Department of
Transport

LEEUWIN-NATURALISTE

2050 CYCLING STRATEGY

City of Busselton
Geographe Bay

Shire of Augusta Margaret River

EXECUTIVE SUMMARY

Cities and towns with high levels of cycling enjoy a range of economic, environmental and social benefits. Not only is cycling proven to reduce traffic congestion and improve air quality, it also helps to create more vibrant and welcoming communities. Cycling can facilitate new forms of industry (such as cycle-tourism) and more generally, it enables people to live happier, healthier and more active lives. Fundamentally, increasing cycling mode share is about improving quality of life – something that is critical for attracting and retaining people in regional areas.

The key to increasing cycling mode share is providing infrastructure which is not only safe and convenient, but also competitive against other modes of transport. To achieve this, cycling needs to be prioritised ahead of other modes in appropriate locations and integrated with adjoining land use. If we are serious about reducing car dependency and helping people make better choices for short trips, these priorities need to be reflected in the way our communities are planned.

Over the past five years, the City of Busselton and Shire of Augusta Margaret River have delivered several strategically important cycling projects. There are already great examples of cycling facilities around the subregion - such as the coastal shared path linking Busselton to Dunsborough and the completed section of the Wadandi Track linking Cowaramup to Witchcliffe. However, cycling in some areas remains unappealing due to the network's lack of coverage, connectedness and separation from motorised traffic. This strategy sets out a blueprint for connecting, enhancing and extending the region's cycling infrastructure through the development of an interconnected network of off-road shared paths and trails, protected on-road bike lanes and low-stress residential streets. Opportunities to improve safety for road cyclists are also considered in this strategy.

This long-term, aspirational strategy has been developed by the Department of Transport in collaboration with the City of Busselton, Shire of Augusta Margaret River and the South West Development Commission. It is accompanied by a short-term action plan that reflects the priorities shared by local and State Government.

The *Leeuwin-Naturaliste 2050 Cycling Strategy* will help inform future investment through the Regional Bicycle Network Grants Program and potentially other funding sources.

In developing this strategy, extensive consultation has been undertaken with key stakeholders and the local community. Not only did the consultation help to refine the overarching aims and objectives of the strategy, it also clarified the community's expectations in terms of where key routes are most needed and the requirements of different user groups.

In developing paths and trails, it is important to consider the potential environmental impact of development and ensure that the unique characteristics of the area are maintained. Some locations may be limited by legislation and policy which could result in alignments changing as further feasibility and planning are undertaken.

There are a number of opportunities to create world-class cycling facilities in the Leeuwin-Naturaliste subregion. Major new road projects planned for the outskirts of Busselton, Dunsborough and Margaret River will provide important opportunities to deliver parallel walking and cycling facilities. Improving access to the subregion's river and coastal foreshores will further enhance recreational cycling experiences for local residents, and help showcase some of the region's best natural assets to visitors and tourists. There are also several opportunities to establish long-distance and inter-regional cycling routes, which will help enable the Leeuwin-Naturaliste subregion to position itself as a world-class cycle-tourism destination.

The *Leeuwin-Naturaliste 2050 Cycling Strategy* outlines how the subregion can realise its full cycling potential, leading to a healthier, happier and more engaged community.

Figure 1.1 The south west corner of WA is well positioned to become one of Australia's best regions for long-distance cycling.

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WHY DO WE WANT MORE PEOPLE CYCLING

TO ENABLE PEOPLE TO ENJOY HEALTHIER AND MORE ACTIVE LIVES

Obesity rates are 10% higher in regional WA compared to Perth. As a result, people living in regional areas are 1.25 times more likely to suffer from cardiovascular disease and 1.4 times more likely to be hospitalised for diabetes.

TO IMPROVE THE STRENGTH AND RESILIENCE OF OUR REGIONAL COMMUNITIES

The popularity of outdoor and adventure tourism is increasing all over the world, with cycle-tourism identified as a key growth area. In 2015, almost 3 million people went cycling while on holiday in Australia.

TO IMPROVE MENTAL HEALTH AND SOCIAL INCLUSION

People who engage in regular exercise experience reduced stress, improved sleeping patterns, improved concentration and a better outlook on life. More people riding and walking provides greater opportunities for incidental interaction on the streets, enhancing a sense of community.

TO REDUCE PRESSURE ON THE PUBLIC PURSE

A study commissioned by the RAC found that the economic, social, health and environmental benefits attributed to cycling infrastructure outweigh their costs incurred by between 3.4 and 5.4 times. In dollar terms, it is estimated that for every kilometre cycled, $1.42 of economic benefits are generated for the community.

TO HELP FAMILIES SAVE MONEY, AND INCREASE TRANSPORT OPTIONS

Families who have at least one person commuting by bike (instead of car) save on average $8 per day which equates to nearly $2,000 per year. Cycling provides an economic and independent travel option for those who might otherwise have their travel options restricted.

TO REDUCE TRANSPORT IMPACTS ON THE ENVIRONMENT

Transport is Australia's third largest source of greenhouse gas emissions, with emissions from transport increasing nearly 60% since 1990, more than any other sector. In Australia, cars are responsible for roughly half of all transport emissions.

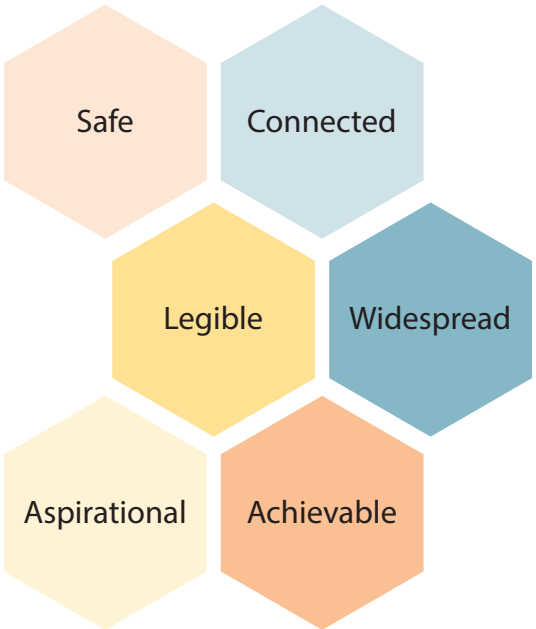
1. INTRODUCTION

1.1 Guiding principles

The *Leeuwin-Naturaliste 2050 Cycling Strategy* sets out a long-term vision to create a safe, direct, comfortable and integrated cycling network for the subregion. The proposed network, which connects people to activity centres and key attractions, has been developed to facilitate cycling for transport, recreation and tourism purposes. Cycling disciplines that are dependent on purpose-built facilities (such as BMX parks, downhill mountain bike trails and velodromes) typically perform non-transport functions, and are therefore not considered in this strategy.

This document is one of three 2050 cycling strategies covering the South West region. These strategies are:

- the Leeuwin-Naturaliste subregion, comprising the City of Busselton and Shire of Augusta Margaret River (this document);
- the Bunbury-Wellington subregion, comprising the City of Bunbury and the shires of Capel, Collie, Dardanup, Donnybrook-Balingup and Harvey; and
- the Warren-Blackwood subregion, comprising the shires of Nannup, Manjimup, Boyup Brook and Bridgetown-Greenbushes.



The networks proposed in each of these strategies have been developed based on the following principles:

Safe: The 2050 cycling network should be built to a standard which reflects the "8 to 80" design philosophy. People of all ages should be able to cycle safely to the places they need and want to go. Unprotected cycling facilities located on busy roads are not considered suitable for vulnerable road users, and will not encourage more people to cycle, more often.

Connected: Like a road network, all cycling routes should connect to something at each end (whether that is a destination or another cycling route).

Widespread: In suburbs and towns, the network should be extensive enough for people to safely assume they can get to their destination without encountering hostile traffic conditions. When cycling networks reach a certain level of density it enables families to live comfortably without a second car.

Legible: The cycling network needs to be both intuitive and direct. To achieve this, it makes sense to locate major cycling routes parallel to natural land forms such as rivers and coastlines or within existing road and rail corridors. The development of coherent wayfinding initiatives is also important in supporting legibility.

Aspirational: Given the long-term nature of this strategy, several ambitious ideas have been put forward to help position the Leeuwin-Naturaliste subregion as one of Australia's best regions for cycling. This includes several long-distance cycle-tourism routes as shown in Figure 1.1.

Achievable: For the most part, the proposals put forward in this strategy adopt tried-and-tested planning principles. The case studies chosen provide local, interstate and international examples of similar projects undertaken in recent years.

The "8 to 80" design philosophy is about creating people-oriented towns and cities which are suitable for everyone. It is based on the notion that if you design a cycle path for example, which caters for the needs of an 8 or 80 year old, it is likely to be suitable for everyone.

1.2 Leeuwin-Naturaliste in context

The Leeuwin-Naturaliste subregion, comprising the City of Busselton and the Shire of Augusta Margaret River is home to approximately 51,000 people. The subregion is bordered by the Bunbury-Wellington subregion to the north and the Warren-Blackwood subregion to the south and east.

The study area and regional settlement hierarchy are shown in Figure 1.2. The area has a broad economic base which is comprised of the mining, manufacturing, construction, tourism, agriculture and professional services sectors

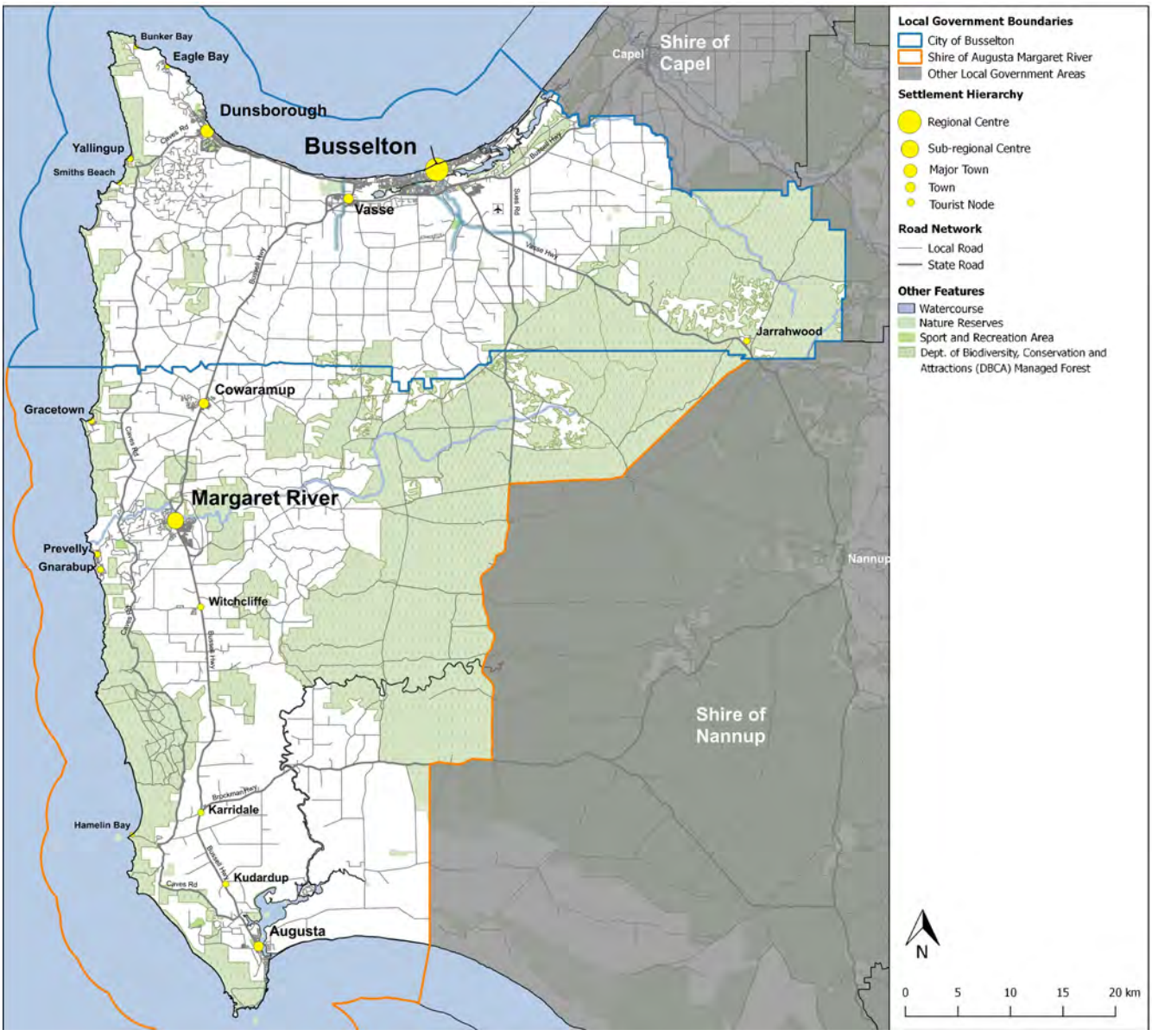


Figure 1.2 The Leeuwin-Naturaliste subregion and settlement hierarchy.[1]

[1] *Settlement hierarchy as per the Draft Leeuwin-Naturaliste Subregional Planning Strategy (2017)*

Busselton is the principal commercial and administrative centre for the subregion. Located approximately 52 km south-west of Bunbury and 230 km south of Perth, the city has a population of over 22,000 people (37,000 in the local government area) making it the third largest regional city in WA. In terms of transport, the city is serviced by several major road links including Caves Road, Bussell Highway and Vasse Highway. The City is also home to the Busselton-Margaret River Regional Airport, which is expected to expand significantly over the coming years, allowing it to cater for direct interstate and international flights.

Margaret River is the second largest town in the subregion and the primary administrative and service hub for the Shire of Augusta Margaret River. The shire has a population of around 14,000 (6,300 in Margaret River town) and covers an area of approximately 2,240 km2 which includes 120 km of coastline. The shire is linked to the City of Busselton via Caves Road and Bussell Highway and is one of WA's most visited regions for international, interstate and intrastate tourists.

1.3 The need for a long-term regional cycling strategy

This strategy is designed to help guide investment in cycling in the Leeuwin-Naturaliste subregion over the next three decades. Other reasons for preparing this strategy include:

- to address key opportunities which may have previously been overlooked, particularly in relation to future land use and transport developments;
- to help guide investment between neighbouring local governments, and between local government and State Government;
- to facilitate the planning and development of long-distance (inter-regional) cycling routes, especially those which connect with other regions and subregions;
- to ensure that the standard of future cycling facilities meets current best-practice; and
- to adopt a consistent approach with other 2050 cycling strategies being developed across regional WA, and particularly those being developed for the Bunbury-Wellington and Warren-Blackwood subregions.

1.3.1 Expected changes in population

Over the past decade the City of Busselton and the Shire of Augusta Margaret River have both achieved strong growth, increasing by 10,000 and 3,000 residents respectively. Although it is difficult to accurately forecast the subregion's population over the long-term, the extrapolation of existing growth trends indicates that the subregion could be home to an additional 45,000 people by the year 2050 (as shown in Figure 1.3 below).

1.3.2 Expected changes in land use

Much of the City of Busselton's population increase is expected to occur to the south of the Vasse-Wonnerup wetlands system, in new urban growth areas such as Yalyalup, Vasse Newtown, Dunsborough Lakes, Port Geographe, Airport North, Ambergate North, Broadwater and South Broadwater[3].

New residential subdivisions in the Shire of Augusta Margaret River are likely to occur on the outskirts of the Margaret River, Augusta, Cowaramup and Witchcliffe townships, with most of this future residential growth expected to be in the new development areas of Rapids Landing and Brookfield[4].

Land use is expected to intensify in both the Busselton and Dunsborough activity centres. Subject to growth conditions, new commercial centres may also develop in Yalyalup, Vasse Newtown and Ambergate North. In addition, revitalisation projects are planned for the Busselton, Dunsborough and Yallingup foreshores.

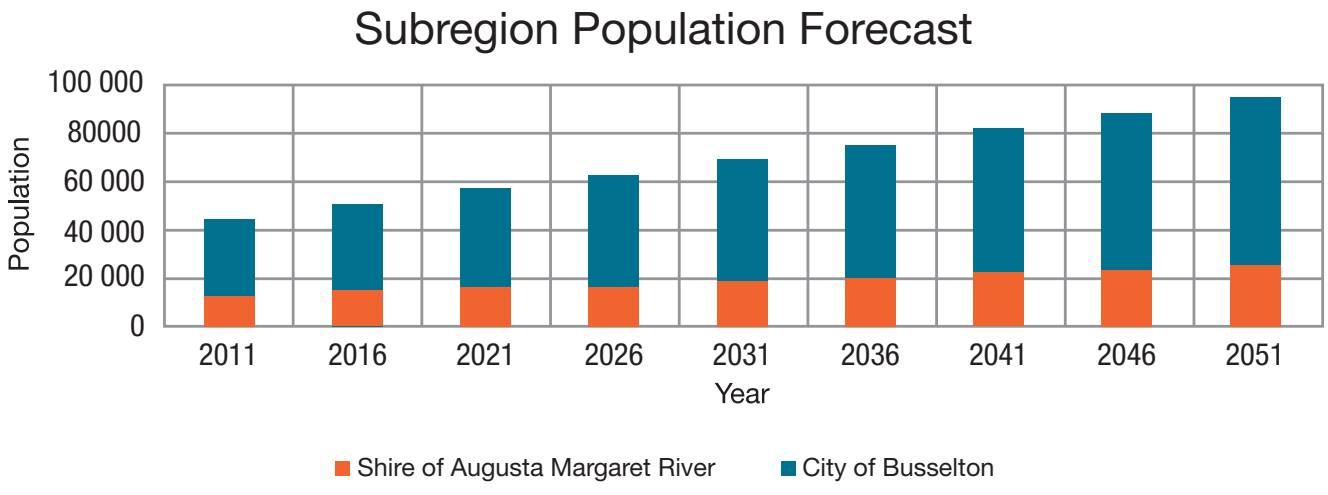


Figure 1.3 If current trends continue, the population of the Leeuwin-Naturaliste subregion could reach nearly 100,000 people by the year 2050.[2]

[2] *Population data based on upper ("Band E") forecasts provide by WA Tomorrow (2015)*

[3] *Future Busselton 2050*

[4] *Shire of Augusta Margaret River Local Planning Strategy (2017)*

1.3.3 Expected changes to transport

Some or all the following major transport projects are likely to be delivered prior to 2050.

→ City of Busselton:

- Upgrades to Busselton-Margaret River Regional Airport catering for interstate and international flights (currently underway)
- A Busselton Outer Bypass road
- An eastern link connecting Causeway Road to Peel Terrace via a new road bridge
- A new road linking Busselton and Dunsborough (notionally referred to as the Vasse-Dunsborough Link)
- A potential passenger rail service between Busselton and Perth (via Bunbury)

→ Shire of Augusta Margaret River:

- The development of the Margaret River Perimeter Road (under construction) – removing heavy vehicles and through traffic from Margaret River's town centre
- The redevelopment of Margaret River's main street

With each of these major projects, appropriate consideration must be given to the provision of quality cycling facilities, noting that it can be difficult (and prohibitively expensive) to retrofit them at a later stage.

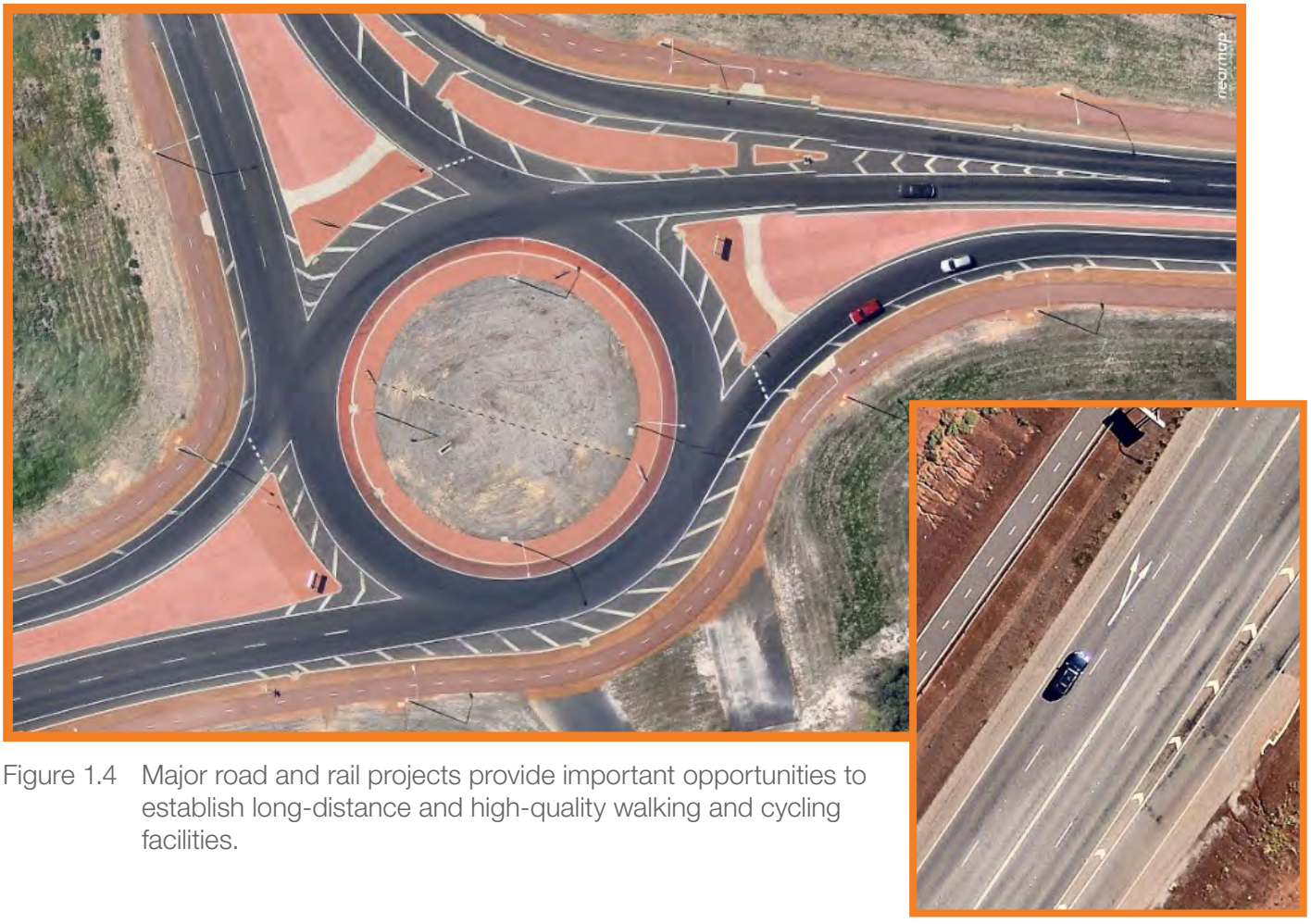


Figure 1.4 Major road and rail projects provide important opportunities to establish long-distance and high-quality walking and cycling facilities.

1.3.4 Relationship with other documents

The *2014-2031 Western Australian Bicycle Network (WABN) Plan* identifies the need to review cycling facilities in WA's regional centres. Although many regional local governments have their own local bike plans, it is recognised that there is a need to develop long-term regional strategies which have an aspirational focus and, where appropriate, span across entire regions or subregions. Key objectives of this process include improving connections to activity centres and schools, identifying inter-regional routes and harnessing the potential of cycle-tourism.

Funding applications for the development of key strategic projects within these areas can be made through the Regional Bike Network (RBN) Grants Program.

The RBN Grants Program makes funds available for the planning, design and construction of cycling infrastructure by local governments in regional WA, with funding matched on a dollar-for-dollar basis with local governments.

Long-term cycling strategies such as this one do not preclude local governments from preparing their own local bike plans. Local bike plans will remain important for identifying short-term priorities such as upgrades to existing infrastructure and maintenance requirements. They are also important for outlining strategies around the activation of cycling infrastructure, behaviour change and education.

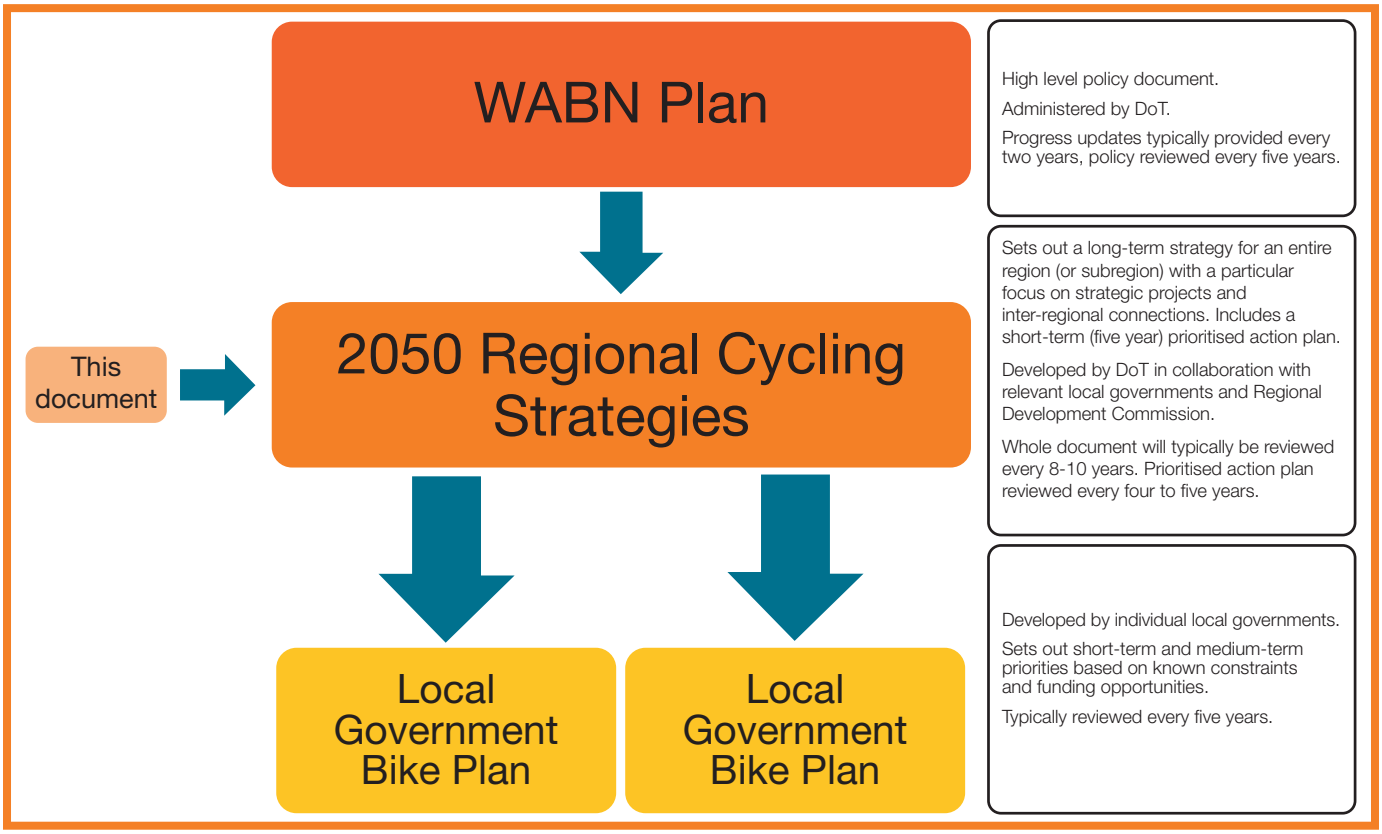


Figure 1.5 Relationship between the *WABN Plan*, this document and local government bike plans.

1.4 Background research and analysis

1.4.1 Document Review

In preparing this strategy several documents were reviewed pertaining to land use and transport in the Leeuwin-Naturaliste subregion. Combined with extensive stakeholder engagement, these documents were critical to understanding each local government's current approach to bike planning. A list of these documents is contained in Appendix B.

1.4.2 Mapping of current and future trip generators

Before commencing the development of the network, a mapping exercise was undertaken whereby all existing and known future trip attractors were mapped. Trip attractors are defined as any place that someone could reasonably be expected to need or want to cycle to and include things like schools, shopping centres, industrial areas, tourist destinations, health campuses and sporting precincts. The trip attractors are shown in the maps contained in Section 3.

1.4.3 Review of the existing cycling network

The Leeuwin-Naturaliste subregion has several examples of high-quality cycling infrastructure, including the Geographe Bay and Margaret River-Prevelly shared paths. Busselton, in particular, has a better cycling network than most regional centres in WA. Despite this, the subregion's cycling network is not mature enough (in terms of coverage, connectivity and separation from motorised traffic) to enable cycling to be a preferable transport mode for many people.

1.4.4 Analysis of crash data

The most recent five-year crash statistics (2013–2017) were obtained from Main Roads Western Australia's (Main Roads) Crash Analysis Reporting System (CARS). Both pedestrian and cyclist crash data was obtained, noting that areas which are dangerous for pedestrians are often also dangerous for cyclists. An analysis of this data is provided in Appendix B.

Figure 1.6 The Geographe Bay (top) and Margaret River-Prevelly (bottom) shared paths are examples of high-quality, "8 to 80" cycling infrastructure which enable people of all ages and abilities to ride for transport and recreation.

1.4.5 Analysis of GPS travel data

The GPS mapping tool, Strava Labs, was used to better understand which parts of the subregion's road and path networks are most heavily utilised by cyclists. Strava is a website and mobile app which is used to track athletic activity via GPS. Despite the usefulness of this information, it should be noted that GPS travel data is typically representative of people who cycle for training or high-intensity recreational purposes. An analysis of this data is contained in Appendix B.

1.4.6 Community consultation

Consultation with the local community was central to the development of the *Leeuwin-Naturaliste 2050 Cycling Strategy*. The objectives of the consultation were to:

- help refine the overarching aims and objectives of the strategy;
- gain an understanding of the community's expectations when it comes to cycling infrastructure, as well as the needs of different user groups;
- reveal the major issues and missing links associated with the subregion's existing cycling network;
- provide the community with the opportunity to share their ideas; and
- seek local buy-in and ongoing community support for the strategy.

