as per the *North East Rail Trail – Preliminary Demand and Economic Benefit Assessment* (TRC, 2014). This has not been quantified into a dollar benefit or included in the cost-benefit analysis.

Property value

The land value benefits of constructing the Network have been quantified based on the increased land values with closer proximity to the trail (Karadeniz, 2008). These have been quantified but not included in the cost-benefit analysis as they are assumed to be accrued to private property owners. There would also be benefits to the community and council in terms of potential increased revenue from rates and general improvements to liveability, however these have not been quantified.

Victoria's population is forecast to age significantly in coming decades (DTPLI, 2014); a significant demographic shift that will be most strongly felt in many northern LGAs. An ageing population places significantly increased health and care costs on all levels of government. Providing equitable access to passive open space and associated low-impact recreation activities such as walking through provision of open trails is an essential strategy to minimise these costs.

2.4 Environmental value

Recreation trails provide direct value to the environment by encouraging emissions free transportation; and also by encouraging a greater appreciation and 'ownership' of the natural environment.

Recreation trails provide the opportunity for users to experience natural and cultural environments during day-to-day activities; such as commuting or exercising. This experience leads to a greater understanding and appreciation of the value of local environments (Renmark Paringa Council, 2014). Community connection with natural areas can aid in their preservation and conservation.

Trails allow members of the local community to become involved in conservation and revegetation work (Nillumbik Shire Council, 2011). As well as improving the local environment, this may encourage interest in wider environmental issues. Trails can provide a basis for educational and interpretive activities which enhance trail user awareness of the natural environment (Tourism Victoria, 2014). Trails may also aid in protecting ecologically sensitive areas by concentrating visitors and trail users around or adjacent to designated conservation zones (Tourism Victoria, 2014).

As a part of a well-connected transport network, recreational trails encourage non-motorised methods of transport such as walking and cycling. This reduces the environmental impacts associated with motorised transport modes including emissions leading to climate change and air pollution (AECOM, 2010). Approximately half of household emissions are due to transport, and so increased walking and cycling provides a key opportunity for households to reduce their contribution to climate change (Deakin University, 2007).

Furthermore, increased walking and cycling minimises the need to build, service and dispose of personal vehicles, reducing resource consumption and pollution associated with each of these stages of the life vehicle cycle (US DOT, 1993).

It is recognised however, that the installation of trails has the potential for environmental damage to the local area. All potentially significant impacts will be addressed, minimised and mitigated through the consultation, planning and construction of the proposed trails.

Quantifying the environmental benefits of trails

Greenhouse gas reductions

The benefit of reduced greenhouse gas emissions was quantified in the cost-benefit analysis based on an evaluation of the value of cycling in NSW (Price Waterhouse Coopers, 2009). This assessment used a carbon cost of $20 per tonne to quantify the external costs of greenhouse gas emissions, which was translated to a per kilometre cycled basis.

2.5 Network scale benefits

While recreational trails individually provide a suite of social, transport, economic and environmental benefits; these benefits increase exponentially when implemented at network scale.

In recognition of this, the Heart Foundation (Heart Foundation, 2004) recommend as a design objective in relation to walking and cycling the provision of:

'an accessible integrated network of walking and cycling routes for safe and convenient travel to local destinations and points of interest.'

For example, while increased levels of cycling and walking can reduce automobile dependence (City of Greenwood, 2009), a comprehensive network of trails can extend the catchment of existing public transport services (Queensland Department of Transport and Main Roads, 2014). This can further alleviate pressure on the road network and encourage the shift to sustainable transport.

A further benefit at the network scale relates to safety of walkers and bicyclists. It has been shown that increased numbers of people walking and bicycling results in improved safety for pedestrians and cyclists (Jacobsen PL, 2003). In addition, an isolated network of bike paths and trails requires the user to travel on less safe routes for longer journeys. A connected trail network will thus enhance the safety for pedestrians and cyclists across the region.

As part of the cost-benefit analysis, the value of quantified benefits (as shown in the grey boxes) has been determined as seen in Table 2. The cost-benefit analysis categorises the benefits according to the type of trail use that they are associated with. Further detail of the cost-benefit analysis methodology and results is in Section 5 and Appendix B.

Table 2 Entire network benefits after one year

Benefit category	Benefits	Entire network benefit ($) after one year	
		Trail width: 3m	Trail width: 4m
Commuting benefits	Reduce absenteeism and improved worker productivity	6,998,000	10,996,000
	Savings in user costs	7,186,000	11,292,000
	Reduced road congestions	10,986,000	17,263,000
	Greenhouse gas reduction	301,000	473,000
Recreation benefits	Public health - walking	18,760,000	29,480,000
	Public health - cycling	87,796,000	137,965,000
Tourism benefits	Cycling tourism	24,280,000	38,155,000
Land value benefits	Property value	1,366,000	2,146,000
Construction benefits	Employment creation	650 FTE	870 FTE

Ultimately, a comprehensive, connected regional network of trails will enhance community access, increasing the magnitude of social, transport, economic and environmental benefits that any individual trail alone could provide.

3 Approach

This section provides an outline of the methodology adopted in identifying and assessing the Northern Regional Trails Network. The methodology was developed with consideration to delivery of a high quality, well designed, safe trail network that aligns with local government objectives and standards.

3.1 GIS database compilation

3.1.1 Data identification

GIS data for existing and proposed trails was initially gathered from the existing council GIS datasets, where available. Where spatial data was not available from council, further GIS data was gathered from publically available sources, including VicRoads Principle Bicycle Network (PBN)[3] and OpenStreetMap bicycle network[4].

A range of literature sources, including relevant council cycling, walking and transport strategies, were also reviewed to identify existing and proposed trails.[5]

The literature revealed that for much of the network GIS data was missing; or existing data was outdated or unreliable. In these cases, trails were digitised manually in ArcGIS using high definition aerials. This dataset was subsequently reviewed by each of the councils to ensure accuracy in the GIS database prior to undertaking the analysis.

Reference data was also gathered for existing regional trails connecting northern trails to municipalities to the east and west. These trails provide important contextual information in understanding broader network connectivity in the region.

Following initial collation, all data for existing and proposed trails was provided to councils for review. The GIS data was further refined based on subsequent council feedback. The output of this initial stage represented a draft spatial representation of existing and proposed trails across each Local Government Area. Refinement of regional trails

Criteria to define ‘regional’ trails and set the overall framework for establishing a regional network were developed with Project Working Group representatives. The following definition for a regional trail was agreed:

A regional trail is defined as a trail which provides a link or connection between municipalities.

[3] On-road, off-road and declared road categories
[4] Cycleway track and highway cycleway categories
[5] Reviewed documents included: *Banyule Bicycle Strategy 2010-2020; Darebin Cycling Strategy 2013; Hume Walking and Cycling Strategy 2010-2015; Hume Bicycle Network Plan; Moreland Bicycle Strategy 2011-2021; Nillumbik Trails Strategy 2011; Whittlesea Integrated Transport Strategy; Yarra Bicycle Strategy 2010-2015; Northern Regional Trails Strategy map 2012.*

3.2 Design guidelines

A range of existing design guidelines and strategies were reviewed in order to establish criteria for a safe, well designed off-road cycle network in the north.[6]

Of particular note is the guidance provided in *VicRoads: Cycle Note (no.21) Aus 2013 Part 6A Supplement*. This recommends a recreational path width of 3.0 to 4.0 metres in order to accommodate higher volumes of cyclists and pedestrians. As illustrated in Appendix C1, some of the existing trails in region are currently not achieving the optimum widths. As regional trails that are likely to accommodate a larger volume of traffic, these standards are the key focus for design guidelines for the proposed trails.

Initial off-road trail design recommendations were presented at a Project Control Group (PCG) workshop; providing councils with an opportunity to identify priority areas of interest for the design guidelines. Following the PCG workshop and council feedback, the Northern Regional Trail design guidelines (the 'Design Guidelines') were finalised. These provide the minimum standards for developing a high quality off-road cycle network in Melbourne's north as follows:

- An aspirational (preferred) shared path width of **4 metres**
- A minimum shared path width of **3 metres.**

In a circumstance a significant volume of cyclists or pedestrians is likely, a separated 4.0 metre wide path is to be designed in accordance with VicRoads guidelines[7]; as shown in Figure 3. A specific Design Guideline has also been determined for trails which provide a bridle pathway; as shown in Figure 5.

6 Documents included: *VicRoads: Cycle Note (no.21) Aus 2013 Part 6A Supplement; Austroads Guide to Road Design, Part 6A –Pedestrian and Cyclist Paths; Moreland Bicycle Strategy 2011-2021; Hume Walking and Cycling Strategy 2010-2015, Nillumbik Trails Strategy 2011.*

[7] *VicRoads Cycle Note (no.21) Aus 2013 Part 6A Supplement.*

Width of Path	Type of Path	Guidelines for Appropriate Use
2.0 m	Local access only Regional paths such as rail trails.	Paths at this width are adequate for pedestrians, but only cater for one cyclist or person in a wheelchair at a time. If a meeting or a passing occurs between a cyclist and another user, one of the users may need to move off the path. This width may be acceptable on paths that are less than 500m in length where cyclist volumes are less than 20 cyclists per hour. They are not suitable for new paths on the Principal Bicycle Network or the Metropolitan Trail Network.
2.5 m	Recreational and regional commuter paths	Paths at this width are also adequate for pedestrians and can accommodate low volumes of cyclists. This width allows a clearance of 0.5m between path users when passings or meetings occur. If a passing occurs at the same time as a meeting and a cyclist is involved, one of the users may need to move off the path. This width may be acceptable on paths that carry less than 600 cyclists per hour or paths that carry less than 40 pedestrians per hour as shown in charts A and B.
3.0 m	Recreational and urban commuter paths At these widths it is assumed that passings and meetings between path users is frequent, that bicycle speeds exceed 25 km/h and that a more diverse rangle of users is present such as older people and family groups. For these reasons, these paths need to be wider to provide higher clearances between path users.	Paths at this width can accommodate higher volumes of cyclists and pedestrians. This width allows a clearance of 1.0m between path users when passings or meetings occur. It also allows passings and meetings to occur simultaneously without the need for users to move off the path. In most circumstances, new shared use paths should be 3.0m wide, especially for new paths on the Principal Bicycle Network or the Metropolitan Trail Network.
3.5m		A 3.5m path provides increased clearances between path users and, as a result, provides a higher level of service for paths users. However, 3.5m wide paths do not reduce the number of delayed passings for cyclists. In addition, 3.5m wide paths may be inappropriate for their setting in terms of their visual and physical impact on the landscape, especially if they are constructed from concrete or asphalt.
4.0 m		Paths at this width can accommodate very high volumes of cyclists and pedestrians and will allow simultaneous passings to occur in both directions. However, if there is sufficient space for a 4.0m wide shared path, the provision of a 1.5m wide path for pedestrians and a 2.5m wide path for cyclists may provide a better outcome for all path users. In addition, 4.0m wide paths may also be inappropriate for their setting in terms of their visual and physical impact on the landscape, especially if they are constructed from concrete or asphalt.

Table 3 VicRoads Cycle Note (no.21) Aus 2013 Part 6A Supplement – Table 1 Path Widths

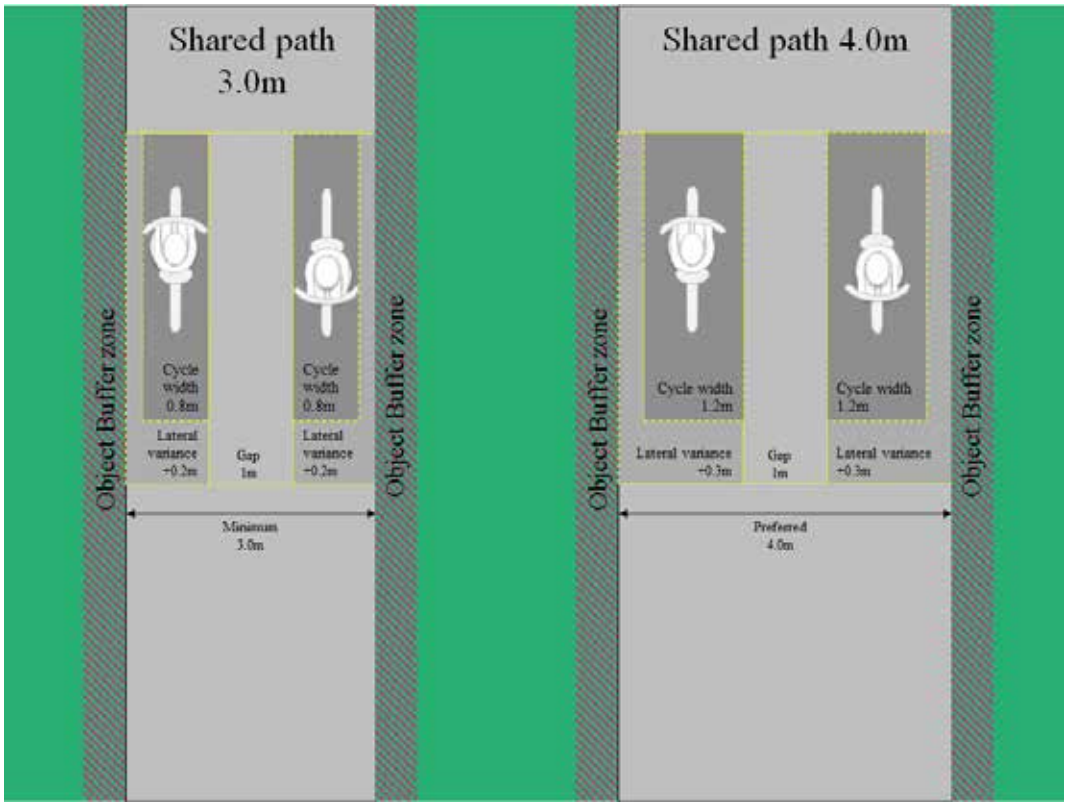


Figure 2 Northern Regional Trail Design Guidelines – Shared Path

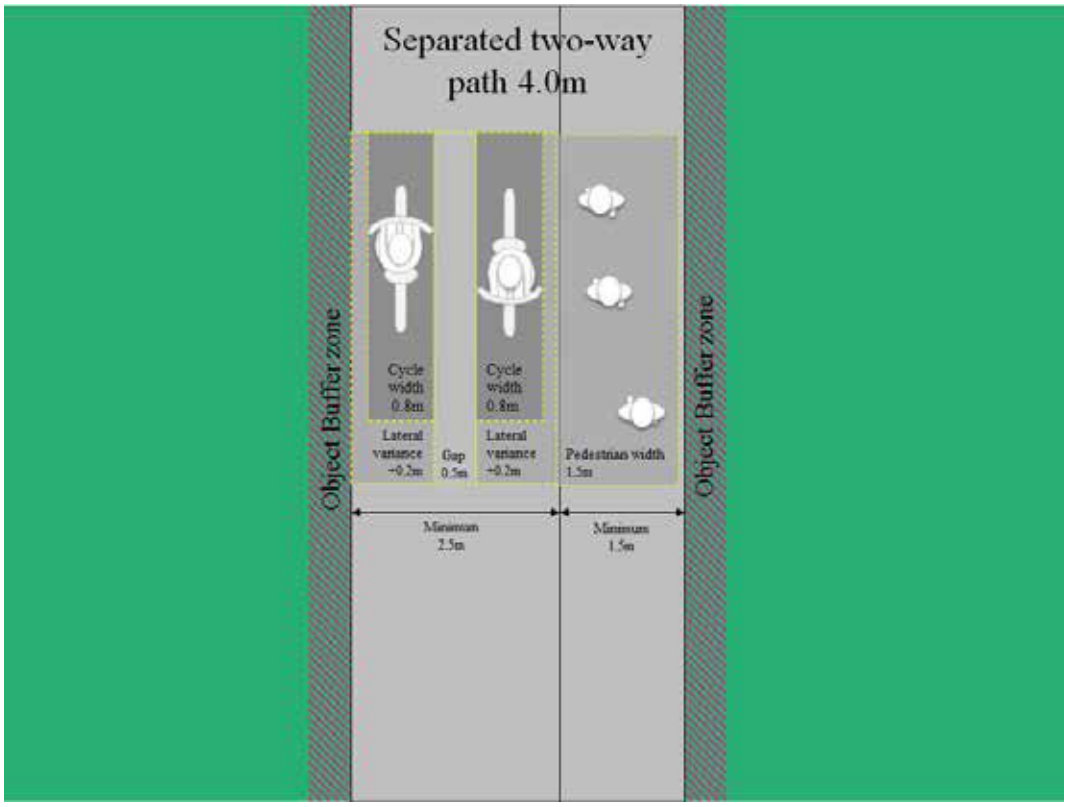


Figure 3 Northern Regional Trail Design Guidelines – Separated Two-Way Path

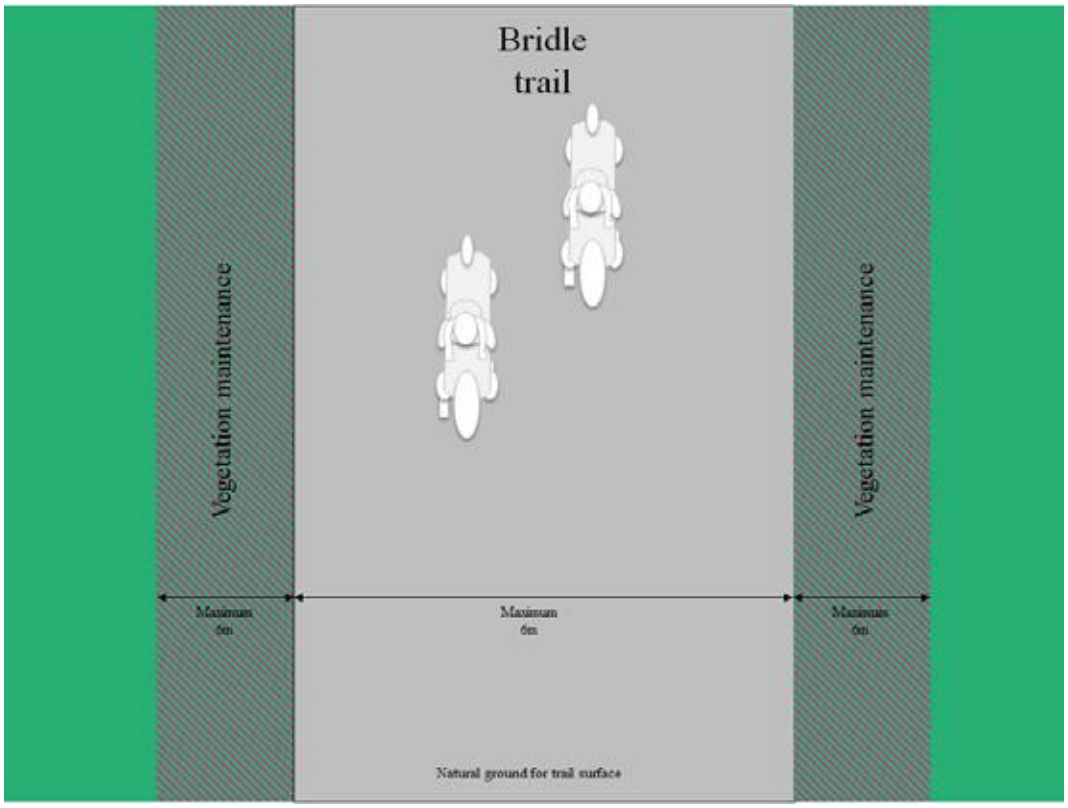


Figure 4 Northern Regional Trail Design Guidelines – Bridle Trail

It is important that the regional trails are also designed according to universal design principles wherever possible to ensure that all trails are used by as many people as possible. Universal design principles refers to equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, low physical effort and the size and space approach and use. This may encapsulate any of the following initiatives:

- Relatively flat trails (where appropriate)
- Easily trafficable surfaces
- Clear and easily understandable signage with recognised symbols and a contrast luminance of greater than 30%
- Directional signage at all intersections
- Consideration of raised tactile information with adjacent braille signage
- Distinguishable bollards with a luminance contrast of greater than 30%
- Good sight lines to allow cyclists to see ongoing users.

3.3 Verification of existing trails

3.3.1 Trail audits

Once a comprehensive GIS database of trails was established, an audit of trails was undertaken in order to:

- Verify the location of existing trails
- Identify and confirm the condition of existing trails including: material, width, quality

Bicycles and Go-Pro camera equipment were used to gather camera footage for each of the existing trails in the region. Camera footage was then reviewed to identify the following characteristics along the length of each trail:

- Width
- LGA
- Name
- Category
- Material
- Ownership
- Quality
- Gradient
- Length

High resolution aerial imagery was also used to help determine some characteristics including trail width as illustrated in Appendix C1. These characteristics were then recorded within the GIS database of existing trails.

The trail characteristics were reviewed against the Design Guidelines to determine the quality of the existing trails. The most common features leading to lower quality trails were substandard widths, sub-standard or inconsistent signage, and in some cases poor maintenance. Generally, the quality of the existing trails was noted as ‘good.’

Figure 5 Trail audit camera footage

3.3.2 Finalisation of existing trails database

The location and extent of existing trails was updated where necessary within the GIS database based on the trail audits. Data was then reviewed by each of the councils to ensure relevance, accuracy and completeness.

Final amendments were made to the GIS database to reflect comments and recommendations from each of the councils. This ultimately led to the finalisation of a comprehensive GIS database showing the network of existing trails in the region. The final Northern Regional Trails existing trails network is shown in Figure 6 overleaf. The network spans 120 trails over 302 kilometres.

3.3.3 Finalisation of proposed trails database

Following the audits finalisation of the existing trails database, the network of proposed trails in the GIS database was updated to fill any identified gaps in the regional network. The following data was identified for each of the proposed trails:

- Name
- Reference
- Source
- Length of the trail

All councils reviewed the draft dataset of proposed trails to check for relevance, accuracy, and alignment with council objectives. Councils then provided feedback in the form of written commentary and map mark-ups, and trail data was then amended as necessary. The Northern Regional Trails Strategy network of proposed trails is shown in Figure 7.

Many of the proposed trails are made up of individual sections; for which design and construction would be undertaken as separate projects. Over time, these sections will form complete trails. These individual sections of the 96 trails have

been identified as 121 discrete projects across the region spanning a total of 478 kilometres.

The 96 proposed trails are listed in Appendix A1 and have been prioritised for advocacy and funding based on multi-criteria analysis and cost-benefit analysis. The methodology and results for these analyses are summarised in the following sections of this report.

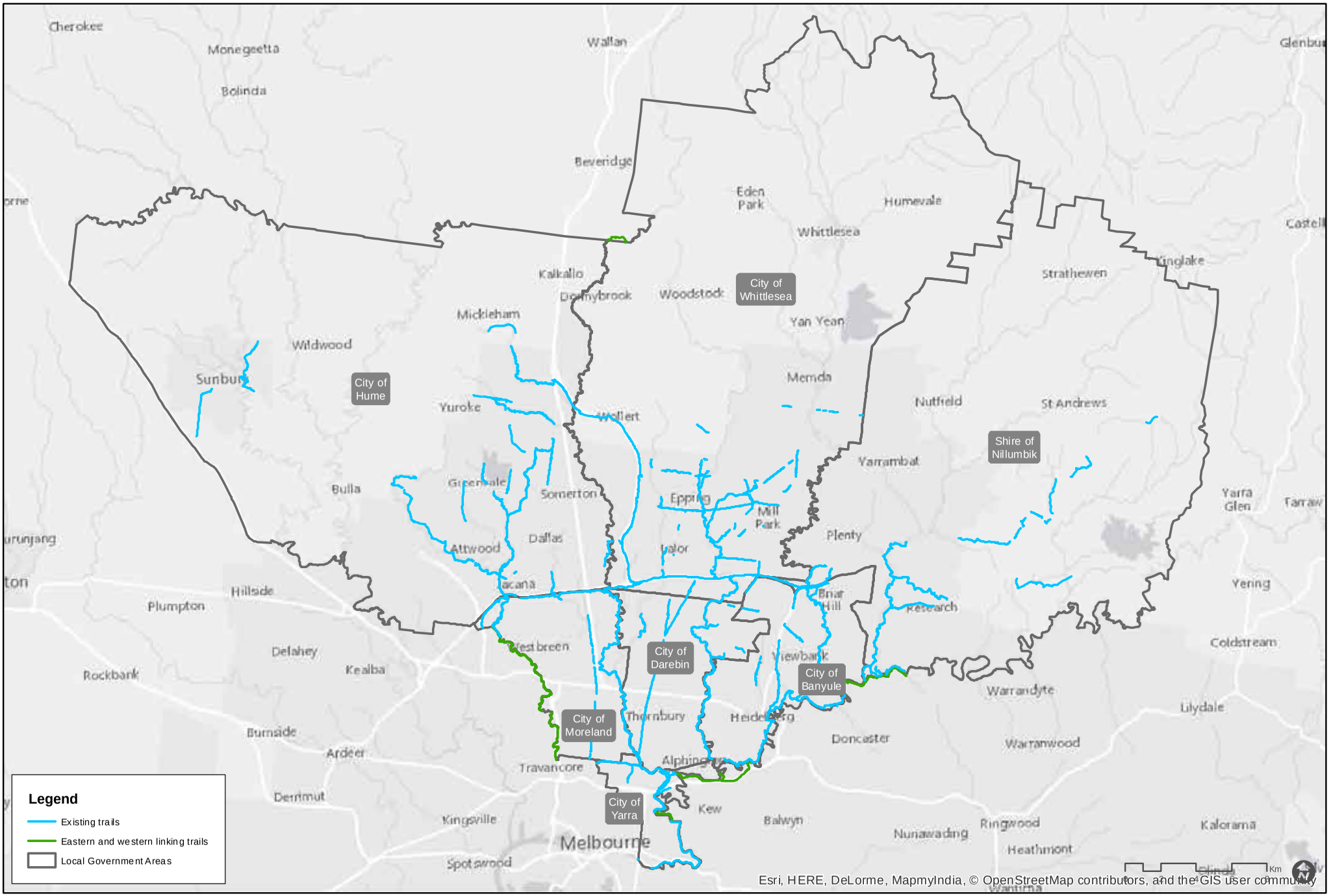


Figure 6 - Existing regional trails in the north

ARUP

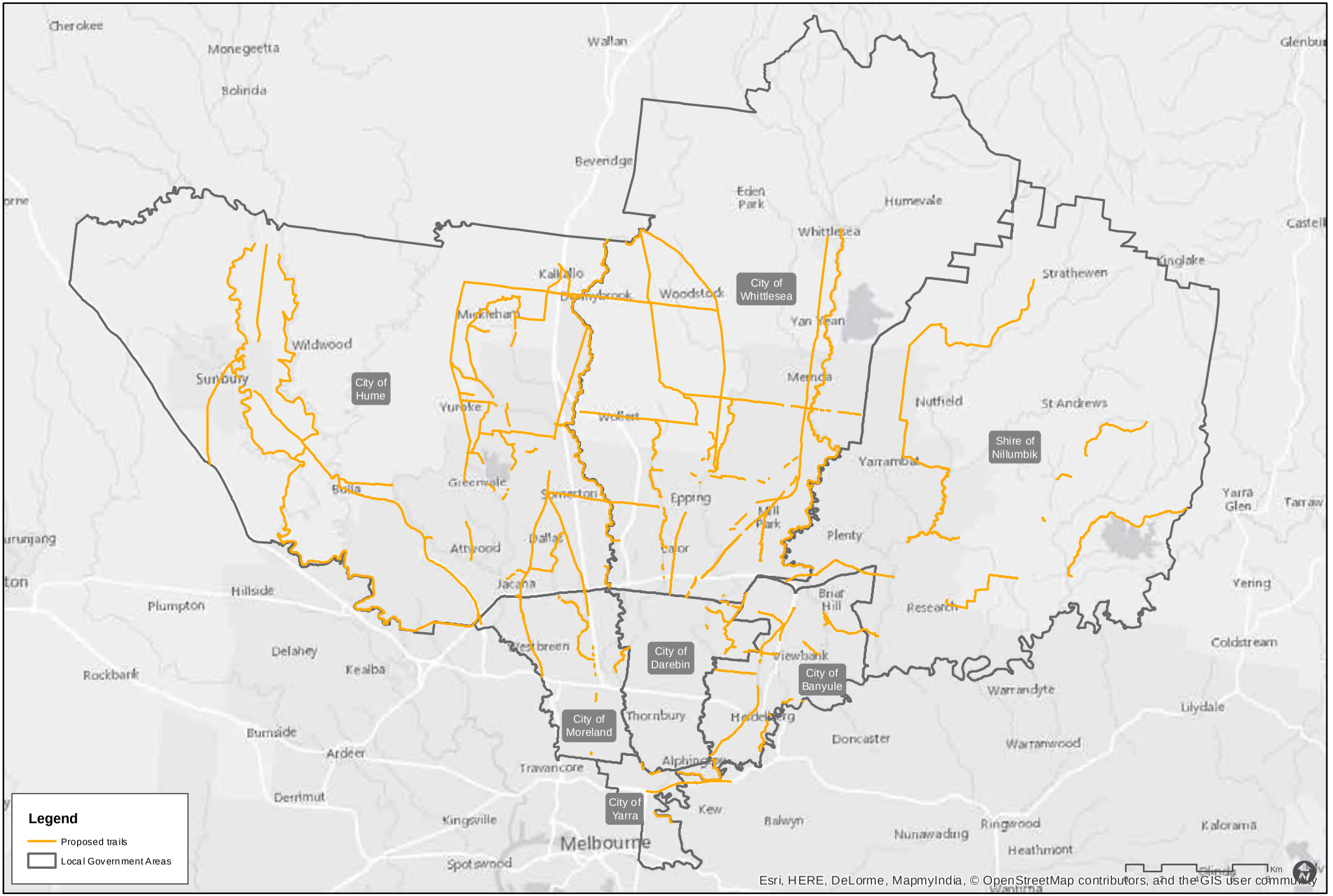


Figure 7 - Proposed regional trails in the north

ARUP

4 Multi-criteria analysis

After proposed trail projects were identified and refined according to regional significance; a multi-criteria analysis was undertaken to prioritise the 96 identified northern regional trails in relation to their alignment with the Strategy vision and policy context.

The multi-criteria analysis approach provides a method to evaluate a large range of disparate criteria in a consistent and replicable manner. The multi-criteria analysis amalgamates 'scores' for a series of criteria, using a weighting system to consider the relative importance of each criterion.

4.1 Criteria

Criteria were developed to assess the alignment of each project against the vision and overall policy context of the Northern Regional Trail Network, against the following areas:

Project Characteristics

- Access to Regional parks and conservation areas
- Access to destinations with tourism and/or cultural heritage value[8]
- Potential to create a new, or enhance an existing tourism experience[9]
- Access to regional scale leisure centres
- Access to train stations
- Access to tertiary institutions
- Access to activity centres or business parks
- Strong amenity and recreational value
- Access to recreational water bodies
- Size of population catchment serviced within a 1km radius of the proposal regional trail

Policy Context

- Alignment with existing LGA plans
- Design stage of trail
- Land ownership
- Ease of construction
- Connectivity to existing network
- Alignment with external stakeholder plans

Metrics and weighting to 'score' trails against each of the above criteria were agreed in consultation with councils. A summary of the metrics and rating associated with each criteria is provided in Appendix A1.

[8] As nominated by Council
[9] Considered as an aggregate of the results of the amenity, recreation, cultural heritage, and historic environments and through nomination by Council

4.2 Scoring and ranking of priorities

Data was gathered and used to determine a 'score' for each of the criterion in the multi-criteria analysis for each of the proposed trails. The assessment was largely undertaken using GIS analysis. Key GIS data sources used to identify infrastructure, terrain, land use planning, and land ownership across the north included: Victorian Environmental Assessment Council; Melbourne Water; Parks Victoria; VicTrack; Victorian Government Department of Environment, Land, Water and Planning; and Melway.

The resulting scores were collated into the multi-criteria analysis spreadsheet which ranked projects according to overall alignment with the criteria in the multi-criteria analysis. The criteria, individual scores and overall evaluation of the multi-criteria analysis was reviewed by council to ensure accuracy, transparency, and alignment with council's nominated priorities.

The multi-criteria analysis identified 29 priority trails for the Northern Regional Trails Strategy, which were subsequently analysed in the cost-benefit analysis. These priority trails are shown in Figure 8 and are discussed in detail in Section 6. The full multi-criteria analysis performance matrix is provided in Appendix A.

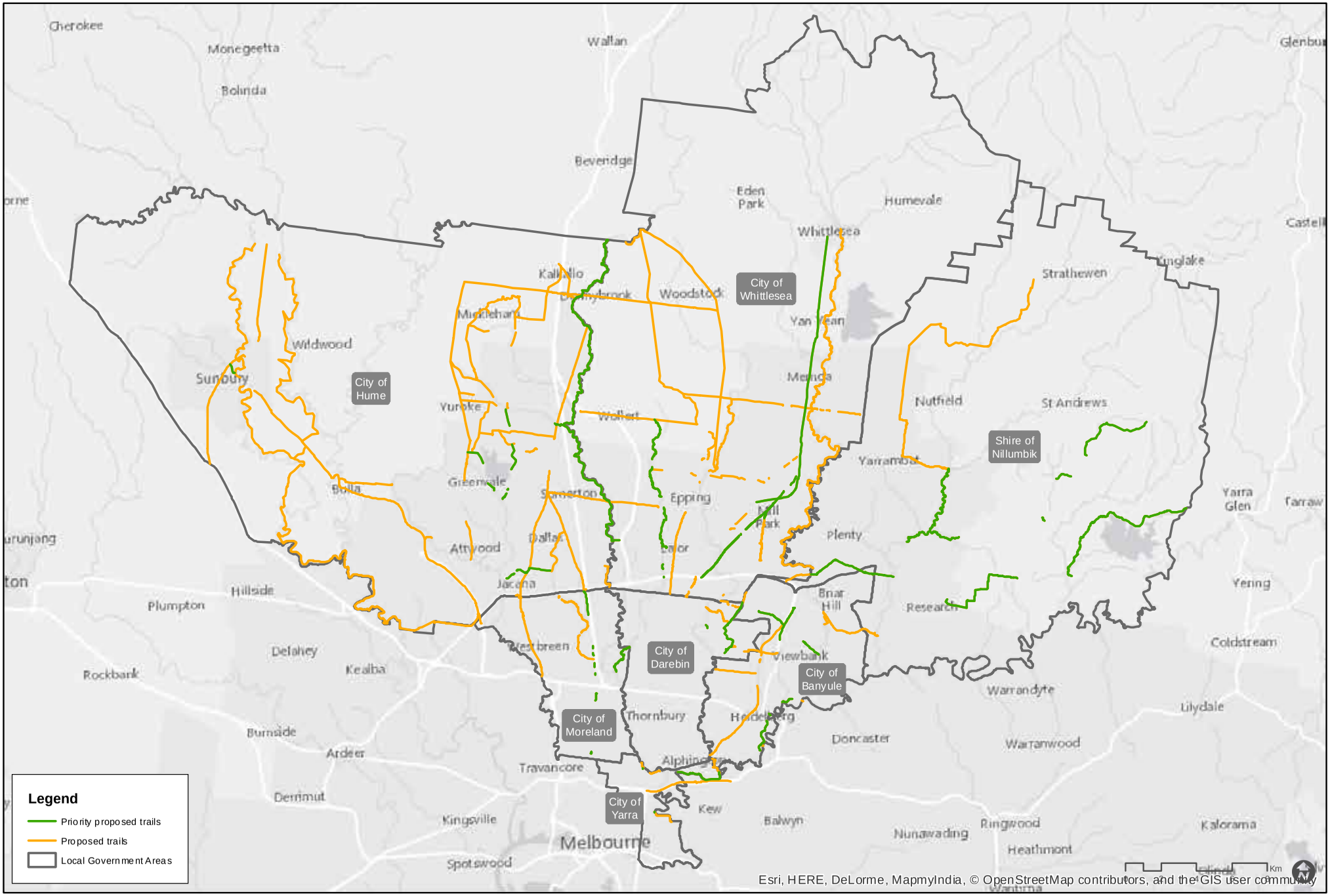


Figure 8 - Priority proposed trails in the north

ARUP

5 Cost-benefit analysis

5.1 Introduction

A cost-benefit analysis provides a consistent and sound process for evaluating the relative financial strengths and weaknesses of proposed infrastructure projects. A benefit-cost ratio greater than one over a time period of interest provides confidence for return on investment.

A cost-benefit analysis was undertaken for the entire Northern Regional Trails Network to provide an indication of the relative forecast costs and benefits of implementing proposed regional trails. The assessment has considered the benefit-cost ratio for the first year of operation and over a 30 year design life of a recreational trail for both 3m and 4m width options.

A summary of the assessment approach undertaken to determining the costs and benefits for each trail is provided in Figure 9 and expanded on below. A more detailed explanation provided in Appendix B.

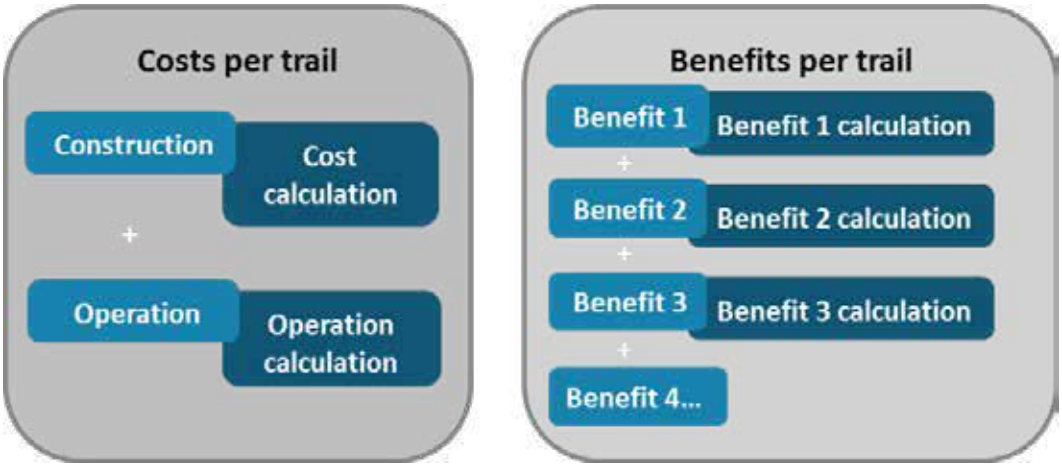


Figure 9 Cost and benefit calculation per trail

Overall, the cost-benefit analysis demonstrates that there is a high long-term benefit-cost ratio associated with implementation of the Northern Regional Trails network. Implemented as a whole, the network will be a significant asset to Victoria.

5.2 Costs

The capital works and maintenance costs were identified for each proposed trail. Table 4 provides a breakdown of entire network costs after one year. This was also calculated for a 30 year design life.

Table 4 Entire network costs after one year

Cost category	Entire network cost ($) after one year	
	Trail width 3m	Trail width 4m
Construction	162,015,000	207,872,000
Maintenance	7,212,000	9,616,000

5.3 Benefits

5.3.1 Approach

Section 2 of the Northern Regional Trails Strategy describes the numerous social, transport, economic and environmental benefits associated with recreational trails. The benefits assessment monetises these benefits to enable a comparison of the cost of construction and operation and the benefits that will accrue through its use.

In considering these benefits it is recognised that, in general, there will be differences between councils in the extent of benefit for each metric. To address this a scaling factor has been applied to provide for specific geographic considerations.

The benefit calculation has involved the following stages, as presented in Figure 10:

1. The public benefits associated with recreational trail use were identified from a literature review;
2. A suitable quantified benefit metric rates was identified for recreational trails each benefit on a $ per km cycled basis;
3. Each benefit metric was converted into a standard 'per kilometre of trail' rate to provide a common assessment base for both the 3m wide and 4m wide scenario;
4. For each benefit metric, scaling factors were identified to account for variations across each Council and particular trail location. Scaling factors were based on a ratio of 1;
5. Each benefit was quantified by multiplying the converted and scaled standard benefit metric rate by the proposed trail length;
6. The output from each benefit calculation was summed to determine the overall benefit value for a proposed trail; and
7. The benefit was determined after one year and 30 years and for 3m and 4m width scenarios.

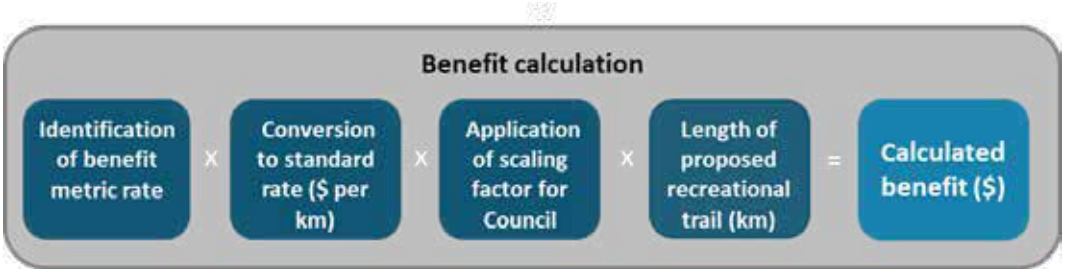


Figure 10 Calculation process for each benefit

This process was undertaken for each benefit for each trail of the proposed Northern Regional Trails Network. The exception was the benefit associated with increased tourism value, which was calculated for implementation of the entire trail network.

5.3.2 Benefit metrics

The benefits associated with constructing the Northern Regional Trails are outlined in Section 2. Where possible, these benefits have been monetised and quantified for inclusion in the cost-benefit analysis. They can be categorised according to the type of trail use that they are associated with, as follows:

- Benefits associated with increased commuting;
- Benefits associated with increased or improved recreation;
- Benefits associated with increased tourism;
- Land value benefits; and
- Construction benefits.

These benefits have been quantified per kilometre of trail constructed as shown in Table 5 (with the exception of tourism and construction benefits).

The benefits associated with land value increase have been excluded from the cost-benefit analysis as it is assumed that these benefits accrue to private home-owners rather than the wider community. Construction benefits have been quantified through job creation, and are also reported separately from the cost-benefit results.

