SHIRE OF MANJIMUP

Local Bicycle and Footpath Plan 2017-2027

Manjimup Northcliffe Pemberton Walpole

Revision 1 - May 2018

Document History

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Summary

The Shire of Manjimup has developed a Local Bicycle and Footpath Plan 2017-2027, which supersedes the Shire's Local Bike Plan 2008. The 2008 Plan was in need of a review, as it had largely been implemented, and it was no longer functional to assist with planning decisions and securing funding. For the development of the new plan, Council allocated funding in the 2016/17 budget, and additional funding was secured from the Department of Transport.

The improvement of path infrastructure and the promotion of cycling and walking contributes to the Shire of Manjimup's vision of being a safe and livable community. Well-connected path networks help create a cohesive community and thereby assist to enhance the social, cultural, health and economic outcomes for local residents and businesses.

This plan provides strategic direction for future network developments and connections to community and tourist destinations, with alignment to the following key objectives:

- Identify routes within townsites that efficiently and effectively service the town centre and surrounding areas;
- Provide safe and convenient routes to existing and proposed activity centres, including schools, local sporting facilities, recreational facilities, shopping facilities, seniors housing/residential areas and tourist destinations;
- Provide recommendations for the rationalisation of path networks, including removal of paths where necessary;
- Provide a sufficient level of end-of-trip facilities (such as wayfinding signage and bicycle parking rails); and
- Enhance connections to the recreational and tourism tracks and trails.

The plan considers the four townsites in the Shire of Manjimup being: Manjimup, Pemberton, Northcliffe and Walpole. Furthermore, the plan also considers future connectivity between the townsites, as well as some of the settlements.

A review of existing cycling and walking infrastructure and routes was undertaken to identify potential routes for improvement, and to assess the feasibility of potential route alignments and upgrade/renewal/removal recommendations. Each townsite path network was reviewed as an integrated path network to include connections to schools, activity centres, local residential areas, and tourist destinations. The proposed path network focuses on providing an integrated network to connect key attractors and land uses in the region.

The recommendations for each townsite have been structured as three distinct but connected components:

- Spine Network, which comprises of paths that form the backbone of the path network within each townsite. The spine network is the starting point for all connections, with the primary network links 'hanging' off the spine;
- Primary Network; an extension of path infrastructure from the spine network to key land uses (so-called trip attractors; destinations that people likely want to cycle or walk to); and
- Secondary Network; covers routes that connect local residents to the primary network, and provides lower-order connectivity within the local neighbourhood.

Proposed infrastructure works in each town have been costed and ranked in implementation programs. The table below provides a summary of existing paths and proposed path developments for each town.

Table 1-1 Path Summary for Each Townsite

	M	P	N	W
Total of existing paths	30,546m	3,657m	2,562m	3,371m
Removal of existing paths	2,944m	143m	0m	36m
Construction of new paths	9,307m	1,524m	1,784m	2,954m
Service/ maintenance of paths	760m	110m	200m	700m
Renewal/ upgrade of paths	13,523m	485m	2,480m	0m
Total of future paths	36,909m	5,038m	4,346m	6,289m
Total estimated cost required ($1,000)	$4,973	$640	$112	$897

M=Manjimup, P=Pemberton, N=Northcliffe, W=Walpole

The figures in the above table reflect the following:

1. The difference in population size between the four different towns;
2. The function of a regional service centre of Manjimup; and
3. The age and condition of current path infrastructure in the different towns.

1 Introduction

1.1 Purpose

The improvement of path infrastructure and the promotion of cycling and walking contributes to the Shire of Manjimup's vision of being a safe and livable community. Well-connected path networks help create a cohesive community and thereby assist to enhance the social, cultural, health and economic outcomes for local residents and businesses.

The overall purpose of the Plan is to improve walking, cycling and mobility scooter infrastructure. This will improve the lives and social connectivity of the local community by reinforcing and facilitating the use of these as preferential transport modes over driving.

The purpose of this Plan is to provide a safe, comfortable, attractive, sustainable and integrated network, connecting centres of activity and regional attractions within the four Shire townsites.

1.2 Vision and Objectives

The Plan takes into consideration the objectives and vision of the Shire of Manjimup S*trategic Community Plan 2017 – 2027*, stated as follows:

"We are a thriving region which is safe, liveable and welcoming. We value and care for our natural environment, which sustains both economic and recreational pursuits. Our industries are recognised for their resilience, quality and innovation and for their contribution to the state of Western Australia. Our economic diversity provides business and employment opportunities for all."

This plan provides direction for future network developments and connections to community and tourist destinations. Thus, this plan proposes a coordinated and strategic approach to delivering walking and cycling infrastructure, with alignment to the following key objectives:

- Identify routes within townsites that efficiently and effectively service the town centre and surrounding areas;
- Provide safer routes to schools;
- Provide safer routes to local sporting, recreational, shopping facilities and tourist attractions;
- Provide paths that are safe and convenient links to existing and proposed activity centres, future urban areas and recreation facilities or tourist destinations;
- Provide recommendations for the rationalisation of path networks, including removal of paths where necessary;
- Encourage a more active population through recreational walking and cycling options;
- Provide a sufficient level of end-of-trip facilities, located in key areas around the townsite;
- Provide a sufficient level of access to support people with disabilities or additional mobility needs along existing and new pathway infrastructure;
- Define gaps in service and plans for future growth corridors;
- Enhancing connections to the recreational and tourism tracks and trails;
- Cyclist and pedestrian safety issues;
- Recommendations for wayfinding;
- Providing opportunities for inter-town connectivity; and
- Development of an Implementation Program for each townsite.

1.3 Study Area

The Shire of Manjimup is a Local Government area approximately 300km south of Perth. It has a population of almost 10,000 residents, across a land area of 7,000 km^2.

The mild climate of the region is well-suited for walking and cycling along a network which provides efficient connections between trip attractors such as; schools, retail areas, and recreational nodes.

This plan mainly considers the four townsites in the Shire of Manjimup: Manjimup, Pemberton, Northcliffe and Walpole (Figure 1-1). Furthermore, the plan also considers the connectivity between the townsites.

The Shire of Manjimup is a popular tourism destination located in the Southern Forest Region, with fantastic scenery and cultural heritage. The four townsites are connected by the Munda Biddi Trail and Bibbulmun Track, which makes them attractive destinations for tourists.

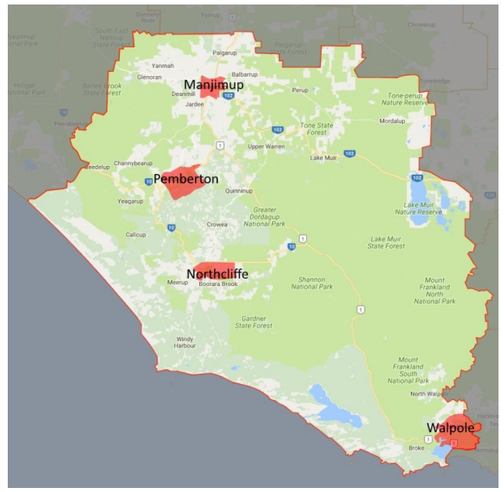


Figure 1-1 Study Area
Source: Nearmap (2017)

1.4 Cycling and Walking

1.4.1 Benefits

Cycling and walking can be undertaken for commuting, recreational and casual purposes. Given the many benefits from these, there is considerable potential to increase the uptake of active transport modes particularly as a viable commuter transport choice, at least within the townsites. Recreational cycling and cycling tourism both have the potential to increase, particularly when considering the extent of local and regional trail networks, and natural heritage. The benefits of cycling and walking include:

> ***Social Benefits***

- Riding to work, school, or college, or taking your bike on short neighbourhood trips is a convenient and practical way to incorporate regular exercise into your busy day;
- A safe walking and cycling trip is a healthy lifestyle choice that improves aerobic fitness and reduces stress level;
- A cyclist or pedestrian has many chances for social interaction during their trip;
- Many opportunities to passively survey the street, increasing neighbourhood security; and
- For people that do not have a drivers licence or vehicle (for example children and seniors) cycling and walking provide a means of independent transport. This is extremely

important to maintain social connectivity especially as there is a lack of public transport in the area.

> ***Economic Benefits:***

- A bicycle or walking trip is a low cost alternative to driving a car; and
- Cycling tourism provides a new demographic and increased business opportunities.

> ***Environmental Benefits***

- A reduction of vehicles on the road – less congestion, less emissions and better safety.

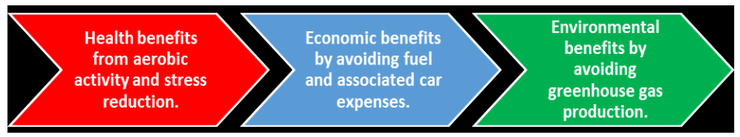


Figure 1-2 Benefits of Cycling and Walking

1.4.2 Types of Cyclists

Bicycle mode choice is dependent upon a number of factors including population demographics, topography of the region, weather effects and available cycling infrastructure. Cycling is increasingly becoming a viable alternative to other transport modes for all purposes, with increases in commuting, recreational and other general purpose trips for all ages. The Department of Transport's *Guideline for Developing a Bicycle Plan*, identifies different categories of cyclists (Figure 1-3).

Ideally, cycling infrastructure should be provided to facilitate cycling activities by all. For this reason, infrastructure should be designed to cater for the requirements of a number of types of cyclists. For the purposes of this plan, cyclists have been broadly categorised into three main groups shown in (Table 1-2).

1.4.3 Active Transport in the Shire of Manjimup

There are minimal statistics available regarding the use of bicycles and people walking in the Shire of Manjimup. The Australian Bureau of Statistics (ABS) collects data of peoples travel modes to work. The 2016 census identified that six percent of the working population in the Shire of Manjimup walked to work.

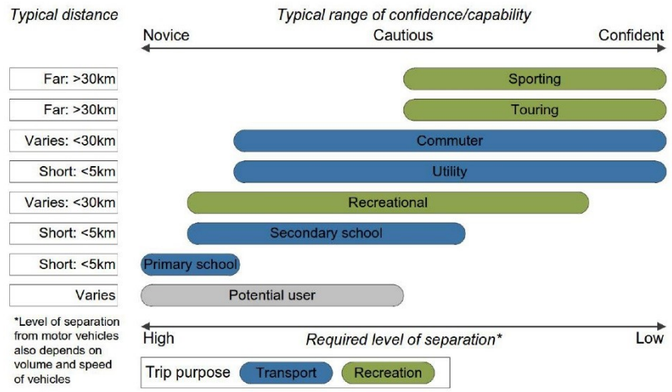


Figure 1-3 Cycling User Categories
Source: DoT's Guideline for Developing a Bicycle Plan

Table 1-2 Types of Cyclists and their Requirements

Cyclist Type	Cycling Profile
Casual Cyclists	Casual cyclists predominantly consist of family groups and young / inexperienced cyclists who tend to use the off-street path network to minimise conflict with motor vehicles. It is likely that casual cyclists will not travel a great distance, but rather tend to cycle for errands and other specific tasks, as well as for fitness and recreation.
Commuter Cyclists	Commuters have a different and well defined set of needs, tending to travel within the roadway, sharing the road with vehicular modes in preference on off-street cycling infrastructure. Commuters tend to be habitual riders with experience and confidence in road riding. Travel speed is generally higher than what casual cyclists achieve which makes them more suited to riding along the roadway, rather than along the pedestrian network.
Recrea-tional Cyclists	Recreational cyclists comprise of those who ride for fitness and as part of social riding groups. These cyclists tend to be relatively confident riders capable of reaching speeds approaching the posted limit. Recreational riders can also constitute casual riders accessing recreational paths with friends and family, for recreation or fitness purposes. Cycling speeds tend to be very slow with cyclists preferring high quality off-street paths.

1.4.4 Encouraging Behaviour Change

The provision of safe, appropriate and attractive infrastructure is essential for people to use active modes of transport. However, it is widely acknowledged that promotion of cycling and walking is crucial to engender usage of this infrastructure through encouraging behaviour change.

This Bicycle and Footpath Plan focuses on the infrastructure needs of pedestrians, cyclists, and other path users (e.g. people with gophers, wheelchairs, skateboards). This plan does not provide recommendations for encouraging behaviour change. A wide range of encouraging programs may be undertaken by schools, work places, the local government agency, etc.

1.5 Informing Documentation

A selection of the Shire's planning and strategic documentation has been considered, to provide an understanding of the existing environment and future development. These documents include:

- Shire of Manjimup Strategic Community Plan 2017 – 2027
- Shire of Manjimup Corporate Business Plan 2017 – 2021
- Shire of Manjimup Local Bike Plan 2008
- Shire of Manjimup Sports and Recreation Strategic Plan 2014 – 2024
- Shire of Manjimup Disability Access and Inclusion Plan 2013 – 2018
- Shire of Manjimup Youth Strategic Plan 2013-2023
- Manjimup Community Recreation Hub Needs Assessment and Master Plan
- Shire of Manjimup Age-Friendly Communities Plan 2016-2021
- Shire of Manjimup Super Town Townsite Growth Plan 2012
- Shire of Manjimup Road Hierarchy

This plan has been developed in accordance with federal, state and regional policies, standards and strategies (Table 1-3). This is to ensure recommendations in the plan follow the directions and ideals set out by these strategies, and to ensure relevant standards and guidelines are met. This will also increase opportunities to secure grant funding for the implementation of the plan.

Table 1-3 Relevant Strategies, Policies and Standards

Policy	Federal	State	Regional
National Urban Policy: Our Cities, Our Future (2011)	X		
Moving Australia 2030 (2013)	X		
National Cycling Strategy (2010)	X		
Walking, Riding and Access to Public Transport (2013)	X		
Cycling Aspects of Austroads Guides (2014)	X		
Austroads Guide to Road Design Part 6A: Pedestrian and Cyclist Paths	X		
Western Australian Bicycle Network (WABN) Plan 2014-2031		X	
Perth Metropolitan Transport Strategy 1995-2029		X	
West Australian Planning Commission Development Control Policy 1.5 – Bicycle Planning (1998)		X	
Bike Ahead: Bicycle Strategy for the 21st Century		X	
Liveable Neighbourhoods (2009)		X	
National Cycling Strategy	X		
Main Roads WA Policy for Cycling Infrastructure (2000)		X	
Our Bike Path 2014-2020		X	
Transport @ 3.5 Million		X	
Department of Transport (DoT) Bike Plan Guidelines		X	
Department of Transport: Shared Path Design Technical Guidelines		X	
South West Mountain Bike Master Plan			X

1.6 Path Network Development

The recommendations for each townsite have been structured as three distinct but connected components: Spine Network, Primary Network and Secondary Network.

1.6.1 Spine Network

The Spine Network comprises of paths that form the backbone of the path network within each townsite. The spine network is the starting point for all connections, with the Primary Network links 'hanging' off the Spine.

The intent of the spine is that locals and tourists can largely navigate to destinations within the townsite based solely on the quality and design of the infrastructure (passive wayfinding) and on-path signage (active wayfinding).

This Spine network needs to be of a high standard, be able to cater for cyclists and pedestrians in safety. Thus, the infrastructure proposed for the Spine Network generally consists of a wide and smooth path, 2.5m-3.5m wide, with 'on-path' line marking and wayfinding signage at each decision point.

Pedestrian and cycling priority over vehicles at intersections and driveways should be considered as part of the Spine Route. This is appropriate in locations where pedestrian volumes are consistently high, where vehicle crossing volumes are relatively low, and where there is an absence of heavy vehicles.

1.6.2 Primary Network

The Primary Network is an extension of path infrastructure from the Spine Network to key land uses (so-called Trip Attractors; destinations that people likely want to cycle or walk to). The standard of construction is expected to remain good, as usage can be expected to be high. A standard path design would consist of a 2.0m-2.5m path with line marking, that links the Spine to major destinations within the townsite.

1.6.3 Secondary Network

The Secondary Network covers routes that connect local residents to the Primary Network, and provides lower-order connectivity within the local neighbourhood. This form of infrastructure allows for safe pedestrian and cycling travel throughout the townsite.

As pedestrian/cyclist volumes on secondary paths are lower (than on spine/primary paths), a general standard footpath width of 1.5m-1.8m will be adequate. These paths will primarily be used by users familiar with the network.

1.6.4 On-street Paths

On-street opportunities for bicycle infrastructure have been considered, in one of three general forms:

1. **Dedicated on-street bike lanes:** On-street bike lanes provide a separated facility for cyclists away from both pedestrians and cars. They tend to be appropriate where cycling volumes are high, and where there is a potential for conflict.

Figure 1-4 Example of dedicated on-street bike lanes
Source: Nearmap (2017)

2. **Safe Active Streets:** These streets provide a safe space for mixed-traffic cycling (i.e. bikes and cars share the road). Critical components include interventions to narrow the road form, reduce traffic speeds down below 30km/hr and safely manage the conflicts at cross-streets.

   Implementation of the Safe Active Streets concept will likely result in a reduction in on-street parking. It is generally not appropriate for roads that comprise the primary traffic network.

Figure 1-5 Example of a safe active street
Source: Nearmap (2017)

3. **On-street Shared Paths:** The Department of Transport (DoT) and Main Roads WA's (MRWA) guidelines identify options for regional areas where traffic volumes are low. This involved providing a shared pedestrian/cycling path within the roadway pavement itself, delineated by a buffer. This has advantages where roadway widths are high and path infrastructure costs are prohibitive.

Figure 1-6 Example of an on-street shared path

1.6.5 Shared Paths

The formal definition of a shared path from the *WA Road Traffic Code 2000* is as follows:

*A "**shared path**" means an area open to the public (except a separated footpath) that is designated for, or has as one of its main uses, use by both the riders of bicycles and pedestrians, and includes a length of path beginning at a "shared path" sign or "shared path" road marking and ending at the nearest of the following:*

a. an "end shared path" sign or "end shared path" road marking;

b. a "no bicycles" sign, or a "no bicycles" road marking;

c. a "bicycle path" sign;

d. a carriageway; and

e. the end of the path.

It is considered standard practice to denote a shared path by line marking instead of shared path signage, for the following reasons:

- Line marking is more durable than signage
- Line marking is more economical to install and maintain
- Signage is prone to vandalism, damage and theft

For the purpose of designating a shared path, line marking is considered to satisfy the intent of the Australian Road Rules while maintaining the best outcomes for cyclists and the local government.

Figure 1-7 Example of shared path

It is noted that as of April 27, 2016, cyclists in Western Australia and several other states are now permitted to ride on any shared path or footpath unless specifically signed otherwise. This does not diminish the need for an effective cycling network of higher quality shared paths and off-road cycling facilities.

The acceptable width range for shared paths are 2.0m to 3.5m. It is acknowledged that there may be locations where this is not achievable, and that this should not exclude a vital, narrower path from the shared path network. However, every effort should be made so that new paths are constructed to the recommended standard.

1.6.6 Road Hierarchy

When developing pedestrians and cycling paths, it is essential to consider the road hierarchy classification. The road classifications within the Shire of Manjimup, defined in its Road Hierarchy Policy, are as follows:

- ***Primary Distributors*:** These roads are the primary road traffic links within the Shire. These roads provide town to town links within the Shire and beyond the Shire's boundary. The standard of construction and maintenance has the largest impact on overall road network efficiency, making up the largest part of town to town trips. These roads are currently all under the control of Main Roads Western Australia. (e.g. South Western Highway)
- ***District Distributors*:** District distributor roads are strategically important links within the Shire. Generally these roads connect large population or industry areas to primary distributor roads or other large population or industry areas. These roads might also provide link between towns within or beyond the boundaries of the Shire, although with lower transport volumes, or as a secondary route to primary distributor roads. Two levels of service (LOS) classifications exist for district distributor roads to recognise the required for a higher LOS where the road is the only connection to a major industry or population centre. (e.g. Windy Harbour Road and Channybearup Road in Pemberton)
- ***Rural Local Distributor*:** Rural local distributor roads are the higher volume local roads within the rural areas. Generally, these roads are contained wholly within a population or industry area and provide the main link within the area to a district distributor road or primary distributor road. (e.g. Pump Hill Road in Pemberton)
- ***Main Street Roads*:** Main Street roads are within commercial centres of each town. These roads will normally have a high level of pedestrian and vehicular traffic, with a large number of parked vehicles within the street. The focus of main street roads is business access by the public and aesthetics. (e.g. Giblett Street in Manjimup)
- ***Urban Local Distributor***: Urban distributor road, similarly to rural local distributors, are higher volume local roads providing a link within a local population area. These roads provide the link from other local roads to district distributor roads or other higher classification roads (e.g. Ipsen Street in Manjimup).
- ***Industrial Roads***: Industrial roads may be either a local distributor or local access type road. Industrial roads vary in need from other sealed roads due to the larger vehicle masses and vehicle lengths that need to be accommodated (e.g. Chugg Street in Walpole).

- ***Tourist Roads***: Un-sealed tourist roads have differing needs to other un-sealed roads. Most tourists are often not used to driving on gravel roads, and a poorly maintained un-sealed tourist road could discourage the use of the road by tourists. These roads are also likely to have a high volume of caravans and similar vehicles, which require additional width for passing and parking (Old Vasse Road.
- ***School Routes***: School bus routes will change year by year. These roads could be any type of existing sealed or un-sealed road, so the LOS defined for these roads could be over-ridden where the road's LOS is otherwise higher.

1.6.7 Traffic Speeds

Austroads Guidelines states that where the difference between bicycle and motor traffic speeds is less than 20km/h, full integration may be acceptable and bicycles and motor traffic can usually share the road pavement without any special provision being required.

Austroads states that segregation is desirable where the difference between bicycle and motor traffic speed exceeds 40 km/h. The Guidelines also indicates that 85th percentile speeds of people cycling under free flow conditions can be expected to be in the order of 30 km/h. This is potentially representative of confident riders on flat terrain, but speeds are likely to be lower in hilly areas or for casual cyclists.

1.6.8 Crash Data

Safety is a very important factor in developing a successful path plan. The availability and quality of existing cycle/walk paths is a good way of determining the level of safety and performance within an area.

Main Roads Western Australia (MRWA) data only comprises of crashes that have been reported to the police. To be included in the crash data, the crash must meet the following criteria:

- The crash occurs on a public road, and
- A person is killed or injured, or
- At least one vehicle was towed away, or
- The value of property damage is over the value set by the DoT and MRWA

The MRWA crash data was used to identify the level of safety. Approximately 545 crashes occurred within the Shire from 1 January 2011 to 31 December 2015, of which the majority resulted in minor injury and/or property damage only.

There was a total of four crashes that involved cyclists over the 5-year period, with one of these crashes resulting in a hospital visit. As the crash data only contains reported crashes, it is likely that many crashes involving minor property damage and injuries are not reported.

1.7 Supporting Facilities

1.7.1 Wayfinding

Wayfinding can extend beyond signs to include other elements of the public realm, such as street furniture and public art. It assists pedestrians and cyclists to know where they are, where they are going, the best route to get there and to recognise from where the destination can be reached.

A useful wayfinding system should:

- Be highly visible
- Lead the cyclists and pedestrians to their destination
- Highlight key destinations within the immediate area
- Integrate with existing signage

The objectives for wayfinding include:

- Attractive and readable signage and wayfinding for both members of the community and visitors
- Promote safe integration of vehicular, bicycle, and pedestrian traffic
- Preserve and enhance the appearance of the townsite.

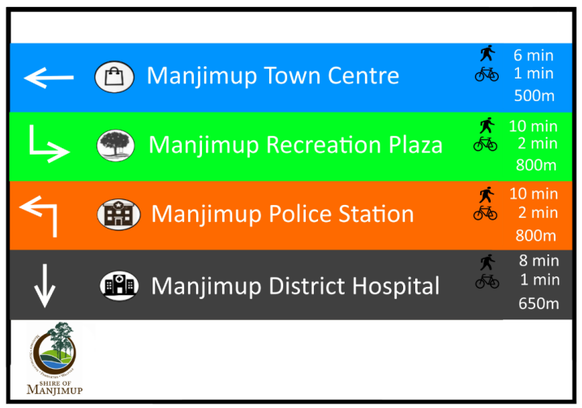


Figure 1-8 Example of Wayfinding Signage

1.7.2 End of Trip and En Route Facilities

End of Trip (EoT) and En Route facilities are a critical component of the active transport network. By creating an attractive end-point for cyclists and pedestrians, they help promote trip-making by active modes and improve the user experience. The recommended facilities are as follows:

- **Bicycle Parking:** It is an essential infrastructure for commuting, utility and recreation users. Each type of user has different parking facility requirement such as:
  a. Commuters need a secure place to park inside their workplace
  b. Cycle racks are required for students cycling to school
  c. Utility cyclists (e.g. trips to shops, library etc.) need a secure place to park for short periods, conveniently located near their destination such as a rack (Figure 1-9)
  d. Recreational cyclists may require a secure place at an intermediate destination, such as cafés, parks or trailheads
- **Public Toilets**
- **Resting Benches:** Especially important for seniors, not only as EoT facility but also at regular intervals along the route
- **Water Fountains:**
  a. For active people or during warm weather periods
  b. For dogs, in recreational areas
- **Rubbish Bins**
- **Bicycle Repair Stations:**
  a. To pump up tyres
  b. To assist people who do not have specialist tools or space to do simple maintenance on their bikes
- **Parking for Mobility Scooters and Prams**
- **Showers/ Lockers Facilities**: May be provided at the workplace or schools to freshen up and store belongings.
- **Road Crossings:** prior consultation has shown a strong community need for improved road crossings, in particular in the town centres and across the highways.

Figure 1-9 Example of Bike Rack

1.8 Regional Recreation and Tourism

Throughout the Shire of Manjimup, there are many trails and tracks that are well suited for recreational activities including mountain biking, jogging, walking, cycling etc. Two trails that are tourist destinations in themselves are the Munda Biddi Trail and Bibbulmun Track. These trails link most of the Shire's townsites, and form the backbone of regional cycling and hiking connectivity.

There are many other trails and tracks throughout the Shire, referenced in detail on the State *Trails WA* website as well as on the Warren Blackwood Alliance of Councils' website *Total Trails*. These website provides information regarding the trail itself, the surrounding environment and local history. Where relevant, a sample of these trails has been identified within each townsite section.

1.8.1 Munda Biddi Trail

The Munda Biddi Trail is a 1000km, mostly off-road, cycling experience which runs from Mundaring to Albany, through the Shire of Manjimup. Within the Shire of Manjimup, this trail runs from the north east through Manjimup (Figure 2-1), Quinninup, Pemberton (Figure 3-1), Northcliffe (Figure 4-1), and on to Walpole (Figure 5-2). The Munda Biddi Trail has an alignment that travels through natural bushland and connects the four townsites in the Shire of Manjimup.

1.8.2 Bibbulmun Track

The Bibbulmun Track is a world-famous walking trail stretching 1000km from Kalamunda in the Perth Hills to Albany on the South Coast. The trail runs through Pemberton (Figure 3-1), Northcliffe (Figure 4-1) and Walpole (Figure 5-2). Along the way, the Track features the Gloucester Tree, The Cascades waterfalls, the Pemberton Tramway station, the Warren River and Northcliffe Forest Park. South of Northcliffe, the Track traverses several national parks and hits the southern coast at the Walpole inlet.

