



Corangamite Bicycle Strategy 2006 - 2011

Prepared for



By



TRANSPLAN PTY LTD

Planning and Design

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CORANGAMITE BICYCLE STRATEGY

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CORANGAMITE BICYCLE STRATEGY

Executive Summary

This Bicycle Strategy has been prepared with the overall aim of making *on-road* cycling safer and more convenient within the townsites of the Corangamite Shire. It identifies hazards, barriers and obstacles to cycling, and proposes the means by which these can be eliminated. It is anticipated that, when implemented, the upgraded on-road cycling network will result in an increase in the number of local trips by bicycle and greater safety for cyclists passing through the towns. It is also expected that 'new' cyclists will be attracted to the use of a bicycle for short trips within the townsites.

This strategy deals almost exclusively with on-road cycling – and encompasses a number of techniques for improving the roads to make them safer and more convenient places to ride a bicycle. It is not a pathways plan, nor is it a trails plan. Recreational cycling throughout the shire has been the subject of the Trails Development Plan prepared for the Corangamite Shire in May 2003. The on-road bicycle facility improvements recommended within this bicycle strategy complement those recreational trails set out in the trails plan. In particular, the Trails Development Plan sets out a number of possible trails or path connections between towns.

In a traditional 'bike plan', an examination would be made of the 4 "E's" and the ways in which these combine to increase the use of bicycles:

- **E**ngineering – physical improvements to create a safer cycling environment;
- **E**ducation – programs designed to improve the road sense and behaviour of cyclists and to improve motorist behaviour towards cyclists;
- **E**nforcement – programs directed at both cyclists and other road users to create a safer integration of motor vehicles and cyclists; and
- **E**ncouragement – programs to create greater community awareness of cyclists' needs and stimulate greater use of bicycles.

This bicycle strategy focuses on **E**ngineering (or *infrastructure*) improvements only. It does not purport to encompass the other "E's" traditionally found in bike plans: **E**ncouragement, **E**nforcement and **E**ducation strategies. It is understood that the Corangamite Shire will initiate follow-up action to encompass these other "E's".

Bicycles are widely recognised as the quickest and most efficient mode of transport over short distances in urban areas and in country towns. Bicycles are widely regarded as one of the solutions to reducing traffic congestion and car parking problems. Cycling also provides health benefits. There is substantial evidence that regular aerobic exercise such as cycling is beneficial to general physical and psychological health. In this age when much media attention is on the sedentary lifestyles many people live, and the growing obesity levels of our children, cycling to school and other local destinations can help achieve satisfactory amounts of exercise. A study released during the course of the study found that 78% of men and 67% of women in the Corangamite Shire residents are overweight or obese. The study by the Warrnambool-based Greater Green Triangle University Department of Rural Health called for urgent action, as physical activity levels throughout the Corangamite Shire were low. The direct and indirect cost to the community of one heart attack is \$400,000 – saving a few people from this fate provides an economic reward for society.

The focus then of this strategy is to make cycling safer and more convenient for the residents of the towns of the Corangamite Shire (enabling cycling to become the preferred choice of travel mode within the towns) and for visitors (including cycle tourists).

The project has focussed on bicycle strategy plans for the following townships:

- Camperdown
- Cobden
- Derrinallum
- Lismore
- Noorat
- Skipton
- Simpson
- Terang
- Timboon

The towns of Princetown and Port Campbell were excluded from this bicycle strategy, due to their inclusion in the concurrent study *Coast to Crater Trail Assessment Project*, wherein the need for bicycle routes to and through those towns were considered.



Most towns within Corangamite Shire already have in place on-road bicycle facilities – such as on Camperdown-Lismore Rd in Camperdown.

A major objective of this Bicycle Strategy has been to identify key origins and destinations within each town. Generally, the major origin of bicycle trips are the residential suburbs of the town. The usual destinations (trip attractors) of any town are educational institutions (primary and high schools, and tertiary), recreation centres and recreation reserves, major public transport termini (eg. train stations), commercial areas (shops) and work places.

The maps for each town included in this Bicycle Strategy highlight the major bicycle trip attractors (destinations). The maps identify existing facilities (on and off-road) and trip attractors. The recommended new bicycle facilities are designed to provide an enhanced network linking residential areas and destinations.

Not all roads within each town are suitable for on-road bicycle facilities. Many roads are too narrow, or have particularly low traffic volumes. Roads selected for new on-road facilities have two common characteristics: they are wide enough for on-road bicycle facilities and they connect with one or more destinations that cyclists may travel to.