Table 5 Benefit metrics

Benefit category	Benefit	Value	Unit	Included in cost-benefit analysis
Commuting benefits	Reduce absenteeism benefits and improved worker productivity	$0.09	$/km cycled	✓
		$78,000	$/km track	✓
	Savings in user costs	$0.10	$/km cycled	✓
		$80,000	$/km track	✓
	Reduced road congestions	$0.15	$/km cycled	✓
		$123,000	$/km track	✓
	Greenhouse gas reduction	$0.004	$/km cycled	✓
		$3,000	$/km track	✓
Recreation benefits	Public health - walking	$2.25	$/km walked	✓
		$210,000	$/km track	✓
	Public health - cycling	$1.17	$/km cycled	✓
		$984,000	$/km track	✓
Tourism benefits	Cycling tourism	6% annual increase in Victorian cycling related tourism spending if whole network is built		✓
Land value benefits	Property value	$3,000	$/km track	Excluded as benefits are private
Construction benefits	Employment creation	1 construction FTE per $250,000 capital construction		Reported as FTE

As shown in Figure 10, these general benefit metrics have been scaled when assessing each trail. This accounts for the variations in assumed trail usage based on the unique features of each Council in the northern region. Three types of scaling factors have been applied to each trail:

- Purpose factor – as the primary purpose of the Network is to encourage recreational use, benefits accrued through recreation are scaled up by 50%, while those accrued through increased commuting are scaled down by 50%;
- Council based factors – this accounts for the general differences in commuter behaviour and factors influencing tourism at the Council level; and
- Trail-based factors – this accounts for the density of people surrounding the particular trail, which influences the assumption of trail usage.

The scaling factors applied to each type of benefit are summarised in Table 6. These factors are applied horizontally across the table to each of the benefits.

Table 6 Benefit scaling factors

<table>
<tr><th>Benefit category</th><th>Purpose factor</th><th colspan="2">Council-based factor</th><th>Trail-based factor</th></tr>
<tr><td>Commuting benefits</td><td>Decreased by 50%</td><td colspan="2">Public Transport
A measure of the percentage of a council’s population who commutes via public transport to work. This reflects the accessibility of public transport in a council area. Commuting benefits were scaled to public transport, as close proximity to train, tram or bus stations will likely increase the use of the trails as commuters could walk or cycle to public transport stations via them.</td><td rowspan="2">Utilisation
A measure of the population clustered within 2 km of a proposed trail. Higher population close to the trails increases benefits as more people use the trails.</td></tr>
<tr><td>Recreation benefits</td><td>Increased by 50%</td><td>Industry
A measure of the level of industries complimentary to recreational trail use, including retail, food and accommodation. Accessibility to such industries via the trails will likely increase the usage of them.</td><td>Land Use
A measure of the areas of conservation and bodies of water in the council. Proximity to these areas will likely increase the recreational usage of the trails.</td></tr>
<tr><td>Tourism benefits</td><td colspan="4">N/A</td></tr>
<tr><td>Land value benefits</td><td>N/A</td><td colspan="2">Rent
An indicator of property values within each council</td><td>Dwellings
A measure of the number of dwellings clustered within 2 km of a proposed trail.</td></tr>
<tr><td>Construction benefits</td><td colspan="4">N/A</td></tr>
</table>

5.3.3 Summary of benefits

The calculated benefits associated with the Northern Regional Trails Network are summarised in Table 7.

Table 7 Entire network benefits after one year

Benefit category	Benefits	Entire network benefit ($) after one year	
		Trail width: 3m	Trail width: 4m
Commuting benefits	Reduce absenteeism and improved worker productivity	6,998,000	10,996,000
	Savings in user costs	7,186,000	11,292,000
	Reduced road congestions	10,986,000	17,263,000
	Greenhouse gas reduction	301,000	473,000
Recreation benefits	Public health - walking	18,760,000	29,480,000
	Public health - cycling	87,796,000	137,965,000
Tourism benefits	Cycling tourism	24,280,000	38,155,000
Land value benefits	Property value	1,366,000	2,146,000
Construction benefits	Employment creation	650 FTE	870 FTE

5.4 Cost Benefit Analysis outcomes

An analysis was undertaken of the calculated costs and benefits of the entire network. These results are summarised in Table 8. A time period of 30 years was chosen for the analysis, in line with standard design life and existing best practice studies. The analysis shows a high benefit-cost ratio over the long term when the full trail network is implemented at either 4 metres width (12.0) or 3 metres width (9.9).

The results demonstrate that construction of the network would represent significant value to the northern community and wider Victorian region, with consideration to economic, social and environmental value. If efficient maintenance costs remain constant, then the benefits are likely to continue to exceed costs where the asset life is extended beyond the set 30 year period.

It is important to note that given the size of the network and lack of detail around proposed design, this cost-benefit analysis was conducted at a high level. The analysis should be treated as a decision-support tool informing the way forward, rather than a detailed or absolute measure of net benefits available from this investment.

Table 8 Entire network benefits and costs

	Period	Cost ($)	Benefits ($)	Benefit-Cost Ratio	FTE creation (construction phase)
Trail width: 3 metres	1 year	169,227,000	159,103,000	**0.9**	650
	30 years	294,658,000	2,926,224,000	**9.9**	
Trail width: 4 metres	1 year	217,488,000	250,019,000	**1.1**	870
	30 years	384,729,000	4,598,353,000	**12.0**	

6 Priority trails

This Strategy identifies 96 proposed trails which comprise a comprehensive, integrated regional trail network across the northern region, the Northern Regional Trail Network. Each of the proposed trails is identified in Appendix A1. It is acknowledged that, while whole-of-network implementation will be crucial to its long term success and functionality, this is likely to take place in the long-term over a number of stages.

With this long-term view in mind, the entire proposed trail network has been carefully assessed using multi-criteria analysis to understand the short-term priority projects. These projects have been identified as those which most strongly align with regional priorities; and those which have minimal barriers to implementation. The assessment of each trail is contained in Appendix A3. Those trails assessed as priority projects are presented by municipality in Table 9, with further detail contained in the following section. The overview map for each municipality identifies existing, proposed and priority trails.

Table 9 Priority projects by municipality

Council	Trail	Map Reference
Banyule	Banyule Shared Trail	B1
	Unnamed East-West Power Easement	B6
	Main Yarra Trail bridge	B8
	Main Yarra Trail realignment	B11
	Banyule Shared Trail	B14
Darebin	Darebin Creek Trail bridge	D2
	La Trobe University Shared Path	D7
	Plenty Road Shared Path	D8
Hume	Aitken Boulevard Shared Path	H1
	Aitken Creek Shared Path	H2
	Blind Creek Trail Link	H4
	Greenvale Reservoir Park Trail	H12
	Meadowlink shared pathway	H17
	Yuroke Creek Trail (to Greenvale Reservoir Park)	H18
	Merri Creek Shared Trail	H20
Moreland	Upfield Rail Trail - South	M3

Council	Trail	Map Reference
	Upfield Rail Trail - North	M2
	Edgars Creek Trail	M4
Nillumbik	Diamond Creek Trail	N1
	Aqueduct Trail	N2
	Green Wedge Trail	N3
Whittlesea	Edgars Creek Trail	W9
	Merri Creek Trail Link	W20
	Whittlesea Rail Trail	W24
	Yan Yean Pipe Trail	W25
	Plenty Road Shared Path	W27
Yarra	Main Yarra Trail – Gipps St Steps	Y7
	Yarra River Northern Trail	Y4
	Rushall Underpass	Y9

6.1 Banyule

6.1.1 Council Context

The City of Banyule spans 21 suburbs over 63 square kilometres of land, to the north-east of central Melbourne. Banyule is bordered by the Yarra River to the south and Darebin Creek to the west. The municipality is known for a number of recreational, environmental and tourism features including Warringal Parklands, Darebin Parklands, Yarra Flats Metropolitan Park, Banyule Flats Reserve and the Heidelberg Gardens.

Banyule already hosts a number of major off-road trails including the Plenty River Trail; the Banyule Shared Trail; Hurstbridge Line Rail Trail; and sections of the Main Yarra Trail and Darebin Creek Trail.

Banyule City Council has a number of strategic documents in place associated with future development of the trails network and progression of recreational cycling across the municipality. The Banyule City Council *Banyule Bicycle Policy 2010-2020* outlines the vision that *'Banyule has safe, convenient and accessible conditions for commuter and recreational cyclists of all ages and abilities.'* This is supported by commitments to fund the planning, design, construction and maintenance of bicycle projects and programs at an adequate level and to complete the off-road Principal Bike Network by 2019 (Bicycle Policy).

The Banyule City Council *Bicycle Strategy 2010-2020* details Council's objectives, strategies and actions in relation to improving cycling facilities and access for all. It specifically advocates for encouraging recreational cycling and completion the gaps in the off-road shares trail network. One of the key objectives identified in the document is to *'Upgrade Council's off-road shared trails to meet the needs and requirements of both recreational and commuter cyclist.'*

The Banyule City Council *Public Open Space Strategy 2007-2012* includes a range of recommendations in relation to off-road shared trails, including improving linkages between public open space parcels and community facilities,

raising the standard of key shared trails, improving signage, creating trail loops, and improving consistency in trail surface throughout the network.

Further, Council's *Recreation Strategy 2008-2013* identified that many recreation opportunities in the municipality are limited to those that can be accessed free of charge and that the provision of parks, playgrounds and bicycle paths is critical in this area.

6.1.2 Overview of Priority Trails

Five priority trails have been identified in the municipality of Banyule as shown overleaf in Figure 11.

- Banyule Shared Trail (B1)
- Unnamed East-West Power Easement (B6)
- Main Yarra Trail Bridge (B8)
- Main Yarra Trail (B11)
- Banyule Shared Trail (B14)

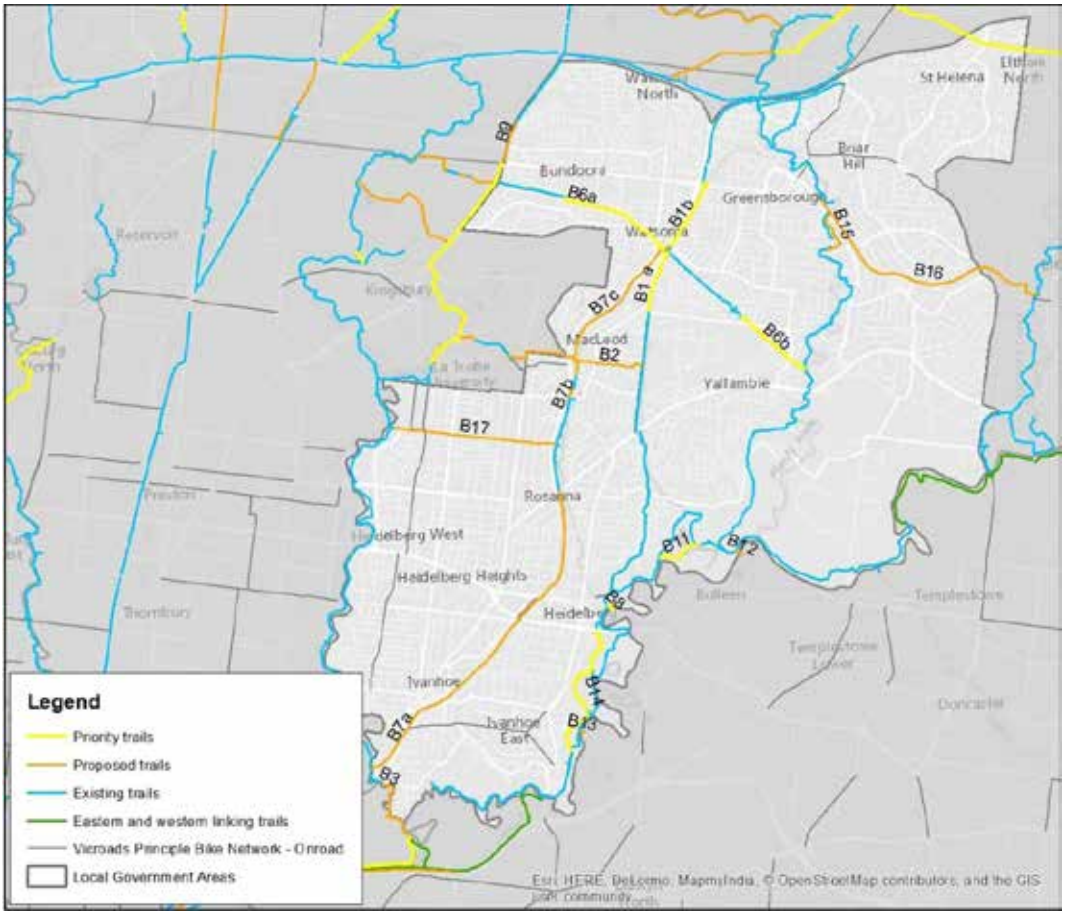


Figure 11 Northern Regional Trails Network priority trails – City of Banyule

6.1.3 Banyule Shared Trail (B1)

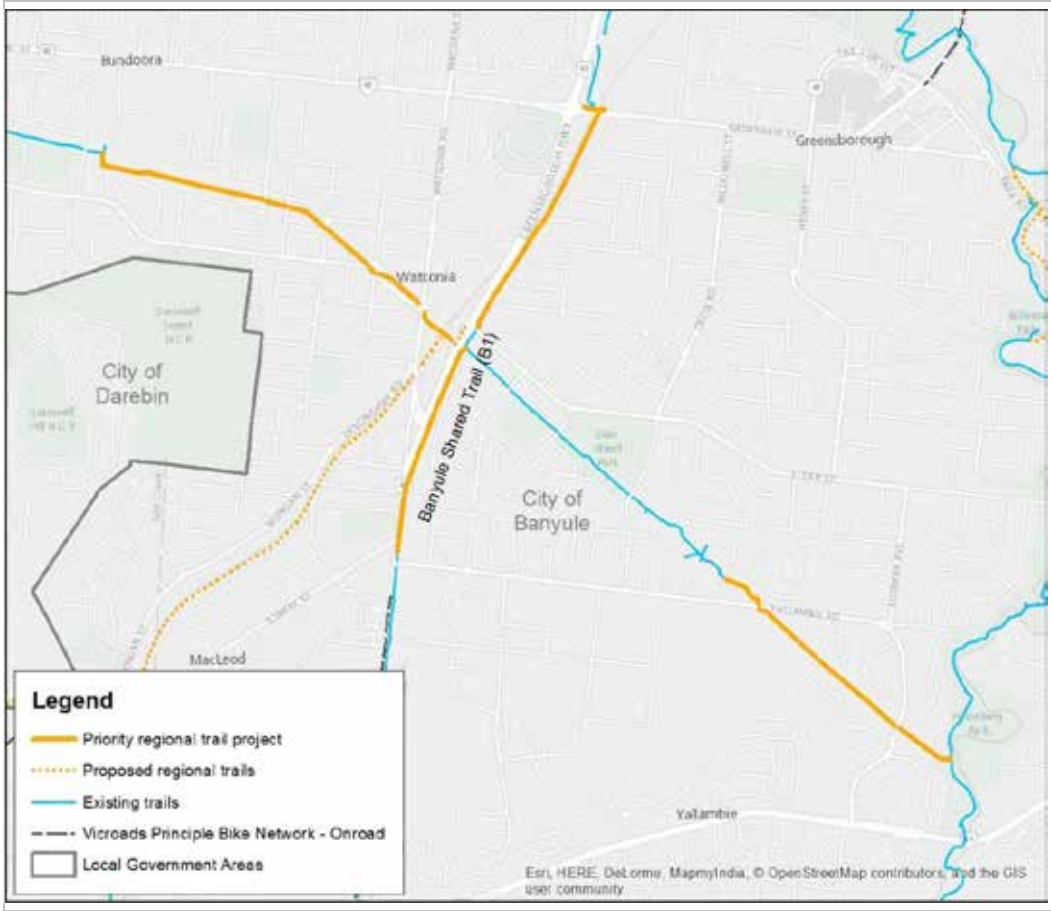
This portion of the Banyule Shared Trail is split into two sections:

- Southern portion of the trail from Yallambie Road north to the northern end of Service Road (B1a).
- Northern portion of the trail from Elder Street north to Grimshaw Street (B1b).

The trail runs adjacent to the Greensborough Highway and links the existing Banyule shared trail to the south, the Greensborough Highway Trail to the north, the existing Gabonia Avenue Reserve trail to the east, the proposed East-West Power Easement trail to the west.

The trail provides access to Watsonia Train Station and links to the nearby Gresswell Forest Nature Conservation Reserve and nearby activity centres and business parks. The size of the population catchment serviced within a one kilometre radius of the proposed trail is also relatively high, the land is owned by the City of Banyule and the trail aligns with council priorities.

Trail profile



Key characteristics	
Length of trail	2km
Current design stage	No design undertaken to date
Key benefits	Provides access to train stations, activity centres, and a number of proposed and existing trails; services a large local population catchment
Tourism features	Gresswell Forest Nature Conservation Reserve

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit cost ratio
3m	1	648,000	30,000	2,822,000	7,000	4.2
	30		552,000	51,896,000	133,000	43.2
4m	1	828,000	40,000	4,434,000	7,000	5.1
	30		736,000	81,551,000	133,000	52.1
Employment creation in construction phase – 2.6 FTE for 3m trail, 3.3 FTE for 4m trail						

6.1.4 East-West Power Easement (B6)

The East-West Power Easement trail is broadly in two halves:

- Western side: extends from Plenty Road to Watsonia Road / Railway Station / Greensborough Highway precinct.
- Eastern side: extends from the Greensborough Highway to the Plenty River Trail.

The western side of the trail links with the proposed Hurstbridge Rail line trail and to the existing NJ Teffler Reserve trail. The eastern half of the trail runs between the Greensborough Highway and Wendover Place, Yallambie. Along the length of the trail there are a number of privately owned parcels of land; while VicTrack owns the land around Watsonia Railway Station.

The trail provides potential links and access to a range of social infrastructure including the Gresswell Forest Conservation Reserve, Watsonia train station and local activity centres including Bundoora. The size of the population catchment serviced within a one kilometre radius of the proposed trail is also relatively high. The concept design has already been completed for this section of the trail.

Table 10 East-West Power Easement Trail overview (B6)

Trail profile

Key characteristics	
Length of trail	1.70 km
Current design stage	Concept design partially completed
Key benefits	Strong tourism and recreation value; provides access to train stations, activity centres, and regional water bodies; services a large local population catchment
Tourism features	Gresswell Forest Nature Conservation Reserve Heidelberg Golf Club

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit cost ratio
3m	1	510,000	24,000	1,698,000	7,000	**3.2**
	30		435,000	31,221,000	127,000	**33.0**
4m	1	652,000	32,000	2,668,000	7,000	**3.9**
	30		580,000	49,061,000	127,000	**39.8**
Employment creation in construction phase – 2.0 FTE for 3m trail, 2.6 FTE for 4m trail						

6.1.5 Main Yarra Trail bridge (B8)

This project is to link the Main Yarra Trail with a bridge crossing the Yarra River into Banksia Park to the south junction of the Main Banyule Trail and the Banyule Trail.

The trail characteristics rank highly as the trail provides access to Yarra Valley Parklands. The bridge will also provide a connection between the Heidelberg School Artists Trail and the Heide Museum of Modern Art. It will make the Heidelberg Railway station more accessible to residents east of the Yarra.

The bridge is favourable in terms of amenity and recreational value; and will provide access to the Heidelberg activity centre. In regards to the policy context, some of the land is owned by Council and the trail has been identified in the Banyule and Manningham Cycle Strategies.

Funding has not yet been secured for the development of this bridge and a feasibility study is required to identify the most appropriate crossing point. In addition, the riparian land on both sides of the river is either Crown Land managed (by councils or Parks Victoria) or is Council Freehold Land.

Table 11 Main Yarra Trail Bridge overview (B8)

Trail profile	
	
Key characteristics	
Length of trail	0.10 km
Current design stage	No design

Key benefits	High tourism, amenity and recreational value; access to regional parks and conservation areas, activity centres, and recreational water bodies; services a large local population catchment
Tourism features	Heidelberg Gardens Heide Museum of Modern Art Banksia Park Heidelberg School Artists Trail Warringal Parklands Yarra Flats

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit - cost ratio
3m	1	1,500,000	2,000	904,000	200	**0.6**
	30		28,000	16,628,000	4,000	**10.9**
4m	1	2,500,000	2,000	1,421,000	200	**0.6**
	30		37,000	26,130,000	4,000	**10.3**

Employment creation in construction phase – 6.0 FTE for 3m trail, 10.0 FTE for 4m trail

6.1.6 Main Yarra Trail realignment (B11)

This portion of the Main Yarra Trail encompasses the realignment of the Main Yarra Trail through Banyule Flats.

With close proximity to Yarra Valley Parklands and the existing Main Yarra Trail, the trail has the potential to enhance access to key local tourism features including Heidelberg Artist's Trail and Warringal Parklands. The realignment will shorten the commuter route along major existing trails, and provide direct access to wetlands in Banyule Flats Reserve. The trail has strong recreational and amenity values as it will run alongside the river behind the Greenery Garden Centre (between Dora Street and Banksia Street). In addition it will improve public safety through the removal of the steep hairpin bend under the Banksia Street bridge and the elimination of the crossing at the busy nursery driveway.

The proposal to provide a more direct route for the Main Yarra Trail across Banyule Flats also includes the development of a separate nature walk around the southern end of the wetlands, as well as maintaining the existing route to form part of a local recreation loop around the northern end of the wetlands.

The trail aligns with existing LGA plans; detailed design was completed in 2007 and Council is currently seeking funding from State Government. In addition, State Government is progressing negotiations to acquire land to enable the development of the trail. Construction cost for a 3 metre wide concrete trail was estimated at $650,000 in 2007.

Table 12 Main Yarra Trail realignment overview (B11)

Trail profile

Key characteristics	
Length of trail	0.66 km
Current design stage	Detailed design
Key benefits	High tourism, amenity and recreational value; access to regional parks and conservation areas and recreational water bodies; services a large local population catchment
Tourism features	Heidelberg Artist's Trail Warringal Parklands Banksia Park

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit - cost ratio
3m	1	213,000	10,000	1,011,000	2,000	**4.5**
	30		181,000	18,600,000	31,000	**47.2**
4m	1	272,000	13,000	1,589,000	2,000	**5.6**
	30		241,000	29,229,000	31,000	**57.0**

Employment creation in construction phase – 0.9 FTE for 3m trail, 1.1 FTE for 4m trail

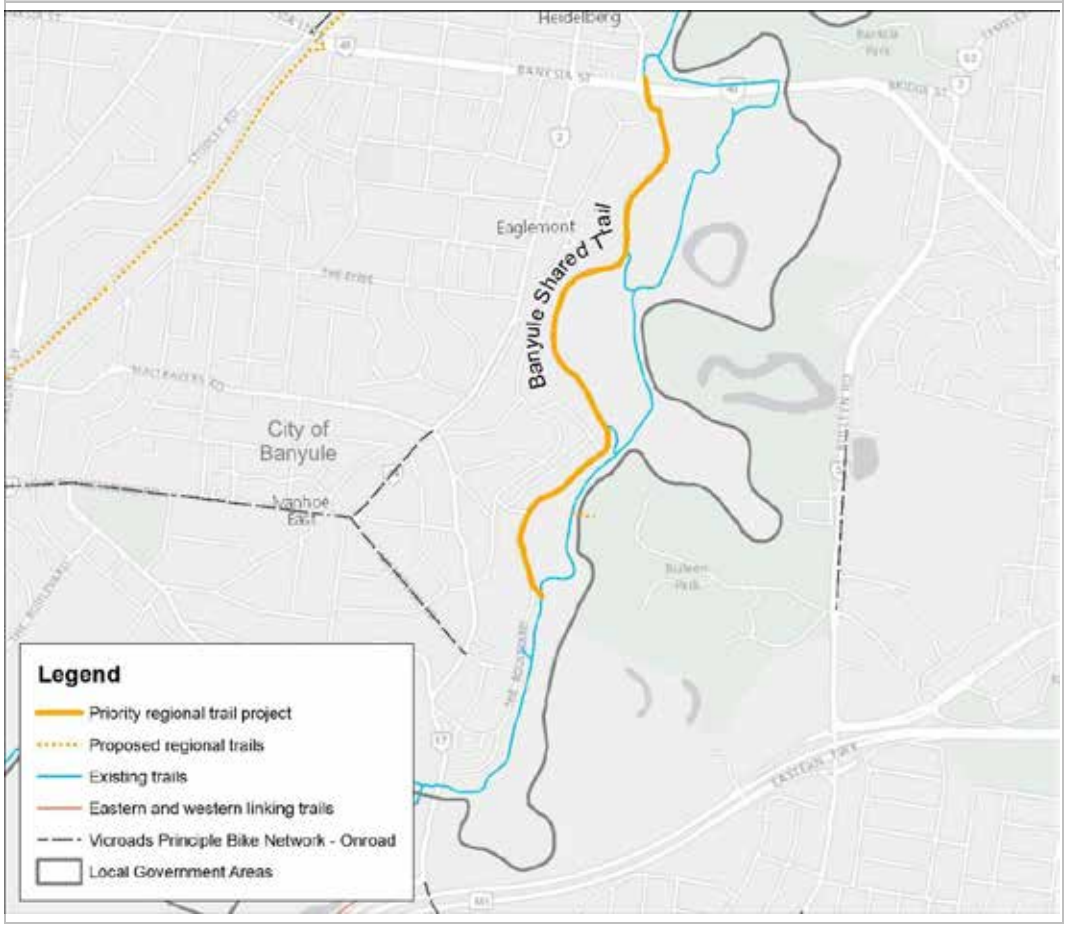
6.1.7 Banyule Shared Trail (B14)

This portion of the Banyule Shared Trail encompasses the trail south from Banksia Street to a junction with the Yarra Trail just to the north of MacArthur Road. The trail is adjacent to the western boundary of Yarra Flats Metropolitan Park and also runs alongside the Boulevard, however the trail is not part of the Main Yarra Trail which Parks Victoria has indicated will remain unsealed.

The trail provides access to Yarra Valley Parklands and nearby Annulus Billabong Sanctuary. It has the potential to build upon tourism value in the area by providing increased access to the Heidelberg Artist's Trail. The trail also provides improved access to activity centres, amenity and recreational value. In addition, this trail would be generally above the floodplain.

With regards to the policy context, a feasibility study and concept design has been undertaken for the project. While some of the trail is on Parks Victoria land (along the western boundary of Parks Victoria managed Yarra Flats Park), much of the proposed trail is on Council land. A short section will also need to be constructed from its junction with the Main Yarra Trail adjacent to the eastern edge of the Boulevard to MacArthur Road to link the trail to the on-road network.

Table 13 Banyule Shared Trail overview (B14)

Trail profile


Key characteristics						
Length of trail	2.10 km					
Current design stage	Concept design					
Key benefits	High tourism, amenity and recreational value; access to regional parks and conservation areas, activity centres and recreational water bodies; services a large local population catchment					
Tourism attractions	Heidelberg Artist's Trail Yarra Flats Heidelberg Gardens Banksia Park					
Benefits and costs analysis						
Width	**Year**	**Construction cost ($)**	**Maintenance cost ($)**	**Wider economic benefits ($)**	**Private land value benefits ($)**	**Benefit cost ratio**
3m	1	679,000	31,000	1,347,000	7,000	**1.9**
	30		578,000	24,775,000	134,000	**19.7**
4m	1	867,000	42,000	2,117,000	7,000	**2.3**
	30		771,000	38,933,000	134,000	**23.8**
Employment creation in construction phase – 2.7 FTE for 3m trail, 3.5 FTE for 4m trail						

6.2 Darebin

6.2.1 Council Context

The City of Darebin spans 52 square kilometres to the north of Melbourne's Central Business District, and has a population of approximately 146,797. Darebin hosts a diverse community and is home to a number of regionally significant tourism features including the Darebin Arts and Entertainment Centre, International Sports Centre, La Trobe Wildlife Sanctuary and Bundoora Park. Darebin also La Trobe University as well as the emerging La Trobe National Employment Cluster.

Darebin is bordered by Darebin Creek to the east and Merri Creek to the west. Major existing trails within the municipality include the St Georges Road Reserve Path; G.E. Robinson Park Path; and sections of the Darebin Creek Trail and Merri Creek Trail.

Darebin City Council has a number of strategic documents in place associated with the future development of trails network and progression of recreational cycling in the municipality. The *Darebin Cycling Strategy 2013* is a five year plan which aims to create a culture of cycling by making riding enjoyable, relaxing and safe; making Darebin a place where travelling by bicycle is encouraged and prioritised for most people. It builds on the previous 2005 Cycling Strategy and 1998 Bicycle Plan to identify issues and network gaps that need to be improved. Specifically the Strategy encourages cycling for recreation and transport.

The *Darebin Transport Strategy 2007-2027* also highlights how effective cycling is in creating strong social networks, local accessibility and a vibrant economy, while reducing the negative environmental impacts of motor vehicle travel.

The *City of Darebin Council Plan 2009 – 2014* sets out Council's strategic direction for community wellbeing, planning and land use and it specifically outlines the following strategic objective from Council in relation to recreational opportunities *'We will provide and maintain a network of spaces and places designed for active and passive recreation opportunities.'*

6.2.2 Overview of Priority Trails

Three priority trails have been identified in the municipality of Darebin:

- Darebin Creek Trail (D2)
- La Trobe University Shared Path (D7)
- Plenty Road Shared Path (D8)

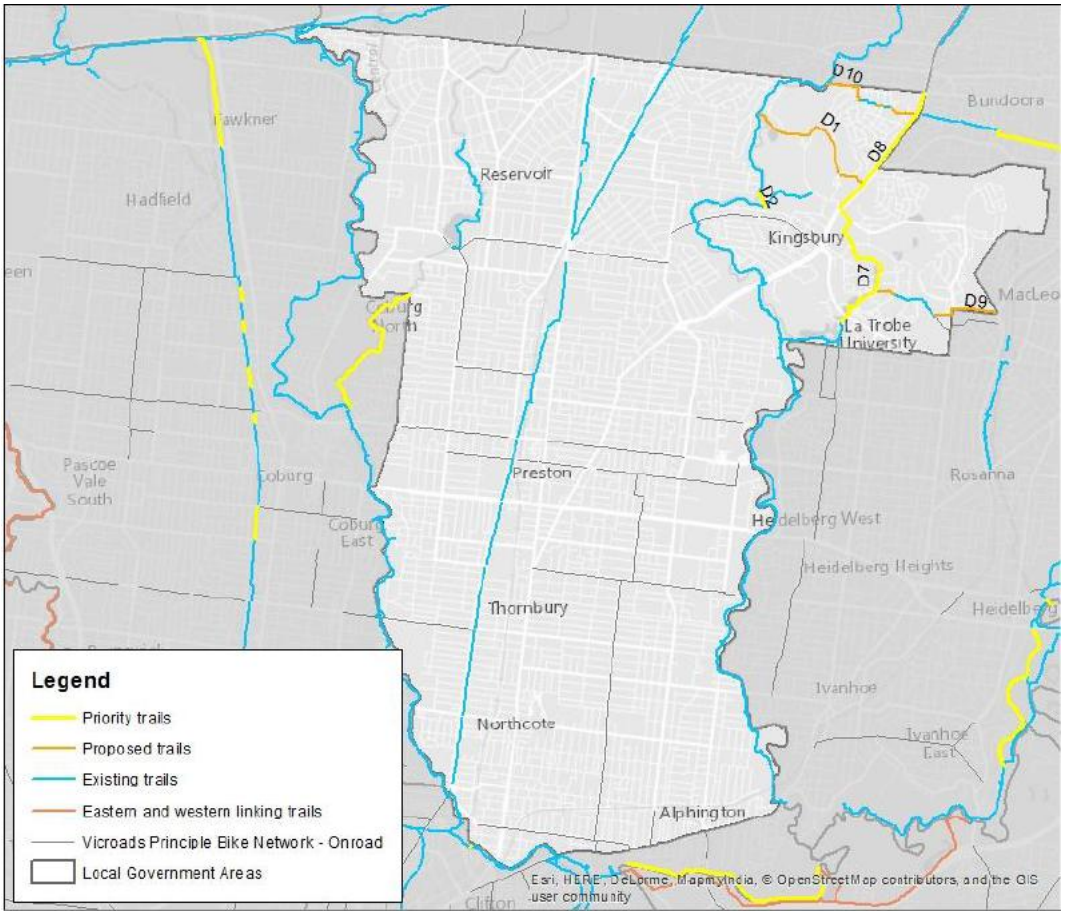


Figure 12 Northern Regional Trails Network priority trails - City of Darebin

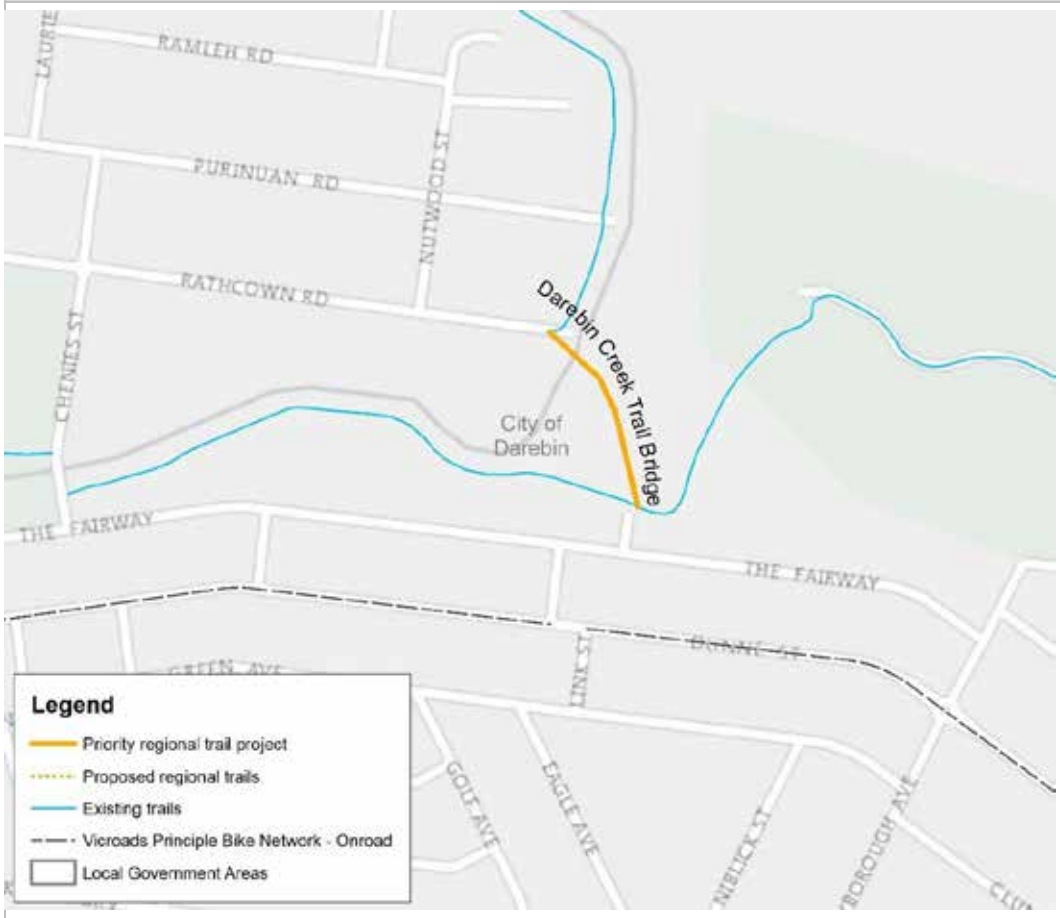
6.2.3 Darebin Creek Trail bridge (D2)

This trail project encompasses a bridge over Darebin Creek on a sealed path to Tee Street, providing a link between the existing Darebin Creek Trail (to the north-west) and Beenak/McMahon Reserve Path (to the south-east).

The trail provides improved access to the La Trobe emerging National Employment Cluster, and has strong recreational and amenity value. The population catchment serviced within one kilometre is also relatively high. With regards to the policy context, the trail aligns with existing Council plans and the concept design of the trail has been developed. The majority of the land over the length of the proposed project is owned by the Crown.

Table 14 Darebin Creek Trail bridge overview (D2)

Trail profile



Key characteristics	
Length of trail	0.20 km
Current design stage	Concept design
Key benefits	Strong amenity and recreational value; access to activity centres and recreational water bodies; services a large local population catchment
Tourism features	Bundoora Park Golf Club Kevin P Hardiman Reserve Bundoora Park (includes Coopers Settlement, Children's Farm and Heritage Village)

Benefits and costs analysis

Width	**Year**	**Construction cost ($)**	**Maintenance cost ($)**	**Wider economic benefits ($)**	**Private land value benefits ($)**	**Benefit cost ratio**
3m	1	2,592,000	3,000	994,000	600	**0.4**
	30		55,000	18,290,000	10,000	**6.9**
4m	1	3,456,000	4,000	1,563,000	600	**0.5**
	30		73,000	28,742,000	10,000	**8.1**

Employment creation in construction phase – 10.4 FTE for 3m trail, 13.8 FTE for 4m trail

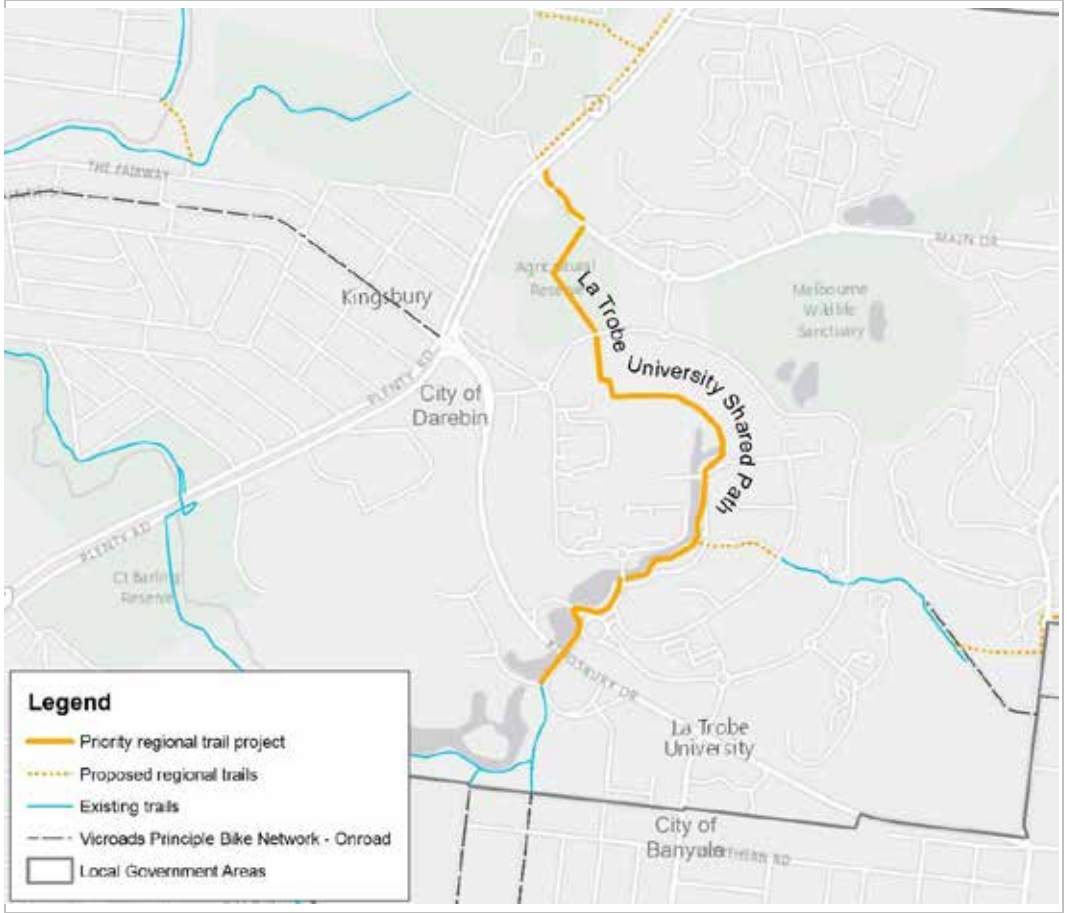
6.2.4 La Trobe University Shared Path (D7)

This La Trobe University Shared Path project provides a link from the La Trobe University Campus via Plenty Road to the existing La Trobe University Shared Path south of Kingsbury Drive; and to the proposed Plenty Road Shared Path to the north.

The trail is within close proximity to Gresswell Forest and it has the potential to enhance provide strong tourism value. It provides direct access to La Trobe University and the emerging La Trobe State employment cluster. The local population catchment is also relatively high.

While the trail concept design has been developed; key barriers to implementation are likely to be funding and land ownership.

