



7. TRAIL INFRASTRUCTURE

Blind Creek Trail

There are a wide variety of elements that make up a regional trail network. Firstly there is the trail surface itself, which can vary in width and construction material. Trails often also have a range of supporting infrastructure, including signs (both directional signs to tell people where the trails lead, as well as hazard and use-related signs), lights, seats, shelter, and drinking fountains. There are also functional benefits provided by non-built elements, such as trees providing shade and planted areas acting as buffers between different uses (e.g. creating a soft barrier between a trail and a play space). All of these elements play a role in the way a trail is used and influence the trail-use experience. The type and quality of facilities also have broader impacts upon the way trails present themselves and are perceived, impacting upon the character of a place and sense of community.

The different trail infrastructure components are addressed separately in this section. The key recommendations are then summarised at the end in two diagrams covering trail infrastructure standards and guidelines. The recommendations within this chapter generally outline the ideal outcomes. There are various factors involved in trail and infrastructure implementation that will require case by case consideration and the potential need for compromise.

7.1. TRAIL SURFACES

7.1.1 Materials

Regional trails within Northern Melbourne are made up of three main construction materials. The relative benefits and issues with each are summarised below.

Material	Positive attributes	Negative attributes
Concrete	<ul style="list-style-type: none"> Durable - very little maintenance required once installed. 	<ul style="list-style-type: none"> Inflexible - if tree roots or subsurface conditions cause movement, this will result in cracking and abrupt level changes creating significant hazards. Regular jointing required, which can create a bumpy ride for cyclists if tooled joints are used (alternative joints are now commonly used). Runners often avoid using concrete surfaces because the inflexible surface can be harsh on joints. More expensive than the other two options identified here.
Bitumen/ asphalt	<ul style="list-style-type: none"> More flexible than concrete, meaning that they do not need regular joints, and any lifting of pavement tends to occur gradually, initially creating rises and falls within a surface rather than abrupt cracks and edges. 	<ul style="list-style-type: none"> Because of the flexibility of the material, it needs to be edged to prevent edges deteriorating. Timber edging is commonly used but deteriorates over time. Problematic when installed on highly reactive subgrades such as clay. Shrink-swell behaviour of reactive subgrades can cause cracking to pavement.
Gravel	<ul style="list-style-type: none"> Provides a more natural trail character than hard paved options. Preferred surface for equestrian use. The least expensive of the three options identified here. Reduced speed of cyclists minimising trail conflict between cyclists and other users. 	<ul style="list-style-type: none"> Variable quality, dependent upon the material used, the quality of the installation and drainage conditions. Susceptible to water damage (erosion from water flowing, and softening from pooling water). Edge maintenance can be an issue if a hard edge is not provided. Gravel surfaces are not particularly well-suited to narrow-tyred 'road' cycles. Not suitable for users with mobility aids or physical ailments due to uneven surface. More regular and intensive maintenance required.



FIGURE 7.1:
Regional trail construction material examples.
Top: Concrete trail construction (Merri Creek Trail)
Middle: Asphalt surface (Diamond Creek Trail)
Bottom: Gravel (Edgars Creek Trail)

The three options noted (examples pictured in figure 7.1) are ordered from most to least expensive. However it should be noted that the difference in upfront costs are relatively minor compared to the ongoing maintenance costs, i.e. decisions to use gravel surfaces based primarily upon installation costs should be very mindful of the ongoing maintenance costs. Other specialist surfaces (such as boardwalks) are used sparingly to address specific circumstances due to the high costs of construction, long-term maintenance costs and safety concerns.

There is a mix of trail surface materials used for the regional trail network within the study area, but there are some patterns that able to be observed:

- Concrete appears to be the dominant surface material across the network, particularly within the more urban and populated areas.
- Gravel surfaces appear to be preferred for trails within a rural environment or a more natural setting (i.e. sections of the Edgars Creek Trail).

Where compacted gravel surfaces are the preferred trail material, the following guidelines should be considered:

- gravel surfacing should not be used if the trail has a focus upon commuter use
- gravel surfacing should not be used if there is potential for flooding
- gravel surfacing should be used where a trail targets equestrian use
- gravel surfacing should be considered if the trail is in a rural setting.

7.1.2 Conditions

In the community questionnaire undertaken as a part of the project, only 5% of respondents identified trail condition as a reason preventing them for using the trail network. However a significant number of respondents identified the following as changes to the network that would increase their usage of the trails:

- Wider trails - 36% of respondents
- More trails hard paved (i.e. concrete or asphalt surface) - 25.43%
- Better all abilities access - 8.43%
- More regular sweeping of the trail - 13.86%

This indicates that while trail condition does not stop people from using the trails, usage rates would likely increase if the condition of the trail network was improved.

7.1.3 Trail width & trail separation

Regional trails within the study area vary in width, with the majority being between 1.5m and 2.5m wide. In general the narrower paths are older or exist within constrained corridors (i.e. creek or rail corridors), while recently-installed paths are 2.5m wide or more.

One standard available regarding trail width is that provided by Austroads (the peak organisation of Australasian road transport and traffic agencies). Austroad publish the *Guide to Road Design Part 6A: Paths for Walking and Cycling (Second edition, June 2017)*, which lists suggested shared path widths for 'regional' and 'recreational' shared paths. For regional shared paths the suggested desirable minimum width is 3.0m, with an acceptable range from 2.5 to 4.0m. For recreational shared paths the suggested desirable minimum width is 3.5m, with an acceptable range from 3.0 to 4.0m. Building upon the Austroad guide is the *Traffic Engineering Manual Vol 3 Part 218 VicRoads Design Guidance for strategically important cycling corridors, 2016*. As the name suggests, this document focuses upon Strategic Cycling Corridors (SCCs) that are intended to improve cycling to and around major activity centres in metropolitan Melbourne, and to provide routes catering for high volumes of cyclists.

It is noted that the 2016 version of this strategy identified an aspiration for paths to be at the upper end of these width ranges (i.e. minimum 3m wide, and 4m wide where possible). Wide paths do provide benefits to users on busy trails, helping to minimise conflict between trail users, and is a worthy aspiration where space allows and usage expectations are high. However, space is very regularly an issue when retrofitting trails to developed urban areas and wider trails significantly exacerbate the issue.

The latest Austroads document also provides guidance relating to designing path widths based upon known peak hour cyclist and pedestrian volumes. Where known usage volumes are available (i.e. from Council installed counters or Bicycle Network Victoria's Super Saturday and Super Tuesday count data), the following recommendations for regional trails from Austroads should be applied:

Recommended trail type	Pedestrian volumes	Cyclist volumes
Minimum 2.5m wide shared path	0-50 per hour	0-550 per hour
Minimum 3.0m wide shared path	50-100 per hour	550-1000 per hour
Separated dedicated paths for pedestrians and cyclists (note: if separated paths are not feasible, a wider shared path of 3.5-4.5m should be considered instead)	Over 100 per hour	Over 1000 per hour

The Austroads *Guide to Road Design Part 6A: Paths for Walking and Cycling* (Second edition, June 2017) notes that;

a separated path is a path divided into separate sections, one of which is designed for the exclusive use of cyclists and the other for the exclusive use of pedestrians. A separated path may be appropriate where there are safety or conflict issues such as where there are a high number of pedestrians and/or cyclists, or the desired level of service on a shared path is not being met.

While this kind of separated path is not a regular feature of the regional trail network in Northern Melbourne, the recently installed section of the Upfield Rail Trail between Moreland and Coburg Station is a good example to follow if being considered in other areas within the region (refer figure 7.2).

The idea of separated paths also has higher-level support. *Victoria's 30-year Infrastructure Strategy* (2016), prepared by Infrastructure Victoria, makes recommendations relating to walking and cycling infrastructure to 'increase walking and cycling for transport' and 'encourage people living along congested corridors and in higher density areas to shift to active travel to reduce the demand on other transport modes'. It specifically notes trail separation as a key part of this, under both recommendations 4.1 and 10.3:

improving standards for existing walking and cycling networks, in particular the separation of walking and cycling paths and also from other road users.



FIGURE 7.2:
An example of a separated regional trail recently installed along the Upfield Rail Trail, Coburg

The idea of separated paths is also popular among trail users. In the questionnaire undertaken as a part of this project, respondents were asked which potential trail improvements, from a list of 23, would increase their usage of the trails (with multiple selections allowed). The item 'separated pedestrian and cycling trails in high use areas' was selected by just under half (47.43%) of the respondents, the fourth most popular response. By comparison, the item 'wider trails' was selected by 36% of the respondents. The popularity of the idea of separated paths arises from the conflicts between users, including pedestrians feeling unsafe sharing trails due to fast-moving bicycles and many cyclists feeling unsafe sharing trails with dogs that are off-lead and not under effective control.

Factors working against heavily-used regional trails in Northern Melbourne being separated include:

- **Space** - Many existing trails are located within relatively tight corridors, often also constrained by existing vegetation or infrastructure. Finding the space to build separated paths will not be possible in many locations. This is particularly true when talking about longer lengths of trail, rather than just individual sections. Separation of trails may not be particularly effective if separation is achieved for only short sections due to 'bottle-necks', therefore requiring regular merging.
- **Character** - Separated paths are the freeways of trail infrastructure, and inevitably have a larger footprint and more visual impact than shared paths.
- **Construction cost** - Providing separate trails for cycling and pedestrian use doubles the cost of providing the facility.

7.2 TRAIL SIGNAGE

Signs play a significant role in the experience of trails, whether they be behavioural, wayfinding or interpretive signs.

- Behavioural signs along trails are used to direct user behaviour in order to reduce user conflicts and to ensure comfort for users. Key examples include:
 - notification that paths are shared, which may include directions regarding shared trail etiquette (such as warning other users prior to passing, keeping left, and keeping dogs on leads).
 - directions for cyclists to slow down due to trail conditions ahead.
 - notification of potential hazards, including flood information, dog off-lead areas and playgrounds.
- Wayfinding (or directional) signs assist users in finding their way around the trail network and to reach destinations. This includes destinations along the trail, surrounding destinations, and connections to other paths and trails.
- Interpretive signs typically provide information and stories about the nature, culture and/or history of a place. This type of sign is not integral to the functioning of a trail network, and so is not a focus of this project. This kind of sign can provide interest and improve the user experience of a trail.

7.2.1 Sign types and styles

As is inevitable for a trail network developed by different parties over a long period of time, there is a wide variety of existing sign types and styles existing on the regional trails of Northern Melbourne.

It is recommended that a standard suite of directional signs be developed for regional trails in Northern Melbourne, and that these be used on all new regional trail construction projects and gradually replace signs on existing trails. The benefits of a standard suite are:

- Consistent quality. A standard suite of signs sets a minimum quality, both aesthetically and in the way information is being communicated.
- Ease of maintenance. A standard suite of signs streamlines repair and maintenance of signs.
- Marketing. A standard signage suite contributes to visual branding of the trails.

It is recommended that the standard suite of signs link with proposals for standard regional trail signs elsewhere across Melbourne and Victoria. The recommended sign type is based upon the outcomes of a workshop titled *Bicycle Wayfinding: The case for a metropolitan approach* held by Knox City Council in 2012, and the report *Finding Melbourne: Standardising Melbourne/Victorian Bicycle Wayfinding Systems* (2012) by Chris Hui and Winchelle Chuson. The aim of this workshop and resultant report is to have a standard suite of wayfinding signage across the shared trails within the Melbourne Metropolitan areas and across the state.

Key features of this signage suite include:

- **Legibility** - The signs are simple and legible.
- **Robustness** - The signs are robust, do not attract vandalism or graffiti, and are easily cleaned or replaced in the event of damage.
- **Simple and affordable** - Having many simple signs is more beneficial to users than fewer ornate ones.
- **Information hierarchy** - A hierarchy of information is established, with priority given to destinations, but also including distances and the route name, where applicable.