The consultation was carried out in two distinct phases. Phase one was undertaken shortly after the project commenced and involved several informal drop-in sessions. Community members were also able to provide written submissions to contribute to the development of the strategy. Phase two consisted of a public comment period. A detailed analysis of the community consultation undertaken is contained in Appendix C.

1.4.7 Stakeholder consultation

This strategy has been developed in collaboration with the South West Development Commission (SWDC), the City of Busselton and the Shire of Augusta Margaret River. Consultation was undertaken with various other government and non-government stakeholders, including:

- Department of Biodiversity, Conservation and Attractions
- Department of Local Government, Sport and Cultural Industries
- Main Roads
- Public Transport Authority (PTA)
- Arc Infrastructure
- Water Corporation
- Department of Water and Environmental Regulation
- Tourism WA
- Margaret River Busselton Tourism Association
- Road Safety Commission
- The National Trust
- WestCycle

Input has also been provided from the WA Trails Reference Group and WABN Implementation Reference Group, both of which include additional stakeholders and interest groups.

2. REGIONAL ROUTE HIERARCHY

A hierarchy comprising five types of cycling route has been used to illustrate the Leeuwin-Naturaliste 2050 cycling network. This hierarchy is being adopted for all future cycling strategies in WA. An important aspect of the hierarchy is that unlike many traditional cycling infrastructure plans, routes are defined primarily by function, rather than built form. The key differences between the five types of route are explained in Sections 2.1 to 2.5, with additional detail provided in Appendix A.

2.1 Primary routes

Primary routes form the backbone of Leeuwin-Naturaliste's 2050 cycling network. Sometimes referred to as freeways for bikes, primary routes afford cyclists with safe and generally uninterrupted journeys. Primary routes should be completely separated from motorised traffic meaning major road and rail corridors, and river and ocean foreshores tend to be the most practical locations for these types of facilities.

In terms of built form, primary routes predominantly consist of high-quality shared paths at least 3 m in width. In high pedestrian use areas, it may be necessary to provide separate pedestrian and cycling facilities. To ensure high levels of rideability and legibility, red asphalt is usually the preferred surface treatment. An important consideration for shared paths is managing safety and ensuring etiquette between different users.

Shared path parallel to a major road

Shared path parallel to a rail corridor

Shared path along river foreshore

Shared path along coastal foreshore

Figure 2.1 Primary routes form the backbone of urban cycling networks and allow cyclists to safely undertake long, uninterrupted journeys.

2.2 Secondary routes

Secondary routes are typically located within urban or built-up environments. The aim of these routes is to provide users with access to and from important trip attractors such as shopping centres and industrial areas, as well as education, health and sporting precincts.

In most cases, secondary routes are located adjacent to arterial roads and take the form of protected on-road bike lanes. Going forward, it is important the design of all new cycling infrastructure (including secondary routes) incorporates the “8 to 80” design philosophy. To ensure that on-road cycling infrastructure is safe and attractive to such a wide range of users, separation in the form of kerbed medians is desirable to minimise the interaction between cyclists and vehicular traffic – particularly on busier roads.

Where this is not possible softer measures such as painted hatching, mountable plastic kerbing or flexible bollards can be considered, however these treatments are normally only acceptable in low speed environments. In some cases, off-road shared paths are the best option for secondary routes

Unlike primary routes, secondary routes do not necessarily provide users with uninterrupted journeys. Due to this, it is important that appropriate consideration is given to the design of secondary routes at all intersecting roads, but particularly those controlled by either traffic signals or roundabouts. Where possible, priority should be given to the cycling route at intersecting minor roads and driveways.

Bike lane protected with concrete kerb

Protected bi-directional bike lane

Bike lane separated with mountable plastic kerbing

Shared path with priority over intersecting driveways

Figure 2.2 Secondary routes are typically found in busy, built-up environments, and can consist of either on-road or off-road cycling infrastructure.

2.3 Local routes

The objective of local routes is to collect cycling traffic from residential areas and distribute it to secondary and primary cycling networks. Local routes are also used by cyclists to access a range of lower-order destinations such as local shops and parks. The look and feel of local routes is distinctively different from primary and secondary routes.

Examples of local route treatments include:

- 30 km/h safe active streets which adopt "self-explaining street" and "filtered permeability" urban design principles (refer to Section 4.5 for additional information);
- very quiet suburban streets, communicated using sharrows and other signage or way finding;
- sections of shared path (normally linking two or more quiet streets together); or
- on-road bike lanes (but only on quiet roads with low traffic volumes and where posted speed limits are less than or equal to 50 km/h).

In many cases, a local route may include two or more types of treatment. When this is the case, the transition from one type of facility to another needs to be carefully considered.

30 km/h safe active street

Residential street with sharrows[5]

Shared path linking two quiet streets together

One-way slow point with bicycle-bypass facilities

Figure 2.3 Local routes are typically used in connecting residential areas with higher-order cycling facilities.

[5] *Sharrows are pavement markings which assist cyclists in road positioning and alert motorists to presence of people on bikes*

2.4 Tourist trails

Tourist trails are long-distance, predominantly unsealed trails which are typically used to connect towns. Unlike downhill mountain biking trails, tourist trails are non-technical in design. While there is some level of crossover, tourist trails provide users with a more passive cycling experience.

In some cases, tourist trails cater for other types of user including bushwalkers, horse-riders and (occasionally) motorbike-riders. On such trails, it is essential that paths are managed appropriately to ensure the safety and satisfaction of all user groups.

In terms of their built form, tourist trails should ideally be wide enough to allow two people to ride side-by-side. As they are often located in remote locations, it is important that wayfinding signage is used to direct users to, from and along the route.

Tourist trails are often constructed along the alignments of disused or closed railways; commonly referred to as rail trails. Other potential corridors for tourist trails include watercourses (such as rivers, drains and irrigation channels), utility corridors (such as electricity, gas or water supply), as well as fire breaks and other tracks through forested areas including nature reserves and national parks.

Depending on land ownership, the planning, design, construction and maintenance of tourist trails is typically led by local government or the Department of Biodiversity, Conservation and Attractions. Funding is usually sought through the Department of Local Government, Sport and Cultural Industries or Lotterywest. Other government agencies such as DoT and Tourism WA can assist in the planning, design and promotion of these facilities.

Trail along river foreshore

Trail along closed railway

Trail within utility corridor

Trail along firebreak

Figure 2.4 Long-distance, predominantly unsealed tourist trails play an important role in connecting towns. They can also be used in areas where higher standard facilities cannot be justified or where they would spoil the natural environment.

2.5 Road cycling routes

Cycling is one of the most popular forms of recreation in Australia, ranking third for males and fifth for females[6]. There are two broad types of recreational cyclist in WA – leisure cyclists and sports cyclists. While investment has traditionally been directed towards providing infrastructure which supports leisure cycling, there is an emerging need to provide routes which cater for the needs and aspirations of people cycling long distances for training, sport or recreational purposes. This type of cycling, which is often undertaken by groups or clubs, is commonly carried out on rural and semi-rural roads which tend to feature nice scenery, challenging terrain and low traffic volumes.

Around WA there is a growing need to review the key routes being used by road cyclists in order to improve safety and user experience. Initiatives may include shoulder widening, pull-off bays, advisory signage, or electronic flashing warning signs which detect when groups of cyclists are using certain sections of road. A detailed assessment is required in partnership with cycling bodies and groups to determine appropriate locations and preferred safety measures, which will likely differ from route to route.

Further supporting the safety of road cyclists in WA is the introduction of safe passing legislation. From 30 November 2017, a driver of a motor vehicle must pass a bicycle travelling in the same direction at a safe distance (1 m on roads with a posted speed limit of under 60 km/h and 1.5 m on roads over 60 km/h.) While legislation for passing safely has always existed in WA, these amendments to the *Road Traffic Code 2000* clarify the minimum distance a driver must keep between their vehicle and a cyclist when overtaking. The results of the two-year trial will be evaluated by the Road Safety Commission in 2020.

Road cycling is often undertaken in groups or clubs

Advisory signage (Western Australia)

Advisory signage (Victoria)

Dynamic flashing warning lights (Victoria)

Figure 2.5 Road cycling routes are predominantly used by people riding for training, sport or recreational purposes over longer distances and can consist of advisory measures such as signage and electronic flashing warning lights.

[6] *http://www.abs.gov.au*

3. PROPOSED NETWORK

3.1 Overall network

The key features of the proposed 2050 Leeuwin-Naturaliste cycling network are shown in Figure 3.1. They include:

- a dense core of primary, secondary and local routes in the main population centres of Busselton, Dunsborough, Margaret River and Augusta;
- the completion of the Wadandi Track (extending north to Busselton, and south to Augusta);
- additional tourist trails linking Witchcliffe to Nannup (through the State forest) and Wonnerup to Jarrahwood (via the disused Ruabon-Tutunup rail reserve); and
- primary routes to popular coastal destinations including Yallingup, Gracetown, as well as the Cape Leeuwin and Cape Natualiste lighthouses.

The exact alignments of some routes may change following further feasibility assessment and consideration of local environmental, heritage and engineering constraints. Of particular relevance to the South West region are public drinking water source areas. Prior to the development of paths or trails in these areas it is critical that appropriate consultation is undertaken with the Department of Water and Environmental Regulation.

3.2 Busselton

The routes proposed for Busselton's 2050 cycling network are shown in Figure 3.2, and include:

- a system of primary routes forming a loop around Busselton's urban area (extending from Vasse to Wonnerup);
- a series of north to south connections linking the Geographe Bay and Busselton Bypass shared paths, along various corridors including drains and key arterial roads;
- a third east-west primary route along the northern side of the Vasse-Wonnerup wetlands system;
- new secondary routes providing access to Busselton-Margaret River Regional Airport and various urban expansion areas located south of the Busselton Bypass;
- a dense grid of secondary routes in Busselton's CBD providing access to shops, community facilities and other key destinations; and
- a series of local routes within suburban areas providing people with access to higher-order cycling facilities.

The exact alignments of some routes may change following more detailed investigation. An example of this is the Geographe Bay Shared Path where it would be desirable for the ultimate alignment to follow the coastline more closely.

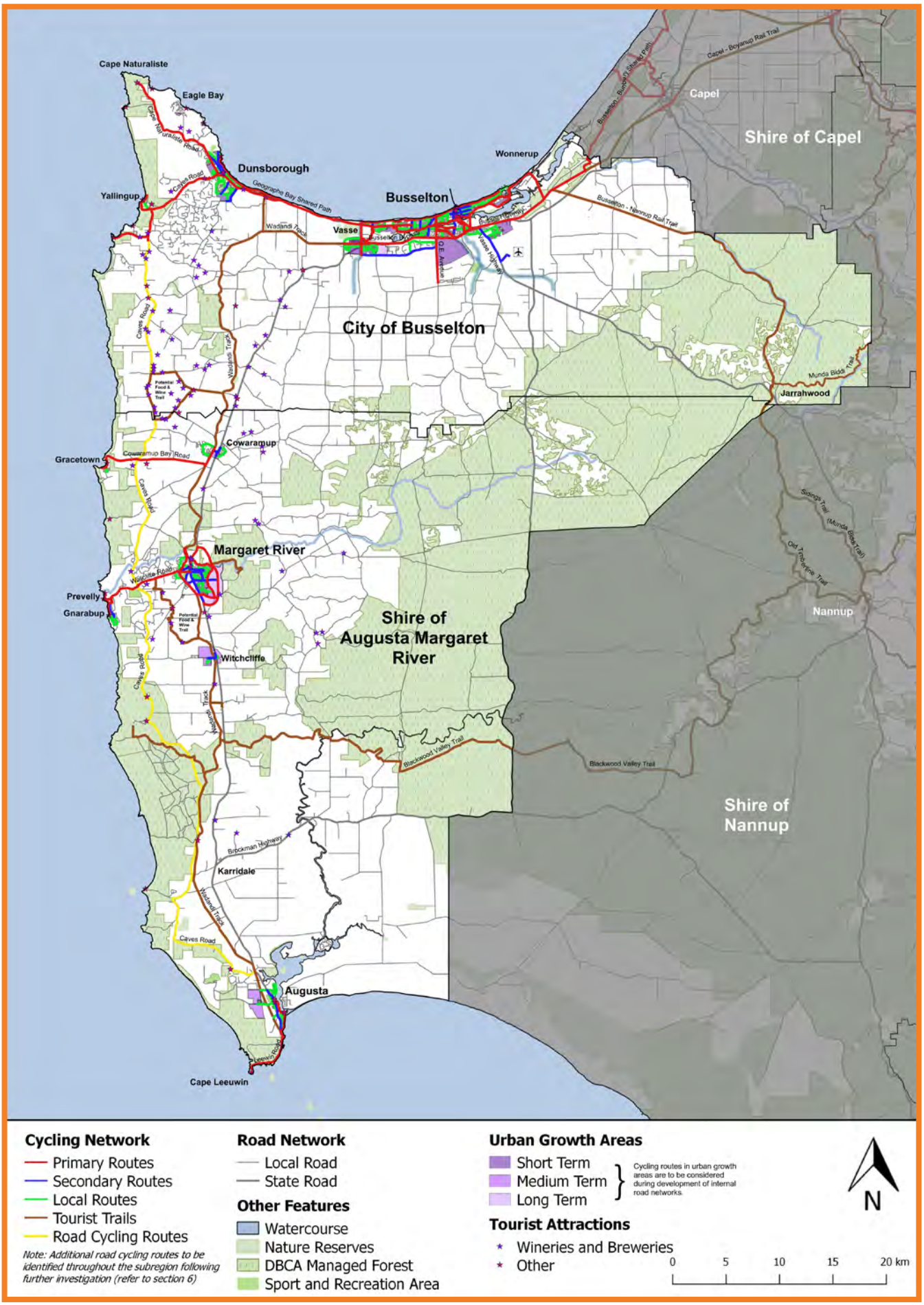


Figure 3.1 Proposed 2050 cycling network for the Leeuwin-Naturaliste subregion.

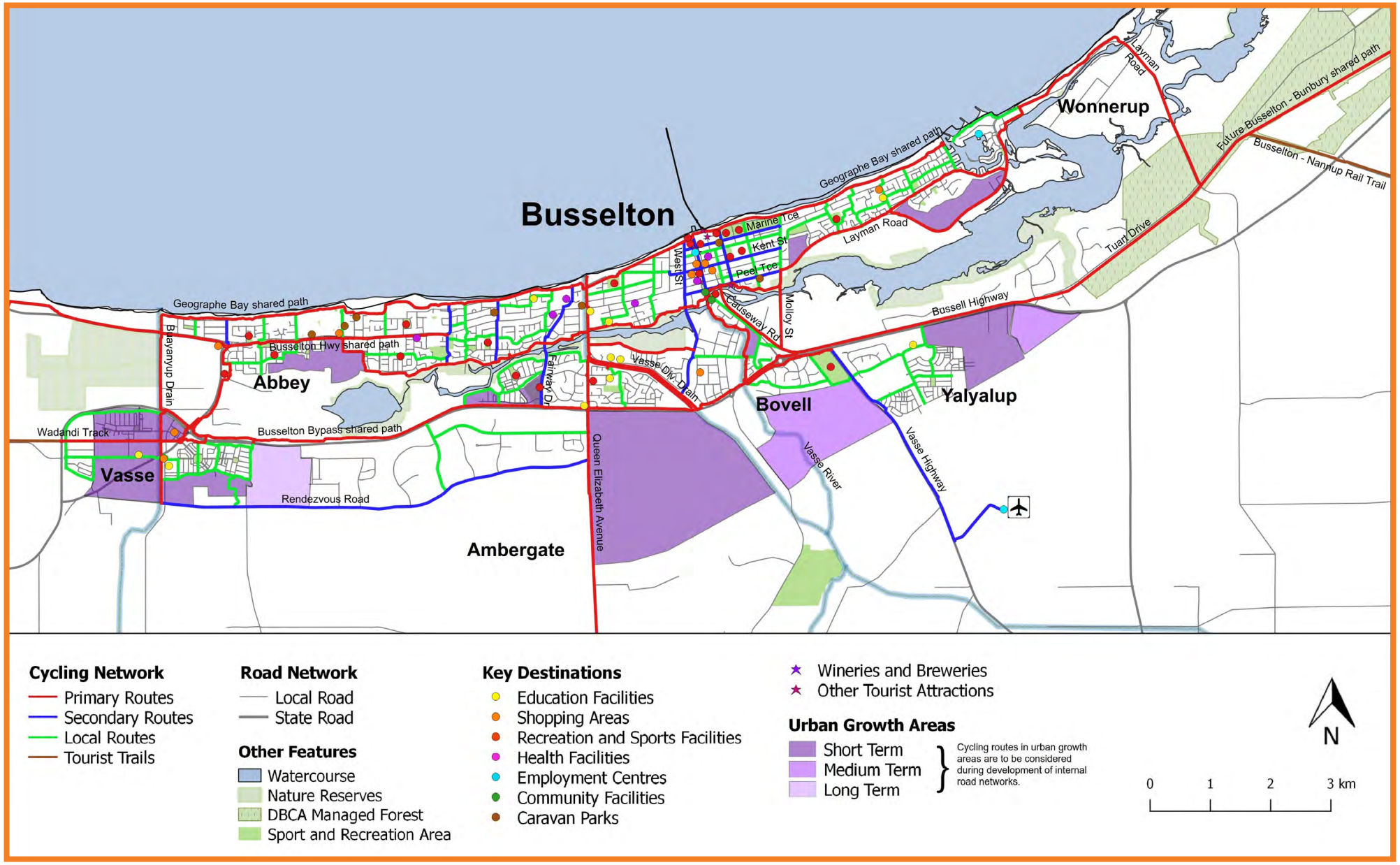


Figure 3.2 Proposed 2050 cycling network for Busselton.

3.3 Dunsborough

The routes proposed for Dunsborough's 2050 cycling network are shown in Figure 3.3, and include:

- new primary routes extending west to Yallingup (via Caves Road), east to Toby Inlet footbridge (via Caves Road) and north to Cape Naturaliste (via Cape Naturaliste Road);
- several secondary routes along key urban roads around Old Dunsborough including Naturaliste Terrace, Gifford Road and Dunn Bay Road; and
- local routes linking residential areas to higher-order cycling facilities.

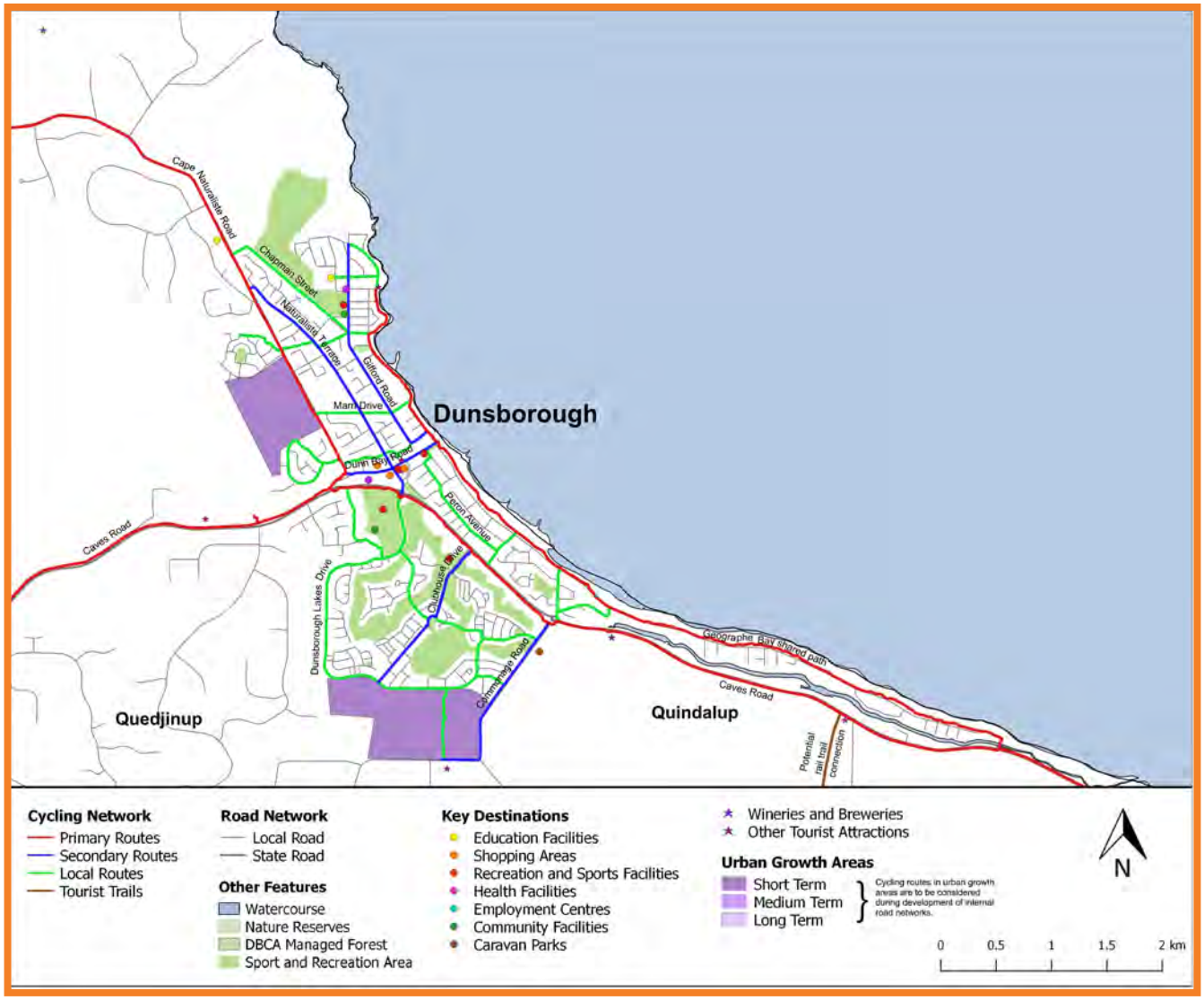


Figure 3.3 Proposed 2050 cycling network for Dunsborough.

3.4 Margaret River, Prevelly, Gnarabup and Witchcliffe

The key features of Margaret River, Prevelly, Gnarabup and Witchcliffe's proposed 2050 cycling networks are shown in Figure 3.4. These include:

- a 15 km long primary route loop encircling the Margaret River town centre which makes use of existing trails along River View Drive and Darch Road, as well as the section of the Wadandi Track located between Carters Road and Wilkes Road;
- a secondary route along Bussell Highway (extending from the Rotary Park to Rosa Brook Road) providing people with access to Margaret River's shops and community facilities;
- a primary route adjacent to Carters Road linking Margaret River's town centre to The Pines and Compartment 10 mountain biking trail heads (a feasibility study is required to determine the exact alignment given the terrain and potential impact on rare flora, endangered fauna habitats and native vegetation);
- secondary routes along key urban roads including Forrest Road, Willmott Avenue, John Archibald Drive and Station Road;
- extensions of the Margaret River-Prevelly Shared Path to Margaret River mouth and Gnarabup beach; and
- a number of local routes linking residential areas to higher-order cycling facilities.

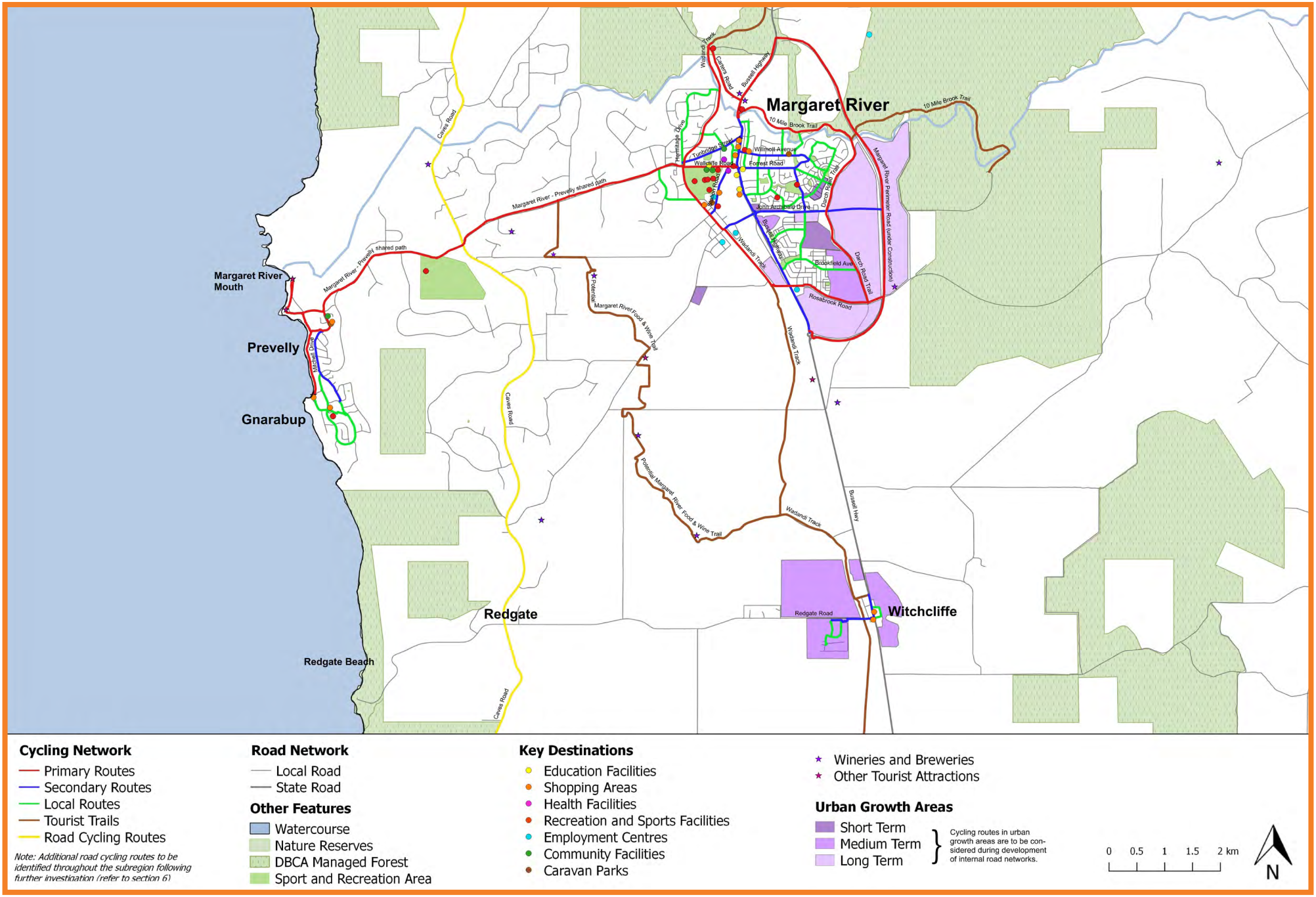


Figure 3.4 Proposed 2050 cycling network for Margaret River, Prevelly, Gnarabup and Witchcliffe.

3.5 Cowaramup and Gracetown

The key features of Cowaramup and Gracetown's proposed 2050 cycling networks are shown in Figure 3.5. These include:

- a primary route linking Gracetown to the Wadandi Track along Cowaramup Bay Road - performing a similar function to the Margaret River-Prevelly Shared Path (a feasibility study is required to determine the exact alignment);
- a secondary route along the main street of Cowaramup (extending from Waverley Road to Roy Earl Drive) providing people with access to Cowaramup's shops and community facilities;
- a secondary route along Memorial Drive providing a safe link between the Cowaramup town centre and the town's western residential area (as well as the Wadandi Track); and
- two local route loops providing residents of east and west Cowaramup with access to higher-order cycling facilities.

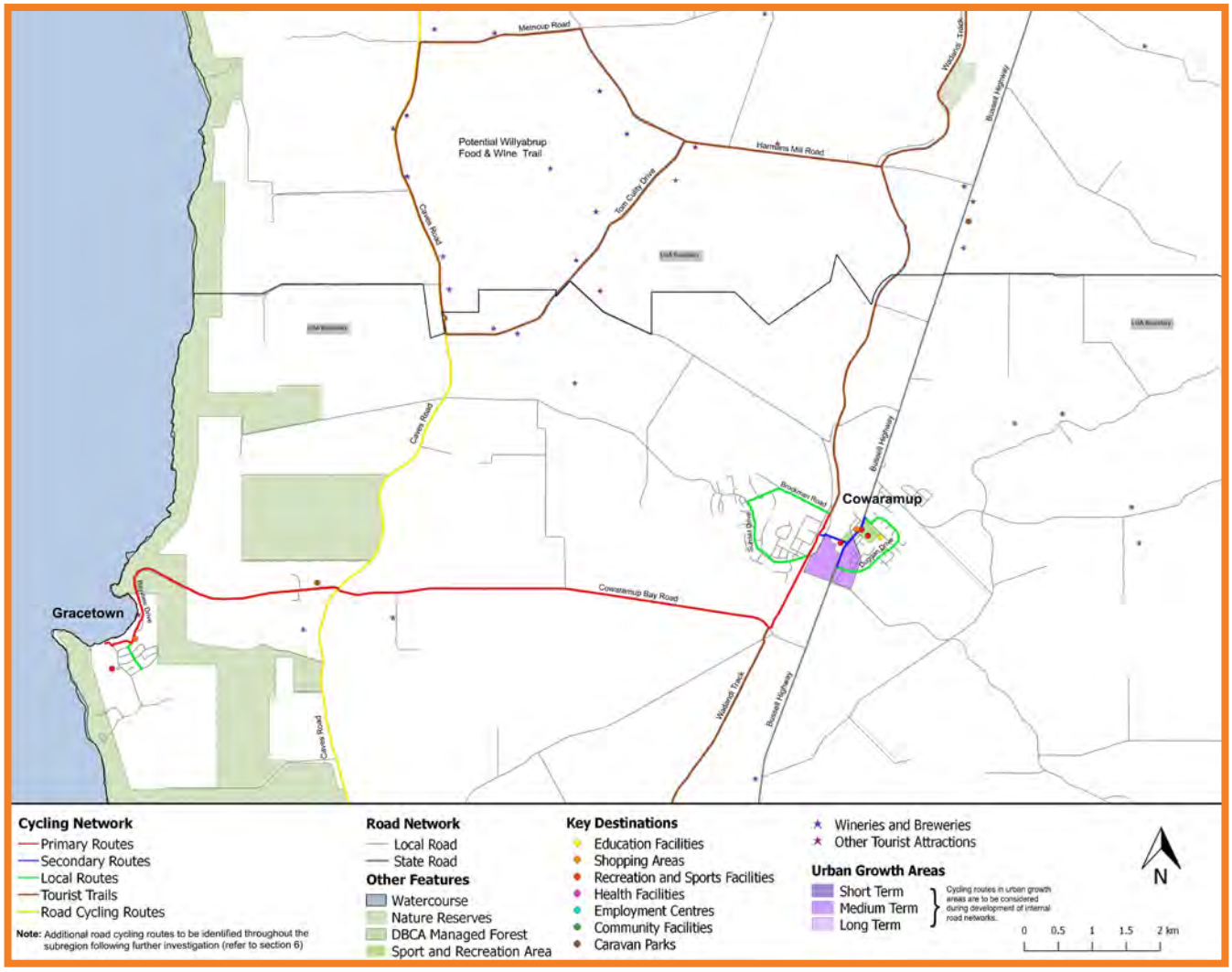


Figure 3.5 Proposed 2050 cycling network for Cowaramup and Gracetown.