Table 15 La Trobe University Shared Path overview (D7)

Trail profile	
	
Key characteristics	
Length of trail	1.97 km
Current design stage	Concept design
Key benefits	Strong tourism, amenity and recreational value; provides access to regional parks and conservation

	areas, tertiary institutes, activity centres and recreational water bodies; services a large local population catchment
Tourism features	La Trobe University Wildlife Sanctuary Bundoora Park (includes Coopers Settlement, Children's Farm and Heritage Village) Bundoora Homestead Art Centre

Benefits and costs analysis						
Width	**Year**	**Construction cost ($)**	**Maintenance cost ($)**	**Wider economic benefits ($)**	**Private land value benefits ($)**	**Benefit cost ratio**
3m	1	639,000	30,000	1,342,000	8,000	**2.0**
	30		544,000	24,686,000	139,000	**20.9**
4m	1	817,000	39,000	2,109,000	8,000	**2.5**
	30		726,000	38,792,000	139,000	**25.1**
Employment creation in construction phase – 2.6 FTE for 3m trail, 3.3 FTE for 4m trail						

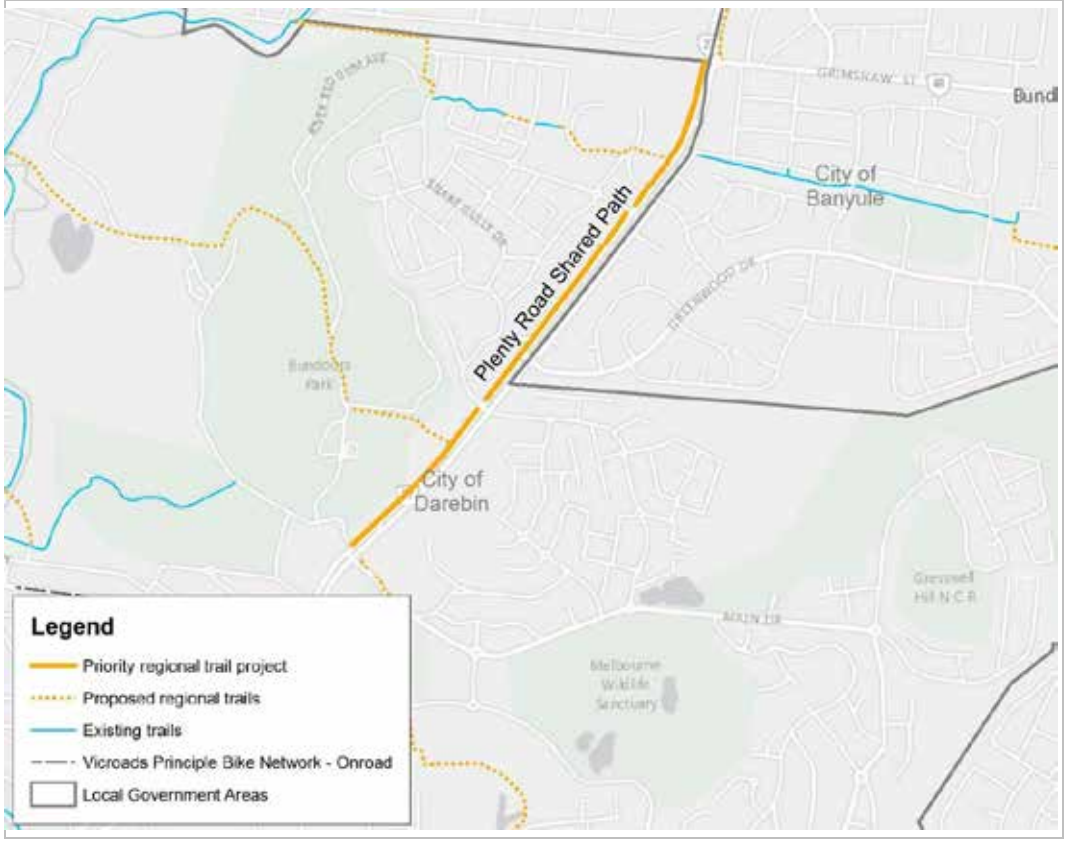
6.2.5 Plenty Road Shared Path (D8)

The Plenty Road Shared Path extends from Drive Road north to Arthur Street. The trail links to a number of other proposed trail projects including the La Trobe University Shared Path extension (D7), the proposed Bundoora Park Shared Path (D1), the Unnamed East-West Power Easement (D10) and the Banyule Plenty Road Shared Path (B9).

The trail provides to access to La Trobe University; La Trobe Wildlife Sanctuary, the emerging La Trobe National Employment Cluster. The population catchment serviced within one kilometre is high. The trail aligns with existing Council plans to provide long-term support for off-road paths as part of PBN implementation along Plenty Road. State Agency land owners including VicRoads and the Crown.

Table 16 Plenty Road Shared Path overview (D8)

Trail profile



Key characteristics	
Length of trail	1.61 km
Current design stage	No design
Key benefits	Strong amenity and recreational value; provides access to regional parks and conservation areas, tertiary institutes and activity centres; services a large local population catchment

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit - cost ratio
3m	1	522,000	24,000	1,376,000	6,000	**2.5**
	30		444,000	25,307,000	116,000	**26.2**
4m	1	666,000	32,000	2,162,000	6,000	**3.1**
	30		592,000	39,767,000	116,000	**31.6**
Employment creation in construction phase – 2.1 FTE for 3m trail, 2.7 FTE for 4m trail						

6.3 Hume

6.3.1 Council Context

The City of Hume spans a total of 504 square kilometres of land across Melbourne's northern fringe, with a population of almost 190,000 residents. Hume is one of Australia's fastest growing and culturally diverse communities. The municipality is home to Melbourne Airport and a number of recreational, environmental and tourism features including Woodlands Historic Park, Gellibrand Hill Park, Mount Ridley Nature Conservation Reserve and a number of vineyards.

Hume already hosts a number of major off-road trails including the Aitken Creek Shared Path; the Galada Tamboore Trail; the Merri Creek Trail; and the Moonee Ponds Creek Trail.

Hume City Council have a number of strategic documents in place associated with the future development off-road trails and progression of recreational cycling in the municipality.

The *Hume City Council Walking and Cycling Strategy* 2010-2015 proposes a 5 year development and upgrade program to address barriers in the existing path network and ensure barriers are minimised in new path networks.

Off-road paths in Hume are popular for recreation, social engagement in a safe space and to experience the natural environment. Paths are also becoming increasingly popular as a commuter route. Hume Council faces significant challenges in providing suitable infrastructure for its rapidly growing community; with increasing expectations paths which can cater for a wide range of age groups and abilities. Off-road paths are an important way in which Council can provide cross-municipality access to important destinations and improve connectivity across the community.

The *Hume Bicycle Network Plan 2015* identifies a complete and comprehensive cycling network of both off-road and on-road cycling paths that provide a range of routes that suit the different cycling needs of commuter, novice and recreational cyclists. The Plan aims to ensure that future cycling infrastructure is planned, designed and delivered to meet user's needs and to identify where upgrades and new paths are required.

6.3.2 Overview of Priority Trails

Seven priority trails have been identified in the municipality of Hume:

- Aitken Boulevard Shared Path (H1)
- Aitken Creek Shared Path (H2)
- Blind Creek Trail Link (H4)
- Greenvale Reservoir Park Trail (H12)
- Meadowlink Shared Pathway (H17)
- Yuroke Creek Trail (to Greenvale Reservoir Park) (H18)
- Merri Creek Shared Trail (H20)

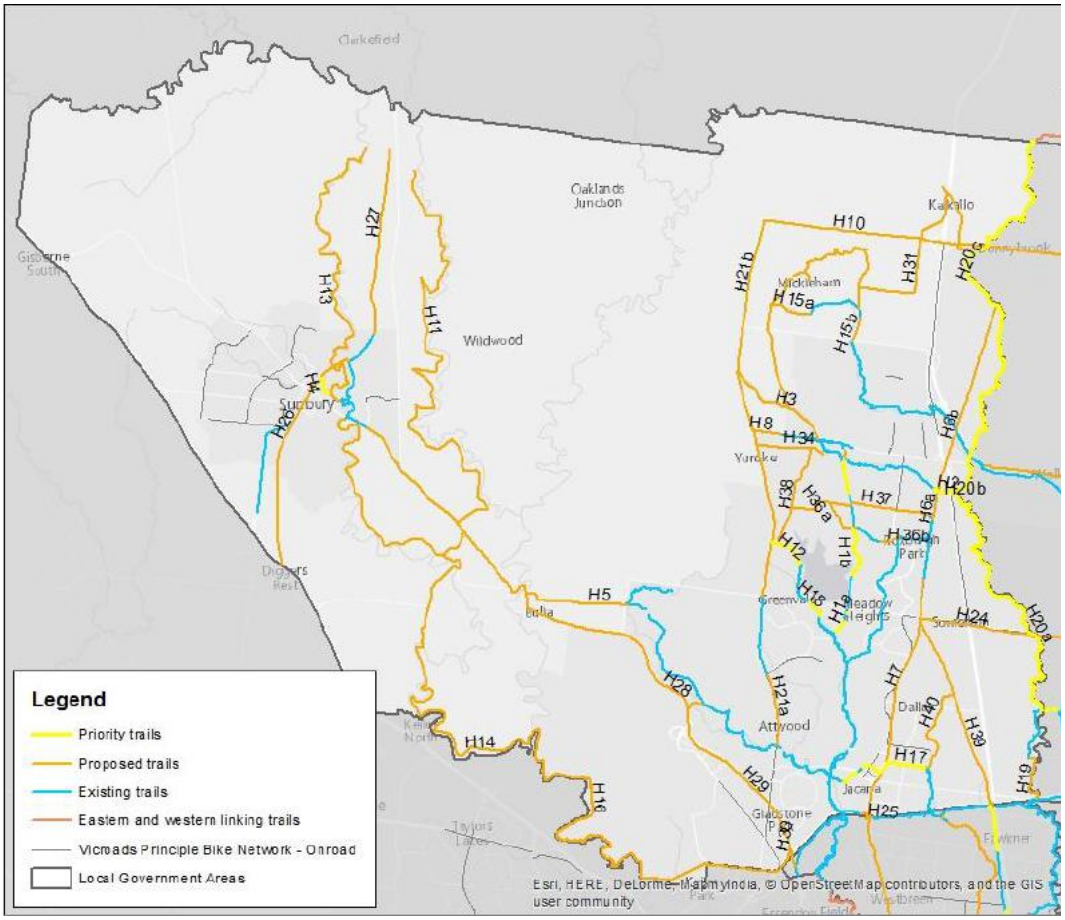


Figure 13 Northern Regional Trails Network priority trails - City of Hume

6.3.3 Aitken Boulevard Shared Path (H1)

The Aitken Boulevard Shard Path project comprises incomplete sections of the existing path from Craigieburn Road south, to join the Melbourne Pipe Track. It is divided into two sections:

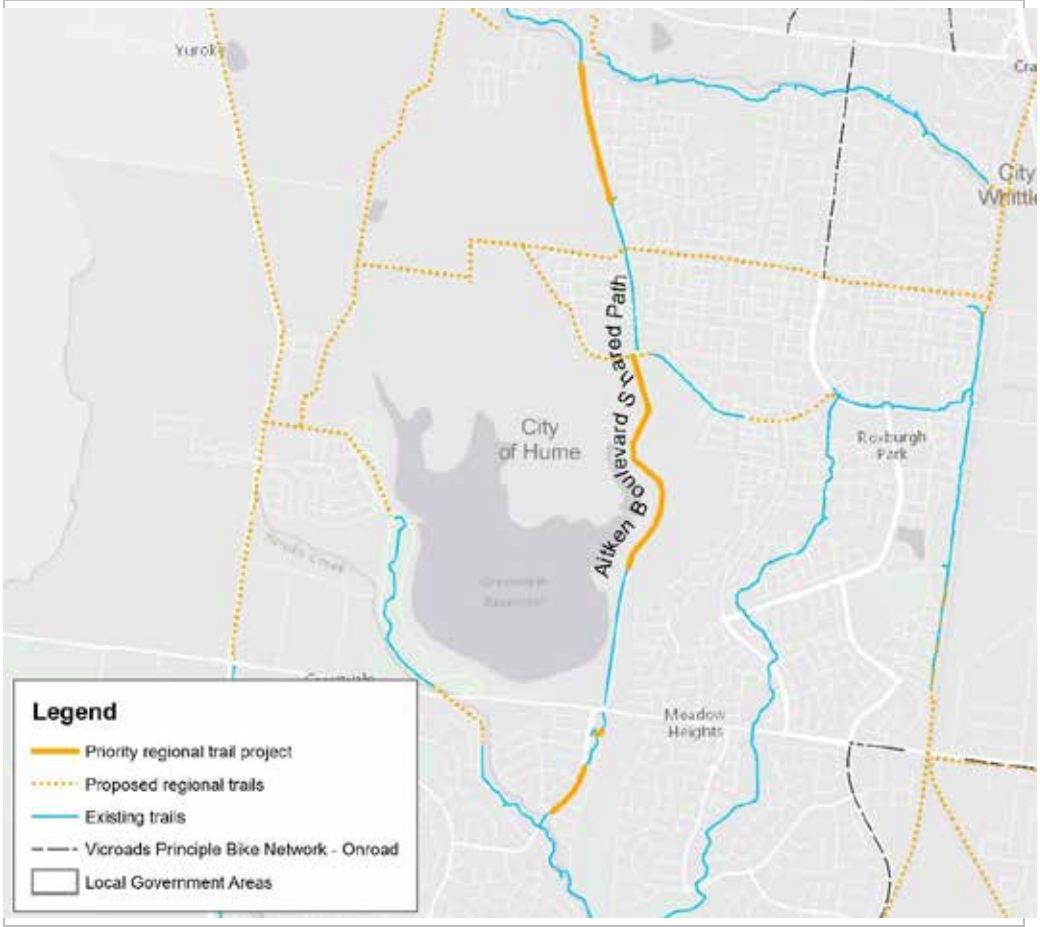
- North of Somerton Road (H1a)
- South of Somerton Road (H1b)

The trail abuts Greenvale Reservoir Park; and as such has very strong amenity and recreational value. The size of the population within one kilometre is high.

The trail is in various stages of design and construction. Some sections north of Somerton Road (H1a) are currently being constructed by developers and Council, and the rest have been designed. South of Somerton Road (H1b) has a concept design only.

Table 17 Aitken Boulevard Shared Path overview (H1)

Trail profile



Key characteristics	
Length of trail	2.97 km
Current design stage	Under construction / concept design
Key benefits	Strong amenity and recreational value; provides access to regional parks and conservation areas and recreational water bodies; services a large local population catchment; commuter opportunity
Tourism features	Craigieburn Golf Course Greenvale Reservoir Park

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit - cost ratio
3m	1	962,000	45,000	1,545,000	14,000	**1.5**
	30		819,000	28,420,000	255,000	**16.0**
4m	1	1,229,000	59,000	2,428,000	14,000	**1.9**

	30		1,092,000	44,659,000	255,000	**19.2**
Employment creation in construction phase – 3.8 FTE for 3m trail, 4.9 FTE for 4m trail						

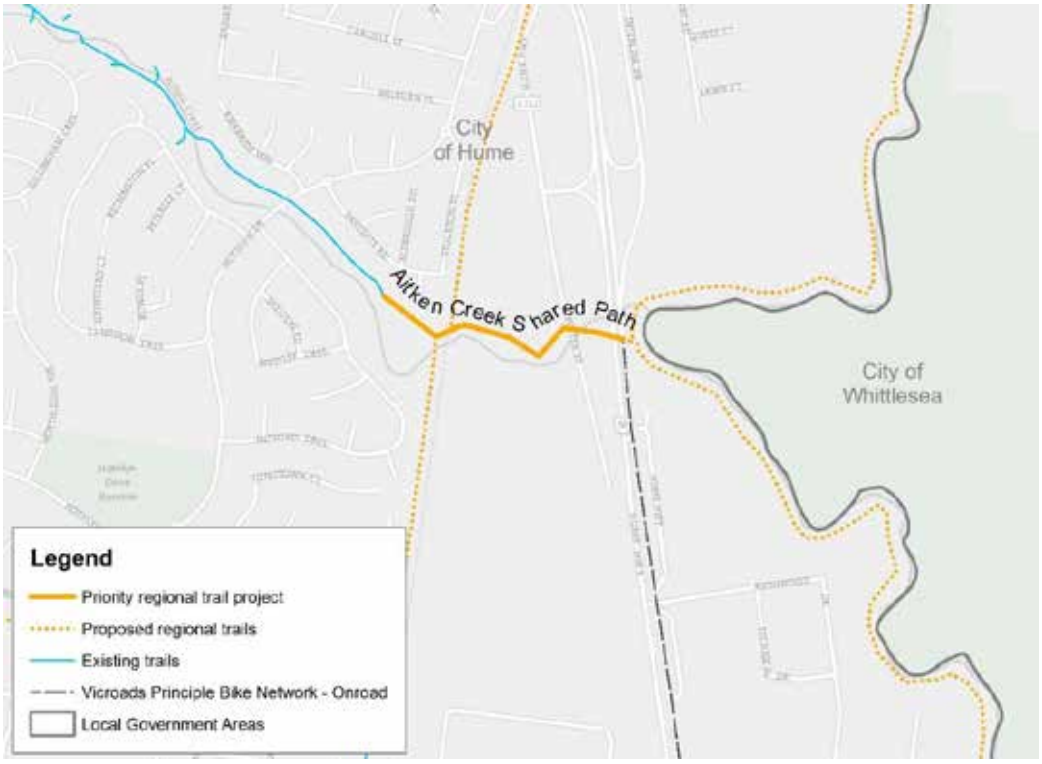
6.3.4 Aitken Creek Shared Path (H2)

The Aitken Creek Shared Path comprises a trail extension from Craigieburn Road east to join the proposed Merri Creek Shared Trail (H20). The trail would provide a direct link to Merri Creek, and has the potential enhance local tourism. The size of the surrounding population catchment is also relatively high. The trail's construction would be linked to construction of the proposed Merri Creek Shared Trail (H20).

The land is owned by Hume City Council, Melbourne Water and VicTrack who are likely to be conducive to development of the trails.

Concept design is as yet to be undertaken for the development of this trail, although the trail has been identified as a target project in the *Hume Bicycle Network Plan*.

Table 18 Aitken Creek Shared Path overview (H2)

Trail profile	
	
Key characteristics	
Length of trail	0.58 km
Current design stage	No design
Key benefits	Strong tourism, amenity and recreational value; provides access to regional parks and conservation areas, regional scale leisure centres, train stations,

			activity centres and recreational water bodies; services a large local population catchment			
Tourism features			Craigieburn Leisure Centre *(Note relocating in February 2017)* Merri Creek Trail			
Benefits and costs analysis						
Width	**Year**	**Construction cost ($)**	**Maintenance cost ($)**	**Wider economic benefits ($)**	**Private land value benefits ($)**	**Benefit - cost ratio**
3m	1	189,000	9,000	549,000	1,000	**2.8**
	30		161,000	10,102,000	18,000	**28.9**
4m	1	241,000	12,000	863,000	1,000	
	30		214,000	15,875,000	18,000	**34.9**
Employment creation in construction phase – 1.1 FTE for 3m trail, 1.5 FTE for 4m trail						

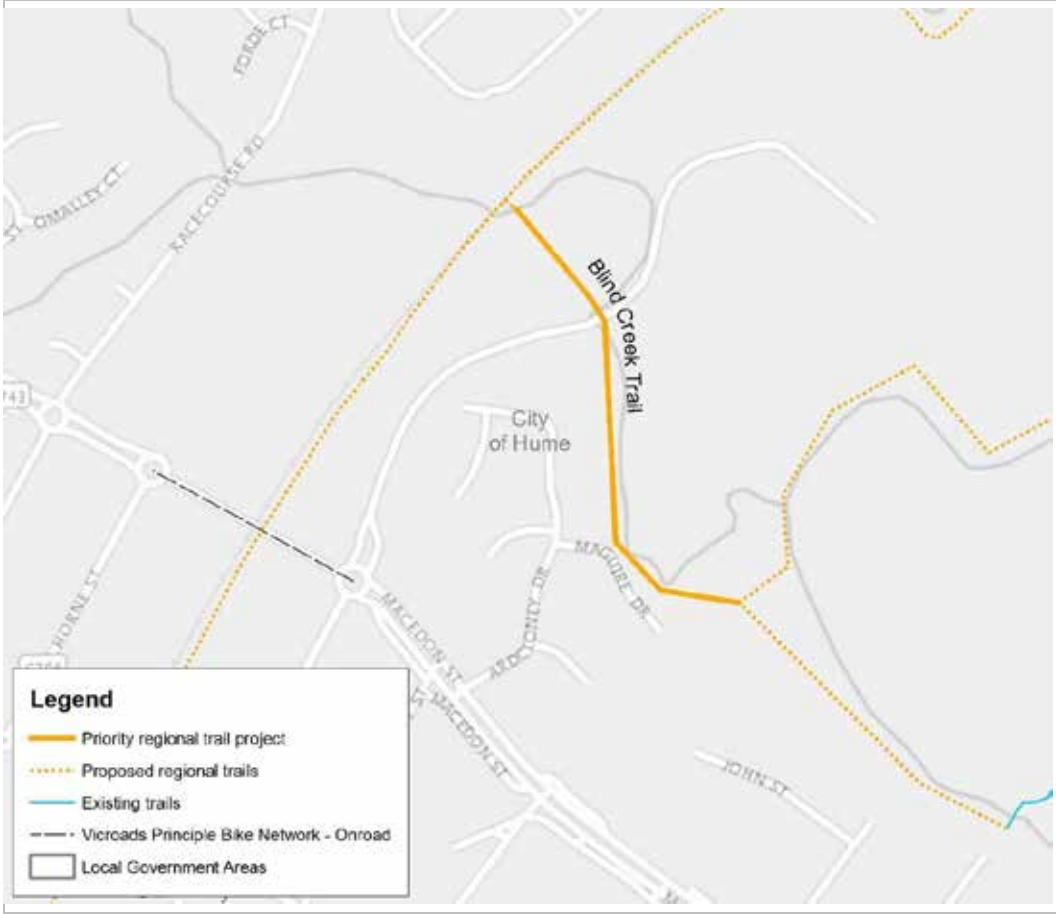
6.3.5 Blind Creek Trail (H4)

The Blind Creek Trail comprises a link between Jackson Creek and the Sunbury Rail Line. The trail could provide access to Jackson Creek, Sunbury train station, and local tourism destinations.

The size of the local population catchment serviced by the proposed trail would be relatively high. The trail has been identified as a target project in the *Hume Bicycle Network Plan* and a detailed design has been developed for part of the trail project.

Table 19 Blind Creek Trail overview (H4)

Trail profile



Key characteristics

Length of trail	0.60 km
Current design stage	Partial detailed design
Key benefits	Strong tourism, amenity and recreational value; provides access to regional parks and conservation areas, train stations, and recreational water bodies; services a large local population catchment
Tourism features	Rupertswood Mansion Sunbury Aquatic and Leisure Centre

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit - cost ratio
3m	1	195,000	9,000	444,000	800	**2.2**
	30		166,000	8,167,000	15,000	**22.6**
4m	1	249,000	12,000	698,000	800	**2.7**
	30		221,000	12,834,000	15,000	**27.3**
Employment creation in construction phase – 0.8 FTE for 3m trail, 1.0 FTE for 4m trail						

6.3.6 Greenvale Reservoir Park Trail (H12)

The Greenvale Reservoir Park Trail project comprises an extension to the north of the existing Greenvale Reservoir Park Trail from Venezia Promenade to Somerton Road. It links to the proposed Mickleham Road Shared Path project.

The trail will support local tourism through improved access to Greenvale Reservoir Park, and has been identified as a high priority project in the Hume *Bicycle Network Plan*.

The land in Greenvale Reservoir is owned by Melbourne Water whilst Greenvale Reservoir Park is leased to Parks Victoria, both of whom are likely to be conducive to its development. No concept design has been undertaken as yet.

Table 20 Greenvale Reservoir Park Trail overview (H12)

Trail profile	
	
Key characteristics	
Length of trail	1.20 km
Current design stage	No design
Key benefits	Strong tourism, amenity and recreational value; provides access to recreational water bodies; services a large local population catchment
Tourism features	Greenvale Reservoir Park

Benefits and costs analysis						
Width	**Year**	**Construction cost ($)**	**Maintenance cost ($)**	**Wider economic benefits ($)**	**Private land value benefits ($)**	**Benefit - cost ratio**
3m	1	388,000	18,000	132,000	500	**0.3**
	30		330,000	2,427,000	9,000	**3.4**
4m	1	495,000	24,000	207,000	500	**0.4**
	30		440,000	3,814,000	9,000	**4.1**
Employment creation in construction phase – 1.6 FTE for 3m trail, 2.0 FTE for 4m trail						

6.3.7 Meadowlink Shared Pathway (H17)

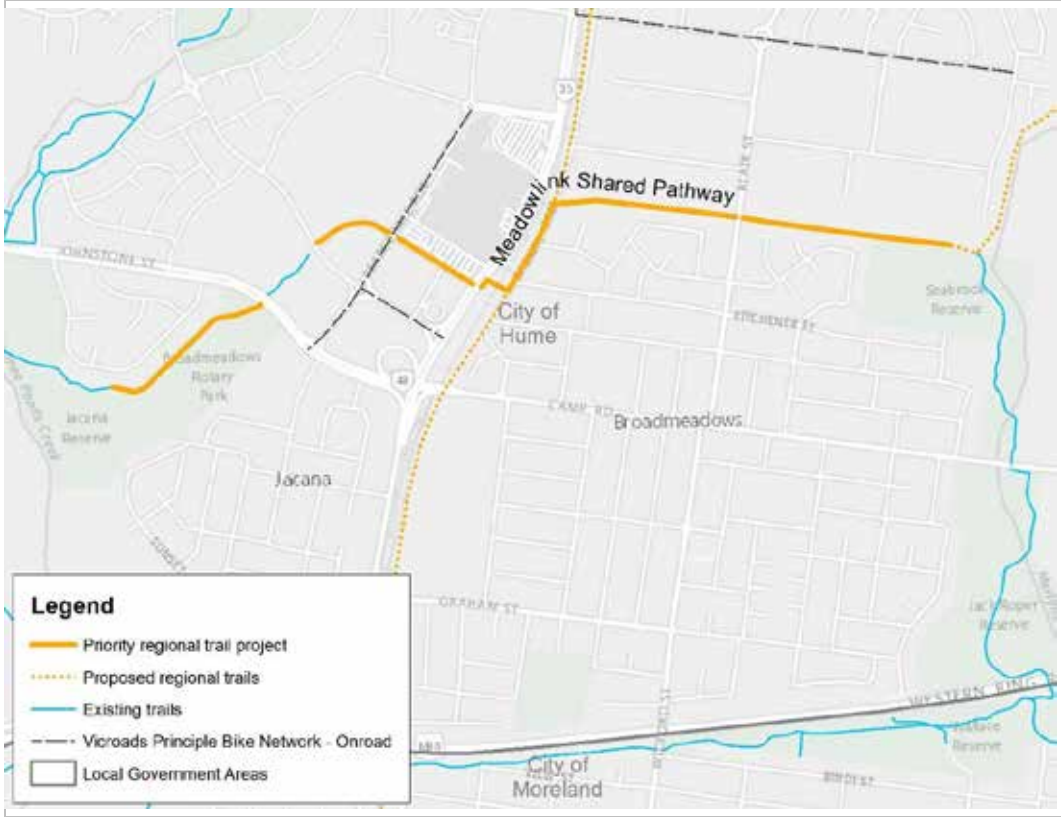
The Meadowlink Shared Pathway is a trail through Broadmeadows town centre linking Westmeadows with Merlynston Creek and Seabrook Reserve, running directly past Broadmeadows Aquatic and Leisure Centre.

The trail has the potential to provide direct access to the Leisure Centre, train stations, tertiary institutions, and employment in Broadmeadows town centre. The trail will also provide a valuable link to the Moonee Ponds Creek Trail and east-west corridors along the Western Ring Road Trail. The size of the population to be serviced by the trail is relatively high.

The trail aligns with existing council plans and has been identified as a priority project in the *Hume Bicycle Network Plan*. Concept design has already been undertaken.

Table 21 Meadowlink Shared Pathway overview (H17)

Trail profile



Key characteristics	
Length of trail	2.55 km
Current design stage	Detailed design
Key benefits	Provides access to regional scale leisure centres, activity centres, tertiary institutions, train stations, and recreational water bodies; services a large local population catchment
Tourism features	Broadmeadows Aquatic and Leisure Centre

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit – cost ratio
3m	1	826,000	38,000	1,093,000	8,000	**1.3**
	30		703,000	20,104,000	155,000	**13.1**
4m	1	1,055,000	51,000	1,718,000	8,000	**1.6**
	30		937,000	31,593,000	155,000	**15.9**
Employment creation in construction phase – 3.3 FTE for 3m trail, 4.2 FTE for 4m trail						

6.3.8 Yuroke Creek Trail (to Greenvale Reservoir Park) (H18)

The Yuroke Creek Trail (to Greenvale Reservoir Park) project is a trail extension to the north of the existing path. The project will provide a highly valuable link to the existing trail network to the Greenvale Reservoir Park via an underpass on Somerton Road.

The trail will support local tourism and provide a link to regional parks and conservation areas. The trail also has the potential to provide direct access to a regional scale leisure centre, train station, tertiary institution, activity centre and a recreational water body.

The trail has been identified as a target project in the Hume Bicycle Network Plan, however no design has yet been undertaken for the project. Connections from the Somerton Road shared path (proposed as part of the Somerton Road duplication project) to the trail have included in VicRoads preliminary design of the duplication. The majority of land associated with this project is owned by Melbourne Water, with the exception of the proposed crossing at Somerton Road – where land is owned by VicRoads.

Table 22 Yuroke Creek Trail (to Greenvale Reservoir Park) overview (H18)

Trail profile

Key characteristics	
Length of trail	0.55 km
Current design stage	No design
Key benefits	Strong tourism, amenity and recreational value; provides access to regional parks and conservation areas, regional scale leisure centres, tertiary institutions, train stations, and recreational water bodies; services a large local population catchment
Tourism features	Greenvale Reservoir Park Broadmeadows Valley Park Moonee Ponds Creek Trail

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit cost ratio
3m	1	180,000	8,000	511,000	900	**2.7**
	30		153,000	9,399,000	16,000	**28.2**
4m	1	230,000	11,000	803,000	900	**3.3**
	30		204,000	14,770,000	16,000	**34.0**
Employment creation in construction phase – 0.7 FTE for 3m trail, 0.9 FTE for 4m trail						

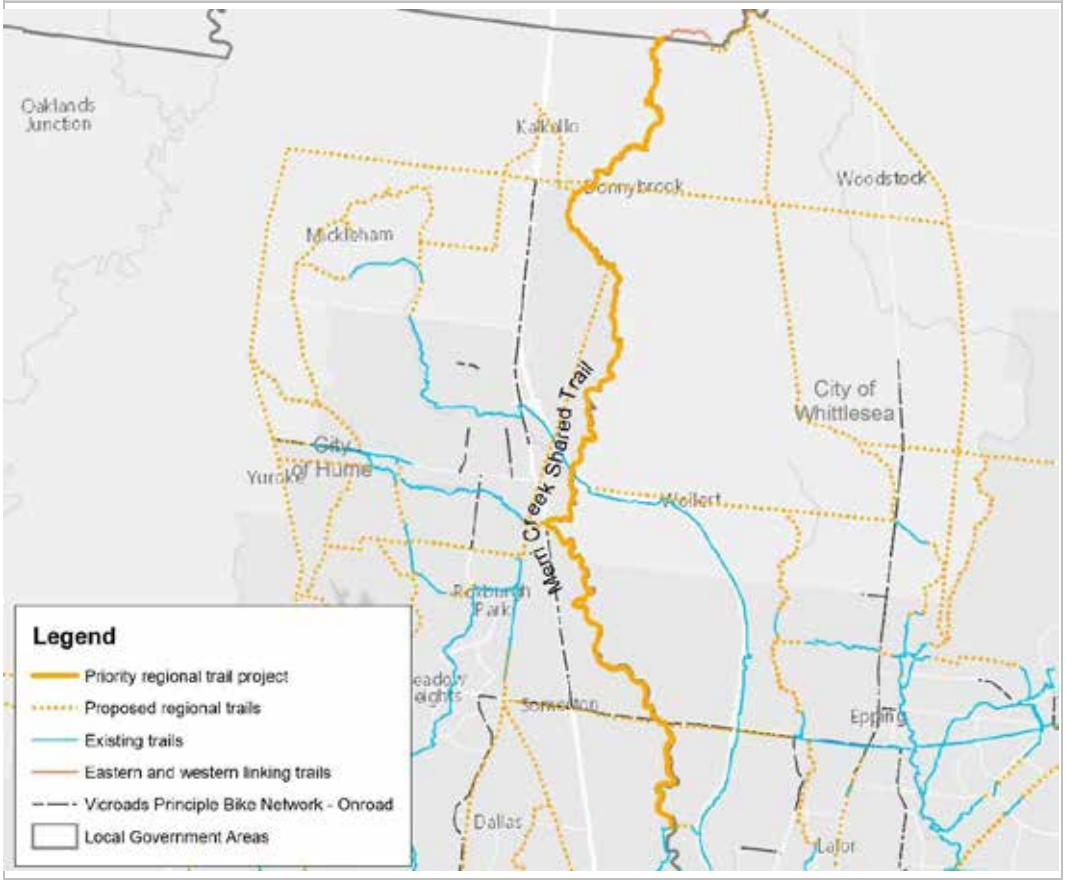
6.3.9 Merri Creek Shared Trail (H20)

This project comprises a major extension of the existing Merri Creek Shared Trail north of Barry Road to the far northern border of Hume. Merri Creek Trail is one of the most substantial regional trails in the north; and this project will provide greatly enhanced regional connectivity and open space access for growth areas in the Hume municipality.

The trail has strong potential to support and enhance local tourism, and provides a link to regional parks and conservation areas. The trail also has the potential to provide direct access a number of train stations and key employment areas along its length. It has a strong amenity and recreational value. The trail aligns with existing Council plans, however no design has been undertaken for the project as yet.

There are some land ownership issues as much of the land (including significant flora and fauna reserves) is privately owned and there are property boundaries right down to the creek in many places. As such, mechanisms for acquiring land (north of Merri Creek Parklands from Barry Road) and implementing some sections of the trail (north of Cragieburn Road) may need to be delivered through Precinct Structure Plans and other development controls. Further, between Horne Street and the Ring Road the trail would be developed on Council's landfill sites which are currently being rehabilitated.

Table 23 Merri Creek Shared Trail overview (H20)

Trail profile


Key characteristics	
Length of trail	24.51 km
Current design stage	No design
Key benefits	Strong tourism, amenity and recreational value; provides access to regional parks and conservation areas, train stations, activity centres and recreational water bodies; services a large local population catchment
Tourism features	Craigieburn Grassland Nature Conservation Reserve Cooper Street Grassland Nature Conservation Reserve Merri Creek Parklands

Benefits and costs analysis						
Width	**Year**	**Construction cost ($)**	**Maintenance cost ($)**	**Wider economic benefits ($)**	**Private land value benefits ($)**	**Benefit cost ratio**
3m	1	7,954,000	368,000	832,000	62,000	**0.1**
	30		6,773,000	15,308,000	1,135,000	**1.1**
4m	1	10,163,000	491,000	1,308,000	62,000	**0.1**
	30		9,030,000	24,055,000	1,135,000	**1.3**
Employment creation in construction phase – 31.8 FTE for 3m trail, 40.7 FTE for 4m trail						

6.4 Moreland

6.4.1 Council Context

The City of Moreland spans 50.9 square kilometres, and lies between 4 and 14 kilometres north of Melbourne's Central Business District. Moreland hosts a diverse community and is home to a number of notable tourism features including the Brunswick Baths, Ceres Community Environment Park, Moomba Park Reserve and Coburg Lake.

Moreland is bordered by Moonee Ponds Creek to the west and Merri Creek to the east. Major existing trails within the municipality include the Capital City Bike Path; the Merri Creek Trail; the Moonee Ponds Creek Trail; and the Upfield Bike Paths.

The *Moreland Bicycle Strategy 2011-2021* is the key Council document that identifies and prioritises action for developing the opportunities for residents to cycle with confidence in the municipality. Council has outlined plans to a range of new off-road paths; while also extending existing routes to important destinations such as schools, activity centres and neighbourhood shops. Priority is placed upon north-south routes that link the existing east-west routes.

The development of recreational off-road trails is supported by Council commitments to:

> *'Upgrade bicycle infrastructure, constructing new on-road and off-street paths that extend the bicycle network further north and into the City of Hume.*

Design for a broader range of bicycles and build places to ride that feel safe, comfortable, attractive and easy to navigate.

Work with others to create an integrated, sustainable transport network, which includes bicycle routes, end-of-trip facilities, and transfer stations – places where people can easily swap between a bike ride and public transport trip.

Engage in community development activities to make riding a bike more appealing to people who don't think of themselves as cyclists.

Amend the Moreland Planning Scheme to encourage developers to improve bicycle access, provide additional bike parking and contribute to bicycle infrastructure upgrades that improve the value of their development.'

The *Moreland Open Space Strategy 2012-2022* sets a framework for future provision, planning, design and management of publicly owned open space that is set aside for leisure, recreation and nature conservation purposes. It aims to encourage further investigations into potential cycle routes such as the Upfield Rail Trail through the centre of the municipality and gaps in access on the Merri and Moonee Ponds Creeks.

6.4.2 Overview of Priority Trails

Three priority trails have been selected for the City of Moreland, as shown in Figure 14:

- Upfield Rail Trail – North (M2)
- Upfield Rail Trail – South (M3)
- Edgars Creek Trail (M4)

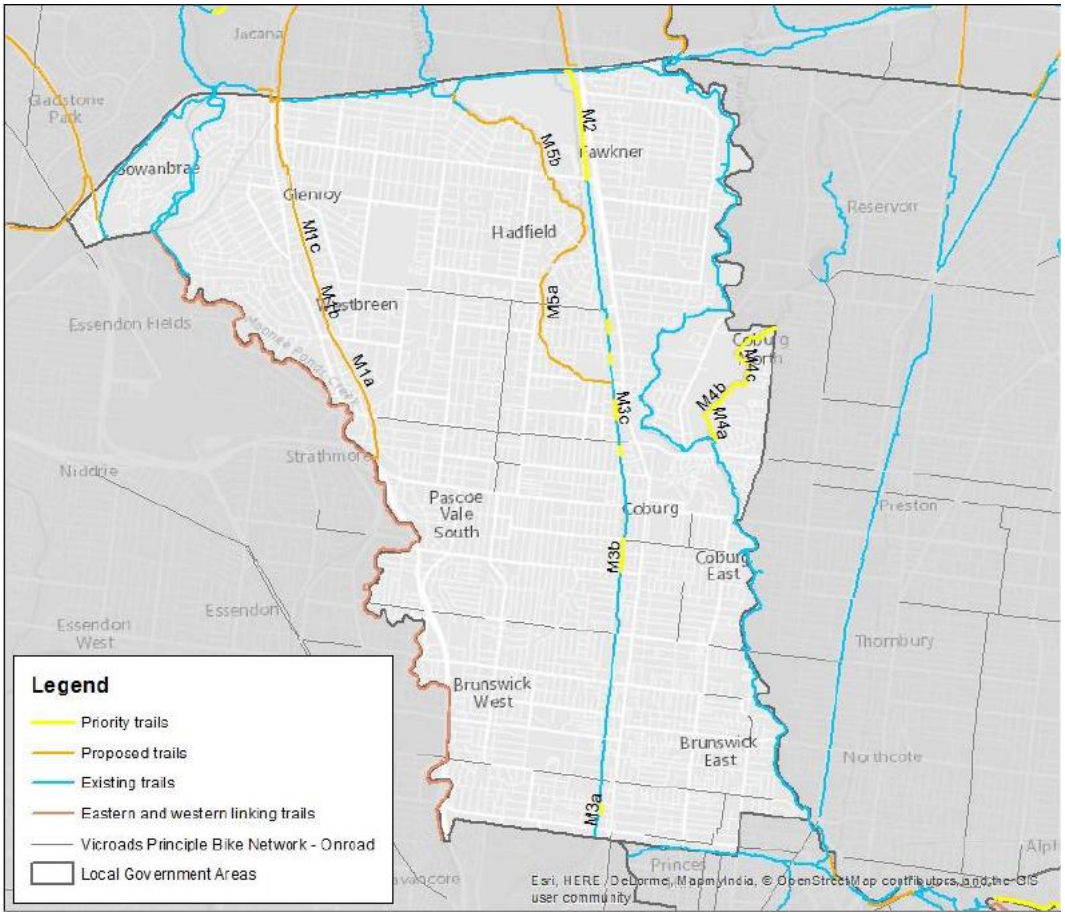


Figure 14 Northern Regional Trails Network priority trails – City of Moreland

6.4.3 Upfield Rail Trail – North (M2)

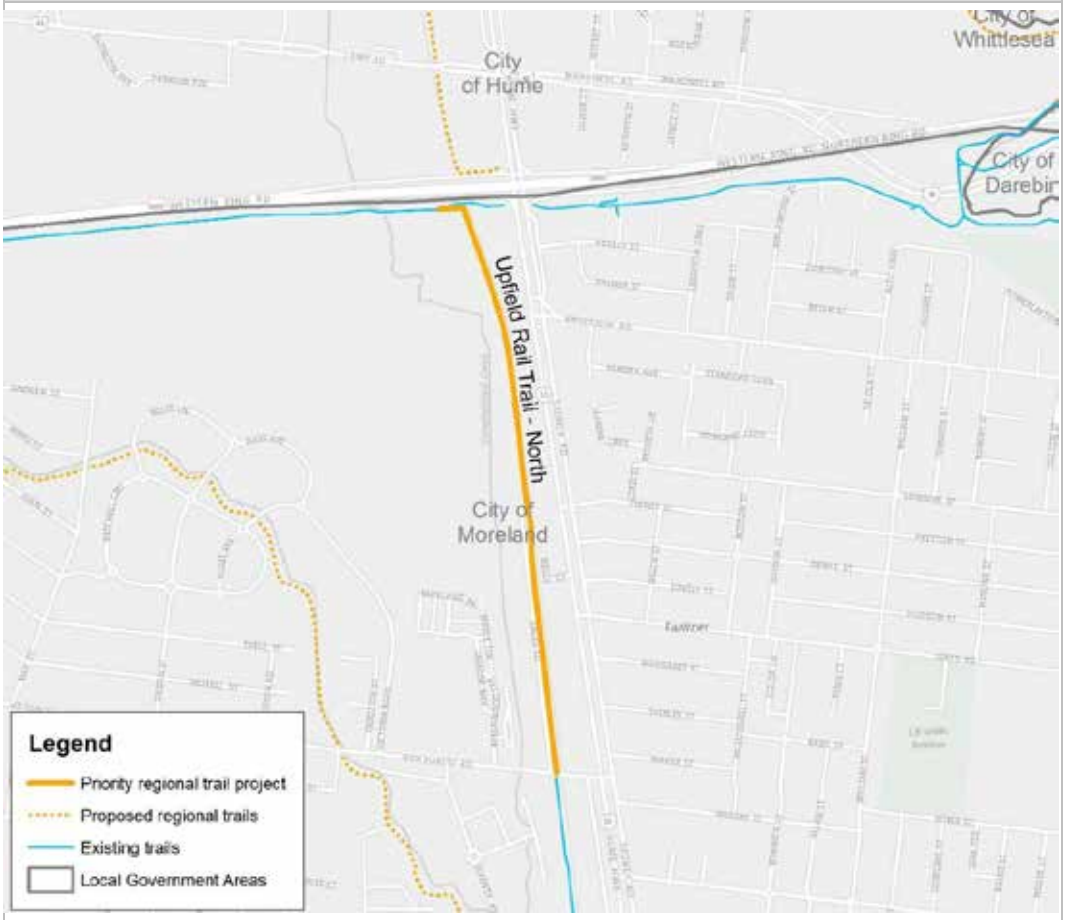
The Upfield Rail Trail – North comprises the extension of the existing Upfield Rail Trail north from Box Forest Road to the Northern Ring Road. The proposed trail will finish in the north-eastern corner of Northern Memorial Park.