Figure 7.3 shows an example of the proposed signage suite recommended in *Finding Melbourne: Standardising Melbourne/Victorian Bicycle Wayfinding Systems* (2012). This suite is also a recommendation of the *Western Regional Trails Strategic Plan* (2017) and *Eastern Metropolitan Trails Strategy* (2018). Implementation of this suite across the study area will allow for a consistent approach to wayfinding across the eastern, western and northern regions of Metropolitan Melbourne.

Some customisation of this standard sign type may be appropriate to allow the branding of key regional trails with a strong tourism focus, but the key features of the standard sign suite should be retained.

As an alternative, a distinctive signage suite may be developed on a trail-by-trail basis. Whilst this would mean that each trail within the Northern Trails network would be different (and therefore potentially negate the benefits of a standardised signage suite as discussed above), it would allow for individual branding of each of the trails and a consistent suite along the length of the trail. Implementation of this type of suite may involve coordination and involvement from neighbouring Councils outside the northern region. The signage suite recently implemented along the Merri Creek Trail, as shown in figure 7.4, is a good example of a distinctive suite implemented along the length of the trail across multiple municipalities. The recently installed signage on the Darebin Creek Trail is another example of a successful cross-municipality signage suite.

7.2.2 Emergency markers

Emergency markers are signs that allow locations to be pinpointed for emergency services. They are of greatest use in locations, such as many of the trails, where other navigational aides such as street intersections and house numbers are not available. Emergency markers in Victoria are managed by the Emergency Services Telecommunications Authority (ESTA). They produce the *Emergency Marker Signage Guidelines* document that identifies the sign types required and location guidelines.

Emergency markers are recommended along regional trails every 500 to 1000 metres, as well as at trail heads, junctions, significant features, activity nodes, and where the level of risk is increased.



FIGURE 7.3:
An example of the proposed standard sign type for regional trails in Eastern Melbourne.



FIGURE 7.4:
An example of the existing signage suite along the Merri Creek Trail by Aspect Studios.
Source: www.aspect-studios.com/project/merri-creek-trail

7.3 TRAIL FACILITIES

Trail facilities such as seating, drinking fountains, toilets and lighting can play an important part in the regional trail usage experience. Where trails intersect with parks, activity centres and civic facilities, these functions can be provided separate from the trail. Toilets, shelters and barbecues, for instance, are better addressed as a part of a municipal open space strategy, keeping trail users in mind.

Commercial precincts and town centres can provide good opportunities for rest stops, food and drink, and toilet facilities. Indeed these locations, along with transport hubs such as train stations, are in many cases the destinations of trails users. In such cases, the 'trail head' infrastructure is being provided by these facilities.

Where facilities are provided on trails, they need to be designed to avoid interfering with the safe use of the trail by all users. For instance, seats should not be placed too close to the trail surface.

The following are types of trail infrastructure, with recommendations regarding their use associated with regional trails in Northern Melbourne. Recommendations regarding their provision are summarised in figure 7.5.

- **Seats** - Seats should be provided in locations where people may want to sit. This may apply to locations with attractive views or outlooks. It may also apply to locations where people may want to rest or wait for others, such as at destinations, trail heads, or in the vicinity of other facilities such as toilets. In general, seats with backs and arm rests provide more comfortable seating for people wishing to sit for a period of time, while benches are more suitable for short term seating.
- **Lights** - The majority of regional trail usage occurs during daylight hours. Lighting is therefore generally not considered as a standard requirement for regional trails, except in situations such as tunnels or underpasses where low levels of light are experienced during daylight hours. There are a number of potential disadvantages of providing lighting to trails, including disturbance of wildlife, the potential attraction of undesirable and antisocial night time activity, and the cost of operation. The kind of users who most benefit from lighting are people using sections of regional trails in a relatively local way over the winter months, such as recreational walkers, dog walkers, and commuters. Where there is evidence of strong potential benefits for these groups without the potential disadvantages noted above, lighting should be considered.
- **Drinking fountains** - Drinking fountains provide opportunities for trail users to rehydrate while using the trail. They are particularly popular with people undertaking exercise on trails during warmer weather. Walkers and joggers are more likely to use them than cyclists, who have more opportunity to carry their own water bottles. Drinking fountains are most efficiently provided associated with parks, where water connections are likely to already exist. Dog drinking bowls can also be associated with drinking fountains.
- **Rubbish bins** - Rubbish bins should be provided only at key activity nodes, destinations and in key dog off-lead/dog walking areas. In many cases these nodes and destinations will already have bins (e.g.. parks, railway stations, civic buildings). Bins should only be considered where there is easy access for rubbish trucks and the capacity to service them. Parks Victoria has a carry-in carry-out rubbish policy throughout its estate.
- **Bicycle parking** - Regional trails attract a lot of cycling users, so there is a strong demand for bicycle parking at key destinations and stopping points along the way. In most cases simple 'hoop' style parking is appropriate, but for destinations such as railway stations where people are likely to be regular users requiring secure longer-term parking, cage style parking should also be considered. E-bike charging stations should be considered at transport node connections or on higher use commuter trails.
- **Bicycle pump and repair stations** - Further to bicycle parking, maintenance stations allow cycling users to perform on-the-go repairs to allow safe and convenient travel along the trails. These should be considered for key activity nodes such as trail heads and transport hubs.

- **Shelter** - The length of the trail network means that the provision of shelter needs to be focussed upon points where it is most needed. These points logically include trail heads, key destinations and stopping points. Where shelters are provided, other facilities are also likely to be appropriate, including seating, drinking fountains and bins. Shelter types can vary depending upon the preferences of the relevant Council, but should provide both sun and rain protection. Shelters directed primarily at trail users do not need to be large (compared to those targeted at picnics and others gathering in larger numbers).
- **Other 'end of trip' facilities** - end of trip facilities such as showers and change rooms may be desirable for some regional trail users, especially commuters and tourists. Due to the construction cost and maintenance requirements associated with end-of-trip facilities, having them fulfil the needs of multiple user groups may assist in making them viable. Examples of where a shared approach may work include at beaches (where showers are commonly provided) and at civic buildings (where staff may also use these facilities).

Infrastructure element	Infrastructure provision			
	Regular (<500m spacing)	Occasional (500-1000m spacing)	At key activity nodes	Where required for safety reasons
Behavioural signs		o	o	
Bicycle parking		o	●	
Bicycle pump & repair stations			o	
Directional signs	●			
Drinking fountains		o	●	
Emergency markers (in accordance with ESTA requirements)		●		
End of trip facilities (e.g. showers)			o	
Interpretive signs		o	o	
Lights		o	o	●
Outdoor fitness equipment			o	
Public toilets			●	
Rubbish bins			●	
Seats		●	●	
Shelter			●	
Vegetation (including shade trees)	●			

- *mandatory*
- *recommended*
- o *to be considered*

FIGURE 7.5:
Regional trail infrastructure provision recommendations

7.4 TRAIL-SIDE VEGETATION

Trail-side vegetation can provide a range of benefits, including:

- **Function** - including the provision of shade from trees, and the use of vegetation in creating a barrier/buffer between different uses. Shade is particularly important along active transport routes for the comfort of users.
- **Character** - vegetation can contribute strongly to the appeal of trail settings, by creating visual interest, contributing to a sense of respite from the urban environment, and by screening undesirable views.
- **Environmental** - linear trail corridors are in many cases ideal habitat corridors, and the management of trail-side vegetation can play an important role in their effectiveness.

For these reasons, vegetation should be incorporated into regional trails where possible. The incorporation of vegetation needs to be mindful of potential issues, including:

- **Existing vegetation impacts** - installing new trails may result in the need to remove existing vegetation, or create conditions that are detrimental to the health of existing vegetation.
- **View lines** - thick vegetation should be offset from trails to allow trail users to see other trail users and to minimise the presence of hiding places.
- **Collision risk** - there should be a buffer between the trail and tree trunks to prevent injury from people colliding with them.
- **Trip risk** - vegetation should be designed and managed in a way that minimises the risk of plants growing onto the trail surface to avoid potential trip hazards.
- **Maintenance burden** - the length of trails means that any maintenance-intensive activities required along trail edges can involve significant resources and cost.

The approach to trail-side vegetation needs to strike a balance on a case-by-case basis regarding the benefits and potential issues noted above. In some cases this may require compromises to the trail infrastructure.

7.5 INTERSECTION TREATMENTS

Especially in built-up urban environments, trail intersections with roads and other paths and trails can be numerous. There are a wide variety of intersection treatments to select from based upon the intersection type. The options range from line marking for trail intersections with paths, through to signalised intersections for busy roads. The options are detailed in the Austroads *Guide to Road Design Part 6A: Paths for Walking and Cycling*, and the recommendations of this document should be applied for all trail intersection treatments.

7.6 TRAIL INFRASTRUCTURE STANDARDS AND GUIDELINES

Standards and guidelines are provided here to guide the development of new regional trails, and regeneration/replacement works on existing regional trails within Northern Melbourne. The standards (items that must be addressed) are shown in figure 7.6, while the guidelines (items that should be considered) in figure 7.7. These standards and guidelines are intended to supplement the Austroads *Guide to Road Design Part 6A: Paths for Walking and Cycling*, which provides the over-arching standards for path and trail construction. Trail infrastructure standards and guidelines should be assessed to align with the existing guidelines and policies of relevant stakeholders.

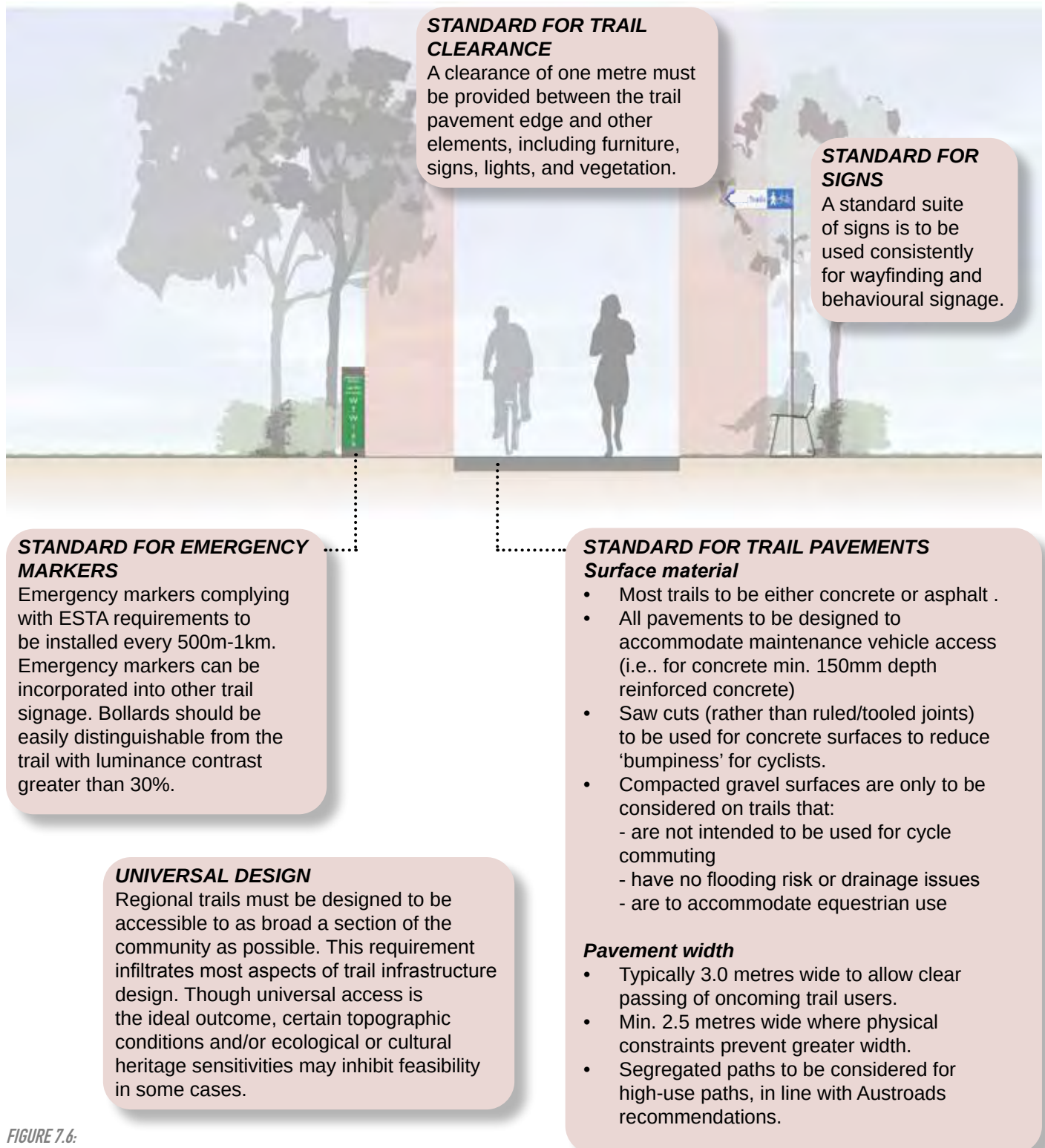


FIGURE 7.6:
Regional trail infrastructure standards for Northern Melbourne.