3.6 Augusta

The key features of Augusta's proposed 2050 cycling network are shown in Figure 3.6. These include:

- a primary route extending from Augusta's town centre to the Cape Leeuwin Lighthouse. This link is proposed to follow the coast for the entire length and would provide access to Flinders Bay foreshore and caravan park (noting that the exact alignment and built form of this connection is still being determined);
- a secondary route along Bussell Highway/ Blackwood Avenue/Leeuwin Road extending from Caves Road to Davies Road, providing people with access to Augusta's shops and community facilities; and
- local routes providing people with access to higher-order cycling facilities (including the Wadandi Track).

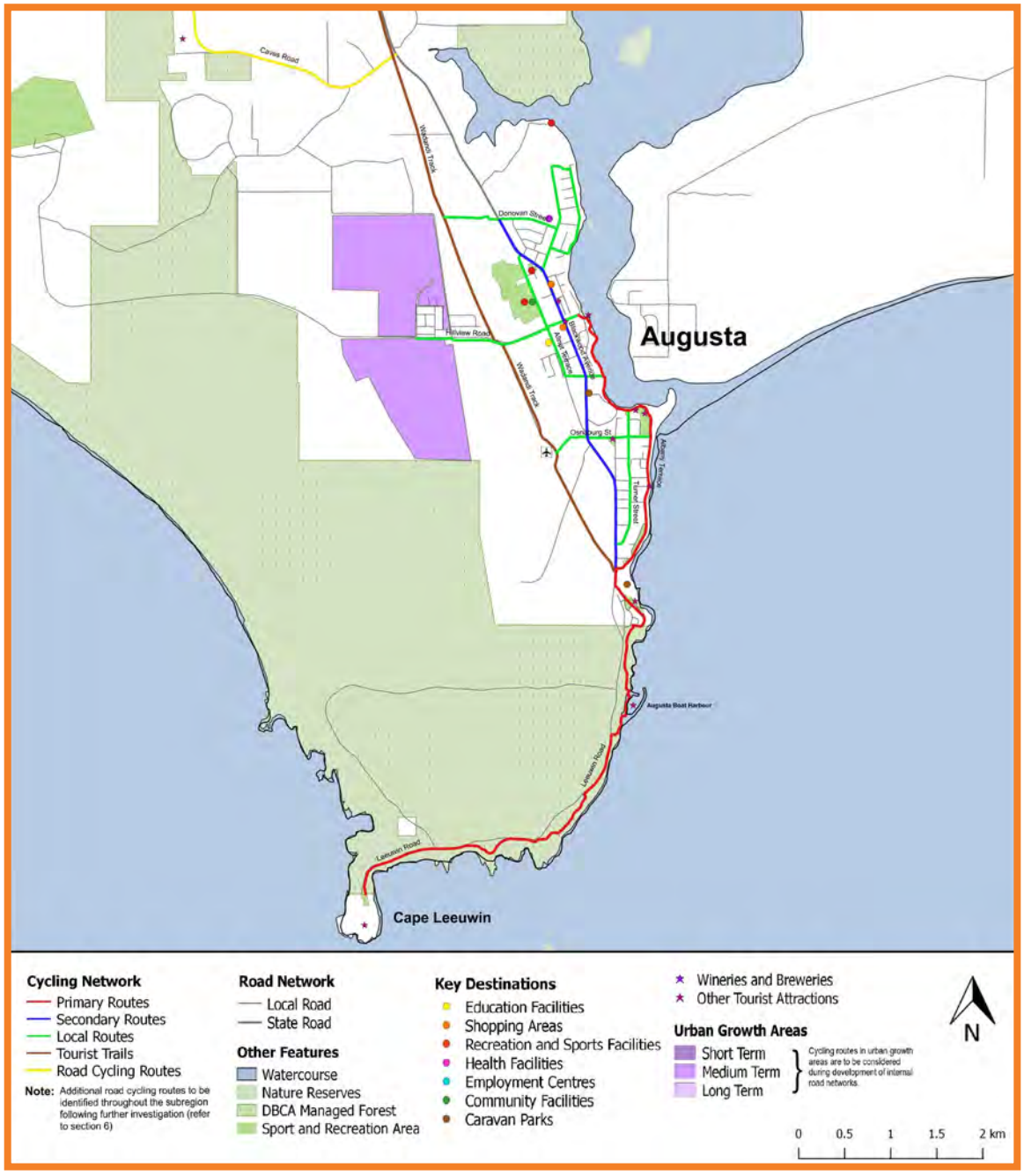


Figure 3.6 Proposed 2050 cycling network for Augusta.

4. THE WAY FORWARD

4.1 Connecting people to places of education and employment

As the subregion's urban centres grow, it is imperative that activity nodes such as shopping centres, schools and industrial areas are serviced by safe and direct cycling facilities. The most direct way to connect activity centres is along arterial roads. Secondary routes (as defined in Section 2.2) are typically located along urban arterials and can take the form of either on-road (protected) bike lanes or off-road shared paths. In both cases, it is critical that they are of a standard which aligns with the "8 to 80" design philosophy.

4.1.1 Opportunity: improving cyclist safety within Busselton's town centre

Busselton has a flat topography and relatively compact layout which is well suited to cycling. Although there are some good existing linkages to the edge of the city centre, the CBD itself remains a relatively hostile environment for people on bikes. This lack of connectivity discourages many people from cycling for non-recreational purposes, which has a negative impact on cycling mode share across the entire city.

Providing a network of secondary routes along key streets in the Busselton town centre will help make cycling an attractive mode of transport for more people. It is particularly important that better access is provided to Queen Street and Kent Street, where many shops, services and community facilities are located – helping to boost the local economy. The analysis of the pedestrian and cyclist crash data highlighted how these streets are some of the subregion's most dangerous areas for vulnerable road users (see Appendix B1).

Figure 4.1 A system of secondary and local routes within Busselton's CBD would enable more people to cycle for utility and commuter purposes.

4.1.2 Opportunity: Reconfiguring Margaret River's main street

The construction of the Margaret River Perimeter Road (and associated downgrading of Bussell Highway) presents a unique opportunity to better cater for cyclists within Margaret River's town centre. The provision of dedicated cycling facilities along this important corridor has the potential to:

- improve safety for cyclists of all ages and experience levels, particularly children;
- reduce conflict between different groups of road users;
- provide a direct and legible connection between many important trip attractors including shops, schools and community facilities;
- increase support for local businesses and encourage additional business opportunities;
- improve the amenity of Margaret River's town centre by making it more about people; and
- reinforce Margaret River's reputation of being a leader in sustainability and eco-tourism.

The existing layout of Margaret River's main street (which consists of two traffic lanes, two on-street parking lanes and a central median) is wide enough to accommodate dedicated or protected cycling infrastructure.

Figure 4.2 Due to high traffic volumes and heavy vehicle traffic, the current configuration of Margaret River's main street is not conducive to cycling.

4.1.3 CASE STUDY: SCARBOROUGH BEACH ROAD AS A SECONDARY CYCLING ROUTE

Research shows that the biggest barrier preventing more people from cycling is safety. Major cities around the world – including New York, Vancouver and London – with large populations, high density land use and complex traffic issues, are now establishing dedicated and separated bike lanes to encourage more people to use bicycles for transport.

In 2015, the City of Vincent progressed with the installation of protected bike lanes along Scarborough Beach Road in Mount Hawthorn – a key arterial road connecting the Mount Hawthorn and North Perth activity centres. The project aimed to make the road safer and more pleasant for all users, while simultaneously improving the visual and social amenity of this important corridor.

The project involved the reallocation of two traffic lanes (one in each direction) between Fairfield and Charles streets in order to accommodate protected bicycle lanes, which are separated from traffic by kerbed median planting treatments. In addition, green pavement markings and head-start boxes[7] were provided at signalised intersections. A number of parking bays were embayed through reallocating verge space, while the provision of medians allowed over 100 street trees to be planted. Deciduous trees were chosen in order to help cool the streetscape in summer while providing access to sunlight in winter.

Figure 4.3 Protected bike lanes (such as these on Scarborough Beach Road) play an important role in enabling more people to cycle for non-recreational purposes.

[7] *Head-start boxes are road markings at signalised intersections which allow cyclists to position themselves in front of other traffic*

4.1.4 CASE STUDY: THE EMERGENCE OF E-BIKE TECHNOLOGY

Until recently, cycling has relied solely on human power. This has limited the distance and type of terrain most people are prepared to make on bicycle, especially when commuting to work or school.

E-bikes, or power-assisted bicycles, are fitted with small electric motors which provide mechanical assistance when pedalling. Under Australian road regulations, bikes sold for on-road use are limited to 250 watts, which enables them to travel at speeds up to 25 km/h.

In recent years, the popularity of e-bikes has increased significantly, with many people finding them a quick, affordable and convenient way of getting to and from work or school. What makes them especially appealing for commuting in Australia's hot climate is their ability to alleviate the need to take a shower or carry a change of clothes.

The 2050 bike network for the Leeuwin-Naturaliste subregion aims to capitalise on the potential of e-bikes, while recognising that regular (human-powered) cycling will continue to remain popular.

Source: RAC

Figure 4.4 E-bikes enable people to commute from further away without needing to take a shower or bring a change of clothes.

4.2 Harnessing the potential of rail corridors

The intrinsic characteristics of rail corridors make them especially appealing for cycling. Not only do they provide continuous and uninterrupted rights-of-way, they also have more gentle gradients and fewer street crossings compared to regular shared paths or on-road bike infrastructure.

Other benefits associated with co-locating cycling infrastructure within rail corridors include:

- highlighting the natural, cultural and heritage values of a local area;
- providing additional connections between towns and suburbs;
- increasing the profile of a region by opening up new business and tourism opportunities (which creates jobs and boosts local economies); and
- preserving historical transport corridors for potential future use, also known as railbanking.

The Leeuwin-Naturaliste subregion is home to several disused and closed railways. Opportunities to capitalise on these corridors include:

- linking Busselton to Augusta via the closed Busselton-Flinders Bay railway, known as the Wadandi Track (refer to Section 4.2.1);
- linking Dunsborough to the Wadandi Track via the closed Yelverton Mill tramway (refer to Section 4.2.1);
- linking Busselton to Capel (and beyond) via the disused Busselton-Bunbury railway (refer to Section 5.1); and
- linking Busselton to Jarrahwood (and beyond) via the disused Nannup Branch railway (refer to Section 5.2).

Rail trails are becoming increasingly popular in Australia and overseas, and have been proven to boost regional economies, create jobs and strengthen local communities.

Source: Rail Trails Australia

Figure 4.5 Providing walking and cycling facilities within or alongside railway corridors is a well-established concept, both in Australia and overseas.

4.2.1 Opportunity: Completing the Wadandi Track

The Wadandi Track is a 23 km long, partially complete multi-use trail situated on the alignment of the former Busselton-Flinders Bay railway. The track, which currently extends between Cowaramup and Calgardup Road (just south of Witchcliffe) is becoming increasingly popular with both locals and tourists. A small section has also been constructed as part of the Vasse Newtown development near Busselton.

Once complete, the track will extend all the way from Busselton to Augusta, providing a world-class recreational trail through the centre of one of Australia's largest and most scenic food and wine regions. There are currently more than 15 wineries located within 2 km of the track as well as many opportunities to showcase the area's cultural and heritage significance (refer to Section 4.7 which expands on the subregion's cycle-tourism potential).

This strategy recognises the importance of the Wadandi Track in forming the north-south spine of the Leeuwin-Naturaliste subregion's future cycling network. In addition to linking the communities of Busselton, Cowaramup, Margaret River, Witchcliffe and Augusta, the completed Wadandi Track will help drive the development of spur trails providing connections to other towns in the subregion.

A potential alignment for one such spur trail is the Yelverton Mill tramway. Established in the 1850s, the tramway was used to transport timber from Yelverton Mill to Quindalup Jetty until its closure in 1897.

An opportunity exists to repurpose the tramway's formation as a multi-use trail, providing a practical and historical connection between the Wadandi Track and Geographe Bay Shared Path.

Figure 4.6 When complete, the Wadandi Track will serve as the north-south spine of the Leeuwin-Naturaliste subregion's cycling network.

The 3.5 km link would extend north from Quindalup Siding, meeting Caves Road near the Xscape at the Cape Family Fun Park, approximately 5 km east of the Dunsborough town centre.

It is recognised that the land on which the tramway was formerly situated is mostly held by private landowners (some of whom are descendants of the tramway's original owner, Henry Yelverton). The City of Busselton's current position is that the wishes of these landowners be respected with regards to the ultimate use of this historical corridor.

Figure 4.7 The Yelverton-Quindalup tramway formation could be used to provide an important connection between the Wadandi Track and the Geographe Bay Shared Path.

4.2.2 CASE STUDY: THE TOURISM POTENTIAL OF RAIL TRAILS

There is strong evidence supporting the economic and social benefits generated by rail trails for regional Australia. Although it is uncommon to charge access fees, users of rail trails contribute to the local economy in several other ways. In addition to food and hospitality industries, other businesses such as bike shops or those providing transport to and from trail heads can also benefit from the development of rail trails.

Rail trails also support slow travel – a term used to describe travellers who explore destinations more thoroughly, taking time to acquaint themselves with local people, culture and food.

People who adopt the slow travel philosophy tend to report higher rates of spending compared to the average population.

As identified in the *Western Australian Cycle Tourism Strategy*, cycle-tourists are a highly valuable visitor due to their propensity to stay longer, travel outside of urban centres and spend more. In Australia, the average daily spend of a cycle-tourist is approximately $124 per day[8].

Some usage and economic statistics for a selection of Australia and New Zealand rail trails are provided in the below.

Rail trail example	Usage and economic statistics
Hauraki Rail Trail, New Zealand (opened in 2013)[9]	- Nearly 30,000 riders pass through Paeroa (a town on the trail) per annum. - It has been estimated that visitors spend an average of $172 per trip, up from $105 in 2012, with net expenditure between $2.1 and $3.3 million per annum. - Approximately 50 full time jobs have been created because of the trail. - 85 per cent of users are visitors to the region, with most being domestic visitors. - 80 per cent of users indicated that the rail trail was their main purpose of visit. - At least 50 per cent of users are in the 45 to 65 age bracket.
Otago Central Rail Trail, New Zealand (opened in 1994) [10]	- Nearly 15,000 people ride the trail end-to-end every year. In addition to this, it is estimated that 80,000 people use sections of the trail to commute or undertake short recreational rides. - The average age of riders is 45 for domestic and 37 for international. There is no significant difference between the number of male and female riders. - Most end-to-end users are first-time visitors to the area and spend an average of 3.8 nights in the region. - The largest international visitor market is from Australia, followed by Europe. Two thirds of domestic visitors are from the North Island of New Zealand. - In 2012 it was estimated that the trail created 120 full time jobs and contributed $12 million to the Central Otago economy per annum, creating business opportunities and energising small communities.
Murray to the Mountains Rail Trail, Victoria (opened in 2002)[11]	- Construction of the trail between Bright, Wangaratta and Beechworth was completed in 2002, with subsequent sections from Rutherglen to Wahgunyah and Wangaratta to Oxley completed in 2009 and 2011 respectively. - The trail attracts approximately 45,000 users per annum including walkers, with most people spending two or three days on the trail. - For the majority of visitors (59 per cent), cycling is the main reason for undertaking their trip to region. - In 2011 it was estimated that the trail contributed $26.2 million per annum in economic output to the region and created 23 full time jobs.

Usage and economic statistics of regional rail trails in Australia and New Zealand.

[8] *Western Australian Cycle Tourism Strategy (2018)*
[9] *Information on the HRT sourced from https://haurakirailtrail.co.nz/, https://www.tcdc.govt.nz, http://www.hauraki-dc.govt.nz*
[10] *Information on the OCRT sourced from http://www.otagocentralrailtrail.co.nz, http://www.northernriversrailtrail.org.au*
[11] *Information on the M2MRT sourced from https://www.railtrails.org.au, North East Victorian Tourism Gap Analysis (2012), North East Rail Trail Preliminary Demand and Economic Benefit Assessment (2014)*

4.3 Creating loops around urban centres

Loops are attractive for recreational cyclists as they enable people to undertake relatively long trips without doubling back. Loops also enable users to start and finish in the same location, which is especially important for people who do not have access to cars.

4.3.1 Opportunity: Busselton recreational loop

Busselton already has some excellent cycling infrastructure in the form of the Geographe Bay and Busselton Bypass shared paths, providing high-quality east-west connections across the city.

The completion of these paths presents an opportunity to create a 40 km loop which takes in the entire Busselton urban area.

This could be achieved by developing additional north-south linkages along Layman Road and the Buayanyup drain (as shown in Figure 4.8) enabling people to ride safely between the two facilities.

This loop would serve the community by linking together old and new neighbourhoods as well as providing locals and visitors with a route which showcases the city's diverse range of coastal, forest, river and wetland landscapes, as well as tourist attractions and historical buildings, such as Wonnerup House.

Shorter loops could be created through the development of additional north-south connections along key corridors including Fairway Drive, Queen Elizabeth Avenue, the Vasse River diversion drain and Causeway Road.

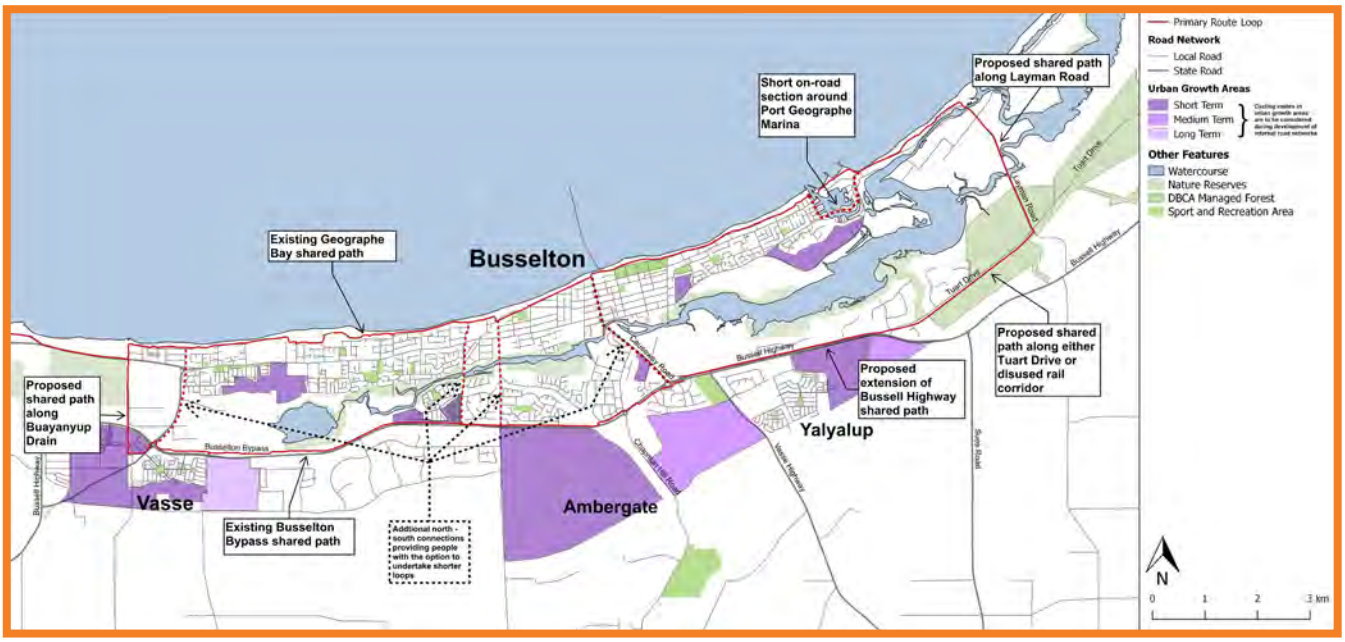


Figure 4.8 A 40 km long recreational cycling loop could be developed around Busselton by linking together the Geographe Bay and Busselton Bypass shared paths.

4.3.2 Opportunity: Margaret River recreational loop

A similar opportunity to create a loop exists in Margaret River. This could be achieved by linking the Wadandi Track to existing trails along Darch Road and 10 Mile Brook. Such a route would take in some of the town's most popular tourist attractions including Rotary Park, 10 Mile Brook Dam and The Pines mountain bike trail head, with possible links to wineries and other key attractions located on the outskirts of the town.

The footbridge being constructed as part of the Margaret River Perimeter Road will provide an important connection between the 10 Mile Brook and Darch Road trails.

In the longer term, an outer-eastern loop could be developed along the Margaret River Perimeter Road (following further urban expansion in this area).

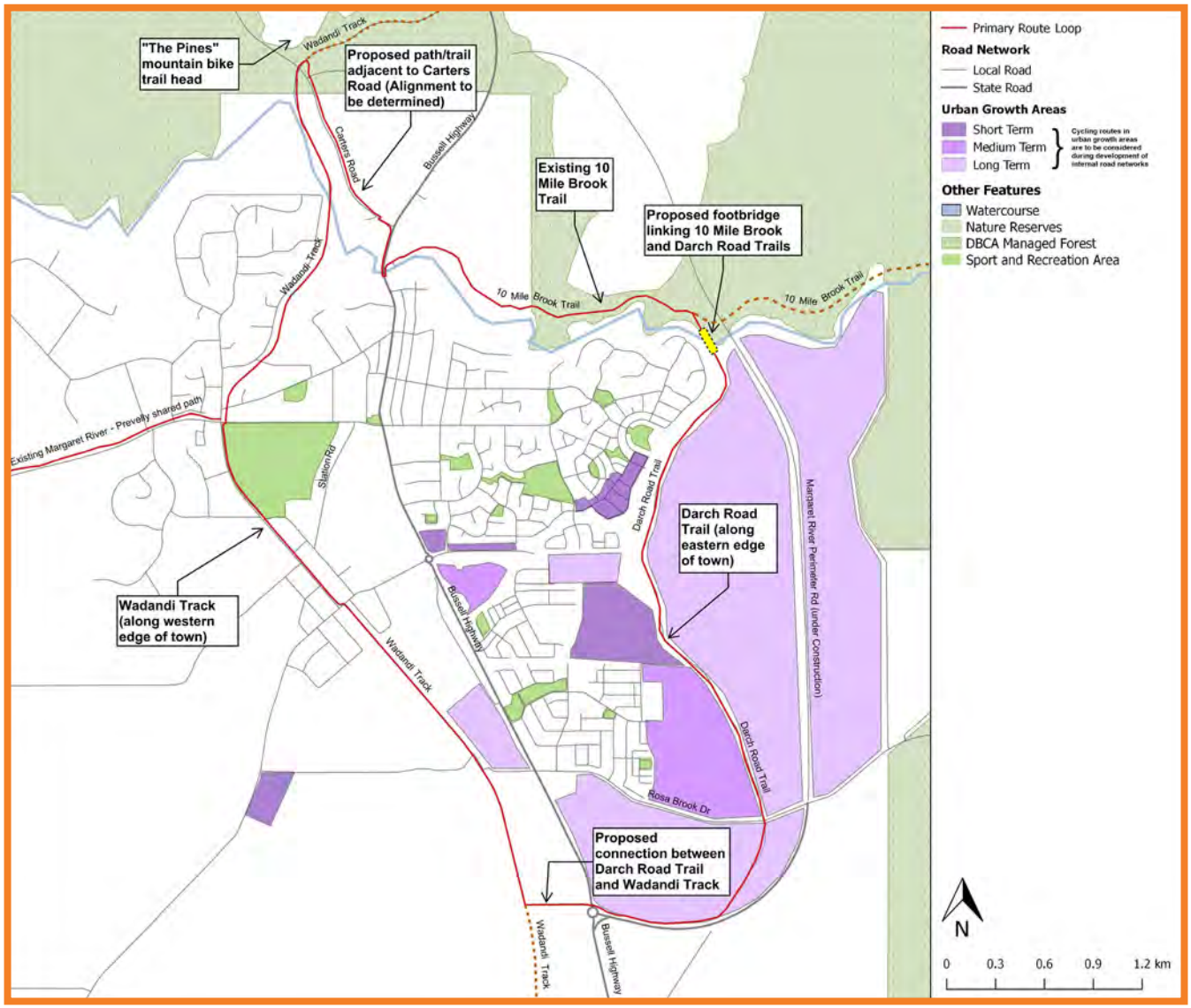


Figure 4.9 A 15 km long cycling loop around Margaret River could be achieved by linking the Wadandi Track to existing trails along Darch Road and 10 Mile Brook.

4.4 Making better use of drainage corridors

While urban stormwater drains and basins serve a functional purpose, they also have the potential to contribute to the urban amenity of local communities. The Drainage for Liveability Program is a joint initiative between the Water Corporation and Department of Water and Environmental Regulation which aims to enhance the community value of stormwater drains and basins across WA[12].

The development of walking and cycling infrastructure along drainage corridors is one of many ways in which these forgotten assets can help to improve the liveability of our suburbs and towns. Although a new initiative to WA, cycling infrastructure is commonly provided along drainage corridors both interstate and overseas.

4.4.1 Opportunity: Providing cycling infrastructure alongside Busselton's drainage corridors

Over the years, a number of drainage channels have been constructed around Busselton as a way of flood-proofing the city and making the surrounding farmland more productive.

An opportunity exists to make better of these corridors in creating key north-south linkages across Busselton. In addition to providing direct, flat and separated cycling connections, enhancing the visual amenity of the corridors will help achieve positive urban design outcomes for the city. The provision of all-weather paths along these drains may also help improve access for service vehicles that occasionally require access for water-testing and maintenance purposes.

Key drainage corridors which may be suitable for cycling infrastructure include:

- the Vasse River diversion drain, providing a connection between Ambergate, Bovell, West Busselton and the Geographe Bay Shared Path;
- the Buayanyup drain, providing a connection between Vasse Newtown, Abbey and the Geographe Bay Shared Path; and
- the Lennox River and/or Station Gully drain(s), providing a connection between the Wadandi Track and Geographe Bay Shared Path.

Figure 4.10 Busselton's urban drainage corridors provide a unique opportunity to create high-quality walking and cycling environments.

[12] *https://www.watercorporation.com.au/water-supply/ongoing-works/drainage-for-liveability-program*

4.4.2 CASE STUDY: MOONEE PONDS CREEK TRAIL

The Moonee Ponds Creek Trail is one of Australia's best-known examples of a shared path located within a drainage corridor. The trail, which runs through land managed by Melbourne Water and TransUrban starts in the Melbourne Docklands area and extends approximately 25 km north to Melbourne Airport, snaking its way under and around the City Link/Tullamarine Freeway. The trail is popular with both commuters and recreational joggers and cyclists, with the lower section forming part of the Capital City Trail (a shared use path which circles Melbourne). Over 800 cyclists use the trail during a typical morning commute[13].

The trail takes in a range of different landscapes from urban and industrial areas to natural parkland. The trail surface is predominantly asphalt and concrete and is grade separated from the road network by a series of underpasses. While the path is occasionally closed due to flooding, it continues to evolve with revegetation programs enhancing the biodiversity and habitat of the original creek system. Further planned infrastructure upgrades to the trail include an express route to bypass indirect sections, a new bridge and additional shared path links providing more connections to the wider cycling network.

Figure 4.11 The Moonee Ponds Creek Trail follows the alignment of one of Melbourne's most important urban drains.