1.8.3 Mountain Biking

Mountain biking is one of Australia's fastest growing recreational, sport and tourism activities and the South West of Western Australia is extremely well positioned to capitalise on this growth activity and the benefits it brings. The *Western Australian Mountain Bike Strategy* and West Cycle's '*Our Bike Plan 2014-2020*' recognises the significance of this activity and the opportunities it brings to the local community.

The *South West Mountain Bike Master Plan* identifies priorities for trail development in the South West, and provides the framework to create and sustain an international mountain bike destination capable of providing tremendous economic, tourism, environmental, health, social and community benefits.

1.8.4 Road Cycling

The long, winding roads of the region and adjacent natural splendour makes on-road riding an attractive activity for confident cyclists. Where traffic volumes are low and sightlines are clear, very little infrastructure is required to ensure safe cycling. However, the prevalence of heavy vehicles, restricted view corridors and high speeds reduces the safety and viability of some routes, restricting their use to only the most ardent cyclists.

1.8.5 Additional Opportunities

Additional opportunities for promoting cycling tourism may also be considered within the townsites including:

1. Bicycle hire services or bicycle tour services;
2. Provision of end of trip facilities such as bike racks, toilets and change facilities at key tourist attractors;
3. Specific signage and wayfinding within the townsites directing visitors to trail heads; and
4. Promotional material (brochures, cycling and tourist attraction maps, social and traditional media, etc.).

1.9 Methodology

The following describes the methodology used to identify and propose infrastructure for the plan. This framework allows for each part of the network to be considered in the context of its connectivity, quality and purpose, and for appropriate improvements to be recommended. Cardno was engaged as a consultant to undertake a path audit and develop the plan.

1.9.1 Documentation Review

An extensive review of background documentation was undertaken. A comprehensive list of documentation can be found in Section 1.5.

The recommendations in the plan have been made as a result of extensive consultative processes inclusive of data collated from:

- Shire of Manjimup Strategic Community Plan 2017-2027
- Age-Friendly Communities Plan 2016-2021
- Manjimup SuperTown Town Site Growth Plan
- Shire of Manjimup Sport and Recreation Plan
- Access and Inclusion Plan

1.9.2 Saddle Survey

To assist in identifying feasible, cost effective solutions, Cardno undertook a complete inventory and audit of path infrastructure within each townsite between 31 August and 2 September 2016. This was done through the completion of a Saddle Survey, which involved cycling the existing and proposed routes to audit and ground-truth the network. This audit was used to identify issues and opportunities at a strategic level.

The status of the existing infrastructure was assessed against a range of quality criteria including: cracking, encroachment, defects, displacement, stepping and pram ramps, with each section given a rating.

This survey involved detailed evaluation of the following:

- Confirmation of the characteristics and features of the routes;
- Identification of gaps and deficiencies;
- Identification the locations of key local cycling/walking trip attractors and local activity nodes;
- Identifying the locations of schools to ensure safe route to school are considered; and
- Production of representative mapping.

The review of existing cycling and walking infrastructure and routes was designed to identify potential routes for improvement, and assess the feasibility of potential route alignments and upgrade/renewal/removal recommendations.

1.9.3 Trip Attractors and Network Review

Each townsite path network was reviewed as an integrated path network to include connections to schools, activity centres, local residential areas, tourist destinations and end-of-trip facilities. When reviewing path networks, in particular future path development, it is essential to take future town development into consideration. Therefore, due regard should be given to the most current Shire of Manjimup Local Planning Scheme. There are three main precincts in general for all townsites which are:

- **Town Centre/Commercial Precinct:** The town centre/commercial precinct is the centre of townsite and includes a variety of retail and commercial businesses. This precinct forms the 'heart' of townsite, the nucleus to which pedestrian and cycling infrastructure converge. Therefore, this precinct must cater for the greatest range of people, providing high-quality links to the schools and recreational facilities for students, to bike trails for tourist connections, and for employees and family groups of all ages.

  Infrastructure in the town centre precinct must therefore provide safe and connection for cyclists of all capabilities, and consider the needs and impacts on pedestrians and people with mobility issues. End-of-trip facilities are also necessary, to support secure bike and mobility scooter parking.

- **Residential Precinct:** There are a number of major residential areas in each townsite surrounding the town centre/commercial precinct. Within these areas, traffic is generally low speed and low volume, and cycling/walking on the street is safe. However, pedestrian movements may still require specific infrastructure, particularly given that stormwater tends to run as overland flow within the roadway.

- **Employment Precinct:** The majority of local employment within the town centre is located in the commercial precinct, associated with retail and services for the townsite. In addition, industrial areas are located in each town. Infrastructure within the industrial area is likely to support primarily commuter cycling.

The proposed path network focuses on providing an integrated network to connect key attractors and land uses in the region and segregated into the three components; Spine, Primary and Secondary Networks.

A further review of the existing path network was completed as part of the Path Audit, specifically targeting paths that duplicate a component of the Spine, Primary or Secondary Network, and isolated paths that do not form part of any network. Such paths do not contribute to the path network and thus do not contribute to safety and connectivity. In order to ensure a feasible path network that can be maintained, such paths should be removed before or when they become unserviceable or unsafe.

In each townsite, the EoT facilities have been proposed around the Spine and Primary Networks.

1.9.4 Costing and Prioritisation

Proposed infrastructure works have been ranked according to a standardised Multi Criteria Analysis (MCA). MCA is a decision making technique to assess projects based on their performance against certain criteria which can be weighted to consider difference in importance. For this plan, each project has been assessed against the following criteria:

1. Connectivity (30%) - This includes but is not limited to; connections to strategic routes, closures in gaps in the network, projects identified in other local planning strategies and connection to trip attractors.
2. Economic (25%) - This identifies any mode shift that may occur or increase in cycling traffic, any impact on private vehicle use and environmental benefits
3. Safety (25%) - Mainly cycling and pedestrian safety being at the forefront
4. Stakeholder and Public Demand (20%) – Key issues identified by the public, townscape and urban planning and the identified levels of service.

Order of cost estimates were determined using an internally developed spreadsheet with indicative costs for construction and infrastructure (refer to Appendix A for cost estimate details), but exclude land acquisition costs, utilities, drainage and other external costs.

1.9.5 Review of Local Bike Plan 2008

In 2008, the Shire commissioned a *Local Bike Plan*. Since this plan is at the end of its lifespan, the outcomes of its implementation have been reviewed to assess the success of the plan's vision and intended outcome against the current state of cycling within the Shire.

The updated *Local Bicycle and Footpath Plan 2017-2027*, will provide a strategic direction for the development of pedestrian and cycling infrastructure in the Shire, to meet the current and future needs of the community. It will also identify the priorities for implementation, incorporating contemporary best-practice. Its anticipated life span is up to 10 years, although intermediate reviews are recommended.

The outcomes of the review of the *Local Bike Plan 2008* are summarised in Appendix B. The 2008 plan recommended a number of path constructions and upgrades throughout each of the townsites. Many of these paths have been completed since 2008, and have been incorporated into the active transport network of the townsites.

1.9.6 Community Consultation and Review

The *Local Bicycle and Footpath Plan 2017-2027* was adopted by Council in May 2017. The Plan was presented to the community via a roadshow in August 2017 through the four towns within the Shire. Following the roadshow, the community was invited to comment on the Plan in order to provide input into the first review of the 2017 Plan, which was adopted in May 2018.

2 Manjimup Townsite

The townsite of Manjimup covers an area of 22.4km². The surrounding localities bordering Manjimup include Deanmill, Dingup and Middlesex. As of 2016 census, the population in Manjimup is 4349. Pedestrians and cyclists are relatively small in population with 3.2% of the population selecting they walked only to work. There is a significant amount of people who attend an educational institution (29.1%) with 28.7% of that population attending primary school, 25.8% in Secondary school and 7.3% in tertiary or technical institution.

2.1 Trip Attractors

The key land uses and trip attractors (Figure 2-9) have been used to determine the route destinations for cycling trips within the townsite. This includes connections to existing trails to connect formal path infrastructure to recreational routes.

2.2 Recreation and Tourism

Cycling and walking are important recreational activities in and around Manjimup, meaning that these modes are important not only for transport, but also present an excellent opportunity for tourism, with the Munda Biddi Trail easily accessible from the Manjimup townsite, shown in Figure 2-1. A number of the proposed future developments (See Section 2.3) will lead to increased active recreation.

For the purpose of this plan, infrastructure provision within the Manjimup townsite considers connections to the trails network and to locations of active recreation, so that these facilities may be used by residents and visitors without the need to access them via car.

Apart from the Munda Biddi Trail and Bibbulmun Track there are several significant trails that are available for locals and tourists near the Manjimup townsite, of which a examples are described below. Further information regarding local trails is available from the website www.totaltrails.com.au/manjimup.

Connections to trails, walks and loops have been considered as part of the Manjimup townsite path infrastructure to encourage cycling and walking behaviour.

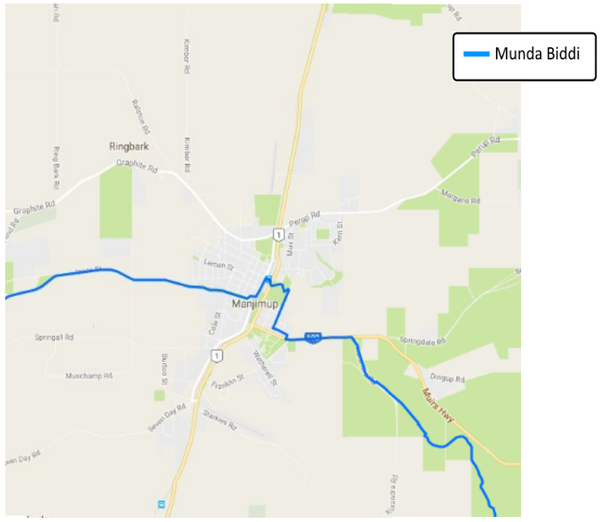


Figure 2-1 Munda Biddi Trail alignment in/near Manjimup
Source: Munda Biddi Trail and Bibbulmun Track Foundations (2017)

2.2.1 King Jarrah Walk

The King Jarrah walk is a 3.5km shared path beginning at Manjimup's Timber & Heritage Park. The path passes the Manjimup Country Club to the King Jarrah Reserve and Heritage Trail. At the reserve there is a 650m sealed trail with toilet, picnic and barbeque facilities.

2.2.2 Deanmill Heritage Trail

The Deanmill Heritage Trail is an old rail line that has been converted into a 7.7 km long walk/bicycle track. It also forms part of the Munda Biddi Trail. The track is moderately flat and takes the user in Manjimup through bush and farm land and finishes at the Deanmill settlement. In Manjimup, the trail is located between Plunkett and Lock Street in Manjimup.

2.2.3 South West Mountain Bike Master Plan

The Manjimup area has opportunities to develop mountain bike facilities which are accessible for recreation by young people and enthusiasts. There are four sites that have been recognised in the *South West Mountain Bike Master Plan* as opportunities to develop a **Local Hub** (Figure 2-2):

A. State Forest – at Muirs Highway;

B. Shire Reserves within the town;

C. Commercial and Private Land southwest of Manjimup; and

D. Diamond State Forest.

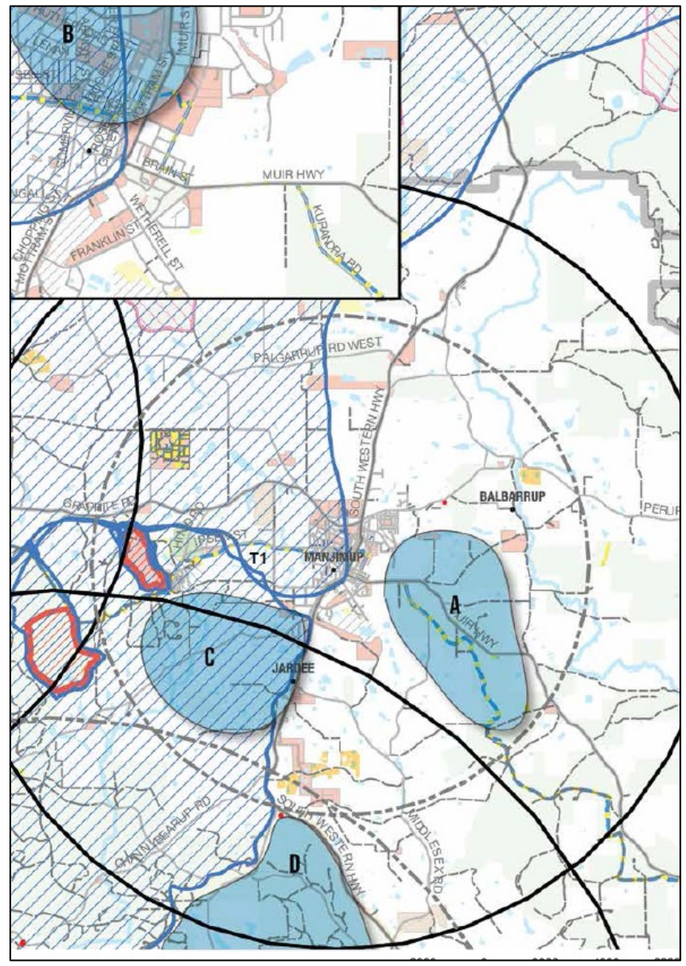


Figure 2-2 Opportunity Sites within Manjimup townsite
Source: South West Mountain Bike Master Plan

2.3 Future Development

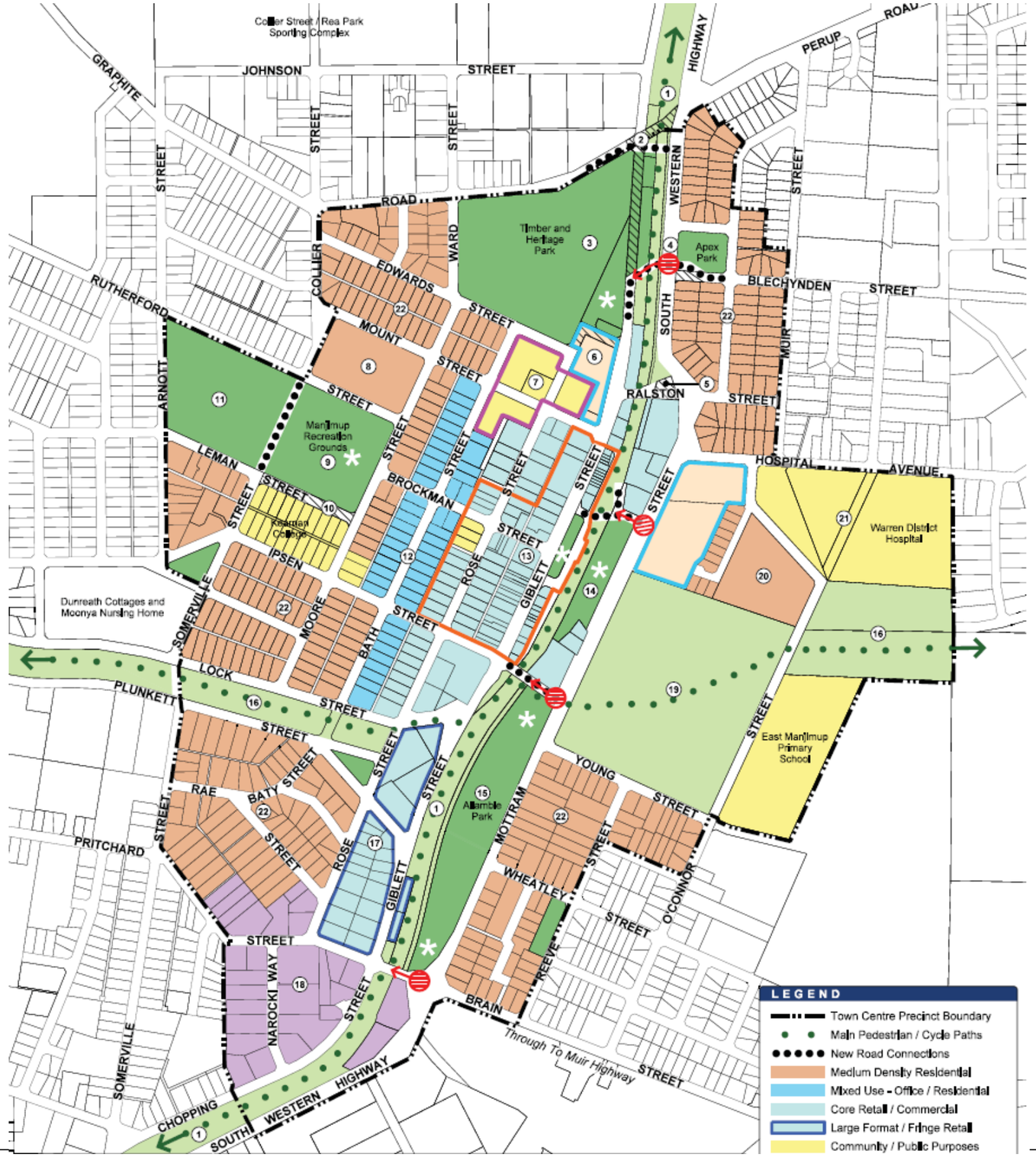
There are a large number of significant developments proposed for the Manjimup townsite that will provide opportunities for pedestrian and cycling connection into the future.

2.3.1 Manjimup Town Centre Revitalisation

The town centre revitalisation project is divided into eight components:

1. ***Northern Townsite Access*** – A new entry access to the townsite from the north will be created off South Western Highway, at Blechynden Street, with a roundabout to direct traffic into Giblett Street.
2. ***Manjimup Timber and Heritage Park*** – Redevelopment of the park will provide a safe, attractive recreational and cultural destination. This work will mean that high quality path connections are paramount, as this park will become a focal point for residents and visitors alike. Stage 1 was completed in late 2013, which included an adventure playground and other infrastructure and facilities. Stage 2 is in progress and due for completion by December 2019.
3. ***Linear Recreation Park*** – The Shire has proposed to redevelop the unused rail corridor into a linear recreation park. The Linear Park links the expanded Timber and Heritage Park and Manjin Park, creating a new active spine within Manjimup. The pathways associated with this Linear Park have been included as part of this *plan*'s Spine Network. The completion is scheduled for 2018.

   Manjin Recreation Plaza - Another recreation destination within the Linear Recreational Park which will attract young people and families. This form of recreation is well suited for access by skateboard, scooter and bike and requires integration into the wider network. The construction of the Plaza was completed early 2018.
4. ***Additional Access Points*** – Provide additional linkages and car parking between Mottram Street and the Town Centre. This is expected to be completed in 2018.
5. ***Accommodation Site –*** An investment-ready site to attract a high quality business tourism accommodation site adjacent to the Manjimup Timber and Heritage Park. This increases the value of the proposed Spine Route, due to the number of tourists accommodated next to the corridor. This component is expected to be completed by June 2017.



6. ***Brockman Street Revitalisation*** – Proposal to modify Brockman Street (between Rose St and Bath Street) to a one-way system, including a proposed cobblestone paved road, alfresco dining and new toilet facilities. There may be an opportunity for Brockman Street to be reconstructed as a Safe Active Street, with slow-speed traffic and mixed-traffic on-road cycling and walking. It is expected to be complete by May 2019.

Figure 2-4 Brockman Street Revitalisation

7. ***Mottram Street / South Western Highway Enhancement*** – A series of upgrades along Mottram Street / South Western Highway to improve vehicle accessibility and safety. It is expected to complete this component by October 2018.The impacts and opportunities associated with improvements in the pedestrian realm should be considered as part of this project.
8. ***Pedestrian and Cycling Linkages*** – This component considers the generation of additional pedestrian and cycling linkages throughout the townsite, in particular the construction of a shared path along Perup Road (to complete the link with King Jarrah), and an upgrade of the Deanmill Heritage Trail. Works were completed in 2017.

2.3.2 Recreation Grounds

There is future development planning for upgrading/new infrastructure at the Manjimup Community Recreation Hub which consists of the Collier Street/Rea Park Precincts and the Manjimup Recreation Grounds. High quality path infrastructure to connect the Hub to the network is important.

2.3.3 Senior Housing

New senior housing is proposed for the old primary school site, to accommodate 31 independent-living units. Quality path infrastructure connecting these units to important civic, retail and recreation destinations is extremely important.

2.3.4 Wellness and Respite Community Centre

The ageing population of the Shire of Manjimup and the new and changing needs of aged persons have significantly increased the demands on the Home and Community Care (HACC) service provided by the Shire of Manjimup, and other providers of aged care services within the Shire. This multi-purpose facility will cater for day care centre activities as well as overnight and weekend respite for carers, presently not provided for in the Shire of Manjimup. A quality path network will be vital to connect this new development.

2.4 Saddle Survey and Footpath Audit

The existing paths in Manjimup were assessed during the saddle survey (refer to section 1.9.2 for more information on this survey). A summary of the outcomes from this survey is available in Appendix C.

2.5 Cycle Network Planning

The proposed path network focuses on providing an integrated network to connect key attractors and land uses in the region and segregated into the three components; Spine, Primary and Secondary Networks (Section 1.6).

The section below describes key components of the proposed cycling and pedestrian network, with the resulting network illustrated in Figure 2-10.

2.5.1 Spine Network

The Spine Network in Manjimup serves as the ‘highway’ for pedestrians and cyclists, connecting with other networks and destinations and providing navigation cues to direct people from place to place.

The proposed shared path within the Linear Recreation Park will ultimately form the main component of the Spine Network, integrating this facility into the fabric of the town centre. Wayfinding along this link is recommended to direct visitors towards retail, entertainment and recreation destinations and will support local businesses and tourism.

The opportunities created by the Linear Recreation Park Spine are significant, and will connect Manjimup from all sides. There has been a longstanding need to improve linkages between the South Western Highway and the town centre, effectively eliminating a physical barrier that for many years has split Manjimup in two. Reuse of the rail corridor and removal of all barrier infrastructure will allow additional and relocated path connections. The north-south route along the current rail reserve will link the town centre and the Manjimup Timber & Heritage Park precinct. This Spine can be ultimately extended to link Manjimup to the satellite settlements at Jardee and Palgarup, and beyond to Pemberton and Bridgetown.

The Brockman Street corridor has been chosen as another key Spine corridor, as it forms an integral part of proposed recreation and placemaking development, connects key destinations and activities, and allows for links beyond the town centre to the surrounding residential, recreation, education and employment destinations.

Figure 2-5 Brockman Street

Brockman Street provides direct connection to land uses comprising major trip attractors (Figure 2-5) and with a high demand for cycling, walking and vehicular transport. It is believed that demand will continue to grow, creating the potential for conflict between cyclists and pedestrians within the relatively narrow path area.

The proposed redevelopment of Brockman Street, as part of the Manjimup Town Centre Development, provides an opportunity to create a safe on-road mixed-traffic environment via a shared ‘Safe Active Street’, where cars and bikes travel at a similar 30km/hr speed. To achieve this, modifications to the existing road geometry and function would be required in the future to slow speeds, remove risks at intersections and reduce conflicts between cyclists and parking cars.

2.5.2 Primary Network

Several major walking and cycling corridors have been identified as neighbourhood connectors that will form the trunk routes through town.

One of the main routes is the east-west link. This includes the existing Deanmill Heritage Trail which links Manjimup and Deanmill. An eastwards extension to King Jarrah would provide a 10km long route and green corridor.

Another main routes is the link between the Manjimup Timber & Heritage Park and the major recreation complex at Collier Street/Rea Park and educational institutes on Graphite Road.

Other Primary routes within this townsite generally lie along major roads such as South Western Highway, Giblett Street, and Rutherford Street, in order to provide safe, effective routes for pedestrians and cyclists.

Figure 2-6 South Western Highway

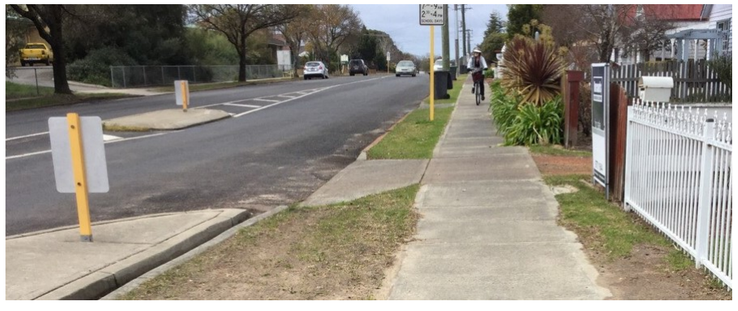


Figure 2-7 Ipsen Street

In coordination with the development of the proposed *Linear Recreation Park*, primary routes have been proposed along Giblett Street and Rose Street, within the town centre area, interacting with the Spine.

Another primary route link is proposed along Rutherford Street to connect schools and the north-west precincts into the Town Centre.

Seven Day Road provides connection to several key attractions outside of the townsite area. While there is currently insufficient demand to warrant the construction of a dedicated off-street shared path, an alternative treatment, consisting of extending the road seal and demarcating an on-road, buffered shared path, could represent a cost-effective alternative and could be considered in the long term.

End of Trip facilities have been strategically proposed along higher demand Spine and Primary routes, adjacent to trip attractors and destination hubs.

2.5.3 Secondary Network

The Secondary Network facilitates active travel within the local neighbourhood and to Primary and Spine Networks. The main secondary routes lie along a few corridors; Lock Street, Somerville Street, Leman Street, Moore Street, Mount Street and Bath Street, where residential development is concentrated.

Figure 2-8 Mount Street

2.6 Implementation Programme

For each of the proposed networks within the Manjimup townsite, the existing infrastructure has been compared with the ultimate form. Where required, improvements have been recommended including new paths, replacement or upgraded facilities, spot maintenance, or even removal of paths. The long-term vision for path infrastructure in the Manjimup townsite is described in Figure 2-11. Through MCA analysis and order of cost estimation (Appendix A, works have been ranked and priced accordingly (Table 2-2).

2.7 Summary

A summary of the existing path network, proposed works on these and new paths is provided in below table.

At the time of developing this plan, Manjimup town had approximately 30 kilometres of paths. A large number of these paths have been installed many years ago; Manjimup has the oldest path infrastructure compared to Pemberton, Northcliffe and Walpole. The proposed path renewals and upgrades are in line with this age.

A number of paths duplicate a component of the network (for example where there are paths on both sides of the same road without a specific need for this duplication). Other paths do not contribute to the path network and thus do not contribute to safety or connectivity. Such paths should be removed before or when they become unserviceable or unsafe.

The construction of new paths, and thus, the future increase in path network, is largely caused by the creation of paths in the railway reserve (Linear Park), the completion of a number of residential links and a potential path along Seven Day Road.

With regards to the estimated cost required for the proposed constructions/works, it should be noted that this investment would be required over a 10 year period. Note: this amount does not include any path sections that will be funded through the Manjimup Town Centre Revitalisation Project.

Table 2-1 Path Summary Manjimup Townsite

Total of existing paths	30,546m
Removal of existing paths	2,944m
Construction of new paths	9,307m
Service/ maintenance of paths	760m
Renewal/ upgrade of paths	13,523m
Total of future paths	36,909m
Total estimated cost required	$4,973,000

Figure 2-9 Manjimup Townsite: Land Uses and Trip Attractors

This map describes the land uses and trip attractors, future development locations and trail connections within the Manjimup townsite.