LIGHTING GUIDELINES

Lighting should be considered in areas where there is a clear benefit such as in dark underpasses, and for providing a safe route in high use areas for commuters and recreational users. These benefits should be weighed against potential disturbance to habitat values along the trails.

VEGETATION GUIDELINES

Trees should be planted near trails to provide shade and amenity benefits, but far enough away to avoid interfering with the trail function (min. 1 metre from the trail edge and to ensure good sight lines). Appropriate shrubs and vegetation should be selected to avoid growth onto the trail surface. Vegetation should be kept under 1m high to maintain safe view lines and 1m from trail edge.

SEPARATED PATHS

Segregated walking/cycling surfaces should be considered for high-use trails in line with Austroads guidelines.

BICYCLE PARKING GUIDELINES

Bike parking should be provided at all key destinations and stopping points (and should be installed at least 1 metre from the path edge onto concrete or asphalt). Consider e-bike charging stations, particularly on commuter trails or at transport node connections.

FURNITURE GUIDELINES

- **Seats** with arm rests and backs should be provided on all trails, approximately every 500 metres, focused upon areas where people will want to sit (view points, trail heads, intersections, facilities and activity nodes).
- **Rubbish bins** should be provided only at key activity nodes, destinations and key dog off-lead/dog walking areas.
- **Drinking fountains** should be provided at key activity nodes, destinations and key dog off-lead/dog walking areas where these are existing water connections.
- **Shelters** should be provided at key activity nodes and destinations, providing shade and rain shelter for small groups.

PUBLIC TOILET GUIDELINES

Access to toilet facilities is important for busy trails. These facilities are most efficiently and effectively provided through adjoining reserves, activity centres and civic facilities.

FIGURE 7.7:

Regional trail infrastructure guidelines for Northern Melbourne



8. TRAIL MANAGEMENT

Yarra River Trail

8.1 EXISTING MANAGEMENT STRUCTURE

The management of the regional trail network comprises a wide variety of activities, relationships and agreements that support trail planning, construction, funding, maintenance and promotion. The management structures of trails are often complex and responsibilities for trails are spread across many different organisations.

The three key types of organisations who have responsibilities and involvement in the management of regional trails are Local Government Authorities, State Government Departments, and Service Authorities/ Statutory Corporations. The involvement of these groups is summarised below.

8.1.1 Local Government Authorities

Local Government Authorities (LGAs, also referred to in this document as Councils) provide a wide range of services and facilities for their local community in accordance with the Local Government Act. This includes the planning, delivery, maintenance and promotion of regional trails within the local government area. The LGAs administer the State's responsibilities for the local government sector through collaboration and seeking input from State Government Departments and/or Service Authorities/Statutory Corporations. Though LGAs have little influence upon State legislation they are required to operate in accordance with it.

LGAs have been the key group involved in the development of this strategy. Each of the six LGAs within the study area are represented on the Project Working Group and have been heavily involved in shaping this report.

8.1.2 State Government Departments

Department of Environment, Land, Water and Planning (DELWP)

DELWP has a broad range of responsibilities relating to the management of Victorian land and natural resources, protection of the environment, responding to fire, flood and biosecurity emergencies, and primary industries. The relationship of these responsibilities and regional trail provision relates most strongly to the waterways along which many of the regional trails are located. DELWP oversees the water corporations constituted under the *Water Act 1989* that manage Victoria's state-owned water resources. This includes Melbourne Water Corporation whose responsibilities include the management of rivers, creeks and major drainage systems.

Department of Transport (DoT)

The Department of Transport is responsible for the planning, building and operation of integrated, sustainable and safe transport systems with Victoria. The DoT is currently investing in new cycling and pedestrian connections across metropolitan and regional Victoria to help relieve congestion and to provide an alternative to public transport. In the 2019/20 budget, the Victorian Government committed \$15.3M towards Active Transport Victoria (see below) however, following recent lock downs relating to COVID-19, this investment has been more than doubled to improve existing and deliver new cycling routes and shared user paths in Metropolitan Melbourne.

Active Transport Victoria (ATV)

ATV is a unit within the Department of Transport and was formed in 2016 as a focal point for State Government pedestrian and cycling-related strategies and projects. ATV was responsible for the preparation of the *Victorian Cycling Strategy 2018-28*, which has the subtitle '*increasing cycling for transport*'.

Department of Jobs, Precincts and Regions (DJPR)

The DJPR is responsible for the economic recovery and growth of Victoria by creating more jobs for more people, building thriving places and regions, and supporting inclusive communities. In more recent times, the department has been focussed on the impacts of the COVID-19 pandemic and how it will help communities and businesses adapt, build resilience and recover from a strategic point of view. One of the key initiatives implemented by the DJPR is the Growing Suburbs Fund.

The *Growing Suburbs Fund* is a \$375M investment over 7 years to assist local government in the task of delivering new local infrastructure. It is expected that a number of trail related projects will be delivered over the coming years due to this funding opportunity.

The DJPR also provides a series of programs and grants to support Victoria's sporting sector and visitor economy including Visit Victoria and Sport and Recreation Victoria

Visit Victoria is a statutory authority reporting to Minister for Tourism, Sport and Major Events who sits within DJPR. Visit Victoria works to develop and realise the local and global market potential for Victoria's tourism industry. It's strategy work relating to regional trails has included the preparation of a number of documents referred to in this report, being:

- Victoria's Trails Strategy (2014)
- Victoria's 2020 Tourism Strategy (2013)
- Victorian Visitor Economy Strategy (2016)

Sport and Recreation Victoria (SRV)

The role of the SRV is to support Victoria's sport and recreation sector and inspire Victorians to get active. SRV work collaboratively with local government to improve the health and well-being of all Victorians, build strong and more connected communities, deliver economic growth and jobs, and enhance liveability. These goals are closely aligned with this strategy. The work of SRV has a focus upon research, planning and design facilitation relating to sport and recreation facilities, rather than directly constructing or managing facilities.

Victorian Planning Authority (VPA)

The VPA is responsible for providing strategic planning and coordinated infrastructure for the future growth and transformation of Victoria's cities and regions.

Given that the study area includes designated growth corridors, the VPA will have had significant involvement in the planning or provision of regional trails in the study area through Precinct Structure Plans and may continue to do so. This document can be used a guide when working with the VPA to deliver trails within growth corridors.

8.1.3 Service Authorities/Statutory Corporations

VicRoads

VicRoads is the Victorian road and traffic authority. It is a statutory corporation which is responsible for a range of road and transport-related research, strategy, policy and licensing, as well the construction, management and maintenance of assets. While the majority of the activities undertaken by the authority relate to roads for motorised vehicles, VicRoads also has responsibilities relating to pedestrians and cyclists.

VicRoads constructs and maintain on-road cycling facilities as a part of their road construction and maintenance responsibilities. They also construct and manage off-road trails located within road reserves, such as within freeway corridors. Regional trails also frequently intersect with roads, and so the management of these roads (through VicRoads or local government Road Management Plans) can be critical to trail function.

As a part of their activities relating to pedestrian and cycling transport, VicRoads is the body responsible for planning for appropriate infrastructure using a number of planning tools. These include the Principal Bicycle Network (PBN), Strategic Cycling Corridors (SCC), Bicycle Priority Routes (BPR) and the Metropolitan Trail Network (MTN).

The Principal Bicycle Network (PBN) was originally established in 1994 as a bicycle infrastructure planning tool. In 2009 and 2010 VicRoads lead a major review of the PBN, working closely with LGAs and other organisations. The PBN includes both on and off road routes for cyclists, and as a planning tool, also includes both existing and proposed routes.

The 2009-2010 review of the PBN also established Bicycle Priority Routes (BPRs), which create a higher order subset of the PBN. BPRs are identified as ‘providing priority access for cyclists into key destinations’, and so are intended to act as discrete links rather than as an integrated network. To meet the criteria to be defined as a BPR the route needs to have:

- a high potential for separation from motorised modes of transport making routes more attractive to less experienced bike riders
- a sufficiently direct route
- a focus on varying catchments relative to the size of the activity areas.

(source: *Principal Bicycle Network Fact Sheet, VicRoads, August 2012*)

With a focus on separation from motorised traffic, it is not surprising that there is a degree of overlap between BPRs and regional trails.

Strategic Cycling Corridors (SCCs) are also a higher-order subset of the PBN, developed to improve cycling to and around major activity centres in metropolitan Melbourne. These are intended to provide routes catering for high volumes of cyclists.

The Metropolitan Trail Network (MTN) focuses on recreational bicycle and walking routes in metropolitan Melbourne. The MTN was originally developed by Parks Victoria in their *Strategy for Melbourne's Open Space Network: Linking People and Spaces* report 2002, but planning responsibility for the MTN now lies with VicRoads. The MTN is made up primarily of off-road shared trails, often running beside rivers and creeks, but there are some short on-road sections that link off-road sections of trail.

Melbourne Water

Melbourne Water is a statutory corporation operating in accordance with the *Water Act 1989 (Vic)* to manage Victoria's water resources (including Melbourne's water supply and sewerage systems, waterways, drainage, stormwater and recycled water). The relationship that Melbourne Water has with regional trails relates to the ownership and/or management of large areas of land relating to their operations, which also form ideal locations for shared paths.

While Melbourne Water may own the land, their core business and legislative charter does not extend to path construction and maintenance. Instead, Melbourne Water enters into user agreements with LGAs to construct and maintain assets on their land. Typically, Melbourne Water and the local Council have joint maintenance responsibilities, with open space features (bench seats, playgrounds, barbeques, garden beds, etc.) that have a community function being maintained by Council, and elements that are part of the functioning Melbourne Water asset (waterbodies, hydraulic structures, aquatic and edge planting) are Melbourne Water's to maintain. User agreements also address issues such as risk and liability.

Melbourne Water seeks to facilitate the best use of Melbourne Water land and is generally supportive of the development of trails on Melbourne Water-owned land. They have also undertaken work relating to the construction and management of trail assets, such as their *Shared Pathways Guidelines* (Melbourne Water, 2009).