[13] *Bicycle Network Victoria*

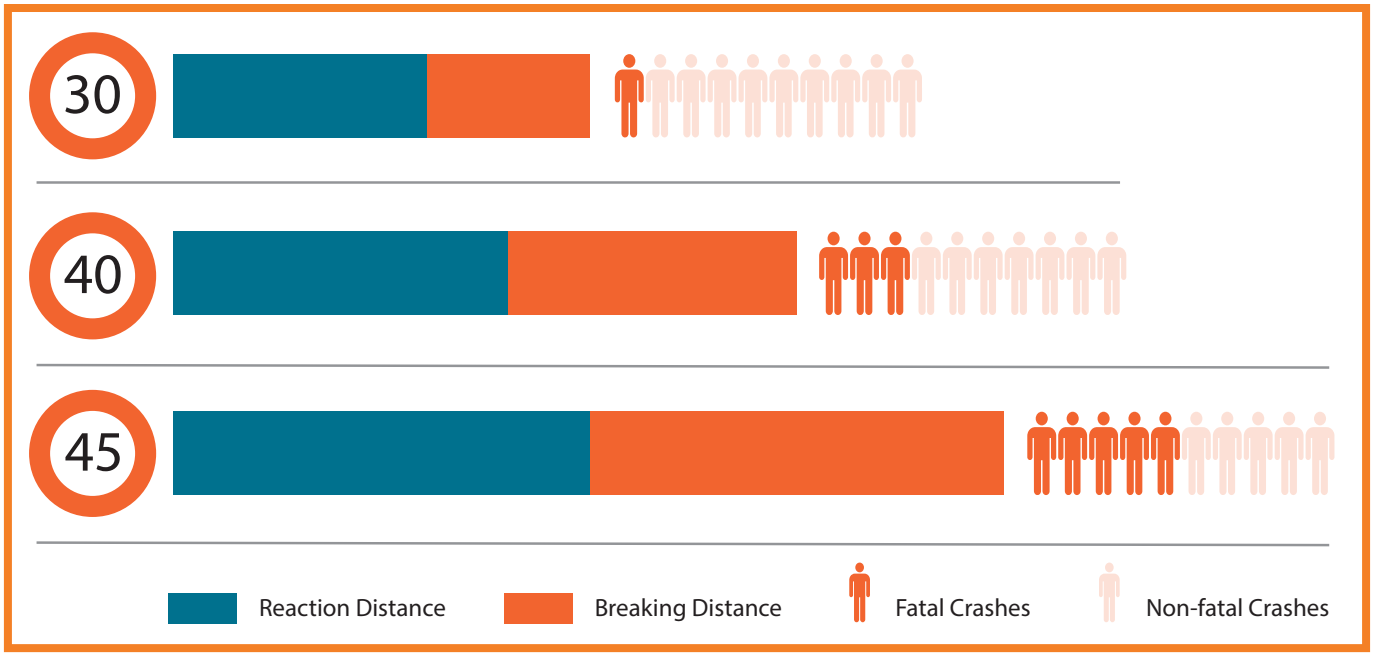
4.5 Re-engineering local streets to create low stress environments

Although relatively new to Australia, the concept of re-engineering local residential streets to reduce vehicle speeds to around 30 km/h is gaining traction in many parts of the world. Various studies have shown there is a clear relationship between 30 km/h speed limits and a significant reduction in the number, and severity, of accidents involving pedestrians and cyclists.

As shown in Figure 4.12, when impact speeds are less than 30 km/h the overwhelming majority of crash victims will survive, often sustaining only minor injuries. However, at 50 km/h, almost all crashes result in severe injuries and around half are fatal. At 70 km/h, more than 90 per cent of crashes involving vulnerable road users are fatal.

Other benefits of low speed residential street environments include:

- reducing rat-running[14] by non-local traffic;
- making crossing the road safer for children, the elderly, and people with disability;
- reducing noise and air pollution;
- increasing real estate values;
- improving the economic vitality of local areas; and
- creating a stronger sense of community.



Source: Auckland Transport

Figure 4.12 When impact speeds exceed 40 km/h the likelihood that a pedestrian or cyclist will survive a traffic crash reduces considerably.

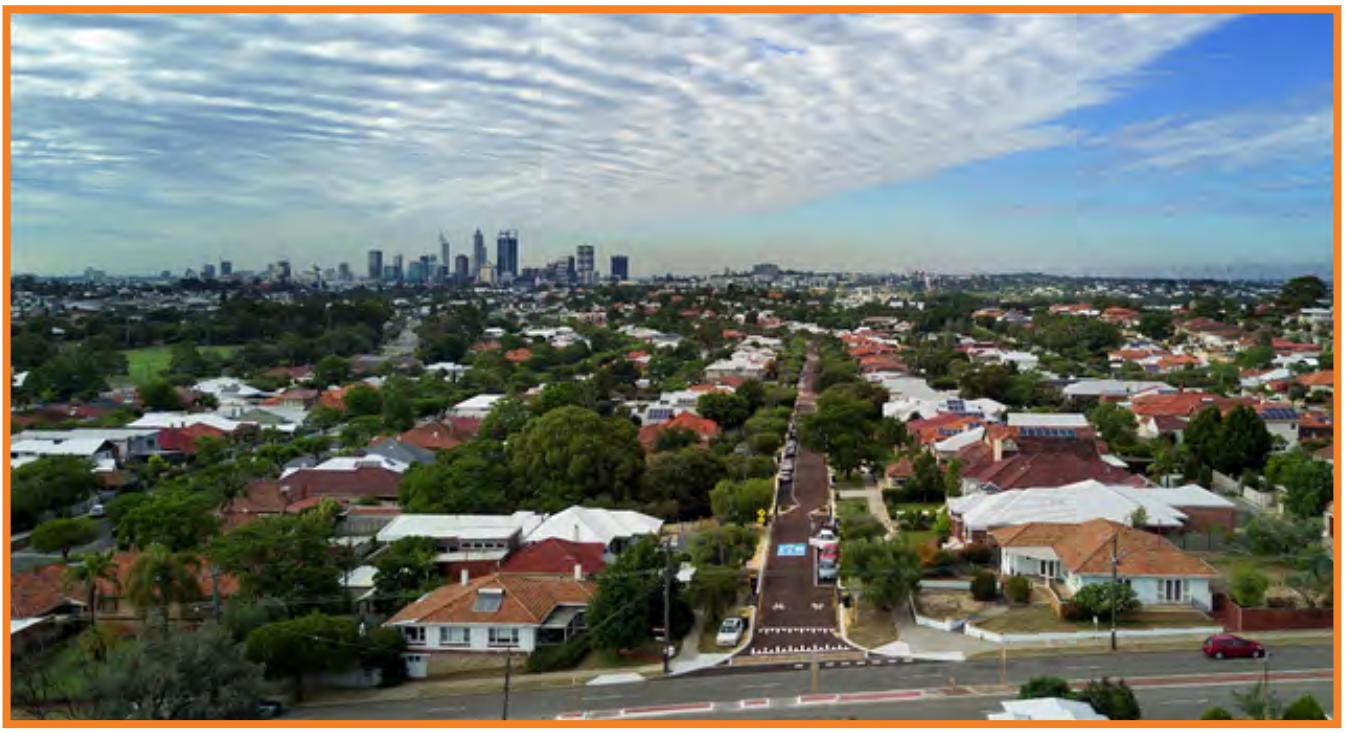
It is expected that safe active streets will play an increasingly important role for cycling within residential areas. Safe active streets are local streets that have been modified in a way which makes on-road cycling a safe and attractive experience for people of all ages and experience levels. Sometimes called low stress cycling streets, this type of facility aims to provide a comfortable cycling experience while also returning local streets to the community.

[14] *A minor or local street used by motorists at peak times to avoid congestion on main roads*

The fundamental principles of safe active street design include:

- facilitating benign traffic conditions (using traffic calming measures to reduce traffic volumes and average vehicle speeds);
- creating filtered permeability (by strategically restricting some movements to just pedestrians and cyclists); and
- adopting self-explaining street principles (safe active streets should be designed in such a way that makes it intuitive to drive at low speeds, rather than relying on speed cameras or police enforcement).

In addition to reducing the urban heat-island[15] effect, trees and landscaping can also help pacify traffic in residential areas.



Road narrowing/lateral shift treatment

Mid-block road closure

Figure 4.13 In addition to making local residential streets quieter and more family-friendly, simple traffic calming treatments can encourage more people to walk or cycle for short trips.

[15] *An urban heat island is an urban area or metropolitan area that is significantly warmer than its surrounding rural areas due to human activities*

4.5.1 Opportunity: Linking the Vasse-Wonnerup Wetlands to the Geographe Bay Shared Path

A north-south safe active street corridor could be established to link the Geographe Bay and (potential future) Broadwater Nature Reserve shared paths. The proposed route (shown in Figure 4.14), consists of Dolphin Road, Dolphin Court and Grayteal Place, connected together with several short sections of shared path.

Consisting predominantly of wayfinding and minor upgrades, the corridor has the potential to be used as a demonstration project for further safe active street initiatives in the South West region. Much of the corridor is already paved with red asphalt, providing similarities with those demonstration projects recently undertaken in Perth. Careful consideration needs to be given to the crossing at Bussell Highway to ensure this is safe for cyclists and pedestrians.

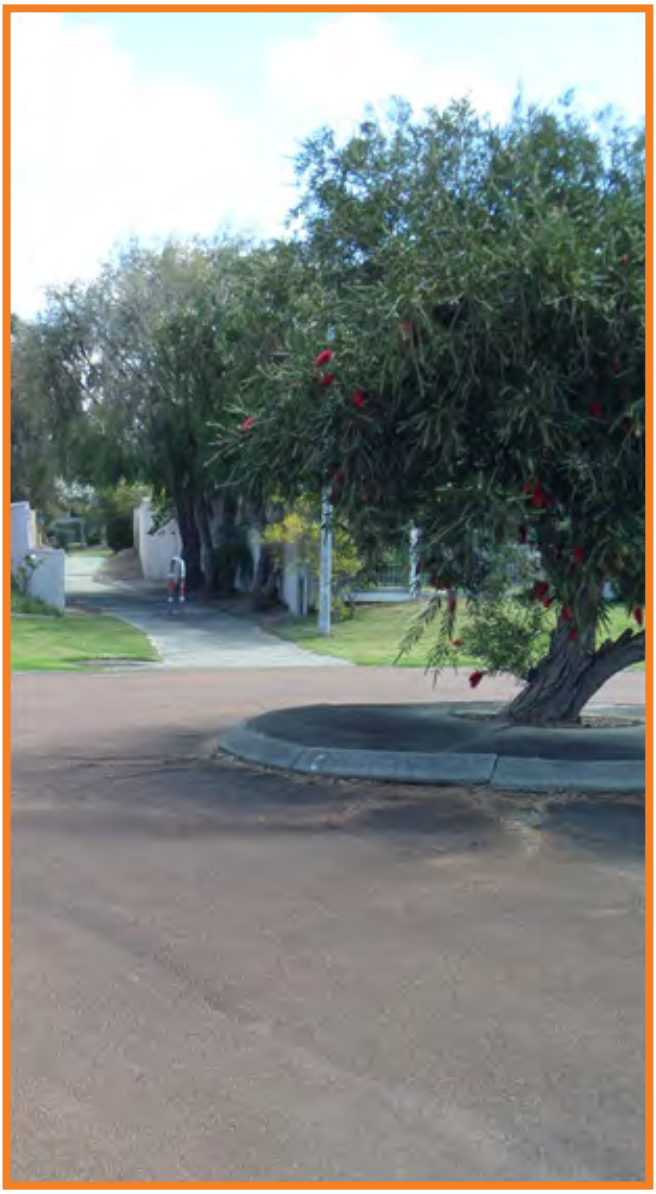


Figure 4.14 A safe active street along Dolphin Court would provide a logical north-south connection between the Broadwater Nature Reserve and Geographe Bay shared paths.

4.5.2 CASE STUDY:
SHAKESPEARE STREET, MOUNT HAWTHORN

WA's first safe active street - the Shakespeare Street Safe Active Street - was completed in 2018.The facility runs for around 3 km between Shakespeare Street and Scott Street in Mount Hawthorn and includes connections to other cycle paths via Bourke Street and Richmond Street at the southern end of the route. The project was undertaken in two stages. The first stage, between Green Street and Scarborough Beach Road, was officially opened in December 2016, while the second stage south of Scarborough Beach Road to Richmond Street, was constructed in mid-2018.

Key elements of the project include:

- a new 30 km/h speed limit complemented by one-way slow points and speed cushions aimed at reducing vehicle speeds and traffic volumes;
- red asphalt with safe active street and 30 km/h pavement markings;
- reversal of stop or give way controls along the route to provide priority to cyclists where possible;
- improved crossing facilities, including at Scarborough Beach Road where wider traffic islands and a central median treatment are used to increase safety and highlight the presence of cyclists; and
- landscape enhancements to provide shade and improve the overall amenity of the street.

Connecting schools, parks and activity centres to higher-order cycling facilities, the Shakespeare Street project has been well received by the local community as well as cyclists travelling through the area on their way to Mount Hawthorn, Leederville and onwards towards the Perth CBD.

Project evaluation is ongoing however initial monitoring and data collection has shown a reduction in vehicle speeds and traffic volumes, and an increase in the number of people walking and riding along the street. The number of cyclists using the road (instead of footpaths) has also increased, indicating improved amenity for pedestrians.

Figure 4.15 The Shakespeare Street Safe Active Street connects schools, parks and other trip generators to higher-order cycling facilities.

4.6 Developing safe routes for road cyclists

There is an emerging need to develop road cycling routes for the subregion's local and visiting road cyclists. Road cycling routes (as described in Section 2.5) are typically conducive to rural and semi-rural roads which have low traffic volumes, scenic landscapes and changes in elevation. The road cycling user group does not typically require (or use) dedicated or protected cycling infrastructure along these routes, such as shared paths. There is an opportunity to review the key routes being used by road cyclists in order to improve safety and user-experience, as identified in the action plan (refer to Section 6).

4.6.1 Opportunity: Caves Road

One such route is Caves Road, linking Yallingup to Augusta. Popular with cycling groups, the route runs through some of the most scenic parts of the Leeuwin-Naturaliste subregion and provides access to a number of wineries, caves and other tourist attractions.

Potential safety enhancements for Caves Road could include shoulder widening (particularly on uphill sections) and advisory signage. There may also be opportunities to consider other, more sophisticated measures such as time/day activated warning lights (similar to school zone signage) and button activated warning lights.

It should be noted that Main Roads has advised that it proposes to conduct a planning study (and form a community reference group) to investigate safety improvements to Caves Road (south of Yallingup). Sections of sealed shoulders have been suggested as a possible outcome.

Further consultation is required to identify the location and preferred treatments for road cycling routes throughout the Leeuwin-Naturaliste subregion, as outlined in Section 6 of this strategy.

Figure 4.16 Advisory measures such as warning lights could help improve cyclist safety along routes frequently used by road cyclists.

4.6.2 CASE STUDY: THE WOLF PACK ROUTE (GERALDTON)

The Road Safety Commission is currently working with the City of Greater Geraldton and Shire of Chapman Valley to improve outcomes for sports cyclists along the Wolf Pack Route as shown in yellow in Figure 4.17.

The initiative has involved installing static "share the road" signage along sections of the route to help raise awareness of cyclists and prevent and reduce conflict between cyclists and drivers.

Outcomes of the initiative will be evaluated by the Road Safety Commission and may result in the signage being installed along the entire route.

There may also be opportunities to install more sophisticated measures in the future, such as shoulder widening (particularly on uphill sections) and activated warning lights.

Source: Road Safety Commission

Figure 4.17 In Geraldton, a formalised road cycling route is in the early stages of development.

4.7 Capitalising on cycle-tourism

The popularity of outdoor and adventure tourism is increasing all over the world, with cycle-tourism identified as a key growth area[15]. In the year ending June 2016, 68 per cent of international visitors to Australia engaged in some form of nature-based activity, contributing $23 billion to the national economy[17]. The *South West Regional Planning and Infrastructure Framework* aims to broaden tourism opportunities in the South West by maximising the region's natural, cultural and economic resources.

By leveraging the growing popularity of cycle-tourism, the region can help to achieve this vision and position the area as a world-class outdoor and adventure tourism destination.

There are a number of factors which make the Leeuwin-Naturaliste subregion particularly conducive to cycle-tourism, including:

- picturesque scenery encompassing a diverse range of landscapes;
- a mild mediterranean climate, making outdoor recreation possible year-round;
- an abundance of wineries, breweries and other attractions (refer to section 4.7.1);
- short distances between towns, enabling people to undertake cycle touring without needing to carry extensive camping equipment or food supplies;
- several existing mountain bike hubs, as well as a strong and active mountain biking community;
- the beginnings of a world-class rail trail, in the Wadandi Track; and
- several high-profile cycling events (including the Busselton Ironman, Cape to Cape MTB, X-Adventure and Pedal-Prix) which already attract cycling enthusiasts from both interstate and overseas.

As detailed below, cycle-tourism has been used successfully in diversifying tourism industries in other parts of Australia. While infrastructure is an important part of attracting visitors, marketing and promotion also play an integral role, as does the availability of information such as maps, wayfinding and digital resources.

Figure 4.18 The Leeuwin-Naturaliste subregion has the right ingredients to become a world-class cycle-tourism destination.

[16] *Global Report on Adventure Tourism (2014)*

[17] *WA Strategic Trails Blueprint (2017-2021)*

4.7.1 Opportunity: Developing a food and wine trail

With over 95 cellar doors, the Leeuwin-Naturaliste subregion is one of the largest and most concentrated premium wine producing regions in Australia[18]. The subregion also has a growing reputation as a gourmet produce and food destination.

Unlike some other wine regions, the Leeuwin-Naturaliste subregion is yet to capitalise on the potential of cycle-tourism and its ability to complement the food, wine and hospitality sectors. Currently, access to most producers is via either Caves Road or Bussell Highway, neither of which are conducive to all-ages cycling due to their high posted speed limits and traffic volumes.

As mentioned in Section 4.2.1, the Wadandi Track (although incomplete) has the potential to form the backbone of a world-class food and wine trail. Complete with heritage interpretation, the corridor weaves its way through the entire subregion. Providing access to the heart of the wine growing area, there are numerous wineries and breweries located either on, or within a short distance of the trail.

As the Wadandi Track is progressively developed, it is important that local government works closely with local businesses in determining how to fully capitalise on the cycle-tourism potential of the facility. This could involve the development of spur trails to enable people to ride safely to those wineries which are not directly adjacent to the track (refer to Willyabrup example in Figure 4.19). Other options may involve facilitating agreements between neighbouring businesses in creating links between cellar doors via internal roads, driveways or fire breaks.

A second potential food and wine trail has been identified to the south west of Margaret River. This trail, which makes use of existing tracks, driveways and firebreaks, connects the Wadandi Track (near Witchcliffe) to the Margaret River-Prevelly Shared Path (near Kevill Road), forming a 20 km loop. The trail's potential is highlighted in the network maps contained in Section 3. Further consultation with local businesses and tour operators is required.

Figure 4.19 Spur trails such as this one around Willyabrup could be developed to provide people with better access to areas with high concentrations of cellar doors.

[18] *https://www.margaretriver.com/eat-drink/wineries/*

4.7.2 CASE STUDY:
BAROSSA AND CLARE VALLEY WINE TRAILS (SOUTH AUSTRALIA)

In recent years, two of South Australia's food and wine regions have developed world-class trails, enabling them to add another dimension to their tourism industry.

The Barossa Trail is a 42 km walking and cycling trail which links the towns of Tanunda and Gawler in South Australia. The trail is comprised of a combination of disused rail corridors, cycle paths and short on-road sections. The trail benefits from the Barossa Cycling Hub in Tanunda which provides bike hire, interpretive maps and end-of-trip facilities including toilets, change rooms and showers. The trail has averaged 320 trips per day since the hub's opening in 2015 and now supports several bike tour operators[19].

The Clare Valley Heritage Cycle Trail (also known as the Riesling Trail) is a 35 km walking and cycling trail in South Australia's Clare Valley wine region. The trail, which follows the alignment of the former Adelaide-Spalding railway, connects Barinia to Auburn, passing through dozens of wineries and vineyards along the way. The trail has recently been extended 19 km south to Riverton, with this section known as the Rattler Trail. In 2016, the most popular parts of the trail recorded over 3000 users per month[20].

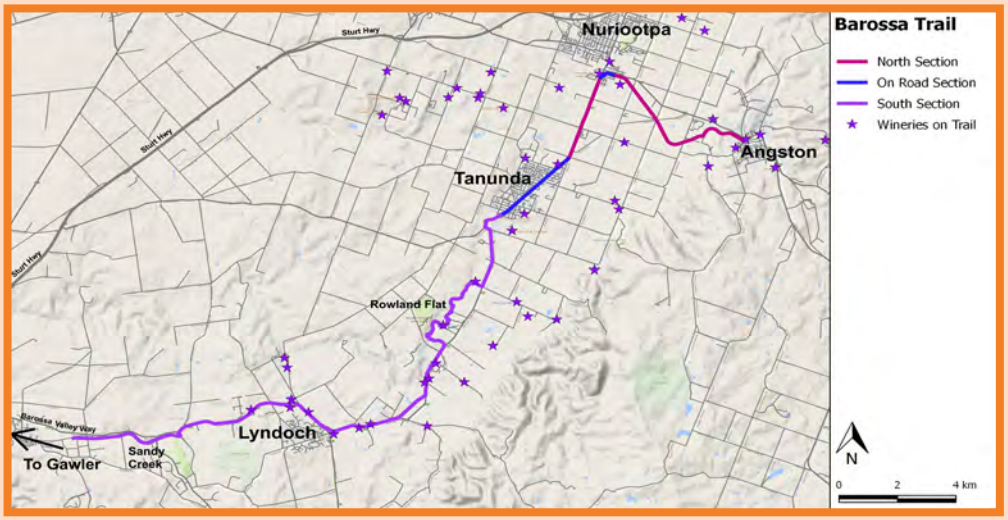


Figure 4.20 Cycle-tourism has added another dimension to South Australia's two most popular wine regions.

[19] *http://theleadsouthaustralia.com.au/industries/tourism/cycling-trails-meet-grape-expectations-in-top-wine-region/*

[20] *http://rieslingtrail.com.au/wp-content/uploads/2014/09/NEWSLETTER-PRINTED.pdf*

4.7.3 CASE STUDY:
TASMAN GREAT TASTE TRAIL (NEW ZEALAND)

The Tasman Great Taste Trail is a 175 km walking and cycling loop located near Nelson on New Zealand's South Island. The trail opened in 2010 and is classified as one of New Zealand's 22 great rides. Marketed as a gourmet experience, there are over 30 wineries, restaurants and cafes on or in close proximity to the trail.

In 2016, approximately 96,000 people used the Tasman Great Taste Trail (of which 80 per cent were non-commuters), generating over NZ$6 million in revenue for the region. It is estimated that around 75 per cent of this economic activity was generated by the domestic tourism market[21]. In response to this success, the trail is being gradually extended.

Source: https://www.newzealand.au

Figure 4.21 The Tasman Great Taste Trail in New Zealand is heavily geared around promoting the region's food and wine industries.

[21] *NZ Cycle Trail Evaluation Report (2016)*

4.8 Getting cycling infrastructure right from the start

Retrofitting cycling infrastructure to existing urban areas can be slow and expensive. Due to this it is critical that new urban growth areas incorporate dense and interconnected cycling networks from the outset. When planning the street networks of urban developments, consideration should be given to:

- providing primary routes alongside all main roads, railways and watercourses;
- providing secondary routes along all urban arterials which is important for providing access to local shops, schools and community facilities; and
- providing local routes along all local access streets.

In terms of future greenfield developments, key opportunities for the Leeuwin-Naturaliste subregion include Ambergate, Bovell, Yalyalup East and Carbunup River, as well as various urban growth areas to the south and east of Margaret River.

Figure 4.22 When new developments adopt a safe and interconnected network of primary, secondary and local routes, cycling becomes an attractive and natural part of everyday life.

4.8.1 Opportunity: Vasse New Town

Over the next three decades it is likely that a number of new greenfield developments will take place in the Leeuwin-Naturaliste subregion. One such development is Vasse Newtown, located in the City of Busselton, approximately 10 km south-west of the Busselton town centre. Vasse Newtown has various features which will enable cycling to become a key mode of transport. These include:

- the Wadandi Track, which runs east-west through the centre of the development;
- proximity to the Busselton Bypass Shared Path (section of the Wadandi Track), providing a connection to the Busselton town centre;
- the Buayanyup drain, which could be used to provide a north-south connection between the development and the Geographe Bay Shared Path; and
- the proximity of future major transport corridors such as the Busselton Outer Bypass and Vasse-Dunsborough Link.

DoT is working closely with the Department of Planning, Lands and Heritage and Western Australian Planning Commission to ensure that the new Design WA guidelines consider contemporary best-practices when it comes to the planning and design of cycling infrastructure in new developments.

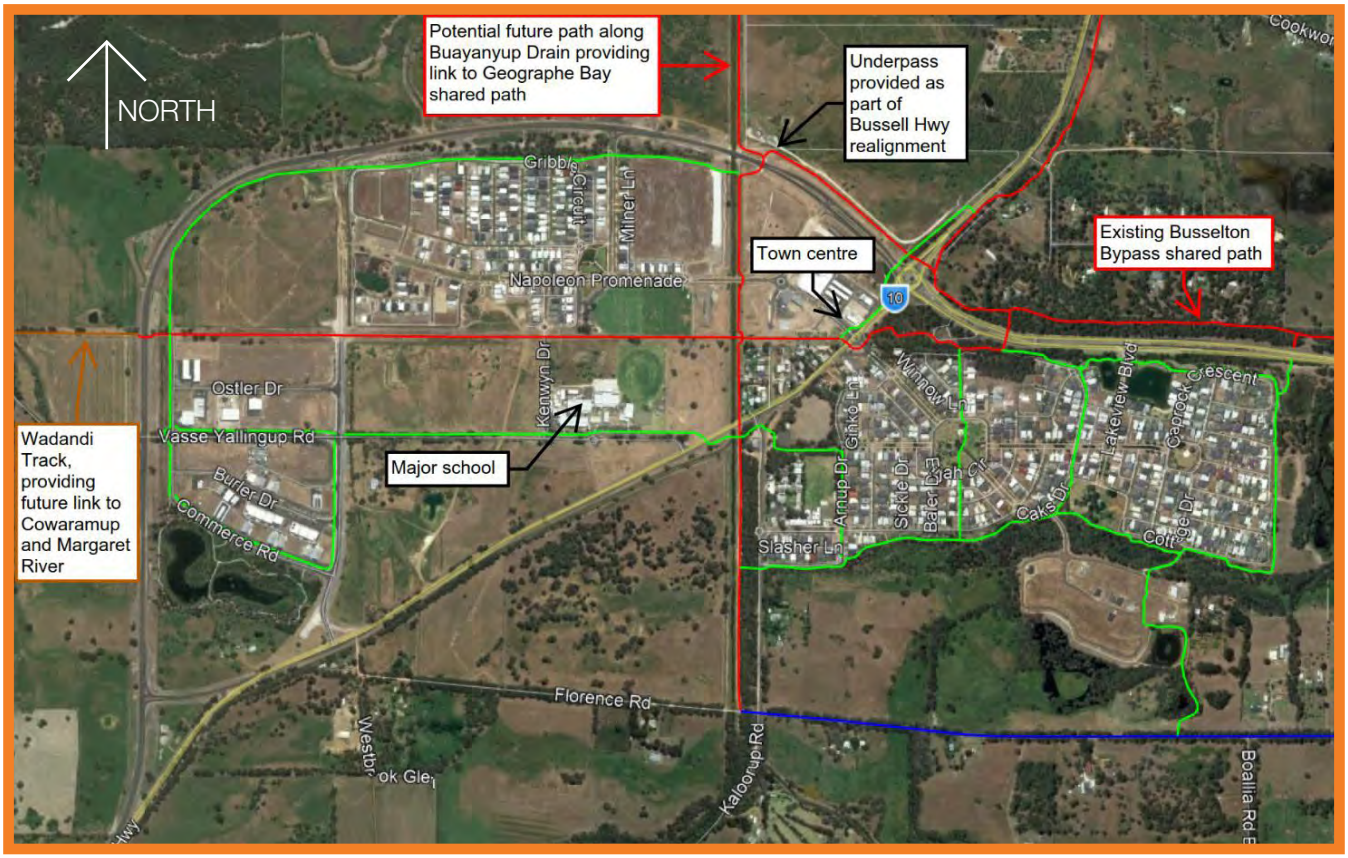


Figure 4.23 Vasse development and proposed cycling network.

4.8.2 CASE STUDY: LEARNING FROM THE BEST – DUTCH APPROACHES TO SUBURBAN DEVELOPMENT

Australia's suburbs (and particularly those developed from the 1960s onwards) have typically been designed in a way which makes car use the dominant mode of transport, even for very short trips. Design features such as 50 km/h speed limits along local streets, intersections with large radii and streets with non-contiguous or no paths contribute to reducing the appeal of walking and cycling.

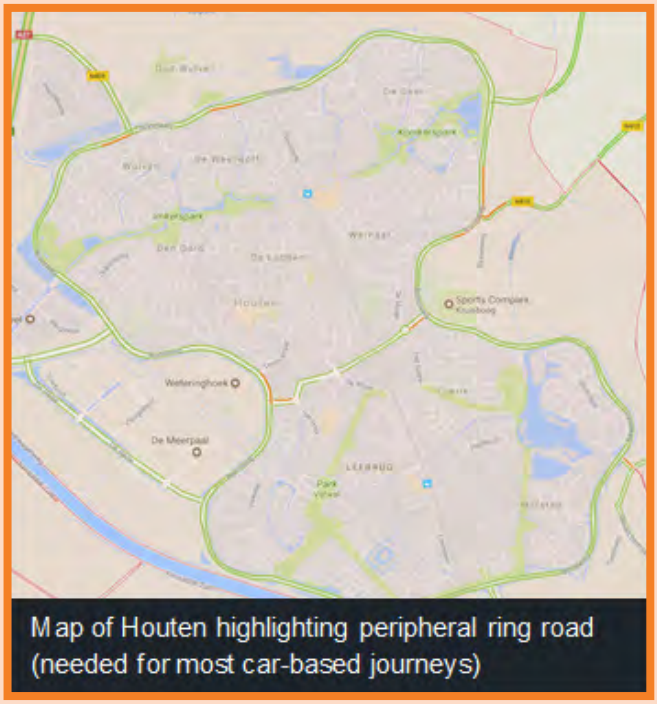
Houten, a city in the province of Utrecht in the Netherlands is an exemplary model of low-density, suburban development. In the late 1960s, Dutch government officials recognised Houten – then a small town of a few thousand people – as a potential area for major population growth. Unlike other suburban developments taking place at that time planners carefully prioritised pedestrians and cyclists over cars.

The defining feature of Houten is the extensive use of filtered permeability which discourages people from making unnecessarily short trips by car.