The trail has the potential to support local tourism and recreation destinations, such as Fawkner Memorial Park. It will also provide access to Fawkner activity centre. Similarly to the southern proposed trail, this trail provides access to a number of stations along the rail line and Fawkner Leisure Centre.

The concept design of the trail has been developed already for this project. The land is mostly owned by VicTrack, with the exception of the northern tip which is owned by the City of Moreland. It should be noted Council is also considering an alternate alignment for this path that would follow the Campbellfield Creek to the west of proposed alignment.

Table 24 Upfield Rail Trail – North overview (M2)

Trail profile



Key characteristics	
Length of trail	1.40 km
Current design stage	Concept design
Key benefits	Strong tourism; provides access to regional scale leisure centres, train stations, and activity centres; services a large local population catchment
Tourism features	Fawkner Leisure Centre

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit – cost ratio
3m	1	454,000	21,000	910,000	5,000	**1.9**
	30		387,000	16,740,000	87,000	**19.9**
4m	1	581,000	28,000	1,430,000	5,000	**2.3**
	30		516,000	26,306,000	87,000	**24.0**
Employment creation in construction phase – 1.8 FTE for 3m trail, 2.3 FTE for 4m trail						

6.4.4 Upfield Rail Trail – South (M3)

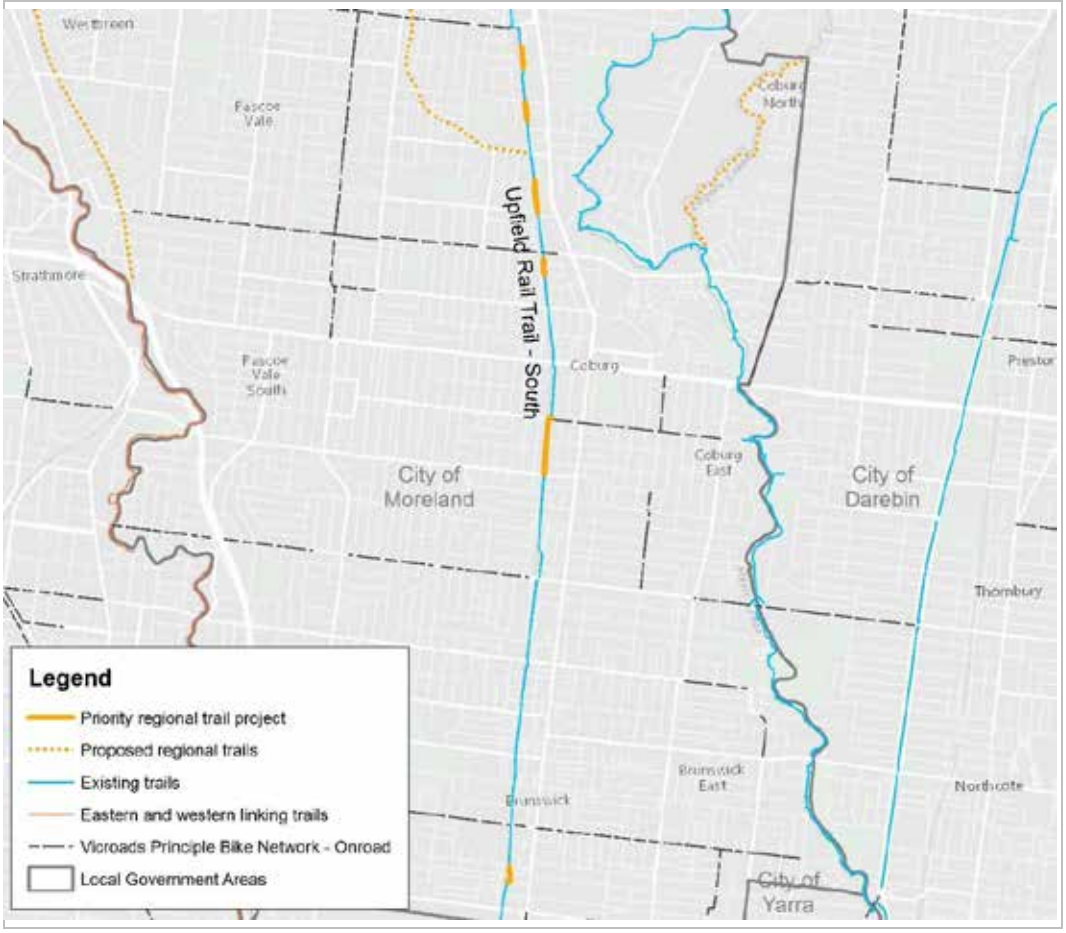
The Upfield Rail Trail – South will provide links through various incomplete sections between Reynard Street and Wilson Avenue on the Upfield Path. This is subdivided into three portions, as follows:

- M3a links the section to east of Jewell Station
- M3b comprises the sections between Reynard Street and Munro Street
- M3c refers to four missing links trail further north between Batman and Merlynston Stations

Improving connectivity along the existing trail will provide strong tourism and recreation value. The trail would also provide access to a range of social infrastructure including Coburg Leisure Centre, numerous train stations along the Upfield rail line and Monash University Parkville Campus. The size of the population catchment serviced within one kilometre is high.

This proposed project is on land which is entirely owned by VicTrack. Funding for the project has not yet been secured, however future opportunities may be associated with proposed grade separations and developer contributions from adjacent developments.

Table 25 Upfield Rail Trail – South overview (M3)

Trail profile


Key characteristics						
Length of trail	1.16 km					
Current design stage	No design					
Key benefits	Strong tourism; provides access to activity centres, regional scale leisure centres, tertiary institutions, and train stations; services a large local population catchment					
Tourism features	Coburg Lake Reserve Coburg Leisure Centre Harmony Park Coburg Olympic Pool Counihan Gallery Brunswick Baths Randazzo Park Central Parklands					
Benefits and costs analysis						
Width	**Year**	**Construction cost ($)**	**Maintenance cost ($)**	**Wider economic benefits ($)**	**Private land value benefits ($)**	**Benefit cost ratio**
3m	1	377,000	17,000	3,498,000	15,000	**8.9**
	30		321,000	64,335,000	277,000	**92.2**
4m	1	482,000	23,000	5,497,000	15,000	**10.9**
	30		428,000	101,097,000	277,000	**111.1**
Employment creation in construction phase – 1.5 FTE for 3m trail, 1.9 FTE for 4m trail						

6.4.5 Edgars Creek Trail (M4)

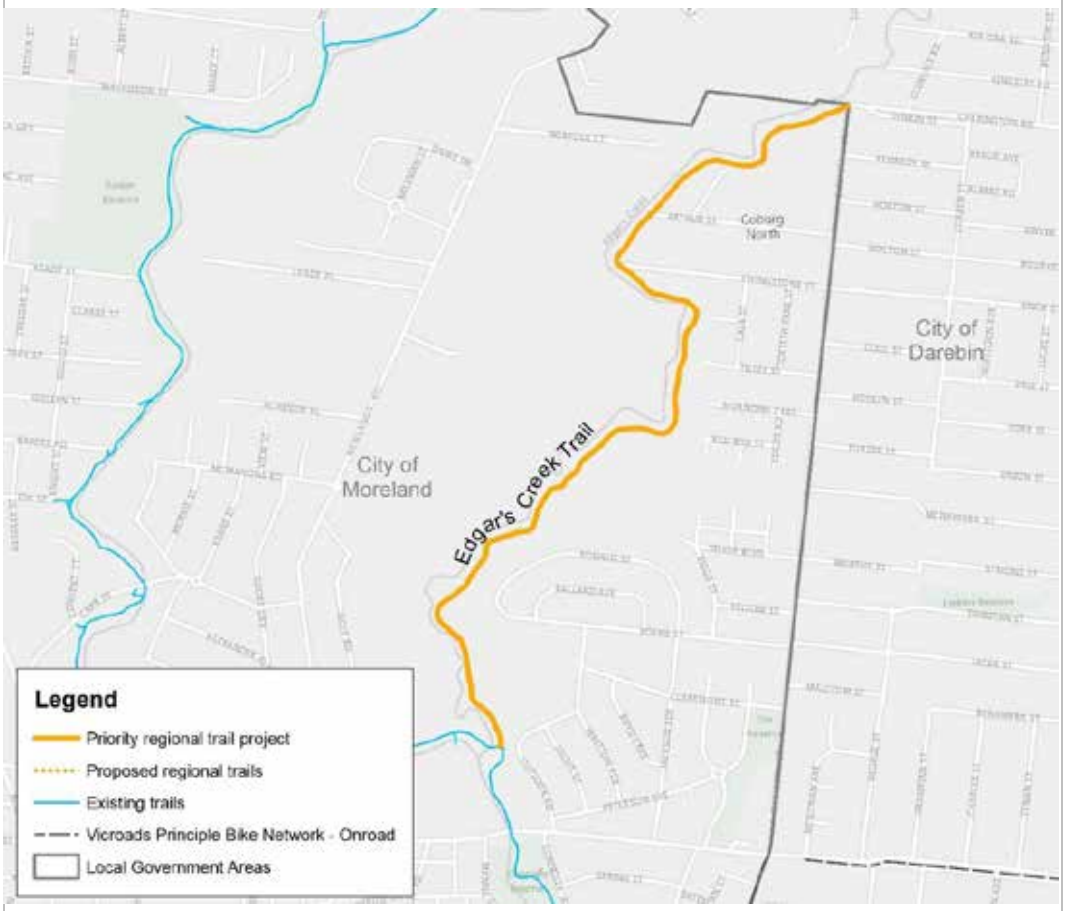
The Edgars Creek Trail project runs from the existing Merri Creek trail to the eastern border of the City of Moreland. It is divided into the following sections:

- M4a: from Merri Creek Trail to Ronald Street
- M4b: from Ronald Street to Photography Drive
- M4c: from Photography Drive to Carrington Road

The trail will support local tourism and recreation, by providing improved access to high quality open space. It and services a large population catchment and provides improved access to the Coburg activity centre, along with local tourism features including Coburg Lake Reserve.

Table 26 Edgars Creek Trail overview (M4)

Trail profile



Key characteristics

Length of trail	2.19 km
Current design stage	No design
Key benefits	Strong tourism, amenity and recreational value; provides access to regional parks and conservation areas, activity centres, regional scale leisure centres, tertiary institutions, train stations, and recreational water bodies; services a large local population catchment
Tourism features	Coburg Olympic Pool Coburg Lake Reserve

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit cost ratio
3m	1	708,000	33,000	1,573,000	13,000	**2.1**
	30		603,000	28,930,000	234,000	**22.1**
4m	1	905,000	44,000	2,472,000	13,000	**2.6**
	30		804,000	45,461,000	234,000	**26.6**

Employment creation in construction phase – 2.8 FTE for 3m trail, 3.6 FTE for 4m trail

6.5 Nillumbik

6.5.1 Council context

The Shire of Nillumbik spans an area of 432 square kilometres, located about 25 kilometres north east of Melbourne. The shire is known for a number of recreational, natural environment and tourism features including Sugarloaf Reservoir, Warrandyte State Park, Diamond Valley Miniature Railway, Montsalvat, Edendale Community Environment Farm and a number of wineries, markets and art galleries.

Nillumbik already hosts a number of regional trails including the Diamond Creek Trail; the Green Wedge Trail; sections of the Aqueduct Trail; and the Kinglake Way Trail.

The Nillumbik Trails Strategy 2011 proposes strategic expansion of the existing trail network to build stronger links with surrounding landscapes and growing activity centres. The strategy recognises that a significant level of funding would be required from Federal and State Government sources to deliver the strategic objectives. It identifies the importance of off-road trails in Nillumbik in providing connections to townships, community hubs, sporting precincts and the regional trails.

6.5.2 Overview of Priority Trails

Three priority trails have been identified in the municipality of Nillumbik, as shown in Figure 15:

- Diamond Creek Trail (N1)
- Aqueduct Trail (N2)
- Green Wedge Trail (N3)

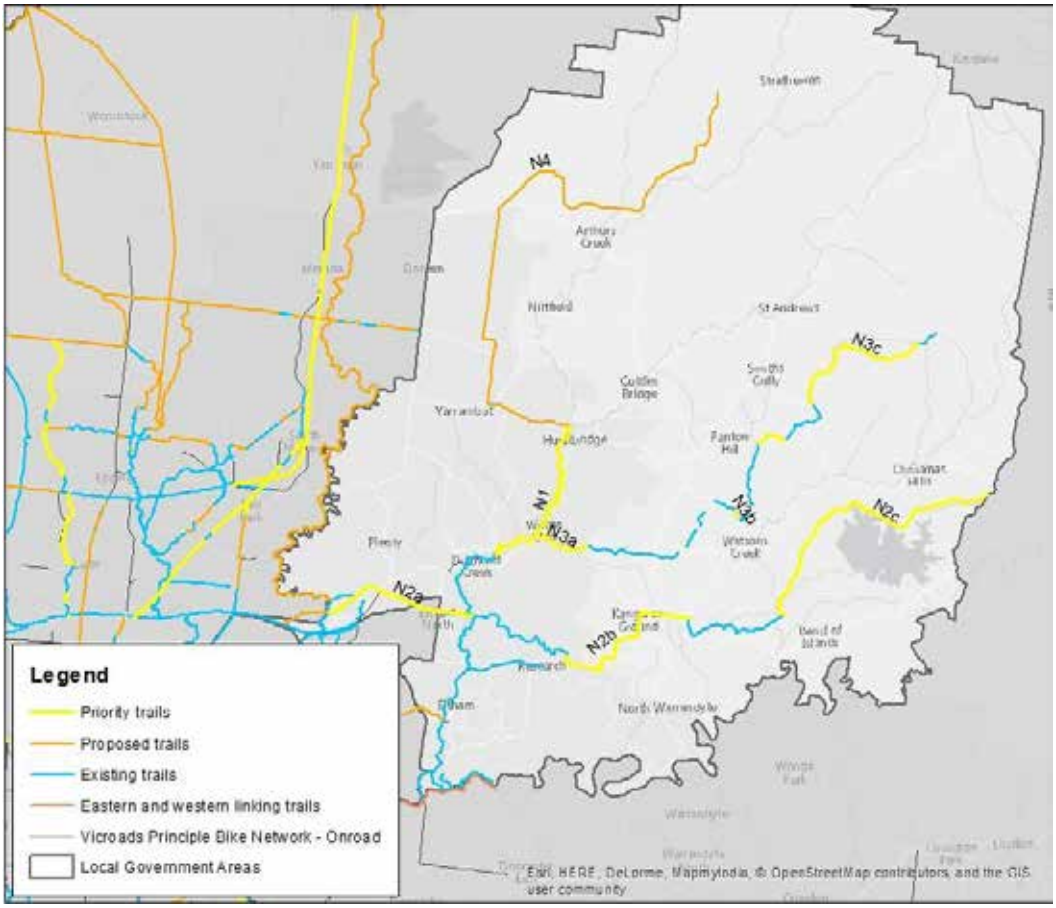


Figure 15 Northern Regional Trails Network priority trails – Shire of Nillumbik

6.5.3 Diamond Creek Trail (N1)

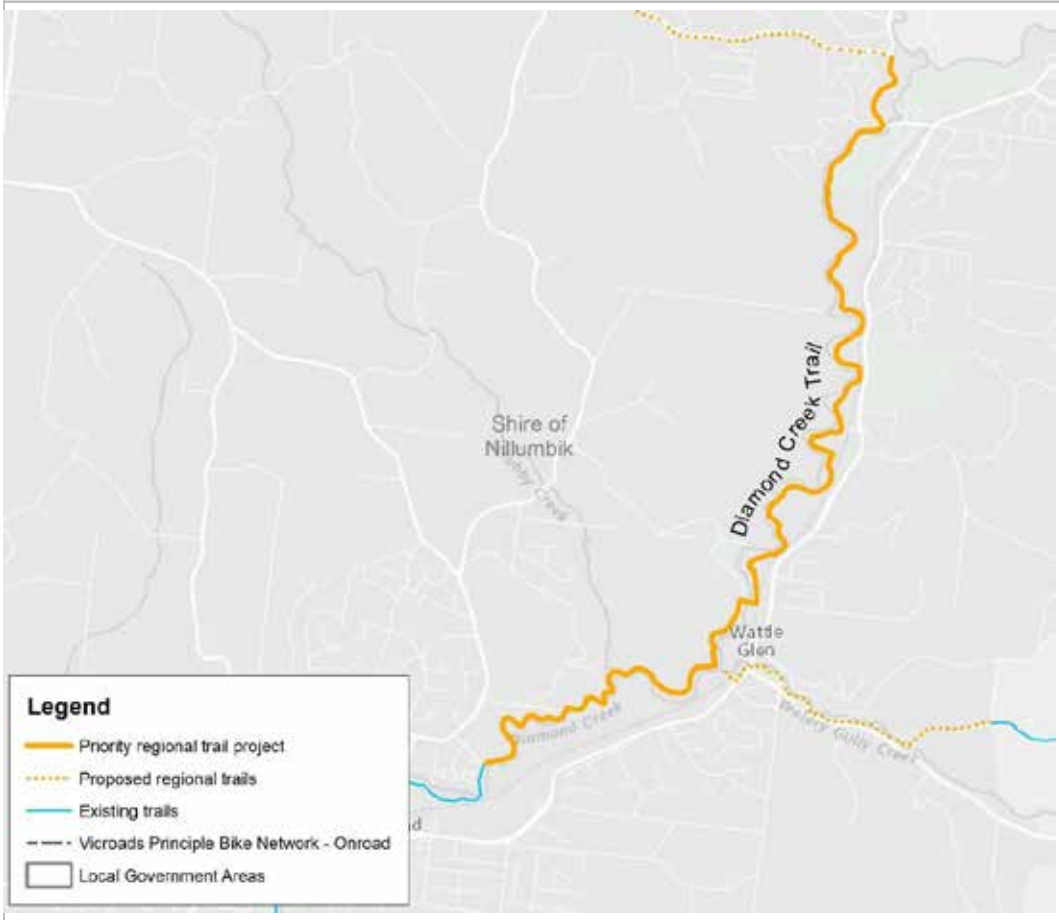
The proposed Diamond Creek Trail project would link the existing trail at Diamond Creek to Hurstbridge, and is of high short term priority for Nillumbik Shire Council.

The trail would support tourism by providing a link to important regional parks and conservation areas to the north, and Diamond Creek town centre. It has strong potential tourism value as a major recreational trail. The trail would also provide direct access to a leisure centres and a train station in Diamond Creek.

The trail aligns with existing Council plans and a concept design has been undertaken for the project. Additional external funding will be required to undertake the full detailed design and construction of the trail.

Table 27 Diamond Creek Trail overview (N1)

Trail profile



Key characteristics	
Length of trail	7.34 km
Current design stage	Concept design
Key benefits	Strong tourism, amenity and recreational value; provides access to regional parks and conservation areas, regional scale leisure centres, train stations, and recreational water bodies; services a large local population catchment
Tourism features	Ellis Cottage Hurstbridge rural township

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit - cost ratio
3m	1	2,377,000	110,000	1,486,000	10,000	**0.6**
	30		2,024,000	27,327,000	187,000	**6.2**
4m	1	3,037,000	147,000	2,335,000	10,000	**0.7**
	30		2,698,000	42,943,000	187,000	**7.5**
Employment creation in construction phase – 9.5 FTE for 3m trail, 12.1 FTE for 4m trail						

6.5.4 Aqueduct Trail (N2)

The proposed Aqueduct Trail project is comprised of three sections:

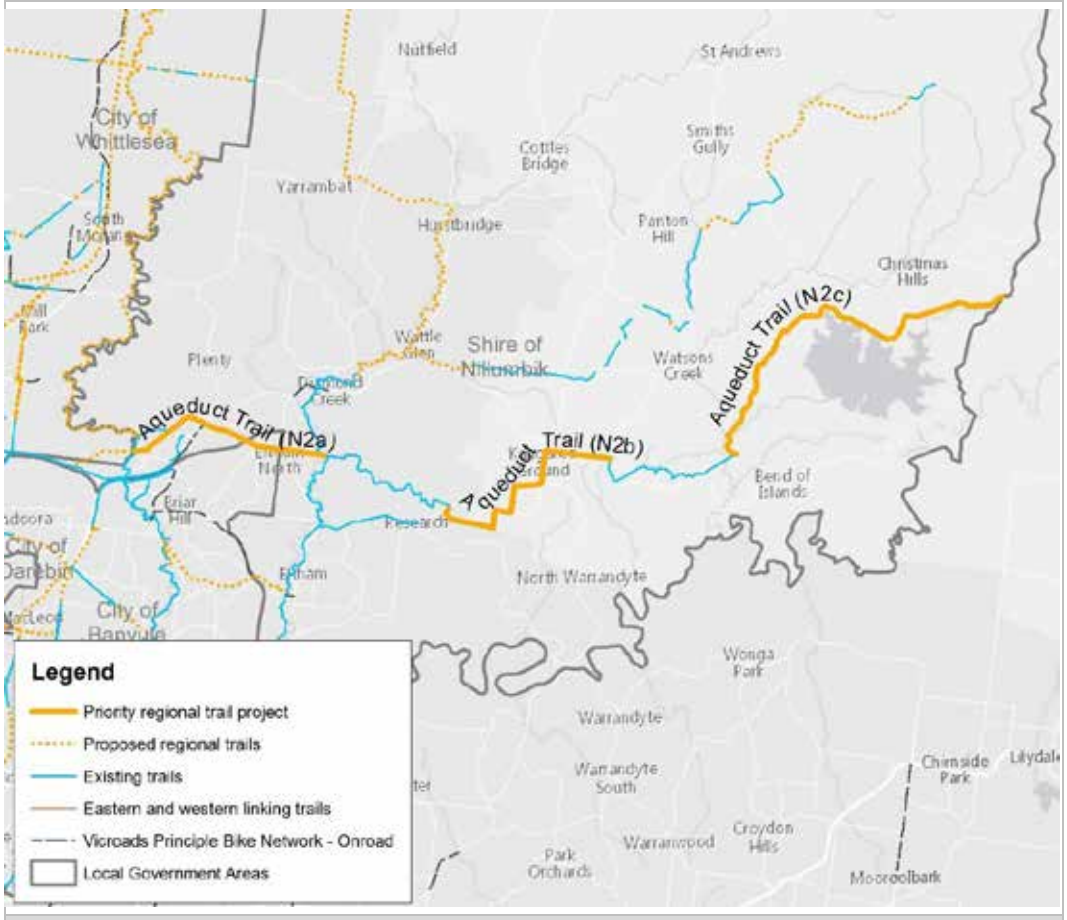
- N2a: from the Metropolitan Ring Road, through Diamond Creek to the existing Banyule Diamond Creek trail
- N2b: from Main Road Diamond Creek, along Eltham-Yarra Glen Road, Creek road and Eltham road to the commencement of the existing trail
- N2c: from Warrandyte Kinglake Road, north along Westering, Ridge and Muir Roads to Skyline Road

The trail is a high short term priority trail for Nillumbik Council and has the potential to provide a link to regional parks and conservation areas, and access to a large number of tourism destinations including Sugarloaf Reservoir and a range of wineries between Eltham and Watson's Creek. The trail would also provide direct access to a leisure centre, and would itself provide strong tourism, amenity and recreational value.

The trail aligns with existing Council plans, however no concept design has been undertaken for the project. Detailed design has been completed for the first section of the trail link to Yarra Ranges.

Table 28 Aqueduct Trail overview (N2)

Trail profile



Key characteristics						
Length of trail	20.63 km					
Current design stage	Concept design, partial detailed design					
Key benefits	Strong tourism, amenity and recreational value; provides access to regional parks and conservation areas, regional scale leisure centres, train stations, and recreational water bodies; services a large local population catchment					
Tourism features	Various wineries Andrew Ross Museum Kangaroo Ground War Memorial Sugarloaf Reservoir					
Benefits and costs analysis						
Width	**Year**	**Construction cost ($)**	**Maintenance cost ($)**	**Wider economic benefits ($)**	**Private land value benefits ($)**	**Benefit cost ratio**
3m	1	8,041,000	372,000	4,709,000	109,000	**0.6**
	30		6,847,000	86,616,000	2,009,000	**5.8**
4m	1	10,275,000	496,000	7,401,000	109,000	**0.7**
	30		9,129,000	136,111,000	2,009,000	**7.0**
Employment creation in construction phase – 32.2 FTE for 3m trail, 41.1 FTE for 4m trail						

6.5.5 Green Wedge Trail (N3)

The proposed Green Wedge trail project would provide a link between the proposed Diamond Creek trail extension and Kinglake National Park. The trail would be divided into the following projects:

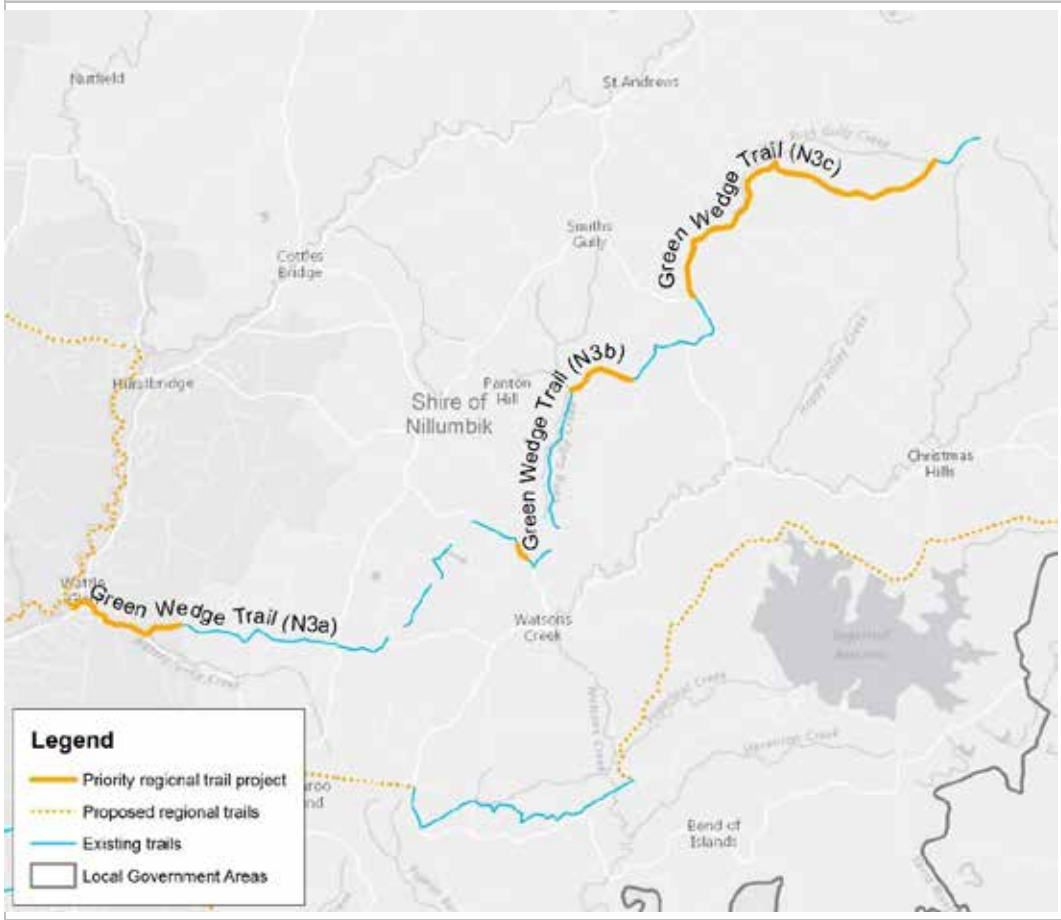
- N3a: from the proposed Diamond Creek trail to existing trail on Watery Gully Road
- N3b: comprising the Alma Road trail connection
- N3c: the Motschalls Road trail connection and Spanish Gully Road to Kinglake.

The Green Wedge trail has the potential to provide a link to regional parks and conservation areas, including Long Gully Bushland Reserve and Smiths Gully Nature Reserve. The trail in itself would have very high amenity and recreation value. The trail would also improve local tourism by providing improved access to key destinations including wineries and aforementioned conservation areas. The Green Wedge trail would also provide direct access to and from Wattle Glen train station.

Conservation values in some area may limit the development of a continuous open space trail and as such back of curb solution may be more appropriate along some sections of the trail.

Table 29 Green Wedge Trail overview (N3)

Trail profile



Key characteristics	
Length of trail	8.22 km
Current design stage	No design
Key benefits	Strong tourism, amenity and recreational value; provides access to regional parks and conservation areas, train stations, and recreational water bodies; services a large local population catchment
Tourism features	Ellis Cottage Long Gully Bushland Reserve Smiths Gully Nature Conservation Reserve Various wineries Kinglake National Park Warrandyte Kinglake Nature Conservation Reserve

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit - cost ratio
3m	1	2,911,000	135,000	814,000	7,000	**0.3**
	30		2,479,000	14,976,000	126,000	**2.8**

4m	1	3,720,000	180,000	1,280,000	7,000	**0.3**
	30		3,305,000	23,534,000	126,000	**3.4**
Employment creation in construction phase – 11.6 FTE for 3m trail, 14.9 FTE for 4m trail						

6.6 Whittlesea

6.6.1 Council Context

The City of Whittlesea spans a total of 489 square kilometres of land across Melbourne's northern, with a population of around 194,000 residents. Whittlesea is one of Australia's fastest growing municipalities in Australia, with almost 8,000 new residents in 2014. The municipality is home to a number of recreational, environmental and tourism features including the Plenty Gorge Park, the Yan Yean Reservoir Park, the Quarry Hills Park and the Plenty Ranges Arts Centre and Theatre.

Whittlesea hosts a number of major off-road trails including the South Morang Rail Trail; the Plenty River Trail; the Merri Creek Trail; the Edgars Creek Trail; and the Darebin Creek Trail.

The City of Whittlesea has developed its *Integrated Transport Strategy 2014* to identify the transport priorities for the municipality and actions necessary to ensure that the transport needs of the community are met. One of the key policy areas in the Strategy is cycling and Council has outlined the following objective:

> *'Council will enable the community to adopt cycling as a viable alternative to the car for a wide variety of trips within the municipality and our neighbouring municipalities, through provision of infrastructure, encouragement programs and supporting infrastructure.'*

Within the strategy, the 'Existing and Proposed Bicycle Network' identifies key off-road trail projects in the municipality. The Whittlesea Bicycle Plan 2015-2019 has also been developed.

6.6.2 Overview of Priority Trails

The following five priority trails have been identified in the City of Whittlesea, as shown in Figure 16, as well as the upgrade of a number of existing trails:

- Edgars Creek Trail (W9)
- Merri Creek Trail (W20)
- Whittlesea Rail Trail (W24)
- Yan Yean Pipe Trail (W25)
- Plenty Road Shared Path (W27)

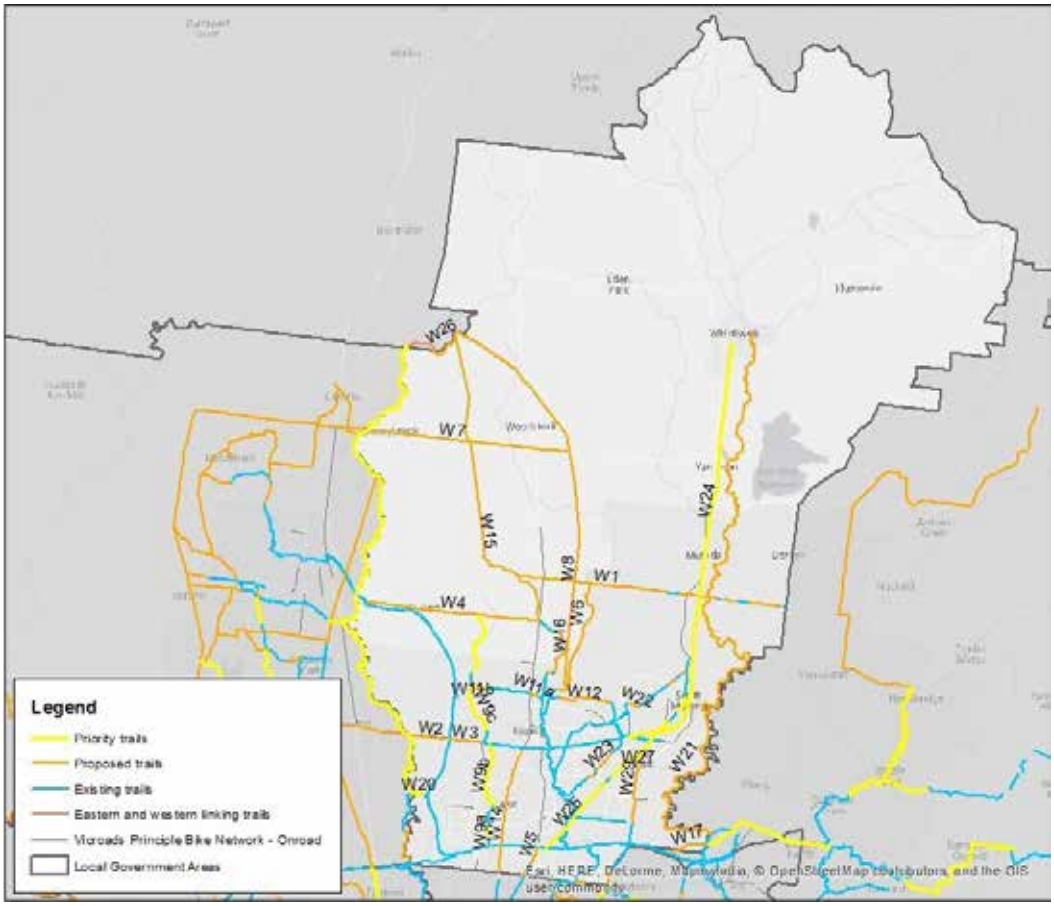


Figure 16 Northern Regional Trails Network priority trails – City of Whittlesea

6.6.3 Edgars Creek Trail (W9)

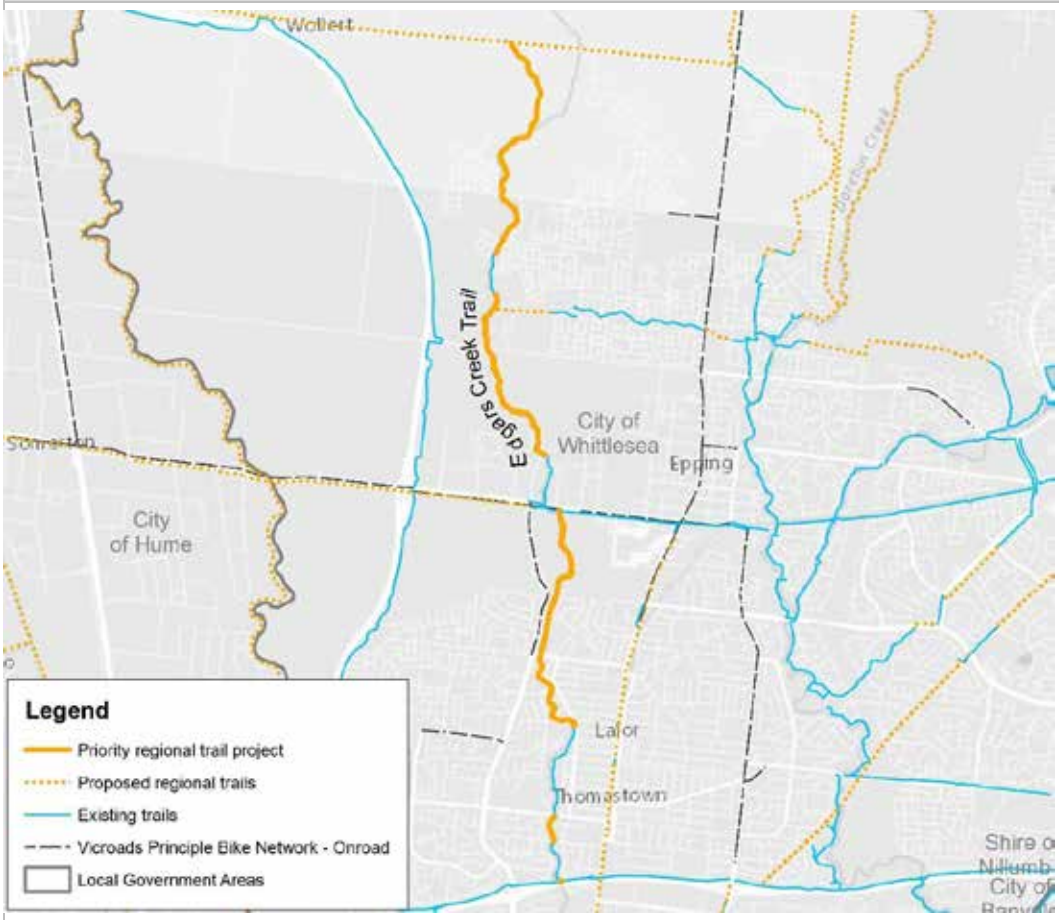
This proposed trail links the existing Edgars Creek Trail between Craigieburn Road and the Northern Ring Road. It has been subdivided into three sections:

- W9a: north of the Northern Ring Road
- W9b: provides a link between Cooper Street and Tramoo Street
- W9c: to the north of Cooper Street on either side of the Aurora development

The trail provides access to Thomastown Aquatic Recreation Centre, the nearby Lalor and Thomastown train stations and key employment areas. The trail also has strong amenity and recreation value. The size of the population serviced within one kilometre is relatively high.

It is also worth noting that there may be potential to fund the trail north of Childs Road through developer contributions.

Table 30 Edgar's Creek Trail overview (W9)

Trail profile						
						
Key characteristics						
Length of trail	7.98 km					
Current design stage	No design					
Key benefits	Strong amenity and recreational value; provides access to activity centres, regional scale leisure centres, and train stations; services a large local population catchment					
Tourism features	Ziebell's Farmhouse					
Benefits and costs analysis						
Width	**Year**	**Construction cost ($)**	**Maintenance cost ($)**	**Wider economic benefits ($)**	**Private land value benefits ($)**	**Benefit - cost ratio**
3m	1	2,585,000	120,000	3,847,000	38,000	**1.4**
	30		2,201,000	70,753,000	697,000	**14.8**
4m	1	3,303,000	160,000	6,045,000	38,000	**1.7**
	30		2,935,000	111,183,000	697,000	**17.8**
Employment creation in construction phase – 10.3 FTE for 3m trail, 13.2 FTE for 4m trail						

6.6.4 Merri Creek Trail Link (W20)

This proposed project will provide an upgrade of the trail on the service track within the existing Merri Creek Trail, comprising a section between the City of Hume and City of Whittlesea portions via the City of Whittlesea Public Gardens.

The trail has strong amenity and recreational value; providing access to the gardens and Merri Creek Park which are both of regional importance. The trail will also improve east-west linkage between Campbellfield and Thomastown.

The policy context for this development is favourable, as the land is entirely owned by the City of Whittlesea. Funding has not yet been secured for the trail, however the relevant planning and design has been completed by Parks Victoria.

Table 31 Merri Creek Trail Link overview (W20)

Trail profile	
	
Key characteristics	
Length of trail	0.34
Current design stage	No design
Key benefits	Strong amenity and recreational value; provides access to regional parks and conservation areas, activity centres, and recreational water bodies; services a large local population catchment
Tourism features	Merri Creek Parklands City of Whittlesea Public Gardens

Benefits and costs analysis						
Width	**Year**	**Construction cost ($)**	**Maintenance cost ($)**	**Wider economic benefits ($)**	**Private land value benefits ($)**	**Benefit - cost ratio**
3m	1	110,000	5,000	1,014,000	400	**8.8**
	30		94,000	18,645,000	8,000	**91.4**
4m	1	141,000	7,000	1,593,000	400	**10.8**
	30		125,000	29,299,000	8,000	**110.1**
Employment creation in construction phase – 0.4 FTE for 3m trail, 0.6 FTE for 4m trail						

6.6.5 Whittlesea Rail Trail (W24)

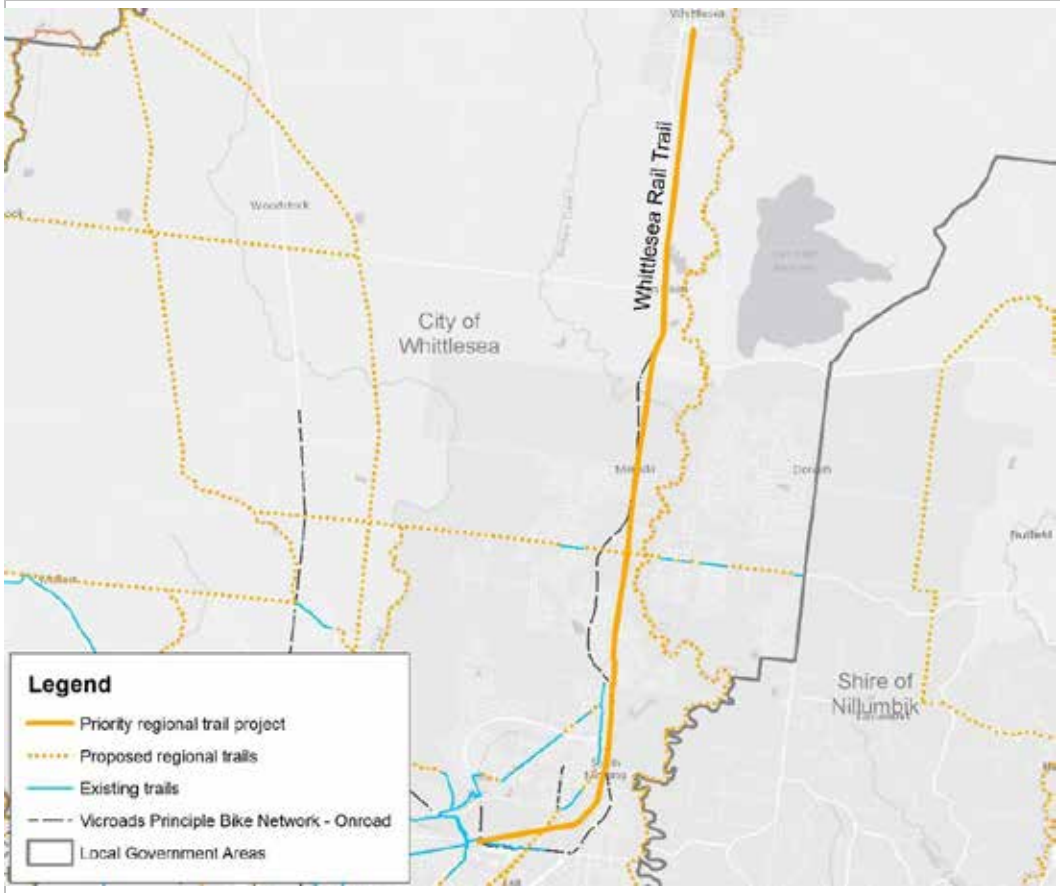
The Whittlesea Rail Trail project extends from McDonalds Road in South Morang to Laurel Street in Whittlesea.