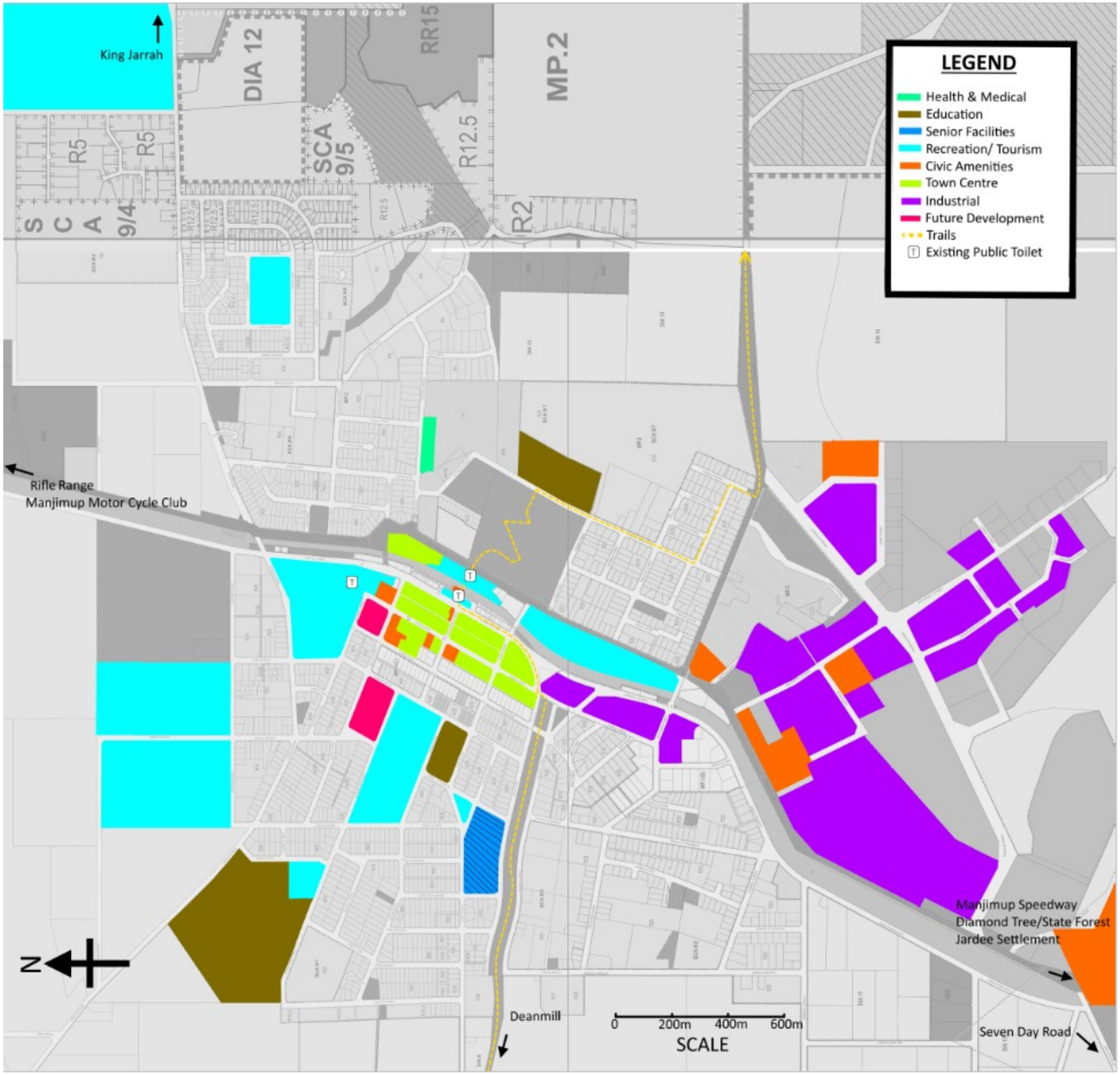


Figure 2-10 Manjimup Townsite: Existing Path Network

This map details the extent of the existing path network.

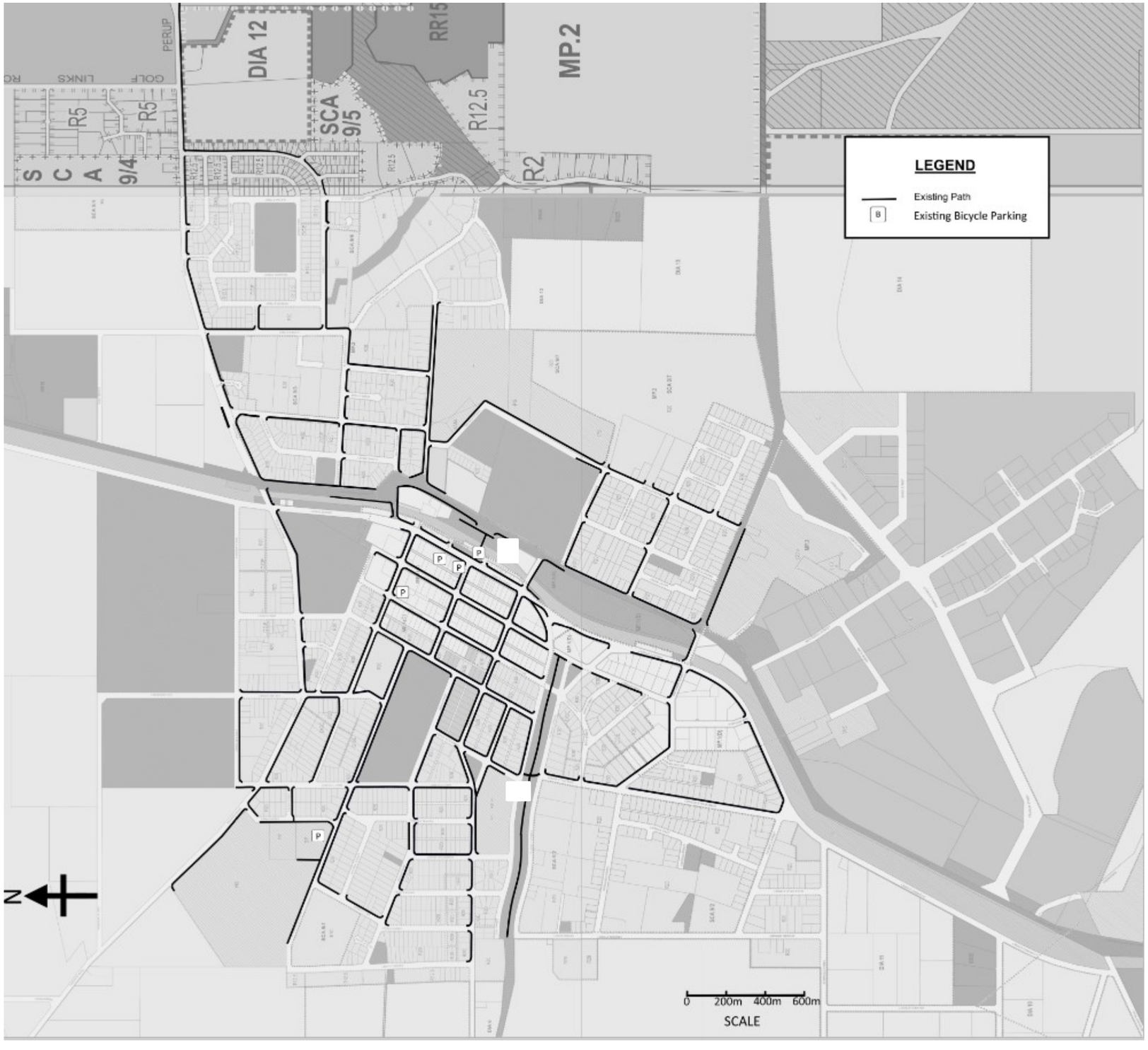


Figure 2-11 Manjimup Townsite: Proposed Pedestrian/Cycling Network

This map defines the proposed pedestrian and cycling network, the hierarchy of infrastructure, and locations of end-of-trip facilities and wayfinding signage.

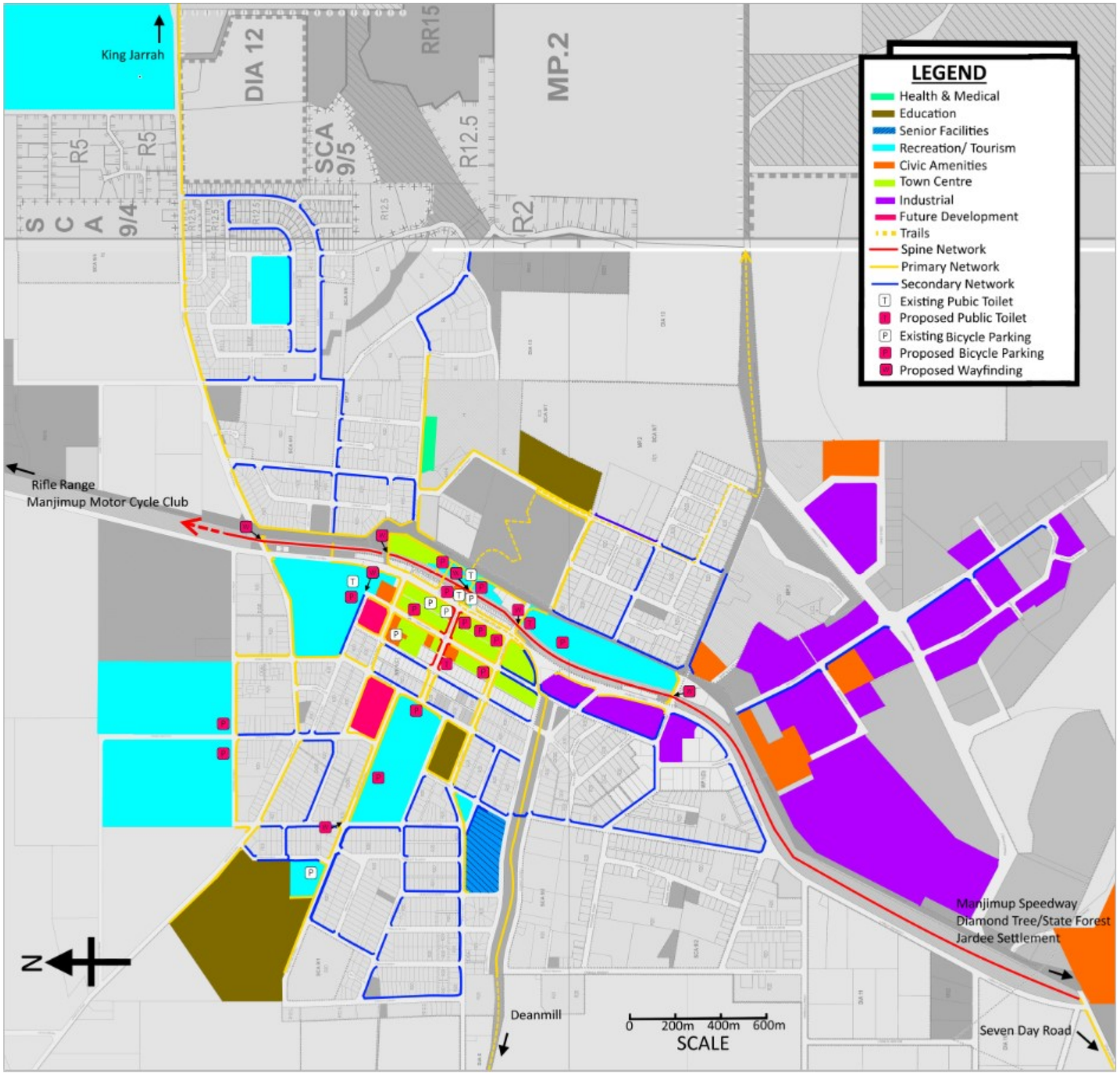


Figure 2-12 Manjimup Townsite: Implementation Plan

This map defines the extent of works required to realise the proposed pedestrian and cycling network, as detailed in the Implementation Works Program for Manjimup (Table 2-2).

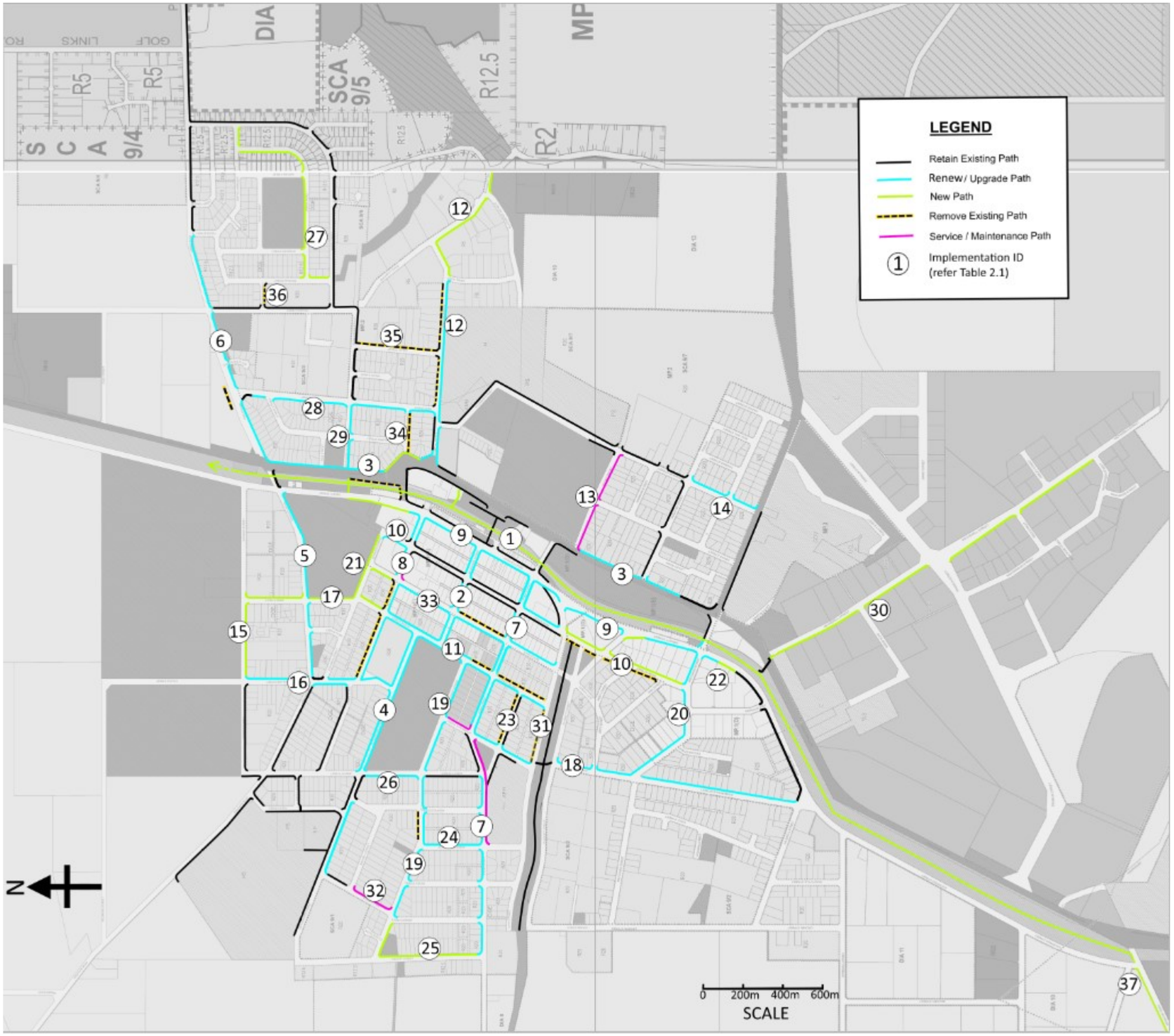


Table 2-2 Manjimup Townsite: Infrastructure Works Programme and Order of Cost Estimate

More information on cost calculation and MCA scoring can be found in Chapter 1.9.4. Audit data from the Saddle Survey are provided in Appendix C.

No. ID	Project Name	Network	Project Description	Start	End	Length (m)	Cost Estimation	Connec-tivity	Eco-nomic	Safe-ty	Stake-holder & Public Demand	Average Score	Rank
1	Linear Park	Spine	a. Construct new path in railway reserve	Graphite Road	Pritchard Street	1800	Manjimup Town Centre Revital.	10	9	10	10	9.75	1
			b. Construct new path in railway reserve	Pritchard Street	Seven Day Road	1860	TBD	6	7	8	7	6.95	18
2	Brockman Street	Spine	a. Upgrade existing path on both sides	Giblett Street	Bath Street	230	$ 220,000	10	10	9	9	9.55	2
		Primary	b. Upgrade existing paths on both sides	Bath Street	Moore Street	100	$ 75,000	9	8	9	9	8.75	4
3	South Western Highway/ Mottram Street	Primary	a. Construct new path	Hospital Avenue	Ralston Street	200	$ 65,000	9	8	7	7	7.85	8
			b. Upgrade existing path	Ralston Street	Perup Road	460	$ 150,000	9	6	7	9	7.75	9
			c. Construct new path	Brain Street	Wetherell Street	200	$ 70,000	5	5	7	5	5.5	30
		Secondary	d. Renew existing path	Young Street	Wheatley Street	240	$ 60,000	9	6	7	9	7.75	9
			e. Only renew the existing unserviceable path	Wheatley Street	Brain Street	90	$ 20,000						
4	Rutherford Street	Primary	a. Upgrade existing northern part	Moore Street	Finch Street	508	$ 150,000	8	7	7	9	7.7	10
			b. Provide line marking on newly constructed part	Finch Street	Lintott Street	500	$ 3,000						
			c. Install concrete slab on the missing part	In front of Manjimup Senior High School			$ 1,000						
			e. Upgrade existing southern path	Moore Street	Arnott Street	500	$ 160,000						
		Secondary	f. Renew existing poor path on southern side, including continuation through driveways	Arnott Street	Kelly Street	350	$ 90,000	7	7	8	8	7.45	12
5	Graphite Road	Primary	a. Upgrade existing path	Giblett Street	Ward Street	350	Manjimup Town Centre Revital.	9	8	9	9	8.75	4
			b. Upgrade existing path	Ward Street	Collier Street	240	$ 80,000						
6	Perup Road	Primary	a. Upgrade existing path, including minor servicing over the laneway	South Western Highway	Crowea Street	840	Manjimup Town Centre Revital.	9	9	9	9	9	3
		Other Path	b. Remove path on northern side, when it is deemed unserviceable	Opposite Muir Street		25	$ 2,000	-	-	-	-	-	-
7	Ipsen Street	Primary	a. Renew existing path on both sides	Giblett Street	Rose Street		Manjimup Town Centre Revital.	9	9	9	9	9	3

No. ID	Project Name	Network	Project Description	Start	End	Length (m)	Cost Estimation	Connec -tivity	Eco- nomic	Safe- ty	Stake- holder & Public Demand	Average Score	Rank
			b. Trim vegetation	Somerville Street	Robertson Street		Operational Budget	8	7	9	8	8	7
			c. Upgrade poor existing path on northern side, including laneway crossings	Rose Street	Moore Street	210	$ 70,000						
			d. Widen existing path on southern side and path on northern side along Kearnan College	Rose Street	Sommerville Street	600	$ 45,000						
		Secondary	e. Upgrade existing path, including laneway crossing	Arnott Street	Robertson Street	200	$ 50,000	7	7	7	6	6.8	19
			f. Upgrade existing path	Robertson Street	Lintott Street	310	$ 80,000						
8	Mount Street	Primary	a. Renew existing path on both sides	Giblett Street	Rose Street	200	Manjimup Town Centre Revital.	9	9	9	9	9	3
			b. Upgrade poor quality path on northern side along proposed Wellness & Respite Community Centre	Rose Street	Bath Street	100	$ 35,000						
			c. Maintain poor sections and kerb ramps of brick paving on southern side	Rose Street	Bath Street	100	Operational Budget						
			d. Upgrade existing path	Bath Street	Collier Street	360	$ 110,000						
			e. Remove existing path on northern side, when it is deemed unserviceable	Rose Street	Collier Street	440	$ 20,000	-	-	-	-	-	-
9	Giblett Street	Primary	a. Construct new path	Blenchynden Street	Mount Street	220	$ 75,000	9	9	9	9	9	3
			b. Renew existing path	Mount Street	Ipsen Street	460	Manjimup Town Centre Revital.						
			c. Renew existing path	Ipsen Street	Lock Street	140	$ 25,000						
			d. Construct new path and renew existing path	Lock Street	Plunkett Street	240	$ 80,000	7	8	9	9	8.15	6
			e. Construct new path and renew existing path	Plunkett Street	Pritchard Street	250	$ 80,000						
10	Rose Street	Primary	a. Upgrade poor path along proposed Wellness & Respite Community Centre	Mount Street	Edward Street	110	$ 35,000	9	9	9	9	9	3
		Secondary	b. Remove the poor existing path on the western side, when it is deemed unserviceable	Lock Street	Rae Street	320	$ 15,000	-	-	-	-	-	-
			c. Construct new path on eastern side	Lock Street	Pritchard Street	460	$ 130,000	5	5	6	6	5.45	31

No. ID	Project Name	Network	Project Description	Start	End	Length (m)	Cost Estimation	Connec -tivity	Eco- nomic	Safe- ty	Stake- holder & Public Demand	Average Score	Rank
			d. Upgrade existing/ construct new path on eastern side	Ipsen Street	Lock Street	160	$ 50,000						
11	Moore Street	Primary	a. Upgrade existing path on western side	Mount Street	Ipsen Street	450	$ 140,000	9	9	8	9	8.75	4
			b. Construct new path on eastern side	Mount Street	Edwards Street	118	$ 30,000						
		Secondary	c. Upgrade existing path on western side, including laneway crossing	Ipsen Street	Lock Street	100	$ 25,000						
		Secondary	d. Upgrade existing path on eastern side	Leman Street	Mount Street	330	$ 75,000						
			e. Remove existing path on eastern side, when it is deemed unserviceable	Leman Street	Lock Street	340	$ 16,000	-	-	-	-	-	-
12	Hospital Avenue/ Blackbutt Drive	Primary	a. Upgrade existing path on southern side (upon completion of the new hospital construction, including site inspection and review of the cost)	Mottram Street	Simms Court	600	$ 180,000	7	6	6	7	6.5	21
		Secondary	b. Remove existing path on northern side, when it is deemed unserviceable	Muir Street	Simms Court	320	$ 15,000	-	-	-	-	-	-
			b. Construct new path on southern side	Simms Court	Tobin Road	480	$ 120,000	4	2	7	5	4.45	35
13	Young Street	Primary	Upgrade poor quality path, including continuation through driveway	Mottram Street	O'Connor Street	330	$ 110,000	8	8	7	8	7.75	9
14	O'Connor Street	Secondary	Renew existing path	Wheatley Street	Brain Street	211	$ 60,000	5	4	5	5	4.75	34
15	Johnson Street	Primary	Construct new path	Collier Street	Ward Street	250	$ 60,000	8	6	5	5	6.15	24
16	Collier Street	Primary	a.Upgrade existing path	Rutherford Street	Mount Street	123	$ 40,000	8	6	8	8	7.5	11
		Secondary	b. Renew existing path on eastern side	Mount Street	Edwards Street	100	$ 30,000	8	7	6	8	7.25	14
			c. Upgrade existing path on western side	Mount Street	Graphite Road	130	$ 40,000						
			d. Renew existing path on eastern side	Graphite Road	Johnson Street	260	$ 70,000						
17	Ward Street	Primary	a. Construct a new path	Edwards Street	Johnson Street	440	$ 150,000	8	7	8	8	7.75	9
18	Somerville Street	Primary	a. Replace the damaged kerb ramps	Ipsen Street	Leman Street		$ 2,000	8	8	8	8	8	7
		Secondary	b. Renew the existing path on eastern side, including laneway crossings	Ipsen Street	Lock Street	220	$ 60,000	7	6	8	8	7.2	15
			c. Upgrade existing path	Plunkett Street	Pritchard Street	280	$ 75,000	6	5	5	6	5.5	30
		Secondary	d. Upgrade existing path	Pritchard Street	Chopping Street	531	$ 140,000						
19	Leman Street	Primary	a. Upgrade existing path (pending road closure proposal)	Moore Street	Somerville Street	210	$ 60,000	8	8	8	8	8	7

No. ID	Project Name	Network	Project Description	Start	End	Length (m)	Cost Estimation	Connec -tivity	Eco- nomic	Safe- ty	Stake- holder & Public Demand	Average Score	Rank
		Secondary	b. Upgrade existing path	Somerville Street	Arnott Street	190	$ 45,000	7	6	6	7	6.5	21
		Secondary	c. Upgrade existing path, including laneway crossings	Arnott Street	Robertson Street	210	$ 50,000						
			d. Upgrade existing path	Robertson Street	Limmer Street	240	$ 55,000						
			e. Construct new path	Limmer Street	Lintott Street	130	$ 30,000						
			f. Remove existing path, when it is deemed unserviceable	Highfield Street	Robertson Street	107	$ 5,000	-	-	-	-	-	-
20	Pritchard Street	Primary	a. Upgrade poor section	Railway line	Giblett Street	30	$ 11,000	8	6	8	6	7.1	16
		Secondary	b. Upgrade existing path	Giblett Street	Somerville Street	500	$ 120,000	6	5	6	6	5.75	28
			c. Provide kerb ramps to ensure safe crossing around power pole	Corner of Giblett Street and Pritchard Street			$ 4,000						
21	Edwards Street	Secondary	Construct new Path	Rose Street	Ward Street	240	$ 70,000	7	8	8	7	7.5	11
22	Chopping Street	Secondary	Construct new path and renew the existing path	Pritchard Street	Don McKay Place	86	$ 25,000	7	5	7	5	6.1	25
23	Duffield Street	Secondary	Remove the one existing path on northern/ southern side, when it is deemed unserviceable	Moore Street	Somerville Street	200	$ 10,000	-	-	-	-	-	-
24	Robertson Street	Secondary	Upgrade existing path	Leman Street	Ipsen Street	236	$ 55,000	6	4	5	6	5.25	33
25	Lintott Street	Secondary	Construct new path	Leman Street	Ipsen Street	418	$ 110,000	7	5	6	5	5.85	27
26	Arnott Street	Secondary	Upgrade existing path	Leman Street	Rutherford Street	223	$ 55,000	7	6	8	7	7	17
27	Boronia Street/ Jarrah Road/ Wattle Crescent	Secondary	Construct new path	Karri Street	Jarrah Road	90	$ 25,000	7	5	7	6	6.3	22
		Secondary	a. Construct new path	Boronia Street	Sheoak Street	330	$ 85,000						
			b. Construct new path	Sheoak Street	Wattle Crescent	360	$ 65,000						
			c. Construct new path	Jarrah Road	Karri Street	90	$ 17,000						
28	Muir Street	Secondary	a. Upgrade existing path	Hospital Avenue	Blechynden Street	301	$ 70,000	7	6	8	8	7.2	15
			b. Upgrade existing path	Perup Road	Blechynden Street	430	$ 100,000	6	5	6	7	5.95	26
29	Blechynden Street	Primary/ Secondary	a. Construct new path, including crossing along proposed roundabout	Giblett Street	Clarke Street	200	Manjimup Town Centre Revital.	9	7	9	9	8.5	5
		Secondary	b. Upgrade existing path	Clarke Street	Muir Street	110	$ 30,000	8	6	8	7	7.3	13
30	Wetherell Street	Secondary	a. Construct new path	South Western Highway	Franklin Street	600	$ 110,000	6	4	7	5	5.55	29
			b. Construct new path	Franklin Street	Margerison Street	600	$ 110,000						
31	Lock Street	Secondary	Remove existing path, when it is deemed unserviceable	Moore Street	Somerville Street	200	$ 10,000	-	-	-	-	-	-
32	Kelly Street	Secondary	Trim vegetation	Leman Street	Maxwell Street		Operational Budget	-	-	-	-	-	-

No. ID	Project Name	Network	Project Description	Start	End	Length (m)	Cost Estimation	Connec -tivity	Eco- nomic	Safe- ty	Stake- holder & Public Demand	Average Score	Rank
33	Bath Street	Secondary	a. Upgrade existing path on eastern side	Lock Street	Ipsen Street	200	$ 45,000	7	6	7	7	6.75	20
			b. Upgrade existing path on western side	Brockman Street	Mount Street	220	$ 50,000						
			c. Construct new path on eastern side	Mount Street	Edwards Street	105	$ 20,000						
			d. Remove existing path on eastern or western side, when it is deemed unserviceable	Ipsen Street	Brockman Street	220	$ 20,000	-	-	-	-	-	-
34	Ralston Street	Other Path	a. Remove existing poor path, when it is deemed unserviceable	Mottram Street	Muir Street	151	$ 7,000	-	-	-	-	-	-
			b. Remove existing poor path, when it is deemed unserviceable	Ralston Street, opposite Woolworths access	200m north	200	Manjimup Town Centre Revital.						
35	Doust Street	Other Path	Remove existing path (after upgrade of Muir Street; Hospital Avenue to Blechynden Street section)	Hospital Avenue	Blechynden Street	340	$ 15,000	-	-	-	-	-	-
36	Casuarina Street	Other Path	Remove existing path when deemed unserviceable, when it is deemed unserviceable	Stokes Street	Boronia Street	81	$ 5,000	-	-	-	-	-	-
37	Seven Day Road	Primary	Proposed safe corridor for pedestrians/cyclists. Due to the length of the proposed path, an on-street option or trail may be more realistic than a separate path.	South Western Highway	Appadene Road/ Palings Road	7100	TBD	6	4	7	4	5.35	32
38	Link Robertson St – Deanmill Heritage Trail	Secondary	Upgrade steep and eroded track behind Dunreath Cottages/Moonya Nursing Home to improve accessibility to Trail.	Robertson Street	Deanmill Heritage Trail	45	TBD	7	5	7	6	6.25	23

3 Pemberton Townsite

Pemberton townsite is located approximately 24kms south west of the Manjimup Townsite. Pemberton is known for its tourism as a natural environment attraction, with memorable experiences such as the Gloucester and Bicentennial Fire lookout trees as well as the many national parks. Pemberton covers an area of 16.8km². As of 2016 census, there were 974 people living in Pemberton, where children aged 0 to 14 years made up a population of 20.3% and residents aged 65+ years of age consisted of 19.3% of the population. 442 of the population were reported to be working at the time of the census and of the working population, 13.9% indicated they walked only as their method of travel to work. 31.1% of the population attend an educational institution and of these 30.6% were in primary school, 27.3% in secondary school and 7.7% in a tertiary or technical institution.