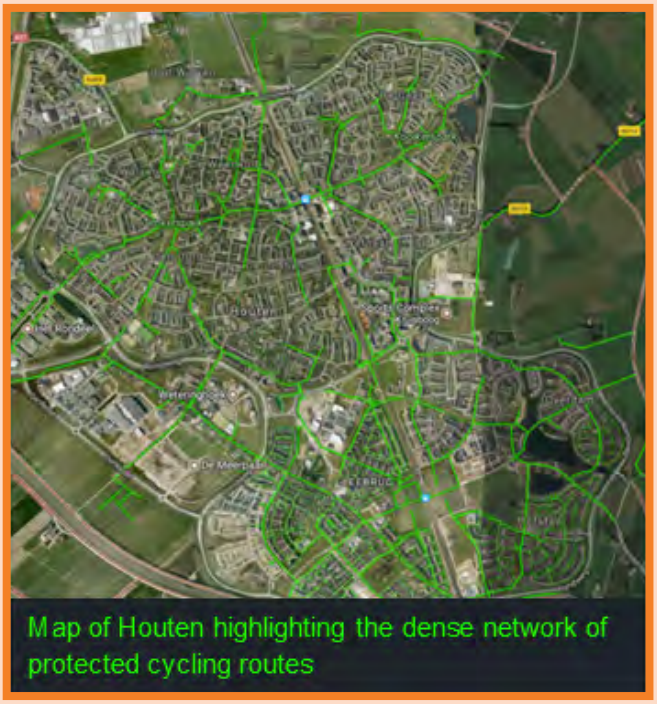
The city is divided into a number of smaller residential districts, each of which are only accessible to cars via a peripheral ring road which encircles the city. To get to another district by car, you must use the ring road.

The rest of the city is covered by an extensive network of high-quality walking and cycling routes. Importantly, these routes provide direct access between the residential areas and key destinations such as shops, schools and community facilities. This feature makes walking and cycling the most attractive way to get to and from most local destinations.

Houten's innovative design (and corresponding mode share) has resulted in numerous measurable benefits, including better air quality, fewer incidents of road trauma and higher levels of population health and well-being when compared to other similarly sized cities.



Map of Houten highlighting peripheral ring road (needed for most car-based journeys)



Map of Houten highlighting the dense network of protected cycling routes

Figure 4.24 Houten, a modern but low density suburban development in the Netherlands has been designed in such a way where it simply makes sense to walk or cycle for local trips.

5. INTER-REGIONAL OPPORTUNITIES

Cycle-tourism is a growing industry worldwide, with people becoming increasingly interested in challenging, unique and eco-friendly tourism experiences. Due to the relative proximity of towns and settlements, the South West region is better suited to long-distance cycle-tourism than most parts of WA.

Key inter-regional opportunities for the Leeuwin-Naturaliste subregion include:

- linking Busselton to Bunbury (and the Bunbury-Wellington subregion), refer to Section 5.1;
- linking Busselton to Nannup (and the Warren-Blackwood subregion), refer to Section 5.2; and
- linking Boranup to Nannup (and the Warren-Blackwood subregion), refer to Section 5.3.

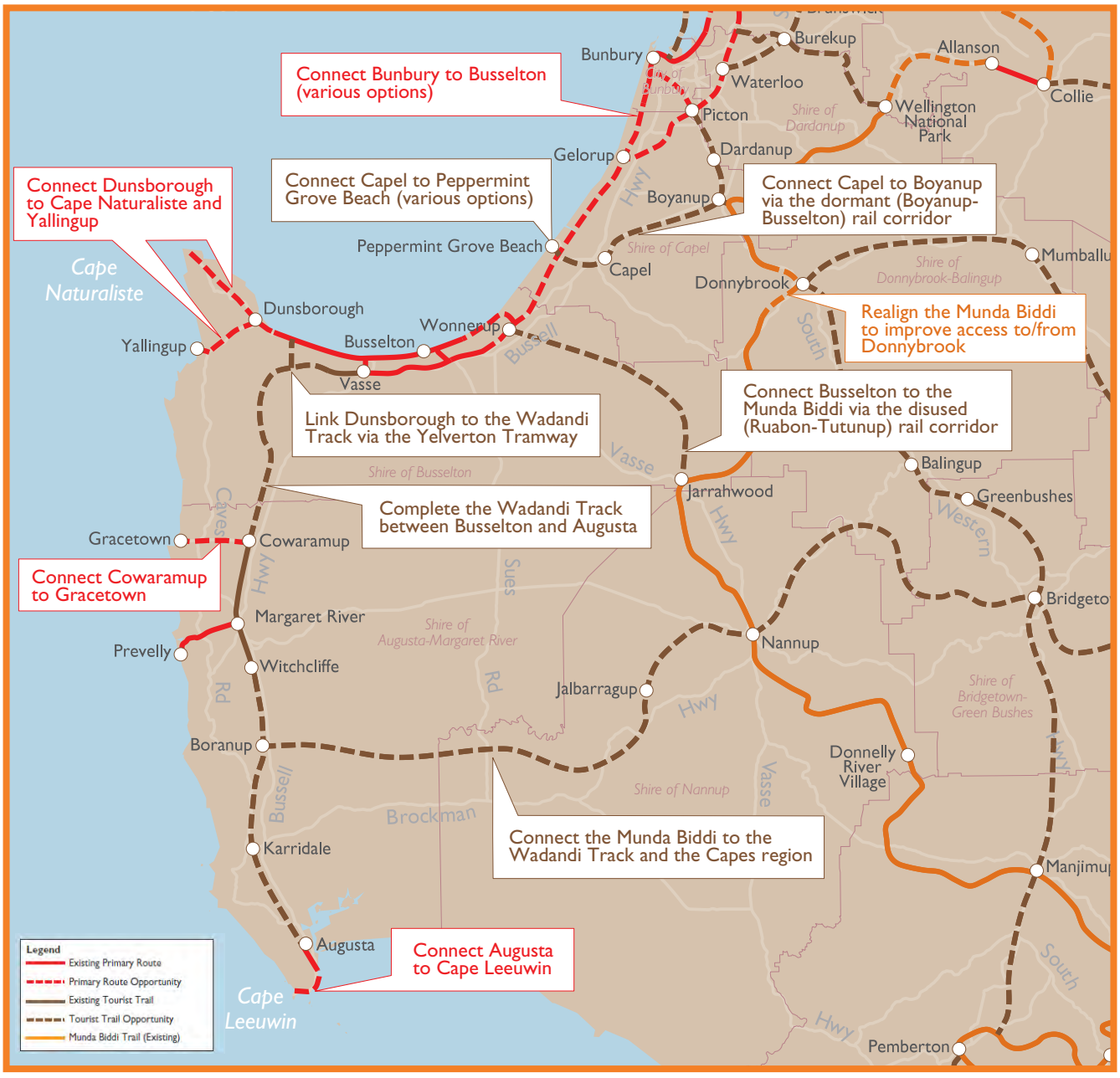


Figure 5.1 The Leeuwin-Naturaliste subregion, and the South West region more generally, is well positioned to become one of Australia's best destinations for cycle-tourism.

5.1 Linking Busselton to Bunbury

Feedback received during the community consultation process indicated a strong desire to link Bunbury and Busselton with cycling facilities. Linking two of WA's largest regional centres, located approximately 50 km apart, could be achieved in several ways.

In the short-term, a low-cost wayfinding strategy which helps cyclists navigate their way along low volume rural roads could be considered (refer to Section 5.1.1).

Over the longer term it would be prudent to strive for a cycling route which is completely separated from motorised traffic (in the form of a trail, or ideally, sealed shared path). Sections 5.1.2, 5.1.3 and 5.1.4 explore potential options for such a facility.

In deciding how best to connect Bunbury and Busselton, a dedicated feasibility study would help quantify the costs and benefits associated with potential alignments.

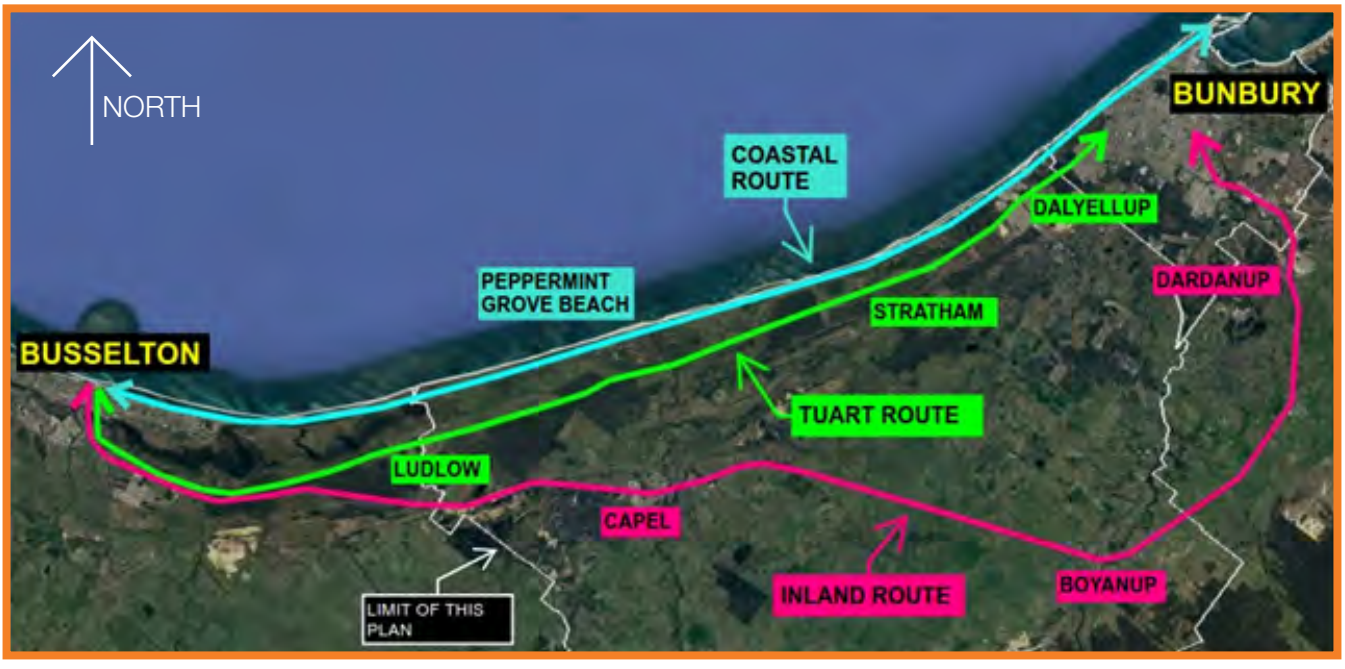


Figure 5.2 There are several schools of thought on how best to link Bunbury to Busselton with cycling facilities.

5.1.1 Option 1: Connecting local roads

The concept of linking Bunbury to Busselton by connecting a series of local back roads (including Maidment Parade, Minninup Road, Fishermans Road and Mangles Road) is already well established and outlined in the *Greater Bunbury Regional Bicycle Master Plan (2012)*. Although unlikely to cater for novice or inexperienced user groups, linking these roads together with short sections of shared path would provide more confident cyclists with a safer and less hostile alternative to Bussell Highway.

The concept of linking up local roads may be an important first step in formalising a route between Busselton and Bunbury. Over time, this route could be progressively upgraded and/or realigned until it becomes entirely separated from motorised traffic. The EuroVelo case study provided in Section 5.4 demonstrates how a similar approach has been used in the development of the European bicycle-touring network.

Figure 5.3 In the short-term there is an opportunity to create a cycling route between Bunbury and Busselton along local back roads, avoiding Bussell Highway.

5.1.2 Option 2: Along the coast

Developing a coastal path between Bunbury and Busselton would build on the success of the existing Geographe Bay Shared Path linking Dunsborough and Busselton. Such a path would help position the Peppermint Grove Beach community as a desirable stopping location due to its position roughly halfway between Bunbury and Busselton.

Possible disadvantages associated with a coastal alignment include exposure to the wind, land-ownership issues and potential inundation resulting from climate change. Further investigation is required to determine whether appropriate setbacks are available.

Figure 5.4 A route which hugs the coast may be the most scenic option for linking Bunbury and Busselton with cycling facilities.

5.1.3 Option 3: Through the Tuart Forest

Located between Busselton and Dalyellup is a narrow strip of remnant Tuart Forest. Important to the early European settlers and local indigenous groups, the area is both historically and ecologically significant.

Using the Tuart Forest corridor to link Bunbury and Busselton would be beneficial in terms of providing protection from the weather as well as tourism opportunities, particularly around the old Ludlow Mill and Limekilns recreation sites. Constraints in this corridor include the area's environmental and aboriginal heritage sensitivity, passive surveillance concerns, and ongoing maintenance issues resulting from branches and leaf litter falling onto the path.

Figure 5.5 Offering protection from the sun and wind, a route through the Tuart Forest would offer a high-level of amenity.

5.1.4 Option 4: Along the former rail corridor

The railway line between Capel and the Ludlow Forestry Settlement has been closed since 1985. This corridor links to other dormant rail lines between Capel and Bunbury (in the Bunbury-Wellington subregion) which have been non-operational since 1998 (Capel to Boyanup) and 2005 (Boyanup to Bunbury).

As described in Section 4.2, disused railways make excellent corridors for multi-use trails. Advantages of this corridor include the ability to capitalise on the area's rail heritage, as well as potential synergies with other existing/proposed rail trails in the South West (such as the Wadandi Track linking Busselton to Augusta and a potential future rail trail linking Wonnerup to Nannup).

The primary challenge associated with this alignment pertains to land-tenure. The corridor is currently leased by Arc Infrastructure from the PTA and it is understood that both parties are firm on maintaining the corridor for future use. It is recognised however that a 20 m wide road reserve runs parallel to the rail corridor which may prove to be a feasible alternative.

Figure 5.6 Closed and dormant rail corridors provide another opportunity to connect Bunbury and Busselton.

5.2 Linking Busselton to Nannup

Jarrahwood is a small historical timber mill community located in the City of Busselton's south-eastern corner. Until the mill's closure in 1984, the town was connected to Busselton and Nannup via the Nannup Branch railway. While the section of railway south of Jarrahwood has been transformed into the popular Sidings Rail Trail (which also forms part of the Munda Biddi Trail), the section north of Jarrahwood is yet to be formally designated as a trail.

Known as the Ruabon-Tutunup Corridor, this thin strip of remnant bushland is a significant biodiversity hotpot. The corridor provides an important environmental link between the jarrah forests of the Whicher Scarp and the internationally recognised (and Ramsar listed) Vasse-Wonnerup Wetlands System.

The development of a rail trail along the Ruabon-Tutunup Corridor would create an important cycle link between the Leeuwin-Naturaliste and Warren-Blackwood subregions. It would also connect the subregion to the Munda Biddi Trail, helping the Jarrahwood community to realise its potential as a cycle-tourism hub, and create additional cycle-tourism opportunities for the South West more generally.

While the corridor's environmental sensitivity may present some challenges, the corridor's recreational potential has been recognised in the *Ruabon Tutunup Management Plan (2007)*. The plan highlights how any such development would need to be appropriately planned and managed to ensure that access does not degrade the conservation values of the reserve.

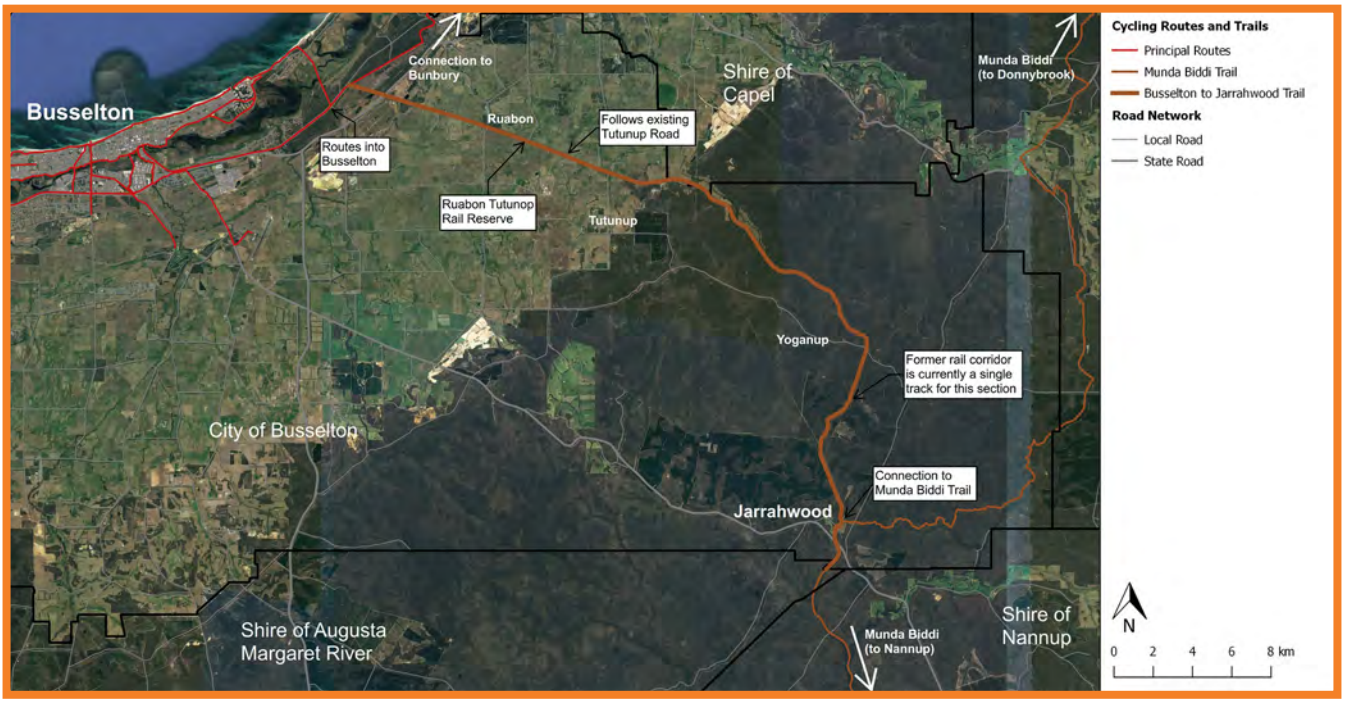


Figure 5.7 The Ruabon-Tutunup rail reserve could be used to connect the Leeuwin-Naturaliste and Warren-Blackwood subregions, and potentially position Jarrahwood as a cycle-tourism hub.

5.3 Linking Boranup to Nannup

Another long-distance opportunity involves linking Boranup (located between Margaret River and Augusta) to Nannup. This route, known locally as the Coast to Nannup Track, would involve formalising a series of existing forest trails and firebreaks which follow the Blackwood River Valley.

Extending for approximately 108 km, the route takes in a diverse range of landscapes, from karri and jarrah forest through to farmland and Blackwood River frontage.

Importantly, the development of this trail has the potential to form part of a wider long-distance cycling loop linking Busselton, Margaret River and Nannup. Taking in the Wadandi Track, Munda Biddi Trail and a future Ruabon-Tutunup rail trail (refer to Section 5.2) the 200 km loop would offer a multi-day touring experience, easily accessible from each of the townsites along the route.

This route could also potentially form part of a longer Blackwood Valley Trail linking from the coast to Nannup, Bridgetown and Boyup Brook (a concept which is discussed further in the *Warren-Blackwood 2050 Cycling Strategy*).

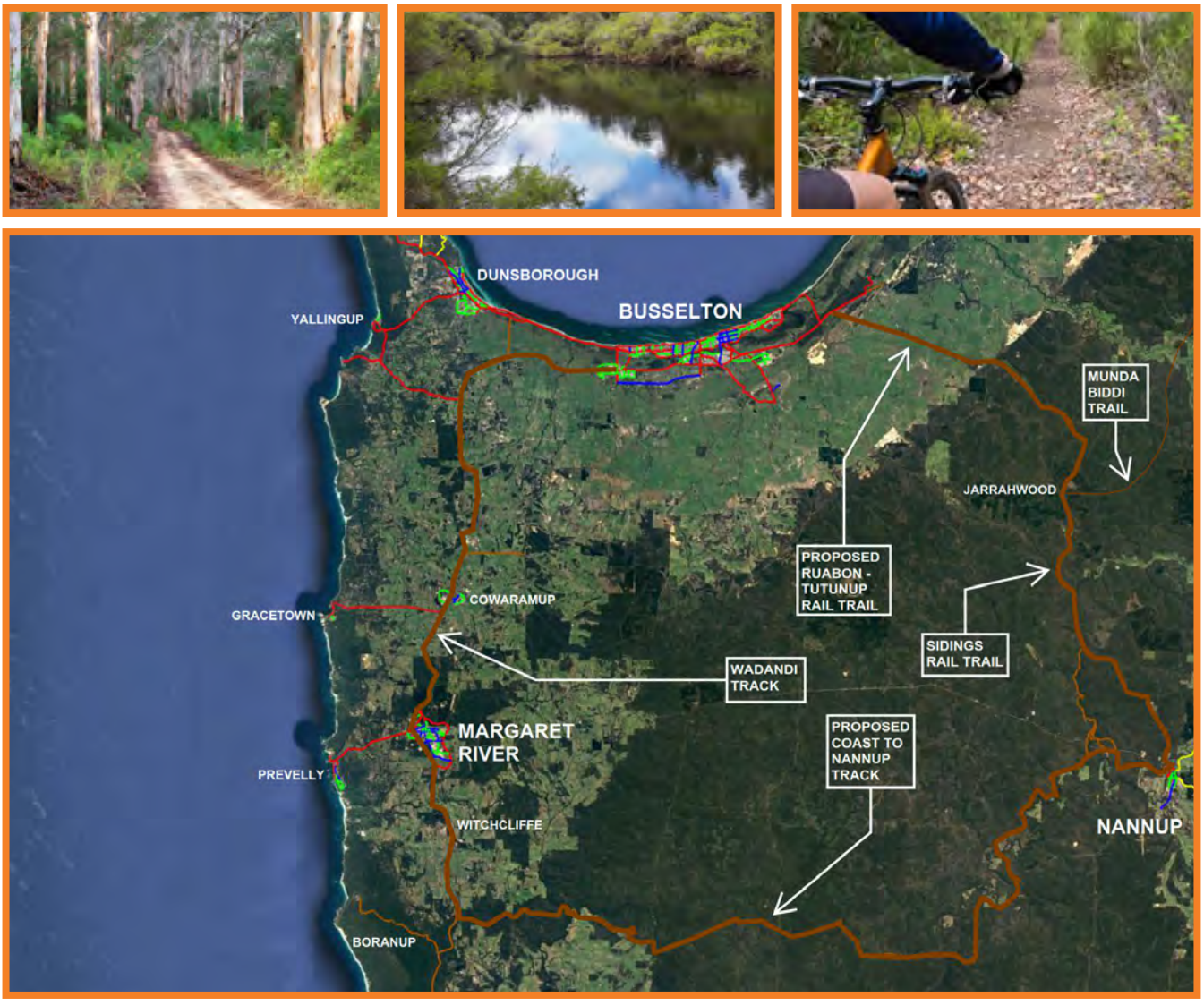


Figure 5.8 Formalising a long-distance trail between Boranup and Nannup would enable the creation of a 200 km long loop trail linking Busselton, Margaret River and Nannup.[22]

[22] *Photos and "Coast to Nannup Trail" alignment courtesy of www.margaretriverfindthefun.com.au*

5.4 CASE STUDY: EUROVELO

The European cycle route network, known as EuroVelo, is a network of 15 long-distance cycling routes that traverse the European continent. Substantial completion is scheduled by 2020 and when finished, the network will exceed 70,000 km[23].

The network is comprised of a combination of low traffic roads and car free infrastructure, including shared paths, dedicated cycleways and unsealed trails such as rail trails. As infrastructure is upgraded to a higher standard, or new and safer alignments are delivered, EuroVelo routes are formalised and corresponding branded signage installed.

Although investment in cycling infrastructure is pivotal to the success of EuroVelo, spending on bicycle-friendly public transport connections, supporting services and comprehensive marketing and promotion are also essential. This includes providing up-to-date and easily accessible information and promotional tools. Providing wayfinding that is complete, consistent and clearly themed is also critical to EuroVelo's success.

The total economic impact of cycle-tourism in Europe is estimated to be €44 billion per year, with an approximate direct economic benefit of €100 per year per resident[24].

Source: EuroVelo

Figure 5.9 The South West region of WA is well positioned to develop a cycle-tourism network similar (but smaller in scale) to that found in Europe.

[23] *NZ Cycle Trail Evaluation Report (2016)*

[24] *The European Cycle Route Network EuroVelo – Study (2012)*

6. ACTION PLAN

This section outlines the strategic priorities to be progressed over the next five years. While not possible to develop a cycling network that reflects the "8-80" design philosophy immediately, this approach will help enable the Leeuwin-Naturaliste subregion to realise its long-term cycling potential over time.

The priorities identified have been informed by community and stakeholder consultation undertaken throughout the project, as summarised in Appendix C.

6.1 The existing cycling network

To inform the action plan's priorities, each route within the 2050 cycling network was classified as one of the following:

- **Existing (adequate)** – the level of service provided reflects current best practices for this type of cycling route (as defined in the route hierarchy);
- **Existing (needs improving)** – although possible to cycle along this corridor, the level of service provided does not reflect current best practices for this type of cycling route (as defined in the route hierarchy); or
- **Non-existent (proposed)** – it is either not possible to cycle along this route due to the corridor being non-existent or, because of existing road conditions, most people are unable to cycle confidently.

These classifications are reflected in the maps on the following pages, with each route considered in the context of the five-year timeframe of this action plan.

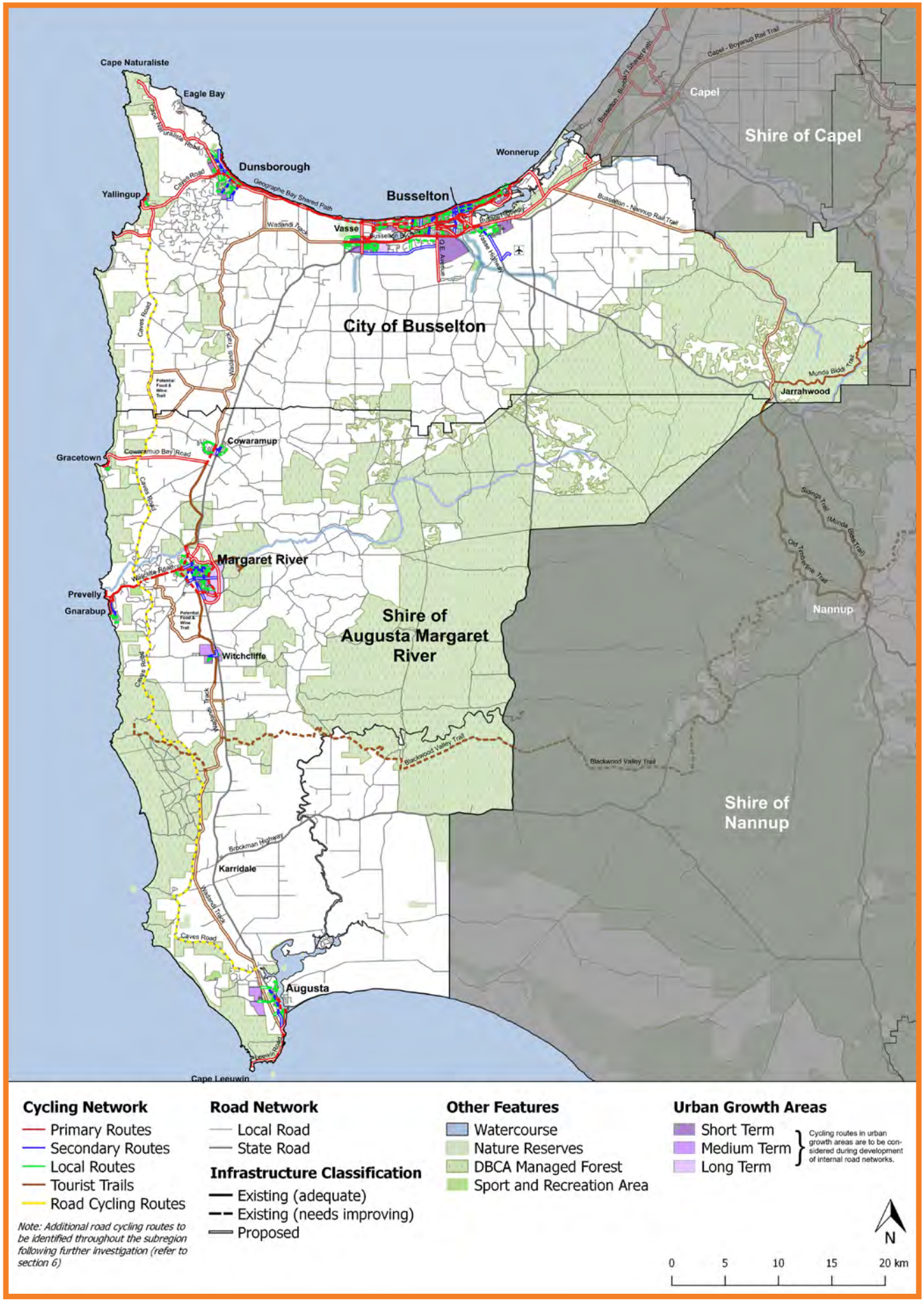


Figure 6.1 The overall 2050 cycling network for Leeuwin-Naturaliste subregion, with each route classified as either existing (adequate), existing (needs improving) or proposed.