The proposed trail project is 16.8 kilometres in length and provides access to South Morang station and a number of Regional Parks and Conservation areas including Plenty Gorge Parklands and Mernda Streamside Reserve. The trail therefore has strong amenity and recreational value and it has the potential to support local tourism. The size of the population catchment within one kilometre is relatively high.

The land on which the project is located is predominantly owned by VicTrack. The potential for State Government funding for project design and delivery is under consideration. Further, there is also the potential to get funding via the Mernda Rail Extension Project.

Table 32 Whittlesea Rail Trail overview (W24)

Trail profile



Key characteristics	
Length of trail	16.8 km
Current design stage	No design
Key benefits	Strong tourism, amenity and recreational value; provides access to regional parks and conservation areas and train stations; services a large local population catchment
Tourism features	Cooper Street Grassland Nature Conservation Reserve

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit - cost ratio
3m	1	5,455,000	253,000	4,051,000	84,000	**0.7**
	30		4,645,000	74,504,000	1,550,000	**7.4**
4m	1	6,970,000	337,000	6,366,000	84,000	**0.9**
	30		6,193,000	117,077,000	1,550,000	**8.9**
Employment creation in construction phase – 21.8 FTE for 3m trail, 27.9 FTE for 4m trail						

6.6.6 Yan Yean Pipe Trail (W25)

The Yan Yean Pipe Trail project would bridge a current gap in the trail from the Metropolitan Ring Road northwards to the existing northern section above Gordons Road.

The trail extension will provide a link to Plenty Gorge Parklands, and access to Mill Park Leisure Centre, South Morang station and nearby activity centres. The size of the population catchment directly serviced by this trail would be relatively high.

The trail would strongly enhance regional connectivity of the existing network by completing the Yan Yean pipe trail. The land is predominantly owned by City of Whittlesea, which will improve the ease of implementation. However, funding has not been secured for the trail.

Table 33 Yan Yean Pipe Trail overview (W25)

Trail profile	
	
Key characteristics	
Length of trail	6.88 km
Current design stage	No design
Key benefits	Provides access to regional parks and conservation areas, activity centres, regional scale leisure centres, train stations, and recreational water bodies; services a large local population catchment

Tourism features			Hawkstowe Park (includes Le Page Homestead at Hawkstowe Picnic Area) Farm Vigano			
Benefits and costs analysis						
Width	**Year**	**Construction cost ($)**	**Maintenance cost ($)**	**Wider economic benefits ($)**	**Private land value benefits ($)**	**Benefit - cost ratio**
3m	1	2,228,000	103,000	6,120,000	52,000	**2.6**
	30		1,897,000	112,567,000	956,000	**27.3**
4m	1	2,847,000	138,000	9,618,000	52,000	**3.2**
	30		2,530,000	176,892,000	956,000	**32.9**
Employment creation in construction phase – 8.9 FTE for 3m trail, 11.4 FTE for 4m trail						

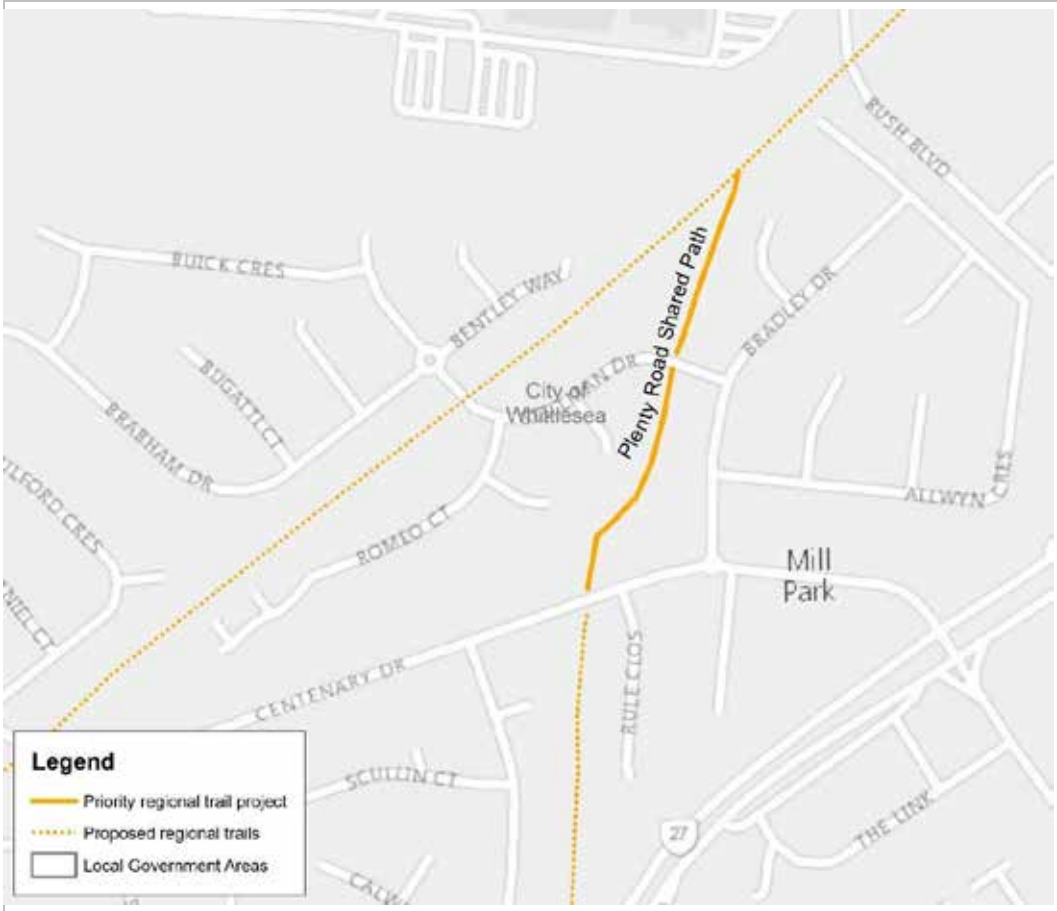
6.6.7 Plenty Road Shared Path (W27)

The Plenty Road Shared Path comprises a link between the existing trail and the Yan Yean Pipe Trail. The trail would improve connectivity to the Plenty Gorge Parklands and would provide access to nearby South Morang train station. Few constraints exist in relation to planning and terrain. Land ownership status is also favourable, as the entire tract is owned by City of Whittlesea.

Funding has not been secured for the trail.

Table 34 Plenty Road Shared Path overview (W27)

Trail profile



Key characteristics	
Length of trail	0.43 km
Current design stage	No design
Key benefits	Provides access to regional parks and conservation areas, and train stations
Tourism features	*Not applicable*

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit - cost ratio
3m	1	138,000	6,000	2,138,000	1,000	**14.8**
	30		118,000	39,319,000	21,000	**153.6**
4m	1	177,000	9,000	3,359,000	1,000	**18.1**
	30		157,000	61,787,000	21,000	**185.0**
Employment creation in construction phase – 0.6 FTE for 3m trail, 0.7 FTE for 4m trail						

6.6.8 Upgrades of existing trails

The AustRoads publication *Guide to Road Design, Part 6A – Pedestrian and Cyclist Paths* (AustRoads, 2013) and the VicRoads supplementary publication *Widths of Off-Road Share Use Paths* (VicRoads, 2013) provides guidance on design standards for recreational trails. Both emphasise that trails that the smoothness of the journey is an important consideration for cyclists and recommend either asphalt or concrete surfaces. The VicRoads guidance notes that trails that are made of granitic sand can pose a problem for those in wheel chairs or other aids, such as walking frames.

The City of Whittlesea has identified a number of its existing trails that form part of the Northern Regional Trails network as requiring upgrade to concrete from current granitic sand. These trails are:

- Darebin Creek Trail (M80 to Childs Road)
- Darebin Creek Trail (Childs Road to Findon Road)
- Merri Creek Trail
- Hendersons Road Drain Trail
- South Morang Pipe Trail

6.7 Yarra

6.7.1 Council Context

The City of Yarra is an inner metropolitan municipality, spanning 19.5 square kilometres to the north east of central Melbourne. Yarra hosts a diverse community and is home to a number of notable tourism features including Yarra Bend Park, the Edinburgh Gardens, Dights Falls, Collingwood Children's Farm, the Abbotsford Convent, Burnley Park and Victoria Park.

Major existing trails within the municipality include the Capital City Trail (shared path) and the Merri Creek Trail (which will also include the Coulston Reserve Path once constructed). The *City of Yarra Bicycle Strategy 2010-2015* establishes a long term vision for cycling in the municipality. It recognises strong local growth in off-road cycling, the prevalence of spatial constraints in the off-road network and it states that *'The off-road network has developed with path widths primarily established for recreational use by a mixture of pedestrians and low number of cyclists'*.

The Bicycle Strategy also details the status of bicycle initiatives, lays out future plans for bicycle facilities and lists strategies and actions for stimulating greater bicycle use across the City of Yarra.

The Bicycle Strategy is consistent with the City of Yarra's *Strategic Transport Statement*, *Open Space Strategy* and *Inner Melbourne Action Plan (IMAP)*. It also has links to Council's *Encouraging and Increasing Walking Strategy*.

6.7.2 Overview of Priority Trails

The following three priority trails have been identified for the City of Yarra, as shown in Figure 17:

- Y4: Yarra River Northern Trail (Y4)
- Main Yarra Trail – Gipps Street Steps (Y7)
- Rushall Reserve (Y9)

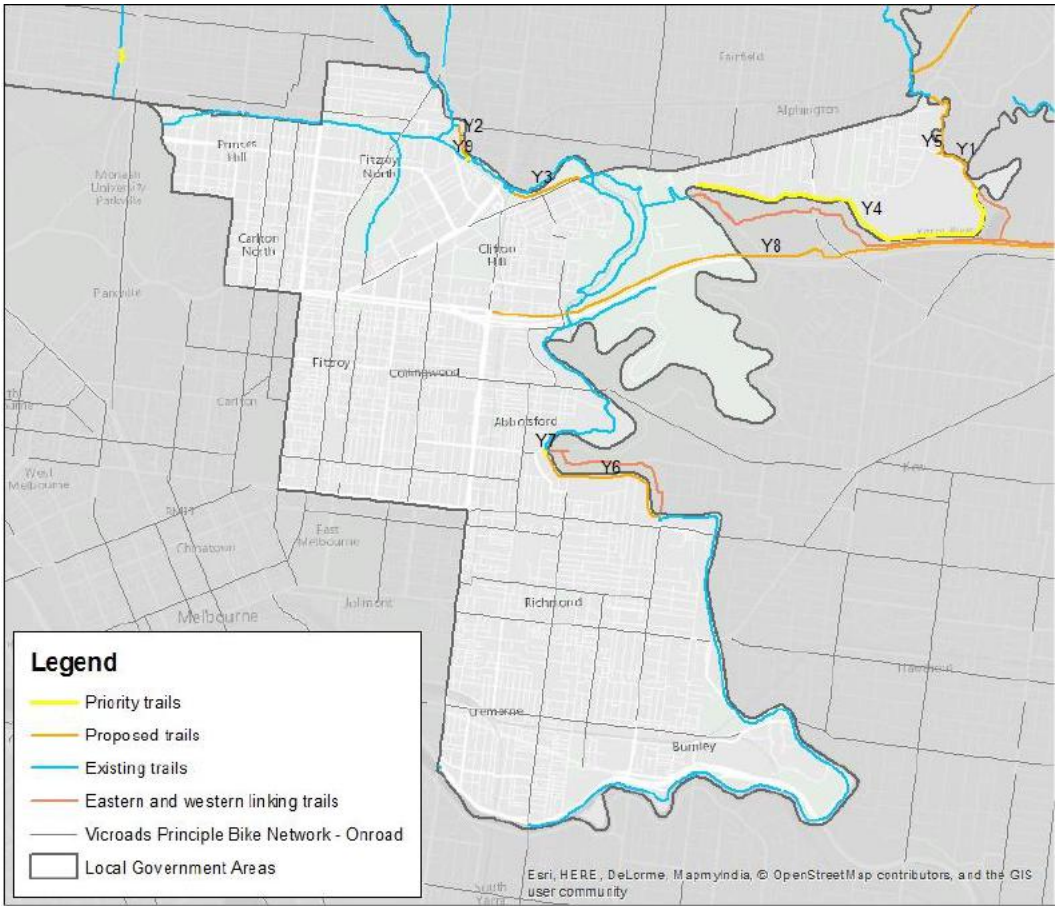


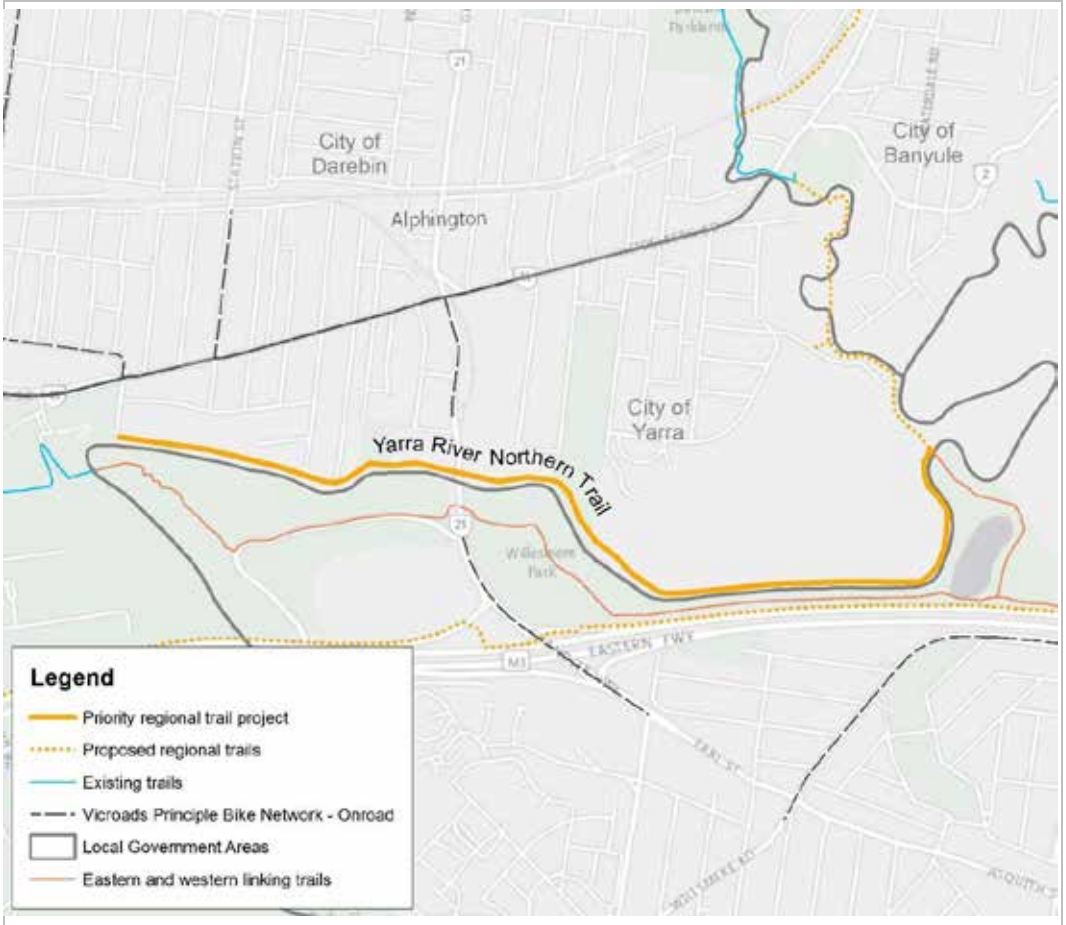
Figure 17 Northern Regional Trails Network priority trails – City of Yarra

6.7.3 Yarra River Northern Trail (Y4)

The Yarra River Northern Trail project comprises a connection from the Main Yarra Trail near Fairfield Park Boathouse, along the Yarra, under Chandler Bridge, to the south of La Trobe Gold Club to the proposed Darebin Creek Trail project (Y1).

The trail is favourable in terms of tourism, cultural, amenity and recreational value and links to regional parks given the close proximity of Yarra Bend Park and the Yarra River. It also provides a direct link to major tourism attractions, including the Fairfield Boat House. The concept design of the trail has already been developed.

Table 35 Yarra River Northern Trail overview (Y4)

Trail profile	
	
Key characteristics	
Length of trail	2.97 km
Current design stage	Concept design
Key benefits	Strong tourism, amenity and recreational value; provides access to regional parks and conservation areas and recreational water bodies
Tourism features	Fairfield Boat House Coate Park and Rudder Grange Alphington Park

	La Trobe Golf Course

Benefits and costs analysis						
Width	**Year**	**Construction cost ($)**	**Maintenance cost ($)**	**Wider economic benefits ($)**	**Private land value benefits ($)**	**Benefit - cost ratio**
3m	1	962,000	45,000	4,813,000	45,000	**4.8**
	30		819,000	88,520,000	826,000	**49.7**
4m	1	1,229,000	59,000	7,563,000	45,000	**5.9**
	30		1,092,000	139,103,000	826,000	**59.9**
Employment creation in construction phase – 3.8 FTE for 3m trail, 4.9 FTE for 4m trail						

6.7.4 Main Yarra Trail – Gipps Street Steps (Y7)

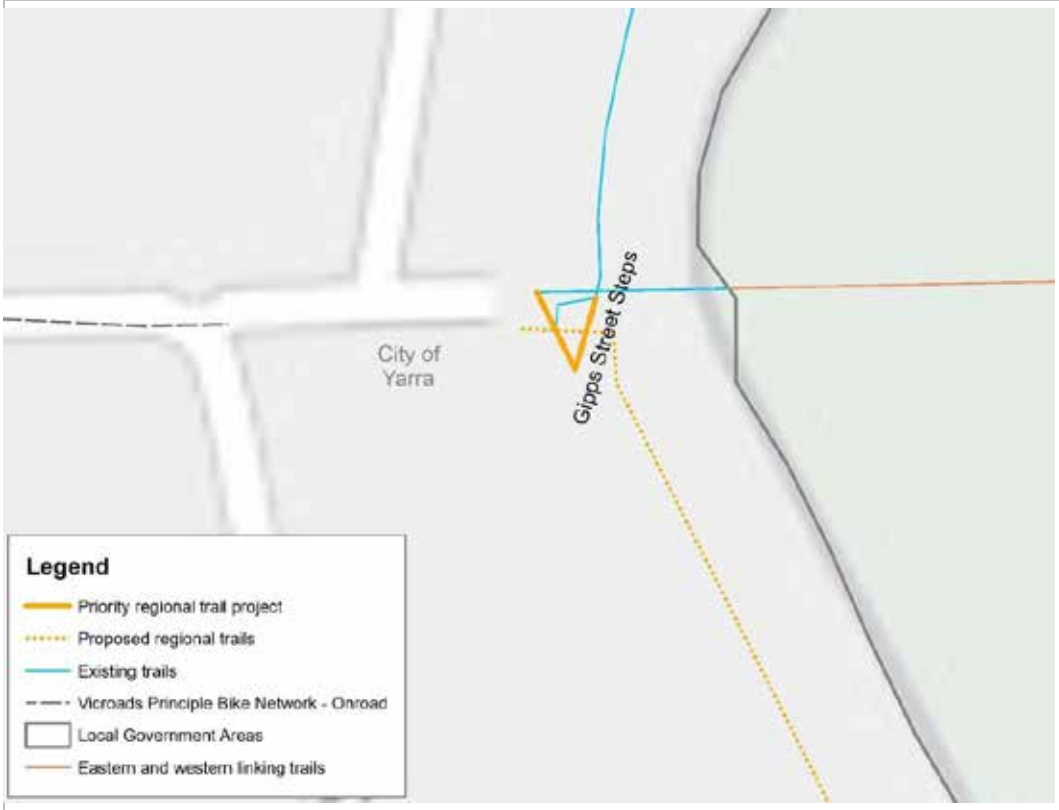
This portion of the Main Yarra Trail encompasses the replacement of Gipps Street steps with a ramp to enable unimpeded access along the Main Yarra Trail.

The trail is favourable in terms of tourism, cultural, amenity and recreational value and links to regional parks given the close proximity of Lower Yarra River land, Yarra Bend Park and the Yarra River. The trail also provides a link to Collingwood and North Richmond stations and the Tertiary Institute on York Street. The trail will enhance access to key tourism destinations such as the Collingwood Children's Farm and the Abbotsford Convent.

The trail will improve the continuity of the network by providing step-free access between the existing trails and Gipps Street. It has potential to link to the proposed Gipps Street to Walmer Street link to the south. Construction could be undertaken relatively easily.

Table 36 Main Yarra Trail – Gipps Street Steps overview (Y7)

Trail profile



Key characteristics

Length of trail	0 km (40 metres)
Current design stage	No design
Key benefits	Strong tourism, amenity and recreational value; provides access to regional parks and conservation areas, tertiary institutions, train stations, and recreational water bodies
Tourism features	Abbotsford Convent Collingwood Children's Farm Victoria Park Dights Falls

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit - cost ratio
3m	1	1,361,000	600	1,968,000	200	**1.4**
	30		10,000	36,191,000	4,000	**26.4**
4m	1	1,815,000	700	3,092,000	200	**1.7**
	30		14,000	56,872,000	4,000	**31.1**
Employment creation in construction phase – 5.4 FTE for 3m trail, 7.3 FTE for 4m trail						

6.7.5 Rushall Underpass (Y9)

The Rushall Underpass extends from Rushall Train Station under the railway line linking to the Rushall Reserve. The trial therefore links the existing Capital City Trail to the west and the existing Merri Creek Trail and proposed Rushall Reserve Trail to the east. There is currently an underpass under the station, however the expansion of this underpass would facilitate easier access by trail users.

The trail is favourable in terms of tourism, cultural, amenity and recreational value given the close proximity of the Liner Park and Edinburgh Gardens further south on the Capital City to Edinburgh Garden Trails. The trail also links to Rushall Train Station, Collingwood Leisure Centre and the size of the population catchment directly serviced by the trail is relatively high.

As previously noted, the trail would enhance regional connectivity by linking to other existing and proposed trails. The trail also aligns with council priorities and the land is owned by VicTrack and VicParks, which will improve the ease of implementation, however funding has not been secured and there is no design for the trail at this stage.

Table 37 Rushall Underpass overview (Y9)

Trail profile

Key characteristics	
Length of trail	0 km (25 metres)
Current design stage	No design
Key benefits	Strong tourism, amenity and recreational value; provides access to regional parks and conservation areas, train stations, leisure centre and other trails
Tourism features	Linear Park Edinburgh Gardens

Benefits and costs analysis

Width	Year	Construction cost ($)	Maintenance cost ($)	Wider economic benefits ($)	Private land value benefits ($)	Benefit - cost ratio
3m	1	900,000	400	2,797,000	200	**3.1**
	30		7,000	51,435,000	4,000	**56.7**
4m	1	1,200,000	500	4,395,000	200	**3.7**
	30		9,000	80,826,000	4,000	**66.9**
Employment creation in construction phase – 3.6 FTE for 3m trail, 4.8 FTE for 4m trail						

7 Implementation

7.1 Memorandum of Understanding

It is recognised that successful implementation of the Northern Regional Trails Strategy requires a coordinated and aligned approach between the key government and agency stakeholders of Melbourne's North. In recognition of this, the commissioning councils of Melbourne's North have committed, as an initial step in the implementation of the Strategy, to the development and formation of a Memorandum of Understanding (MoU) between the councils and relevant Victorian Government agencies and landowners.

The intent of the MoU is to define an agreed set of governance principles that will guide the design, construction and operation and maintenance of trails identified in the Strategy over coming years. A fundamental principle of the MoU will be a focus on fostering a collaborative approach between councils and relevant agencies to implementation of the Strategy. It is recognised that such a collaborative approach is necessary to address the challenges posed by multiple landowners, optimising the user experience and attractiveness of the network and the requirement for ongoing trail maintenance.

An overview of key issues and opportunities to be addressed by the MoU is provided below.

7.2 Agency landowners

Figure 18 illustrates that there are a wide range of land owners across the northern region that will need to be considered and engaged throughout the implementation of the Northern Regional Trails Strategy. These include councils, state agencies and private land owners.

There is a need to work with the existing land owners and engage stakeholders in order to implement the development of the trail network. Meetings have been held with some of the land owners and it has generally been acknowledged that VicTrack, VicRoads, Parks Victoria Melbourne Water are amenable to considering the construction of the trail network on their land. However in the instance where the land is privately owned and/or the land owners have not been identified there may be issues in both gaining access to development the land and providing sources of funding.

7.3 User experience

To enhance the experience and way finding of users of the Northern Regional Trail network, an agreed set of design parameters will be developed to clearly denote that they are accessing a part of the off road recreational trail network of Melbourne's North.

To complement this on ground experience it is proposed that a package of digital information be developed and be provided as freely available open source information, including to the Victorian Government Data portal (www.data.vic.gov.au). The package will consist of a collation of information regarding the Northern Regional Trail network, together with supporting tourist and destination information collated from each of the councils.

The City of Darebin has set a target of 90% maintenance of off-road shared paths in their Cycling Strategy. Further they have outlined actions for cycle infrastructure include ensuring that cycling facilities are included in Council's planned maintenance.

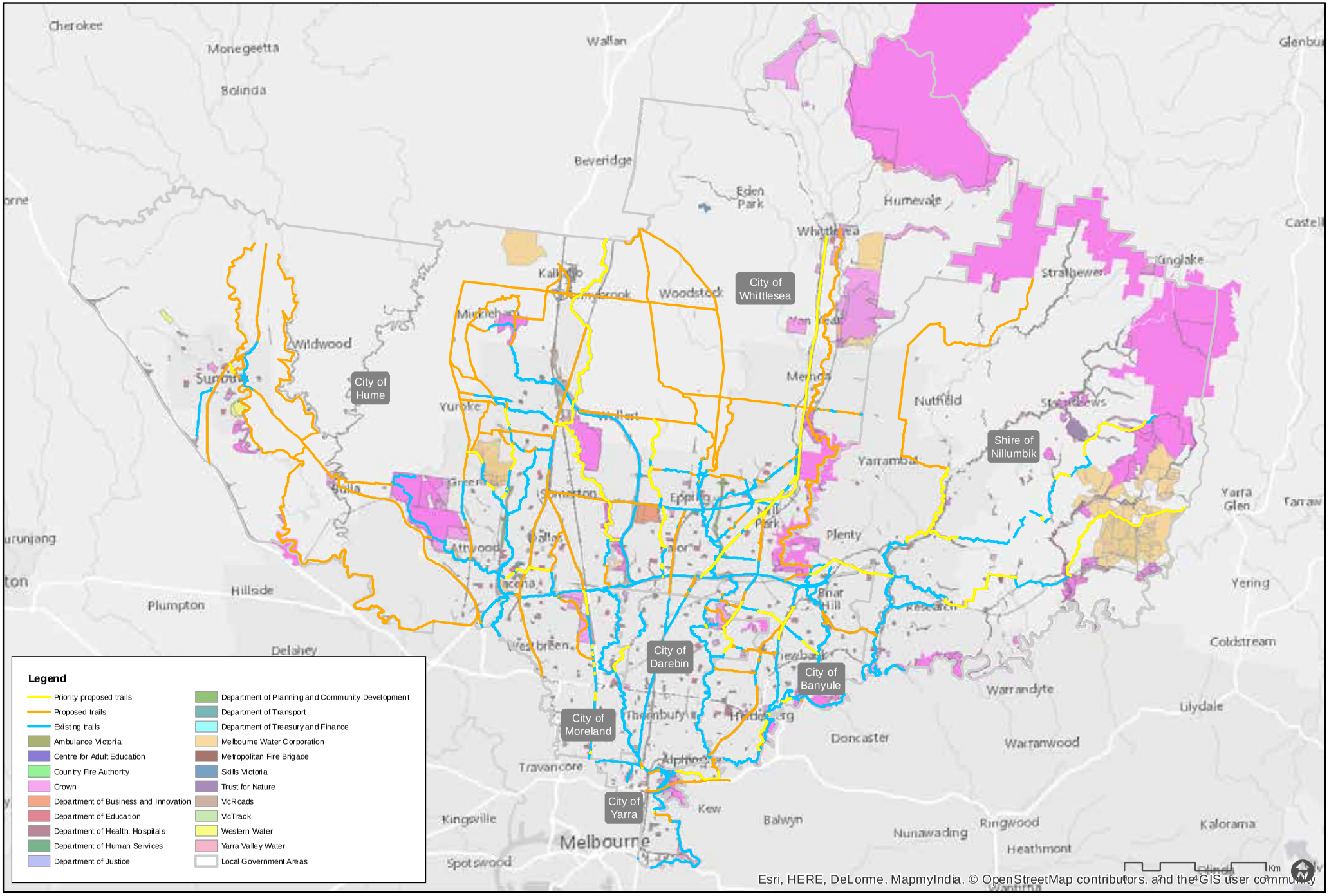


Figure 18 - Land ownership in the north

ARUP

7.4 Maintenance

7.4.1 Introduction

During the development of the Strategy the former Department of Transport, Planning and Local Infrastructure recommended that it would assist their planning if an agreed set of governance principles were development, in particular addressing the consideration of ongoing maintenance requirements. This would provide assurance that the trail network would be supported and maintained to an appropriate standard in accordance with the Design Guidelines.

There are varying approaches to maintenance across the region and regular maintenance of the regional trail network is important to account for surface issues as well as increasing usage to ensure that users can benefit from the trails as intended. In some cases, both within the region and in the wider Melbourne metropolitan area, cycle trails have fallen into disrepair and become unpopular with users, as they have not received funding and/or maintenance. Many of the councils have identified the need for trail maintenance in their respective policies and strategies and in some instances funding sources and indirect positive impacts have also been identified.

7.4.2 Council plans

In their Bicycle Strategy Action Plan, the City of Banyule has identified actions to develop and implement a maintenance program for the off-road network and to consider cyclist needs when undertaking regular maintenance works in the municipality. A range of opportunities for funding maintenance have been identified and the *Bicycle Strategy 2010-2020* has outlined that Council has allocated some of the $1million funding (committed through Council's New Works and Services Program) in the past three years for bicycle path maintenance.

As previously noted, the City of Darebin has set a target of 90% maintenance of off-road shared paths and they have outlined actions such as ensuring that cycling facilities are included in Council's planned maintenance.

The City of Hume identified the need for undertaking appropriate maintenance and allocating funding for the maintenance of paths in the Walking and Cycling Strategy 2010-2015, however the maintenance of trails has not been specifically outlined in their Bicycle Network Plan.

The Moreland Bicycle Strategy outlines that Council will use routine asset management, open space management and citizen response processes to identify maintenance issues and that *'Council will use its open space management and asset maintenance programs to ensure bicycle routes are attractive places to ride, where the chance of encountering hazards, such as potholes, broken glass or obscuring vegetation, is low'*. Moreland City Council committed funding of approximately $800,000 in 2009/10 and they have acknowledged that they need to increase funding in the future. This will be increased by updating their accounting systems to ensure that asset management and management activities to maintain the trails are included as bicycle expenditure.

In the Shire of Nillumbik the indirect positive impacts from maintaining the trail network has been explored in the Nillumbik Trails Strategy. Voluntary trail maintenance has been identified as a trail activity that could encourage participation and social interaction and the maintenance of trails has also been identified as a potential generator of employment opportunities in the municipality. Further, it has been recommended that $1.2 million is invested in maintenance over the next 10 years based on the following indicative maintenance costs for various trail surfaces:

Trail surface	Annual maintenance cost
Natural	$0.1/m^2
Toppings (i.e. crushed rock)	$2/m^2
Asphalt	$3/m^2
Concrete	$5/m^2
Boardwalk	$10/m^2

The City of Whittlesea has a strategy for better recreational trails, of which a key action is to build and upgrade major recreation trails to a suitable all weather surface.

One of the key strategies in the City of Yarra Bike Strategy is focused on better bicycle network maintenance. It recognises the importance of maintaining a high quality condition of trails and it states that *'Paths, roads and bicycle lanes should be regularly inspected and maintained to ensure quality does not fall below appropriate levels'*. Further it details that all major bicycle routes in the municipality should be inspected quarterly. A number of funding sources have been identified for the overall implementation of the strategy, however there has been no specific commitment of funding to maintenance activities.

8 References

AECOM (2010) *Inner Sydney Regional Bicycle Network Demand Assessment and Economic Appraisal*. Sydney: AECOM.

Austroads (2009) *Guide to Road Design – Part 6A: Pedestrian and Cyclist Paths.* Sydney, NSW: Austroads.

Banyule City Council (2010) *Banyule Bicycle Strategy and Action Plan 2010-2020*.

Banyule City Council (2010) *Banyule Bicycle Policy 2010 – 2020*.

Banyule City Council (2008) *Recreation Strategy.*

Banyule City Council (2007) *Public Open Space Strategy 2007-2012*

City of Darebin (2013) *Darebin Cycling Strategy 2013 Draft.*

City of Darebin (2007) *Darebin Transport Strategy 2007-2027.*

Cities of Melbourne, Port Phillip, Stonnington and Yarra and VicUrban (2005) *Inner Melbourne Action Plan.*

City of Whittlesea (2014) *Integrated Transport Strategy 2014.*

City of Yarra (2010) *City of Yarra Bicycle Strategy 2010-2015.*

City of Yarra (2006) *Strategic Transport Statement.*

City of Yarra (2006) *Yarra Open Space Strategy*.

City of Yarra (2005) *Encouraging and Increasing Walking – A policy document for the City of Yarra.*

Councils of Banyule, Darebin, Hume, Mitchell, Moreland, Nillumbik, Whittlesea and Yarra, RDA Northern Melbourne and NORTH Link (2014) *Northern Horizons – 50 Year Infrastructure Strategy for Melbourne's North*

Heart Foundation (2004) *Healthy by Design*. Melbourne: National Heart Foundation (Victoria).

Hume City Council (2015) *Hume Bicycle Network Plan – Final Report.*

Hume City Council (2010) *Walking and Cycling Strategy 2010-2015.*

Karadeniz (2008) *The Impact of the Little Miami Scenic Trail on Single Family Residential Property Values*.

Metropolitan Planning Authority (2014) *Plan Melbourne*

Moreland City Council (2012) *Open Space Strategy 2012-2022.*

Moreland City Council (2010) *Moreland Bicycle Strategy 2011-2021.*

Nillumbik Shire Council (2011) *2011 Nillumbik Trails Strategy*. Nillumbik Shire Council.

PricewaterhouseCoopers (PwC) (2009) *Evaluation of the costs and benefits to the community of financial investment in cycling programs and projects in New South Wales*. Sydney: PwC.

Queensland Department of Transport and Main Roads (2011) *Benefits of inclusion of active transport in infrastructure projects*.

Tourism Victoria (2011) *Victoria's Cycle Tourism Action Plan 2011-2015*. Melbourne: Victorian Government.

Tourism Victoria (2014) *Victoria's Trails Strategy 2014 - 24*. Melbourne: Victorian Government.

TRC (2014) *North East Rail Trail – Preliminary Demand and Economic Benefit Assessment.* Northern Tasmania Development.

Victorian Government Department of Transport, Planning and Local Infrastructure (DTPLI) (2012) *Cycling into the Future 2013 - 23 Victoria's Cycling Strategy*. Melbourne: Victorian Government.

VicRoads (2013) *Cycle Notes 21: Widths of off-road shared use paths.* Kew: VicRoads.