3.1 Trip Attractors

Key land uses and trip attractors (Figure 3-7) have been used to determine the route destinations for cycling trips within the townsite. This includes connections to existing trails to connect formal path infrastructure to recreational routes.

3.2 Recreation, Tourism and Heritage

Pemberton is a key tourism destination, with community efforts in this area being rewarded with two Top Tourism Town awards in September 2017.

The famous Mountain Bike Australia Race series is held in Pemberton townsite and attracts significant participation and spectators across a host of events. In addition, a popular cycling event: the Pemberton Classic Road Cycle Race, attracts world class cyclists through to novice riders. The Karri Valley Triathlon is also held annually in the area.

Cycling and walking tourism presents an excellent opportunity for Pemberton as there is a large number of nature trails in the area. Both the Munda Biddi and Bibbulmun Track are easily accessible from the Pemberton townsite, shown in Figure 3-1. In addition, local mountain bike recreation is available within the townsite itself, at the Pemberton Mountain Bike Park.

Event tourism presents an excellent opportunity for Pemberton, with the Mountain Bike Park hosting events like the Peel District Mountain Bike Club Roller Club Race. The Unearthed Pemberton festival runs annually in April and showcases Food, Wine, Art, Heritage and Adventure for the townsite.

Upgrades to the existing Trails/Tracks and the Mountain Bike Park as recommended by the South West Mountain Bike Master Plan will reinforce the attractiveness of local recreational tourism, as well as provide high-quality facilities for local residents.

Pemberton provides a hub for local sports and recreation activities across a range of disciplines, as well as being a destination for tourists taking part in these events. Pemberton also has abundant opportunities to showcase its heritage (e.g. buildings and infrastructure). This plan will reinforce the attractiveness of Pemberton by providing high-quality facilities for residents and visitors, with this chapter focusing on walking/bicycling infrastructure within the townsite. Long term plans for connecting towns and future trails can be found in chapter 6.

Figure 3-1 Munda Biddi Trail and Bibbulmun Track alignment in/near Pemberton Townsite
Source: Munda Biddi Trail and Bibbulmun Track Foundations (2017)

Pemberton is remarkable for its magnificent tall karri trees, watercourses, and picturesque towns, and has the potential to be developed into a site of national significance. It is identified as a **National Hub** in the *South West Mountain Bike Master Plan* and four sites of interest are highlighted in this document.

A. Pemberton Forest Park
B. Gloucester National Park and Brockman State Forest
C. Commercial Private Land (trails connecting town to wineries, restaurants, farms, etc.)
D. Warren/Greater Hawke National Park

These sites are shown in Figure 3-2 and are important for residents as well as visitors. This plan references these sites by integrating access routes and locations into the proposed network.

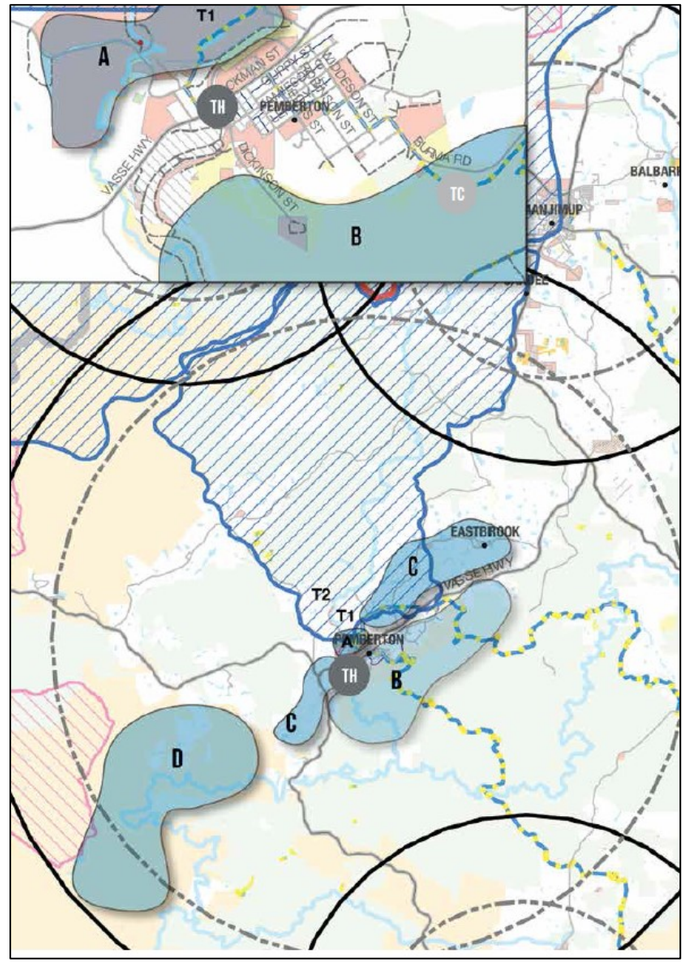


Figure 3-2 Opportunity Sites within Pemberton Townsite
Source: South West Mountain Bike Master Plan

3.3 Cycle Network Planning

The proposed path networks focus on providing an integrated network to connect key attractors and land uses in the region and are segregated into the three components; Spine, Primary and Secondary Networks.

3.3.1 Spine Network

The Spine Network serves as the 'highway' for pedestrians and cyclists, connecting with other networks and destinations and providing navigation cues to direct people from place to place.

Within the Pemberton townsite, the Spine route consists of Brockman Street from the town centre to the Pemberton Sports Centre. This route forms the main trunk that connect with the primary routes (that pick up the majority of local trip attractors).

To complete the Brockman Street Spine, the construction of one missing section, between the Pemberton Backpackers and the Pemberton Sports Centre, is proposed.

Figure 3-3 Brockman Street

The use of wayfinding on the 'spine' of Pemberton will greatly improve the ease of navigating for tourists and residents alike, and better connect the townsite and its surroundings.

3.3.2 Primary Network

The Primary Network is designed to extend the Spine route to other key land uses, along a network of high-quality paths. An example of such Primary routes is the existing route Ellis Street -Kennedy Street - Pemberton District High School (Figure 3-4 and Figure 3-5).

In addition new path sections, forming a Primary route, are proposed for Club Road and Swimming Pool Road, providing safe, quality connections to recreation facilities including the Pemberton Sports Centre, the skate park, the Camp School, the Mountain Bike Park and the Swimming Pool. This proposed route does not utilise the Swimming Pool Road section that connects with Brockman Street, as this road is too narrow (only 10m wide) for a path to be established.

The possibility to construct a path along the extension of Swimming Pool Road, between Pump Hill Road and Brockman Street, has been previously investigated. Due to road geometry constraints (road reserve too narrow) construction of a path is not feasible. This road has very low traffic volumes and already provides a safe and appealing walking/cycling environment. As an alternative path, a path continuation has been proposed along Club Road.

The construction of a new path on Burma Road, from the Pemberton District High School to the trail head to Gloucester Tree, will complete the link from the town to this major tourist destination. This path section is also part of the Munda Biddi Trail and Bibbulmun Track.

End of Trip facilities have been strategically proposed along the Spine and Primary routes in areas of high demand, at the Sports Centre and the Swimming Pool in particular.

Figure 3-4 Ellis Street

Figure 3-5 Kennedy Street

3.3.3 Secondary Network

The Secondary Network is designed to facilitate travel within the local neighbourhood and to connect residential and employment areas to the Primary Network and Spine Network.

Existing north-south connections along Robinson Street and Widdeson Street form the basis for secondary paths through the neighbourhood. The construction of a number of missing sections on Widdeson Street is proposed, in order to complete the connection to the Primary route on Kennedy Street.

The path connection between Robinson and Brockman on the southern side of Vasse Highway has a missing section (in front of the petrol station), which cannot be completed due to private property. However there are numerous alternative routes from the townsite to Brockman Street. It would be valuable to create a connection from Brockman Street East to Railway Crescent.

Figure 3-6 Robinson Street

The route along Widdeson Street currently does not fully link up with the Spine path on Brockman Street; the section across Railway Crescent has not been built, due to constraints along the southern side of Brockman Street (existing private business infrastructure). The only viable option to complete the connection from Widdeson Street to the town centre, is the construction of a path section on the northern side of Brockman Street. This however would result in two highway crossings.

The Browns Road subdivision is situated at the east of Pemberton. The distance from the town centre, along the highway, to the entrance road into the subdivision is 2km. The lots in this subdivision are mainly acreages/ lifestyle blocks, and thus the distances between dwellings are relatively large (much larger than in residential areas). The large geographical spread in dwellings means the subdivision is a low-density housing area. For this reason no new path is proposed along the highway. There is potential to upgrade existing trails currently used by locals, providing a safe route compared to the highway, in the railway reserve and the bush.

3.4 Implementation Programme

For each of the proposed networks within the Pemberton townsite, the existing infrastructure has been compared with the long-term vision for path infrastructure (as shown in Figure 3-9).

Where required, improvements have been recommended including new paths, replacement or upgraded facilities, spot maintenance, or even removal. The proposed interventions are shown in Figure 3-10. Through MCA analysis and order of cost estimation (Appendix A), proposed works have been ranked and priced accordingly (Table 3-2).

3.5 Summary

A summary of the existing path network and proposed works on these and new paths is provided in the following table.

At the time of developing this plan, the Pemberton townsite had approximately 3.5 kilometres of paths. Most of these paths are relatively new and in good condition. As such only a few path sections require renewal/upgrades.

One existing path section duplicates a component of the network, meaning there are paths on both sides of the same road without a specific need for this duplication. This path should be removed before or when it becomes unserviceable or unsafe.

The construction of new paths, and thus, the future increase in the path network, is largely caused by the creation of paths on Swimming Pool Road, Widdeson Road and Burma Road.

With regards to the estimated cost required for the proposed constructions/works, it should be noted that this investment would be required over a 10 year period.

Table 3-1 Path Summary Pemberton Townsite

Total of existing paths	3,657m
Removal of existing paths	143m
Construction of new paths	1,524m
Service/ maintenance of paths	110m
Renewal/ upgrade of paths	485m
Total of future paths	5,038m
Total estimated cost required	$640,000

Figure 3-7 Pemberton Townsite: Land Uses and Trip Attractors

This map describes the land uses and trip attractors, future development locations and trail connections within the Pemberton townsite.

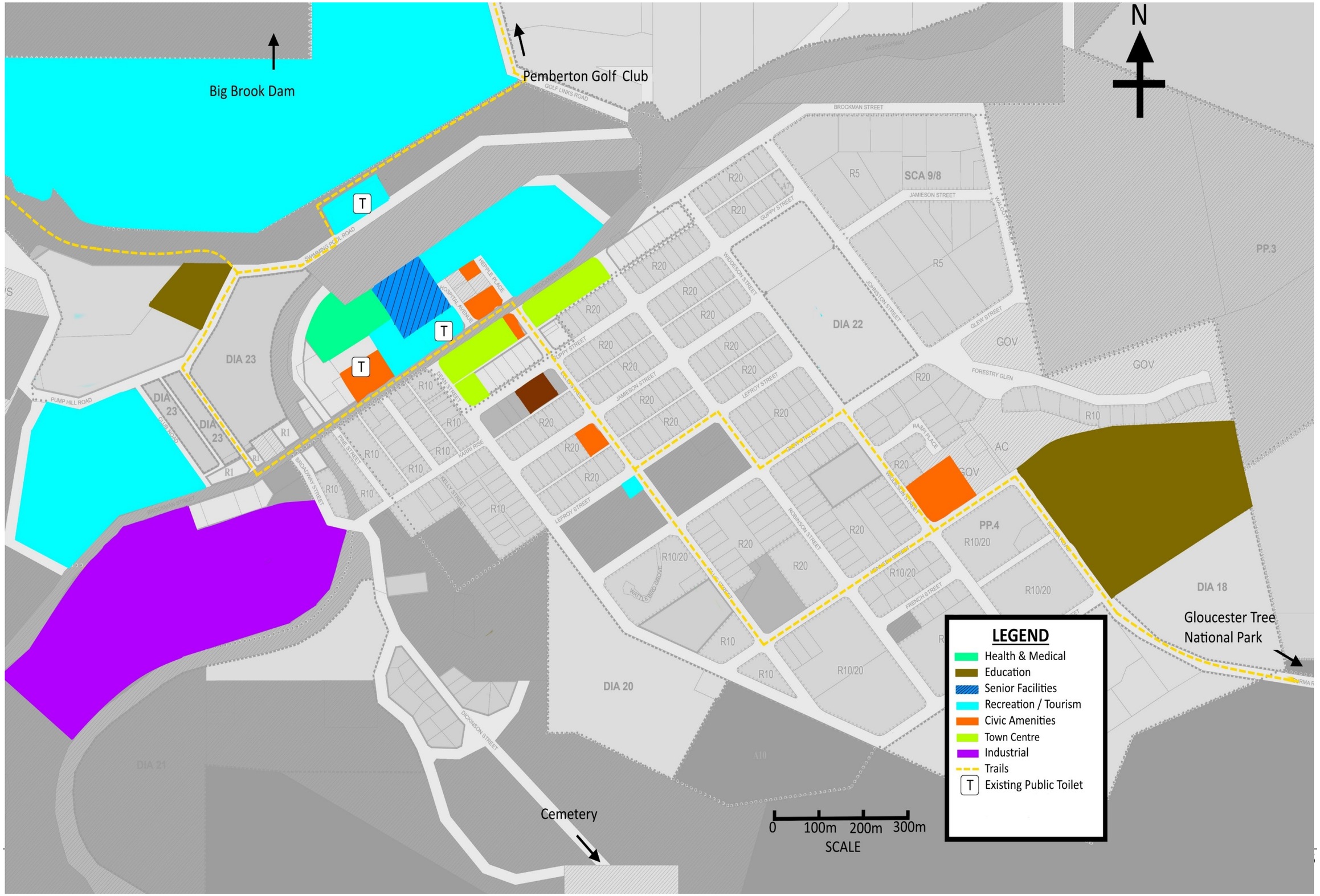


Figure 3-8 Pemberton Townsite: Existing Path Network

This map details the extent of the existing path network.

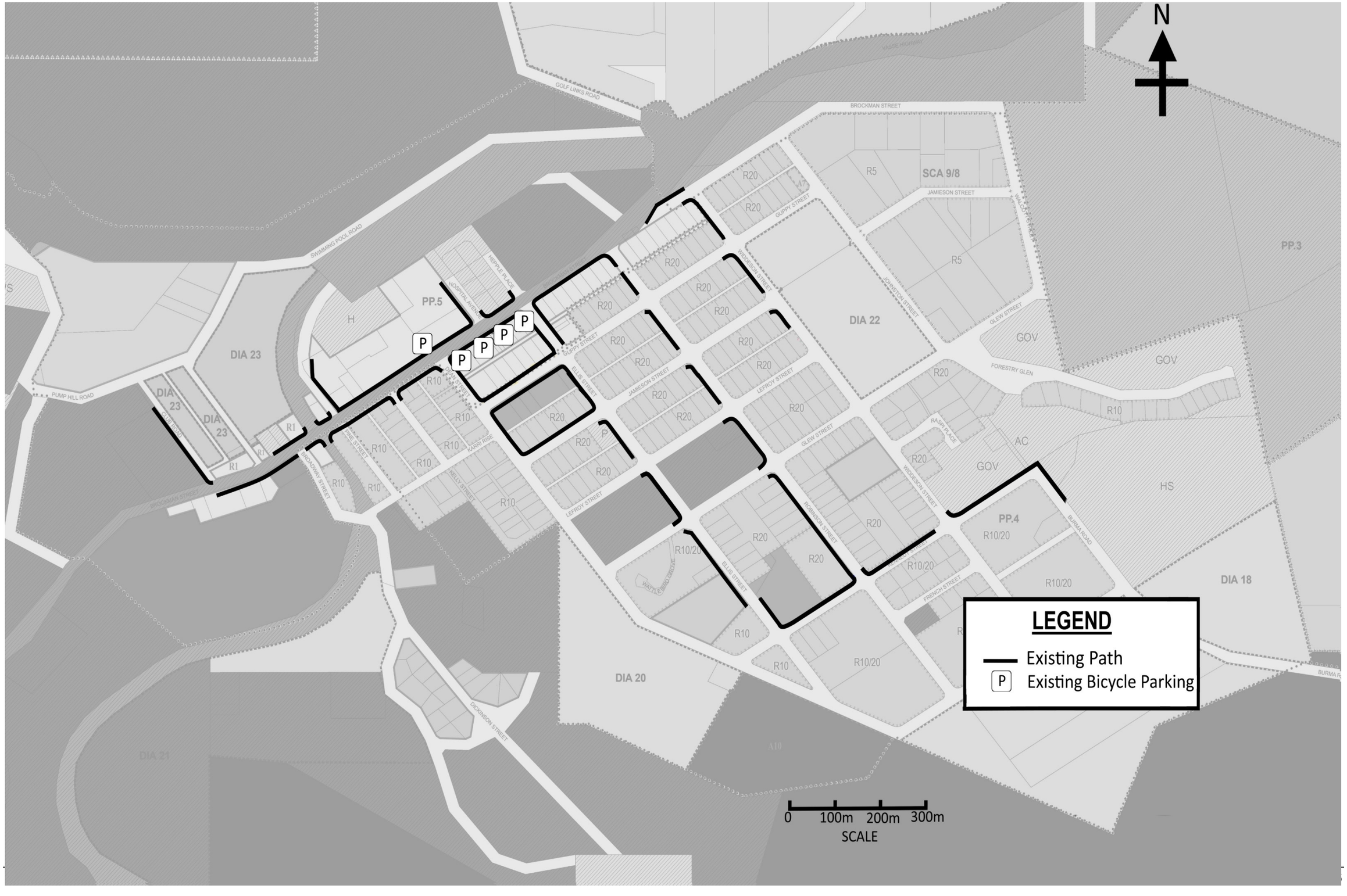


Figure 3-9 Pemberton Townsite: Proposed Pedestrian/Cycling Network

This map defines the proposed pedestrian and cycling network, the hierarchy of infrastructure, and locations of end-of-trip facilities and wayfinding signage.

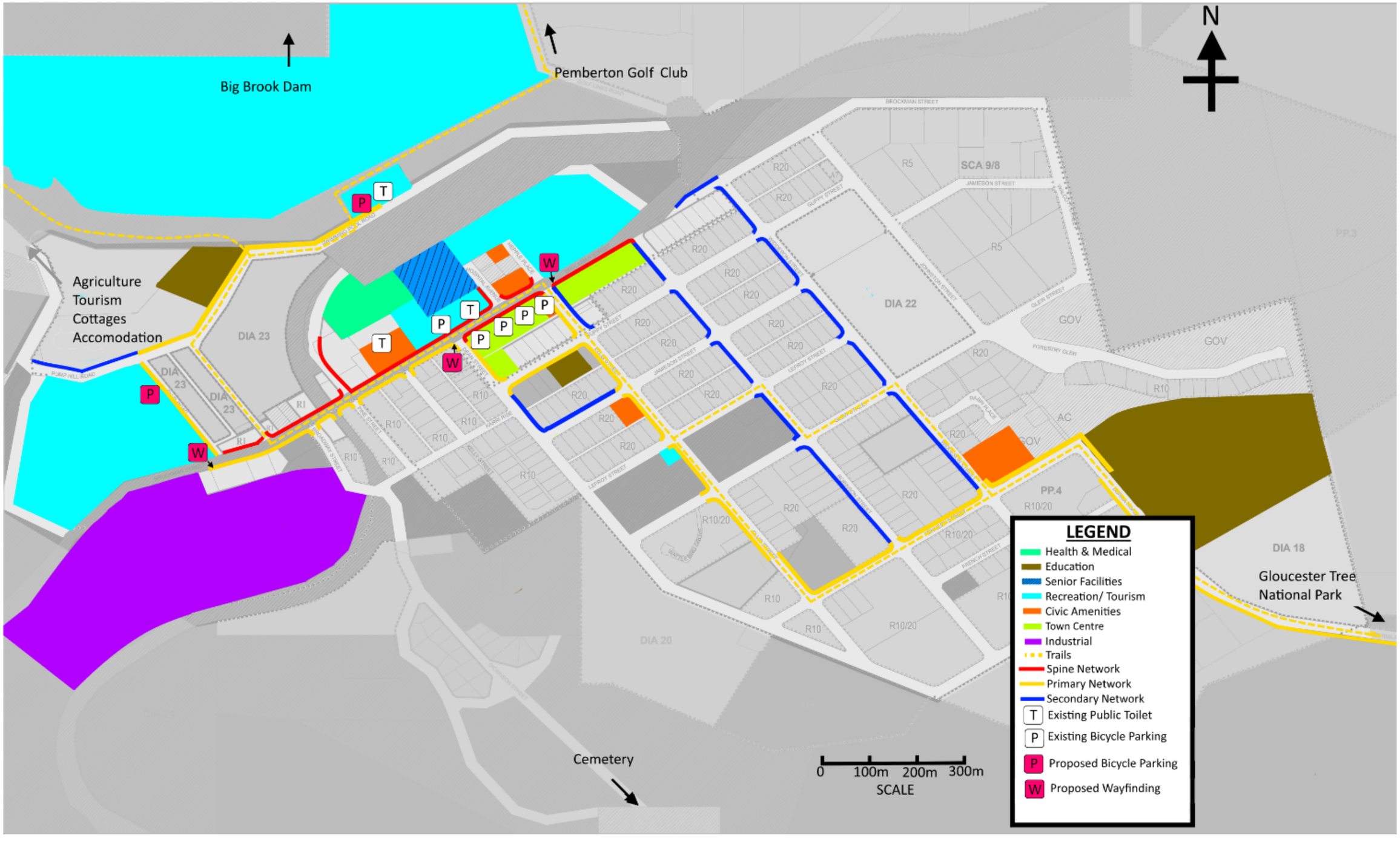


Figure 3-10 Pemberton Townsite: Implementation Plan

This map defines the extent of works required to realise the proposed pedestrian and cycling network, as detailed in the Implementation Works Program for Pemberton.