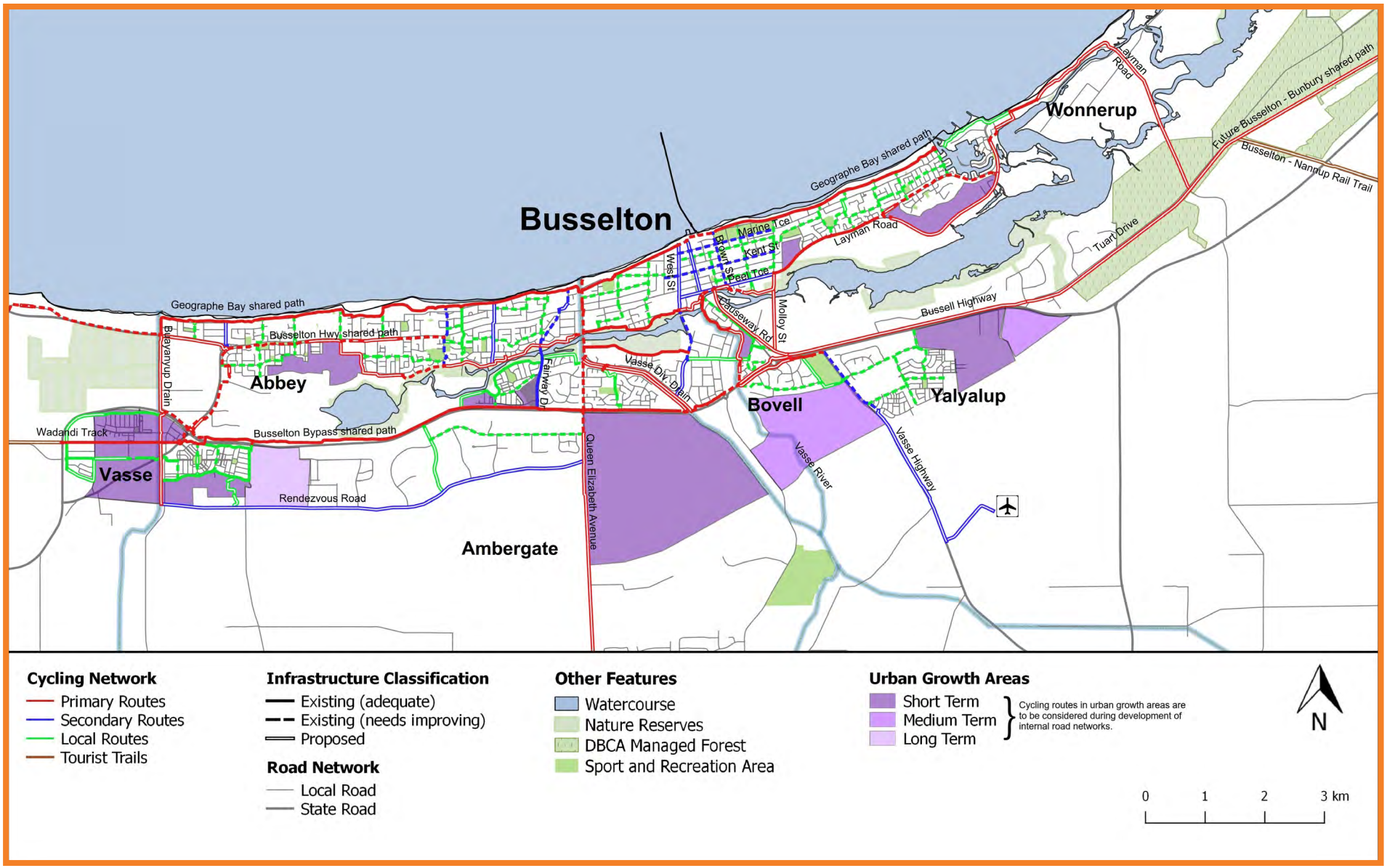


Figure 6.2 Proposed 2050 cycling network for Busselton, with each route classified as either existing (adequate), existing (needs improving) or proposed.

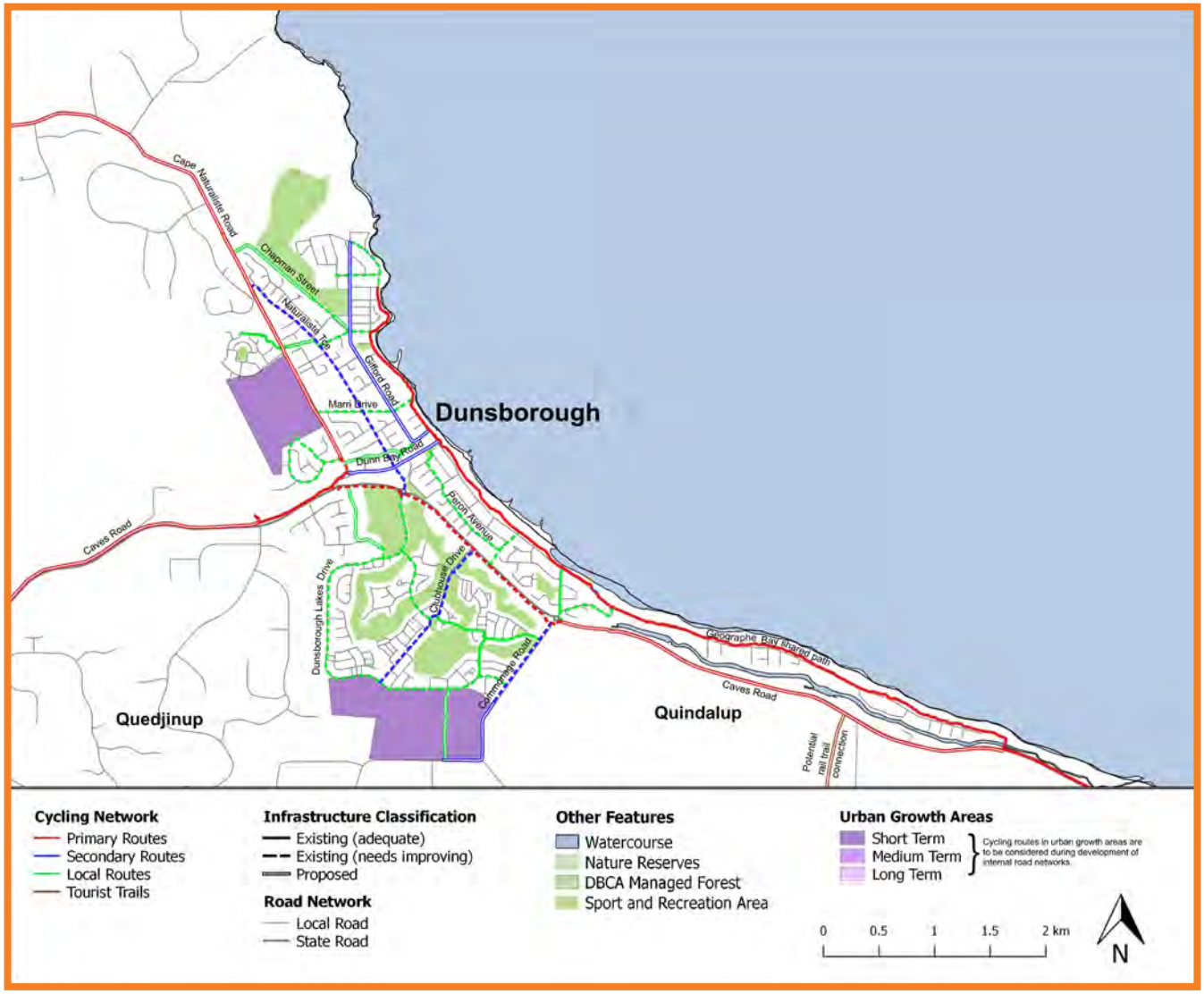


Figure 6.3 Proposed 2050 cycling network for Dunsborough, with each route classified as either existing (adequate), existing (needs improving) or proposed.

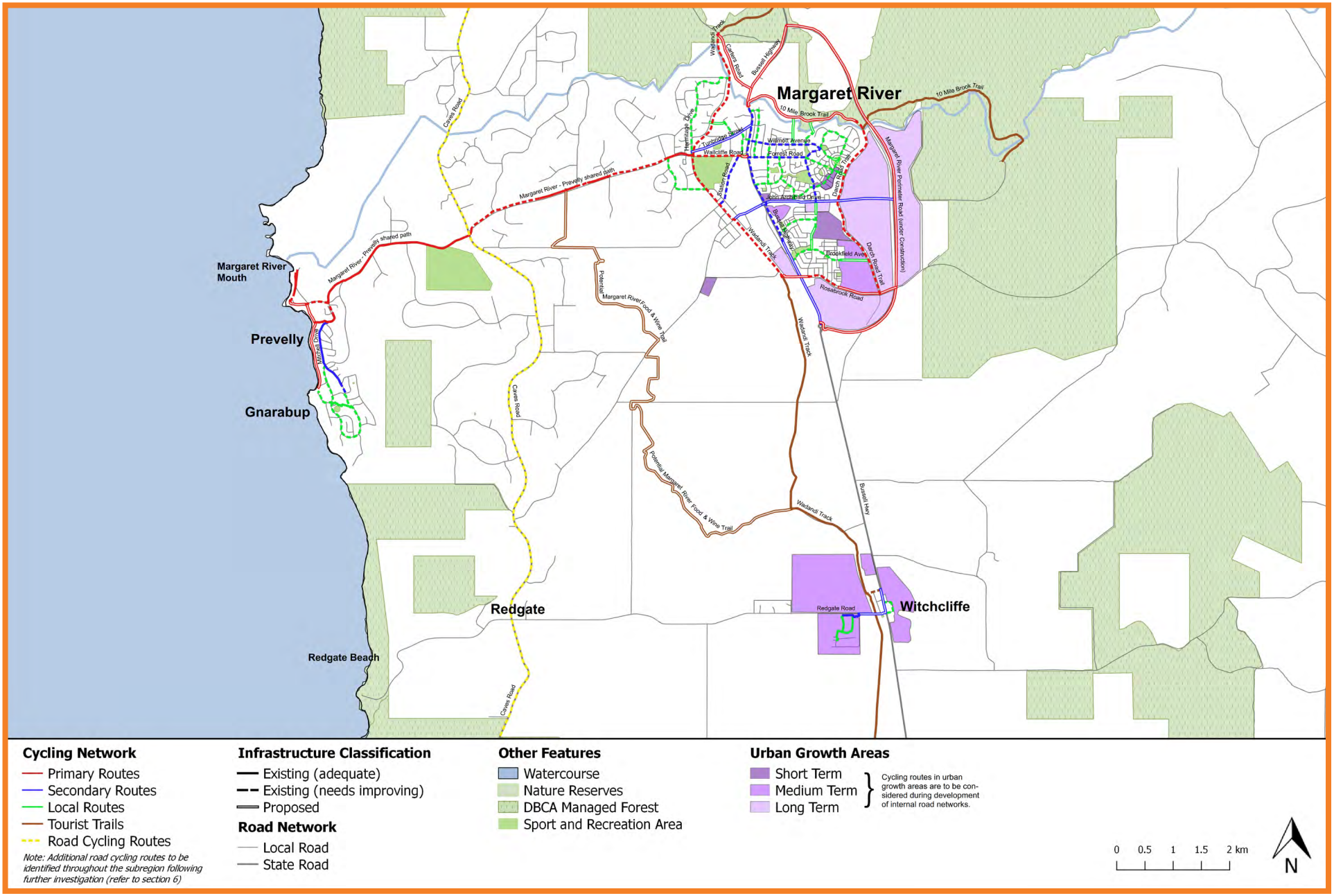


Figure 6.4 Proposed 2050 cycling network for Margaret River, Prevelly, Gnarabup and Witchcliffe, with each route classified as either existing (adequate), existing (needs improving) or proposed.

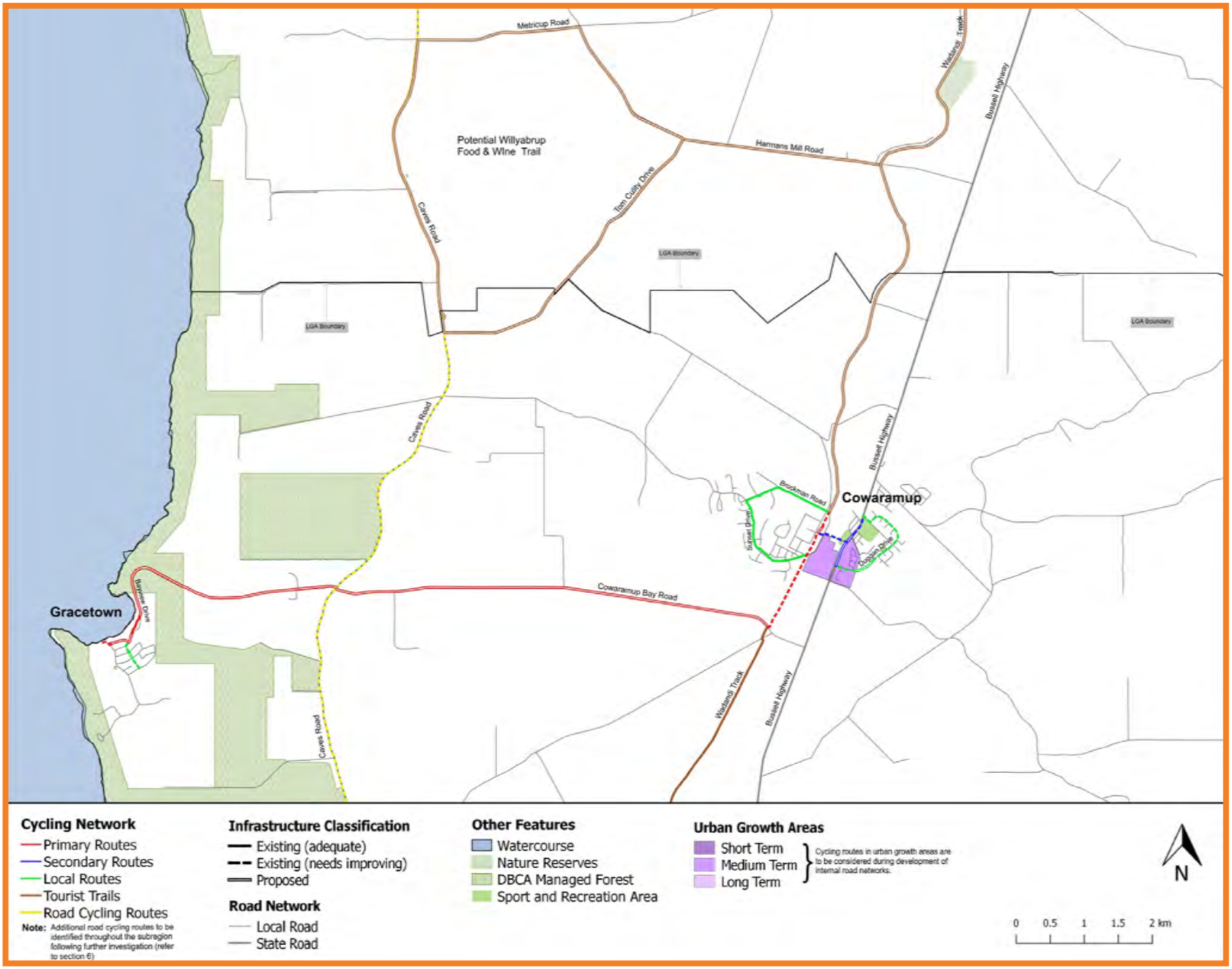


Figure 6.5 Proposed 2050 cycling network for Cowaramup and Gracetown, with each route classified as either existing (adequate), existing (needs improving) or proposed.

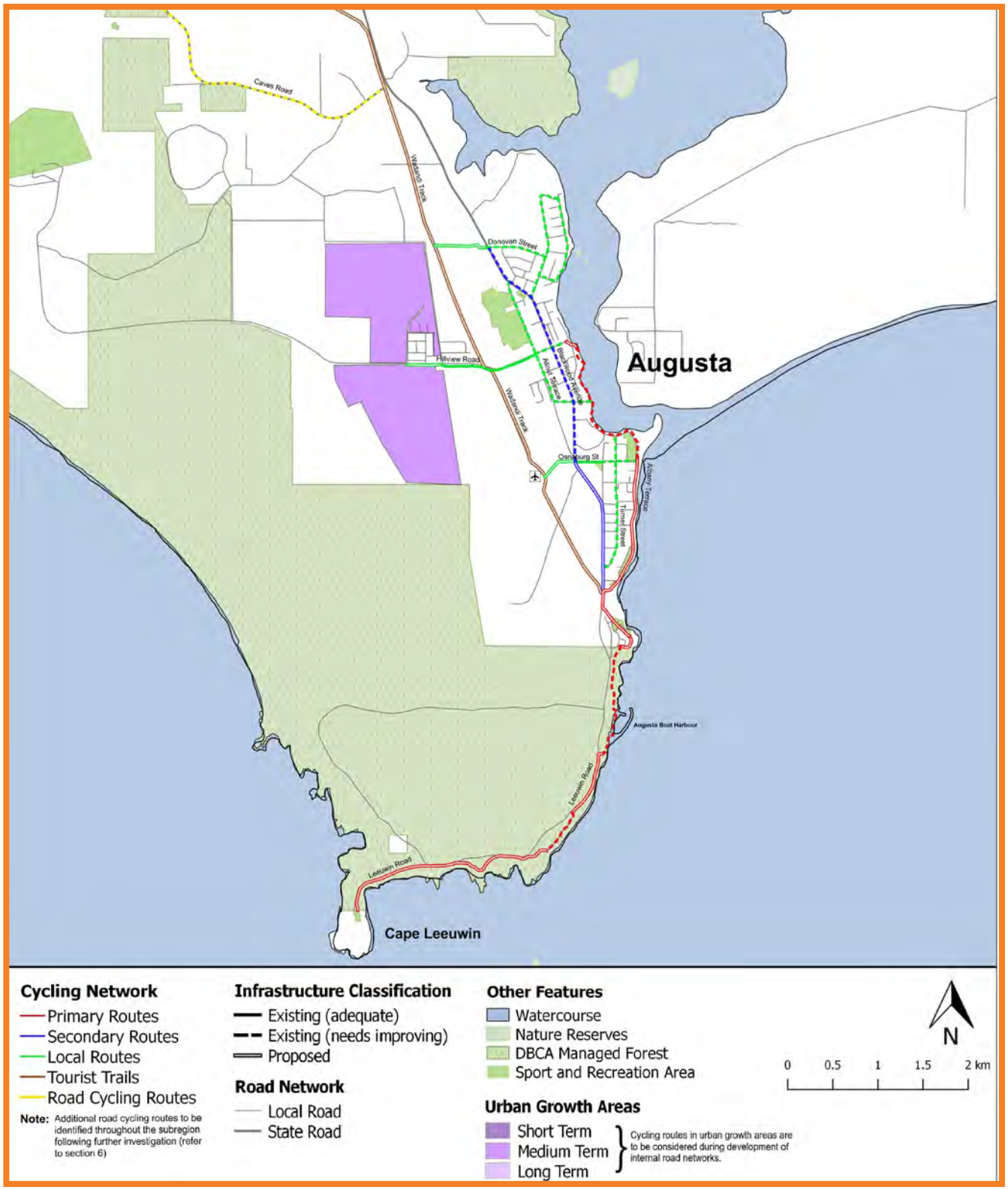


Figure 6.6 Proposed 2050 cycling network for Augusta, with each route classified as either existing (adequate), existing (needs improving) or proposed.

6.2 Priority projects

The following tables identify the strategic priorities for cycling in the Leeuwin-Naturaliste subregion over the next five years.

6.2.1 Developing the primary network

N°	Action (what?)	Type	Objective (how?) / Justification (why?)	Lead agency (or agencies)	Timeframe
1	Investigate the development of a cycling link between Dunsborough and Cape Naturaliste	Planning and feasibility	**Objective:** City of Busselton to undertake preliminary planning surrounding the development of a high-quality cycling link between Dunsborough and Cape Naturaliste. Potential alignments include Cape Naturaliste Road or upgrading the existing Meelup Trail. **Justification:** This route would form a logical extension of the Geographe Bay Shared Path, catering for both locals and tourists. There is strong community support for this project particularly for the coastal alignment.	City of Busselton Department of Biodiversity, Conservation and Attractions	Within 2 years
2	Develop a shared path along Layman Road	Planning and feasibility	**Objective:** City of Busselton to investigate the development of a shared path along Layman Road, extending from Navigation Way to Tuart Drive. **Justification:** In addition to providing a safer cycling link to Wonnerup, this path will also help achieve the goal of creating a cycling loop around Busselton's urban area, providing locals and visitors with a route which showcases the city's diverse range of coastal, forest, wetland and river landscapes.	City of Busselton	Within 5 years
3	Develop a shared path along the Buayanyup drain	Delivery	**Objective:** City of Busselton to work with land developers in creating a north-south connection between the Wadandi Track and Geographe Bay Shared Path along Buayanyup drain. **Justification:** Provides a link between the Vasse Newtown development and the beach. This path will also help achieve the goal of creating a cycling loop around Busselton's urban area, providing locals and visitors with a route which showcases the City's diverse range of coastal, forest, wetland and river landscapes.	City of Busselton	Within 5 years
4	Continue developing the shared path parallel to Busselton Bypass / Bussell Highway	Delivery	**Objective:** City of Busselton to work with Main Roads in ensuring that the shared path along Bussell Highway / Busselton Bypass is extended east. **Justification:** Extending this path further east will help improve connectivity to Bovell, Yalyalup and Reinscourt. In addition, it will help achieve the goal of creating a cycling loop around Busselton's urban area, providing locals and visitors with a route which showcases the City's diverse range of coastal, forest, wetland and river landscapes.	City of Busselton Main Roads	Ongoing
5	Create a connection between the Wadandi Track and 10 Mile Brook Trail	Planning and design	**Objective:** Shire of Augusta Margaret River to finalise alignments and undertake designs for a high-quality cycling link connecting the Wadandi Track to the western end of the 10 Mile Brook Trail. **Justification:** Providing an important connection between Rotary Park and the nearby mountain bike trail heads, this connection will play a key role in the development of a cycling loop around Margaret River's urban area.	Shire of Augusta Margaret River	Within 2 years
6	Create a connection between the Darch Road Trail and Wadandi Track	Planning and design	**Objective:** Shire of Augusta Margaret River to investigate potential opportunities to link the Wadandi Track to the Darch Road Trail, south of the Margaret River townsite. **Justification:** Providing improved accessibility to the Wadandi Track for local residents, this connection will play a key role in the development of a cycling loop around Margaret River's urban area.	Shire of Augusta Margaret River	Within 5 years

7	Investigate potential cycling links between Busselton and Bunbury	Planning and feasibility	**Objective:** City of Busselton to work with the Shire of Capel to undertake a feasibility study for the development of a high-quality cycling facility linking Busselton and Bunbury. **Justification:** Feedback received during the Leeuwin-Naturaliste and Bunbury-Wellington community consultation periods indicated a strong desire for this connection. Potential options include along the coast, along the Busselton-Capel rail corridor, or through the Tuart Forest.	City of Busselton Shire of Capel	Within 5 years
8	Undertake planning for a shared path linking Cowaramup to Gracetown	Planning and feasibility	**Objective:** Shire of Augusta Margaret River to work with the National Trust and LandCorp in determining potential land access and funding requirements for the development of a shared path linking Cowaramup and Gracetown. **Justification:** This project will cater for both locals and tourists, performing a similar function to the existing Margaret River-Prevelly Shared Path. Phase two of the community consultation process indicated strong support for this connection.	Shire of Augusta Margaret River	Within 5 years
9	Construct a safe walking and cycling facility linking Augusta to the Cape Leeuwin Lighthouse	Planning and feasibility	**Objective:** Shire of Augusta Margaret River to deliver a safe walking and cycling facility (or potentially separate facilities) linking the Augusta townsite to Cape Leeuwin Lighthouse. **Justification:** Leeuwin Road is currently considered too hostile for most people to cycle confidently to the lighthouse. There is significant community support for this connection.	Shire of Augusta Margaret River	Within 5 years
10	Improve/realign sections of the Geographe Bay Shared Path	Planning and feasibility	**Objective:** City of Busselton to progressively upgrade or realign substandard sections of the Geographe Bay Shared Path, potentially commencing with the heavily used section located in Abbey. **Justification:** As one of the subregion's most popular cycling routes, there is scope to upgrade sections of this path to improve both safety and amenity.	City of Busselton	Ongoing
11	Develop a shared path along the Vasse River diversion drain	Planning and feasibility	**Objective:** City of Busselton to work with the Department of Water and Environmental Regulation in assessing the feasibility of developing a shared path along the Vasse River diversion drain. **Justification:** This path would provide an important north-south connection between the Busselton Bypass and Geographe Bay shared paths, and has the potential to greatly improve the visual and social amenity of the local area.	City of Busselton Department of Water and Environmental Regulation	Within 5 years
12	Develop a shared path along the northern side of the Vasse-Wonnerup Wetlands System	Planning and feasibility	**Objective:** City of Busselton to assess the feasibility of constructing a shared path along the northern side of the Vasse-Wonnerup Wetlands System. **Justification:** This path (which is partially complete) will provide a third east-west corridor for walking and cycling in Busselton.	City of Busselton	Within 5 years
13	Assess the viability of a shared path along Causeway Road	Planning and feasibility	**Objective:** City of Busselton to assess the viability of delivering a new shared path parallel to Causeway Road (potentially utilising the former rail embankment). **Justification:** This connection will provide improved cycling access between the Bussell Highway Shared Path and Busselton town centre.	City of Busselton Main Roads PTA	Within 5 years

6.2.2 Developing the secondary network

N°	Action (what?)	Type	Objective (how?) / Justification (why?)	Lead agency (or agencies)	Timeframe
1	Review Leeuwin-Naturaliste's secondary cycling routes and prioritise the delivery of improvement projects	Planning and delivery schedule	**Objective:** City of Busselton and Shire of Augusta Margaret River to review the proposed secondary cycling routes to determine what type of infrastructure is best suited to each corridor. The study must take into consideration a range of factors (including safety, legibility, continuity and accessibility) and should be used as a roadmap for prioritising/funding the transformation of these corridors into attractive cycling routes over the coming years. DoT to provide advice where necessary. **Justification:** Currently many of the subregion's secondary routes are made up of highly inconsistent/ disconnected infrastructure which in addition to being unsafe, has a negative impact on cycling uptake. Providing all-ages cycling infrastructure along busy urban corridors is critical for getting more people cycling for non-recreational purposes.	City of Busselton Shire of Augusta Margaret River DoT	Within 3 years
2	Ensure cycling facilities are included in Margaret River's main street redevelopment	Delivery	**Objective:** The provision of dedicated cycling facilities along this important corridor has the potential to improve safety for cyclists, reduce conflict between different groups of road users and provide a direct and legible connection between many important trip attractors including shops, schools and community facilities. **Justification:** The construction of the Margaret River Perimeter Road (and associated downgrading of Bussell Highway) presents a unique opportunity to better cater for cyclists within Margaret River's town centre.	Shire of Augusta Margaret River DoT	Within 12 months
3	Develop a secondary route along Cape Naturaliste Road	Delivery	**Objective:** City of Busselton to construct a 2.5 km long path along Cape Naturaliste Road linking the Dunsborough Town Centre to Our Lady of the Cape Primary School. **Justification:** Provides an important connection for students as well as residents travelling from north Dunsborough to the centre of town.	City of Busselton DoT	Within 2 years
4	Develop a shared path to Margaret River Education Campus	Delivery	**Objective:** Shire of Augusta Margaret River to construct a shared path along Bussell Highway linking the Margaret River Education Campus to the existing Wallcliffe Road Shared Path. **Justification:** Provides an important connection for students, as well as a commuter route for residents of south Margaret River.	Shire of Augusta Margaret River DoT	Within 12 months

6.2.3 Developing the local network

N°	Action (what?)	Type	Objective (how?) / Justification (why?)	Lead agency (or agencies)	Timeframe
1	Review Leeuwin-Naturaliste's local cycling routes and prioritise the delivery of improvement projects	Planning and delivery schedule	**Objective:** City of Busselton and Shire of Augusta Margaret River to identify and develop a delivery schedule for a series of improvements which enhance the safety, attractiveness and legibility of local cycling routes. **Justification:** Minor improvements to local residential streets and connecting paths have the potential to greatly improve cycling amenity and legibility.	City of Busselton Shire of Augusta Margaret River DoT	Within 5 years
2	Plan for a safe active street pilot project in the Leeuwin-Naturaliste subregion	Planning and design	**Objective:** City of Busselton and Shire of Augusta Margaret River to work with DoT in identifying a suitable corridor in which to trial a safe active street. **Justification:** Going forward it is expected that safe active streets will play an increasingly important role for cycling within residential areas. Safe active streets are local streets that have been modified in a way which makes on-road cycling a safe and attractive experience for people of all ages and experience levels.	City of Busselton Shire of Augusta Margaret River DoT	Within 5 years

6.2.4 Developing tourist trails

N°	Action (what?)	Type	Objective (how?) / Justification (why?)	Lead agency (or agencies)	Timeframe
1	Complete the Wadandi Track between Calgardup Road and Augusta (approximately 37 km)	Delivery	**Objective:** Secure necessary funding and approvals needed to deliver the southern section of the Wadandi Track. **Justification:** The Wadandi Track, when complete, will form the backbone of the subregion's cycling network. There is significant (and growing) community support to see its completion fast-tracked.	Shire of Augusta Margaret River	Ongoing
2	Complete the Wadandi Track between Cowaramup and Vasse (approximately 33 km)	Delivery	**Objective:** Secure necessary funding and approvals needed to deliver the northern section of the Wadandi Track. **Justification:** The Wadandi Track, when complete, will form the backbone of the subregion's cycling network. There is significant (and growing) community support to see its completion fast-tracked.	City of Busselton Shire of Augusta Margaret River	Ongoing
3	Undertake planning for additional rail trails	Planning and feasibility	**Objective:** Work with relevant stakeholders to undertake preliminary planning for potential rail trails linking Busselton to Capel, and Wonnerup to Jarrahwood. **Justification:** Rail trails present a key opportunity to develop inter-town and inter-regional connections for walkers, cyclists and horse-riders.	City of Busselton Shire of Capel PTA DoT	Within 5 years
4	Commence planning for a food and wine trail	Planning and feasibility	**Objective:** Work with local business owners and tour operators in assessing the feasibility of a food and wine cycle trail. Potential locations include the clusters of wineries located north west of Cowaramup (Wilyabrup) and southwest of Margaret River. **Justification:** Unlike some other wine regions, the Leeuwin-Naturaliste subregion is yet to capitalise on the potential of cycle-tourism and its ability to complement the food, wine and hospitality sectors. Currently, access to most producers is via either Caves Road or Bussell Highway, neither of which are conducive to safe cycling due to their high posted speed limits and traffic volumes.	City of Busselton Shire of Augusta Margaret River DoT Tourism WA SWDC	Within 5 years
5	Provide an underpass (or other crossing facility) where the Wadandi Track intersects with Carters Road	Planning, design and construction	**Objective:** Plan, design and construct an underpass where the Wadandi Track crosses Carters Road. **Justification:** Carters Road is currently one of the busiest and most dangerous road crossings on the Wadandi Track. With the growing popularity of mountain biking, it is important that a safer connection between Margaret River townsite and the nearby mountain bike trail heads is provided.	Shire of Augusta Margaret River Main Roads	Within 3 years
6	Formalise a tourist trail linking the Leeuwin-Naturaliste subregion to Nannup	Planning and feasibility	**Objective:** Shire of Augusta Margaret River to work with the Department of Biodiversity, Conservation and Attractions and Shire of Nannup in determining the feasibility of upgrading/sign-posting the series of firebreaks and forestry tracks which link Boranup to Nannup (known informally as the Coast to Nannup Track). **Justification:** The development of this trail has the potential to form part of a wider long-distance cycling loop linking Busselton, Margaret River and Nannup. Taking in the Wadandi Track, Munda Biddi Trail and a future Ruabon-Tutunup rail trail.	Shire of Augusta Margaret River Shire of Nannup Department of Biodiversity, Conservation and Attractions	Within 5 years

6.2.5 Developing road cycling routes

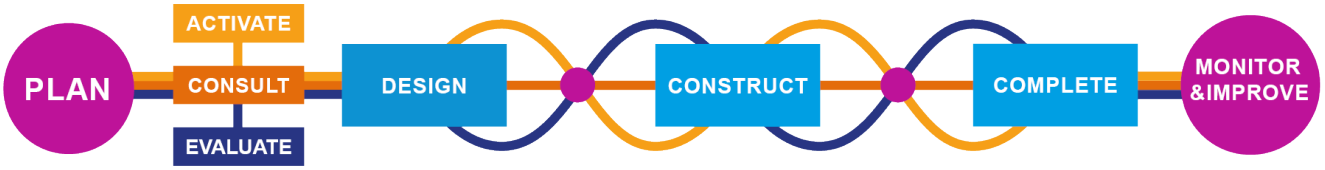
N°	Action (what?)	Type	Objective (how?) / Justification (why?)	Lead agency (or agencies)	Timeframe
1	Identify a series of formalised road cycling routes, both throughout the Leeuwin-Naturaliste subregion and linking to adjoining subregions	Feasibility	**Objective:** Work with the City of Busselton, Road Safety Commission, Main Roads and local cycling clubs to identify road cycling routes which could be formalised and potential safety enhancements to be implemented. This may include shoulder widening (particularly on uphill sections), advisory signage, or more sophisticated measures such as time/day or button activated warning lights. Once these routes have been identified, maps in this strategy will need to be updated accordingly. **Justification:** Road cycling is a popular and growing activity in the Leeuwin-Naturaliste subregion. There are a number of commonly used routes throughout the region, necessitating more specific consultation outside the scope of this strategy.	City of Busselton Shire of Augusta Margaret River Road Safety Commission Main Roads	Within 2 years
2	Improve levels of perceived and actual safety for cyclists using Caves Road	Advocacy and liaison	**Objective:** Work with Main Roads to deliver safer cycling conditions along Caves Road (south of Yallingup). **Justification:** City of Busselton and Shire of Augusta Margaret River recognise there are numerous attractions along this stretch of road which mean it will continue to remain a popular cycling route.	City of Busselton Shire of Augusta Margaret River Main Roads Road Safety Commission	Within 5 years

6.3 Activation, consultation and evaluation (ACE)

This strategy outlines how new cycling infrastructure can support greater participation in cycling in the Leeuwin-Naturaliste subregion. However, planning and building infrastructure in isolation will not necessarily lead to significantly more people riding.