Appendix A

Proposed Northern Regional Trails Network and multi-criteria analysis

A1 Proposed Northern Regional Trails

Council	Trail	Map Reference
Banyule	Banyule Shared Trail	B1
	Unnamed La Trobe University Link Path	B2
	Darebin Creek Trail	B3
	Unnamed East-West Power Easement	B6
	Hurstbridge Line Rail Trail	B7
	Main Yarra Trail bridge	B8
	Plenty Road Shared Path	B9
	Main Yarra Trail realignment	B11
	Main Yarra Trail	B12
	Main Yarra Trail	B13
	Banyule Shared Trail	B14
	Plenty River Trail	B15
	Greensborough to Eltham Link Trail	B16
	Dougharty Road	B17
Darebin	Bundoora Park Shared Path	D1
	Darebin Creek Trail bridge	D2
	La Trobe University Shared Path	D7
	Plenty Road Shared Path	D8
	Unnamed - La Trobe University Link Path	D9
	Unnamed - East-West Power Easement	D10
Hume	Aitken Boulevard Shared Path	H1
	Aitken Creek Shared Path	H2
	Aitken Creek Shared Path	H3
	Blind Creek Trail Link	H4
	Bulla – Woodlands Historic Park Connection	H5
	Craigieburn Rail Line Shared Trail	H6
	Craigieburn Rail Line Shared Trail	H7
	Donnybrook Road Shared Path	H10
	Emu Creek Shared Trail	H11
	Greenvale Reservoir Park Trail	H12
	Jacksons Creek Regional Path	H13
	Jacksons Creek Regional Path	H14
	Malcolm Creek Trail	H15
	Maribyrnong River Shared Path	H16
	Meadowlink shared pathway	H17
	Yuroke Creek Trail (to Greenvale Reservoir Park)	H18
	Merri Creek Shared Trail	H20
	Mickleham Road Shared Path	H21
	Somerton Rd Shared Path/ Cooper Street Shared Path	H24
	Ring Road - Moonee Ponds Creek Bike Path	H25
	Sunbury Rail Line Shared Trail	H26

Council	Trail	Map Reference
	Sunbury Rail Line Shared Trail	H27
	Sunbury to Melbourne Airport Offroad Shared Path	H28
	Tullamarine Freeway Regional Path	H29
	Tullamarine Offroad Shared Path	H30
	Unnamed - Craigieburn to Merrifield Link	H31
	Unnamed - Mickleham Rd to Craigieburn Link	H34
	Unnamed - Roxburgh Park east-west Link Path	H36
	YVW Pipetrack - south Craigieburn east-west Link	H37
	Unnamed - southwest Craigieburn north-south link	H38
	Upfield Shared Path extension	H39
	Merlynston Creek Trail	H40
	Mt Ridley Road to Donnybrook Road	H41
Moreland	Craigieburn Rail Line Shared Trail	M1
	Upfield Rail Trail - North	M2
	Upfield Rail Trail - South	M3
	Edgars Creek Trail	M4
	Merlynston Creek Trail	M5
	Merri Creek Trail Upgrades	M6
Nillumbik	Diamond Creek Trail	N1
	Aqueduct Trail	N2
	Green Wedge Trail	N3
	Kinglake Way Trail	N4
Whittlesea	Bridge Inn Road Shared Path	W1
	Cooper Street Shared Path	W2
	Cooper Street Shared Path	W3
	Craigieburn Road Shared Path	W4
	Dalton Road Shared Path	W5
	Darebin Creek Trail	W6
	Donnybrook Road Shared Path	W7
	E6 Freeway Trail	W8
	Edgars Creek Trail	W9
	Epping North Transmission Trail	W11
	Epping North Transmission Trail	W12
	Epping Road Shared Path	W14
	Findon Creek Trail	W15
	Findon Creek Trail	W16
	Maroondah Aqueduct Trail	W17
	Merri Creek Trail Link	W20
	Plenty River Trail	W21
	South Morang Pipe Trail	W22
	Sycamore Morang Trail	W23
	Whittlesea Rail Trail	W24
	Yan Yean Pipe Trail	W25
	Plenty Road Shared Path	W27

Council	Trail	Map Reference
	Upgrades to Existing Trails	W28
	Plenty Road Shared Path	W29
Yarra	Darebin Creek Trail	Y1
	Rushall Reserve Shared Path	Y2
	Coulsen Reserve Ramp	Y3
	Yarra River Northern Trail	Y4
	Farm Road Link	Y5
	Main Yarra Trail - Gipps St to Walmer Street Link	Y6
	Main Yarra Trail – Gipps St Steps	Y7
	North East Bicycle Corridor	Y8
	Rushall Underpass	Y9

A2 Multi-criteria analysis Framework

Criteria	Weighting	Scoring		
		0	1	2
Project Characteristics				
Provides access to Regional parks and conservation areas	High	Provides no access	-	Provides direct access
Provides access to destinations with tourism and/or cultural heritage value (defined manually by councils)	High	Provides no access	-	Provides direct access
Has potential to create a new, or enhance an existing tourism experience (an aggregate of results from amenity, recreation, cultural heritage, historic environments and sites nominated by councils)	High	No creation or enhancement of tourist experience	-	Creates a new or enhances an existing tourist experience
Provides access to regional scale leisure centres	Low	Provides no access	-	Provides direct access
Provides access to train stations	Medium	Provides no access	-	Provides direct access
Provides access to tertiary institutions	Medium	Provides no access	-	Provides direct access
Provides access to activity centres or business parks	Medium	Provides no access	-	Provides direct access

Criteria	Weighting	Scoring		
		0	1	2
Has strong amenity and recreational value	High	20% or less of the trail is within natural environment and is predominantly used for commuting	20 to 80% of the trail is within natural environment and is predominantly recreational	Greater than 80% of trail is within natural environment area and is clearly recreational
Provides access to recreational water bodies	High	Provides no access	-	Provides direct access
Size of population catchment serviced within a 1km radius of the proposal regional trail	Medium	Trail population catchment is less than 0.1% of the population of Melbourne's North	Trail population catchment is between 0.1% and 1% of the population of Melbourne's North	Trail population catchment is equal to or greater than 1% of the population of Melbourne's North
Policy context				
Alignment with existing LGA plans	High	There is no reference to the trail in LGA plans	-	The trail is clearly referenced in LGA plans
Design stage of trail	High	No design has been undertaken	Concept design has been undertaken	Detailed design has been undertaken and the project is 'shovel ready'.
Land ownership	Medium	There are multiple land owners, private land owners who are likely to be non-conducive to the trail development	The land ownership is unknown in portions and/or there are multiple local government or agency land owners for the trail who are likely to be conducive to its development	There is one local government or agency land owner for the trail who is likely to be conducive to its development
Ease of construction	High	There are large sections of the trail (greater than 70%) with significant terrain / planning constraints to development	There are terrain / planning constraints to development along 30% - 70% of the trail	There are terrain / planning constraints to development along less than 30% of the trail
Connectivity to existing network	Medium	The trail does not connect to the existing network	The trail connects to the existing network but does not enhance regional connectivity	The trail connects and enhances regional connectivity of the existing network of Melbourne's North

Criteria	Weighting	Scoring		
		0	1	2
Alignment with external stakeholder plans	Medium	There is no reference to the trail in external stakeholder plans	-	The trail is clearly referenced in external stakeholder plans

A3 Multi-criteria analysis

								SECTION 1: TRAIL CHARACTERISTICS										SECTION 2: POLICY CONTEXT				
							Criteria	Provides Link to Regional Parks and Conservation Areas	Provides access to destinations with tourism and/or cultural heritage value	Has potential to create a new, or enhance an existing tourism experience	Provides access to regional scale leisure centres	Provides access to train stations	Provides access to tertiary institutions	Provides access to activity centres or business parks	Has strong amenity and recreational value	Provides access to recreational water bodies	Size of population catchment serviced within a 1km radius of the proposal regional trail	Alignment with existing LGA plans	Design stage of trail	Land ownership	Ease of construction	Connectivity to existing network
							Weighting	High	High	High	Low	Medium	Medium	Medium	High	High	Medium	High	High	Medium	High	Medium
							Range	3	3	3	1	2	2	2	3	3	2	3	3	2	3	2
								0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 1 / 2	0 / 2	0 / 1 / 2	0 / 2	0 / 1 / 2	0 / 1 / 2	0 / 1 / 2	0 / 1 / 2
REF	TRAIL NAME	LOCATION	LGA	Score 1	Score 2	Agg. score	Rank															
B1	**Banyule Shared Trail**	Yallambie Road to Grimshaw Street	Banyule	**18**	**17**	**35**	**40**	2 6	0 0	0 0	0 0	2 4	0 0	2 4	0 0	0 0	2 4	2 6	0 0	2 4	1 3	2 4
B2	**Unnamed - La Trobe University Link Path**	Link to La Trobe Uni	Banyule	**18**	**2**	**20**	**88**	0 0	0 0	0 0	2 2	2 4	2 4	2 4	0 0	0 0	2 4	0 0	0 0	0 0	0 0	1 2
B3	**Darebin Creek Trail**	Link to Main Yarra Trail - and extended south ***(project under construction)***	Banyule / Yarra	**24**	**16**	**40**	**24**	2 6	0 0	2 6	0 0	2 4	0 0	0 0	2 6	0 0	1 2	2 6	2 6	1 2	0 0	1 2
B6	**Unnamed - East-West Power Easement**	Along east-west power easement. 6a, Between NJ Teffler Reserve and Watsonia Rd. 6b, Plenty River trail to Yallambie Road	Banyule	**30**	**15**	**45**	**8**	2 6	0 0	2 6	0 0	2 4	0 0	2 4	0 0	2 6	2 4	2 6	1 3	1 2	0 0	2 4
B7	**Hurstbridge Line Rail Trail**	Along length of Line. B7a, Southern section from Rosanna Station to Darebin Creek Trail; B7b, small section at Macleod Park; B7c, Macleod Station north to Elder Street.	Banyule	**32**	**8**	**40**	**24**	2 6	2 6	2 6	2 2	2 4	0 0	2 4	0 0	0 0	2 4	0 0	0 0	2 4	0 0	2 4
B8	**Main Yarra Trail - Cross River Link**	Bridge into Banksia Park	Banyule	**33**	**10**	**43**	**13**	2 6	2 6	1 3	0 0	0 0	0 0	2 4	2 6	2 6	1 2	2 6	0 0	1 2	0 0	1 2
B9	**Plenty Road Shared Path**	Link from southern end to join proposed northern extension of Bundoora Park Shared Path	Banyule	**8**	**9**	**17**	**94**	0 0	0	0 0	0 0	0 0	0 0	2 4	0 0	0 0	2 4	0 0	0 0	2 4	1 3	1 2
B11	**Main Yarra Trail**	Realignment of Main Yarra Trail through Banyule Flats	Banyule	**26**	**18**	**44**	**9**	2 6	0 0	2 6	0 0	0 0	0 0	0 0	2 6	2 6	1 2	2 6	2 6	1 2	0 0	2 4
B12	**Main Yarra Trail**	Bridge linking Main Yarra Trail with Birrarrung Metropolitan Park	Banyule	**20**	**10**	**30**	**59**	2 6	0 0	2 6	0 0	0 0	0 0	0 0	2 6	0 0	1 2	2 6	0 0	1 2	0 0	1 2
B13	**Main Yarra Trail**	Bridge linking proposed Banyule Shared Trail ext with Bulleen Park	Banyule	**20**	**10**	**30**	**59**	2 6	0 0	2 6	0 0	0 0	0 0	0 0	2 6	0 0	1 2	2 6	0 0	1 2	0 0	1 2
B14	**Banyule Shared Trail**	Continue trail south of Banksia Street - proposed commuter link adjacent to western boundary of Yarra Flats Metropolitan Park	Banyule	**30**	**13**	**43**	**13**	2 6	0 0	2 6	0 0	0 0	0 0	2 4	2 6	2 6	1 2	2 6	1 3	1 2	0 0	1 2
B15	**Plenty River Trail**	Realignment of the Plenty River Trail to opposite side of river to overcome extremely steep section (next to an activity centre)	Banyule	**17**	**15**	**32**	**51**	0 0	0 0	2 6	0	2 4	0	0 0	1 3	0	2 4	2 6	1 3	1 2	0 0	2 4
B16	**Greensborough to Eltham Link Trail**	Potential link between the Plenty River Trail and Diamond Creek Trail utilising the Hurtsbridge Rail corridor	Banyule / Nillumbik	**31**	**8**	**39**	**26**	2 6	2 6	1 3	2 2	2 4	0 0	0 0	0 0	2 6	2 4			2 4	0 0	2 4
B17	**Dougharty Road**	East west link along the Dougharty Road corridor connecting the Darebin Creek trail and the Hurstbridge line rail trail (B7)	Banyule	**20**	**9**	**29**	**63**	1 3	1 3	0 0	1 1	1 2	2 4	2 4	1 3	0 0		0 0	0 0	1 2	1 3	2 4
D1	**Bundoora Park Shared Path**	Through Bundoora Park - including Darebin Creek bridge crossing	Darebin	**30**	**13**	**43**	**13**	2 6		2 6	0 0	0 0	2 4	2 4	2 6	0 0	2 4	2 6	0 0	1 2	1 3	1 2

								SECTION 1: TRAIL CHARACTERISTICS										SECTION 2: POLICY CONTEXT				
							Criteria	Provides Link to Regional Parks and Conservation Areas	Provides access to destinations with tourism and/or cultural heritage value	Has potential to create a new, or enhance an existing tourism experience	Provides access to regional scale leisure centres	Provides access to train stations	Provides access to tertiary institutions	Provides access to activity centres or business parks	Has strong amenity and recreational value	Provides access to recreational water bodies	Size of population catchment serviced within a 1km radius of the proposal regional trail	Alignment with existing LGA plans	Design stage of trail	Land ownership	Ease of construction	Connectivity to existing network
							Weighting	High	High	High	Low	Medium	Medium	Medium	High	High	Medium	High	High	Medium	High	Medium
							Range	3	3	3	1	2	2	2	3	3	2	3	3	2	3	2
								0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 1 / 2	0 / 2	0 / 1 / 2	0 / 2	0 / 1 / 2	0 / 1 / 2	0 / 1 / 2	0 / 1 / 2
REF	TRAIL NAME	LOCATION	LGA	Score 1	Score 2	Agg. score	Rank															
D2	**Darebin Creek Trail**	Extension and bridge to connect via Beenak/McMahon Reserve path: bridge over Darebin Creek from Rathcown Road and sealed path to Tee St	Darebin	**20**	**15**	**35**	**40**	0 0	0	0 0	0 0	0 0	0 0	2 4	2 6	2 6	2 4	2 6	1 3	1 2	0 0	2 4
D7	**La Trobe University Shared Path**	Through Latrobe Uni	Darebin	**33**	**13**	**46**	**4**	2 6	0	2 6	0 0	0 0	2 4	2 4	1 3	2 6	2 4	1 3	1 3	1 2	1 3	1 2
D8	**Plenty Road Shared Path**	Between Main Dr and Arthur St	Darebin	**18**	**13**	**31**	**56**	2 6	0	0 0	0 0	0 0	2 4	2 4	0 0	0 0	2 4	2 6	0 0	1 2	1 3	1 2
D9	**Unnamed - La Trobe University Link Path**	Links the Hurstbridge Rail Line Trail with La Trobe University	Darebin	**37**	**4**	**41**	**20**	2 6	2 6	2 6	2 2	2 4	2 4	2 4	1 3	0 0	1 2	0 0	0 0	1 2	0 0	1 2
D10	**Unnamed - East-West Power Easement**	Link Darebin Creek Trail to proposed east-west shared trail (links with Plenty River Trail at its eastern end)	Darebin	**14**	**9**	**23**	**82**	2 6	0	0 0	0 0	0 0	0 0	2 4	0 0	0 0	2 4	0 0	0 0	1 2	1 3	2 4
H1	**Aitken Boulevard Shared Path**	Incomplete sections between Craigieburn road and south to join the Melbourne Water Pipe Track. H1a - South of Somerton Road, concept design in place, VicRoads land and to be delivered with road, H1b - North of Somerton Road, under construction	Hume	**19**	**16.5**	**35.5**	**38**	2 6	0	0 0	0 0	0 0	0 0	0 0	1 3	2 6	2 4	2 6	1.5 4.5	1 2	0 0	2 4
H2	**Aitken Creek Shared Path**	Extension east to join the proposed Merri Creek Shared Trail extension. Requires route over / under rail and Sydney Road. Completion linked with H20 occurring.	Hume	**33**	**8**	**41**	**20**	2 6	0	2 6	2 2	2 4	0 0	2 4	1 3	2 6	1 2	2 6	0 0	0 0	0	1 2
H3	**Aitken Creek Shared Path**	Extension northwest from Craigieburn including link section west of the Craigeburn Golf Course	Hume	**8**	**16**	**24**	**80**	0 0	0	0 0	0 0	0 0	0 0	0 0	2 6	0 0	1 2	2 6	1 3	1 2	1 3	1 2
H4	**Blind Creek Trail Link**	Link between Jacksons Creek Regional Trail and the Sunbury Rail Line Shared Trail	Hume	**24**	**20**	**44**	**9**	2 6	2 6	0 0	0 0	2 4	0 0	0 0	0 0	2 6	1 2	2 6	2 6	1 2	2 6	0 0
H5	**Bulla - Woodlands Historic Park Connection**	Between Bulla and Woodlands Historic Park	Hume	**12**	**16**	**28**	**70**	2 6	0	2 6	0 0	0 0	0 0	0 0	0 0	0 0	0 0	2 6	0 0	1 2	2 6	1 2
H6	**Craigieburn Rail Line Shared Trail**	H6a - North of existing path (from Limpopa Sq) to Craigieburn Station. H6b North or Craigieburn to the Lockerbie development along the Craigeburn Rail Line	Hume	**18**	**10**	**28**	**70**	2 6	0	0 0	2 2	2 4	0 0	2 4	0 0	0 0	1 2	2 6	0 0	1 2	0 0	1 2

								SECTION 1: TRAIL CHARACTERISTICS										SECTION 2: POLICY CONTEXT				
							Criteria	Provides Link to Regional Parks and Conservation Areas	Provides access to destinations with tourism and/or cultural heritage value	Has potential to create a new, or enhance an existing tourism experience	Provides access to regional scale leisure centres	Provides access to train stations	Provides access to tertiary institutions	Provides access to activity centres or business parks	Has strong amenity and recreational value	Provides access to recreational water bodies	Size of population catchment serviced within a 1km radius of the proposal regional trail	Alignment with existing LGA plans	Design stage of trail	Land ownership	Ease of construction	Connectivity to existing network
							Weighting	High	High	High	Low	Medium	Medium	Medium	High	High	Medium	High	High	Medium	High	Medium
							Range	3 0 / 2	3 0 / 2	3 0 / 2	1 0 / 2	2 0 / 2	2 0 / 2	2 0 / 2	3 0 / 1 / 2	3 0 / 2	2 0 / 1 / 2	3 0 / 2	3 0 / 1 / 2	2 0 / 1 / 2	3 0 / 1 / 2	2 0 / 1 / 2
REF	TRAIL NAME	LOCATION	LGA	Score 1	Score 2	Agg. score	Rank															
H7	**Craigieburn Rail Line Shared Trail**	North of Somerton Rd along rail corridor past Roxburgh Park and south from Somerton Road to Moreland (M1)	Hume	**18**	**15**	**33**	**48**	0 0		0 0	2 2	2 4	2 4	2 4	 0	0 0	2 4	2 6	0 0	1 2	1 3	2 4
H10	**Donnybrook Road Shared Path**	Between Mickleham Road and Lockerbie	Hume	**19**	**10**	**29**	**63**	2 6	 0	0 0	0 0	2 4	0 0	2 4	1 3	0 0	1 2	2 6	0 0	1 2	0 0	1 2
H11	**Emu Creek Shared Trail**	Between Jacksons Creek Regional Trail/ Sunbury Road and the UGB via Emu Creek	Hume	**20**	**8**	**28**	**70**	0 0	 0	2 6	2 2	0 0	0 0	2 4	2 6	0 0	1 2	2 6	0 0	1 2	0 0	0 0
H12	**Greenvale Reservoir Park Trail**	Extension to north of Greenvale Reservoir	Hume	**21**	**18**	**39**	**26**	2 6	 0	2 6	0 0	0 0	0 0	0 0	1 3	2 6	0 0	2 6	0 0	2 4	2 6	1 2
H13	**Jacksons Creek Regional Path**	Trail continuation north from Sunbury to slightly north of the UGB via Emu Bottom Wetland	Hume	**30**	**13**	**43**	**13**	2 6	2 6	2 6	2 2	2 4	0 0	0 0	2 6	0 0	0 0	2 6	1 3	1 2	0 0	1 2
H14	**Jacksons Creek Regional Path**	Sunbury to Deep Creek via Jacksons Creek and Organ Pipes National Park	Hume	**21**	**13**	**34**	**43**	2 6	2 6	2 6	0 0	0 0	0 0	0 0	1 3	0 0	0 0	2 6	1 3	1 2	0 0	1 2
H15	**Malcolm Creek Trail**	Extension to north through Mickleham. (H15a - east-west section connecting to proposed H31; H15b - north-south section connecting to existing trail)	Hume	**20**	**21**	**41**	**20**	2 6	 0	2 6	0 0	0 0	0 0	0 0	2 6	0 0	1 2	2 6	1 3	2 4	2 6	1 2
H16	**Maribyrnong River Shared Path**	Runs along the Maribyrnong River from Deep Creek to the edge of Melbourne Airport.	Hume	**20**	**11**	**31**	**56**	2 6	 0	2 6	0 0	0 0	0 0	0 0	2 6	0 0	1 2	2 6	1 3	1 2	0 0	0 0
H17	**Meadowlink shared pathway**	Through Broadmeadows town centre linking Westmeadows with Merlynston Creek/ Seabrook Reserve	Hume	**24**	**19**	**43**	**13**	0 0	 0	0 0	2 2	2 4	2 4	2 4	0 0	2 6	2 4	2 6	2 6	1 2	1 3	1 2
H18	**Melbourne Water Pipe Track**	Extension to north of existing path to Greenvale Reservoir. Melbourne Water owner of missing link land.	Hume	**37**	**12**	**49**	**2**	2 6	 0	2 6	2 2	2 4	2 4	2 4	1 3	2 6	1 2	2 6	0 0	1 2	0 0	2 4

								SECTION 1: TRAIL CHARACTERISTICS										SECTION 2: POLICY CONTEXT				
							Criteria	Provides Link to Regional Parks and Conservation Areas	Provides access to destinations with tourism and/or cultural heritage value	Has potential to create a new, or enhance an existing tourism experience	Provides access to regional scale leisure centres	Provides access to train stations	Provides access to tertiary institutions	Provides access to activity centres or business parks	Has strong amenity and recreational value	Provides access to recreational water bodies	Size of population catchment serviced within a 1km radius of the proposal regional trail	Alignment with existing LGA plans	Design stage of trail	Land ownership	Ease of construction	Connectivity to existing network
							Weighting	High	High	High	Low	Medium	Medium	Medium	High	High	Medium	High	High	Medium	High	Medium
							Range	3	3	3	1	2	2	2	3	3	2	3	3	2	3	2
								0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 1 / 2	0 / 2	0 / 1 / 2	0 / 2	0 / 1 / 2	0 / 1 / 2	0 / 1 / 2	0 / 1 / 2
REF	TRAIL NAME	LOCATION	LGA	Score 1	Score 2	Agg. score	Rank															
H19	Merri Creek Shared Trail	Extension to fill gap between Moreland and Somerset Rd	Hume	24	15	39	26	2 6	0	2 6	0 0	0 0	0 0	2 4	2 6	0 0	1 2	2 6	1 3	1 2	0 0	2 4
H20	Merri Creek Shared Trail	North of Barry Road to far northern border of Hume. H20a - Section south of Craigieburn Station, H20b Craigieburn Station, H20c, North of Craigieburn Station.	Hume	34	12	46	4	2 6	0	2 6	0 0	2 4	0 0	2 4	2 6	2 6	1 2	2 6	0 0	1 2	0 0	2 4
H21	Mickleham road Shared Path	Between Somerton Road and Merrifield via Mickleham Road. H21a South of Somerton Road along Mickleham Road to Moonee Ponds Creek. H21b North of Somerton Road to Merrifield	Hume	13	21	34	43	2 6	0	0 0	0 0	0 0	0 0	0 0	1 3	0 0	2 4	2 6	1 3	1 2	2 6	2 4
H24	Somerton Rd Shared Path/ Cooper St Shared Path	Runs east west along Somerton Road and Cooper St between the Craigieburn Rail Line Shared Trail and the Merri Creek Shared Trail extension. The Cooper St section extends into Whittlesea. Noted that on-road exists.	Hume	22	14	36	35	2 6	0	2 6	0 0	2 4	0 0	2 4	0 0	0 0	1 2	2 6	0 0	1 2	2 6	0 0
H25	Ring Road - Moonee Ponds Creek Bike Path	Link across existing gap over Pascoe Vale Rd. Langton St to Freeland St.	Hume	22	15	37	32	2 6	0	0 0	2 2	2 4	2 4	2 4	0 0	0 0	1 2	2 6	0 0	1 2	1 3	2 4
H26	Sunbury Rail Line Shared Trail	Between Calder Freeway and The Skyline (Sunbury)	Hume	14	15	29	63	0 0	0	2 6	0 0	2 4	0 0	0 0	0 0	0 0	2 4	2 6	0 0	2 4	1 3	1 2
H27	Sunbury Rail Line Shared Trail	Between The Skyline (Sunbury) and the Urban Growth Boundary (UGB)	Hume	16	15	31	56	0 0	0	2 6	0 0	2 4	0 0	2 4	0 0	0 0	1 2	2 6	0 0	2 4	1 3	1 2
H28	Sunbury to Melbourne Airport Offroad Shared Path	Sunbury to Melbourne Airport including link to Moonee Ponds Creek Trail - need to confirm entry to Melbourne Airport	Hume	17	15	32	51	2 6	0	2 6	0 0	0 0	0 0	0 0	1 3	0 0	1 2	2 6	0 0	1 2	1 3	2 4
H29	Tullamarine Freeway Regional Path	Links the proposed Sunbury to Melbourne Airport Offroad Shared Path south to Moreland and the Maribrynong River, to link in with the forthcoming	Hume	8	13	21	87	2		0	0	0	0	0	0	0	1	2	0	1	1	1

								SECTION 1: TRAIL CHARACTERISTICS										SECTION 2: POLICY CONTEXT				
							Criteria	Provides Link to Regional Parks and Conservation Areas	Provides access to destinations with tourism and/or cultural heritage value	Has potential to create a new, or enhance an existing tourism experience	Provides access to regional scale leisure centres	Provides access to train stations	Provides access to tertiary institutions	Provides access to activity centres or business parks	Has strong amenity and recreational value	Provides access to recreational water bodies	Size of population catchment serviced within a 1km radius of the proposal regional trail	Alignment with existing LGA plans	Design stage of trail	Land ownership	Ease of construction	Connectivity to existing network
							Weighting	High	High	High	Low	Medium	Medium	Medium	High	High	Medium	High	High	Medium	High	Medium
							Range	3	3	3	1	2	2	2	3	3	2	3	3	2	3	2
								0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 1 / 2	0 / 2	0 / 1 / 2	0 / 2	0 / 1 / 2	0 / 1 / 2	0 / 1 / 2	0 / 1 / 2
REF	TRAIL NAME	LOCATION	LGA	Score 1	Score 2	Agg. score	Rank															
		widening of the Tullamarine Freeway	Hume	8	13	21	89	6	0	0	0	0	0	0	0	0	2	6	0	2	3	2
H30	Tullamarine Offroad Shared Path	Links the proposed Maribyrnong River Shared Path to the Tullamarine Offroad Shared Path	Hume	10	14	24	80	0 0	0	2 6	0 0	0 0	0 0	0 0	0 0	0 0	2 4	2 6	0 0	1 2	2 6	0
H31	Unnamed - Craigieburn to Merrifield link	Runs from the north west of Craigieburn via Mickleham to the Hume Hway in the northeast with links to Malcolm Creek Trail and proposed Merri Creek Shared Trail extension	Hume	26	11	37	32	2 6	0	2 6	2 2	0 0	0 0	2 4	2 6	0 0	1 2	2 6	0 0	1 2	1 3	0 0
H34	Unnamed - Mickleham Rd to Craigieburn link	East west connector between Mickleham Rd and Craigieburn (Aitken Creek Shared Path)	Hume	11	16	27	75	0 0	0	0 0	2 2	2 4	0 0	0 0	1 3	0 0	1 2	2 6	0 0	1 2	2 6	1 2
H36	Unnamed - Roxburgh Park east west link path	Extension from James Miriam Dr north west along Lysterfild Dr (H36a) and fill gaps along James Miriam Drive (H36b)	Hume	14	16	30	59	2 6	0	0 0	0 0	0 0	0 0	2 4	0 0	0 0	2 4	2 6	0 0	1 2	2 6	1 2
H37	YVW Pipetrack - south Craigieburn east west link	East west connector path along the southern edge of Craigieburn between the Upfield/ Craigieburn Line Shared Trail and the unnamed - West Craigieburn north south link	Hume	14	15	29	58	2 6	0	0 0	0 0	0 0	0 0	2 4	0 0	0 0	2 4	2 6	0 0	1 2	1 3	2 4
H38	Unnamed - southwest Craigieburn north south link	North south connector path along the southwestern edge of Craigieburn between the Greenvale Reservoir Park Trail and the unnamed - Mickleham Rd to Craigieburn link	Hume	11	8	19	90	2 6	0	0 0	0 0	0 0	0 0	0 0	1 3	0 0	1 2	2 6	0 0	1 2	0 0	0 0
H39	Upfield Shared Path extension	Extension north from Moreland along the Upfield line to join the proposed Craigieburn Rail Line Shared Trail	Hume	18	18	36	35	0 0	0	2 6	0 0	2 4	0 0	2 4	0 0	0 0	2 4	2 6	0 0	1 2	2 6	2 4
H40	Merlynston Creek Trail	Complete Hume section of Merlynston Creek Trail, connecting to the Western Ring Road	Hume	19	15	34	43	0 0	0	0	0	2 4	2 4	2 4	1 3	0	2 4	2 6	0	1 2	1 3	2 4
H41	Mt Ridley Road to Donnybrook Road	Mt Ridley Road to Donnybrook Road. On new Hume Network Plan.	Hume	0	0	0	97	0 0	0	0 0	0 0	0 0	0 0	0	0 0	0	0	0 0	0	0	0 0	0 0
M1	Craigieburn Rail Line Shared Trail	Along Length of Trail. M1a. CityLnk to Devon Road. M1b. Devon Road to Barina Road. M1c. Barina Road to Ring Road.	Moreland	14	21.5	35.5	38	0 0	0 0	2 6	0 0	2 4	0 0	0 0	0 0	0 0	2 4	2 6	1.5 4.5	2 4	1 3	2 4
M2	Upfield Rail Trail	Box Forest Road - Ring Road (note Council is considering an alternative route along the Campbellfield Ck)	Moreland	18	23	41	20	0 0	0 0	2 6	2 2	2 4	0 0	2 4	0 0	0 0	1 2	2 6	1 3	2 4	2 6	2 4
M3	Upfield Rail Trail	Fill in various onroad sections between Reynard St and Wilson Ave. M3a. Link section to east of Jewell Station. M3b. Reynard Street to Munro Street. M3c. Four missing links trail.	Moreland	26	8	34	43	0	2	2	2	2	2	0	0	0	2	0	0	2	0	2

								SECTION 1: TRAIL CHARACTERISTICS										SECTION 2: POLICY CONTEXT				
							Criteria	Provides Link to Regional Parks and Conservation Areas	Provides access to destinations with tourism and/or cultural heritage value	Has potential to create a new, or enhance an existing tourism experience	Provides access to regional scale leisure centres	Provides access to train stations	Provides access to tertiary institutions	Provides access to activity centres or business parks	Has strong amenity and recreational value	Provides access to recreational water bodies	Size of population catchment serviced within a 1km radius of the proposal regional trail	Alignment with existing LGA plans	Design stage of trail	Land ownership	Ease of construction	Connectivity to existing network
							Weighting	High	High	High	Low	Medium	Medium	Medium	High	High	Medium	High	High	Medium	High	Medium
							Range	3	3	3	1	2	2	2	3	3	2	3	3	2	3	2
REF	TRAIL NAME	LOCATION	LGA	Score 1	Score 2	Agg. score	Rank	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 1 / 2	0 / 2	0 / 1 / 2	0 / 2	0 / 1 / 2	0 / 1 / 2	0 / 1 / 2	0 / 1 / 2
								0	6	6	2	4	4	0	0	0	4	0	0	4	0	4
M4	Edgars Creek Trail	Between Merri Creek trail and Carrington Road M4a. Merri Creek Trail to Ronald St (funded by MCC and Melbourne Water). M4b. Ronald St to Photography Drive. M4c. Photography Drive to Carrington Road	Moreland	25	7	32	51	0 0	2 6	2 6	0 0	0 0	0 0	0 0	1 3	2 6	2 4	1 3	0 0	1 2	0 0	1 2
M5	Merlynston Creek Trail	Between Ring Road - Moonee Ponds Creek Path and Upfield Rail Trail. M5a. Boundary Road to Upfield Rail Trail. M5b. Boundary Road to Ring Road.	Moreland	18	11	29	63	0 0	0 0	1 3	0 0	2 4	0 0	2 4	1 3	0 0	2 4	2 6	1 3	1 2	0 0	0 0
M6	Merri Creek Trail Upgrades	Upgrade the standard of the existing Merri Creek Trail	Moreland	0	0	0	97															
N1	Diamond Creek Trail	Between the existing trail at Diamond Creek to Hurstbridge and the commencement of N4	Nillumbik	38	16	54	1	2 6	2 6	2 6	2 2	2 4	0 0	0 0	2 6	2 6	1 2	2 6	1 3	1 2	1 3	1 2
N2	Aqueduct Trail	N2a. From Metropolitan Ring Road, through Diamond Creek to existing Diamond Creek trail. N2b. From Main Road Diamond, along Eltham-Yarra Glen Road Creek Road and Eltham Road to commencement of existing trail. N2c. From Warrandyte Kinglake, north along Westering, Ridge and Muir Road to Skyline Road.	Nillumbik	33	13	46	4	2 6	1 3	2 6	2 2	0 0	0 0	0 0	2 6	2 6	2 4	2 6	1 3	1 2	0 0	1 2
N3	Green Wedge Trail	Between extended Diamond Creek Trail to Kinglake National Park. N3a. Proposed Diamond Creek Trail to existing trail on Watery Gully Road. N3b. Alma Road trail connection. N3c. Motschalls Road trail connnection and Spanish Gully Road to Kinglake NP.	Nillumbik	33	10	43	13	2 6	1 3	2 6	0 0	2 4	0 0	0 0	2 6	2 6	1 2	2 6	0 0	1 2	0 0	1 2
N4	Kinglake Way Trail	Hurstbridge to Kinglake National Park.	Nillumbik	27	8	35	40	2 6	1 3	2 6	0 0	2 4	0 0	0 0	2 6	0 0	1 2	2 6	0 0	1 2	0 0	0 0
W1	Bridge Inn Road Shared Path	Between Epping road and Yan Yean Road, and west along Boundary Road to connect with Findon Creek path.	Whittlesea	11	16.5	27.5	74	2 6	0 0	0 0	0 0	0 0	0 0	0 0	1 3	0 0	1 2	2 6	1.5 4.5	1 2	0 0	2 4
W2	Cooper St Shared Path	Between the boundary with Hume City Council and Edgars Rd	Whittlesea	13	16	29	63	2 6	0 0	0 0	0 0	0 0	0 0	2 4	1 3	0 0	0 0	2 6	0 0	1 2	2 6	1 2
W3	Cooper St Shared Path	Connection with Darebin Creek Trail and Hendersons Rd	Whittlesea	4	24	28	70	0 0	0 0	0 0	0 0	0 0	0 0	2 4	0 0	0 0	0 0	2 6	2 6	1 2	2 6	2 4
W4	Craigeburn Road Shared Path	Between Epping Road and Hume FWY	Whittlesea	13	9	22	83	2 6	0 0	0 0	0 0	0 0	0 0	2 4	1 3	0 0	0 0	1 3	0 0	1 2	0 0	2 4
W5	Dalton Road Shared Path	Bridge gaps between Wood St and Keon Pde and between Nothern Ring Road and Wood Street	Whittlesea	10	23	33	48	0 0	0 0	0 0	0 0	2 4	0 0	2 4	0 0	0 0	1 2	2 6	1 3	2 4	2 6	2 4
W6	Darebin Creek Trail	Between Bridge Inn Road and Cottage Blv	Whittlesea	16	10	26	77	0 0	0	2 6	0 0	0 0	0 0	0 0	2 6	0 0	2 4	1 3	0 0	1 2	1 3	1 2
W7	Donnybrook Road Shared Path	Between Findon Creek Trail and Merri Creek Trail and east past Epping Road to connect with the E6 Freeway	Whittlesea	11	8	19	90	0 0	0	0 0	0 0	2 4	0 0	2 4	1 3	0 0	0 0	1 3	0 0	1 2	1 3	0 0
W8	E6 Freeway Trail	From Darebin Creek Trail north to the proposed Merri Creek Trail extension	Whittlesea	11	9	20	88	0 0	0	2 6	0 0	0 0	0 0	0 0	1 3	0 0	1 2	1 3	0 0	1 2	0 0	2 4

								SECTION 1: TRAIL CHARACTERISTICS										SECTION 2: POLICY CONTEXT				
							Criteria	Provides Link to Regional Parks and Conservation Areas	Provides access to destinations with tourism and/or cultural heritage value	Has potential to create a new, or enhance an existing tourism experience	Provides access to regional scale leisure centres	Provides access to train stations	Provides access to tertiary institutions	Provides access to activity centres or business parks	Has strong amenity and recreational value	Provides access to recreational water bodies	Size of population catchment serviced within a 1km radius of the proposal regional trail	Alignment with existing LGA plans	Design stage of trail	Land ownership	Ease of construction	Connectivity to existing network
							Weighting	High	High	High	Low	Medium	Medium	Medium	High	High	Medium	High	High	Medium	High	Medium
							Range	3	3	3	1	2	2	2	3	3	2	3	3	2	3	2
								0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 1 / 2	0 / 2	0 / 1 / 2	0 / 2	0 / 1 / 2	0 / 1 / 2	0 / 1 / 2	0 / 1 / 2
REF	TRAIL NAME	LOCATION	LGA	Score 1	Score 2	Agg. score	Rank															
W9	Edgars Creek Trail	Between Craigieburn Road and Northern Ring Road. W9a links is just north of the Ring Road. W9b links between Cooper Street and Tramoo Street. W9c is the proposed trail to the north of Cooper Street on either side of the Aurora development.	Whittlesea	20	12	32	51	0 0	0	0 0	2 2	2 4	0 0	2 4	2 6	0 0	2 4	1 3	0 0	1 2	1 3	2 4
W11	Epping North Transmission Trail	Between the south-west corner of the Aurora Development and Brush Road. W11a between Epping Road and Brush Road and W11b extends from Epping North Transmission Trail to W9 to the south of the Aurora development	Whittlesea	9	9	18	92	0 0	0	0 0	0 0	0 0	0 0	2 4	1 3	0 0	1 2	1 3	0 0	1 2	0 0	2 4
W12	Epping North Transmission Trail	Between Mahon Road and Existing Epping Transmission Trail	Whittlesea	10	12	22	83	0 0	0	0 0	0 0	0 0	0 0	0 0	2 6	0 0	2 4	1 3	0 0	1 2	1 3	2 4
W14	Epping Road Shared Path	Between Childs Road and Railway, then South to Darebin	Whittlesea	18	15	33	48	0 0	0	0 0	2 2	2 4	2 4	2 4	0 0	0 0	2 4	1 3	0 0	1 2	2 6	2 4
W15	Findon Creek Trail	Between Donnybrook Road and Epping Road, then extended north to the proposed Merri Creek Trail extension	Whittlesea	12	10	22	83	0 0	0	2 6	0 0	0 0	0 0	0 0	2 6	0 0	0 0	1 3	0 0	1 2	1 3	1 2
W16	Findon Creek Trail	Between Rolski Ln and Saltake Blvd	Whittlesea	11	7	18	92	0 0	0	2 6	0 0	0 0	0 0	0 0	1 3	0 0	1 2	1 3	0 0	1 2	0 0	1 2
W17	Maroondah Aquaduct Trail	Between Plenty River and Collendina Cres	Whittlesea	15	14	29	63	2 6	0	0 0	2 2	0 0	0 0	0 0	1 3	0 0	2 4	1 3	0 0	2 4	1 3	2 4
W20	Merri Creek Trail	Link between Merri Creek Trail and Galada Tamboore Trail by the City of Whittlesea Public Gardens	Whittlesea	24	14	38	30	2 6	0 0	0 0	0 0	0 0	0 0	2 4	2 6	2 6	1 2	1 3	0 0	2 4	1 3	2 4
W21	Plenty River Trail	Beween Whittlesea-Yea Rd and Paipera Ter	Whittlesea	28	10	38	30	2 6	0 0	2 6	2 2	0 0	2 4	0 0	2 6	0 0	2 4	1 3	0 0	1 2	1 3	1 2
W22	South Morang Pipe Trail	Path links between: Flamingo Pt and Gabriel Ter, The Lakes Blvd and Flame Cres, Bronze Wing St and Parsley Ter, and ajacent to The Great Eastern Way crossing Aristocrat Ter	Whittlesea	10	20	30	59	2 6	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	2 4	1 3	1 3	2 4	2 6	2 4
W23	Sycamore Morang Trail	Fill gaps between Centenary Dr and Morang Dr Crossing and between existing path at childs rd and Existing path at Mornag Drive	Whittlesea	10	15	25	79	0 0	0 0	0 0	2 2	2 4	0 0	0 0	0 0	0 0	2 4	1 3	0 0	1 2	2 6	2 4
W24	Whittlesea Rail Trail	From Laurel St and McDonalds Rd	Whittlesea	26	18	44	9	2 6	0 0	2 6	0 0	2 4	0 0	0 0	2 6	0 0	2 4	2 6	0 0	2 4	2 6	1 2
W25	Yan Yean Pipe Trail	Between Metropolitan Ring road north to complete existing northern section of path above Gordons Rd	Whittlesea	26	11	37	32	2 6	0 0	0 0	2 2	2 4	0 0	2 4	0 0	2 6	2 4	1 3	0 0	2 4	0 0	2 4
W26	Merri Creek Trail	Extend north to meet proposed extension to E6 freeway trail	Whittlesea	10	5	15	96	0 0	0	0 0	0 0	0 0	0 0	2 4	2 6	0 0	0 0	1 3	0 0	1 2	0 0	0 0
W27	Plenty Road Shared Path	Link existing path to Yan Yean Pipe track	Whittlesea	12	15	27	75	2 6	0 0	0 0	0 0	2 4	0 0	0 0	0 0	0 0	1 2	1 3	0 0	2 4	2 6	1 2
W28	Upgrades to Existing	Upgrade from granitic sand to a higher standard																				

								SECTION 1: TRAIL CHARACTERISTICS										SECTION 2: POLICY CONTEXT				
							Criteria	Provides Link to Regional Parks and Conservation Areas	Provides access to destinations with tourism and/or cultural heritage value	Has potential to create a new, or enhance an existing tourism experience	Provides access to regional scale leisure centres	Provides access to train stations	Provides access to tertiary institutions	Provides access to activity centres or business parks	Has strong amenity and recreational value	Provides access to recreational water bodies	Size of population catchment serviced within a 1km radius of the proposal regional trail	Alignment with existing LGA plans	Design stage of trail	Land ownership	Ease of construction	Connectivity to existing network
							Weighting	High	High	High	Low	Medium	Medium	Medium	High	High	Medium	High	High	Medium	High	Medium
							Range	3	3	3	1	2	2	2	3	3	2	3	3	2	3	2
								0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 2	0 / 1 / 2	0 / 2	0 / 1 / 2	0 / 2	0 / 1 / 2	0 / 1 / 2	0 / 1 / 2	0 / 1 / 2
REF	TRAIL NAME	LOCATION	LGA	Score 1	Score 2	Agg. score	Rank															
	Trails	including: 1. Darebin Creek Trail – McKimmies Road – Findon Road 2. Hendersons Road Drain Trail 3. South Morang Pipe Trail	Whittlesea	**0**	**0**	**0**	**97**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W29	**Plenty Road Shared Path**	From McKimmies Road north along Plenty Road to Melbourne Pipe Track	Whittlesea	**10**	**6**	**16**	**95**	2 6	 0	 0	0 0	0 0	2 4	 0	0 0	 0	 0	 0	 0	1 2	 0	2 4
Y1	**Darebin Creek Trail**	Between Heidleberg Rd and Yarra River	Yarra	**24**	**18**	**42**	**19**	2 6	0 0	0 0	0 0	2 4	0 0	0 0	2 6	2 6	1 2	2 6	2 6	1 2	0 0	2 4
Y2	**Rushall Reserve Shared Path**	Shared path through Rushall Reserve linking Rushall Train Station to existing path at the end of Holden St, North Fitzroy	Yarra	**19**	**15**	**34**	**43**	0 0	0 0	2 6	2 2	2 4	0 0	0 0	1 3	0 0	2 4	2 6	1 3	1 2	0 0	2 4
Y3	**Coulsen Reserve Ramp**	Coulsen Reserve to Knott Reserve	Yarra	**29**	**15**	**44**	**9**	2 6	0 0	2 6	2 2	2 4	2 4	0 0	1 3	0 0	2 4	2 6	1 3	1 2	0 0	2 4
Y4	**Yarra River Northern Trail**	Connection from the Main Yarra Trail near Fairfield Parok Boathouse, along the Yarra, under Chandler Bridge, to the south of La Trobe Gold Club to the Darebin Creek Trail (Y1)	Yarra	**30**	**16**	**46**	**4**	2 6	2 6	2 6	0 0	0 0	0 0	0 0	2 6	2 6	0 0	2 6	1 3	0 0	1 3	2 4
Y5	**Farm Road Link**	Farm Road link to the Darebin Creek Trail	Yarra	**22**	**10**	**32**	**51**	2 6	0 0	2 6	0 0	2 4	0 0	0 0	2 6	0 0	0 0	0 0	0 0	1 2	2 6	1 2
Y6	**Main Yarra Trail - Gipps St to Walmer Street Link**	Connection of Main Yarra Trail on the southern side of the Yarra between Gipps Street and Walmer Street	Yarra	**32**	**4**	**36**	**35**	2 6	2 6	2 6	0 0	2 4	2 4	0 0	2 6	0 0	0 0	0 0	0 0	1 2	0 0	1 2
Y7	**Main Yarra Trail - Gipps Street Steps**	Replacement of Gipps Street steps with a ramp to enable inimpeded access along the Main Yarra Trail	Yarra	**38**	**9**	**47**	**3**	2 6	2 6	2 6	0 0	2 4	2 4	0 0	2 6	2 6	0 0	0 0	0 0	1 2	1 3	2 4
Y8	**North East Bicycle Corridor**	Corridor along the Eastern Freeway from Alexandra Road to the Main Yarra Trail, east of the Chandler Highway Bridge.	Yarra	**22**	**4**	**26**	**77**	2 6	0 0	2 6	2 2	2 4	2 4	0 0	0 0	0 0	0 0	0 0	0 0	1 2	0 0	1 2
Y9	**Rushall Underpass**	Underpass from Rushall Station to Rushall Reserve	Yarra	**25**	**14**	**39**	**26**	0 0	2 6	2 6	2 2	2 4	0 0	0 0	1 3	0 0	2 4	2 6	0 0	2 4	0 0	2 4

Appendix B

Cost-benefit analysis

B1 Cost-benefit analysis

B1.1 Costs

The capital works and maintenance costs were identified for each priority trail project.[10] Table 38 below provides a summary of construction cost estimates adopted for this work. A full list of relevant assumptions is outlined in Section B2.[11][12]

Table 38 Proposed trail construction cost estimate per km of trail (rounded)

Description	Cost ($/km) at 3.0m width	Cost ($/km) at 4.0m width
Design Fees	30,000	30,000
Construction Preliminaries	11,800	15,300
Demolition of Excavation	24,800	29,800
Concrete Works	195,000	260,000
Stormwater Drainage	8,400	9,450
Ancillary Works	7,500	7,500
Total	269,900	344,600
Contingencies	54,000	68,900
Total Cost (incl. contingencies)	324,000	414,000

B1.2 Benefits

The benefit calculation has involved the following stages, as presented in Figure 10, with an example illustrating this process provided at B1.2.6:

1. The public benefits associated with recreational trail use were identified from a literature review;
2. A suitable quantified benefit metric rates was identified for recreational trails each benefit on a $ per km cycled basis;
3. Each benefit metric was converted into a standard ‘per kilometre of trail’ rate to provide a common assessment base for both the 3m wide and 4m wide scenario;

[10] Maintenance is estimated as $5 per square metre of trail annually. All maintenance costs were identified from the *Nillumbik Trails Strategy* 2011.
[11] Costs are based on previous Arup cycling infrastructure projects and on standard civil rates supplied by Rawlinsons Australian Construction Handbook, 30th Edition, 2015. Otherwise, estimates are derived from generally accepted industry rates for civil engineering works and in some cases proprietary pricing information for specific item.
[12] Three trails are either bridges, or have a bridge included at some point along their length. The approximate cost for a shared pedestrian and bicycle bridge is between $8,000 and $12,000 per metre squared of track length. This report adopts the conservative figure of $12,000/ m^2 of bridge unless the council has previously specified a cost estimate for the bridge.