Enhancing the bicycle network and improving the safety and convenience of cycling involves more than building new facilities. It is often small and inexpensive improvements to existing facilities, and attention to detail, that make a dramatic difference.

Providing quality bicycle parking rails (in appropriate locations) and making the roads safer (such as re-painting bike lane lines and bike lane logos, replacing dangerous drainage grates and removing potholes) are items that make cycling more pleasurable, and provide a better environment for other roadway users.

Priorities should focus on facilities which will do the most to encourage cycling and reduce the number and severity of crashes involving cyclists. In other words, bicycle facilities should be built where there is the greatest potential for increasing use and reducing the number of crashes.

As stated, this Bicycle Strategy has focussed on "on-road" improvements and, in particular, on roads where the majority of cycling currently occurs, will occur or where there is the greatest likelihood of cyclists/motorist interaction. The recommended on-road improvements focus on roads where the greatest concentration of potential cyclist/motorist interaction will occur which, by definition, will be the busiest roads within each town.

In many cases these roads are highways and in most cases there has already been some attempt to make conditions safer for cyclists.

Less time was devoted to an examination of 'back roads' of each of the towns assessed, as generally these were wide roads with little motorised traffic (and consequently minimal potential conflict points between cyclists and motorists). There is little need for installing special bicycle facilities on quiet back roads and resources should be directed to locations where the greatest impact of improved cycling facilities will be experienced.

In particular, it is known that there are some training routes that may need to be appropriately signed and perhaps be incorporated into the plan (i.e. Camperdown, Timboon and Terang). Input from groups in these towns is sought as it is acknowledged that not all roads can be signed as training routes.

Consequently, the majority of the recommended improvements are suggested for the major roads into and through the towns. The majority of these main through roads have a classification designation of either A, B or C and are therefore roads under the jurisdiction of VicRoads. Tasks such as bike lane line marking and bike lane logos are therefore mainly the responsibility of VicRoads as they occur on A, B or C class roads.

The main recommendations of this Bicycle Strategy are:

1. Establish a number of new bike lanes on various roads within, and on the outskirts, of towns.
2. Re-instate the bike lane lines (or edge lines and parking bay lines) on a number of bike routes within the towns, to make them again stand out clearly as bike lanes.
3. Re-paint the faded bike lane logos within the existing bike lanes within the towns, to make them more clearly stand out to all road users.
4. Widen several roads within the towns to enable a bike lanes (or wide sealed shoulder) to be established, for the benefit of cyclists.
5. Provision of bike parking rails at numerous destinations within each town encouraging more people to use a bicycle for local trips (instead of a car).
6. Minor ('spot') improvements (such as repairing road surfaces where appropriate).
7. Widening the shoulders of roads between towns, when these roads are upgraded during routine road improvement programmes.
8. Development of a web-based cycling hazard reporting system to enable cyclists to inform Council staff of deficiencies in the road network that affect the safety and convenience of cycling
9. Initiate action to encompass the other "E's" traditionally found in bike plans:
Encouragement, **E**nforcement and **E**ducation strategies.

The numerous projects highlighted in this strategy have been prioritised and the recommended works schedule has been spread over 5 years.

1.0 Introduction

The Corangamite Shire has commissioned the preparation of this Bicycle Strategy for a number of townships throughout the municipality. The development of a cycling plan has been identified in Council's Recreation Strategy. The Council has recently secured funding from VicRoads to assist in the development of this strategy.

The principal aim of this project is to provide strategic direction about 'on-road' cycling within and surrounding the townships of the Shire. It is believed that through the development of an on road cycling strategy, Council can provide safe cycling options for its community and promote an active and healthy lifestyle.

The objectives of this bicycle strategy are to:

- Provide safe travel alternatives;
- Promote healthy lifestyles within the Shire;
- Improve the infrastructure that the towns have to offer to visitors and residents;
- Provide convenient access for all types of cyclists; and
- Provide the community with an opportunity to have input to this project.

The following matters were also considered in the preparation of this plan:

- Analysis of existing bicycle networks;
- Identification of key routes to link services, trip attractors and important points of access;
- Provide a program of improvement works including cost estimates;
- Identify the order of priority in which improvements works or new works should be undertaken to provide clear direction to Council; and
- A cost estimate for each task.

The objective of the strategy is to focus attention on issues within the townsites which impact on cyclists, or activities, which could encourage the level of cycling activity.