There needs to be an emphasis on creating inclusive infrastructure projects so that the product delivered fully serves the needs of local communities as well as people visiting the region. This can be achieved through a range of engagement and monitoring activities as projects are planned, designed and constructed, and as the infrastructure continues to be used after construction.

Ongoing engagement and evaluation starts by incorporating three essential elements into project delivery; activation, consultation and evaluation. This approach is outlined in the following framework:



Activation includes promotions and programs designed to encourage people onto the infrastructure by raising awareness and appeal. This can be anything from highlighting the new facilities in media releases and creating local maps, to making cycling trips more pleasant through added amenities such as end-of-trip facilities, bike parking, natural landscaping, art works, and other initiatives. Activation can take place throughout all phases of an infrastructure project – starting well before a project is built – and can be temporary (one-off activities), intermittent (such as a monthly group ride) or permanent (such as wayfinding signage).

Consultation is a crucial part of the delivery of inclusive cycling infrastructure to ensure that the facilities meet the needs of users, stakeholders and the local community. Consultation can be undertaken in a variety of formats, and should be informed by a local government's Community Engagement Policy.

Evaluation of the infrastructure is essential to measure the impact it is having, both for people using the infrastructure and for the wider community experiencing the outcomes of increased transport mobility. These outcomes may include better local liveability, improved congestion and parking management, growth in cycle-tourism and increased spending at local businesses. Ongoing monitoring will ensure facilities are well maintained and that the planning and delivery of cycling initiatives undergo continuous improvement.

All three of these elements are inherently linked and some activities will deliver outputs for more than one, such as a community workshop where people are asked to review existing facilities (evaluation), help prioritise new ones (consultation), and participate in the delivery and promotion of new facilities and amenities (activation).

At its core, this approach acknowledges that cycle networks are part of a richer local landscape and should be delivered in an inclusive way that invites participation and supports a range of community outcomes.

6.4 Plan maintenance

Progress on the strategic priorities identified in Section 6.2 will be reported to DoT on an annual basis by local government and other lead agencies.

These priorities will be reviewed every five years to ensure current conditions are reflected and relevant projects are prioritised. This review will include reassessing each route's classification as either existing (adequate), existing (needs improving), or non-existent (proposed) and updating the existing network maps.

The 2050 Leeuwin-Naturaliste cycling network should remain consistent over the medium term. A review of the whole strategy every 8-10 years will allow any new opportunities to be identified and incorporated into a revised document.

APPENDIX A
ROUTE HIERARCHY

A1. ROUTE HIERARCHY SUMMARY

NETWORK PRINCIPLES

The Cycling Network Hierarchy is arranged by route function. The function pertains to the type of activities that take place on the route. A routes' built form is based on the physical characteristics of the location. Each form, apart from those supporting training routes, is designed with the "8 to 80" design philosophy in mind.

1 PRIMARY ROUTE

Function

Primary routes are high demand corridors that connect to major destinations. They provide high quality, safe, convenient (and where possible uninterrupted) routes that form the spine of the cycle network.

These routes are conducive to medium or long distance commuting/utility, recreational, training and tourism trips.

Form

Primary routes are high quality cycle only or shared paths, located adjacent to major roads, rail corridors, rivers and ocean foreshores.

Where the environment allows, these are in the form of a Principal Shared Path (PSP). A PSP is a fully lit and separated facility. In locations where vehicles have been grade separated the cycle route will also be grade separated. PSPs are to be designed in accordance with the WA Transport Portfolio's PSP Policy.

2 SECONDARY ROUTE

Function

Secondary routes have a lower demand than primary routes, but provide similar levels of quality, safety and convenience.

These routes provide connections between primary routes and major activity centres such as shopping precincts, industrial areas or major health, education, sporting and civic facilities.

Form

Secondary routes can take on a number of forms and are designed to suit the environment in which they are located.

These forms include:

- High quality shared paths;
- Bi-directional protected bike lanes;
- Protected on-road bike lanes; and
- Safe Active Streets (Bicycle Boulevards).

3 LOCAL ROUTE

Function

Local routes are low demand and are predominantly located in local residential areas.

They provide access to higher order routes and local amenities and recreational spaces.

Form

Local routes can take on various forms depending on the environment in which they are located.

These forms include:

- Shared paths;
- Bi-directional protected bike lanes;
- Protected on road bike lanes; and
- Safe Active Streets (Bicycle Boulevards).

In some locations, quiet residential streets incorporating signage and wayfinding may be appropriate for local routes.

COMPLEMENTARY NETWORK

While not all areas will include Road Cycling Routes and Tourist Trails, they play an important part in the overall network. These routes are typically used by smaller and more select user groups for recreational purposes.

ROAD CYCLING ROUTE

Function

Road cycling routes are designated routes for training, sports or recreational cyclists to undertake long distance rides in on-road environments.

Form

Road cycling routes are predominantly located on lower order, rural or semi-rural roads on the outskirts of cities and towns. Sections may follow busier roads, particularly as road cycling routes typically begin and end in built up areas and often follow scenic roads popular with other road users.

These routes support cyclists undertaking challenging longer distance rides by raising awareness and encouraging safe behaviour by all road users.

This is achieved through advisory signage, warning technology and other road safety initiatives.

TOURIST TRAIL

Function

Tourist trails provide long-distance, off-road (predominantly unsealed) riding experiences through natural settings, away from motorised traffic. They often support recreational and tourism trips between regions.

Form

Trails are typically located within underutilised transport and service corridors in rural areas. Due to their relatively gentle gradients, former railways make excellent candidates for trails. Purpose built trails may be constructed to connect existing corridors.

Trails should be constructed from well drained, compacted gravel with supporting infrastructure such as way-finding signage. They can be sealed when they run through towns, busy road crossings or in special circumstances.

Dedicated cycling infrastructure - five typologies of route						
		Primary Routes	Secondary Routes	Local Routes	Tourist Trails	Road Cycling Routes
Type of trips	Commuting	✓	✓	✓	✗	✗
	Utility	✓	✓	✓	✗	✗
	Recreation	✓	✗	✗	✓	✗
	Touring	✓	✗	✗	✓	✓
	Training	✓	✗	✗	✗	✓
Responsible agencies (planning, delivery and support):		Department of Transport Main Roads Public Transport Authority Local Government	Department of Transport Main Roads Local Government	Department of Transport Main Roads Local Government	Department of Biodiversity, Conservation and Attractions Local Government Public Transport Authority Department of Transport Department of Local Government, Sport and Cultural Industries Department of Water and Environmental Regulation LotteryWest Main Roads	Department of Local Government, Sport and Cultural Industries Road Safety Commission Department of Transport Main Roads Local Government
Infrastructure should be designed for:		8 to 80 design philosophy	8 to 80 design philosophy	8 to 80 design philosophy	8 to 80 design philosophy	Confident cyclists

Other supporting cycling infrastructure – footpaths	
Footpaths	Since April 2016 all cyclists, irrespective of age, are permitted to ride on footpaths in WA (unless otherwise signposted). Footpaths support low speed, low-volume cycling, and are particularly important for young and inexperienced user groups. However there are some reasons why people choose to not ride on footpaths. These include: - Speed: Footpaths are rarely afforded priority across intersecting side roads, riding on footpaths is slow, and stop-start. The geometric design of footpaths at many intersections often results in cyclists needing to deviate from their intended desire lines. - Ride quality: As footpaths are typically constructed from concrete slabs or bricks, the ride quality is lower than that of parallel roadways, or purpose-built (asphalt) shared paths. - Blind driveways: Riding on footpaths can be dangerous, particularly on streets which contain large numbers of driveways. At walking speed this isn't normally a problem however for cyclists it is often impossible to see reversing vehicles until the last minute, particularly where paths butt-up against property boundaries. Despite footpaths not forming part of the official cycling network, it is important that developers and local governments design, construct and maintain footpaths that provide a safe alternative for people who prefer to ride at low speeds and away from motorised traffic.

Figure A.1 Poor ride quality, parked vehicles, blind driveways and unfavourable intersection designs make riding on footpaths unattractive for some people.

Other supporting cycling infrastructure – roads without dedicated cycling infrastructure	
Roads without dedicated cycling facilities	Cyclists are, and will continue to remain, legitimate users of all roads in WA (with the exception of freeways and controlled access highways). It is important to remember that roads without purpose-built cycling facilities serve an important function for some cycling journeys. Wayfinding signage can be a valuable tool to direct cyclists (particularly novice cyclists) to the most suitable streets or corridors.

APPENDIX B
DESKTOP ANALYSIS SUMMARY

B1. ANALYSIS OF PEDESTRIAN AND CYCLIST CRASH DATA (2013-2017)

B1.1 City Of Busselton crash analysis

A breakdown of pedestrian and cyclist crashes by severity in the City of Busselton is provided in Figure B.1. The key findings from the crash data are as follows:

- Two fatal crashes involving cyclists were recorded in the five years to 2017.
- There were six crashes where cyclists required hospitalisation and a further 14 where cyclists required medical treatment.
- In general, cyclists have been involved in more recorded crashes than pedestrians. However, there have been more severe crashes involving pedestrians (with eight hospitalisations).
- Most crashes have occurred in Busselton town and surrounds which is to be expected given the area's high population density.
- Bussell Highway through Busselton was noted as being a hotspot for cyclist crashes, with eight crashes occurring in the five-year period to 2017, six of which required hospitalisation or medical treatment.
- Another hotspot was the Busselton town centre (and in particular, Queen Street).
- There were two crashes involving cyclists along Caves Road between Busselton and Dunsborough in the five years to 2017, with a further fatal crash involving a pedestrian on Caves Road in Dunsborough.

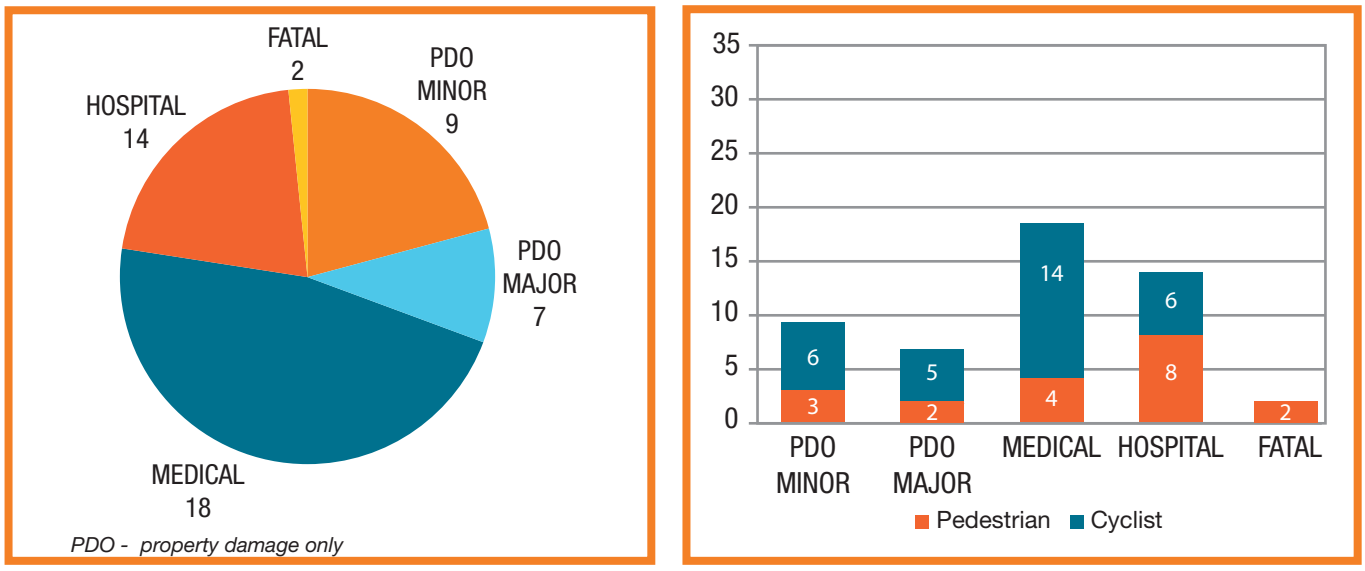


Figure B.1 City of Busselton cyclist and pedestrian crashes by severity (2013-2017).

B1.2 Shire of Augusta Margaret River crash analysis

A breakdown of pedestrian and cyclist crashes by severity in the Shire of Augusta Margaret River is provided in Figure B.2. No property damage major incidents were recorded, with the following key points noted:

- The majority of pedestrian and cyclist crashes occurred in the town of Margaret River.
- There was one fatal cyclist injury recorded in the five-year period to 2017, which occurred on Bussell Highway in Margaret River itself.
- There were two reported crashes where cyclists required hospitalisation and a further two where medical assistance was required.

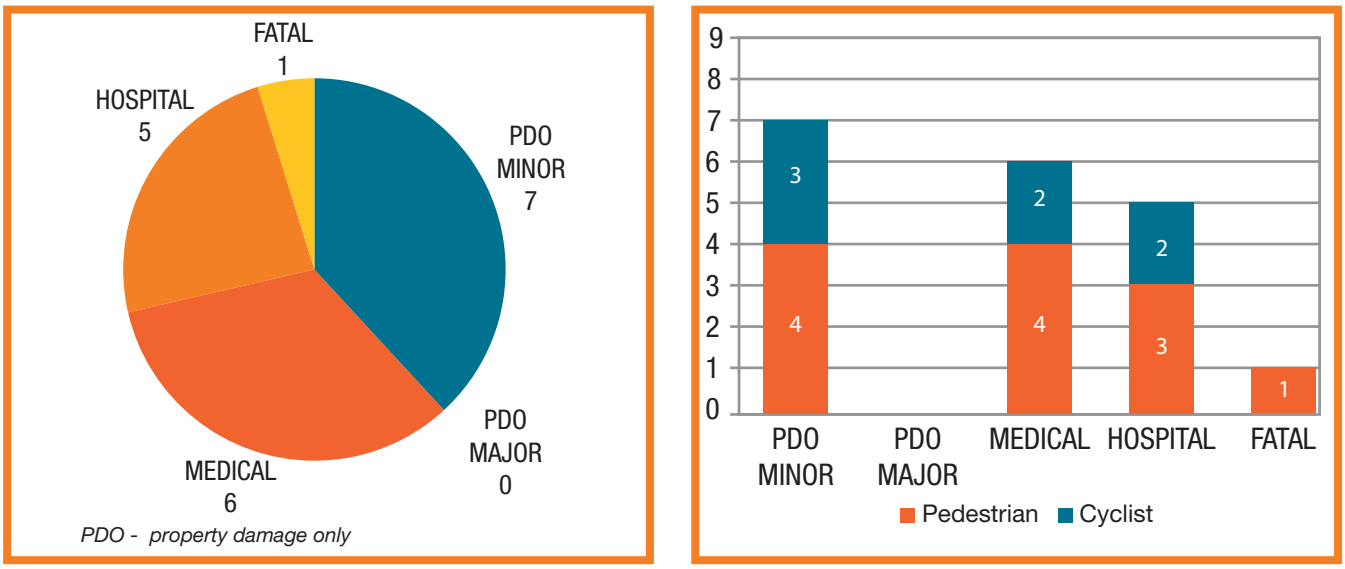


Figure B.2 Shire of Augusta Margaret River cyclist and pedestrian crashes by severity (2013-2017).

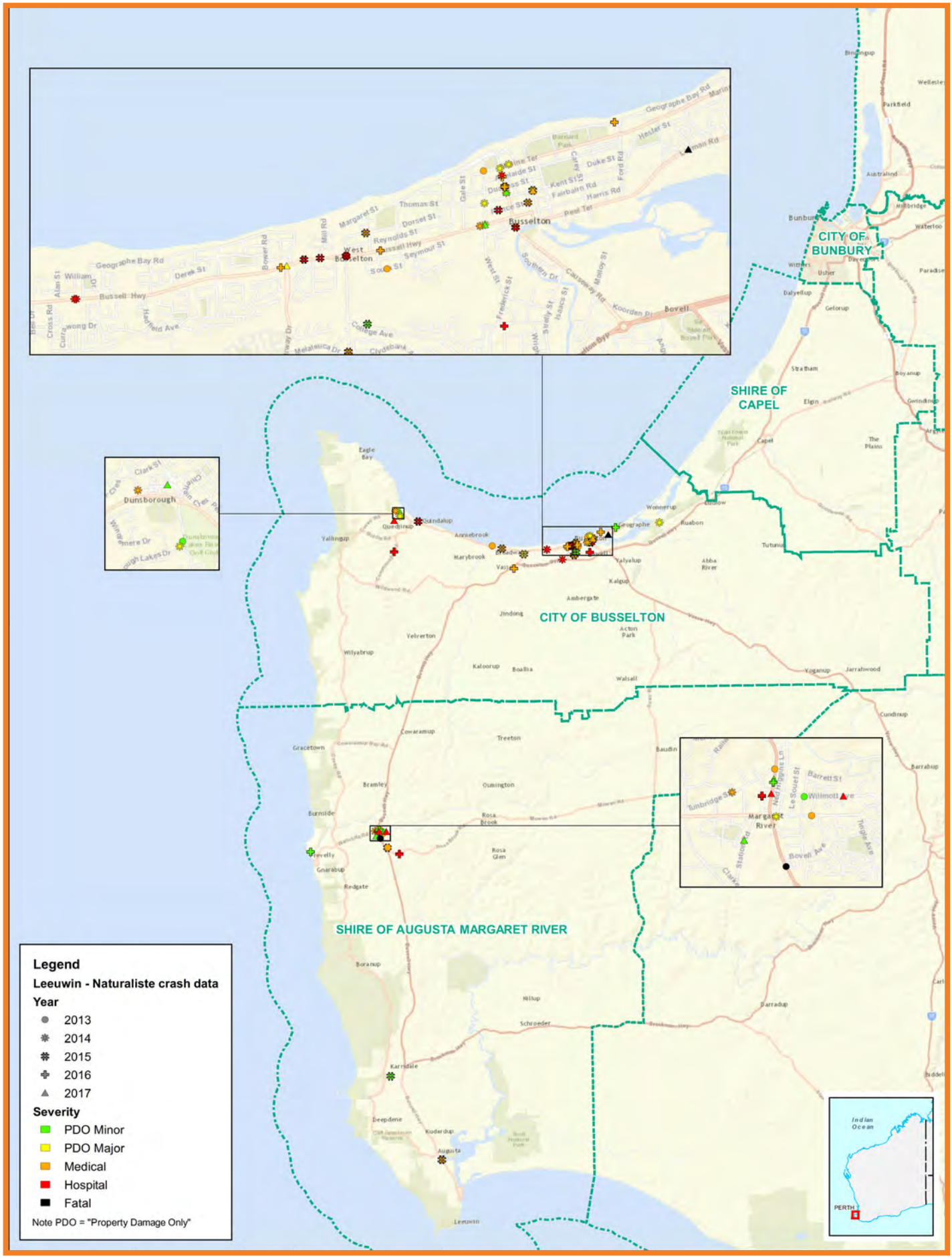


Figure B.3 Leeuwin-Naturaliste pedestrian and cyclist crashes by severity and year (2013-2017).

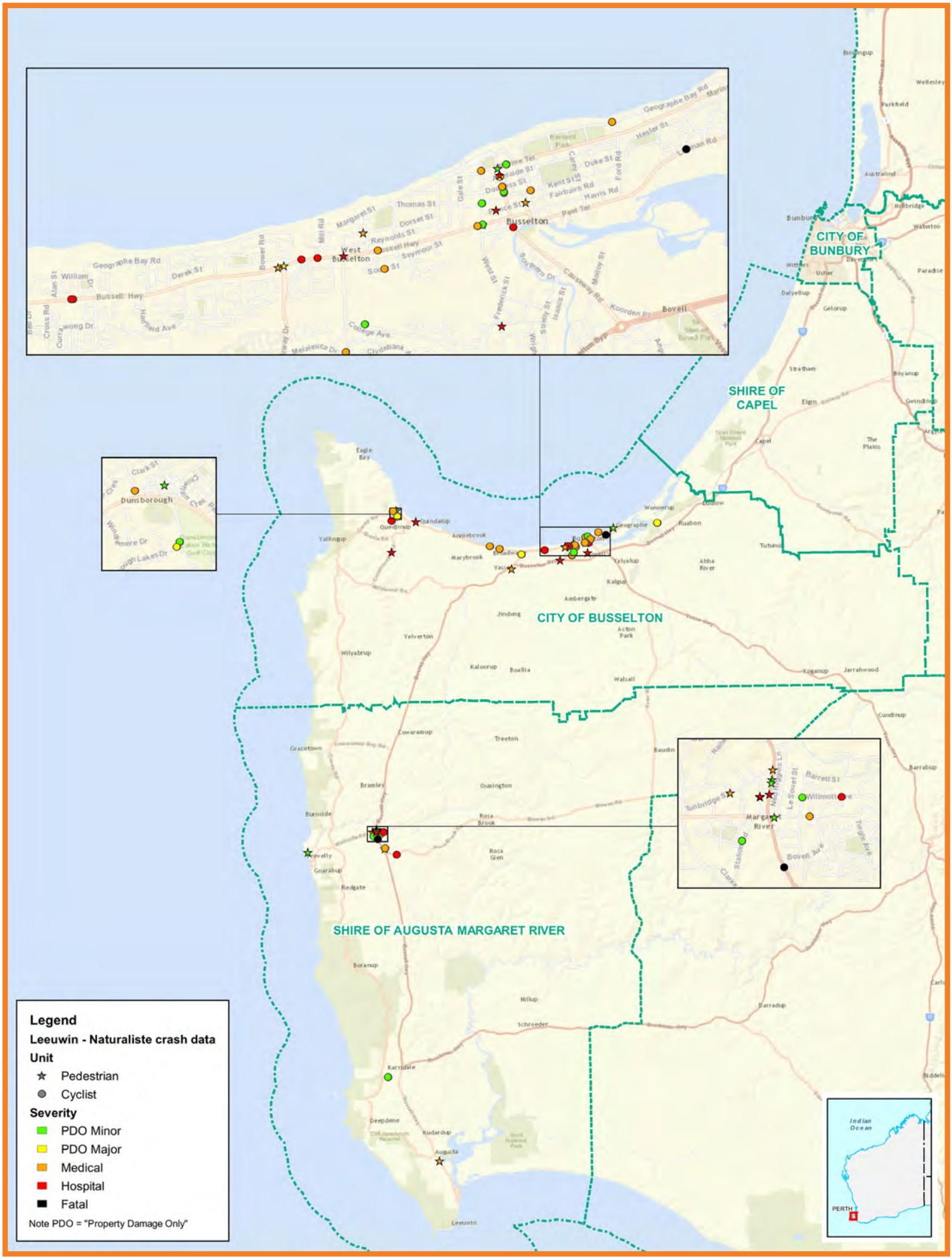


Figure B.4 Leeuwin-Naturaliste pedestrian and cyclist crashes by severity and type (2013-2017).

B2. ANALYSIS OF GPS TRAVEL DATA

The GPS mapping tool, Strava Labs, was employed to better understand which parts of the Leeuwin-Naturaliste's road and path networks are most heavily utilised by cyclists. Strava is a website and mobile app used to track athletic activity via GPS. Despite the usefulness of this information, it should be noted that GPS travel data is typically representative of people who cycle for training or high-intensity recreational purposes.

B2.1 City of Busselton GPS Travel Data

The heat maps for the City of Busselton are shown in Figure B.5 and Figure B.6. The key points to note from this data are:

- the existing Geographe Bay Shared Path linking Busselton and Dunsborough experiences high levels of patronage;
- very few people are prepared to cycle on Bussell Highway south of Vasse;
- the roads in the Busselton and Dunsborough CBDs are heavily used by cyclists, suggesting that many cycling trips are made for non-recreational purposes; and
- there are a number of popular on-road cycling routes including:
  - Busselton to Ludlow and Peppermint Grove Beach (via Tuart Drive);
  - Dunsborough to Eagle Bay and Cape Naturaliste (via Cape Naturalist Road);
  - Sues Road; and
  - Various semi-rural roads loaded to the east of Yallingup.

Figure B.5 2016 GPS heatmap for Busselton urban area.

Figure B.6 2016 GPS heatmap for City of Busselton.

B2.2 Shire of Augusta Margaret River GPS Travel Data

The heat maps for the Shire of Augusta Margaret River are shown in Figure B.7 and Figure B.8. These maps indicate that:

- the high-quality shared path linking Margaret River and Prevelly is well utilised;
- Caves Road is a popular route for cyclists despite its high speed limit (however it is noted that this data could be skewed by cycling events which sometimes take place on this section of road);
- Leeuwin Road linking Augusta the Cape Leeuwin Lighthouse is popular with cyclists;
- the popularity of the mountain bike trails around Margaret River is clear, as well as The Pines, 10 Mile Brook and Darch Road trails;
- despite its high speed limit and dangerous corners Carters Road is very popular with cyclists, being the most direct way for people to access the mountain biking trails located to the north west of the Margaret River townsite;
- the walking trail to the south of Carters Road is also popular, which is known to cause some conflict with bushwalkers;
- within Margaret River townsite the most popular cycling routes include Bussell Highway, Boodjidup Road, Rosa Brook Road and Wallcliffe Road; and
- the completed section of the Wadandi Track is also very popular (particularly the section between Margaret River and Cowaramup).

Figure B.7 2016 GPS heat map for Shire of Augusta Margaret River.