Parks Victoria

Parks Victoria is a statutory authority that operates under the Parks Victoria Act 2018, and is responsible for providing services to the state and its agencies for the management of parks, reserves and other land under the control of the state, including waterways land (within the meaning of the Water Industry Act 1994), for the purposes of conservation, recreation, leisure, tourism or water transport. It is as the manager of land through which trails pass that Parks Victoria is most engaged with regional trails. The minister responsible for administering the Parks Victoria Act is the Minister for Energy, Environment and Climate Change.

VicTrack

VicTrack is a state-owned business created to deliver transport infrastructure for Victoria, operating under the *Transport Integration Act 2010*. VicTrack is the custodial owner of Victoria's railway land and infrastructure.

Railway land is often seen as a desirable location for shared trails, due to the general directness of the route, the relatively flat grades, the opportunities for mixing transport modes. While 'rail trails' often refer to trails built on disused rail lines, there are also regional trails associated with operational rail lines, located within the land buffer either side of the tracks.

VicTrack has a number of personnel dedicated to Third Party Access and Licensing issues within their Property Group, who facilitate usage such as shared trails on VicTrack land. This facilitation usually requires VicTrack to negotiate with the core users of their infrastructure (e.g.. the rail operators).

In addition to these key organisations, management committees and local community groups such as Friends groups often assist with ongoing trial works and maintenance requirements.

8.2 MANAGEMENT ROLES

Of the organisations identified in Section 8.1, only the LGAs and Parks Victoria have roles and responsibilities that span trail planning, construction, management and maintenance.

Land ownership along regional trails is often fragmented. In many cases local government has maintenance responsibility for a trail, but does not own the land upon which it is built. There are many examples of regional trails being built on land owned by authorities such as Melbourne Water and VicTrack (who each own extensive tracts of land but have no trail construction charter). These partnerships, though sometimes complex, are central to the provision of many trails that would otherwise not exist.

The management bodies and scenarios presented here reflect the current situation. Many existing trails were built under different organisational configurations and changes in these structures will inevitably continue into the future.

With increased public demand, and pressure from lobby groups regarding trail provision, the authorities and organisations involved have begun to change. Traditionally, authorities such as Melbourne Water, VicTrack and their predecessors have been conservative organisations that have fulfilled their obligations relating to drainage, railway provision and the like, but have, in general, not supported the use of their land for other purposes. The straightforward approach of restricting public access was preferred over the layered complexities and risk factors associated with allowing it. However this attitude has changed considerably in recent years. Both authorities now have staff responsible for facilitating the use of their land for trails and other purposes and are being more proactive in working through the issues and required agreements associated with this. This has required (and will continue to require) negotiation and compromise, but significant progress is being made to the benefit of trail provision.

There have also been recent changes in the way the state government deals with trail planning and provision. This change reflects a broad shift in thinking regarding trails. Where once they were seen as being primarily for recreation purposes and connecting people to nature, they are now increasingly being seen as also providing an important contribution to an integrated transport network, as well as community health and well-being benefits.

8.3 TRAIL MANAGEMENT OPPORTUNITIES

In reviewing the existing trail management structures, the following key issues have been identified:

- local government has the broadest responsibility for regional trails, but necessarily also has a local focus centred around their rate payers.
- there is a general lack of knowledge about the overall trail network, with information held at a local level being variable in detail and quality.
- there is a general lack of knowledge about trail users, and no existing government body with an interest or responsibility in collecting evidence and data to inform strategic decisions. Where members of the community have feedback on trails, it is directed at LGAs and is therefore usually restricted to local issues.
- regional trails are regularly delivered as a secondary benefit to large infrastructure projects (e.g. freeway construction, level crossing removals and rail duplication). Large scale trail network improvement projects are therefore being implemented in locations convenient to the primary project, but not necessarily the best location for a trail.

Most of the issues identified above stem from the discrepancy between a management structure that is focussed upon the local, and a trail network that is regional. To address this issue, there is an opportunity for input from a group with a regional focus. This regional study is an example of the broader overview able to be taken from this management viewpoint.

The kind of outcomes that could result from a regional group that are difficult to achieve at an LGA level include:

- Lobbying for increased recognition and funding of the regional trail network (potentially including a metropolitan trail strategy to coordinate the regional strategies and the creation of regular state funding grants for trail projects).
- Collation of detailed mapping and data on the regional trail network via Geographic Information Systems (GIS), and shared data arrangements between Councils and other authorities (such as Melbourne Water and Vicroads).
- The negotiation of formal boundary agreements in relation to the management of boundary interfaces.
- Collection of data relating to trail use to help inform regional trail planning and management decisions.
- The development of the trail network in a way that is strategic and regionally-focussed.
- The development of regional marketing and communications approaches for trails, potentially including regional maps of the network.
- The establishment of events at a regional scale that take advantage of the broad trail network.
- The sharing of information and experience between LGAs, for the betterment of the regional trail network.
- The development of consistent infrastructure, including a standard directional signage suite.

To achieve these benefits, it is recommended that the existing Northern Melbourne regional trails working group be retained. The Northern Melbourne LGAs already have a history of working together on various issues including the previous trail strategy and successful funding applications. Working together collectively is seen as a way to respond to challenges posed to individual LGAs, by pooling resources and advocacy/promotion efforts between LGAs for a regional benefit.



9. TRAIL MARKETING

Yuroke Creek Trail

9.1 INTRODUCTION

Drawing the trail network to the attention of people has the potential to play an important role in increasing use of the trails. Many regional trails are located in places where many members of the community may not see them on a day to day basis (e.g.. alongside waterways).

In general, the marketing of the trails has two potential audiences: residents and visitors. However, the large size of the study area means that residents within the study area are also potential visitors within the region. As the motivations and needs of people who use trails as residents or as visitors can be quite different, it is valuable when considering trail marketing to clarify what is meant when referring to 'a resident' and 'a visitor'.

- **Residents** - refer to those who live within the study area using the trails in a way tied to their day to day life (primarily transport/commuting and recreation/exercise).
- **Visitors/tourists** - refer to people who have travelled from where they reside (which could be within the study area) for the purpose of travel including holiday, visiting friends and relatives, and business. Trail usage tends to be motivated by leisure, health and fitness. Within this grouping there are two key subgroups: overnight visitors and day trippers.

For an urban trail network the majority of users would normally be residents and the planning of the network is largely based around their transport and recreation needs. However, trails often provide leisure opportunities in scenic environments that can make them attractive destinations for visitors. The study area also includes a range of visitor destinations where access via trails could be a part of the visitor experience.

This section explores existing and potential marketing of the regional trails within the study area to both resident and visitor audiences.

9.2 CURRENT MARKETING ACTIVITIES

All of the municipalities across the study area provide communications and resources to encourage trail usage and provide information about trail facilities and etiquette of usage. The following table lists examples found on local government web pages within the study area (arranged alphabetically by local government area):

Local government authority	Trail marketing product	Description
Banyule City Council	'Banyule Travelsmart Map' (January 2019)	Downloadable map with some trail information, but also strongly focussed upon public transport.
Darebin City Council	'Darebin Travelsmart Map' (June 2018)	Downloadable map with some trail information, but also strongly focussed upon public transport.
	'Darebin Loves Bikes' community mailing list	Able to be subscribed to via the Darebin Council web page, informing subscribers of 'the City of Darebin's bike events, workshops and fun activities'.
Hume City Council	'Travel Smart Maps'	Covering walking, cycling, public transport routes, places of interest and information on clubs and user groups for Craigieburn/Broadmeadows/Greeenvale, and Sunbury/Bulla. Downloadable PDFs from the council web page.

Merri-bek City Council	Cycle Moreland 'pocket map' (December 2013)	Downloadable map focussed upon cycling routes.
Nillumbik City Council	'Exploring Nillumbik Map' (June 2012)	Downloadable map including places of interest and walking/cycling trails/routes.
Whittlesea City Council	'Explore Whittlesea' web page (www.explorewhittlesea.com.au)	Includes an online interactive map identifying key attractions, but the map does not locate trails. The site highlights two trails (The Metropolitan Ring Road Trail and Darebin Creek Trail) under a 'Sports & Recreation' heading.
Multiple	'The Merri Creek Trail Shared Pathway' map	Prepared collaboratively by multiple organisations, including Darebin, Merri-bek & Yarra City Councils. Accessed via the Merri-bek City Council web page.
Multiple	'Darebin Creek Trail Map' (www.northerntrails.melbourne/DarebinCreek/map.html)	Interactive web-based map. (prepared collaboratively by multiple organisations, Banyule, Darebin, Whittlesea City Councils). Accessible via the Darebin Council web page.

The last two examples in the table above have a more regional approach, covering an area across multiple local government area boundaries. The remainder have a local focus.

At a broader scale, trail marketing does occur at a state level, but is concentrated on key branded nature-based walks (e.g.. Great South West Walk) and North-East Victoria as a cycle tourism destination (incorporating the Murray to Mountains Rail Trail). Tourism promotions relating to Melbourne have typically had a strong focus upon central Melbourne.

9.3 MARKETING TYPES

The following table summarises the kinds of existing and potential marketing types most applicable to regional trails in Northern Melbourne.

Communication method	Pros	Cons
Hard copy maps/brochures	<ul style="list-style-type: none"> • Maps allow route planning and encourage exploration • Meets the needs of a wide variety of users, including those who are not digitally-savvy. • Ideal marketing 'give aways' at events. 	<ul style="list-style-type: none"> • Hard copies not always easy for users to access. • Distribution of hard copies to appropriate locations creates ongoing logistical issues. • Hard copy maps can become out of date very quickly, requiring regular reprints and re-distribution.
Downloadable maps/brochures	<ul style="list-style-type: none"> • Maps allow route planning and encourage exploration • Accessible to most people any time • Can be readily accessed and printed by users who prefer hard copy maps 	<ul style="list-style-type: none"> • Can become out of date very quickly if not updated.
Interactive online maps/brochures	<ul style="list-style-type: none"> • Maps allow route planning and encourage exploration • Accessible to most people any time • Potential for information to be updated in real time 	<ul style="list-style-type: none"> • An expectation by users that maps are always up to date, which is beyond the current capability of most Councils. This typically means a reliance upon third parties to provide mapping, which can limit the opportunity for controlling what is shown and how it is presented.
Social media	<ul style="list-style-type: none"> • Local government authorities have social media teams who are skilled at communicating via this media. • Opportunities to answer queries and interact in person. • Potential for information to be updated in real time. 	<ul style="list-style-type: none"> • The broad scope of Council activities means that trail-related information will always be a very small proportion of communications. • A need to monitor activity and manage negative aspects of open public participation.
Email mailing lists	<ul style="list-style-type: none"> • Provides an opportunity to communicate directly with interested people. 	<ul style="list-style-type: none"> • Communications targeted to already engaged parties, rather than reaching new users.
Events	<ul style="list-style-type: none"> • Create a focal point for communications • Can encourage people to overcome participation hurdles in order to participate, which can lead to ongoing use. 	<ul style="list-style-type: none"> • Usually require a lot of organisation and resources to be well attended and effective.
On-trail signs/advertising	<ul style="list-style-type: none"> • A very targeted method of communication, talking directly to trail users. 	<ul style="list-style-type: none"> • Communications targeted to already engaged parties, rather than reaching new users.
Commercial advertising	<ul style="list-style-type: none"> • Potential to reach large new audiences. 	<ul style="list-style-type: none"> • Requires a well thought-out strategy to ensure it is targeted and effective. • Cost

9.4 TOURISM POTENTIAL

Trails that appeal to visitors can be broadly categorised into three types:

- **Scenic trails** – these are a destination in themselves and are enjoyed for their scenic features for example the Plenty River Trail.
- **Touring trails** – these provide connectivity to a range of facilities and services near the trails. The trail's major function is as a transport route, even though it may also have some scenic value, i.e. the Merri Creek Trail.
- **Experience trails** – these are themed to provide an experience along the trail, usually taking advantage of distinctive local features and themes. This kind of trail may also focus on linking the user to a range of complementary experiences located close to the trail e.g.. a local produce trail.