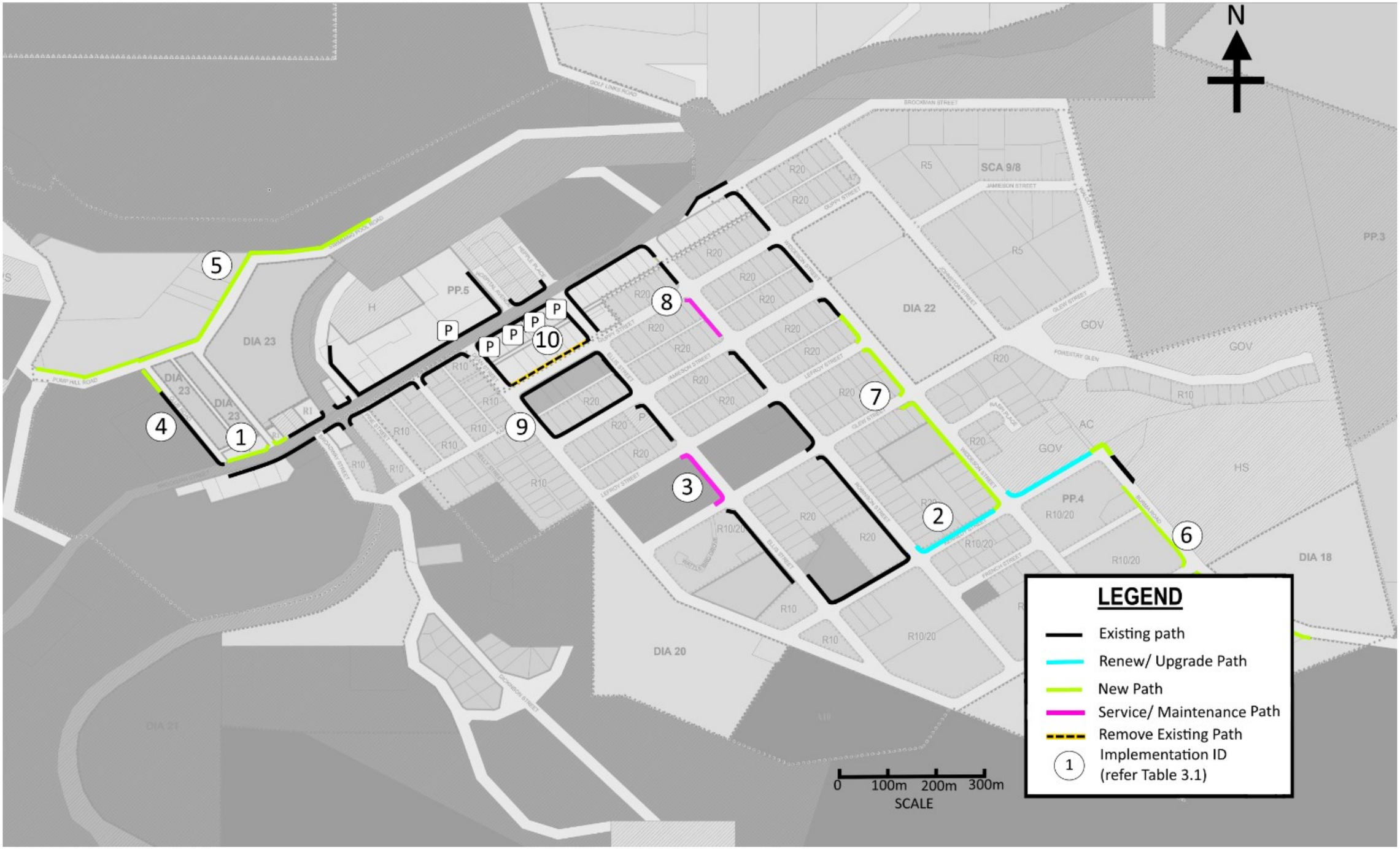


Table 3-2 Pemberton Townsite: Infrastructure Works Programme and Order of Cost Estimates

More information on cost calculation and MCA scoring can be found in Chapter 1.9.4. Audit data from the Saddle Survey are provided in Appendix C.

No. ID	Project Name	Network	Project Description	Start	End	Length (m)	Cost Estimation	Connec-tivity	Eco-nomic	Safety	Stake-holder & Public Demand	Average Score	Rank
1	Brockman Street	Spine	a. Construct new/ upgrade path sections	Club Road	Just east of Swimming Pool Road	100	$ 40,000	9	9	9	9	9	1
		Primary	b. Cleaning regularly of stormwater run-off or drainage options	Kelly Street	Dean Street		Operational budget	-	-	-	-	-	-
		Secondary	c. Construct universal access ramps to connect with Railway Cr.	Across Vasse Highway		-	$ 5,000	8	5	9	6	7.1	7
2	Kennedy Street	Primary	a. Upgrade the existing path	Ellis Street	Burma Road	480	$ 160,000	8	7	7	7	7.3	6
			b. Construct new path in corner	Kennedy Street	Burma Road	50	$ 25,000	8	9	9	8	8.5	2
3	Ellis Street	Primary	Servicing on existing cracked path and laneway	Corner of Glew Street		5	Operational budget	-	-	-	-	-	-
4	Club Road	Primary	a. Construct new path	In front of Skate Park		42	$ 15,000	7	9	9	9	8.4	3
			b. Servicing required at southern corner	North of Brockman Street			Operational budget	-	-	-	-	-	
5	Pump Hill Road/ Swimming Pool Road	Primary	a. Construct new path	Club Road	Boundary lot swimming pool	300	$ 100,000	7	9	9	9	8.4	3
			b. Construct new path (to be discussed with Pemberton Visitor Centre)	Boundary lot swimming pool	swimming pool	100	TBD	-	-	-	-	-	-
			c. Construct new path	Club Road	Pump Hill Road (Department PIRD/F)	180	$50,000	6	7	8	6	6.75	8
6	Burma Road	Primary	b. Construct new path on south west side	Opposite PDHS entrance	Trail head to Gloucester Tree	400	$ 150,000	7	7	8	8	7.45	5
7	Widdeson Street	Secondary	a. Construct new path	Warne Lane	Glew Street	180	$ 50,000	7	7	9	7	7.5	4
			b. Construct new path	Glew Street	Kennedy Street	250	$ 70,000	-	-	-	-	-	-
8	Robinson Street	Secondary	a. Upgrade laneway crossing	Guppy Street	Jamieson Street	5	TBD	-	-	-	-	-	
			b. Construct new missing section of path (car parking bays will need adjustment)	Hotel car park entrance	Varnavides Lane	22	TBD	8	5	7	5	6.4	9
9	Dean Street	Secondary	a. Resolve water flow issue (requires an upgrade of Scaini Lane)	Dean Street/ Scaini Lane intersection		-	TBD	-	-	-	-	-	-
10	Guppy Street	Other Path	Remove existing poor path, when it is deemed to unserviceable	Dean Street	Ellis Street	143	$ 5,000	-	-	-	-	-	-

4 Northcliffe Townsite

Northcliffe townsite sits approximately 44kms south of Manjimup and it is bounded by Karri, Marri and Jarrah forests along with D'Entreaucasteaux and Shannon National Parks. It is also the gateway to the Windy Harbour settlement. Northcliffe covers an area of 27.4km². The population in Northcliffe (2016 Census) is 300 people, with 0-14 year olds making up 25.3% of the population and 65+ year olds making up 14.8%. There were 139 people who reported to be working in the week of the 2016 Census and 10.6% of the working population indicated that they walked only to work. 30.0% of the total population were attending an educational institution. Of these, 34.9% were in primary school, 26.7% were in secondary school and 5.8% were in a tertiary or technical institution.

4.1 Trip Attractors

Key land uses and trip attractors (refer Figure 4-7) have been used to determine the route destinations for cycling trips within the townsite. This includes connections to existing trails to connect formal path infrastructure to recreational routes.

4.2 Recreation and Tourism

Northcliffe hosts a number of events including the Karri Cup which is one of Western Australia's largest and longest running mountain bike events; the Karri Cup, held in the Southern Forests around the Northcliffe townsite.

This is key evidence that recreational cycling is an important part of both tourism and local community life. This plan can be used to reinforce the attractiveness of events by providing high-quality facilities for residents and visitors, connecting the townsite to local and regional attractions.

Northcliffe provides excellent cycling and walking tourism opportunities, with both the Munda Biddi Trail and Bibbulmun Track easily accessible from the Northcliffe townsite, shown in Figure 4-1. In addition, mountain biking opportunities are available nearby along the Forest Park Trail and Federation Trail, among others.

The Understory is a unique art in nature experience, with art works located along a 1.2km walk trail through native forest.

For the purpose of this Bicycle and Footpath Plan, infrastructure provision within the Northcliffe townsite considers connections to the trails network, so that these facilities may be used by residents and visitors without the need to access them via car.

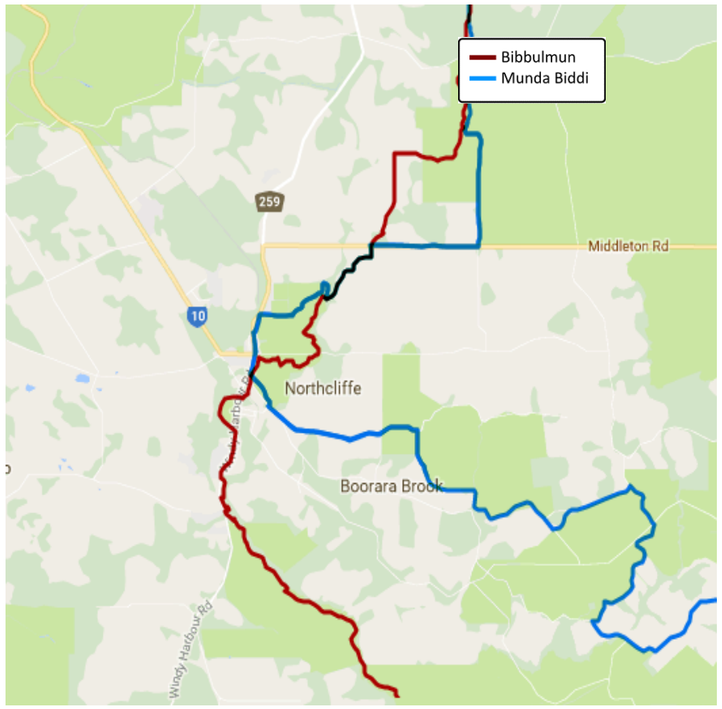


Figure 4-1 Munda Biddi Trail and Bibbulmun Track alignment in/near Northcliffe Townsite
Source: Munda Biddi Trail and Bibbulmun Track Foundations (2017)

Northcliffe has good opportunities to improve existing mountain bike facilities, featuring the area's tall forest and watercourses. It is identified within the *South West Mountain Bike Plan* as a **Local Hub**, with two sites specifically mentioned (Figure 4-2): Upgrades to the existing Boorara-Gardner National Park (A) and Forest Park (B) trails will reinforce the attractiveness of local recreational tourism, as well as provide high-quality facilities for local residents.

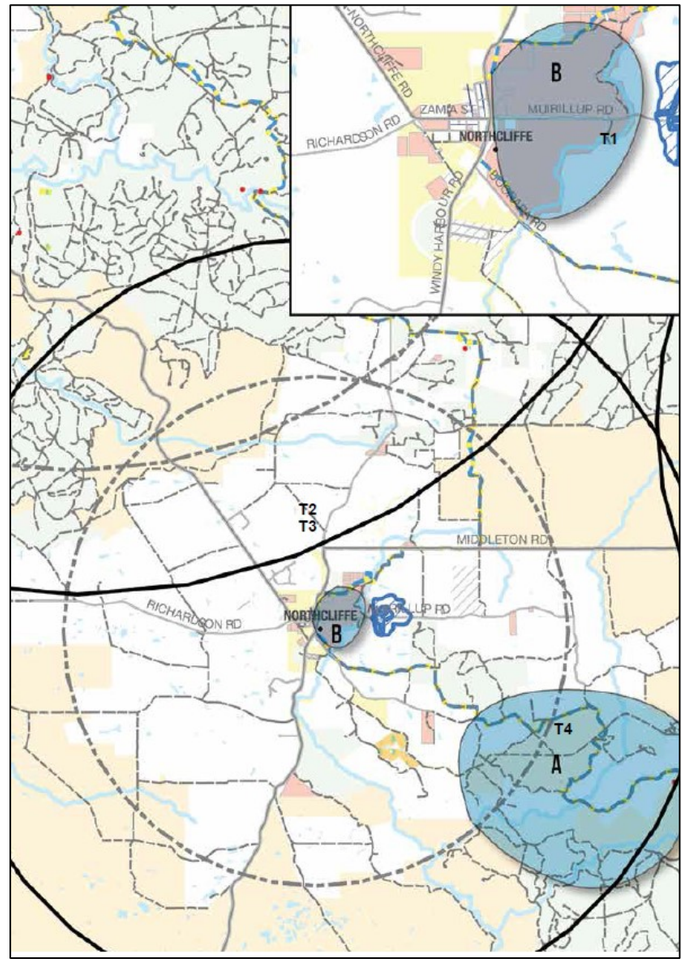


Figure 4-2 Opportunity Sites within Northcliffe townsite
Source: South West Mountain Bike Master Plan

4.3 Cycle Network Planning

The proposed path networks focus on providing an integrated network to connect key attractors and land uses in the region and segregated into the three components; Spine, Primary and Secondary Networks.

4.3.1 Spine Network

The Spine Network serves as the 'highway' for pedestrians and cyclists, connecting with other networks and destinations and providing navigation cues to direct people from place to place.

Within the Northcliffe townsite, Zamia Street functions as an effective Spine route, connecting key land uses including the Northcliffe Recreation Centre and town centre, as well as providing effective access to a range of local trip attractors and trails.

Wayfinding signage has been proposed at critical decision points along the spine and primary routes to assist in navigation to the key land uses.

Figure 4-3 Zamia Street

4.3.2 Primary Network

The primary network is designed to extend the Spine route to other key land uses, along a network of high-quality paths.

A short Primary section (14m) to complete the connection from the Spine path on Zamia Street to Jubilee Park, across Windy Harbour Road, is missing.

The Windy Harbour Road corridor operates as an important connector between the Visitors Centre, the Mill Housing Timber Cluster, and the Northcliffe Workers Club. Whilst some maintenance on this path, of 1km length, has been carried out in 2015, a full renewal of the path will be required in the future.

A supplementary Primary route along Zamia Street provides connection on the northern side of the road to the Skate Park and the Maze.

A proposed path on the southern side of Meerup Street will connect the seniors housing and the nursing post to the town centre via Windy Harbour Road and Banksia Street.

There is strong community demand to upgrade the existing trail from the town centre to the Northcliffe Recreation Grounds, located at the north of the town. A large part of this trail is situated on a railway reserve. As this land is not Shire owned/managed, there are significant (limiting) implications for upgrading this trail and sourcing funding for it. The Shire continues to lobby/ negotiate with the rail authority to allow the community to put this land to community purposes.

A proposed path along Main Road/ Cemetery Road will provide a western linkage from Zamia Street to Windy Harbour Road, creating a recreational town loop.

End of Trip facilities have been strategically located along the Spine and Primary routes in areas of high demand.

Figure 4-4 Playground at Jubilee Park along Windy Harbour Road

Figure 4-5 Path to Visitor Centre

4.3.3 Secondary Network

The Secondary Network is designed to facilitate travel within the local neighbourhood areas and to extend the Primary Network and Spine Network.

The Parkfield subdivision, with circa 25 dwellings, is situated at the south of Northcliffe. The distance from the town centre, along the Windy Harbour Road, to the entrance road into the subdivision approximately 3km. The lots in this subdivision are mainly acreages/ lifestyle blocks, and thus the distances between dwellings are relatively large (much larger than in residential areas). The large geographical spread in dwellings means the subdivision is a low-density housing area. Furthermore there are relatively low traffic volumes along Windy Harbour Road. For these reasons no new path is currently proposed along the highway. A potential path would require a 900m extension to continue the existing path from the town centre to the Mill Housing Timber Cluster.

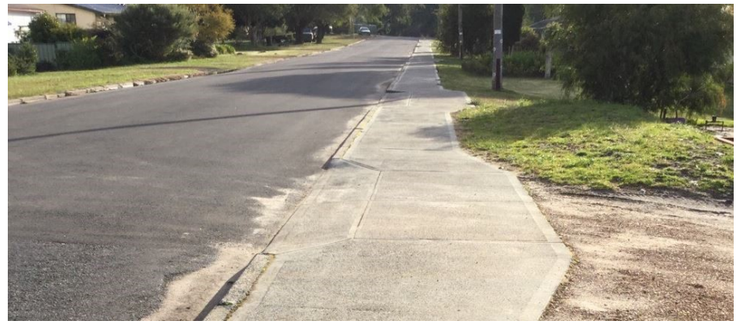


Figure 4-6 Meerup Street

4.4 Implementation Programme

For each of the proposed networks within the Northcliffe townsite, the existing infrastructure has been compared with the long-term vision for path infrastructure (as shown in Figure 4-9).

Where required, improvements have been recommended including new paths, replacement or upgraded facilities, spot maintenance, or even removal. The proposed interventions are shown in Figure 4-10. Through MCA analysis and order of cost estimation (Appendix A), proposed works have been ranked and priced accordingly (Table 4-2).

4.5 Summary

A summary of the existing path network and proposed works on these and new paths is provided in the following table.

At the time of developing this plan, Northcliffe had approximately 2.5 kilometres of paths. Whilst many paths in the town centre are in good condition, the paths to the Northcliffe Recreation Grounds (trail) and the Mill Housing require renewal/upgrades. No path removals are proposed.

The construction of new paths, and thus, the future increase in the path network is largely caused by the creation of paths on Zamia Street (Spine and Primary routes), Main Road (Cemetery Road), and Meerup Street.

With regards to the estimated cost required for the proposed constructions/works, it should be noted that this investment would be required over a 10 year period.

Table 4-1 Path Summary Northcliffe Townsite

Total of existing paths	2,562m
Removal of existing paths	0m
Construction of new paths	1,784m
Service/ maintenance of paths	200m
Renewal/ upgrade of paths	2,480m
Total of future paths	4,346m
Total estimated cost required	$1,120,000

Figure 4-7 Northcliffe Townsite: Land Uses and Trip Attractors

This map describes the land uses and trip attractors, future development locations and trail connections within the Northcliffe townsite.

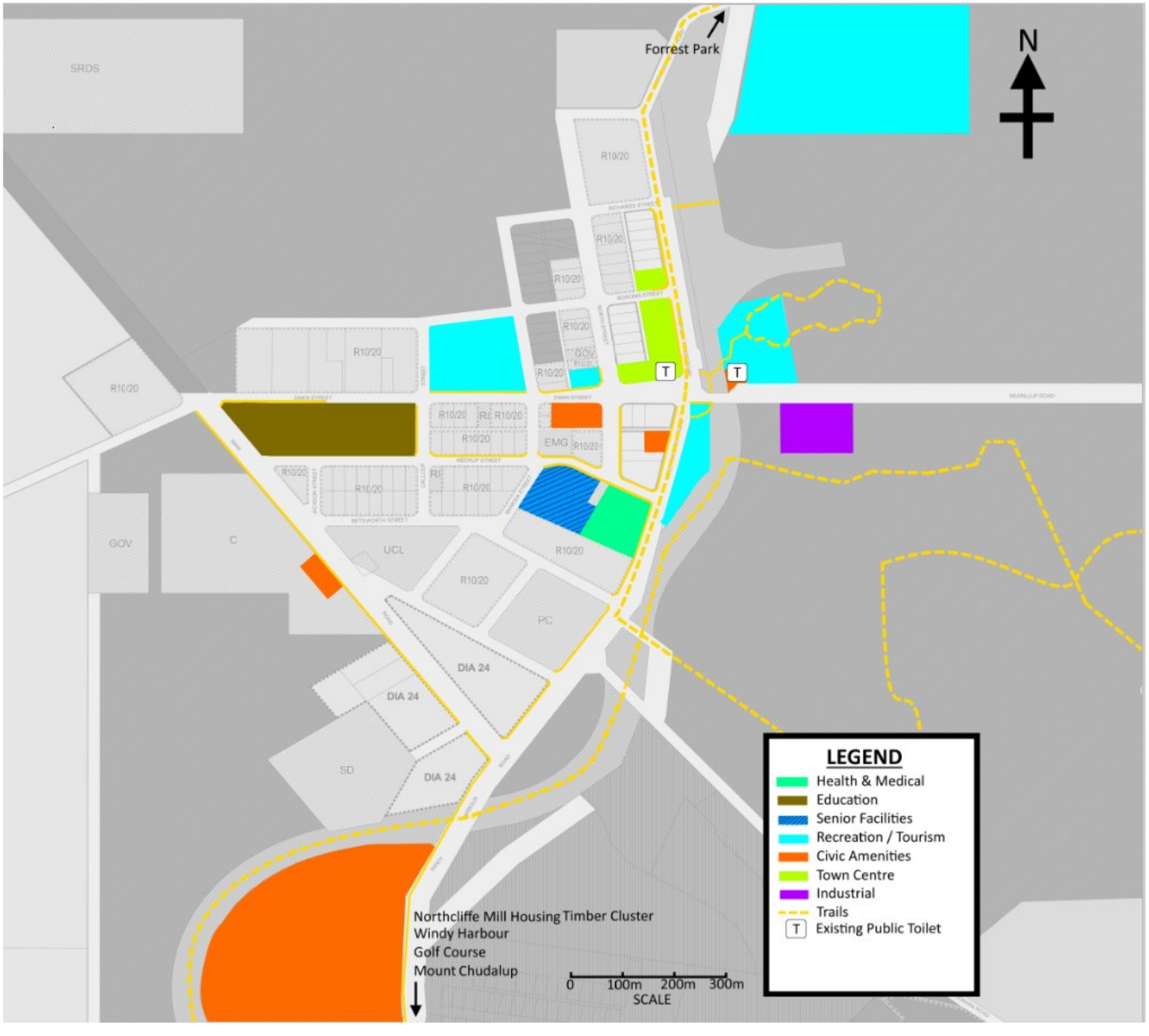


Figure 4-8 Northcliffe Townsite: Existing Path Network

This map details the extent of the existing path network.

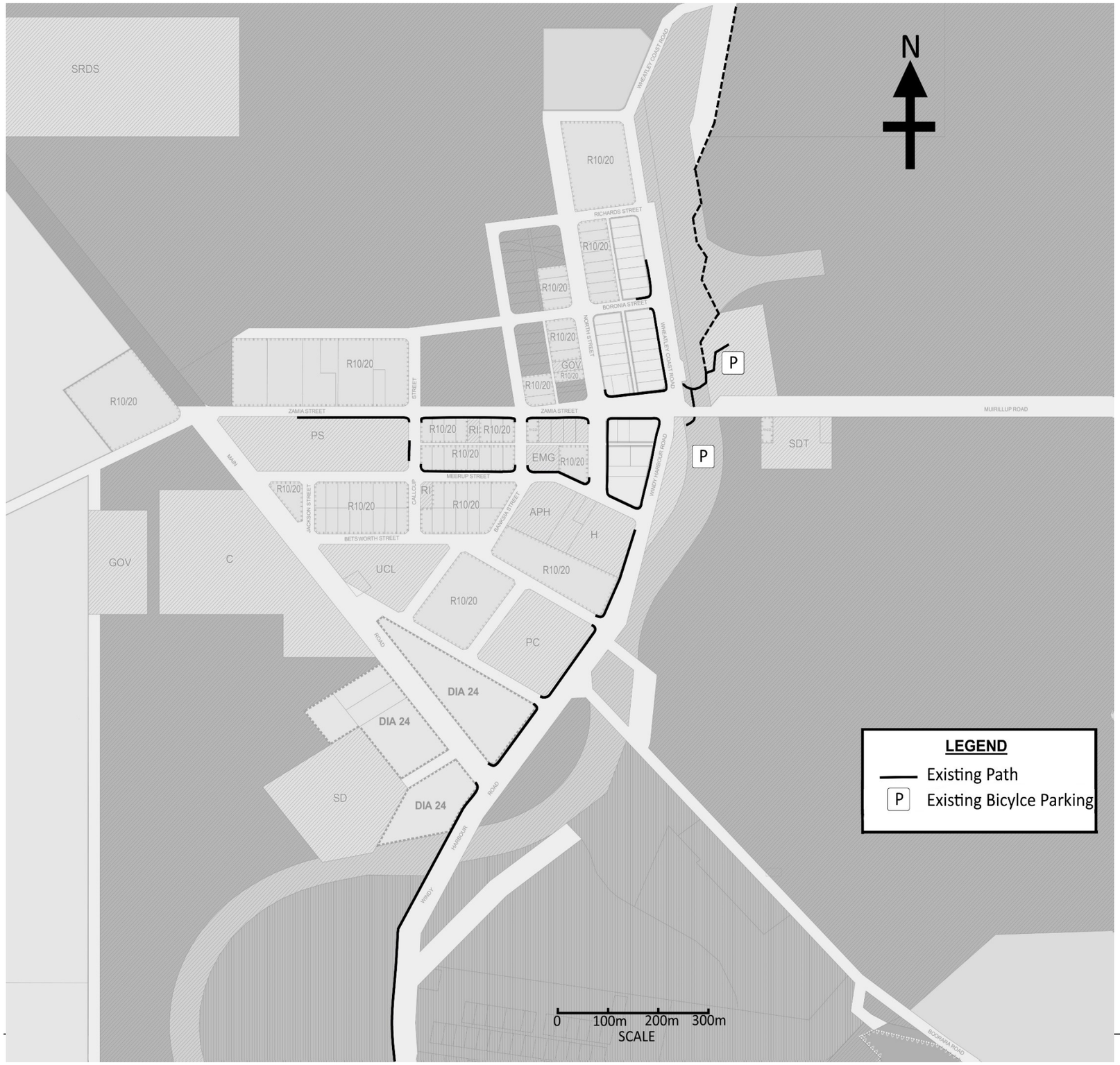


Figure 4-9 Northcliffe Townsite: Proposed Pedestrian/Cycling Network

This map defines the proposed pedestrian and cycling network, the hierarchy of infrastructure, and locations of end-of-trip facilities and wayfinding signage.

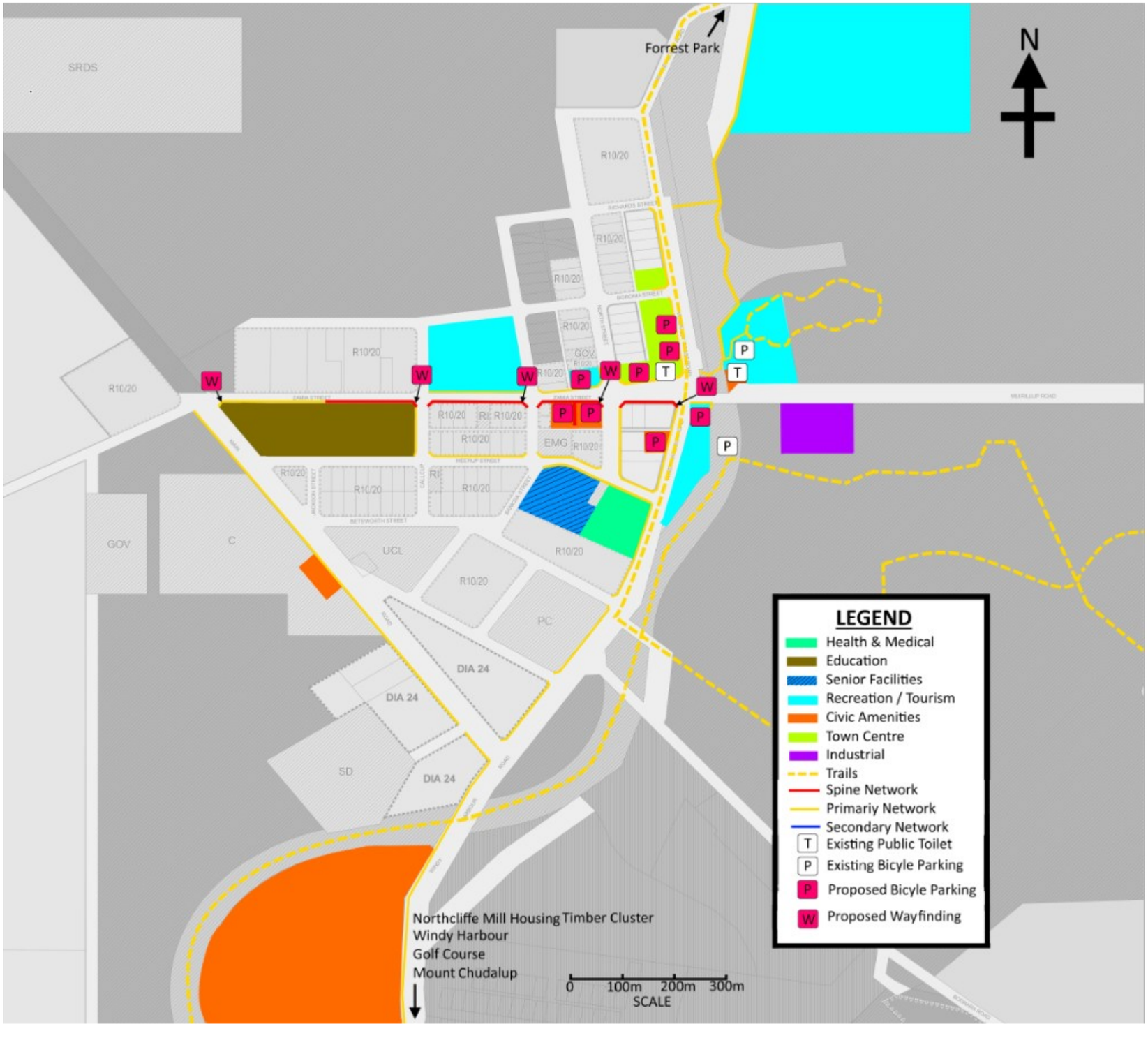


Figure 4-10 Northcliffe Townsite: Implementation Plan

This map defines the extent of works required to realise the proposed pedestrian and cycling network, as detailed in the Implementation Works Program for Northcliffe.