4. For each benefit metric, scaling factors were identified to account for variations across each Council and particular trail location. Scaling factors were based on a comparison between councils as illustrated in Table 40;
5. Each benefit was quantified by multiplying the converted and scaled standard benefit metric rate by the proposed trail length;
6. The output from each benefit calculation was summed to determine the overall benefit value for a proposed trail; and
7. The benefit was determined after one year and 30 years and for 3m and 4m width scenarios.

The metrics used in estimating the wider economic benefits of the proposed Northern Regional Trail network are summarised in

Table 39. Units were converted from $/km cycled to $/km of track (annual), based upon assumptions on track utilisation and cycling and walking speeds.[13] These assumptions are detailed in section B2. The values were also scaled in accordance with public transport, industry, land use, utilisation, rent and dwelling factors. These scaling factors are detailed in section B1.2.3.

Table 39 Benefit metrics

Benefit	Value	Unit	Scaling Factor	
			LGA	Trail
Benefits included in the cost-benefit analysis				
Reduce absenteeism benefits and improved worker productivity	$0.09	$/km cycled	Public Transport	Utilisation
	$78,000	$/km track		
Savings in user costs	$0.10	$/km cycled		
	$80,000	$/km track		
Reduced road congestions	$0.15	$/km cycled		
	$123,000	$/km track		
Greenhouse gas reduction	$0.004	$/km cycled		
	$3,000	$/km track		
Public health - walking	$2.25	$/km walked	Industry / Land Use	
	$210,000	$/km track		
Public health - cycling	$1.17	$/km cycled		
	$984,000	$/km track		
Cycling tourism	6%	Annual increase in Victorian cycling related tourism spending if whole network is built	N/A	

13 Where dollar values for benefits have been drawn from publications, values have been scaled to 2015 dollars.

Private land value benefits				
Property values	$3,000	$/km track built in year 1	Rent	Dwellings

B1.2.1 Benefits quantified in the cost-benefit analysis

The wider economic benefits associated with constructing the Northern Regional Trails can be further summarised in three categories:

- Benefits associated with increased commuting;
- Benefits associated with increased or improved recreation, and
- Benefits associated with increased tourism.

See Section 2 for full descriptions of each of the benefits quantified in the cost-benefit analysis.

Commuting[14]

Benefits associated with increased commuting are:

- Reduce absenteeism benefits and improved worker productivity (AECOM, 2010);
- Savings in user costs (Price Waterhouse Coopers, 2009);
- Reduced road congestion[15]; and
- Greenhouse gas emissions reduction (Price Waterhouse Coopers, 2009).

Recreation[16] [17]

Two primary avenues through which cycle trails can lead to improved health outcomes are:

- Public health – walking (Queensland Department of Transport and Main Roads, 2011); and
- Public health – cycling (Queensland Department of Transport and Main Roads, 2011).

Tourism[18]

The key benefit associated with increased tourism is:

[14] The existing and planned northern trails network is not considered to be designed for commuting to a similar extent as the trails in the studies referenced in this analysis. As such, each commuting benefit was reduced by 50% from the original reference value.
[15] Average of results from above AECOM & PWC reports
[16] The benefits of reduced morality are measured using the quantified value of a human life, while reduced morbidity benefits reflect the avoided financial costs of treating illness and disease associated with physical inactivity.

[17] Recreation benefits were increased by 50% to reflect that such benefits are the primary goal of the Northern Regional Trails Network.

18 The increase in revenue associated with cycling tourism in Victoria was estimated to increase 6% upon completion of the entire NRT network. No incremental increases were calculated for the construction of individual trails. Note the current estimate for cycling-derived tourism in Victoria is $404 million (in 2015 dollars) as measured by Tourism Victoria.

- Cycling tourism revenue (Tourism Victoria, 2011).

B1.2.2 Land value benefits

The construction of regional trails has been shown to have a positive impact on property values surrounding the trail areas, and as such, local landowners stand to benefit from the construction of the network (Karadeniz, 2008).

B1.2.3 Scaling factors

Scaling factors were applied to benefits to reflect the relative value to each council and trail of the various benefits. These are summarised for each council in Table 40 and Table 41, and defined in Table 6.

Table 40 Benefit Scaling Factors by council

LGA	Benefit Scaling Factor - LGA			
	Industry	Public Transport	Land Use	Rent
Banyule (C)	1.07	0.79	0.71	0.94
Darebin (C)	1.07	1.53	0.51	0.97
Hume (C)	0.86	0.53	0.58	0.87
Moreland (C)	1.03	1.97	0.26	1.02
Nillumbik (S)	1.02	0.24	2.33	1.01
Whittlesea (C)	0.92	0.49	1.80	0.98
Yarra (C)	1.03	1.46	0.80	1.20

Table 41 Benefit scaling factors by trail

Trail Reference	Benefit Scaling Factor - Trail	
	Utilisation	Dwellings
B1	1.41	1.22
B2	1.03	1.15
B3	8.74	0.90
B5	0.99	1.10
B6	0.95	1.48
B7	0.43	3.69
B8	7.99	0.79
B9	1.82	1.02
B11	1.36	0.88
B12	5.72	0.65
B13	9.04	0.68
B14	0.57	1.17
B15	1.24	1.18
B16	0.48	1.75

Trail Reference	Benefit Scaling Factor - Trail	
	Utilisation	Dwellings
D1	0.62	1.18
D2	4.59	0.94
D7	0.62	1.26
D8	0.78	1.29
D9	1.06	1.21
D10	1.09	1.15
H1	0.69	1.70
H2	1.26	0.61
H3	0.20	0.61
H4	0.99	0.49
H5	0.01	0.02
H6	0.17	0.95
H7	0.40	2.28
H8	0.09	0.06
H10	0.00	0.01
H11	0.01	0.18
H12	0.15	0.15
H13	0.05	0.53
H14	0.03	0.55
H15	0.07	0.23
H16	0.06	0.49
H17	0.57	1.21
H18	1.23	0.56
H19	0.51	0.69
H20	0.05	0.92
H21	0.07	0.75
H22	0.02	0.04
H24	0.23	0.58
H25	2.52	0.97
H26	0.14	0.80
H27	0.04	0.18
H28	0.02	0.27
H29	0.20	1.00
H30	0.25	0.97
H31	0.02	0.22
H34	0.18	0.30
H35	0.02	0.02

Trail Reference	Benefit Scaling Factor - Trail	
	Utilisation	Dwellings
H36	0.35	0.91
H37	0.22	0.86
H38	0.09	0.24
H39	0.30	1.47
H40	0.35	0.87
M1	0.60	2.87
M2	0.73	1.06
M3	3.40	4.06
M4	0.81	1.82
M5	0.73	2.47
N1	0.07	0.44
N2	0.07	1.39
N3	0.03	0.24
N4	0.01	0.15
N5	0.12	0.65
W1	0.06	0.48
W2	0.07	0.09
W3	0.24	0.25
W4	0.03	0.18
W5	1.05	1.02
W6	0.32	1.44
W7	0.00	0.01
W8	0.04	0.53
W9	0.23	1.55
W11	1.96	0.57
W12	0.54	0.99
W14	0.51	1.93
W15	0.00	0.03
W16	0.22	0.41
W17	0.61	0.82
W20	1.40	0.41
W21	0.08	2.07
W22	0.87	0.81
W23	1.43	1.36
W24	0.11	1.63
W25	0.42	2.46
W26	0.00	0.01

Trail Reference	Benefit Scaling Factor - Trail	
	Utilisation	Dwellings
W27	2.36	0.86
Y1	1.16	1.41
Y2	6.64	2.33
Y3	2.99	2.18
Y4	1.16	4.01
Y7	26.19	1.64
Y9	6.64	2.33

B1.2.4 Benefit calculation – individual trails

The value for each benefit metric, with the exception of cycling tourism, is expressed in dollars per kilometre of track. To calculate the benefit, the dollar value per kilometre of track was multiplied by the trail length and the relevant scaling factors at both a council and track level.

The resultant value represented the benefits after one year. Using a 30 year window and discount rate representing long-term government bonds, the long-term benefits of each northern regional trail was calculated. This returned, with the exception of cycling tourism, the long-term wider economic and land value benefits of each trail's construction.

B1.2.5 Benefit calculation – entire trail network

To calculate the benefits of the entire northern regional trail network, the wider economic benefits from each trail and the tourism benefit of implementing the entire network were summed.

The increased value of tourism from implementing the entire trail network was calculated based on the assumption that the revenue from cycle tourism will increase in proportion with the length of trails provided. The annual value of cycle tourism in Victoria in 2010 was $362 million (Tourism Victoria, 2010) which is equivalent to $404 million in 2015 dollars.

In 2014, Victoria had 8,000 kilometres of recreational trails across regional and urban areas (Tourism Victoria, 2014). This strategy proposes a further 480 kilometres of priority trails, which is an additional 6% on top of the existing trails. It is assumed the establishment of the proposed trail network will increase tourism expenditure by 6% of current tourism expenditure, or $24.28 million per year for a 3 metre wide trail.

The benefits for a 4 metre wide trail were scaled using a factor of 1.57 as outlined in Section B2.

B1.2.6 Benefit calculation – example

The following presents an example benefit calculation to assist in understanding the overall approach.

Banyule Shared Trail (B1) – Reduced Road Congestion

Trail Benefit

1. Reduced road congestion was identified as a potential benefit. Research was undertaken, and it was determined that the benefit of cycling was between 24.28 cents per km cycled **(Price Waterhouse Coopers, 2009)** and 27.06 cents in 2010 dollars **(AECOM, 2010)**.

The benefit from cycling per km cycled was taken as the average of these two values in 2015 dollars. The benefit of reduced road congestion is therefore 29.2 cents per km cycled.

Recreational Trail Benefit

2. A general metric for the benefits of reduced road congestion from a recreational trail was quantified in per km cycled:

$$\boldsymbol{Benefit}\ (\$\ \boldsymbol{per\ km\ cycled}) = \boldsymbol{Reference\ benefit}\ (\$\ \boldsymbol{per\ km\ cycled}) \times \mathbf{50\%}$$

$$\boldsymbol{Benefit} = \mathbf{0.292} \times \mathbf{50\%} = \mathbf{0.15}$$

As the NRTs are not designed for commuting to the extent that trails in the reference studies are, each commuting benefit was reduced by 50% from their reference value. As such a value of 0.15 cents per km cycled was derived.

Conversion from per km cycle to per km trail

3. The metric per km cycled was converted to a standard rate per km of trail. This was undertaken in the following stages:

(a) The number of cyclists using each trail was determined assuming that 12.5% of the population living within 2km of a trail would regularly use it and 75% of these would be cyclists.

$$\boldsymbol{Number\ of\ cyclists} = \boldsymbol{Population} < \mathbf{2km}\ \boldsymbol{from\ trail} \times \mathbf{12.5\%} \times \mathbf{75\%}$$

$$\boldsymbol{Number\ of\ cyclists\ using\ B1} = \mathbf{75{,}700} \times \mathbf{12.5\%} \times \mathbf{75\%} = \mathbf{7{,}100}$$

(b) The annual distance travelled by cyclists using each trail was calculated assuming that each cycled for 1 hour/week at 15 km/hour.

$$\boldsymbol{Distance\ cycled}\ (\boldsymbol{km\ per\ year}) = \boldsymbol{Number\ of\ cyclists} \times \frac{\boldsymbol{hours}}{\boldsymbol{week}} \times \frac{\boldsymbol{kms}}{\boldsymbol{hour}} \times \frac{\boldsymbol{weeks}}{\boldsymbol{year}}$$

$$\boldsymbol{Distance\ cycled}\ (\boldsymbol{km\ per\ year}) = \mathbf{7{,}100} \times \mathbf{1} \times \mathbf{15} \times \mathbf{52} = \mathbf{5{,}535{,}000}$$

This distance was calculated for each trail, and the average was determined for the entire trail network.

(c) The annual average distance cycled on each kilometre of trail was determined for the network using the equation:

$$\boldsymbol{Average\ distance\ cycled}\ (\boldsymbol{per\ km\ trail}) = \frac{\boldsymbol{Average\ distance\ cycled}\ (\boldsymbol{km\ per\ year})}{\boldsymbol{Average\ trail\ length}\ (\boldsymbol{km})}$$

$$\boldsymbol{Average\ distance\ cycled}\ (\boldsymbol{per\ km\ trail}) = \mathbf{841{,}000}$$

(d) The benefit of reduced road congestion is then calculated as a general metric of the network using the equation:

$$\boldsymbol{Benefit}\ (\$\ \boldsymbol{per\ km\ trail}) = \boldsymbol{Average\ distance\ cycled} \times \boldsymbol{Benefit}\ (\$\ \boldsymbol{per\ km\ cycled})$$

$$\boldsymbol{Benefit}\ (\$\ \boldsymbol{per\ km\ trail}) = \mathbf{841,000} \times \mathbf{0.15} = \$\mathbf{123,000}$$

The value of $123,000 per km trail is the benefit metric rate applicable to all trail calculations.

Council scaling

Availability of public transport

4. The scaling factor for Banyule Council is made up of two parts: the council-based and trail-based factors (Table 5).

The council-based factor relates to the availability of public transport in the council:

$$\boldsymbol{Public\ transport\ factor} = \frac{\%\ \boldsymbol{travel\ to\ work\ by\ p.t.\ in\ Banyule}}{\%\ \boldsymbol{travel\ to\ work\ by\ p.t.\ in\ northern\ LGAs}}$$

$$\boldsymbol{Public\ transport\ factor} = \frac{\mathbf{8.2\%}}{\mathbf{10.3\%}} = \mathbf{0.79}$$

Utilisation

The trail-based factor is based on the utilisation of the trail relative to other analysed trails. This is based on the number of people living within 2 km of the trail.

$$\boldsymbol{Number\ of\ people\ using\ trail\ per\ km} = \frac{\boldsymbol{Population} < \boldsymbol{2km\ from\ trail} \times \mathbf{12.5\%}}{\boldsymbol{trail\ length}\ (\boldsymbol{km})}$$

$$\boldsymbol{Number\ of\ people\ using\ B1\ per\ km} = \frac{\mathbf{75,700} \times \mathbf{12.5\%}}{\mathbf{2}\ \boldsymbol{km}} = \mathbf{4.8}$$

$$\boldsymbol{Utilisation\ factor} = \frac{\boldsymbol{Number\ of\ people\ using\ B1\ per\ km}}{\boldsymbol{Av.number\ of\ people\ using\ all\ trails\ per\ km}}$$

$$\boldsymbol{Utilisation\ factor} = \frac{\mathbf{4.8}}{\mathbf{3.4}} = \mathbf{1.4}$$

Council scaling

The council scaling factor is then calculated as:

$$\boldsymbol{Scaling\ factor} = \boldsymbol{Public\ transport\ factor} \times \boldsymbol{Utilisation\ factor}$$

$$\boldsymbol{Scaling\ factor} = \mathbf{0.79} \times \mathbf{1.4} = \mathbf{1.1}$$

Final road congestion benefit calculation for Banyule Shared Trail B1

5. The scaled benefit metric for reduced road congestion for trail B1 is calculated as:

$$\boldsymbol{Benefit} = \$\ \boldsymbol{per\ km\ track} \times \boldsymbol{scaling\ factor} \times \boldsymbol{trail\ length}$$

$$\boldsymbol{Benefit} = \$\mathbf{123,000} \times \mathbf{1.1} \times \mathbf{0.88}\boldsymbol{km} = \$\mathbf{121,000}$$

B2 Cost-benefit analysis assumptions

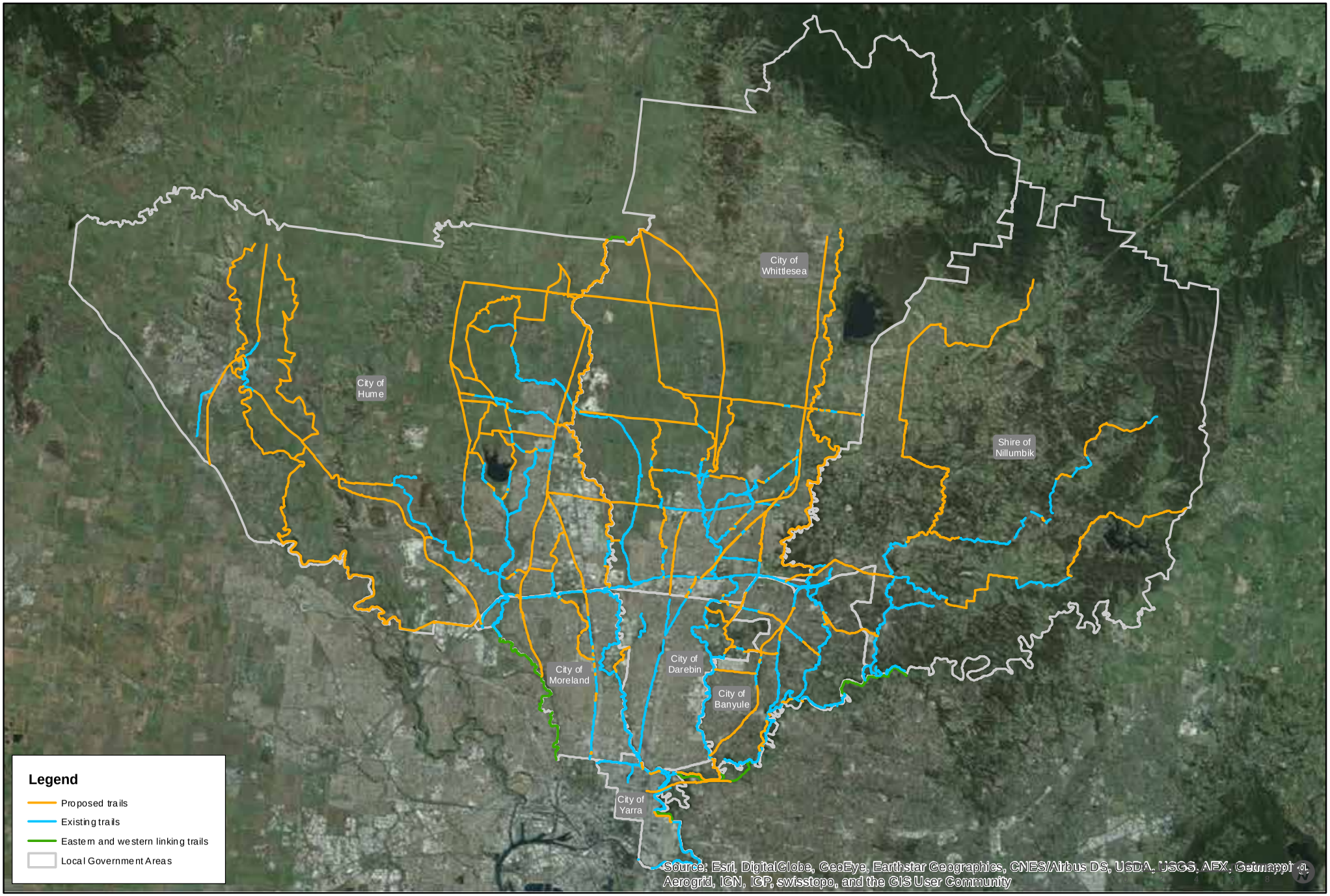
Assumption	Value	Unit
VicRoad Guidelines and Scaling		
Cyclist per hour (3m wide trail)	300	cyclists
Walkers per hour (3m wide trail)	50	walkers
Total (3m)	350	people
Cyclist per hour (4m wide trail)	400	cyclists
Walkers per hour (4m wide trail)	150	walkers
Total (4m)	550	people
3m to 4m scaling factor	1.57	
Benefit Specific Assumptions		
(Measure of trail utilisation) Proportion of population within 2km using the trails	12.5%	%
Average cycling speed	15.00	kmph
Average walking speed	5.00	kmph
Average time on trail - cycled	1.00	hours per week
Average time on trail - walked	1.00	hours per week
Proportion of cyclists	75%	%
Proportion of walkers	25%	%
Discounted rate over 30 years	3.5%	%
Period	30.00	years
Average house price	550,000.00	$
Reduce absenteeism benefits and improved worker productivity	50%	%
Savings in user costs	50%	%
Reduced road congestions	50%	%
Greenhouse gas reduction	50%	%
Personal wellbeing - walking	150%	%
Personal wellbeing - cycling	150%	%
Increase in cycling tourism if complete network funded	6%	%
Costs per km of 3m concrete shared path	324,000	$/km
Costs per km of 4m concrete shared path	414,000	$/km
Cost Specific Assumptions		
These development cost estimates are based on: - Standard civil rates supplied by Rawlinsons Australian Construction Handbook, 30th Ed. 2015 - Previous related projects		
The development cost estimates are based on quantities derived from the above and generally accepted industry rates for civil engineering works and in some cases proprietary pricing information for specific item		

All costs exclude GST
The cost estimate also excludes: - Surveyor and geotechnical investigation fees - Crossovers, intersections, etc. - Signage - Landscaping, including topsoil - Stormwater reticulation (i.e. formed swale/culverts only) - Lighting - Excavation/removal of trees or significant vegetation - Major earthworks - Escalation to completion - Interest costs - Holding fees - Legal fees - Soil contamination - Flora/fauna or heritage conservation
Rates will be subject to variation depending on a range of factors including timing, competition in the local market place, labour and material costs.
There is a stormwater network within the site boundary with sufficient capacity to accept runoff from the proposed development without detention being required and that no flooding or site contamination will arise.

Appendix C

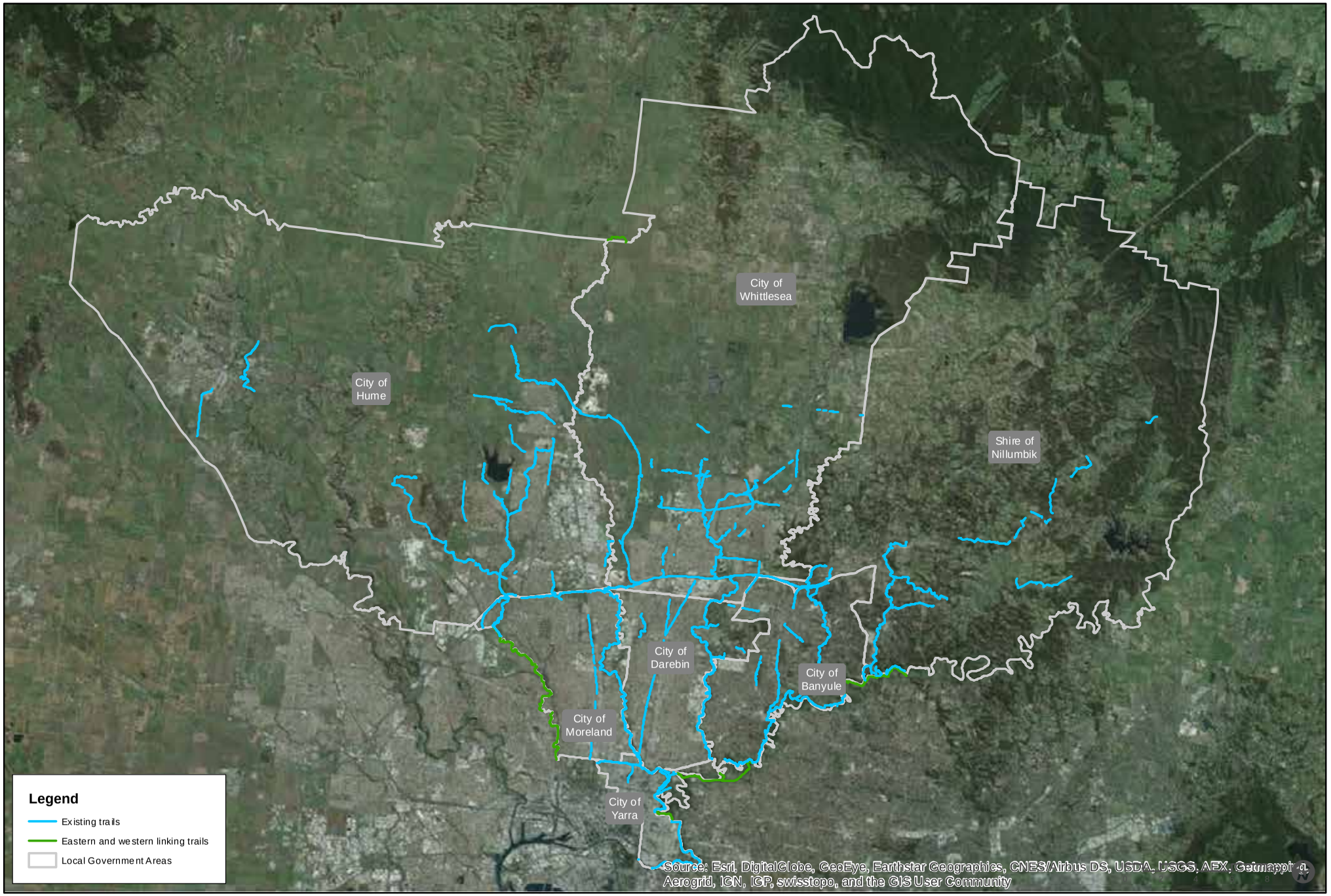
Aerial maps

C1 Regional maps



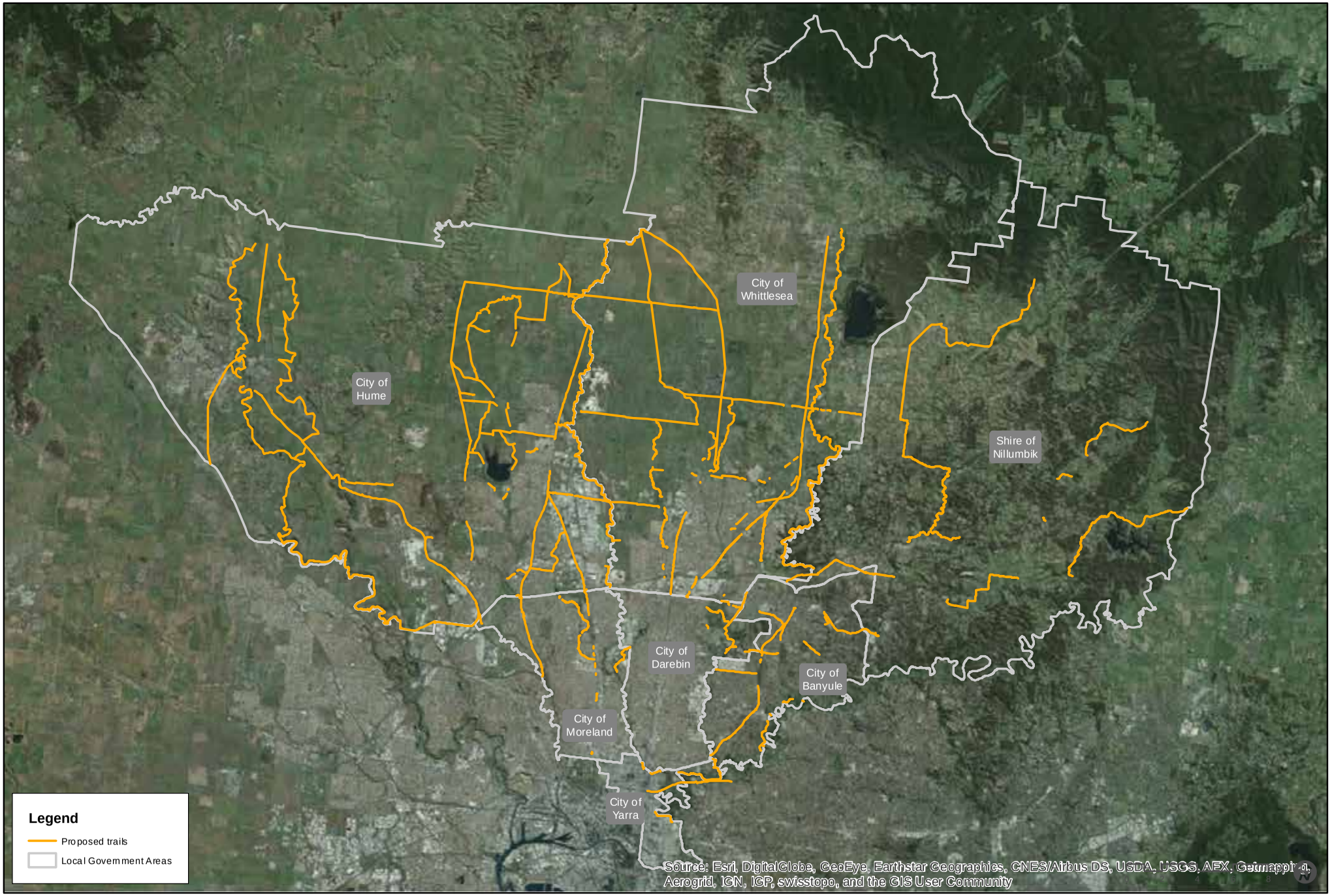
Aerial map - Northern Regional Trails Strategy

ARUP



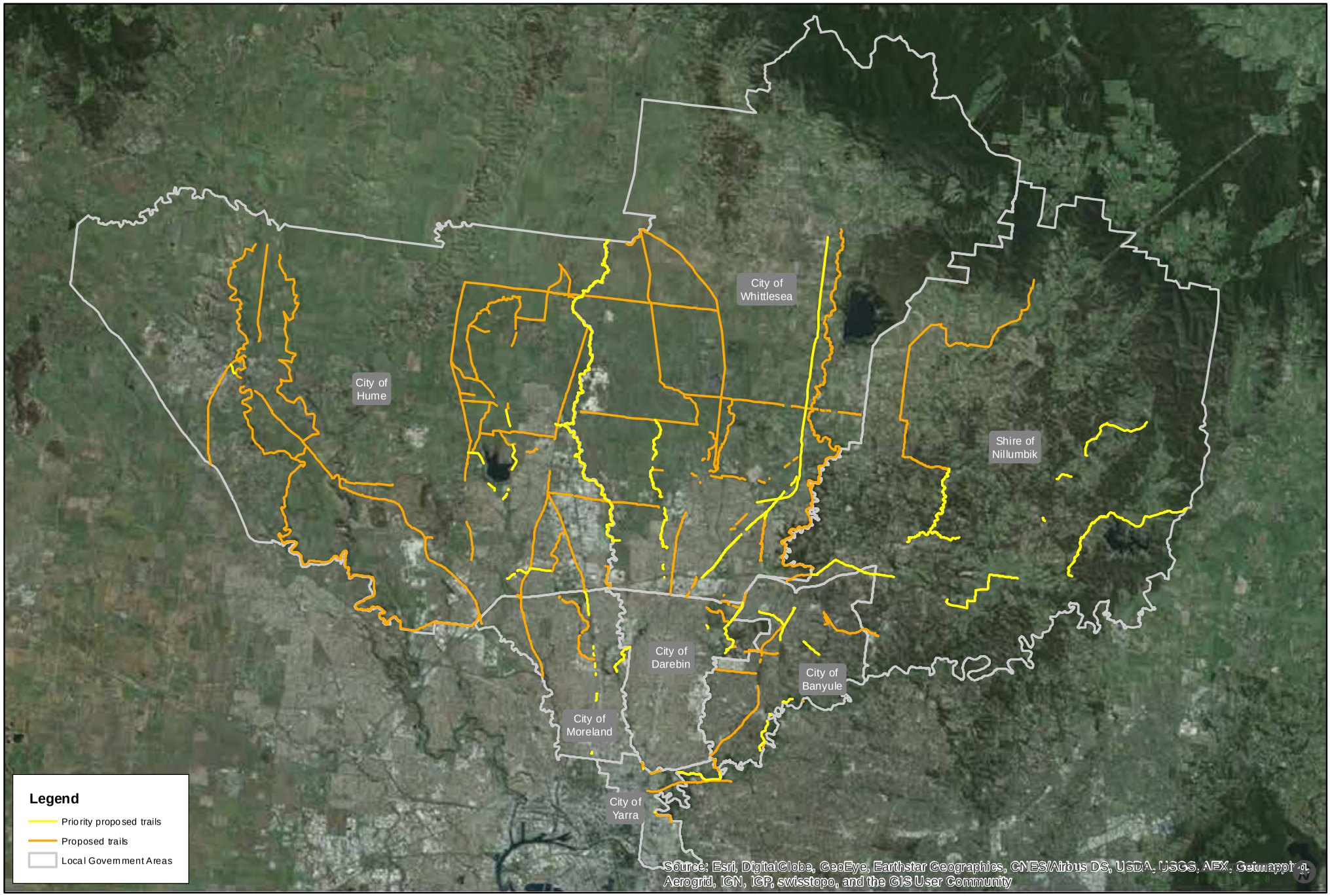
Aerial map - existing regional trails in the north

ARUP



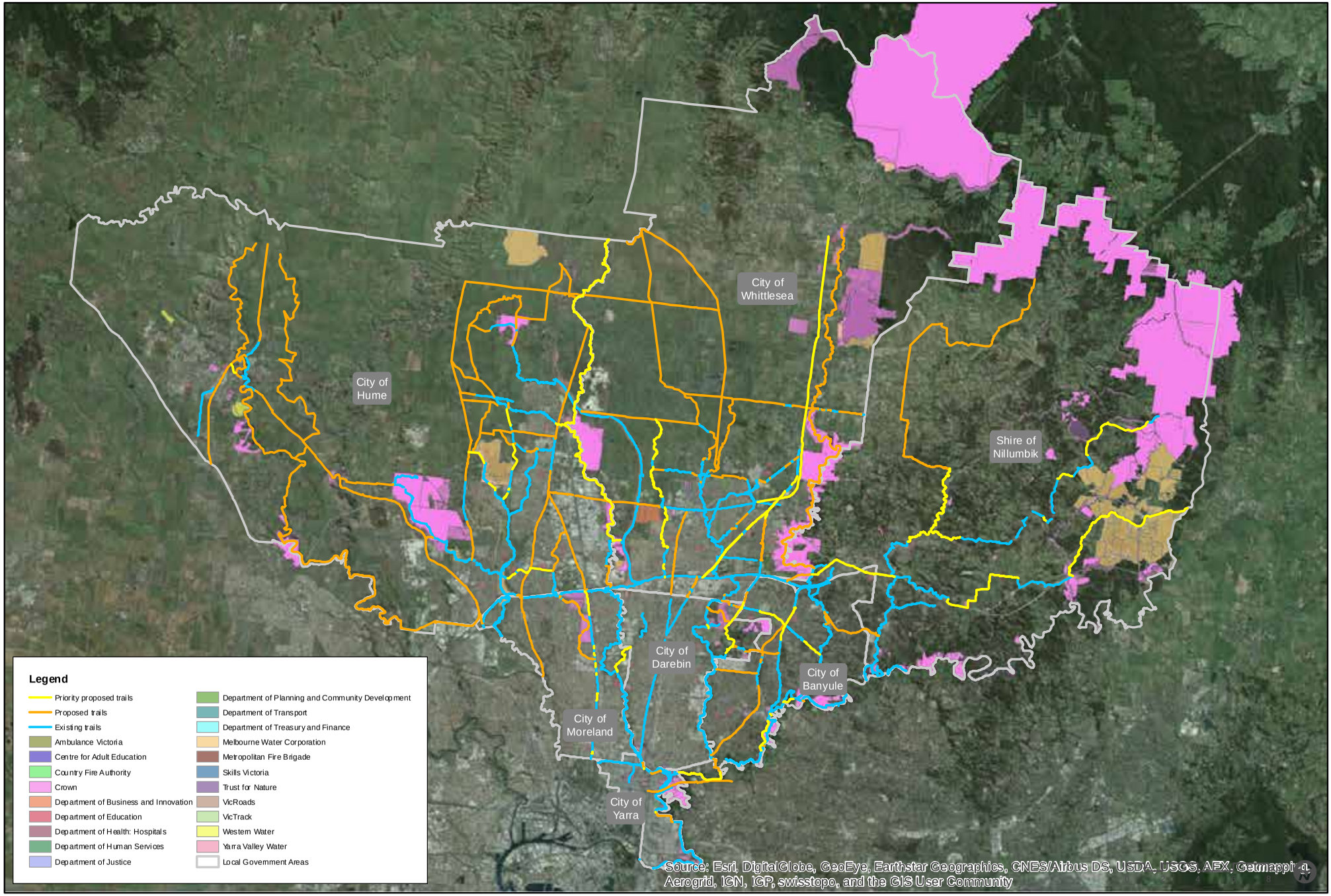
Aerial map - proposed regional trails in the north

ARUP



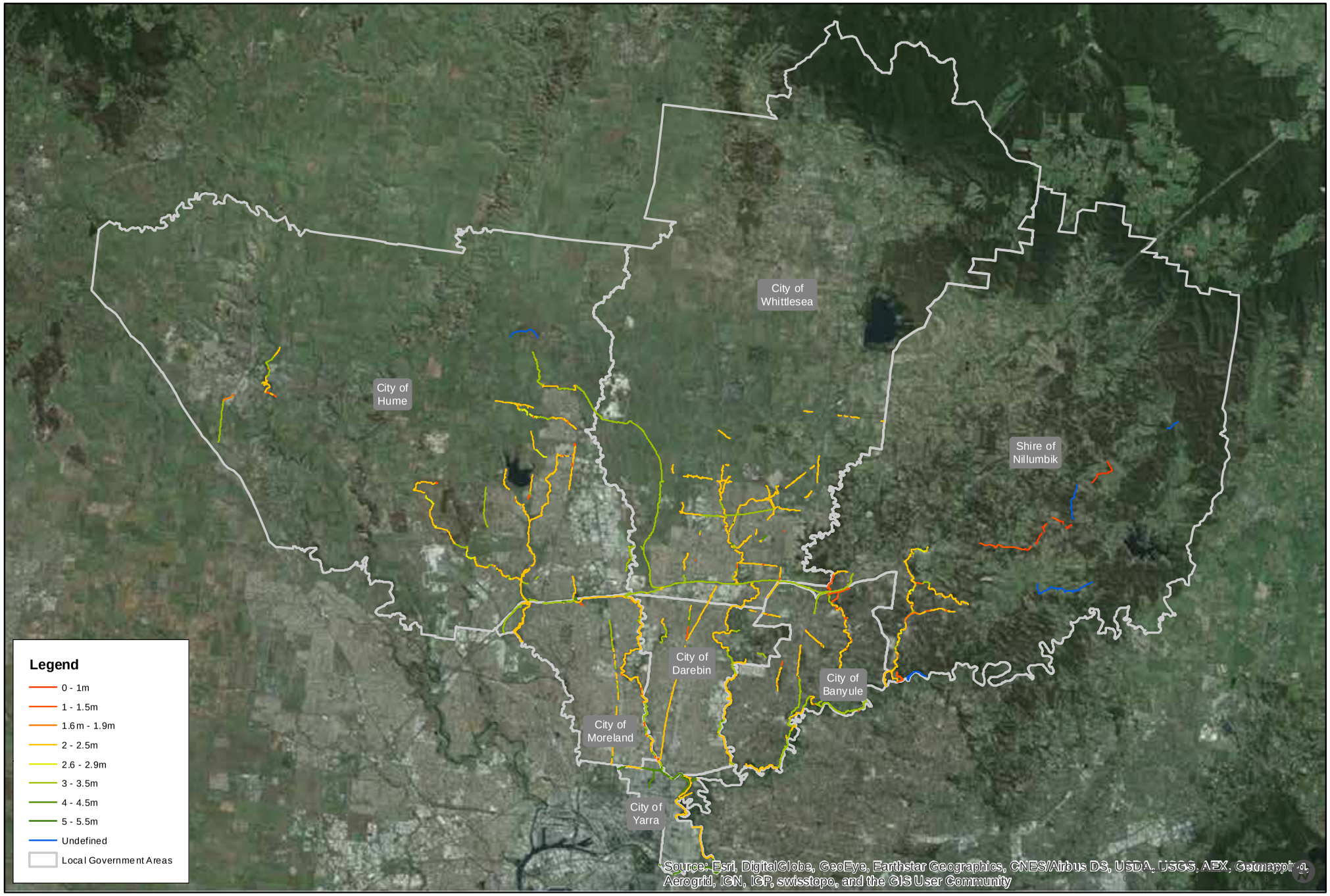
Aerial map - priority proposed trails in the northern region