The definitions above are perhaps most closely associated with rural trails and trails through natural areas. The study area certainly has attractive rural and natural areas that have potential in relation to trails. The study area also has some very urban landscapes that may be equally valuable from a tourism perspective. The recent tourism focus on things like street art in central Melbourne laneways provides an example.

The challenge in developing a trail for tourism is differentiating it from the many kilometres of other trails that exist around the state that are also competing for users. Some potential points of differentiation include:

- **Proximity** - While trails in regional Victoria are very popular (i.e. Murray to Mountains or the Lilydale-Warburton Rail Trail), most users need to travel to access them. This often includes the need to transport bicycles, which can be logistically difficult. Trails with a similar rural character can be accessed by bicycle or public transport in Northern Melbourne by many Melbourne residents.
- **Urban character** - The urban areas of Northern Melbourne include a high density of cultural and commercial activities, including things like art galleries, cafes and breweries that are highly compatible with an urban trail experience.

9.5 GOALS AND POTENTIAL TARGET MARKETS

9.5.1 Marketing goals

Marketing Goals for Regional Trails include:

- To increase the number of residents who use the trails to improve their health and well-being, with a particular focus on resident groups who undertake the least physical activity, or for whom trail usage would address a particular social disadvantage.
- To increase trail usage by residents to commute to work, school and other leisure facilities.
- To increase visitor usage of the trails
- To increase length of stay and expenditure in the region by visitors and local residents associated with trail experiences.
- To create new and improved trail experiences that are enjoyed by residents and visitors.

9.5.2 Potential Target Markets

Residents

The target markets for trail development, communication and promotions continue to be all current resident markets, with a particular emphasis on those who will gain most from the mobility, health and social and benefits offered by trails.

Visitors

In terms of visitor origin, target markets for the trails should include those who are:

- Living in other parts of the project region,
- Living in greater Melbourne, and
- Visiting Friends and Relatives of those living in these areas.

These markets most closely align with current marketing activities, and are the most cost-effective use of promotional resources. The Visiting Friends and Relatives market can be reached through targeting Melbourne residents and encouraging them to take their visitors to the region's trails. This creates a visitor market benefit from resident-focussed marketing activities.

9.6 MARKETING OPPORTUNITIES

The marketing objectives for regional trails in Northern Melbourne are:

- To increase motivation to visit the trails
- To raise the profile of the trails
- To provide appropriate information about trail usage and associated services/ destinations so people can use the trails easily, safely and enjoyably.

Actions include:

Develop the regional trails product offering and branding

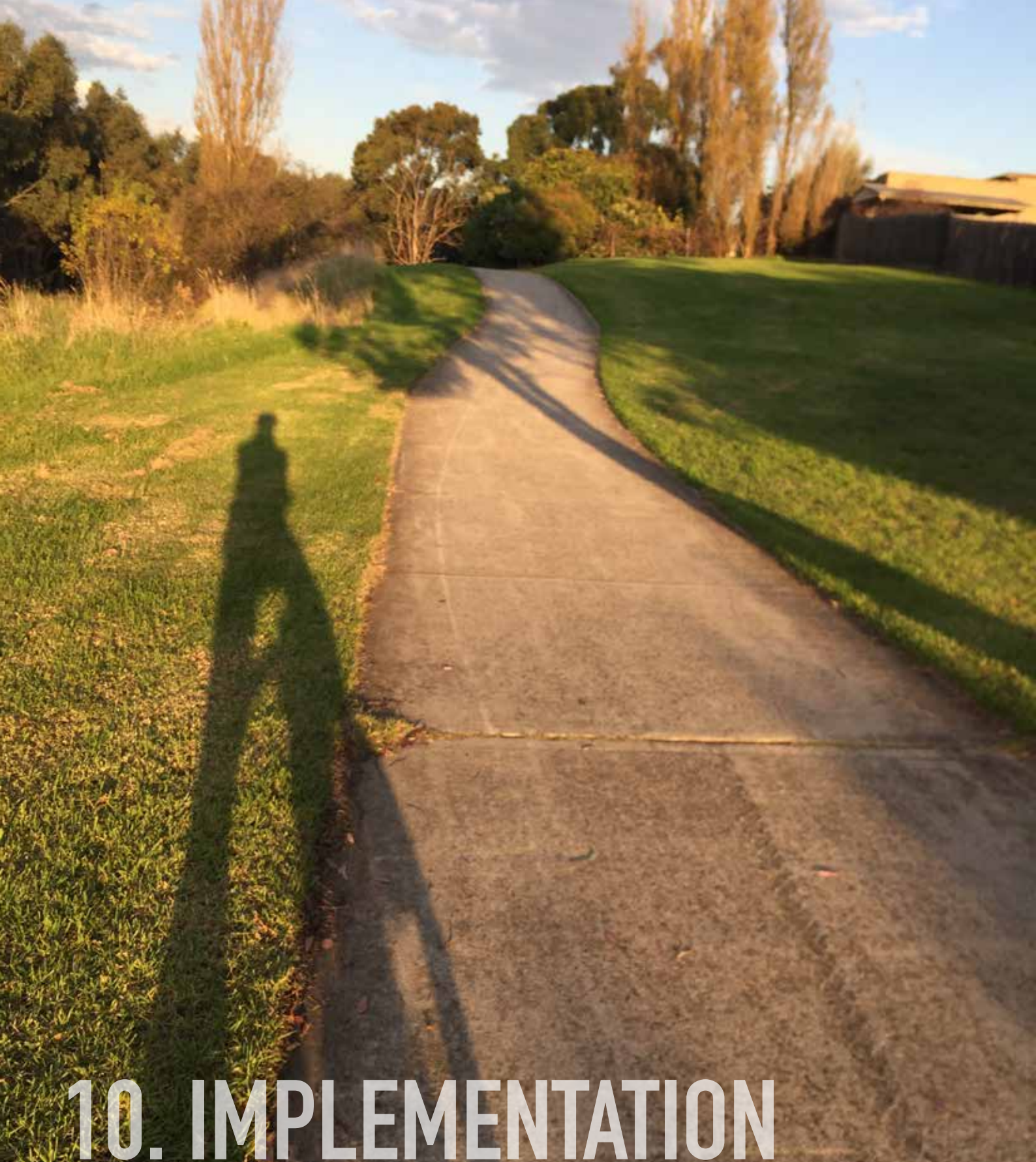
- Develop a series of themed trail-based itineraries across the region that are tailored to a variety of different trail users and their interests, e.g. trail experiences for families that can be undertaken over a weekend featuring low-risk, low impact activities, and the time it takes to do them; identify complementary leisure activities, hospitality and facilities, such as bike hire, etc.
- Encourage tourism operators in the relevant parts of the region to develop trail-themed packages which provide services that meet the needs of trail users, e.g. substantial nutritious food, bike storage, nearby accommodation, etc.

Provide additional information about trails

- Devise a suite of messages about each trail that is regularly refreshed, which is consistently communicated by all stakeholders, including regional tourism organisations.
- Increase the level of information about regional trails on visitor-focused websites, such as Visit Victoria's consumer website (visitvictoria.com.au), and websites appealing to trail users (e.g.. trail cycling, walking or running sites).
- Investigate the potential to develop a regional trails app or website which would be kept up-to-date with the latest trails information. The app or website could be maintained by an external contractor.
- Develop a social media strategy to build awareness about the region's trails.
- Develop an Events Calendar for the trails which can be promoted by all relevant stakeholders.

Trail management & funding

- Develop a formal collaborative structure between the region's councils to guide the development and promotion of regional trails. The collaboration should be adequately funded to outsource key marketing activities, with participating councils guiding the decision making.
- Secure additional funds to undertake more promotion of regional trails to visitor and resident markets, and to support a collaborative structure involving the region's councils for trail marketing and development purposes.



Darebin Creek Trail

10.1 INTRODUCTION

Two kinds of action items associated with improving the regional trail network in Northern Melbourne have been identified:

- **Region-wide items** - these items are recommendations regarding the broader management and operation of the trail network. These are summarised below.
- **Trail-specific items** - these trail improvement projects have been assessed against criteria to determine their relative prioritisation.

10.2 REGION-WIDE ACTION ITEMS

The key region-wide action items are summarised below (based upon recommendations made throughout this document).

Category	Recommended actions
Trail infrastructure	<ul style="list-style-type: none"> • Develop and implement a standard suite of directional signs for regional trails in Northern Melbourne. • Implement the Trail infrastructure standards and guidelines as identified in this document (refer to Chapter 7).
Trail management	<ul style="list-style-type: none"> • Ensure the Northern Regional Trails working group continue to meet regularly, in order to: <ul style="list-style-type: none"> - Lobby for trail funding. - Undertake strategic planning of the regional trail network, informed by data collected and shared about the network and users. - Promote the regional trail network.
Trail marketing	<ul style="list-style-type: none"> • Develop the regional trails product offering and branding <ul style="list-style-type: none"> - Develop a series of themed trail-based itineraries across the region that are tailored to a variety of different trail users and their interests - Encourage tourism operators in the relevant parts of the region to develop trail-themed packages which provide services that meet the needs of trail users • Provide additional information about trails <ul style="list-style-type: none"> - Devise a suite of messages about each trail that is regularly refreshed, which is consistently communicated by all stakeholders, including regional tourism organisations. - Increase the level of information about regional trails on visitor-focused websites and websites appealing to trail users. - Investigate the potential to develop a regional trails app or website which would be kept up-to-date with the latest trails information. - Develop a social media strategy to build awareness about the region's trails. - Develop an Events Calendar for the trails which can be promoted by all relevant stakeholders. • Trail management & funding <ul style="list-style-type: none"> - Develop a formal collaborative structure between the region's councils to guide the development and promotion of regional trails. - Secure additional funds to undertake more promotion of regional trails to visitor and resident markets, and to support a collaborative structure involving the region's councils for trail marketing and development purposes.

10.3 TRAIL-SPECIFIC ACTION ITEMS

A number of trail-specific action items were identified through various phases of the project such as the desktop assessment, strategic document review, trail audit, and the community and stakeholder engagement. These action items, which range from signage projects which can potentially be undertaken by a single Council, to extensive lengths of new trail requiring coordination between Councils and other land owners/ managers, aim to provide a comprehensive and connected trail network.

This list of trail improvement projects are itemised into a schedule which can be found in Appendix B and/ or cross referenced to the trail maps in chapter 6.

Following the identification of the trail improvement projects, each action item was assessed using a multi-criteria analysis in order to identify priority projects that provide the most benefit to the region and most closely align with the objectives of this study. In order to undertake this process, a series of criteria was developed.

10.3.1 The Criteria

Following analysis of the multi-criteria analysis used in the 2016 Northern Trails Strategy, a new set of criteria is proposed based on the strategy's vision and the criteria from the previous strategy. This qualitative and quantitative criteria has been developed in collaboration with the Project Steering Group to assess potential trail improvement projects against the key objectives of the study.

It should be noted that the assessment method used has provided a useful prioritisation tool but it is not scientific. While the method used does rank projects in order, the accuracy of the method means that it is best used to provide only broad groupings regarding relative priorities.