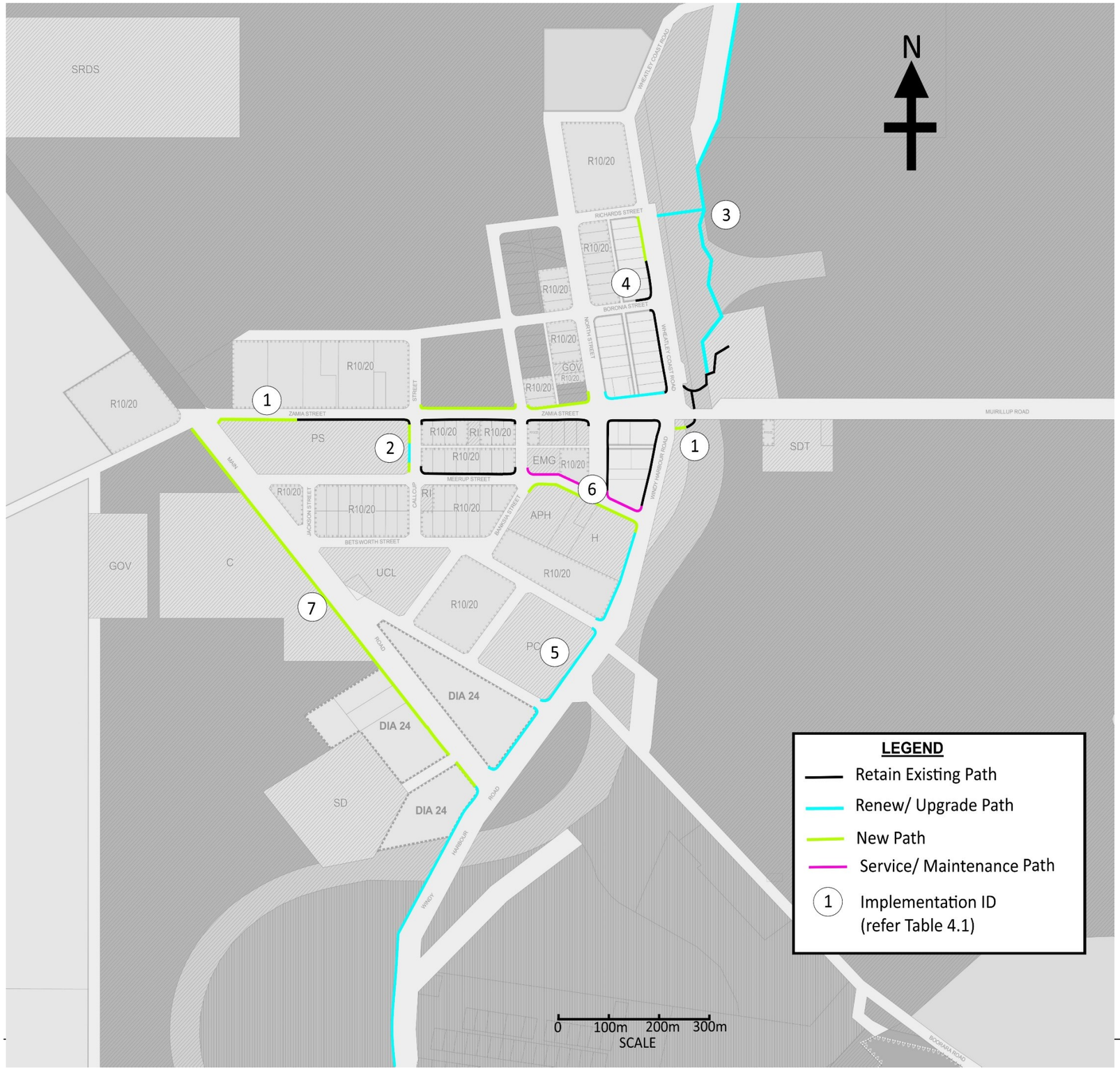


Table 4-2 Northcliffe Townsite: Infrastructure Woks Programme and Order of Cost Estimates

More information on cost calculation and MCA scoring can be found in Chapter 1.9.4. Audit data from the Saddle Survey are provided in Appendix C.

No. ID	Project Name	Network	Project Description	Start	End	Length (m)	Cost Estimation	Connec-tivity	Eco-nomic	Safety	Stake-holder & Public Demand	Average Score	Rank
1	Zamia Street	Spine	a. Construct missing link between west and east sides of road	Windy Harbour Road	Jubilee Park	14	$ 7,000	9	9	9	8	8.8	1
			b. Line marking and wayfinding signage	Wheatley Coast Road	Callcup Street	500	$ 3,000						
			c. Trim vegetation and adjust manhole cover/ position	West of Banksia Street			Operational Budget	-	-	-	-	-	
		Primary	d. Renew existing path	Wheatley Coast Road	North Street	100	$ 35,000	9	9	7	8	8.3	2
			e. Replace damaged kerb ramp	Wheatley Coast Road intersection			Operational Budget	-	-	-	-	-	-
			f. Construct new path	Callcup Street	North Street	320	$ 110,000	7	7	8	8	7.45	4
			g. Construct new path	Entrance of Northcliffe High School	Main Road/ Cemetery Road	230	$ 75,000	6	6	7	6	6.25	7
2	Callcup Street	Primary	a. Construct new/ upgrade existing path sections	Zamia Street	Meerup Street	110	$ 35,000	7	7	8	8	7.45	4
			b. Trim vegetation	Zamia Street intersection			Operational Budget	-	-	-	-	-	-
3	Northcliffe Recreation Grounds	Primary (Trail)	Upgrade existing trail, including construction of connection to Richards Street	Northcliffe Visitor and Information Centre	Northcliffe Recr. Grounds (incl. Richards Street connection)	880	$ 140,000	7	6	8	8	7.2	5
4	Wheatley Coast Road	Primary	Construct new path continuing north from existing path	Boronia Street	Richards Street	70	$ 25,000	7	6	8	8	7.2	5
5	Windy Harbour Road	Primary	Upgrade existing path	Meerup Street	Northcliffe Mill Housing Timber Cluster	1000	$ 360,000	7	6	6	6	6.3	6
6	Meerup Street	Primary	a. Minor maintenance including vegetation trimming on northern side	Windy Harbour Road	Banksia Street	190	Operational Budget	-	-	-	-	-	-
			b. Construct new path on southern side	Windy Harbour Road	Banksia Street	190	$ 50,000	8	7	8	7	7.55	3
7	Main Road/ Cemetery Road	Primary	Construct new path	Windy Harbour Road	Zamia Street	850	$ 280,000	6	6	7	6	6.25	7

5 Walpole Townsite

Walpole is located approximately 120km South-West of the Manjimup townsite. Walpole is famous for its beautiful beaches and natural environment and landscapes such as the Valley of Giants and the Tree Top Walk. As of 2016 census, the population sat at 439 and children aged 0 to 14 years of age and those aged 65+ made up 12.4% and 32.3% of the population respectively. Of the 439 population, 170 were employed in the labour force and 14.4% indicated that they walked to work. 20.9% of the population were in an educational institution and of these, 34.4% were in primary school, 23.3% were in secondary school and 4.4% were in a tertiary or technical institution.

5.1 Trip Attractors

Key land uses and trip attractors (Figure 5-8) have been used to determine the route destinations for cycling trips within the townsite. This includes connections to existing trails to connect formal path infrastructure to recreational routes.

5.2 Recreation and Tourism

Walpole is a popular tourist destination with many bushwalking and hiking opportunities. Walpole has many recreational facilities, including a yachting club, country club, recreation centre, and skate park.

Cycling and walking tourism presents an excellent opportunity for Walpole, with both the Munda Biddi and Bibbulmun Track connecting the western and eastern residential areas through the Town Centre, as shown in Figure 5-2. Upgrades to the existing trails/tracks will reinforce the attractiveness of local recreational tourism, as well as providing high-quality facilities for local residents.

It should be noted that the Walpole area and townsite have not been included in the South West Mountain Bike Master Plan (due to state government district boundaries).

As part of the Walpole Inlet Foreshore Enhancement Plan (see Figure 5-1) a boardwalk is proposed along the existing path alignment. This will make for a much higher quality trail that is safe for all users.

Another trail that may require an upgrade, is the trail from the Visitor Centre up and around the hill. As this land is not owned/managed by the Shire, approvals and funding are likely to be required from the land owner/manager.

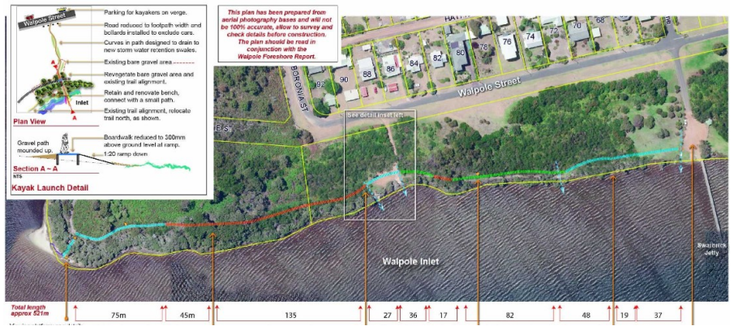


Figure 5-1 Walpole Inlet Foreshore Enhancement Plan

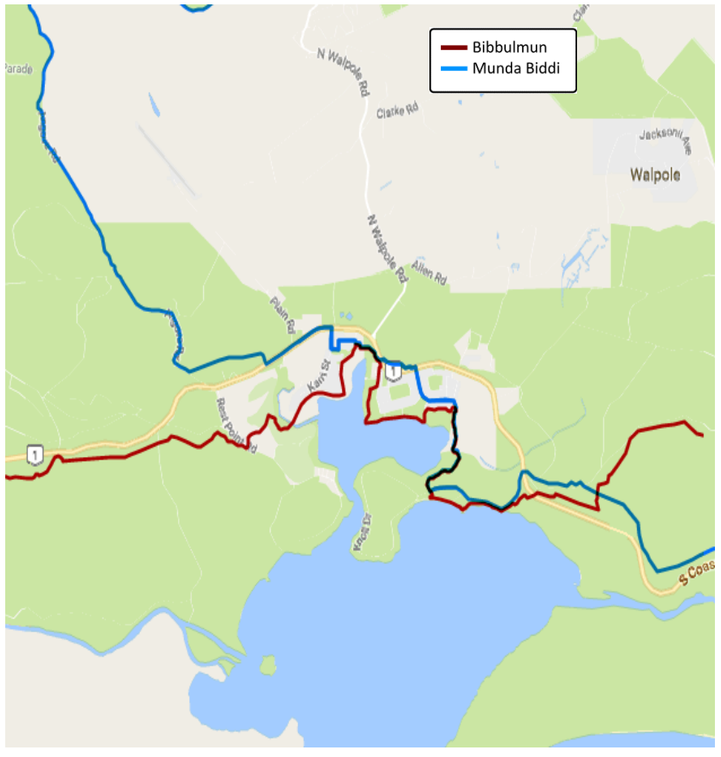


Figure 5-2 Munda Biddi Trail and Bibbulmun Track alignment in/near Walpole Townsite
Source: Munda Biddi Trail and Bibbulmun Track Foundations (2017)

5.3 Cycle Network Planning

The proposed path networks focus on providing an integrated network to connect key attractors and land uses in the region and segregated into the three components; Spine, Primary and Secondary Networks.

5.3.1 Spine Network

The Spine Network serves as the 'highway' for pedestrians and cyclists, connecting with other networks and destinations and providing navigation cues to direct people from place to place.

Within the Walpole townsite, Spine routes are recommended along Nockolds Street and a short section of the South Western Highway (Swan Street to Boronia Street). This corridor connects with the Primary routes providing access to the majority of local trip attractors.

Possible future road layout changes at the intersection of Vista Street and Nockolds Street may require a path realignment. This would include removal of the two crossing sections and construction of new path to make a new crossing at a safer distance from the intersection.

The current layout of Nockolds Street is not ideal for cyclists, especially as there is car parking on both sides and there are no bicycling paths. Long term options to further improve cycling infrastructure would require redevelopment of Nockolds Street (e.g. Safe Active Street, or shared path).

Figure 5-3 Nockolds Street

5.3.2 Primary Network

The primary network is designed to extend the Spine route to other key land uses, along a network of high-quality paths. Primary paths are proposed along Vista Street, Swan Street, Boronia Street and Pier Street. These paths provide connection to the key townsite land uses including the Walpole Primary School and Recreation Centre.

The Boronia Ridge subdivision, a residential area, is situated to the west of Walpole town. The distance from the town centre, along the South Western Highway, to the entrance road into the subdivision approximately 1km. Due to the high traffic volume and high speed environment, traveling along the Highway on foot or bicycle is not considered safe. Currently a trail connects the townsite with the subdivision. The trail, on Department of

Biodiversity, Conservation and Attractions land, is in poor condition and requires an upgrade.

Extension of the Primary route along the South Western Highway to the east (from Shotter Street to Chugg Street) will connect the town centre with the eastern industrial zone, and will also close the proposed Secondary (residential) loop in the eastern residential precinct.

Proposed End of Trip facilities have been strategically located to cater for land uses along the Spine and Primary Networks.

Figure 5-4 Boronia Street

Figure 5-5 Pier Street

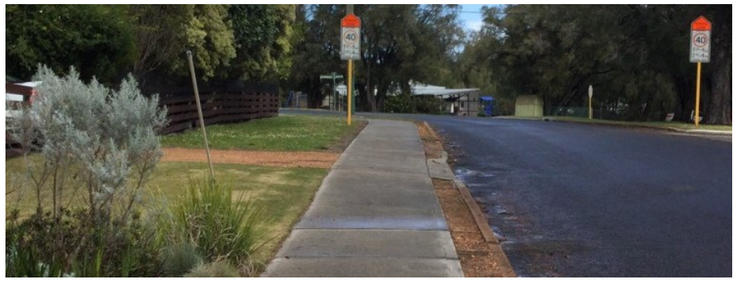


Figure 5-6 Swan Street

5.3.3 Secondary Network

The proposed Secondary Network is designed to facilitate travel within the local neighbourhood and to provide connection to the Primary Network or the Spine Network.

A proposed path in Karri Street, in the Boronia Ridge subdivision, will provide a link from the Primary path from town to the residences in the subdivision.

Another proposed residential route is the formation of a loop Walpole Street East – Pier Street/Park Avenue – Swarbrick Street/Park Avenue/Stewart Street.

Figure 5-7 Path in between Latham Avenue and Cooper Lane

5.4 Implementation Programme

For each of the proposed networks within the Northcliffe townsite, the existing infrastructure has been compared with the long-term vision for path infrastructure (as shown in Figure 5-10).

Where required, improvements have been recommended including new paths, replacement or upgraded facilities, spot maintenance, or even removal. The proposed interventions are shown Figure 5-11. Through MCA analysis and order of cost estimation (Appendix A), proposed works have been ranked and priced accordingly (Table 5-2).

5.5 Summary

A summary of the existing path network and proposed works on these and new paths is provided in the following table.

At the time of developing this plan, Walpole had approximately 3.4 kilometres of paths. These paths are relatively new and in good condition; thus no renewal/upgrades are required.

The construction of new paths and thus the future increase in path network is largely caused by the creation of paths on the South Western Highway (Primary route), and Secondary routes in the residential area in the east and in the Boronia Ridge subdivision.

With regards to the estimated cost required for the proposed constructions/works, it should be noted that this investment would be required over a 10 year period.

Table 5-1 Path Summary Walpole Townsite

Total of existing paths	3,371m
Removal of existing paths	36m
Construction of new paths	2,954m
Service/ maintenance of paths	700m
Renewal/ upgrade of paths	0m
Total of future paths	6,289m
Total estimated cost required	$897,000

Figure 5-8 Walpole Townsite: Land Uses and Trip Attractors

This map describes the land uses and trip attractors, future development locations and trail connections within the Walpole townsite.

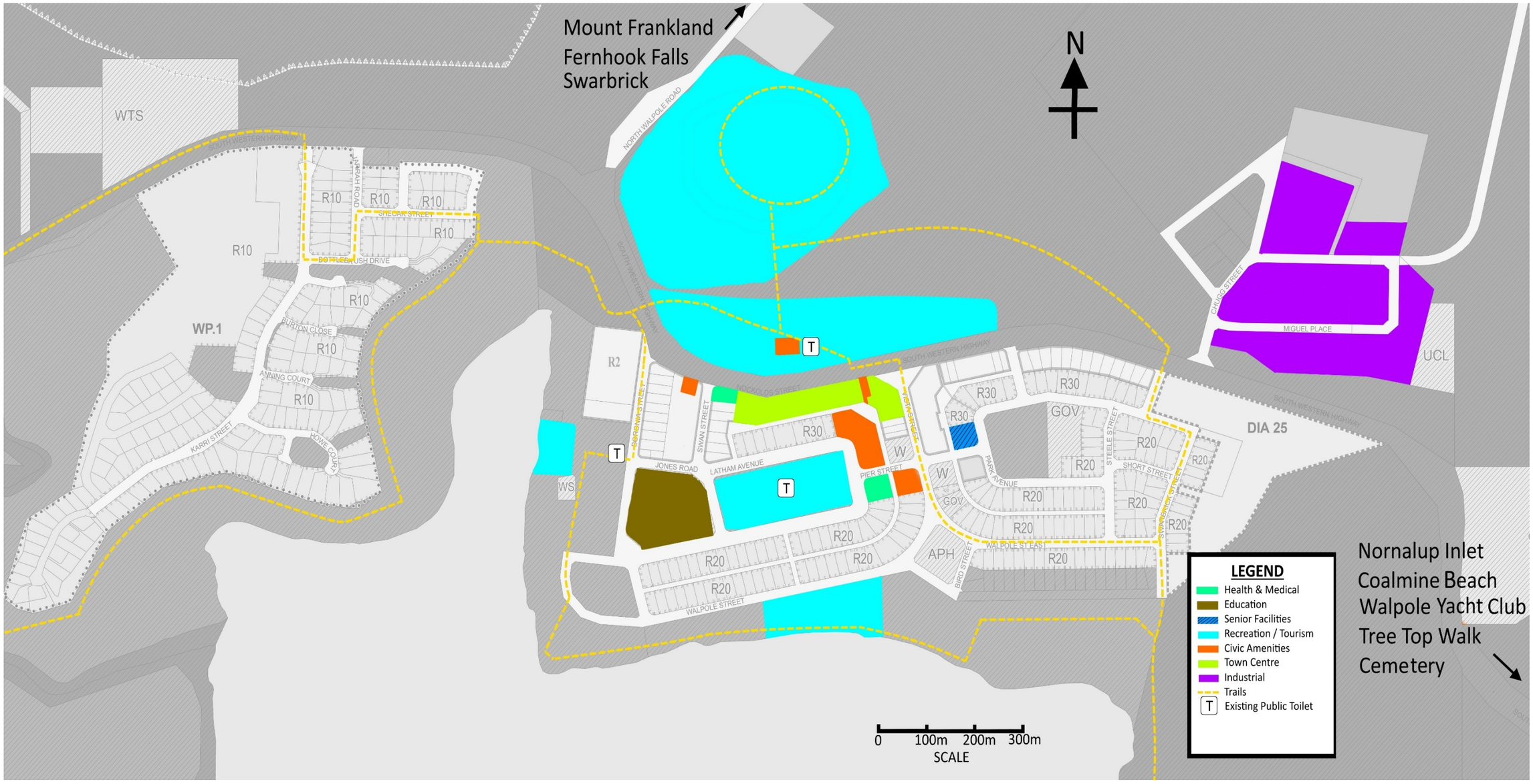


Figure 5-9 Walpole Townsite: Existing Path Network

This map details the extent of the existing path network.

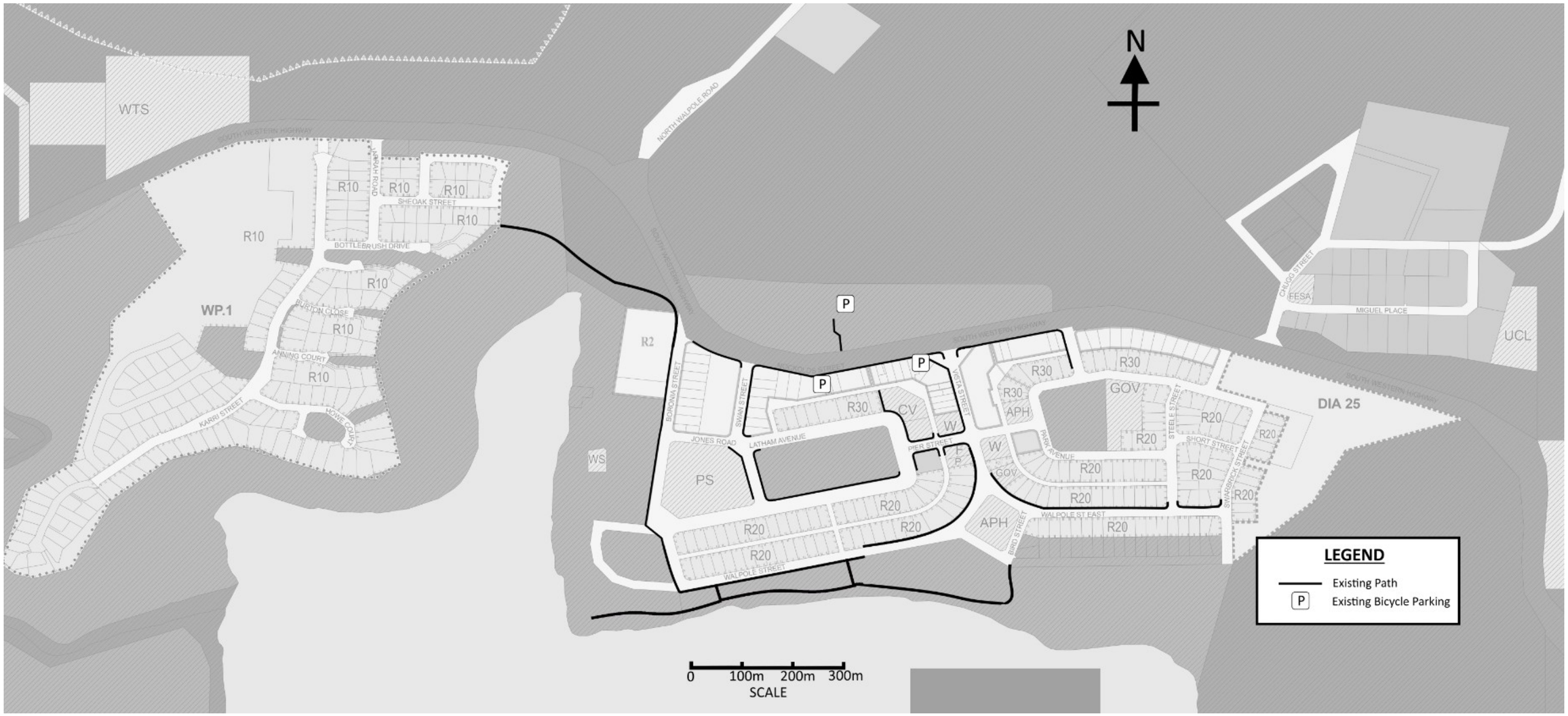


Figure 5-10 Walpole Townsite: Proposed Pedestrian/Cycling Network

This map defines the proposed pedestrian and cycling network, the hierarchy of infrastructure, and locations of end-of-trip facilities and wayfinding signage.

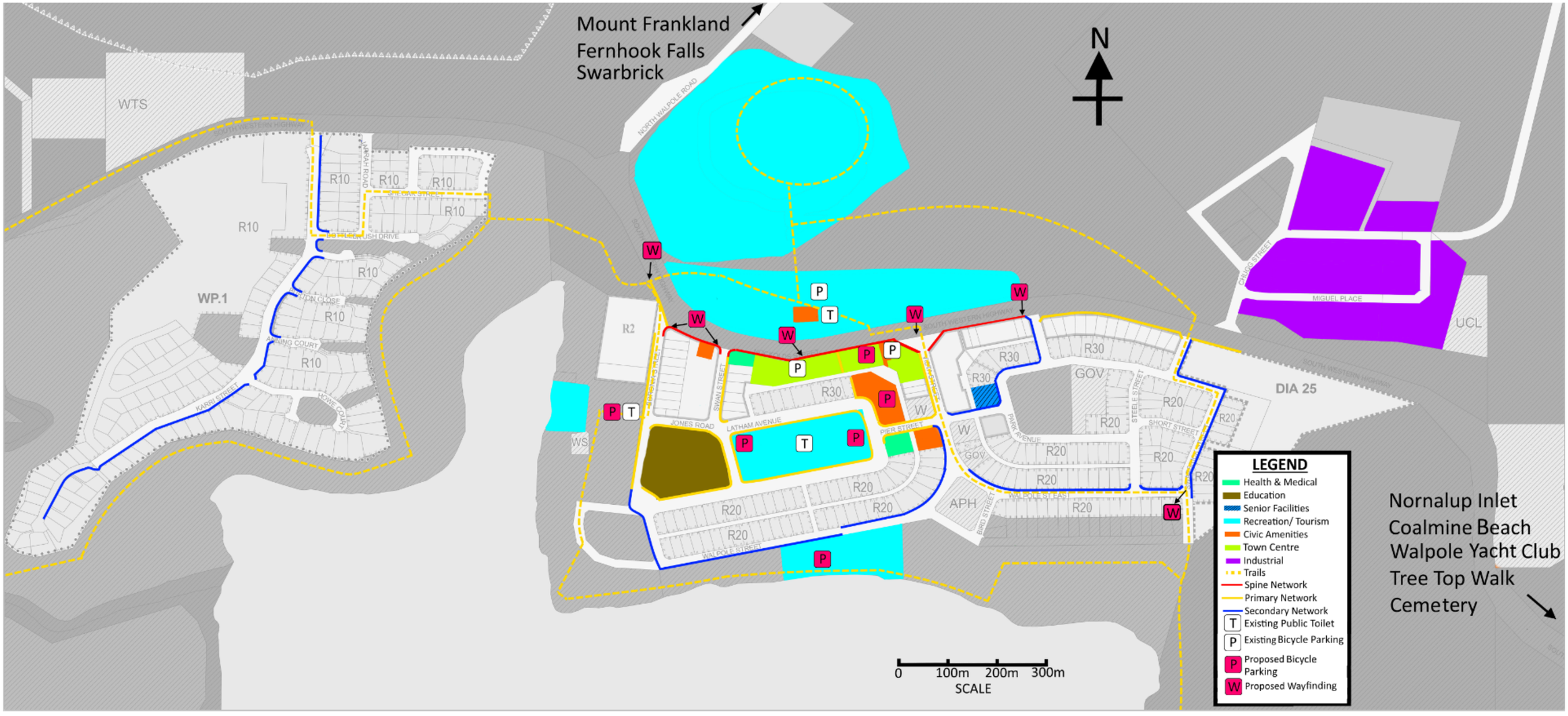


Figure 5-11 Walpole Townsite: Implementation Plan

This map defines the extent of works required to realise the proposed pedestrian and cycling network, as detailed in the Implementation Works Program for Walpole.