ARUP



Aerial map - Land ownership in the north

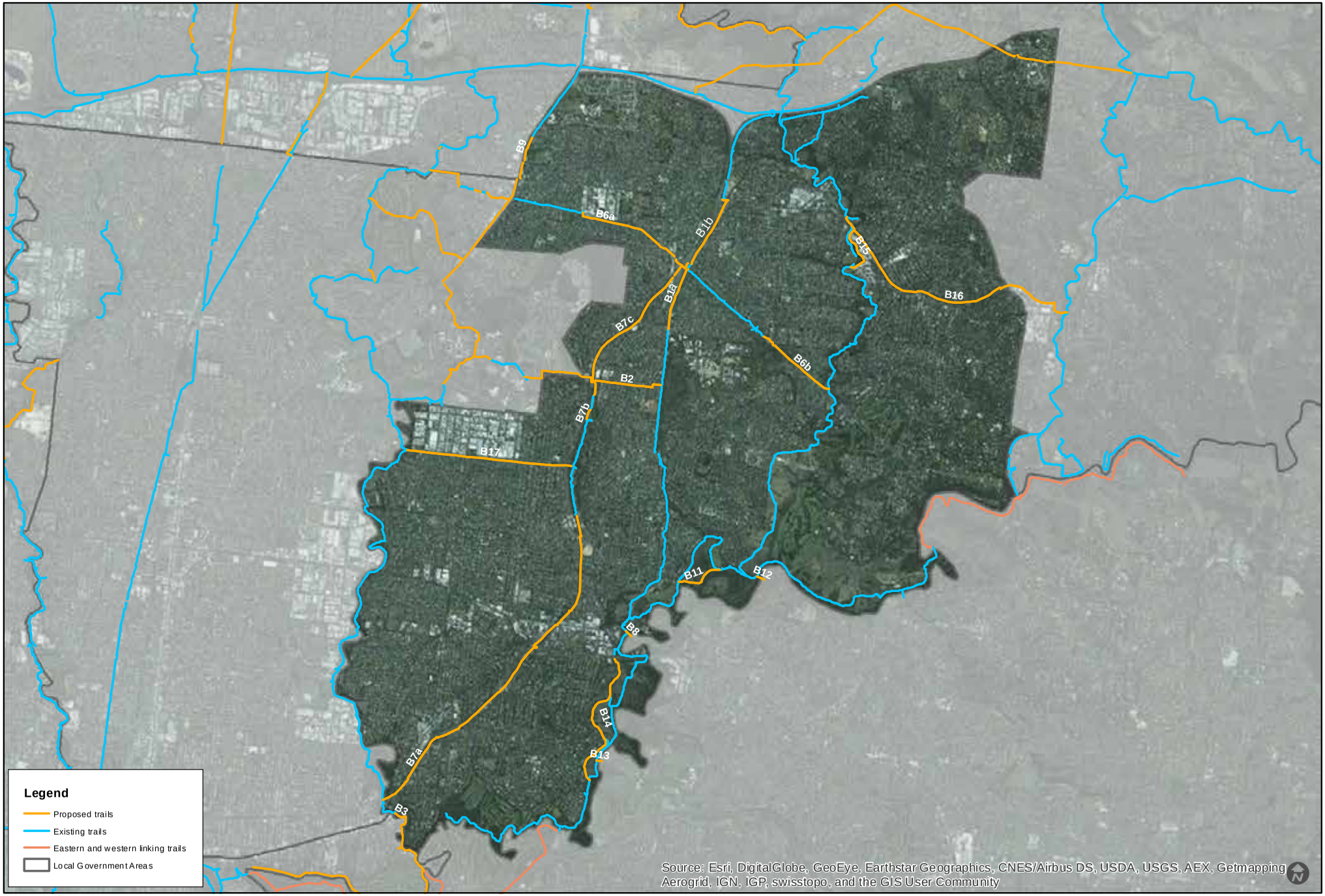
ARUP



Aerial map - width of existing regional trails in the north

ARUP

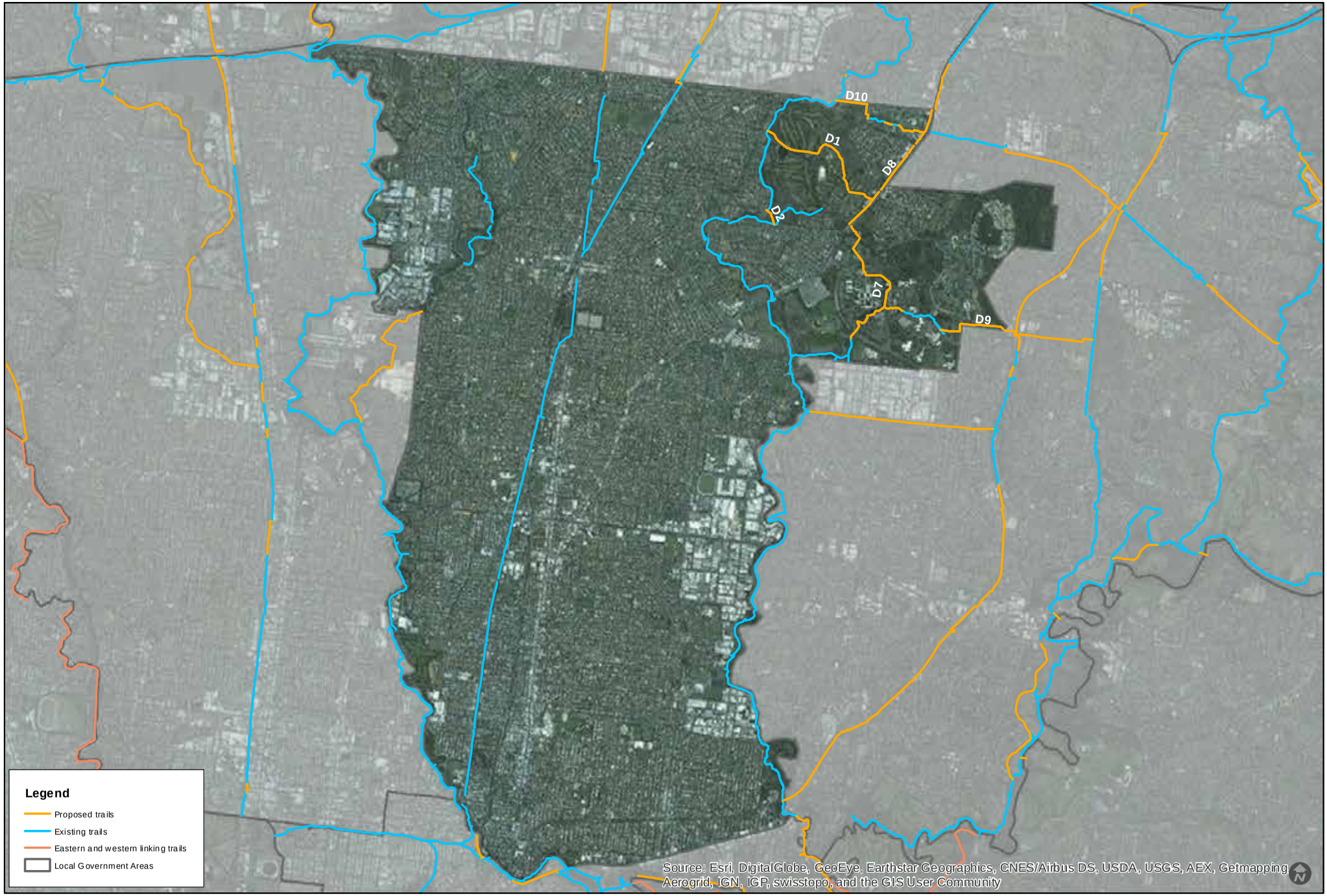
C2 Local Government Area trail strategy maps



Northern Regional Trails - Banyule City Council

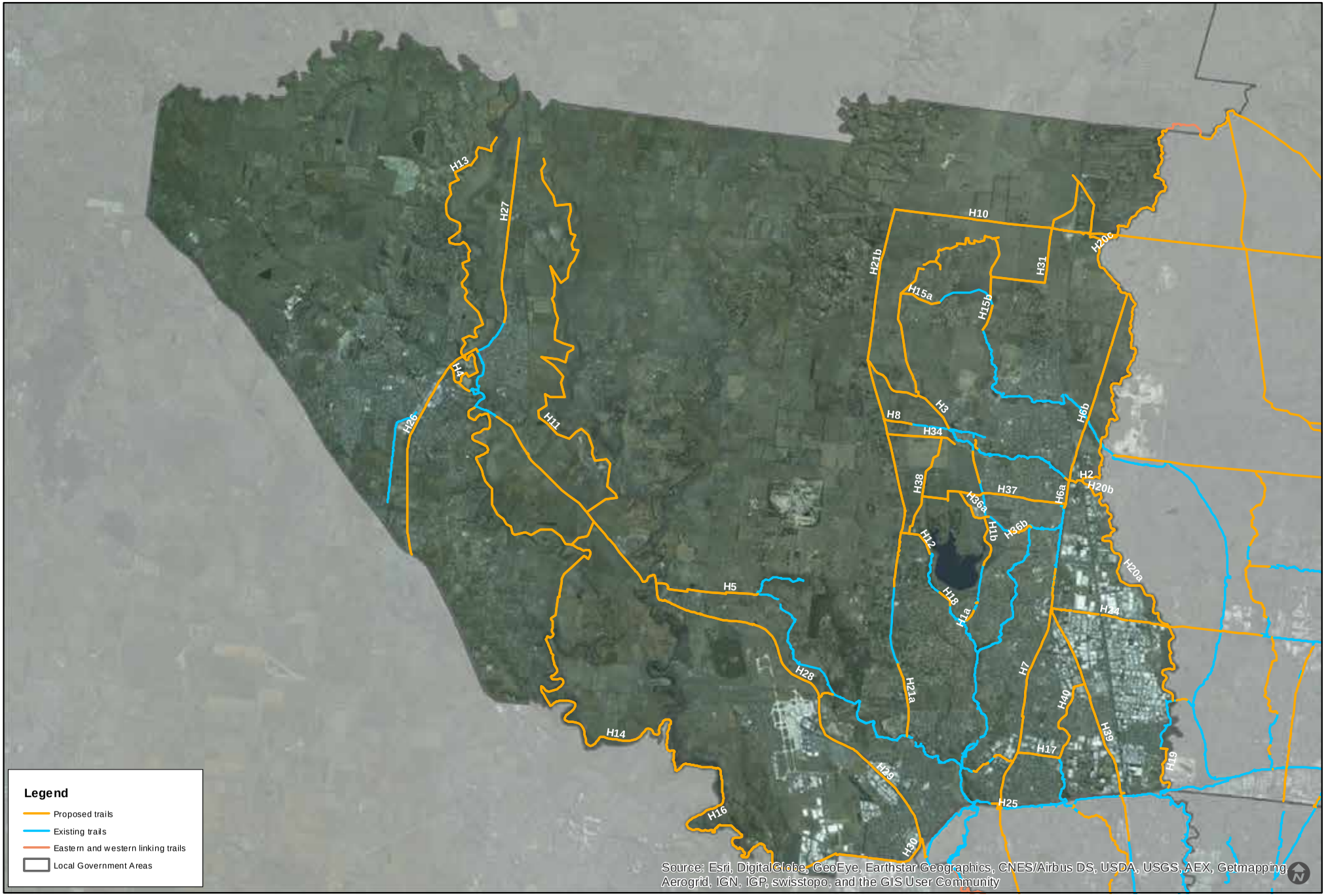
0 1 2 3 4 Km

ARUP



Northern Regional Trails - Darebin City Council

ARUP

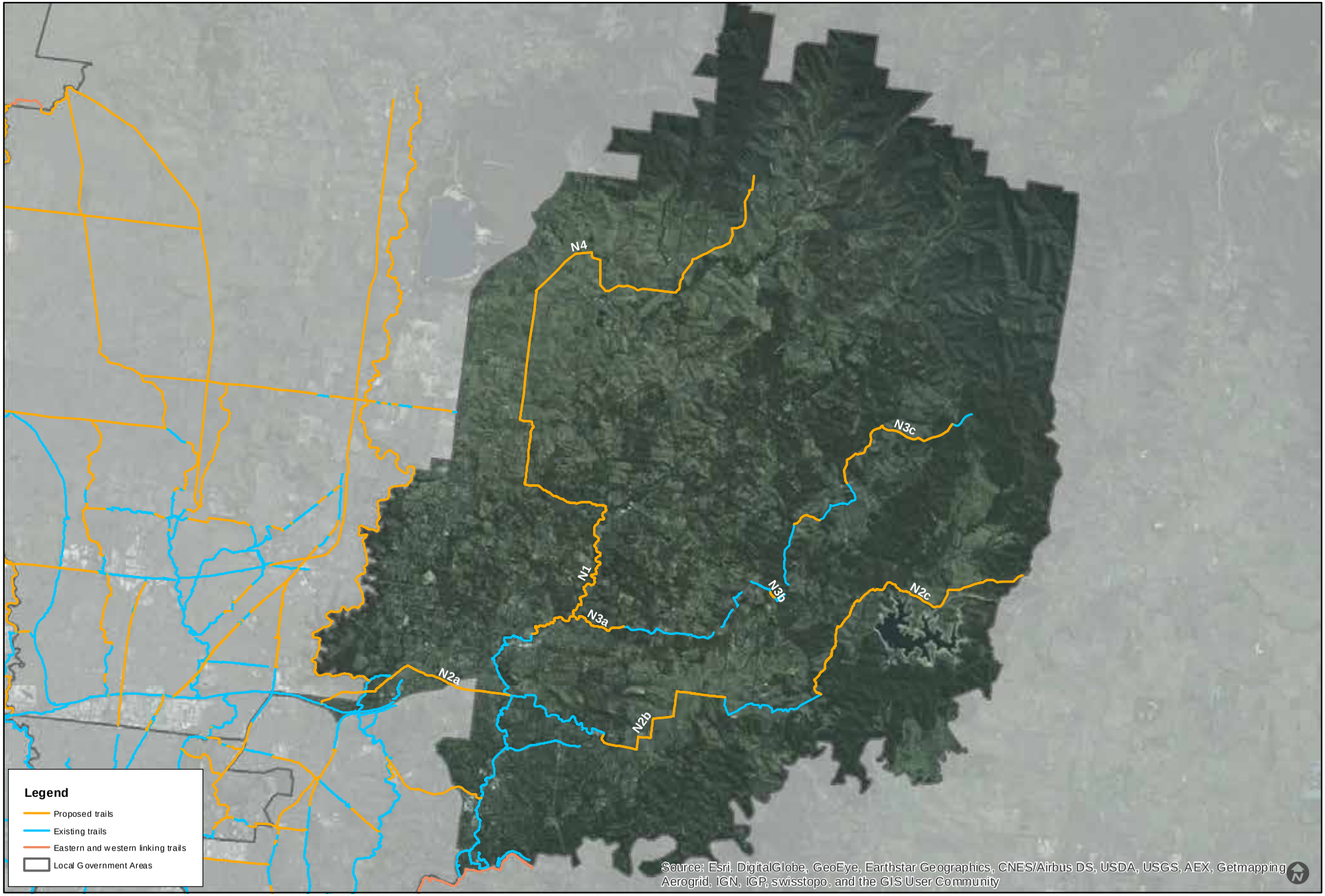


Northern Regional Trails - Hume City Council

ARUP

Northern Regional Trails - Moreland City Council

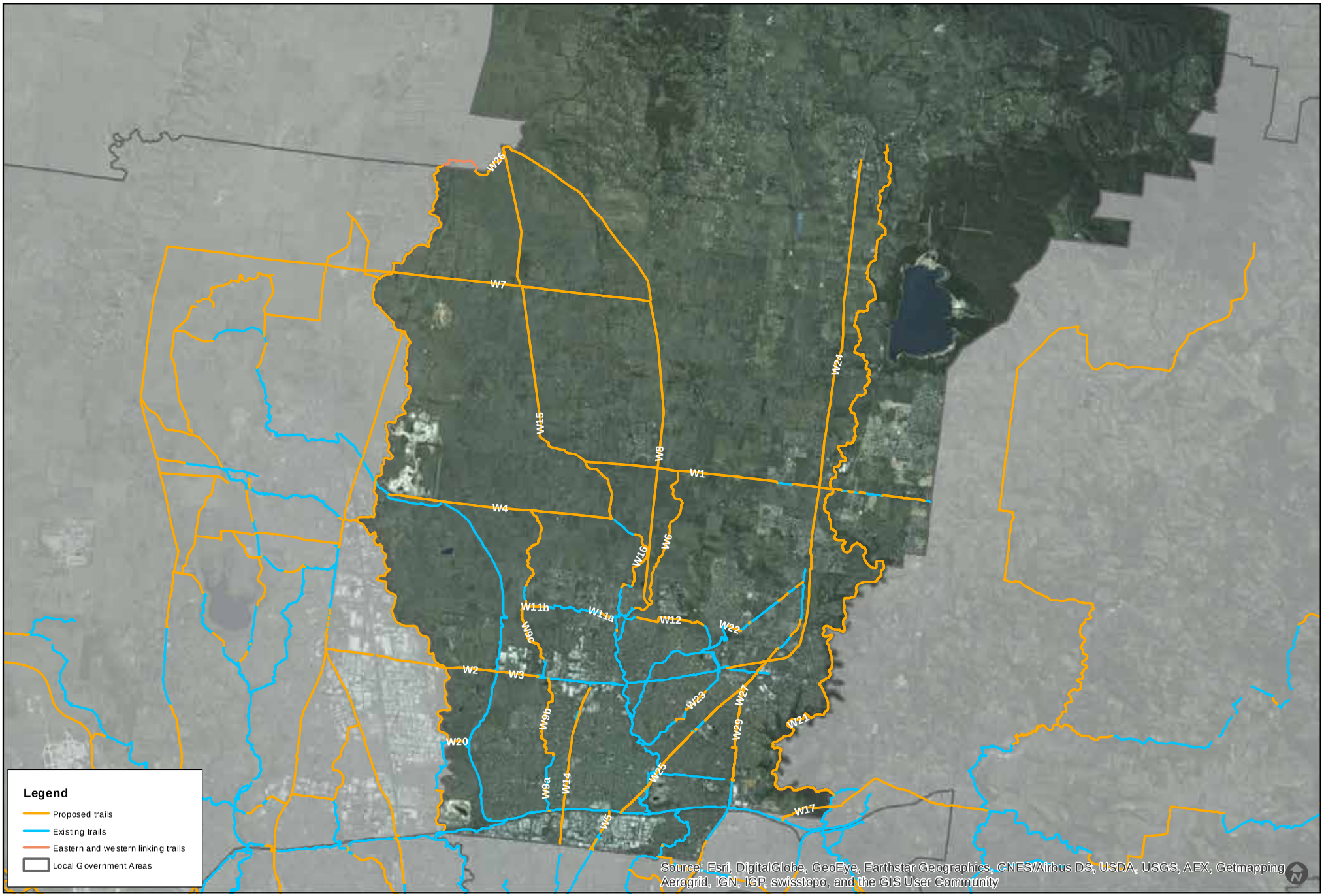
ARUP



Northern Regional Trails - Nillumbik Shire Council

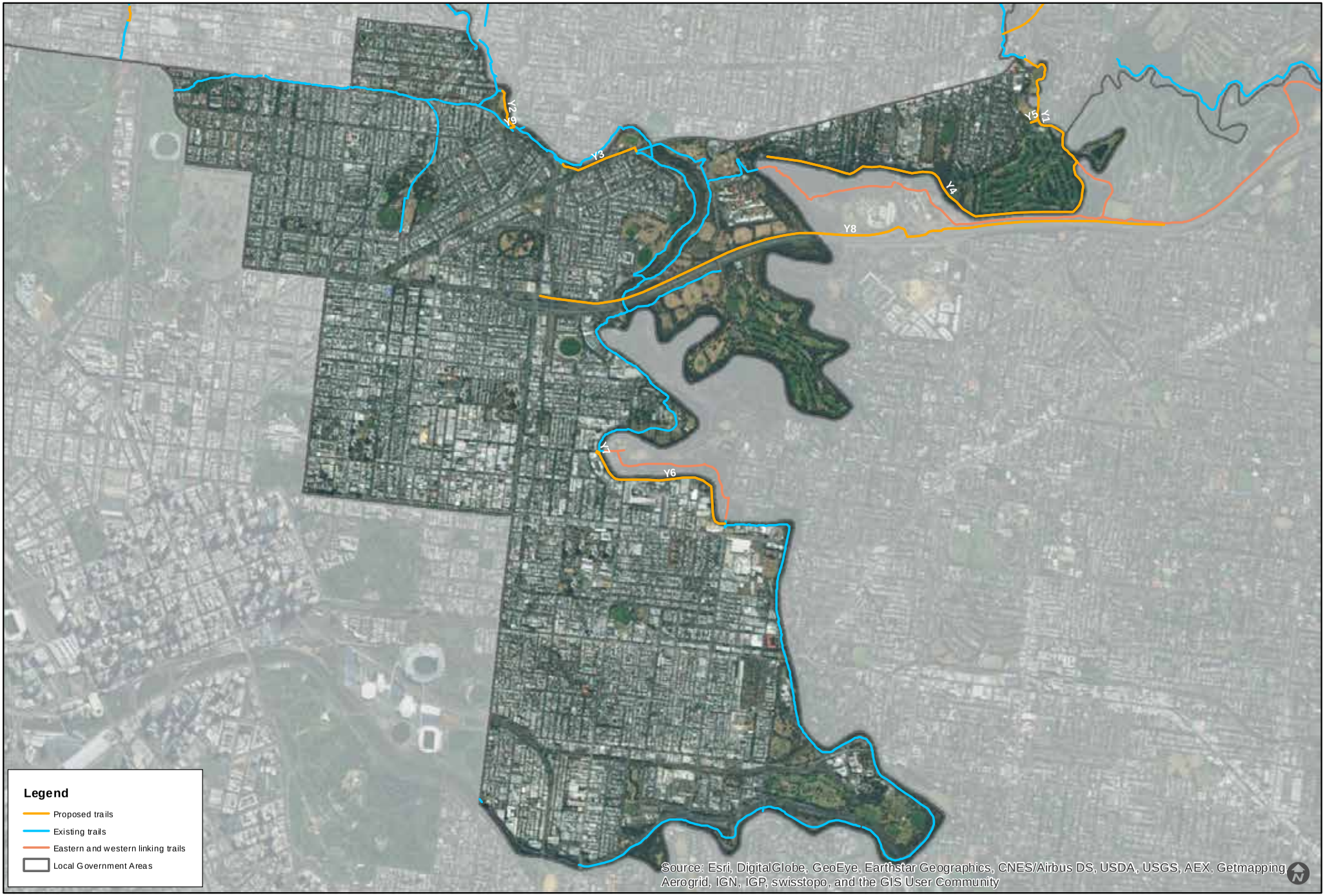
0 1 2 3 4 Km

ARUP



Northern Regional Trails - Whittlesea City Council

ARUP



Northern Regional Trails - Yarra City Council

ARUP

Appendix D

Tourism attractions in northern LGAs

D1 Key tourism attractions in northern LGAs

Council	Tourism feature
Banyule	WaterMarc Aquatic Centre
	Heidelberg Artist Trail
	Heidelberg Gardens
	Heidelberg Golf Club
	Yarra Flats
	Ivanhoe Public Golf Course
	Olympic Leisure Centre
	MacLeod Recreation and Fitness Centre
	Ivanhoe Aquatic and Leisure Centre
	Westerfolds Park (along eastern border)
	Warringal Parklands
	Heide Museum of Modern Art (just outside eastern border)
	Banksia Park (along eastern border)
	Chelsworth Park
	Banyule Flats
Darebin	Bundoora Park (includes Coopers Settlement, Children's Farm and Heritage Village)
	Darebin Parklands
	Bundoora Park Golf Club
	La Trobe Wildlife Sanctuary
	Gresswell Forest Nature Conservation Reserve
	Edwardes Lake Park
	Reservoir Leisure Centre
	Northcote Aquatic and Recreation Centre
	Darebin Community Sports Stadium
	Kevin P Hardiman Reserve
	Darebin International Sports Centre
	Northcote Golf Course
	All Nations Park
	Bundoora Homestead Art Centre
	Darebin Arts and Entertainment Centre
Hume	Woodlands Historic Park (includes Historic Homestead)
	Organ Pipes National Park
	Craigieburn Golf Course
	Jacksons Creek Streamside Reserve
	Holden Flora Reserve
	Greenvale Reservoir Park
	Mount Ridley Nature Conservation Reserve
	Cooper St Grassland Nature Conservation Reserve
	Broadmeadows Aquatic and Leisure Centre
	Craigieburn Leisure Centre
	Sunbury Aquatic and Leisure Centre
	Goonawarra Public Golf Course

Council	Tourism feature
	Wineries
	Alister Clark Memorial Rose Garden
	Indigenous Earth Rings
	Emu Bottom Homestead
	Emu Bottom Wetlands
	Living Legends
	Melbourne Airport Viewing Area
	Billy Thorpe Memorial
	Bulla Hill Railway
	Rupertswood Mansion
	Sunbury Pop Festival Site (Future)
	Merri Creek Parklands
	Broadmeadows Valley Park
	Moonee Ponds Creek Trail
Moreland	Brunswick Baths
	Counihan Gallery
	Coburg Leisure Centre
	Coburg Olympic Pool
	Fawkner Leisure Centre
	CB Smith Reserve
	Oak Park Aquatic Centre
	Pascoe Vale Outdoor Pool
	Ceres Community Environment Park
	Roberts Reserve
	Moomba Park Reserve
	Harmony Park
	Lake Reserve
	Coburg Lake
	Randazzo Park
	Central Parklands
Nillumbik	Montsalvat
	Farmers markets
	Art galleries
	Hurstbridge rural township
	St Andrews Market
	Sugarloaf Reservoir
	Warrandyte Kinglake Nature Conservation Reserve
	Warrandyte State Park (along eastern border)
	Candlebark Park (along eastern border)
	Long Gully Bushland Reserve
	Panton Hill Bushland Reserve
	St Andrews Nature Conservation Reserve
	Smiths Gully Nature Conservation Reserve
	Queenstown Bushland Reserve / Cemetery
	Edendale Community Environment Farm
	Ellis Cottage

Council	Tourism feature
	Eltham Lower Park (Diamond Valley Miniature Railway and adventure playground)
	Wineries
	Yarrambat Golf Course
	Butterfly Reserves
	Eltham Leisure Centre
	Diamond Valley Sports and Fitness
	Community Bank Stadium
	Diamond Creek Outdoor Pool
	Yellow Gum Park and Blue Lake
	Eltham North Adventure Playground
	Hurstbridge rural township
	St Andrews market
	Eltham Library Community Gallery
Whittlesea	Plenty Gorge Park
	Craigieburn Grassland Nature Conservation Reserve
	City of Whittlesea Public Gardens
	Yan Yean Reservoir
	Yan Yean Reservoir Park
	Growling Frog Golf Course
	Quarry Hills Park
	Hawkstowe Park (includes Le Page Homestead at Hawkstowe Picnic Area)
	Funfields fun park
	Whittlesea Park
	Uncle Nev's Horseriding
	Plenty Ranges Arts Centre and Theatre
	Whittlesea Courthouse
	Ziebell's Farmhouse
	Yarrambat Park
	Carome Homestead
	Bear's Castle
	Farm Vigano
	Whittlesea Golf Course
Yarra	Yarra Bend Park
	La Trobe Golf Course
	Burnley Golf Course
	Burnley Gardens
	Burnley Bouldering Wall
	Fairfield Boathouse
	Edinburgh Gardens
	Darling Gardens
	Alphington Park (includes native display gardens)
	Coate Park and Rudder Grange
	Koori Garden
	Dights Falls
	Collingwood Children's Farm

Council	Tourism feature
	Abbotsford Convent
	Burnley Tunnel Vent Stack
	McConchie Reserve and Burnley Harbour
	Barkley Gardens
	Burnley Park
	Linear Park
	Mayor's Park
	Collingwood Leisure Centre
	Fitzroy Swimming Pool
	Richmond Creation Centre
	Victoria Park

Appendix E

Full list of northern regional trails

E1 Full list of existing northern regional off-road trails by LGA

LGA	
Banyule	Aqueduct Link Trail
	Banyule Shared Trail
	Darebin Creek Trail
	Gabonia Avenue Reserve - Unknown Trail
	Hurstbridge Line Rail Trail
	Main Yarra Trail
	Metropolitan Ring Road Trail
	N J Telfler Reserve - Unknown Trail
	Plenty River Trail
	Plenty Road Shared Path
	Rosanna Parklands - Unknown Trail
	Wilson Reserve Trail
Darebin	A.H. Capp Reserve - Concrete Path
	Beenak/Mcmahon Reserve - Concrete Path
	Capital City Trail
	Cheddar Road Reserve - Concrete Path
	Clements Reserve Path
	Darebin Creek Corridor Between Heidelberg Road And Darebin Road - Concrete*
	Darebin Creek Trail
	Edgars Creek Trail
	G.E. Robinson Park - Concrete Path
	La Trobe University Shared Path
	Merri Ck Path Central Bikepath
	Merri Ck Path South Bikepath
	Merri Creek Trail
	St Georges Road Reserve Path
	Unnamed - East-West Power Easement
	W.H. Robinson Reserve - Concrete Path
Hume	Aitken Boulevard Shared Path
	Atiken Creek Shared Path
	Broadmeadows Valley Park Trail
	Cragieburn Shared Path
	Galada Tamboore Trail
	Greenvale Reservoir Park Trail

	Malcom Creek Trail
	Meadowlink Shared Pathway
	Yuroke Creek Trail (to Greenvale Reservoir Park)
	Merlynston Creek Trail
	Merri Creek Trail
	Mickleham Road Shared Path
	Moonee Ponds Creek Trail
	Ring Rd-Moonee Ponds Creek Bikepath
	Shankland Reserve Trail
	Unnamed - Near Jackons Creek
	Unnamed - Roxburgh Park East West Link Path
	Unnamed Link - Moonee Ponds Creek Trail / Broadmeadows Valley Park Trail
	Upfield / Craigieburn Rail Line Shared Trail
	Vinyeard Rd Shared Path
Moreland	Albert St-Merri Ck Path Bikepath
	Albert-Victoria Bikepath
	Albion St-Merri Ck Path Bikepath
	Alister St Bikepath
	Barkers Bikepath
	Blyth St Bdwalk-Merri Ck Path Bikepath
	Blyth St Sth-Merri Ck Path Bikepath
	Capital City Path Bikepath
	Carr St Nth Bikepath
	Carr St Sth Bikepath
	Ceres Nth Access Path Bikepath
	Ceres South-Merri Ck Path Bikepath
	Clara St-Merri Ck Path Bikepath
	Coburg Pool Bikepath
	Connelly Bikepath
	Coventry-Gowanbrae Bikepath
	De Chene Pde Bikepath
	De Chene Reserve Bikepath
	Devereaux St Bikepath
	Devereaux-Primula Link Bikepath
	Edna Gv Bikepath
	Emma St-Merri Ck Path Bikepath
	Eva Crt Bikepath
	Eva Crt Bridge Bikepath
	Fran St Bikepath

	Goleen Bikepath
	Harding St Bikepath
	Hare-Emma-Merri Ck Path Bikepath
	Hood Cr Bikepath
	Ida St Bikepath
	John St Linear Park Bikepath
	Lorne St Bikepath
	Lorne-St Basil Homes Bikepath
	Mathieson Bikepath
	Merri Ck Path Central Bikepath
	Merri Ck Path South Bikepath
	Merri Creek Trail
	Moonee Blvd Bikepath
	Newlands Bikepath
	Outlook Dve Bikepath
	Parkview Av-Merri Ck Path Bikepath
	Primula Blvd Bikepath
	Queens Pde Bikepath
	Ring Rd-Moonee Ponds Creek Bikepath
	Ring Rd-North Side Bikepath
	Roberts Reserve Bikepath
	Upfield Path Central Bikepath
	Upfield Path North Bikepath
	Upfield Path South Bikepath
	Urquhart Bikepath
	Valley Cres Bikepath
	Victoria Rd Nth-Merri Ck Path Bikepath
	Wallace Reserve Bikepath
	Weigall St-Merri Ck Path Bikepath
Nillumbik	Aqueduct Trail
	Diamond Creek Trail
	Diamond Hills Trail
	Eltham - Yarra Glen Road - Onroad Trail
	Green Wedge Trail
	Local Trail - Eltham Lower Park
	Metropolitan Ring Road Trail
	Plenty River Trail
	Unnamed - Adjacent To Fitzimons Ln
	Unnamed - Griffth Park

Whittlesea	Bridge Inn Road Shared Path
	Cheddar Road Reserve - Concrete Path
	Civic Drive Shared Path
	Cooper Street Shared Path
	Dalton Road Shared Path
	Darebin Creek Trail
	Edgars Creek Trail
	Epping North Transmission Trail
	Epping Road Shared Path
	Findon Creek Trail
	Findon Road Shared Path
	Galada Tamboore Trail
	Greenborough Bypass Trail
	Mckimmies Rd Shared Path
	Merri Creek Trail
	Metropolitan Ring Road Trail
	Plenty River Trail
	Plenty Road Shared Path
	Scyamore Morang Trail
	South Morang Pipe Trail
	South Morang Rail Trail
	Yan Yean Pipe Track
Yarra	Capital City Trail
	Capital City Trail To Edinburgh Gardens
	Coulsten Reserve Path
	Merri Ck Path South Bikepath
	Merri Creek Trail

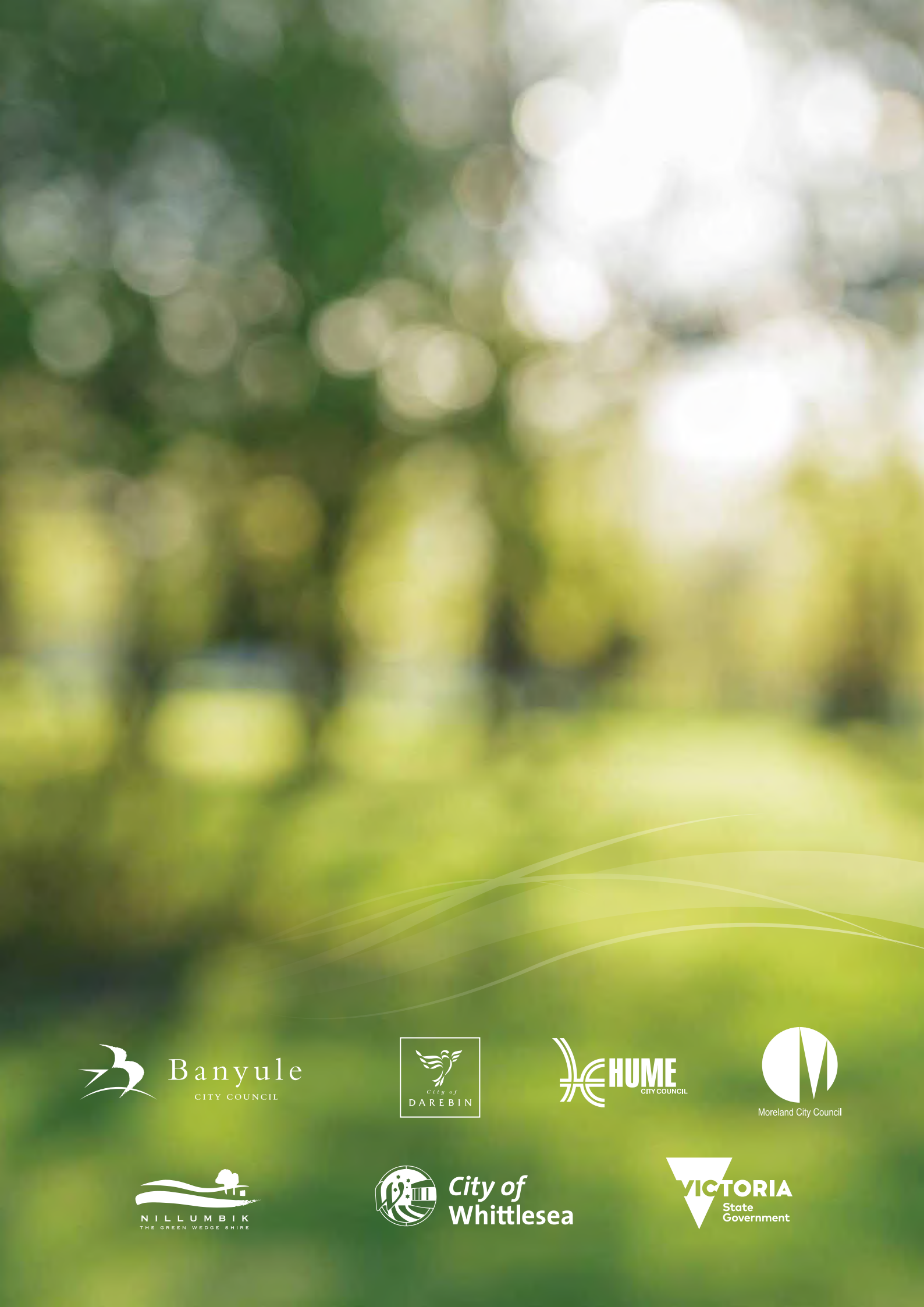
E2 Full list of proposed northern region off-road trails by LGA

LGA	Name	Map reference
Banyule	Banyule Shared Trail	B1
	Main Yarra Trail	B11
	Main Yarra Trail	B12
	Banyule Shared Trail	B14
	Plenty River Trail	B15
	Dougharty Road	B17
	Unnamed - La Trobe University Link Path	B2
	Unnamed - East-West Power Easement	B6a
	Unnamed - East-West Power Easement	B6b
	Hurstbridge Rail Line Trail	B7a
	Hurstbridge Rail Line Trail	B7b
	Hurstbridge Rail Line Trail	B7c
	Main Yarra Trail - Cross river link	B8
	Plenty Rd Shared Path	B9
	Greensborough to Eltham Link Trail	B16
	Darebin Creek Trail	B3
	Main Yarra Trail	B13
Darebin	Bundoora Park Shared Path	D1
	Unnamed - East-West Power Easement	D10
	Darebin Creek Trail	D2
	La Trobe University Shared Path	D7
	Plenty Road Shared Path	D8
	Unnamed - La Trobe University Link Path	D9
Hume	Donnybrook Road Shared Path	H10
	Emu Creek Shared Trail	H11
	Greenvale Reservoir Park Trail	H12
	Jacksons Creek Regional Path	H13
	Jacksons Creek Regional Path	H14
	Malcolm Creek Trail	H15a
	Malcolm Creek Trail	H15b
	Maribyrnong River Shared Path	H16
	Meadowlink Shared Pathway	H17
	Yuroke Creek Trail (to Greenvale Reservoir Park)	H18
	Merri Creek Shared Trail	H19
	Aitken Boulevard Shared Path	H1a

	Aitken Boulevard Shared Path	H1b
	Aitken Creek Shared Path	H2
	Merri Creek Shared Trail	H20a
	Merri Creek Shared Trail	H20b
	Merri Creek Shared Trail	H20c
	Mickleham Road Shared Path	H21a
	Mickleham Road Shared Path	H21b
	Somerton Rd Shared Path/ Cooper St Shared Path	H24
	Ring Rd - Moonee Ponds Creek Bike Path	H25
	Sunbury Rail Line Shared Trail	H26
	Sunbury Rail Line Shared Trail	H27
	Sunbury to Melbourne Airport Offroad Shared Path	H28
	Tullamarine Freeway Regional Path	H29
	Aitken Creek Shared Path	H3
	Tullamarine Offroad Shared Path	H30
	Unnamed - Craigieburn to Merrifield link	H31
	Unnamed - Mickleham Rd to Craigieburn link	H34
	Unnamed - Roxburgh Park east west link path	H36a
	Unnamed - Roxburgh Park east west link path	H36b
	Unnamed - south Craigieburn east west link	H37
	Unnamed - southwest Craigieburn north south link	H38
	Upfield Shared Path Extension	H39
	Blind Creek Trail Link	H4
	Merlynston Creek Trail	H40
	Bulla - Woodlands Historic Park Connection	H5
	Craigieburn Rail Line Shared Trail	H6a
	Craigieburn Rail Line Shared Trail	H6b
	Craigieburn Rail Line Shared Trail	H7
	Craigieburn Road Shared Path	H8
Moreland	Craigieburn Rail Line Shared Trail	M1a
	Craigieburn Rail Line Shared Trail	M1b
	Craigieburn Rail Line Shared Trail	M1c
	Upfield Shared Path	M2
	Upfield Shared Path	M3a
	Upfield Shared Path	M3b
	Upfield Shared Path	M3c
	Edgars Creek Trail	M4a
	Edgars Creek Trail	M4b
	Edgars Creek Trail	M4c

	Merlynston Creek Trail	M5a
	Merlynston Creek Trail	M5b
Nillumbik	Diamond Creek Trail	N1
	Aqueduct Trail	N2a
	Aqueduct Trail	N2b
	Aqueduct Trail	N2c
	Green Wedge Trail	N3a
	Green Wedge Trail	N3b
	Green Wedge Trail	N3c
	Kinglake Way Trail	N4
	Greensborough to Eltham Link Trail	B16
Whittlesea	Bridge Inn Road Shared Path	W1
	Epping North Transmission Trail	W11a
	Epping North Transmission Trail	W11b
	Epping North Transmission Trail	W12
	Epping Road Shared Path	W14
	Findon Creek Trail	W15
	Findon Creek Trail	W16
	Maroondah Aqueduct Trail	W17
	Cooper Street Shared Path	W2
	Merri Creek Trail	W20
	Plenty River Trail	W21
	South Morang Pipe Trail	W22
	Scyamore Morang Trail	W23
	Whittlesea Rail Trail	W24
	Yan Yean Pipe Track	W25
	Merri Creek Trail	W26
	Plenty Road Shared Path	W27
	Plenty Road Shared Path	W29
	Plenty Road Shared Path	W29
	Cooper Street Shared Path	W3
	Craigieburn Road Shared Path	W4
	Dalton Road Shared Path	W5
	Darebin Creek Trail	W6
	Donnybrook Road Shared Path	W7
	E6 Freeway Trail	W8
	Edgars Creek Trail	W9a
	Edgars Creek Trail	W9b
	Edgars Creek Trail	W9c

Yarra	Darebin Creek Trail	Y1
	Rushall Reserve Shared Path	Y2
	Coulsen Reserve Ramp	Y3
	Yarra River Northern Trail	Y4
	Farm Road Link	Y5
	Main Yarra Trail - Gipps St to Walmer St Link	Y6
	Main Yarra Trail - Gipps Street Steps	Y7
	North East Bicycle Corridor	Y8
	Darebin Creek Trail	B3


Banyule
CITY COUNCIL
City of
DAREBIN
HUME
CITY COUNCIL
Moreland City Council
NILLUMBIK
THE GREEN WEDGE SHIRE
City of
Whittlesea
VICTORIA
State
Government