The eight criteria and the relative weighting used are as follows:

1. Contribution to an integrated and connected network (26%)

Including linking to other regional and local trails, not having 'missing links', and linking to key destinations such as regional parks and conservation areas, tourism destinations, regional leisure centres, tertiary institutions, activity centres and business parks, and recreational water bodies.

Rationale: Trail improvement works that create an integrated and connected, network will be more useful and convenient for users, increasing the use of the trail.

2. Encouraging use by spatial location (18%)

Including the proximity of trails to population centres and transport hubs.

Rationale: Trail improvement works located close to dense population centres are more likely to attract higher numbers of users.

3. Potential economic benefits (5%)

Including commercial opportunities for local communities as well as cost savings associated with reduced ongoing operational costs such as maintenance.

Rationale: Trail improvement works that provide economic benefits potentially contribute to capital being available for additional trail improvement works. Works that can demonstrate a strong economic 'business case' also have a better chance of being implemented.

4. Contribution to community health and well-being (5%)

Including trails maximising opportunities for the use of the trails for active transport, recreation and social interaction. This includes improvements that positively contribute to a trails recreation values and actions that actively encourage new users to the trails.

Rationale: Trail improvement works that help to encourage health and well-being provide positive contributions the 'social' aspect of a triple bottom line assessment.

5. Contribution to uniqueness and the quality of the natural environment (18%)

Including trails that provide access to natural environments, features and other 'selling points' that make them more attractive to users, including tourists. Provision of trails should also minimise negative impacts on the natural environment.

Rationale: Trail improvement works that help to increase the attractiveness or positive uniqueness of a trail will make people more likely to use the trail, and also opens up potential economic benefits. This criteria will often relate to the enhancement of environmental values, providing positive contributions the 'environmental' aspect of a triple bottom line assessment.

6. Encouraging diversity of use through facility quality and maximising usability (5%)

Including improving accessibility, safety, legibility, facility diversity and the broader user experience of trails.

Rationale: Maximising the safety of trails is a non-negotiable principle of trail provision. People are also more likely to use trails if they appeal to a diverse range of users, are accessible, safe, legible and provide a positive user experience.

7. Strategic alignment (18%)

Level of support from and alignment with adopted strategies and plans and external stakeholder plans.

Rationale: Trail improvement works that fit with broader strategies, policies and plans help to ensure that works to improve the network are all 'pulling in the same direction'.

8. Ease of implementation (5%)

Including projects that are considered to be 'easy wins', are supported by all stakeholders, are easy to construct, are 'shovel ready' or are considered 'feasible', or are relatively low cost.

Rationale: Trails improvements works that are easy to implement are more likely to be implemented in a timely and efficient manner.

10.3.2 Priority trail improvement projects

The following schedules itemise the priority trail improvement projects identified by the multi-criteria analysis where each project was assessed against the criteria discussed above. These projects can be cross-referenced to the trail maps in chapter 6, using the trail name and identification number. It is important to note that the trail improvement projects that have been identified outline the priorities for the Northern Region and the whole regional trail network, as opposed to individual Councils.

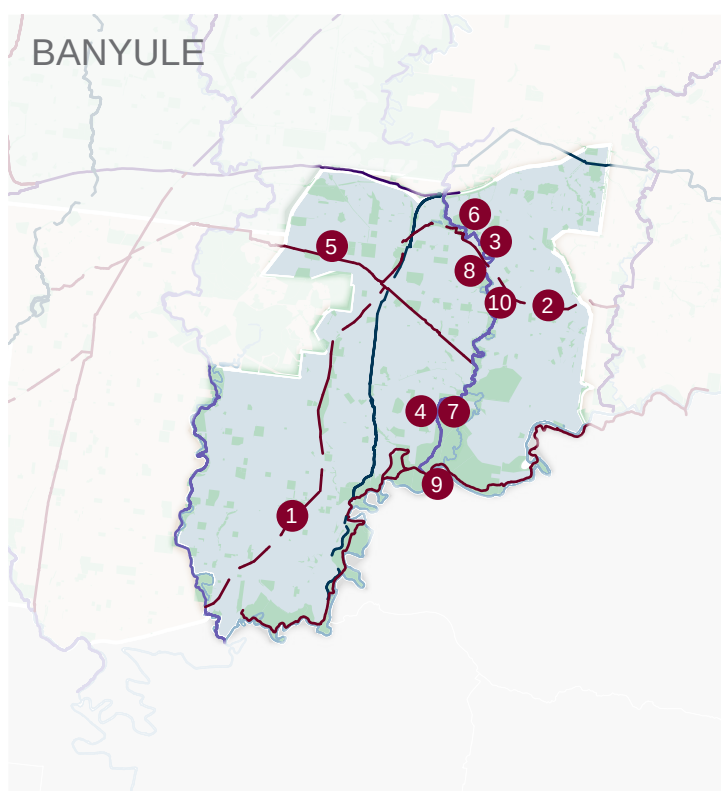
Of the 190 trail improvement projects identified, 25 have already been funded or will be funded through interrelated projects and developments. These projects have been committed to and as such have not been included in the lists below.

The overall top ten priority trail improvement projects for the Northern Region are:

No.	Trail action item	Project description
1	Maroondah Aqueduct_01	Construct new section of trail connecting the Plenty River Trail near Lear Court, east along the aqueduct across Diamond Creek Road to the Diamond Creek Trail at Allendale Road.
2	MerriCreekTrail_08	Complete missing section of trail from the Metropolitan Ring Road to existing section of trail south of Horne Street
3	Maroondah Aqueduct_02	Extend the Maroondah Aqueduct Trail through to Yarra Glen. Two options have been identified for this extension: i. Construct a new section of trail from the existing Aqueduct Trail at Calwell Road through to Ashmore Road and on to Yarra Glen; or ii. Construct a new section of trail from the existing Aqueduct Trail at Calwell Road via the Melbourne Water Caretakers trail to Ashmore Road and on to Yarra Glen.
4	EdgarsCreekTrail_01	Construct new section of trail from the Merri Creek Trail to Ronald Street on the west bank
5	MerriCreekTrail_02	Partner with Parks Victoria and DELWP to extend the Merri Creek Trail from Merri Concourse (north) to Cooper Street
6	UpfieldRail_02	Advocate to Department of Transport to construct a new section of trail from the Metropolitan Ring Road to Somerton Road
7	WhittleseaShared_01	Construct a new trail from Mernda Station to Whittlesea. Ensure there is provision for horse riders on parts of the trail
8	MerriCreekTrail_03	Advocate for and investigate the staged extension of the Merri Creek Trail from Cooper Street Somerton/Epping north to OHerns Road as a part of the Upper Merri Creek Regional Parkland Plan.
9	MerriCreekTrail_04	Advocate for and investigate the staged extension of the Merri Creek Trail from OHerns Road to Craigieburn Road as a part of the Upper Merri Creek Regional Parkland Plan.
10	KinglakeWay_01	Establish a new trail from Hurstbridge to Arthurs Creek.

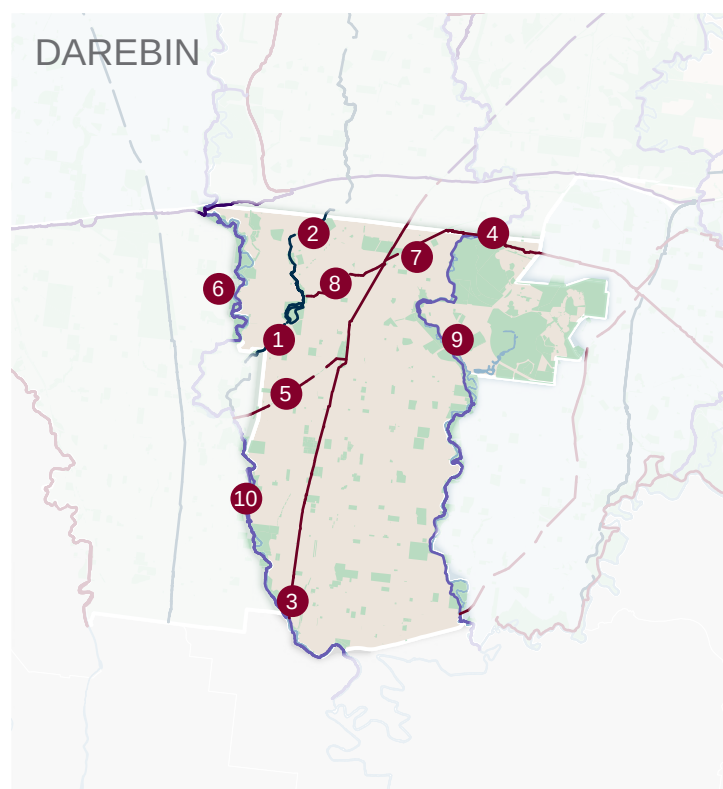
The top ten priority trail improvement projects within the municipality of Banyule are:

No.	Trail action item	Project description
1	Hurstbridge RailTrail_01	Construct a new section of trail along the Hurstbridge rail line from the Darebin Creek Trail north to Macleod Station
2	Hurstbridge RailTrail_04	Construct a new section of trail along the Hurstbridge rail line from the Plenty River Trail to the Diamond Creek Trail
3	PlentyRiver_07	Construct a new section of trail at Bicton Street
4	PlentyRiver_11	Upgrade pedestrian bridges on the Plenty River Trail where required and improve sight lines where appropriate
5	EastWestPower_07	Investigate options for providing a new section of trail from Dilkara Avenue to Gleeson Drive
6	PlentyRiver_06	Improve wayfinding signage at Poulter Reserve to direct users to the wider trail network west of the reserve
7	PlentyRiver_10	Improve wayfinding signage along the length of the trail
8	PlentyRiver_12	Investigate the feasibility of realigning the Plenty River Trail to the eastern bank of the Plenty River between George Court and Para Road in order to avoid the steep grade on the west bank
9	YarraTrail_08	Construct a bridge crossing over the Yarra River to Birrarrung Park
10	PlentyRiver_08	Upgrade and widen section of trail with wayfinding signage at Montmorency Park



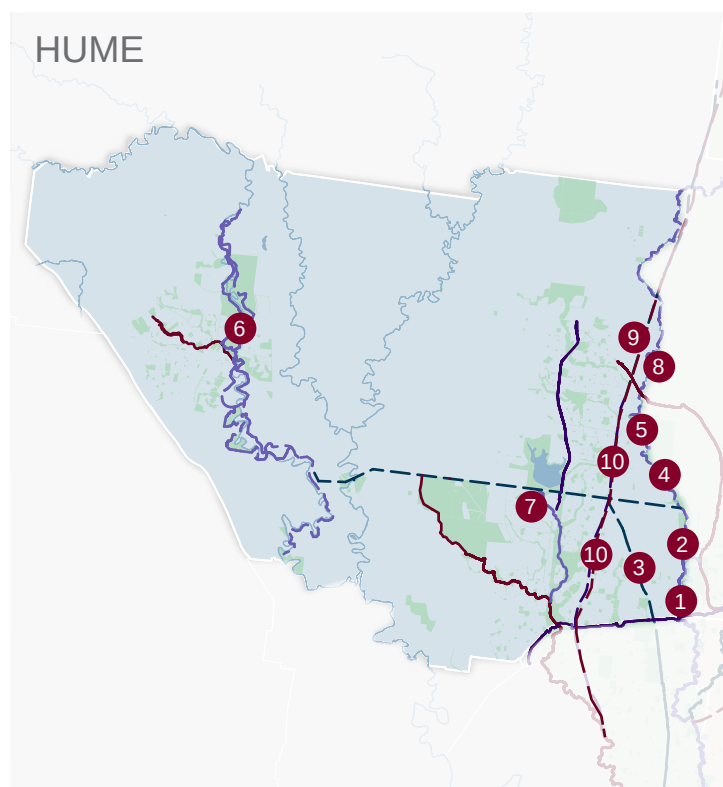
The top ten priority trail improvement projects within the municipality of Darebin are:

No.	Trail action item	Project description
1	EdgarsCreekTrail_04	Investigate a new section of trail along the creek from Carrington Road to Edwardes Lake. Explore the feasibility of a trail between Kia Ora Road and Henty Street on the east bank.
2	EdgarsCreekTrail_08	Construct a section of trail along the creek from Glasgow Avenue to the Metropolitan Ring Road
3	NorthernPipeTrail_02	Improve access at the St Georges Rd/Merri Parade/ Charles St intersection to connect the Merri Creek Trail to the Northern Pipe Trail and create a direct access point to and from the trail with pedestrian and cyclist priority
4	EastWestPower_05	Investigate the feasibility of a new section of trail, including a new bridge crossing, from the Darebin Creek Trail, at Holt Parade, around Mount Cooper to connect to the existing section of trail at Snake Gully Drive
5	NorthernPipeTrail_06	Investigate a new section of trail from High Street (near the Melbourne Water Reservoirs) along the vacant pipe reserve to the Merri Creek Trail at Murray Road. Existing road crossings to be considered.
6	MerriCreekTrail_20	Provide wayfinding signage along the length of the trail
7	EastWestPower_02	Construct a section of trail from the Northern Pipe/ St Georges Rd/ Cheddar Road Trail north east along the vacant pipe reserve
8	EastWestPower_03	Construct a section of trail from the Northern Pipe/ St Georges Rd/ Cheddar Road Trail south east along the vacant pipe reserve to Edwardes Lake Park
9	DarebinCreek_03	Investigate the feasibility of an underpass or bridge crossing Plenty Road intersection to avoid section of trail on Plenty Road footpath
10	MerriCreekTrail_15	Replace the Harding Street Bridge to cater for shared use



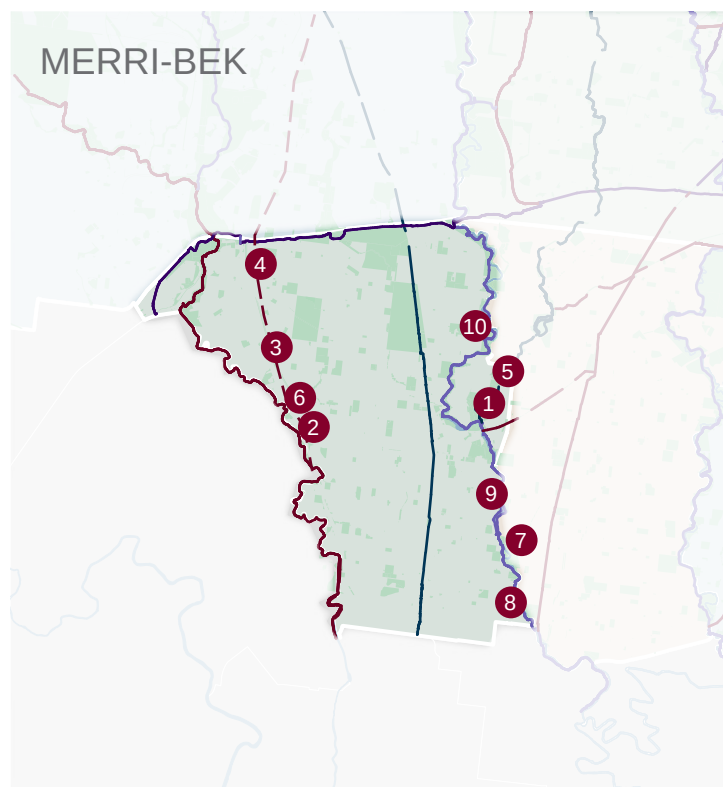
The top ten priority trail improvement projects within the municipality of Hume are:

No.	Trail action item	Project description
1	MerriCreekTrail_08	Complete missing section of trail from the Metropolitan Ring Road to existing section of trail south of Horne Street
2	MerriCreekTrail_02	Partner with Parks Victoria and DELWP to extend the Merri Creek Trail from Merri Concourse (north) to Cooper Street
3	UpfieldRail_02	Advocate to Department of Transport to construct a new section of trail from the Metropolitan Ring Road to Somerton Road
4	MerriCreekTrail_03	Advocate for and investigate the staged extension of the Merri Creek Trail from Coopers Street Somerton/Epping north to and along Oherns Road both east and west as part of the Upper Merri Creek Regional Parkland Plan
5	MerriCreekTrail_04	Advocate for and investigate the staged extension of the Merri Creek Trail from Oherns Road to Craigieburn Road as part of the Upper Merri Creek Regional Parkland Plan
6	JacksonsCreek_02	Plan and investigate the staged construction of trails on both sides of the Jacksons Creek with project partners and other landholders in line with the priorities of the Jacksons Creek biik wurrdha Regional Parklands Plan
7	YurokeCreek_01	Partner with Melbourne Water and MRPV to plan and construct new section of trail along the Melbourne Water Pipe Track from Greenvale Reservoir Park south to the existing section of the Yuroke Creek Trail, including a safe crossing option for Somerton Road
8	MerriCreekTrail_05	Advocate for and investigate the extension of the Merri Creek Trail from Craigieburn Road to Summerhill Road as part of the Upper Merri Creek Regional Parkland Plan
9	AmarooPipeTrack_01	Investigate options for a new trail along the sewer easement from Craigieburn Station heading north (Hume)
10	Craigieburn SharedPath_07	Advocate for a feasibility study for a new continuous shared path from Jacana Station to McConnell Crescent (north of Roxburgh Park Station)
	Craigieburn SharedPath_09	Further investigate opportunities for a new continuous shared path from Zambezi Court Reserve to Craigieburn Station



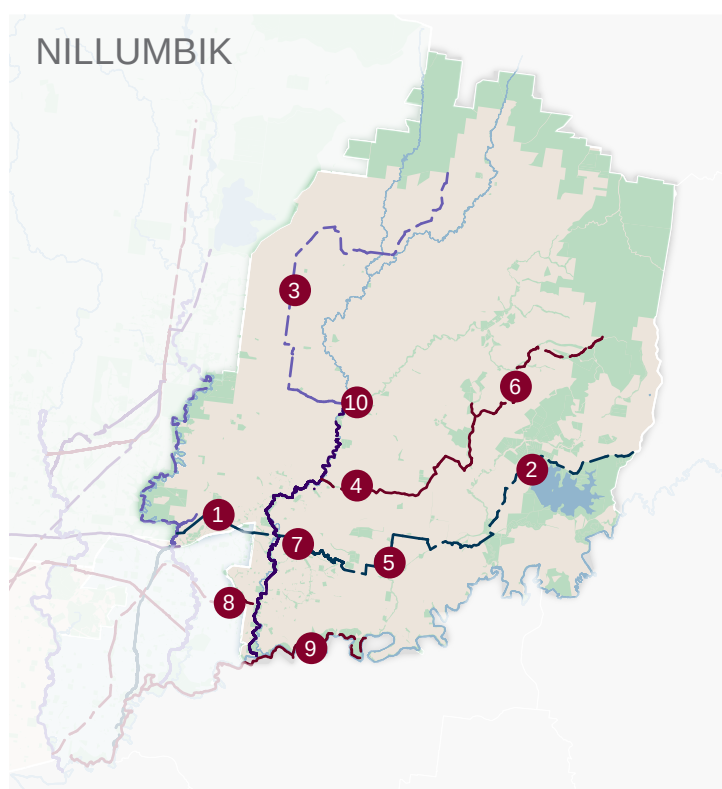
The top ten priority trail improvement projects within the municipality of Merri-bek are:

No.	Trail action item	Project description
1	EdgarsCreekTrail_01	Construct new section of trail from the Merri Creek Trail to Ronald Street on the west bank
2	Craigieburn SharedPath_01	Construct new section of trail from the Moonee Ponds Creek Trail to Gaffney Street
3	Craigieburn SharedPath_04	Construct a new section of trail, on the western side of the train line, from Cartwright Street to Glenroy Road including fencing and lighting
4	Craigieburn SharedPath_06	Construct a new section of trail, on the eastern side of the train line, from Glenroy Station to Jacana Station including fencing and lighting
5	EdgarsCreekTrail_02	Construct new section of trail from Ronald Street to Carrington Road. Consider keeping the trail away from the creek and along development frontages
6	Craigieburn SharedPath_03	Construct a new section of trail, on the western side of the train line, from Bothwell Street to Devon Road including retaining, fencing and lighting
7	MerriCreekTrail_20	Provide wayfinding signage along the length of the trail
8	MerriCreekTrail_12	Relocate and widen trail from Merri Creek Primary School to Sumner Park outside of the flood zone
9	MerriCreekTrail_15	Replace the Harding Street Bridge to cater for shared use
10	MerriCreekTrail_18	Construct a new section of trail from Vervale Avenue to the bridge crossing to the north to provide an alternative route with a gentler grade.



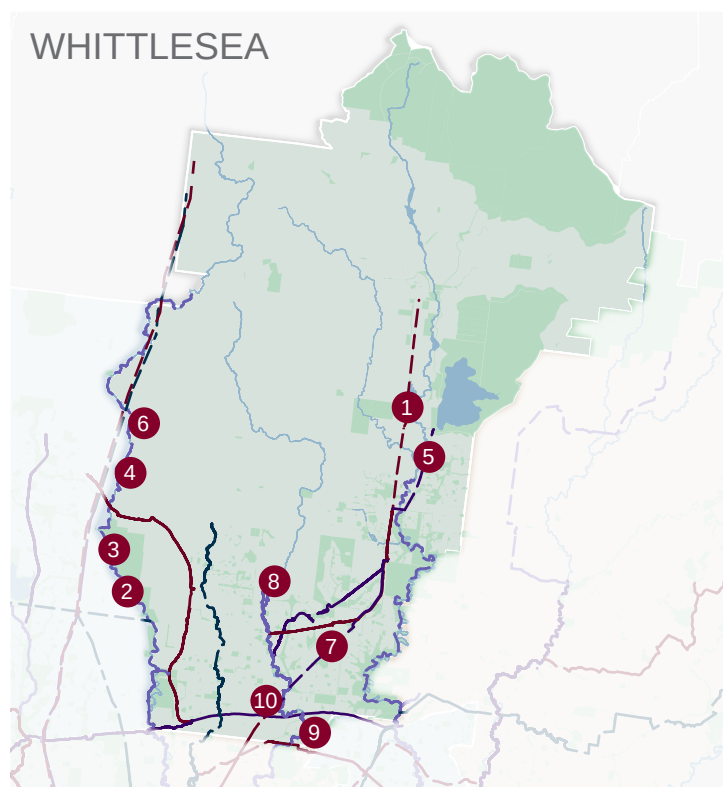
The top ten priority trail improvement projects within the municipality of Nillumbik are:

No.	Trail action item	Project description
1	Maroondah Aqueduct_01	Construct new section of trail connecting the Plenty River Trail near Lear Court, east along the aqueduct across Diamond Creek Road to the Diamond Creek Trail at Allendale Road.
2	Maroondah Aqueduct_02	Extend the Maroondah Aqueduct Trail through to Yarra Glen. Two options have been identified for this extension: i. Construct a new section of trail from the existing Aqueduct Trail at Calwell Road through to Ashmore Road and on to Yarra Glen; or ii. Construct a new section of trail from the existing Aqueduct Trail at Calwell Road via the Melbourne Water Caretakers trail to Ashmore Road and on to Yarra Glen.
3	KinglakeWay_01	Establish a new trail from Hurstbridge to Arthurs Creek
4	GreenWedge_01	Construct a new section of trail east from the Diamond Creek Trail at Wattle Glen Station along Watery Gully Creek to existing trail on Watery Gully Road
5	Maroondah Aqueduct_03	Construct new section of trail from existing Aqueduct Trail at Main Road. New trail to head south east to cross over Bells Hill Road, continuing east then north to meet to Eltham-Yarra Glen Road. Head east along Eltham-Yarra Glen Road, north alongside New Road, then east alongside Donaldson Road. The trail then continues north alongside Eltham-Yarra Glen Road before turning south alongside Henley Road where it will connect with the existing Aqueduct Trail.
6	GreenWedge_04	Construct an extension of the trail from the intersection of Clintons Road and Spanish Gully Road to the Marshalls Road car park within the Kinglake National Park
7	Maroondah Aqueduct_04	Extend the trail west from Godber Road to connect to the Diamond Creek Trail
8	Hurstbridge RailTrail_04	Construct a new section of trail along the Hurstbridge rail line from the Plenty River Trail to the Diamond Creek Trail
9	YarraTrail_07	Construct shared use trail from the Mullum Mullum Creek Trail to the Warrandyte State Park.
10	DiamondCreek_02	Construct new section of trail from Graysharps Road to Fergusons Paddock



The top ten priority trail improvement projects within the municipality of Whittlesea are:

No.	Trail action item	Project description
1	WhittleseaShared_01	Construct a new trail from Mernda Station to Whittlesea. Ensure there is provision for horse riders on parts of the trail
2	MerriCreekTrail_03	Advocate for and investigate the staged extension of the Merri Creek Trail from Coopers Street Somerton/Epping north to and along Oherns Road both east and west as part of the Upper Merri Creek Regional Parkland Plan
3	MerriCreekTrail_04	Advocate for and investigate the staged extension of the Merri Creek Trail from Oherns Road to Craigieburn Road as part of the Upper Merri Creek Regional Parkland Plan
4	MerriCreekTrail_05	Advocate for and investigate the extension of the Merri Creek Trail from Craigieburn Road to Summerhill Road as part of the Upper Merri Creek Regional Parkland Plan
5	YanYeanPipeTrack_04	Construct a new section of trail from Bridge Inn Road to the Yan Yean Reservoir and creating a connection to the Plenty River Trail
6	MerriCreekTrail_06	Extend the Merri Creek Trail from Summerhill Road to Donnybrook Road
7	YanYeanPipeTrack_03	Construct a new section of trail from Childs Road to McDonalds Road and the Plenty Valley Activity Centre
8	DarebinCreek_01	Construct a new section of trail on the western side of creek from the train underpass east of Epping Station to Greenbrook Drive
9	EastWestPower_04	Construct a section of trail along Holt Parade to connect to the Darebin Creek Trail (at Valley Road)
10	YanYeanPipeTrack_01	Construct a new section of trail from The Metropolitan Ring Road Trail and the Northern Pipe/Cheddar Road Trail to the Darebin Creek Trail



10.3.3 Project filters

Due to the wide variety in project types, and to allow project types to be easily sorted for comparison, a series of 'filters' were also developed in collaboration with the Project Working Group. These filters, which can be found in Appendix B include:

- **Location** - relevant Council/s involved in the project.
- **Significant prerequisites and considerations** - including any additional information that may be relevant to the delivery of the action item such as development or major infrastructure that could be leveraged off, significant constraints such as topographical, ecological or cultural considerations, or other strategic work that may be underway.
- **Stakeholders** - identifies other relevant stakeholders and land owners (e.g. Melbourne Water, VicRoads and VicTrack).
- **Project cost** - broken down into broad groupings:
 - Small (S) - \$0-50,000
 - Medium (M) - \$50,000-250,000
 - Large (L) - \$250,000-1M
 - Extra Large (XL) - \$1M+

The intention behind these filters is to provide relevant information regarding each of the potential trail improvement projects, but also to enable the sorting of the projects by these categories. Using these filters Councils are able to identify a project based on specific requirements regarding the filter categories.

The top ten projects identified during the multi-criteria analysis process outline the priority projects for the Northern Region however there may be instances where a grant or funding opportunity arises that is suited to a trail improvement project that is not highly ranked according to the multi-criteria analysis. In these instances, projects can be sorted using the filters to identify suitable projects for implementation or funding applications. For example, a grant may become available for a project that is low cost and located in a growth area. Whilst none of the top ten priority projects fit the specifications for this grant, *WhittleseaRail_03 (Provide wayfinding signage along the length of the trail)* satisfies all the requirements.

10.4 COST BENEFIT ANALYSIS

A cost benefit analysis (CBA) was undertaken by SGS Economics and Planning in order to assess the merit of the proposed trail improvements and to inform due diligence and investment decision making processes by the Northern Regional Councils. SGS modelled the social, economic and environmental costs and benefits of delivering the trail improvements. It shows the project is expected to generate a net present value of around \$114 million and a benefit cost ratio of 1.6. This indicates that benefits directly attributable to the project will be around 1.6 times that of the investment over the appraisal period.

The CBA considers the project case; 10-year staged expansion of the Northern Regional Trails Network, against a counterfactual base case, whereby no additional capital works are undertaken. Only the incremental change between the project case and base case scenario was modelled as a benefit/cost. That is, the change that is directly generated by project case. The assessment has modelled a 30-year benefit period, and standard economic outputs were calculated using a seven per cent discount rate.

Three benefits have been monetised within the CBA. These are:

- Health benefits of increased walking and cycling
- Transport network benefits due to a shift in mode share from private vehicle to active transport modes
- Leisure and recreation benefits associated with increased use of the trail network.

Realisation of these benefits is underpinned by an increase in trail demand associated with the project; in particular, an increase in the distance and time that people walk and/or cycle. Demand forecasts undertaken as part of the analysis indicate that use of the Northern Regional Trail Network will increase by around 33 per cent once the entire planned network is delivered. Around two thirds of this uplift would be associated with existing users using the trail more frequently, and one third of the uplift is associated with new users.

Benefit component	Undiscounted values (\$m)	Present value (7%) discount rate (\$m)	% Of total benefits (present value) (\$m)
Present value of health benefit	\$541.7	\$180.2	62%
Present value of transport network benefits	\$34.9	\$11.6	4%
Present value of leisure and recreation benefits	\$296.5	\$98.6	34%
Total	\$873.2	\$290.5	100%

FIGURE 10.1:
Present benefit values

Under a seven per cent discount rate, the project results in a net present value (NPV) of around \$114 million and a benefit cost ratio (BCR) of 1.6. This means that for each \$1 invested, a welfare gain of \$1.6 is realised.

Costs exceed benefits until FY2037, at which point costs increase marginally as per OPEX assumptions, while benefits increase rapidly as users enjoy and gain value from an improved and expanded network., (refer to Figure 10.2).

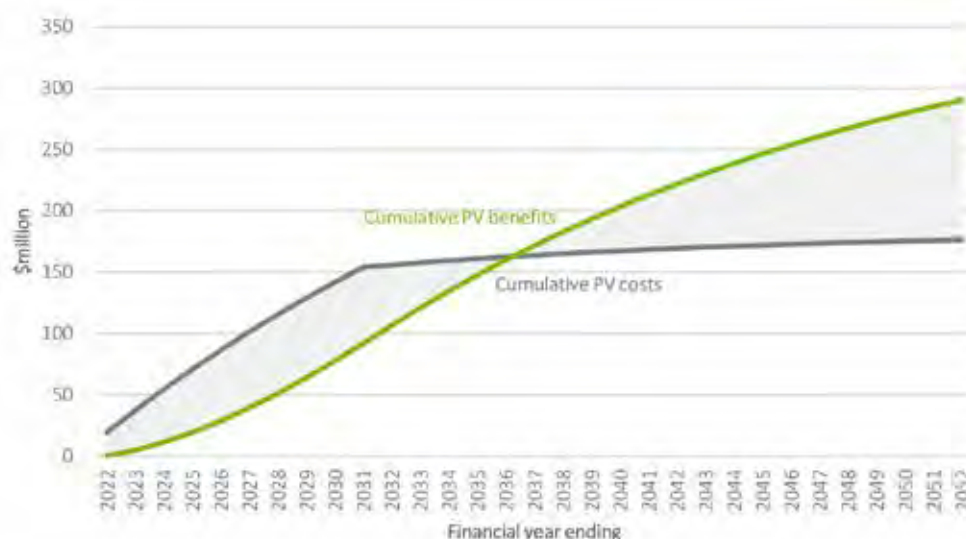


FIGURE 10.2:
Cumulative Net Present Value.
Source: SGS Economics and Planning, 2021

The analysis undertaken by SGS indicates that the Northern Regional Trails network project is economically warranted with consideration of monetised benefits. The case is strengthened when non-monetised benefits are considered. In particular, the upgrade and expansion of the Northern Regional Trails network has potential to lead to increased economic value added derived from additional tourism expenditure, stimulate local businesses, and enhance community cohesion and education opportunities.

For the full Cost Benefit Analysis Report, refer to Appendix C.

10.5 FUNDING THE TRAILS

The 2016 Northern Regional Trails Strategy successfully leveraged approximately \$11 million of State Government funding in the last 3 years to deliver key priorities identified in the strategy. Budget allocations for Councils were also given a framework for the planning and delivery of priority trail projects within individual municipalities.

Since the endorsement of the previous plan, the physical landscape of the region has undergone significant change through the delivery of new and future major infrastructure projects. A global pandemic has also impacted the community's reliance on public recreation facilities and the frequency of which the trails are used. During lock downs in 2020 and 2021, regional trails across metropolitan Melbourne reported significant increases in use. As a result, the State Government (who has been the main funding body for the Northern Trails in recent years) has introduced some initiatives that will assist in funding and delivering the open space and trails across the metropolitan regions including the Northern Trails network:

The Growing Suburbs Fund:

The Growing Suburbs fund is a \$375M investment by the State Government over 7 years to assist local government in the task of delivering new local infrastructure including trails. It's anticipated that this funding scheme will drive trail development of the coming years.

Suburban Parks Program:

The Victorian Government is investing \$154 million to deliver 6,500 hectares of new and upgraded parks and trail as part of the Suburban Parks Program. This initiative has already assisted in securing funding via DELWP and will continue to assist in the funding and delivery of the following trails:

- Jacksons Creek Trail as part of the Jacksons Creek Parkland Plan
- Plenty River Trail, the program has committed to delivery the missing link between University Hill in Bundoora and Doreen to the north.
- Merri Creek Trail as part of the Upper Merri Creek Parkland Plan.
- Diamond Creek Trail

In addition to these initiatives, Victoria is undergoing significant changes due to major transport infrastructure changes such as:

- The level crossing removal project, such as those currently underway along the Upfield rail line;
- Major road widening and duplication projects including the potential future Somerton Road duplication;
- Rail line duplication such as the Hurstbridge rail line duplication; and
- New road construction, such as the North East Link.

The development of these large State Government funded projects provide the opportunity for trails to 'piggy-back' on new transport infrastructure by taking advantage of left-over land or ensuring the provision and financing of regional trails, in accordance with this study, are delivered alongside these projects. The large scale and budget of these projects also presents the opportunity to deliver larger, more strategic aspects of the trail network that cannot feasibly be delivered by regular grant cycles and capital works programs.

Growth areas and Precinct Structure Plans (PSPs):

A Precinct Structure Plan is a Master Plan for new communities within growth areas which guide development, land use and infrastructure of the area over time. Shared trails and regional trails are included within the PSPs which allow Councils to lobby developers for the development of trails within their land. This study along with the PSPs provide the Northern Regional Trails working group with information to ensure the trails are strategically aligned, funded and delivered in accordance with the region's plans.