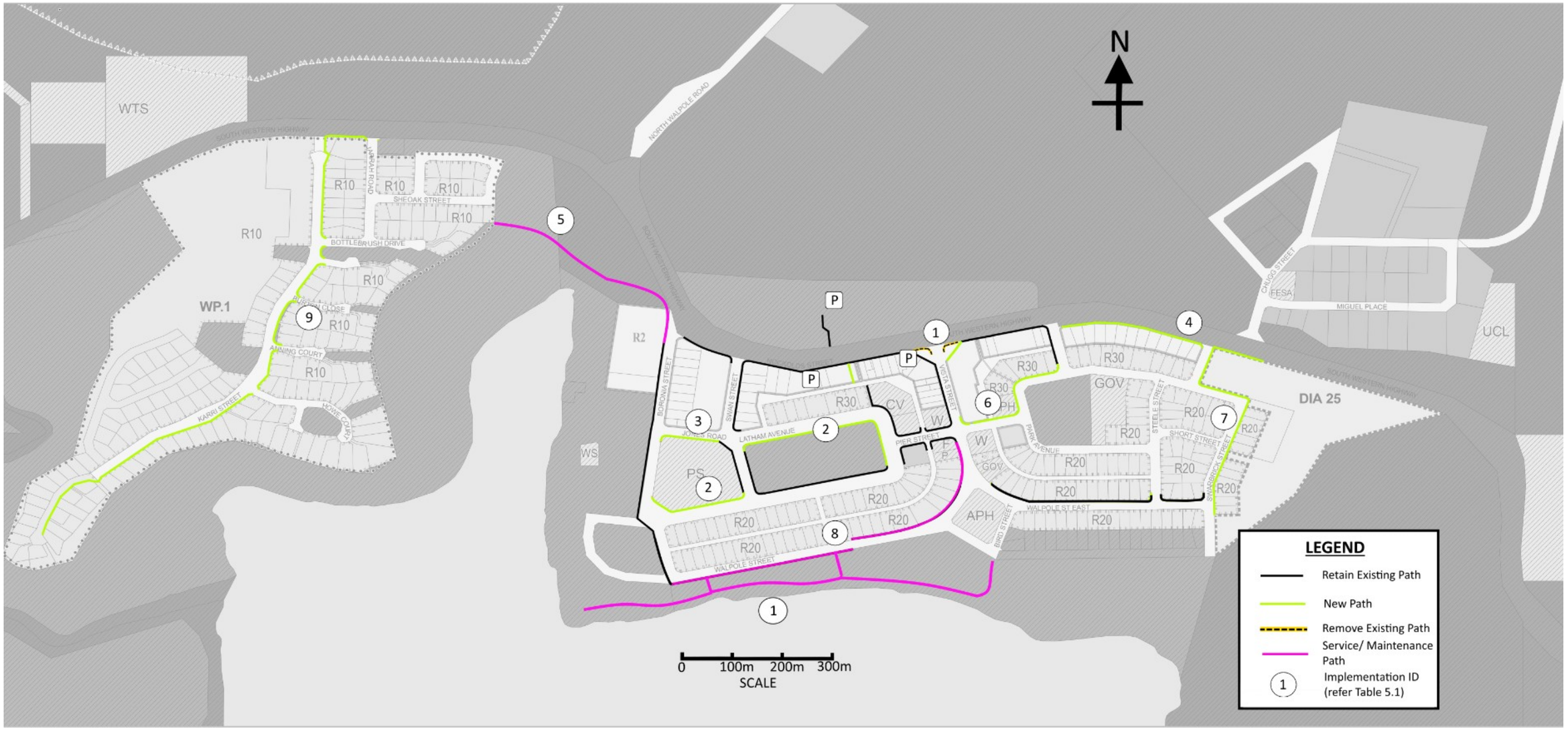


Table 5-2 Walpole Townsite: Infrastructure Works Programme and Order of Cost Estimates

More information on cost calculation and MCA scoring can be found in Chapter 1.9.4. Audit data from the Saddle Survey are provided in Appendix C.

No. ID	Project Name	Network	Project Description	Start	End	Length (m)	Cost Estimation	Connec-tivity	Eco-nomic	Safety	Stake-holder & Public Demand	Average Score	Rank
1	Nockolds Street	Spine	a. Construct new path section to realign crossing east of Vista Street and subsequently remove obsolete crossing	Nockolds Street/ Vista Street intersection		55	$ 30,000	9	9	9	9	9	1
		Primary	b. Upgrade path whilst ensuring drainage can be accessed	Nockolds Street	Cooper Lane	52	$ 17,000	7	6	5	7	6.25	6
2	Latham Avenue	Primary	a. Construct new path	Complete loop around Walpole Recreation Centre/ Oval		380	$130,000	9	9	7	8	8.3	2
			b. Construct new path	Swan Street	Boronia Street	160	$ 55,000	9	7	7	8	7.8	3
3	Jones Road	Primary	a. Construct new path	Swan Street	Boronia Street	119	$ 40,000	9	7	7	8	7.8	3
4	South Western Highway	Primary	b. Construct new path	Shotter Street	Chugg Street	370	$120,000	6	5	9	5	6.3	5
5	Track to Boronia Ridge	Primary	Upgrade track (poor condition bitumen) (Department BCA land)	Walpole Hotel-Motel	Boronia Ridge	440	TBD	-	-	-	-	-	-
6	Pier Street/ Park Avenue	Secondary	Construct new path	Vista Street	Shotter Lane	260	$ 70,000	7	7	8	8	7.45	4
7	Swarbrick Street/ Park Avenue/ Stewart Street	Secondary	Construct new path	South Western Highway	Walpole Street East	460	$130,000	7	6	6	6	6.3	5
8	Walpole Street	Secondary	Trim vegetation and maintain drainage cover	Vista Street	Boronia Street		Operational Budget	-	-	-	-	-	-
9	Karri Street	Secondary	a. Construct new path	South Western Highway	Bottlebrush Drive	240	$ 65,000	5	4	6	6	5.2	7
			b. Construct new path	Bottlebrush Drive	Howe Court	370	$100,000						
			c. Construct new path	Howe Court	End of cul-de-sac	540	$140,000						
10	Foreshore trail	Trail	Undertake foreshore protection study and upgrade of trail	Walpole Inlet		500	TBD	-	-	-	-	-	

6 Future Path & Trail Opportunities

The previous chapters of this Bicycle and Footpath Plan focus on the path infrastructure within the four townsites of the Shire of Manjimup (Manjimup, Pemberton, Northcliffe and Walpole). The path developments proposed in the previous chapters are largely anticipated to occur within the lifespan of this plan, thus within the next 10 years.

However, it is also important to consider connectivity between the towns and the settlements within the Shire, as well as neighbouring Shires (Shires of Nannup, Bridgetown-Greenbushes, and Denmark). The future demand for such connectivity is exemplified by the Department of Transport currently leading the development of aspirational, long term strategic cycling strategies across the South West region. These strategies look at options for linking towns throughout the region, for example Bunbury to Busselton and Margaret River.

This chapter provides suggestions for future path and trail opportunities for improving connectivity within and between towns, rail trails, and circuits/loops. It should be noted that many of these suggestions require extensive resources (significant funding, negotiations regarding land management, collaboration with state government departments, etc.) to be realised. The suggestions in the chapter should be considered aspirational. The suggestions can be driven at a time they are considered feasible, and when there are sufficient resources available as well as community demand.

6.1 Inter-town Connectivity

Inter-town routes currently frequently used by cyclists, can be demonstrated by Strava data. Strava is one of many activity-logging applications available for a range of devices. It is used primarily for training and recreation by trail riders, sports cyclists, high-speed commuters, athletes and runners to record their routes, times and speeds. Strava provides open-source mapping of logged activities, in the form of 'heatmaps', which show frequency (rather than numerical) data on popular routes.

Strava heatmap data was reviewed to better understand route choices of recreational and sports cyclists (the primary users of the Strava application) in and around the Shire of Manjimup. The routes shown in this data (see Figure 6-1) comprise existing road circuits, chosen for training or connectivity, and the extensive trails network throughout the Shire.

It is important to recognise that this resource is still relatively new, and is currently used by a core group of cyclists at this stage. However the data will build over time and is worth monitoring to identify future trends and for planning purposes.

It should be noted that local utility, casual and commuter cyclist behaviour within the townsites is not considered to be well-represented by Strava. The requirements of pedestrian groups, including children, seniors and people with disabilities are also outside of the Strava dataset.

However, the Strava heatmap does demonstrate demand and popular routes for inter-town connectivity and can assist to identify road improvements for on-road recreational and inter-town connections. The mapping output (Figure 6-1) illustrates the existing use of the Munda Biddi by mountain bike riders and use of the broader road network for travel between Manjimup townsites and destinations including Nannup, Bridgetown and Denmark.

In addition, existing road circuits can be clearly seen to the west of Pemberton and in the vicinity of Nannup, describing riding environments that are a destination in themselves.

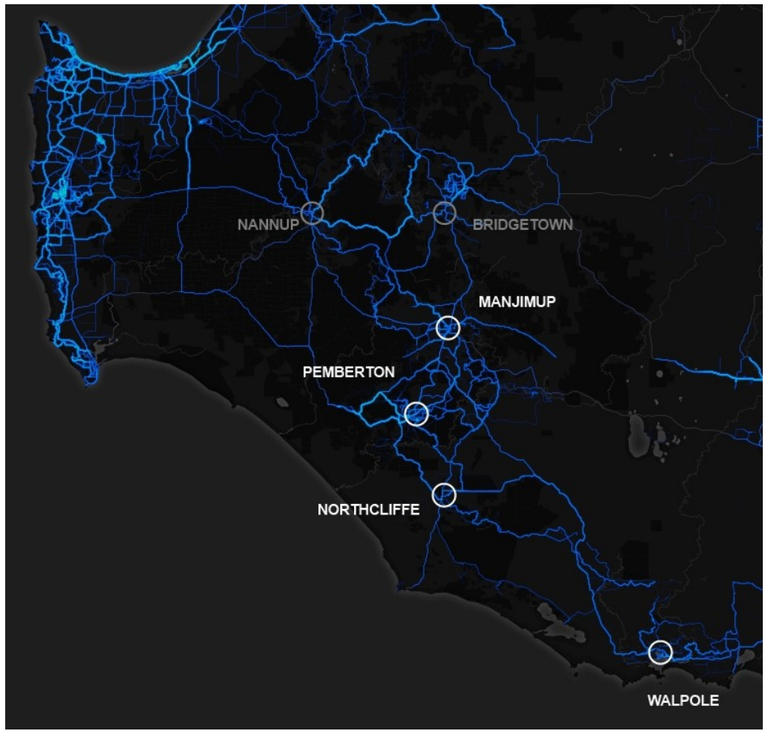


Figure 6-1 Strava Heatmap Demonstrating Inter-Town Cycling Routes
Source: Strava (2017)

Inter-town connectivity is often compromised by the lack of effective road width, poor sightlines and heavy vehicles. Wayfinding and safety signage to inform and engage cyclists and drivers can improve these routes with relatively low cost treatments. In addition, where resealing activities are undertaken, additional width in the form of sealed shoulders can greatly enhance the safety and function of the road network, both for cyclists and for motorised traffic. The Strava heatmap provides an indication of popular routes that could be prioritised for these treatments.

6.2 Rail Trails

One way to increase inter-town connectivity would be to construct and promote 'rail trails'. Rail trails are shared-use paths, recycled from abandoned railway corridors, for walking, cycling and horse riding. Railways do not have sharp rises or sharp bends, just sweeping curves and gentle undulations, which is why they make such superb pathways for walking and riding. They create natural recreation areas and are a wonderful way to explore the countryside free of cars. In many instances former railway routes can people to otherwise inaccessible places. Trails provide a window into the past to a time when railways opened up the country.

Most trails have a gravel or dirt surface suitable for walking, mountain bikes and horses. Some are sealed and are great for touring bikes too. There are now rail trails all around Australia and in other countries too. An example of a rail trail within the Shire of Manjimup is the Deanmill Heritage Trail.

Creating a new rail trail often generates a further level of interest and diversity for potential users, and increases visitor numbers, visitor stay, and visitor spend. There are many case studies nationally and globally where rail trails have had a significant impact on the local and regional economy by helping existing and encourage new businesses, increasing seasonal and casual employment (in tourism, accommodation, food & drinks, and additional services such as tour operators, bicycle sales/rentals, transport providers).

It should be noted that almost all rail reserves within the Shire of Manjimup are owned by a variety of (state) governments departments and private owners, with some reserves being managed under leases and management orders. Often this leads to complex and lengthy negotiation processes before a rail reserve can be transformed into a rail trail.

The following opportunities to create rail trails (refer to Figure 6-2) have been identified:

- Between Manjimup town and Diamond Tree using the disused rail corridor. This trail would be an extension of the Linear Park path (Seven Day Road).
- Continue the above trail along the disused rail corridor to Pemberton. This would create a loop with the existing Munda Biddi trail between Manjimup, Quinninup and Pemberton. There is current community demand for a rail trail from Manjimup to Pemberton.
- Convert the rail corridor between Pemberton and Northcliffe into a rail trail, creating a loop with the existing Munda Biddi trail between the two towns. This would essentially create a "figure 8" loop in the region, opening up options for two-three day short trips between Manjimup, Pemberton and Northcliffe. It would also provide a more "transport friendly" connection between towns given the flat topography of the rail corridor.
- Providing sufficient tourism demand, continuation of a rail trail south of Northcliffe could be considered.
- Between Manjimup town and Bridgetown using the disused rail corridor. This trail would be an extension to the north of the Linear Park path.

6.3 Circuits

Circuits and connecting paths from townsites, or from long distance trails and rail trails will allow users to take shorter walks/rides. These circuits/loops can be used by local residents for recreation, and can entice visitors to remain in the area, and so provide an economic benefit.

The Strava heatmap shows circuits that are currently being ridden by cyclists. These circuits could be formalised and where required/possible made safer for cyclists (e.g. through signage, road crossings, etc.). A number of other loops can be created, by linking existing path/trail infrastructure. Community demand should be determined prior to creating a new circuit. Where a circuit would traverse significant distances over sealed roads as well as gravel roads and trails, community demand may be questionable, as the circuit would unlikely appeal to either mountain bike riders or road cyclists.

The following opportunities to create circuits (refer to Figures 6-2 and 6-3) have been identified:

- Manjimup: A loop from Manjimup to Deanmill (via the Deanmill Heritage Trail), across to Fonty's Pool and back to Manjimup via Seven Day Rd and along the Linear Park path. This loop is already existing on current trail and road infrastructure, but has the potential to be formalised and promoted once a safe corridor for pedestrians/cyclists along Seven Day Road has been realised.
- Manjimup: create a loop from Muir Highway to King Jarrah connecting back into Manjimup via Perup Road. A direct loop is not currently possible due to route involving private property. An extended loop, utilising Springdale Rd, Balbarrup Rd, and Morgans Rd would be possible, although this route would involve large sealed and unsealed sections.

Figure 6-2 Regional map - opportunities for rail trails and circuits

6.4 Long Distance Trail Connections

It is important to connect long distance trails to the townsites, so that the trails can be accessed safely from each town. Ideally the following existing connections would be improved in the future:

- Manjimup: Currently the Munda Biddi Trail traverses on Muir Highway from Hastie Street to Kurandra Road for 1,2km. For safety reasons, the formation of a path/trail adjacent to Muir Highway would be preferable. This would involve major infrastructure redevelopment on/along Muir Hwy and MainRoads WA support.
- Currently the Munda Biddi Trail traverses on South West Highway (from an unnamed trail to Karri St) for 1 km. A path/trail along South West Hwy would be preferred. Should the South West Hwy be widened in the future, the establishment of a path will become feasible, provided the proposal is supported by MainRoads WA.
- At the time of writing this plan, a new long distance trail for horse riders from Bridgetown/Nannup to Broke Inlet (Warren Blackwood Stock Route) is being developed.

6.5 Industrial Areas Connectivity

The Manjimup and Walpole chapters of this plan propose new paths to be constructed to improve connectivity from the townsites to the industrial areas. In Manjimup a secondary path is proposed along Wetherell Street, and in Walpole a primary path along the South Western Highway to Chugg Street.

In the future, when the industrial areas have developed further (more lots occupied, growth of businesses' size, etc.) it may be necessary to consider the construction of more paths along other streets within the industrial areas. Further expansion of the path networks in the industrial areas can be considered in future reviews of this plan.

A

UNIT COSTINGS

Capital Works

An order of costs estimation has been determined using an internally developed spreadsheet with indicative costs for construction and infrastructure; excluding land acquisition costs, utilities, drainage, and other external costs. Global cost estimates only have been provided for regional links (where appropriate), as accurate costings are unlikely to be determined without additional information from feature survey and concept design. For the purpose of this exercise, the following unit costs have been employed:

Construction Element	Unit Cost for Estimate
Green Lane (m2)	$65
Pavement Removal (m2)	$30
Concrete Path Removal (cut to spoil, m2)	$15
Kerb Removal (m)	$25
Earthworks (cut)	$40
Earthworks (fill)	$25
Base (m2)	$44
Asphalt (m2)	$31
Concrete Path Installation (m2)	$55
Kerb Install (m)	$75
Kerb Ramps (item)	$1,000
Line Marking (linear, m)	$5
Grab Rails (item)	$300
Signage (item)	$750

In additional to the above unit cost, a contingency is applied to the costing as well due to several factors such as location of the townsites and availability of materials. The contingency adopted for each of the townsites are:

- Manjimup townsite: 5%;
- Pemberton townsite: 7.5%;
- Northcliffe townsite: 7.5%; and
- Walpole townsite: 7.5%.

Developments marked with ‘Manjimup Town Centre Revital.’ will be undertaken as part of and funded by the Manjimup Town Centre Revitalisation Project.

Operational Works

Works marked as ‘Operational Budget’ will be carried out as part of the Shire’s annual maintenance program, which is funded through the Shire’s operational budget.

APPENDIX B

OVERVIEW PROGRESS OF LOCAL BIKE PLAN 2008

Manjimup Townsite

Road Name	Section From	Section To	Length (m)	Works	Complete
Railway crossing	Ipsen St	Mottram St	-	Construct Path	**Complete**
Cnr Ralston St and Giblett St	Across and around service station entrances/exits		-	Construct Path	**50% complete**
South Western Hwy	Crossing from Graphite Road	Perup Rd	-	Construct Path	**No**
South Western Hwy	Crossing from Hospital Ave	Mottram St path	13	Construct Path	**Complete**
South Western Hwy and Bechynden St	South western Hwy	Clark St	150	Construct Path	**Pavers**
Blechynden St	Clark St	Muir St	105	Construct Path	**Pavers**
Arnott St and Johnston St	Graphite Rd	Collier St	400	Construct Path	**Complete**
Johnston St and Collier Street	Ward St	Collier St	380	Construct Path	**No**
Ipsen St	Moore St	Bath St	110	Construct Path	**Complete**
Ipsen St	Bath St	Rose St	105	Construct Path	**Complete**
Moore St	Leman st	Brockman St	110	Construct Path	**No**
Moore St	Rutherford St	Mount St	130	Construct Path	**Pavers**
Moore St	Mount St	Edward St	105	Construct Path	**No**
South Western Hwy (Mottram St)	Graphite Rd	Muir Hwy	1880	Construct Path	**No**
Giblett St	Pritchard St	Ipsen St	650	Construct Path	**No**
Ward St	Edward St	Graphite Rd	190	Construct Path	**No**
Ward St	Graphite Rd	Johnston St	240	Construct Path	**No**
Mottram St	Outside caravan park		160	Construct Path	**Complete**
Mottram St	Hospital Ave	Manjin Park	165	Construct Path	**Complete**
Giblett St	Graphite Rd	Rose St	385	Construct Path	**No**
Giblett St	Rose St	Mount St	150	Construct Path	**Brick**
Giblett St	Ipsen St	Lock St	155	Construct Path	**Complete**
Lock St	Giblett St	Rose St	105	Construct Path	**Complete**
Ipsen St	Somerville St	Moore St	200	Construct Path	**Complete**
Moore St	Ipsen St	Leman St	110	Construct Path	**No**
Leman St	Moore St	Somerville St	195	Construct Path	**No**
Arnott St	Ipsen St	Leman St	240	Construct Path	**Complete**
Arnott St	Leman St	Rutherford St	220	Construct Path	**No (existing)**
Leman St	Arnott St	Somerville St	190	Construct Path	**Complete**
Karri St	Boronia st	Melaleuca Ct	220	Construct Path	**Complete**
Karri St	Melaleuca Ct	Blackbutt Dr	80	Construct Path	**Complete**
Karri St	Blackbutt Dr	Wandoo St	75	Construct Path	**Complete**
Karri St	Wandoo st	Yate St	100	Construct Path	**Complete**
Karri St	Yate St	Perup Rd	500	Construct Path	**Complete**
Perup Rd	Karri st	Crowea St	285	Construct Path	**Complete**
Perup Rd	Muir St	South Western Hwy	270	Construct Path	**Complete**
Ipsen St	Somerville St	Arnott St	100	Construct Path	**Complete**
Ipsen St	Arnott St	Highfield St	105	Construct Path	**Complete**
Ipsen St	Highfield St	Robertson St	110	Construct Path	**Complete**
Ipsen St	Robertson st	Moyes st	110	Construct Path	**Pavers**
Ipsen St	Moyes St	Limmer St	110	Construct Path	**Pavers**

Road Name	Section From	Section To	Length (m)	Works	Complete
Ipsen St	Limmer St	Lintott St	110	Construct Path	**Pavers**
Mottram St	Young St	Wheatley St	245	Construct Path	**Pavers**
Wheatley St	Mottram St	Reeve St	165	Construct Path	**Complete**
Wheatley St	Reeve St	O'Connor St	175	Construct Path	**Complete**
Mottram St	Wheatley St	Crossing to Allambie Park	170	Construct Path	**No**
Brain St (Muirs Hwy)	O'Connor St	Hastie St	315	Construct Path	**No**
Hospital Ave	Doust St	Simms Crt	250	Construct Path	**No**
Hospital Ave	Simms Crt	Blackbutt Dr	125	Construct Path	**No**
Perup Rd	Karri St	Golf Links Rd	300	Construct Path	**Complete**
POS	Rutherford St	Leman St	200	Construct Path	**No**
POS	O'Connor St	Mottram St	350	Construct Path	**Trail**
POS	O'Connor St	Blackbutt Dr	820	Construct Path	**Trail**
Link Path	Blackbutt Dr	Blechynden St	25	Construct Path	**No**
POS (drainage reserve)	Blackbutt Dr	Karri St	630	Construct Path	**No**
Blackbutt Dr	POS (drainage reserve)	Tobin st	225	Construct Path	**No**
Pos link in **future subdivision**	Blackbutt Dr	Aldersea Dr extension	780	Construct Path	**No**
Pos link in **future subdivision**	Karri St	Aldersea Dr extension	660	Construct Path	**No**
Path along **Aldersea Dr extension**	Perup Rd		1060	Construct Path	**No**

Pemberton Townsite

Road Name	Section From	Section To	Length (m)	Works	Complete
Brockman St	Dean St	Kelly St	90	Construct Path	Complete
Brockman St	Kelly St	Pine St	90	Construct Path	**Complete**
Brockman St	Pine St	Broadway St	70	Construct Path	**Complete**
Brockman St	Swimming Pool Rd	Railway Cres	125	Construct Path	**Complete**
Brockman St	Swimming Pool Rd	Club Rd	80	Construct Path	**No**
Club Rd	Skate Park	Pump Hill Rd	50	Construct Path	**No**
Swimming Pool Rd	Skate Park	Pemberton Pool	300	Construct Path	**No**
Skate Park	Club Rd	Parking area	60	Construct Path	**No**
Brockman St	Robinson St	Club Rd	820	Construct Path	**Complete**
Brockman St	Railway Cres	Hospital Rd	280	Construct Path	**Complete**
Robinson St	Glew St	Lefroy St	130	Construct Path	**Complete**
Robinson St	Lefroy St	Jamieson St	110	Construct Path	**Complete**
Jamieson St	Robinson St	Ellis St	160	Construct Path	**No**
Jamieson St	Ellis St	Dean St	160	Construct Path	**Complete**
Dean St	Jamieson St	ROW	50	Construct Path	**No**
Dean St	Karri Rise	Brockman St	165	Construct Path	**Complete**
Robinson St	Jamieson St	Guppy St	110	Construct Path	**Complete**
Guppy St	Robinson St	Ellis St	165	Construct Path	**No**
Johnston St (Burma Rd)	school	Existing shared path (asphalt to Gloucester Tree)	405	Construct Path	**No**
Widdeson St	Kennedy St	Glew St	255	Construct Path	**No**
Glew St	Widdeson St	Robinson St	160	Construct Path	**No**

Road Name	Section From	Section To	Length (m)	Works	Complete
Railway Cres	Hospital entrance	Tramway	95	Construct Path	**No**
Brockman St	Hospital Rd	Ellis St	65	Construct Path	**Complete**
Brockman St	Ellis St	Car park	45	Construct Path	**Complete**
Robinson St	Guppy St	Brockman St	80	Construct Path	**Complete**
Jamieson St	Widdeson St	Robinson St	160	Construct Path	**No**
Glew St	Johnston St	Widdeson St	175	Construct Path	**No**
Glew St	Robinson St	Ellis St	165	Construct Path	**No**
Railway Cres	Tramway	Hospital Rd	250	Construct Path	**No**
Apex Park	Brockman St	Tramway	130	Construct Path	**No**
Gloucester Ridge subdivision **future subdivision**	Internal road network	Johnston St		Construct Path	**No**
"Moltoni" subdivision **future subdivision**	Internal road network	Brockman St		Construct Path	**No**