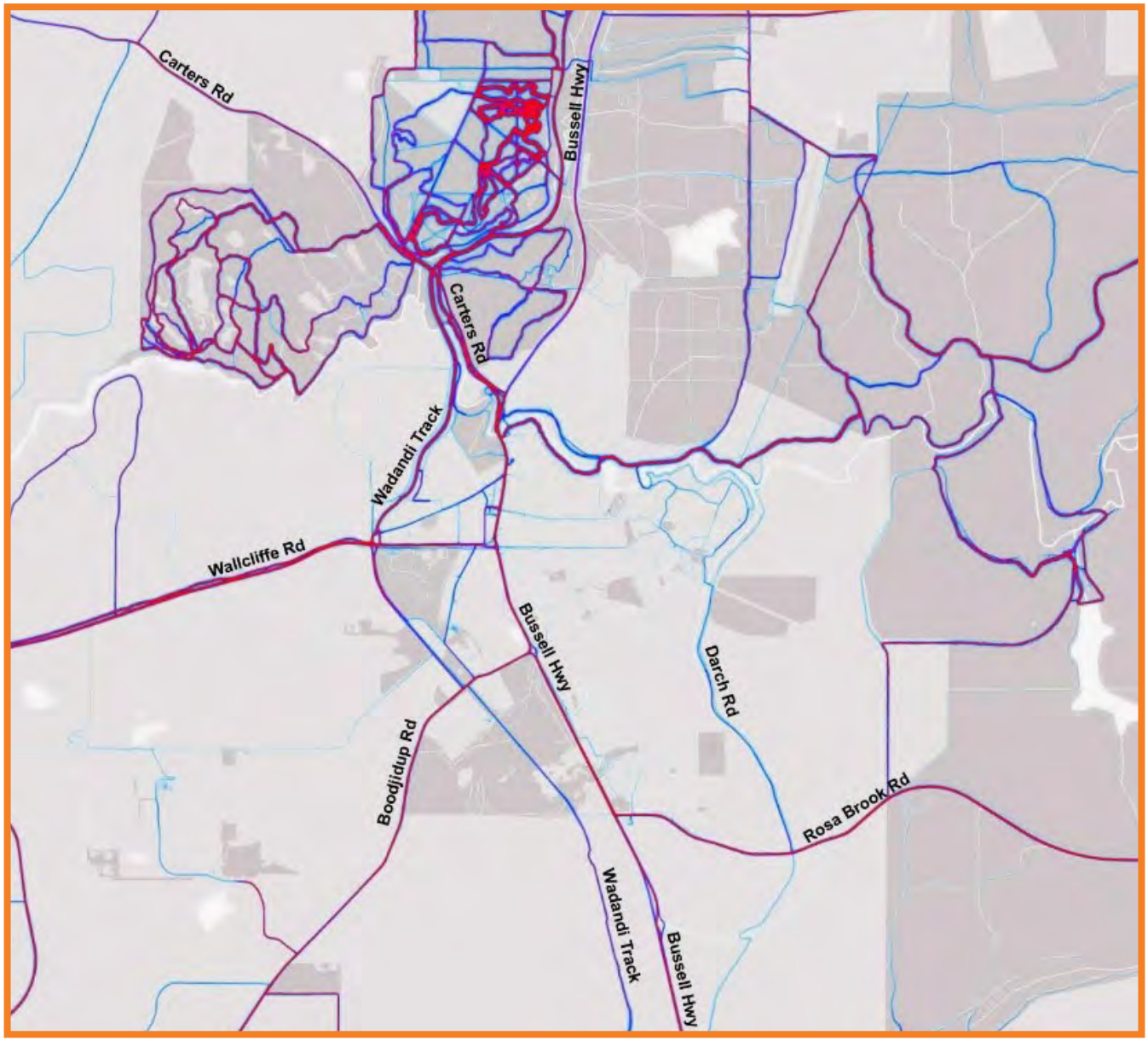


Figure B.8 2016 GPS heat map for Margaret River townsite.

B3. DOCUMENT REVIEW

A number of documents have been considered as part of the background review undertaken to develop this strategy. This includes, but is not limited to the following:

- Augusta Margaret River Local Planning Strategy (2015)
- Austroads National Cycling Strategy (2010)
- Busselton to Flinders Bay Rail Trail Development Plan (2013)
- City of Busselton Draft Local Planning Strategy (2016)
- Cycling Aspects of Austroads Guides (2017)
- Draft Leeuwin-Naturaliste Subregional Strategy (2017)
- Future Busselton 2050 – Strategic Growth Scenarios (no date)
- Margaret River Super Town – Townsite Growth Plan (2012)
- Our Bike Path 2014 – 2020 (2014)
- Shire of Busselton Bike Plan (2010)
- South West Mountain Bike Master Plan (2015)
- South West Regional Blue Print (2014)
- South West Regional Planning and Infrastructure Framework (2015)
- Western Australian Mountain Bike Strategy 2015-2020 (2015)
- WA Bicycle Network Plan 2014-2031 (2014)
- Western Australian Cycle Tourism Strategy (2018)

APPENDIX C
COMMUNITY CONSULTATION SUMMARY

C1. PHASE ONE (DROP-IN SESSIONS)

In April 2017, four community consultation drop-in sessions were undertaken in the Leeuwin-Naturaliste subregion including two in the City of Busselton and two in Shire of Augusta Margaret River. The sessions were promoted through online and print media, with assistance from the two local governments and the SWDC. Several cycling groups and bike shops were also contacted and asked to promote the drop-in sessions through their internal networks. Approximately 40 people attended the two sessions in Busselton, with around 50 in Margaret River.

The sessions involved talking with community members in an informal, roundtable setting. Participants were encouraged to highlight routes which they currently made on bike as well as ideas they had for expanding or improving the existing network. Feedback was sought on everything from missing local links to inter-regional routes. Examples of these mapping outputs are shown in Figure C.2.

To gain a better understanding of the community's ideas for future cycling routes, the facilitators posed several what if scenarios; emphasising the long-term nature (2050) of the cycling strategy and how significant changes to the built environment are possible over a 30-year period. Participants were also given the opportunity to record what they considered to be the most important small, medium and large scale projects via a prioritisation exercise.

During Phase one members of the public were also given the opportunity to put forward written submissions. This was to ensure that community members who were unable to attend the drop-in sessions could still voice their ideas and opinions, and allow attendees of the drop-in sessions to have further time to structure written responses.

C1.1 City of Busselton consultation

There were several key themes that were evident from Phase one of the community consultation process in the City of Busselton as detailed below:

Linking Dunsborough to Yallingup:
Phase one of the consultation process made it evident that there is strong community support for linking the towns of Dunsborough and Yallingup with cycling infrastructure. Respondents felt the connection was a natural extension of the Geographe Bay Shared Path. The path had support from residents of Busselton, Dunsborough, and Yallingup and was viewed as a key recreational route that would be attractive for both the local community and tourists. Some noted the gradient as being challenging but an alignment away from Caves Road was seen as the most direct and achievable solution.

Completing the Wadandi Track:
Completing the Wadandi Track was mentioned by many of those attending the drop-in sessions. The track was viewed as providing large benefits to the Capes region, both for locals and tourists alike. The priority section for most attendees appeared to be the section between Busselton and Cowaramup. A number of attendees had cycled the existing section (between Cowaramup and Witchcliffe) and firmly believed that a similar result could be achieved further north.

Improve bike parking in Busselton town centre:
A common theme among respondents was that bike parking in Busselton town centre was inadequate. The parking around the jetty was mentioned as being particularly inadequate for the number of visitors in peak holiday periods. A common response was that bike parking is a measure that could be provided at low cost to improve cycling uptake.

Improve north-south linkages to the Geographe Bay Shared Path:
Many attending the community consultations session noted that the Busselton to Dunsborough cycle path was a great asset but that links to the path could be improved. Connections from and to the town centre were particularly popular as well as links to suburbs to the south and west.

Creating an east-west cycling link along the north side of Broadwater reserve:
This link (which is currently being investigated by the City of Busselton) was suggested by a number of people attending the drop-in sessions. The route was viewed positively and would be particularly attractive for children, providing them with a safe route to get to and from several schools.

Providing cycle lanes in Busselton's town centre:
Community members felt that while links to town were often adequate there remained no safe route through town. The town centre does not currently have any provision for cycling and factors such as on-street parking, volume of tourists and circulating traffic make cycling in Busselton's town centre quite unattractive.

Improve wayfinding to existing cycling routes:
There was a general feeling among those attending the community consultation sessions that, while there is a great deal of high-quality cycling infrastructure, wayfinding is lacking. Areas mentioned were to and from the Busselton to Dunsborough path as well as the Busselton Bypass path.

Adding links to connect existing cycle paths around town sites:
Suggestions included links in the town sites of Busselton and Dunsborough to maximise the benefit of existing cycle paths and enable the community to get to key destinations such as shops and community facilities.

Figure C.1 below shows all suggestions for cycling improvements in the City of Busselton that achieved two or more responses.

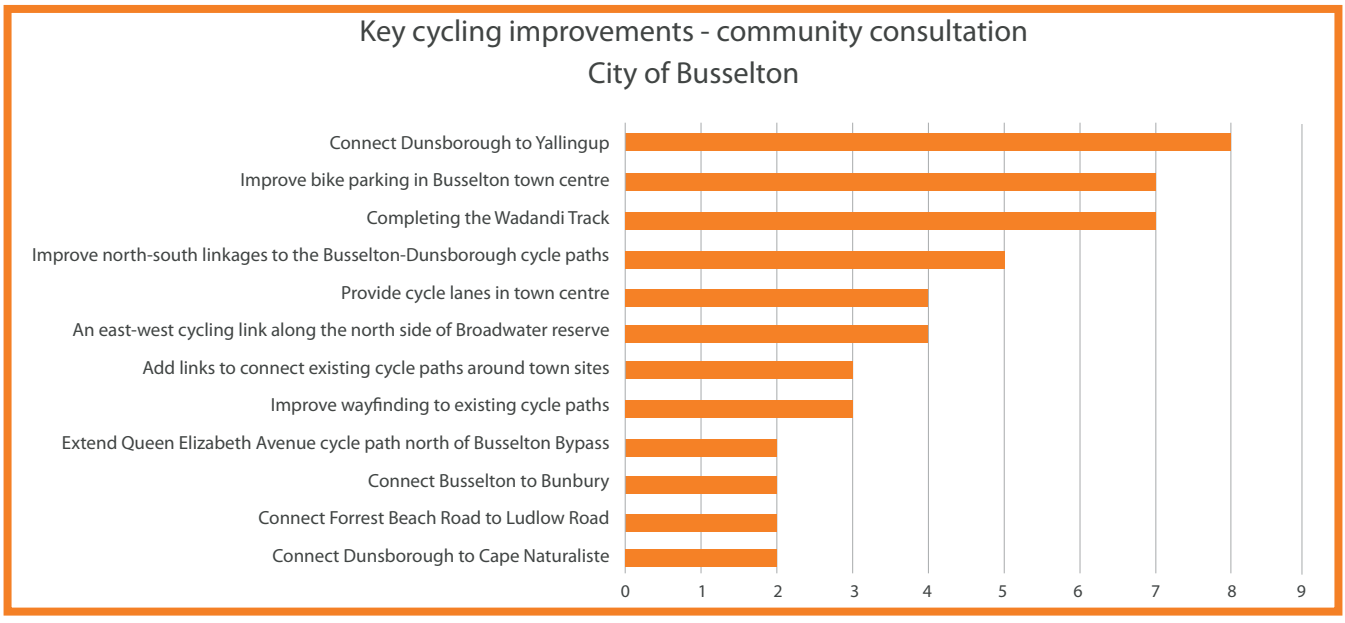


Figure C.1 Cycling issues identified in written submissions during Phase one of the community consultation process (categorised by number of times mentioned).

Figure C.2 Example of mapping output generated by community members at the City of Busselton drop-in session.

C1.2 Shire of Augusta Margaret River consultation

The most popular suggestions from the Shire of Augusta Margaret River drop-in sessions were as follows:

Completing the Wadandi Track:
A desire to see the Wadandi Track completed was common to both the City of Busselton and the Shire of Augusta Margaret River's drop-in sessions. The community were positive about the current connection to Cowaramup but there was interest in extending the track the full length to maximise its potential (north to Busselton and south to Augusta). Several of those attending the sessions felt the tracks potential could also be better leveraged by improving links to and from nearby towns and wineries.

Linking Cowaramup to Gracetown:
A link from Cowaramup to Gracetown had a lot of support amongst those attending the drop-in sessions. This was viewed as an important connection from the Wadandi Track and would serve a similar function to the existing Margaret River-Prevelly Shared Path.

Provide protected cycling lanes through Margaret River's town centre:
Many residents attending the drop-in sessions felt that the current layout of the main street in Margaret River was not conducive to cycling, especially during peak holiday periods. This view was shared by cyclists and motorists, with the bypass seen as an opportunity to improve cycling in the main street.

Improving cycling safety along Carters Road to mountain bike trail heads:
There was strong representation from local mountain bikers who wanted a safe way to get to and from The Pines and Compartment 10 mountain bike trail heads, from the town centre, Rotary Park, the Old Settlement and the existing trails to the east of Bussell Highway. Existing conditions along Carters Road were considered by many as being dangerous due to the road's 80 km/h speed limit and poor sightlines. Further, bushwalkers attending the sessions were concerned about the increasing numbers of mountain bikes using the walking trails located on the southern side of Carters Road, and the potential for conflict between user groups.

Develop longer cycling routes to key destinations:
There was enthusiasm for the creation of longer cycling routes/loops to key destinations around the Shire of Augusta Margaret River including towns, wineries, beaches and other key destinations. Given that Margaret River is a popular holiday destination there was also a suggestion to link up caravan parks to provide safe touring routes for visitors and to encourage cycling over driving.

Deliver improved signage and wayfinding:
The community session highlighted a lack of signage in Margaret River as a weakness that could easily be addressed. This could help both local residents and tourists to access town, the Wadandi Track and mountain bike trails (given their increasing popularity). Signage on biking etiquette was also suggested to limit the conflicts between pedestrians and cyclists promoting shared paths and trails.

Improve links to mountain bike trails:
There was a great deal of support for mountain biking amongst those attending the drop-in sessions. Popular links to trails included connections between the Wadandi Track, Rotary Park and South Carters. The walking track to the south of Carters Road is also very popular with mountain bikers, which created tension with some bushwalkers due to it being a narrow track with many blind corners.

Establishing cycle paths along the coast:
Feedback received from the community indicated that there are currently very few cycling opportunities along the coast. Suggestions ranged from smaller scale projects such as a coastal path connection between Prevelly and Gnarabup beaches to a full equivalent of the Cape to Cape Track for cyclists. However, there was an acknowledgement that not all areas would be suitable due to environmental and geographical factors.

Figure C.3 below shows all written suggestions submitted for improvements in the Shire of Augusta Margaret River which achieved two or more responses.

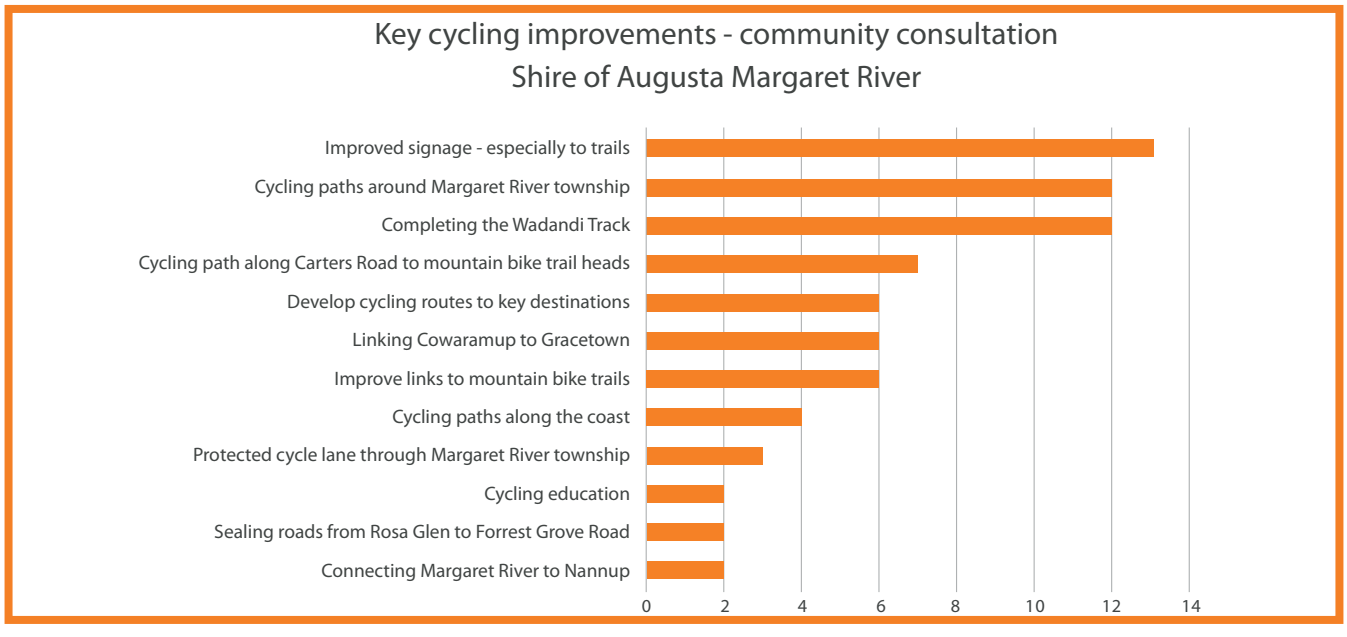


Figure C.3 Cycling issues identified in written submissions during Phase one of the community consultation process (categorised by number of times mentioned).

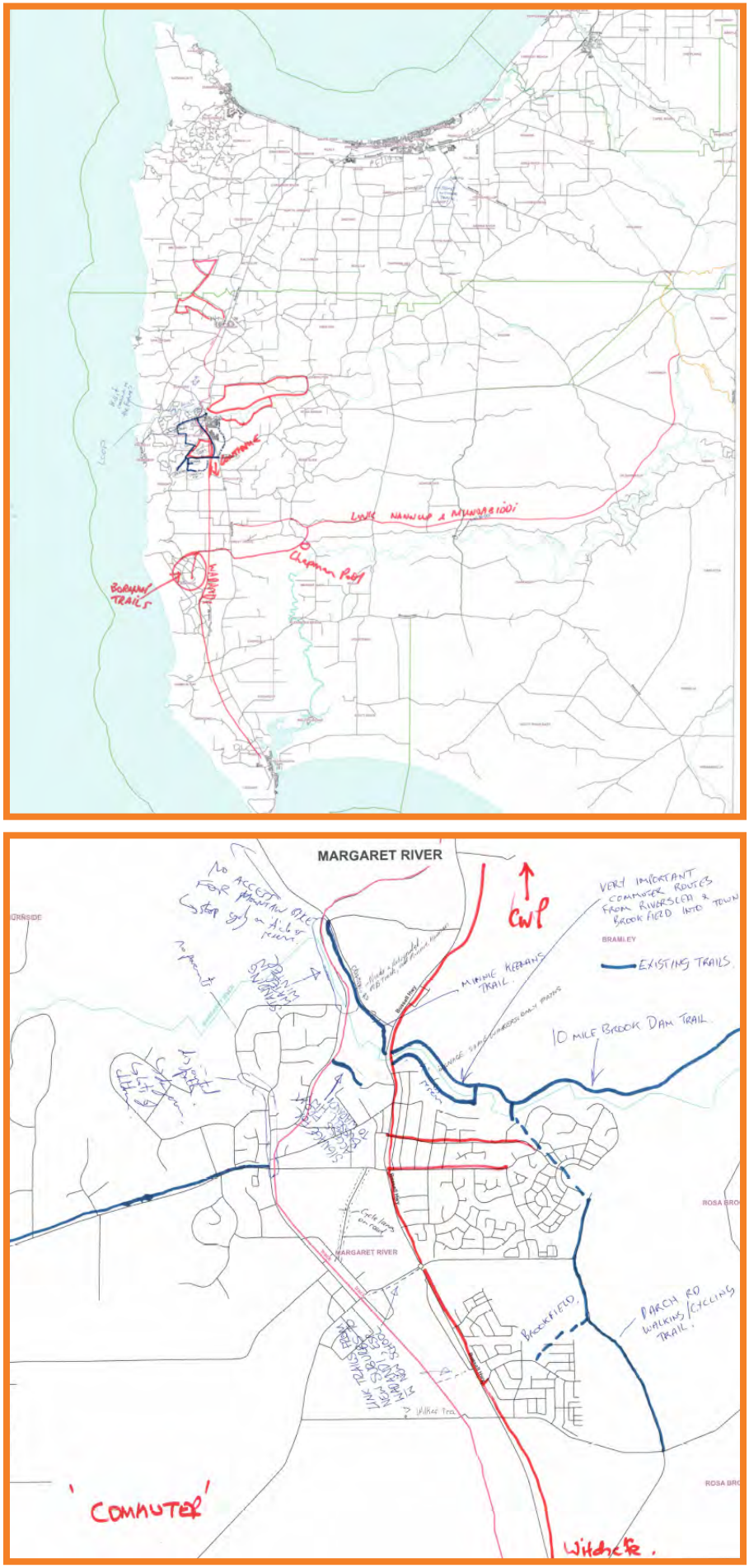


Figure C.4 Example of mapping output generated by community members at the City of Busselton drop-in session.

C2. PHASE TWO (PUBLIC COMMENT PERIOD)

Local community members and key stakeholders were invited to provide feedback on the draft *Leeuwin-Naturaliste 2050 Cycling Strategy* over a three-week period commencing on 19 March 2018. The draft document was made available online, hosted on both the City of Busselton and Shire of Augusta Margaret River YourSay websites and promoted through online and print media channels.

A total of 175 submissions were received which were grouped into 40 "themes". These themes are summarised in Table C.1, in order of the frequency with which they arose in the submissions.

Table C.1 Summary of community consultation themes.

Community consultation theme	Response
Upgrade/widen the coastal trail linking Dunsborough to Eagle Bay/ Cape Naturaliste to cater for bike riders. Many respondents consider Naturaliste Road too dangerous/hilly and strongly believe that a coastal option be developed instead	While it is noted there is considerable support for the development of an off-road coastal cycling route linking Dunsborough and Cape Naturaliste, the City of Busselton cannot endorse its inclusion in the strategy at this point in time due to conflicts with the *Meelup Regional Park Management Plan.* DoT support the reconsideration of this concept in the next version of the strategy.
Complete the Wadandi Track. Consider upgrading/sealing heavily used sections	The City of Busselton and Shire of Augusta Margaret River appreciate how many parts of the community would like to see the Wadandi Track's completion fast tracked, noting that this route will form the spine of the Leeuwin-Naturaliste subregion's ultimate cycling network. - The short-term priority is to complete the track (in gravel) between Busselton and Augusta. - The medium-term priority is to consider sealing heavily used sections through towns. - The long-term priority is to consider sealing heavily used inter-town sections (such as Margaret River - Cowaramup), taking care not to undermine the natural experience afforded by the track.
Consider developing formalised routes for road cyclists (sealed shoulders, advisory signage, flashing lights, etc.) as this is a large and growing demographic in the Leeuwin-Naturaliste subregion A route extending from Dunsborough to the Yallingup Hills was mentioned by several respondents, including local cycling clubs	DoT, the City of Busselton and Shire of Augusta Margaret River are supportive of making improvements to popular on-road cycling routes in a sustainable manner which addresses the uniqueness of the individual sites/roads while limiting environmental impacts. Support from Main Roads in reducing speed limits on certain roads will be critical for maximising safety opportunities. The action plan mentions the need to undertake a feasibility study regarding potential road cycling routes, working with Main Roads, the Road Safety Commission and local cycling clubs.
Support for developing a shared path linking Cowaramup to Gracetown (similar to that linking Margaret River to Prevelly/Gnarabup)	While the Shire of Augusta Margaret River supports this idea in principle, finding a suitable alignment may prove challenging. The Shire of Augusta Margaret River will liaise with National Trust WA and LandCorp regarding potential land access requirements and funding opportunities. The action plan mentions the need to undertake a planning/feasibility study regarding a potential cycling link between Cowaramup and Gracetown.
Support for Dunsborough-Yallingup shared path connection	Primary route already included in strategy along Caves Road.

Support for food and wine tourism - creating paths/trails which link clusters of wineries together. Developing spur trails linking wineries to the Wadandi Track will help facilitate this	The City of Busselton and Shire of Augusta Margaret River agree that the Wadandi Track's completion will help accelerate food and wine cycle-tourism throughout the subregion. In addition to the potential Wilyabrup loop mentioned in Section 4.7.1, another potential food and wine trail has been identified which links together the cluster of wineries located to the south west of Margaret River. Consultation and collaboration with local business owners and tour operators will be essential to realising these facilities.
Ensure the strategy considers the needs of the horse-riding community (new trails should be multi-use wherever possible)	Supported in principle but subject to identifying a suitable surface which will not be eroded by horses, as well as an appropriate design standard and code of conduct. Separate bridle facilities to be considered in high conflict areas. Commentary outlining how tourist trails can cater for horse riders when planned/ designed appropriately has been included in Section 2.4.
Improve the safety of cyclists using Caves Road (especially between Yallingup and Karridale)	The City of Busselton and Shire of Augusta Margaret River note that there are numerous attractions along this stretch of road and that it will remain a popular cycling route. Main Roads has advised that it proposes to conduct a planning study (and form a community reference group) to investigate safety improvements to Caves Road (south of Yallingup). Sealing of shoulders has been suggested as a possible outcome. The need for both local governments to work with Main Roads on the planning study is noted in the action plan.
Ensure that new or upgraded cycling infrastructure does not impact negatively on the region's natural beauty or environment	Noted. This is mentioned throughout the strategy.
Additional connection along Caves Road from Elmore Road to Toby Inlet footbridge (existing coastal path is of no use to Quindalup Residents living on southern side of Toby Inlet)	The City of Busselton supports the inclusion of this within the strategy (already included as part of aspirational 2050 cycling network) noting that it will also provide access to the 'Escape Fun Park'. The delivery of this will largely be reliant on the construction of the Vasse-Dunsborough Link and de-proclamation of Caves Road.
Support for formalising the trail linking Boranup and Nannup. Forms an important link between Munda Biddi Trail and Capes region	Noted. Already included as part of the aspirational 2050 cycling network.
Link Dunsborough to Simmo's Ice Cream via Commonage Road	The City of Busselton support this inclusion and it is already identified in the future network. It may be possible to deliver this away from Commonage Road as part of a nearby subdivision.
Concerns about "sports cyclist" terminology	Terminology has been updated throughout the strategy to road cyclists. This change is supported by local cycling groups and WestCycle.
Concerns about "8 to 80" terminology	This terminology has been retained but explained more clearly to clarify this is a design philosophy rather than a user group.
Support for creating a safe walking and cycling link between Augusta and Cape Leeuwin Lighthouse	A Cape Leeuwin Lighthouse connection is already included as part of the aspirational 2050 cycling network. Maps have been updated to include Town Jetty, Colourpatch and Augusta Boat Harbour as key attractions.
Link E21 and E25 routes together in West Busselton, potentially along Pennyworth Ramble	This is beyond the scope of this strategy. The City of Busselton to consider rationalising the number of paths and linkages to/along the Busselton Bypass.
Concerns about "training route" terminology	Terminology has been updated throughout the strategy to road cyclists. This change is supported by local cycling groups and WestCycle.
Questions about rationale for defining "primary routes" and "tourist trails" in some situations	Where a primary route and tourist trail follow the same alignment, a primary route would be shown on the map.
Support for Busselton-Nannup connection (Ruabon-Tutunup rail corridor)	Noted. No action required.
Happy that e-bikes are considered in this strategy	Noted. No action required.
Support for Margaret River recreational loop	Noted. No action required.

Support for Busselton-Bunbury connection	Noted. No action required.
Widen/seal cape-to-cape track between Yallingup and Sugarloaf, enabling high-quality coastal loop path between Dunsborough, Cape Naturaliste and Yallingup	City of Busselton advises this is unlikely to be feasible in short-term due to conflicts with Cape to Cape policy and *Meelup Regional Park Management Plan.*
Improve cycling facilities along West Street, Busselton	Already captured in strategy. No action required.
Improve cycling facilities along Queen Street, Busselton	Already captured in strategy. No action required.
Improve cycling facilities along Harris Road, Busselton	Already captured in strategy. No action required.
Improve cycling facilities along Layman Road, Busselton	Already captured in strategy. No action required.
Complete the Busselton recreational loop (linking Layman Road to Bussell Highway shared paths)	Already captured in strategy. No action required.
Create link along Ford Road reserve linking Bovell and Yalyalup communities to the coast	Already captured in strategy. No action required.
Improve cycling facilities along Marine Terrace and/or Geographe Bay Road to cater for faster cyclists	The City of Busselton notes that this road environment does not allow for the inclusion of dedicated cycling infrastructure. Some concessions may be achievable in reducing the speed limit.
Improve cycling facilities along Rendezvous Road, Busselton	Already captured in strategy. No action required.
Improve pedestrian/cyclist safety where Wadandi Track intersects with Carters Road	The Shire of Augusta Margaret River is considering an underpass for this crossing point as outlined in action plan.
Support for traffic calming and signage along quiet residential streets. Trees can also help pacify hoon behaviour	Noted. Additional commentary added to Section 4.5.
Consider new path extending north along Caves Road between Wallcliffe Road and Peirce Road	The Shire of Augusta Margaret River note there is already a trail on the west side from Wallcliffe Road to Onshore Crest which was constructed as part of a subdivision when 10 m road of land was ceded to Main Roads. Shire officers have recently investigated the potential for extension of this trail to Pierce Bridge. Some of the adjoining properties have also ceded 10 m of the land to Main Roads for road widening. However a continuous trail cannot be created unless the remaining properties also cede land for the trail as there is inadequate space and other constraints with the existing road reserve.
Action plan should be reviewed every 5 years (rather than 8-10)	Agreed. Incorrect in draft Strategy and has been updated.
Provide a better connection between Causeway Road and Queen Street	Already captured in strategy. No action required.
Deliver E13 route (King Street)	Already captured in strategy. No action required.
Realign Geographe Bay Shared Path along coast near Siesta Park (rather than Caves Road)	Already captured in strategy. Mentioned in action plan.
Connect Vasse to Middle Earth mountain bike trails along Kaloorup Road	Not supported by the City of Busselton as these trails are currently unsanctioned.
Include more infrastructure around Witchcliffe, including potential connection to Redgate Beach	Additional detail on Witchcliffe has been included in the strategy. The Shire of Augusta Margaret River note that there is a lot of land close to the town centre that is zoned for future residential development. Discussions have been held with the Ecovillage developer about links to the Wadandi Track, which would facilitate walking and cycling to/from Margaret River. A link to Redgate Beach is considered a very long-term objective and has not been included in this version of the strategy.

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