Northcliffe Townsite

Road Name	Section From	Section To	Length (m)	Works	Complete
Railway reserve	Northcliffe Interpretive and Visitor Centre	Recreation Centre	630	Construct Path	**Trail**
Pioneer Museum	Muirillup Rd	Wheatley Coast Rd	70	Construct Path	**No**
Zamia St	District High School	Wheatley Coast Rd	550	Construct Path	**Pavers**
Wheatley Coast Rd	Richards St	Zamia St	350	Construct Path	**Pavers**
Wheatley Coast Rd	Meerup St	DEC (opposite Mill Houses)	1080	Construct Path	**Complete**
Meerup St	Wheatley Coast Rd	Betsworth St	195	Construct Path	**Complete**
Meerup St	Betsworth St	Callcup St	170	Construct Path	**Complete**
Callcup St	Meerup St	Zamia st	110	Construct Path	**No**
North St	Zamia St	Boronia St	165	Construct Path	**Complete**
North St	Boronia St	Richards St	180	Construct Path	**No**
Wheatley Coast Rd	In front of service station		50	Construct Path	**No**
Wheatley Coast Rd	DEC (Opposite Mill Houses)	Parkfield Dr	770	Construct Path	**No**
Railway reserve	Middleton Rd	Northcliffe Private Estate	4500	Construct Path	**No**

Walpole Townsite

Road Name	Section From	Section To	Length (m)	Works	Complete
Public access way	Service road (laneway)	Nockolds St	50	Construct Path	**No**
Swan St	Latham Ave	Latham Ave	125	Construct Path	**Complete**
Swan St	Nockolds St	Latham Ave	95	Construct Path	**Complete**
South Western Hwy and Nockolds St	Boronia Ave	Inlet St	320	Construct Path	**Complete**
Pioneer Park	South Western Highway	Visitor Centre	70	Construct Path	**Complete**
Boronia Ave	South Western Highway	Jones St	325	Construct Path	**Complete**
Inlet St, Park Ave and Pier St	Nockolds St	Vista St	380	Construct Path	**No**
Jones St	Boronia Ave	Boat ramp	95	Construct Path	**No**
Latham Ave	Boronia Ave	Swan St	165	Construct Path	**No**
Walpole Inlet Walk	Boronia Ave	Boronia Ridge Estate	390	Construct Path	**No**
Latham Ave	Swan St	Telecentre	265	Construct Path	**Complete**
Vista St and Walpole St	Pier St	Steele St	440	Construct Path	**Complete**
Boronia Ave and Walpole St	Jones St	Road to boat ramp	680	Construct Path	**No**
Walpole St	Road to boat ramp	Vista St	335	Construct Path	**Complete**
Park Ave	Inlet St	Stewart St	230	Construct Path	**No**
Walpole St and Swarbrick St	Steele St	Short St	205	Construct Path	**No**
Swarbrick St	Short St	Park Ave	95	Construct Path	**No**
Park Ave	Stewart St	Swarbrick St	75	Construct Path	**No**
POS (Boronia Ridge)	Sheoak St	Walpole Inlet Walk	30	Construct Path	**No**

Summary All Townsites

Completed paths: 60

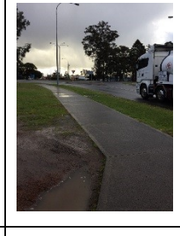
Completed length: 12263m

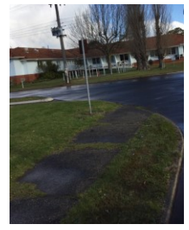
APPENDIX C

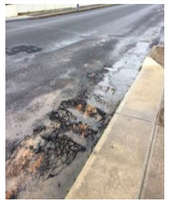
TOWNSITE NETWORK REVIEWS

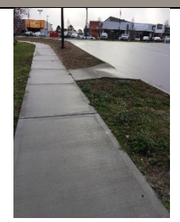
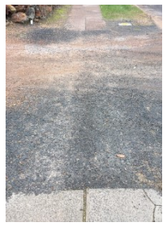
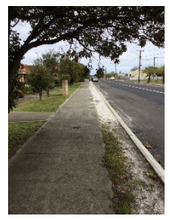
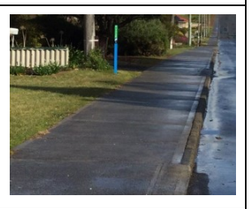
Cardno
Shaping the Future

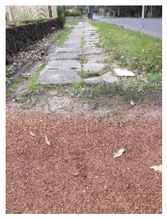
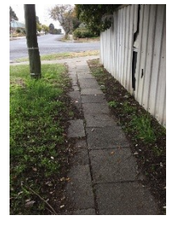
Manjimup Townsite

Corridor	Connection Purpose	Start	End	Existing Path			Image
				Length	Width	Condition rating	
Arnott Street	Provides a connection for residents to the Primary Network on Rutherford Street and the Basketball Stadium/Recreation Ground	Graphite Road	Ipsen Street	550m	2m	Concrete – Good Pavers - Poor condition (South of Rutherford Street)	 
Bath Street	Provides a connection for cyclists onto the Spine and Primary Networks	Mount Street	Lock Street	600m	1m	Pavers – End of Life	
Blechynden Street	Provides a connection for residents to the Primary Network on South Western Highway	South Western Highway	Doust Street	427m	1.8 – 2m	Concrete – Good Pavers – Poor Localised areas of poor condition including ponding and damage to road interface at crossing points and cross overs	 
Brockman Street	Provides connection between the Recreation ground and Town Centre	Giblett Street	Moore Street	480m	3m	Path – Serviceable Poor brick paving	 
Brain Street	Provides a connection for residents with the Mottram Street/SWH Spine	South Western Highway/ Mottram Street	O'Connor Street	360m	2m	Concrete - Excellent	 
Casuarina Street	Path connection within residential area	Stokes Street	Boronia Street	80m	2m	Concrete - Serviceable	

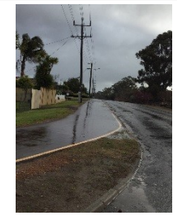
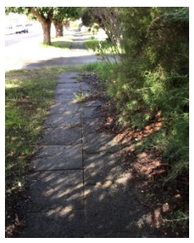
Corridor	Connection Purpose	Start	End	Existing Path			Image
				Length	Width	Condition rating	
Chopping Street	Provides a continuation of Giblett Street Spine further south to connect with residents	Giblett Street	Somerville Street	640m	1.2 – 2m	Concrete – Good Pavers- Poor	 
Collier Street	Provides connection between the recreational grounds	Rutherford Street	Johnson Street	620m	1.2 -2m	Concrete – Poor Pavers - Poor	 
Davies Street	Provides a connection with residents and primary school frontage	Finch Street	Arnott Street	100m	2m	Concrete - Good	
Donnybrook Northcliffe Railway	Path for cyclists and pedestrians around the railways area	N/A	N/A	N/A	2m	Concrete - Excellent	
Doust Street	Provides a connection for residents to the Primary Network on Hospital Avenue	Blenchyden Street	Hospital Avenue	340m	1.8m	Concrete - Poor	 
Duffield Street	Provide paths to Secondary Networks	Somerville Street	Moore Street	215m	1m	Pavers – End of Life	 

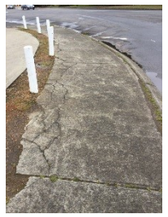
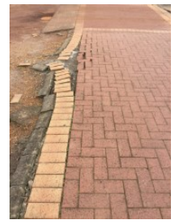
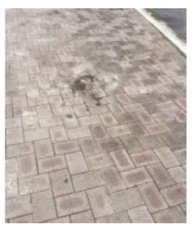
Corridor	Connection Purpose	Start	End	Existing Path			Image
				Length	Width	Condition rating	
Finch Street	Provides a frontage for the Manjimup Primary School	Graphite Road	Davies Street	200m	1.8m	Concrete - Good	 
Finch Street	Provides a frontage for the Manjimup education Support Centre	North of Rutherford Street		125m	2m	Concrete - Good	
Graphite Road	Provides an extension from the Graphite Road Spine to western residential areas	Collier Street	Finch Street	450m	2m	Concrete - Good	 
Graphite Road	Provides connection with residents to the heritage park. Also will be a frontage to the northern side of the proposed heritage park	Collier Street	South Western Highway	750m	1.8 -2.2m	Concrete – Serviceable Localised areas of poor condition including ponding and damage to road interface at crossing points and cross overs	 
Giblett Street (Western side)	Provides a frontage for commercial businesses within the Manjimup townsite.	Pritchard Street	Rose Street	1,500m	3 -3.5m	Path – Excellent Concrete – Poor Poor Conditioned paved concrete path (Pritchard Street to Toyota yard)	 
Giblett Street (Eastern side)	Provides a frontage for commercial businesses within the Manjimup townsite.	Ipsen Street	Mount Street	500m	3 - 4m	Path - Excellent	 

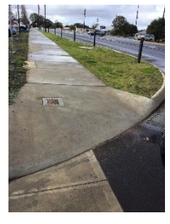
Corridor	Connection Purpose	Start	End	Existing Path			Image
				Length	Width	Condition rating	
Hospital Avenue (Southern side)	Provides a connection between the Warren District Hospital and the Town Centre	South Western Highway	Simms Street	650m	2m	Concrete – Good Path discontinuity/deflection	 
Ipsen Street (Northern side)	Provides a connection in between trip attractors and Spine Network	Rose Street	Moore Street	181m	1m	Concrete – Poor Paver – Unserviceable	 
Ipsen Street (Northern side)	Provides connection for western residential users	Somerville Street	Lintott Street	760m	1.2 -2m	Concrete – Good Pavers - Poor	 
Ipsen Street (Southern side)	Provides connection between the two frontage roads and onto the Eastern residential area	Giblett Street	Limmer Street	900m	1.5 -2m	Concrete – Good	 
Johnson Street	Provides a frontage for the current and future collier street/rea park reserve.	Arnott Street	Ward Street	305m	2.5m	Concrete - Excellent	
Karri Street	Provides connection for residents to the Primary Network on Perup Road	Stokes Street	Perup Road	1,050m	1.8m	Concrete – Excellent	 

Corridor	Connection Purpose	Start	End	Existing Path			Image
				Length	Width	Condition rating	
Kelly Street	Provides a connection for residents to the Rutherford Street (Primary Network) and the education land uses	Rutherford Street	Leman Street	310m	2m	Concrete - Good	
Leman Street	Provides a frontage to Keaman College entrance	Moore Street	Somerville Street	200m	1.2m	Pavers – Poor Localised areas of poor condition including ponding and damage to road interface at crossing points and cross overs	 
Leman Street	Provides an extension on the Leman Street to further western residents	Somerville Street	Limmer Street	730m	1m	Pavers – Poor Localised areas of poor condition including ponding and damage to road interface at crossing points and cross overs	 
Lock Street	Provides a secondary connection for residents to the frontage of the Town Centre	Somerville Street	Rose Street	190m	1.2m	Pavers – Poor Localised areas of poor condition including ponding and damage to road interface at crossing points and cross overs	 
Moore Street	Provides a frontage to the entrance of the recreation ground	Mount Street	Lock Street	700m	1 - 2m	Concrete – Poor Pavers - Poor	 
Moore Street	Provides a connection for cyclists onto the Primary Network	Mount Street	Bath Street	411m	1m	Pavers - Unserviceable	 

Corridor	Connection Purpose	Start	End	Existing Path			Image
				Length	Width	Condition rating	
Mount Street	Provides a connection for residents to the Primary Network on Collier Street and a secondary connection to the education land uses.	Arnott Street	Collier Street	335m	1.2 - 1.5m	Concrete - Good	
Mount Street	Provides path connection in between Primary and Secondary Networks	Collier Street	Bath Street	350m	1m	Pavers - Unserviceable	 
Mount Street (Northern side)	Paths connects to Primary Network	Bath Street	Rose Street	115m	3m	Paving - Good	
Mount Street	Provides connection between the two frontage roads	Giblett Street	Rose Street	80m	3m	Path – Poor Localised areas of poor condition including ponding and damage to road interface at crossing points and cross overs	 
Muir Street	Path connection within residential area	Perup Road	Blechyden Street	450m	1.2m	Pavers - Unserviceable	 
Muir Street	Provides a connection for residents to the Primary Network on Hospital Avenue	Blechyden Street	Hospital Avenue	460m	1.8m	Pavers – Unserviceable Concrete/Pavers are in poor condition	 

Corridor	Connection Purpose	Start	End	Existing Path			Image
				Length	Width	Condition rating	
O'Connor Street	Provide connection in between Primary Networks; East Manjimup Primary School and Distinct Hospital	Hospital Avenue	East Manjimup Primary School	370m	2m	Concrete - Excellent	
O'Connor Street	Provides a secondary connection for residents with the Mottram Street/SWH.	Wheatley Street	Brain Street	240m	2m	Concrete - Poor	
O'Connor Street	Path connection within South-East residential area	Young Street	Wheatley Street	250m	2m	Concrete – Good	N/A
Perup Road	Extension of the current shared path to connect the King Jarrah Tree to the Timber and Heritage Park and multiple residential precincts, and the larger town network.	South Western Highway	Karri Street	900m	2m	Concrete – Good Path discontinuity/deflection	 
Pritchard Street	Provides a diversion for cyclists from the high speed environment of South Western Highway.	Giblett Street	Mottram Street/ South Western Highway	80m	2m	Concrete - Good	N/A
Pritchard Street	Provide connection for local residents onto Secondary and Spine networks	Somerville Street	Mottram Street/ South Western Highway	620m	1.5m	Concrete - Poor	 
Ralston Street	Path connection within residential area	Clarke Street	Muir Street	151m	1.2m	Pavers – Unserviceable	 

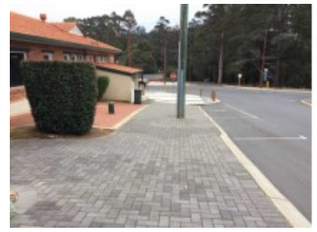
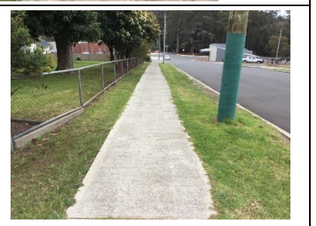
Corridor	Connection Purpose	Start	End	Existing Path			Image
				Length	Width	Condition rating	
Ralston Street (Both sides)	Connects the Eastern residents with the main townsite	South Western Highway	Giblett Street	200m	2m	Concrete – Serviceable	 
Rutherford Street (Both sides)	Provides connection and a frontage for the High school to the Town Centre.	Moore Street	Manjimup Senior High School	2,260m	1.2 -2m	Pavers – Poor Concrete – Good Localised areas of poor condition incl. ponding and damage to road interface at crossing points and cross overs. Infrastructure obstructing path	 
Robertson Street	Provides a connection for residents to the Ipsen Street (Primary Network)	Leman Street	Ipsen Street	236m	1.2m	Pavers - Unserviceable	
Rose Street	Provides a frontage for commercial businesses within the townsite	Ipsen Street	Edwards Street	570m	2m	Path – Good Small section poor brick pavers (Ipsen Street to Brockman Street)	 
Rose Street	Provides a connection with the back of the commercial Town Centre uses	Ipsen Street	Pritchard Street	530m	1.2 – 2m	Concrete – Good Pavers- Poor	 
Rose Street	Provides path between northern and southern sides land uses	North of Mount Street		250m	2m	Paving – Excellent	

Corridor	Connection Purpose	Start	End	Existing Path			Image
				Length	Width	Condition rating	
							Brick/concrete paved area in need of repair
Somerville Street	Provides a connection for southern residents to the Ipsen Street (Primary Network)	Ipsen Street	Caldwell Street	1,350m	1.2 – 2m	Concrete – Good Pavers – Poor	 
Somerville Street	Provides connection for western residential users	Leman Street	Ipsen Street	110m	2m	Concrete – Serviceable Localised areas of poor condition including ponding and damage to road interface at crossing points and cross overs	 
South Western Highway	Continues the shared path network from the King Jarrah Trail to the Town Centre	Graphite Road	Hospital Avenue	720m	2m	Pavers - Poor	 
South Western Highway/Mottram Street	Provides a connection between the Town Centre and Southern land uses	Hospital Avenue	Young Street	143m	2m	Pavers – Poor	 
South Western Highway/Mottram Street	Provides a continuation of the Primary Network routes further south to connect with residents	Young Street	Brain Street	510m	1.2 – 2m	Concrete – Good Pavers- Poor	 

Corridor	Connection Purpose	Start	End	Existing Path			Image
				Length	Width	Condition rating	
South Western Highway/Mottram Street (Western side)	Provides a connection with the Town Centre and south west residents. Also acts as a frontage along the railway line and station.	Young Street	Caravan Park	250m	2m	Concrete – Excellent	
Stokes Street	Path connection within residential area	Perup Road	Blechynden Street	600m	2m	Concrete - Good	
Wheatley Street	Provides a secondary connection for residents with the Mottram Street/SWH (Primary Network)	Mottram Street/ South Western Highway	O'Connor Street	370m	2m	Concrete - Excellent	
Young Street	Provides connection between South Western Highway and the East Manjimup Primary School	Mottram Street	O'Connor Street	370m	1.8m	Concrete – Serviceable Section of degraded path.	

Pemberton Townsite

Location	Connection Purpose	Start	End	Existing Path			Photos
				Length	Width	Condition rating	
Brockman Street	Provides connection with the key land uses	Ellis Street	Robinson Street	43m	3m	Poor condition Path discontinuity/ deflection Localised areas of poor condition incl. ponding & damage to road interface at cross points/ overs	 
Brockman Street (Northern side)	Provides connection with the Sports Club and the Town Centre.	Broadway Street	Robinson Street	650m	1.8m	Concrete – Good Concrete/Pavers are in poor condition at some sections	 
Brockman Street (Southern side)	Provides connection with the Town Centre and Pemberton Sports Club	Dean Street	Pemberton Sports Club	520m	1.8m	Concrete - Good	 
Burma Road	Provides connection with residential and High School.	Kennedy Street	Pemberton District High School	55m	1.8m	Concrete – Poor	 
Burma Road	Corner between Kennedy Street and Burma Road. Provides connection with residential and High School.	Corner of Kennedy Street		50m	NA	Asphalt - Unserviceable	 

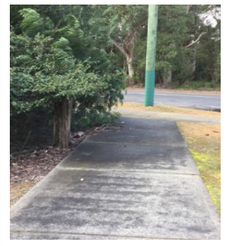
Location	Connection Purpose	Start	End	Existing Path			Photos
				Length	Width	Condition rating	
Club Road	Provides connection with the Sports Club carpark and Brockman Street.	Brockman Street	Pemberton Sports Club	180m	1.8m	Concrete – Good Path discontinuity/ deflection General Maintenance and servicing	 
Dean Street	Provides a frontage path to local community commercial uses.	Guppy Street	Brockman Street				
Dean Street	Provides connection with residents and the Primary and Secondary Network routes.	Guppy Street	Lefroy Street	125m	1.4m	Concrete – Good Serviceable section but path is semi-mountable and not in direct alignment.	 
Ellis Street	Provides an alternate connection with the Town Centre commercial uses and the Primary Network route.	Brockman Street	Guppy Street	115m	1.4m	Concrete – Good Infrastructure obstructing path	 
Ellis Street	Provides connection with residential and High School.	Kennedy Street	Guppy Street	100m	3m	Paving – Good Servicing on crack sections	 
Guppy Street (Northern side)	Provides connection with the key land uses	Dean Street	Ellis Street	143m	2.5m	Asphalt- Unserviceable	

Location	Connection Purpose	Start	End	Existing Path			Photos
				Length	Width	Condition rating	
Guppy Street	Provides a frontage path along the church and also the Primary School	Kennedy Street	Dean Street	155m	1.8m	Concrete - Good	 
Jamieson Street	Provides connection with residents and the Secondary Network route.	Dean Street	Robinson Street	180m	1.4m	Concrete - Good	
Kennedy Street	Provides connection with residential and High School.	Burma Road	Ellis Street	500m	1.5 – 2m	Concrete – Serviceable General Maintenance and Servicing	 
Robinson Street	Provides connection with major road and eastern residential areas.	Brockman Street	Lefroy Street	375m	1.5m	Concrete – Good Utility cover on path. Concrete/ pavers are in poor condition at the corner of the path	 
Robinson Street	Provides connection with major road and eastern residential areas.	Kennedy Street	Lefroy Street	132m	1.4-1.8m	Concrete - Good	 

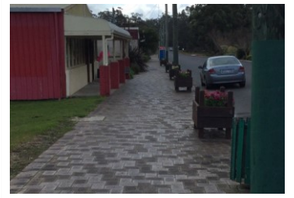
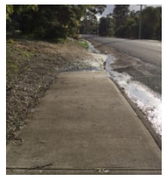
Location	Connection Purpose	Start	End	Existing Path			Photos
				Length	Width	Condition rating	
Widdeson Street	Provides a safe route for residents living in the far eastern parts of the residential precinct.	Brockman Street	Glew Street	500m	1.4m	Concrete - Good	 

Northcliffe Townsite

Location	Connection Purpose	Start	End	Existing Path			Photos
				Length	Width	Condition rating	
Callcup Street (Western side)	Provides a path connection at the school to Bus shelter, and also key residential areas	Meerup Street	Zamia Street	22m	1.2m	Concrete Paver - Unserviceable	 
Information and Visitor Centre	Access from the centre to all land-uses and external path network.	Corner of Wheatley Coast Road and Muirillup Road		76m	2m	Concrete - Good	
Intersection of Callcup Street and Zamia Street	Provides a clearer connection along the Spine Network.	N/A	N/A	N/A	1.8m	Concrete – Good	

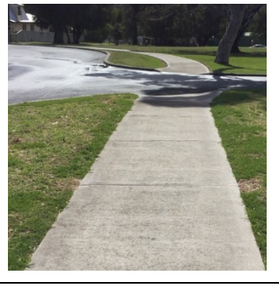
Location	Connection Purpose	Start	End	Existing Path			Photos
				Length	Width	Condition rating	
Intersection of Wheatley Coast and Meerup Street	Provides a clearer connection along the Spine Network.	N/A	N/A	N/A	1.8m	Concrete – Good	 
Jubilee park	Provides users access and gets them off road and safe.	Corner of Windy Harbour Road and Muirillup Road		21m	2m	Concrete - Excellent	 
Meerup Street (Northern side)	Provides connection between residential area and the school.	Jackson Street	Banksia Street	150m	1.5m	Concrete - Good	 
Meerup Street (Northern side)	Provides connection from south residential to Wheatley Coast Road	Banksia Street	Wheatley Coast Road	130m	1.8m	Concrete – Serviceable Localised areas of poor condition incl. ponding & damage to road interface at crossing points. Grass encroachment	 
North Street (Eastern side)	Provides connection for southern residential precinct with the Primary Network.	Meerup Road	Zamia Street	135m	1.8m	Concrete - Good	 
Northcliffe Trading Post	Connection between skatepark and recreation ground.	North Street	Wheatley Coast Road	100m	3m	Pavers – Poor Condition	 

Location	Connection Purpose	Start	End	Existing Path			Photos
				Length	Width	Condition rating	
Northcliffe Skate Park connection	Provides access to skatepark from south residential	Corner of Zamia Street and North Street	Northcliffe Skate Park connection	No Path	No Path	No Path	
Path outside of the Motel inn	Provides uses of Motel Inn to head south into Northcliffe Centre	N/A	N/A	31m	1.5m	Concrete - Good	
Recreational Path	Provides a clearer connection with the parking for the Northcliffe Recreation Centre.	Northcliffe Recreation Centre	George Gardiner Drive	22m	NA	Gravel – Poor	 
Wheatley Coast	Provides part of the connection from residential to industrial land-uses	Meerup Street	Mill No.2 Road	1000m	2.2m	Asphalt - Unserviceable	N/A
Wheatley Coast Road (Eastern side)	Provides a shorter and faster route for northern residents/tourists to access the recreational shared path.	Wheatley Coast Road	Recreational Path	70m	2m	Natural Ground Track	
Wheatley Coast Road (Western side)	Provides part of the connection from residential to industrial land-uses	Muirillup Road	Meerup Street	230m	1.8m	Concrete – Good Condition	 

Location	Connection Purpose	Start	End	Existing Path			Photos
				Length	Width	Condition rating	
Wheatley Coast Road (Western side)	Provides connection for northern residents and visitors to Town Centre	Zamia Street	Northcliffe Hotel	210m	2.5m	Brick Paved - Good	 
Zamia Street (Southern side)	Provides linkage with the townsites main road and the school.	Northcliffe High School	Wheatley Coast Road	418m	1.8m	Concrete – Good Path discontinuity /deflection	 

Walpole Townsite

Location	Connection Purpose	Start	End	Existing Path			Photos
				Length	Width	Condition rating	
Boronia Street	Provides a connection with residents and the Primary Network route.	Latham Avenue	Walpole Street	135m	1.8m	Concrete - Good	 
Inlet Street (Western side)	Provides a connection with residents and the frontage of the Town Centre	Park Avenue	Nockolds Street	125m	2m	Concrete - Good	

Location	Connection Purpose	Start	End	Existing Path			Photos
				Length	Width	Condition rating	
Latham Avenue (Eastern side)	Provides a connection for cyclists wanting to cut through to the back of the Town Centre main commercial uses	Pier Street	Shooter Lane	130m	1.5m	Concrete - Excellent	
Local Track/ Alley	Provides a secondary connection with the Town Centre frontage and residents	Shooter Lane	Nockolds Street	No path	No path	No path	
Nockolds Street	Provides a connection with the frontage of accommodation usage and the Town Centre.	Inlet Street	Australian Post Office	225m	1.5 – 2m	Concrete – Good Paving – Good General Maintenance and Servicing Localised areas of poor condition including damage to road interface at crossing points and cross overs Damaged utilities cover	  
Natham Avenue (Northern side)	Provides connection with Boronia Street and the southern residential area and also the primary school. Currently used as carpark where not paved.	Boronia Street	Pier Street	350m	2m	Concrete - Good	 
Pier Street	Provides a northern path to reduce the crossing of roads as is close to recreation centre and predicted high generator	Latham Avenue	Park Avenue	120m	1.5m	Concrete - Good	 

Location	Connection Purpose	Start	End	Existing Path			Photos
				Length	Width	Condition rating	
Pier Street (Southern side)	Provides a connection with the eastern residential and recreation centre.	Vista Street	Latham Avenue	120m	2m	Concrete - Excellent	 
Swan Street	Major connection with Town Centre and sports/recreation ground and primary school	Latham Avenue	Nockolds Street	510m	2m	Concrete - Good	 
Town Centre	Provides frontage for Town Centre commercial uses	Boronia Street	Vista Street	470m	2.5m	Paved - Good	 
Vista Street (Western side)	Provides connection from eastern Town Centre to recreation ground.	Nockolds Street	Pier Street	205m	2m	Paved - Good	 
Walpole Street	Provides a connection with residents and the Primary Network route	Pier Street	Boronia Street	725m	1.8m	Concrete – Good Raised drainage cover and no crossover/ continuation of footpath. General maintenance and servicing	 

* END OF REPORT *