The intent of this plan is to provide some strategic directions to the Corangamite Shire to allow it (and other relevant authorities, such as VicRoads) to provide facilities and conditions, which enhance the cycling environment. Implementation of the strategy should result in greater numbers of residents of, and visitors to, these townsites, riding (with greater safety) for recreation, fitness, tourism and, importantly, functional tasks such as trips to work, school, or other destinations within the towns.

This strategy deals almost exclusively with on-road cycling – and encompasses a number of techniques for improving the roads to make them safer and more convenient places to ride a bicycle. It is not a pathways plan, nor is it a trails plan. Recreational cycling throughout the shire has been the subject of the Trails Development Plan prepared for the Corangamite Shire in May 2003. The on-road bicycle facility improvements recommended within this bicycle strategy complement those recreational trails set out in the trails plan. In particular, the Trails Development Plan sets out a number of possible trails or path connections between towns.

2.0 Objectives of the Bicycle Strategy (Project Brief)

The Project Brief prepared by the Corangamite Shire indicates that the project will comprise:

Stage 1 – Literature review tasks

- To review existing documentation such as the recreation strategy, trails strategy, and township development plans to identify issues specific to cycling.
- To summarise the issues already documented.
- To identify existing on and off road cycling paths/routes.
- To identify other planned works of Council over the next five years.
- To develop a draft plan to be tested during community consultation.

Stage 2 – Consultation and analysis tasks

- To undertake appropriate consultation with schools, community organisations, cycling clubs etc regarding the draft plans to assess the appropriateness of proposed routes. It is acknowledged that consultation will be limited due to budgetary constraints.
- To conduct a general survey across the Shire that is designed to identify any on road cycling issues. It is expected that this would be done through local newspapers
- To analyse the information gained during the consultation process and develop recommendations for works to be undertaken over the next five years.
- To provide a rationale as to why particular works have been identified (e.g. existing route, accident risk etc).

Stage 3 – Infrastructure requirements tasks

- To detail infrastructure requirements and design for each of the proposed infrastructure developments.
- To provide estimated costs for each of the proposed developments.
- To detail the proposed developments for implementation over a five year period.

Stage 4 – Compilation tasks

- To compile the information gained in each stage of the project into a clear and concise report.

Summary of Project Objectives

The various objectives of the proposed strategy, as set out in the consultants brief, are as follows:

- To gain an understanding of the issues associated with on road cycling in and surrounding townships through available information.
- To consult with the community regarding proposed improvements and to identify any other issues that needs to be considered or explored.
- To identify the infrastructure requirements, design and estimated costs of required improvements to be undertaken over a five year period.
- To compile the information gained in each stage of the project into a clear and concise report.

There are several underlying objectives taken into account in the preparation of this Bicycle Strategy for the towns of the Corangamite Shire. It is anticipated that the Strategy will:

- Make cycling safer within the townsites of the Shire (by eliminating hazards, barriers and obstacles);
- Increase the number of cycling trips made by local residents;
- Make cycling more convenient for the residents the towns (enabling cycling to become the preferred choice of travel mode within the towns);
- Make cycling safer on the approaches to, and through, the towns for cycle tourists;
- Increase public awareness of the needs of cyclists (and therefore a greater empathy for those riding bicycles);
- Encourage cycling for health, fitness and recreation; and
- Encourage cycle tourism in the Shire, with the consequent economic benefits accruing to the communities of the Corangamite Shire, which arises from such tourism.

As with any urban area or town, the needs of existing and potential cyclists can be accomplished by:

- Enhancing and upgrading, where necessary, the existing on-road bicycle facility network;
- Establishing new paths and on-road facilities where appropriate;
- Providing links to existing paths;
- Removing barriers, obstacles and deterrents to cycling;
- Providing end-of-trip facilities (ie. bicycle parking rails); and
- Establishing recreational cycling opportunities.

This Bicycle Strategy has examined the opportunities for increasing cycling within the towns of the Corangamite Shire by means of these improvements.

3.0 Methodology

In preparing this Bicycle Strategy for the towns of the Corangamite Shire, the following tasks were undertaken as a means of gathering information, evaluating needs and determining priorities:

Task 1 – Review of Background Information – This task included examining relevant reports prepared for or by the Corangamite Shire and other key stakeholders (such as VicRoads and Bicycle Victoria) which might have an influence on the future provision of bicycle facilities within the Shire.

Task 2 – Prepare Inventory of Existing Facilities – This task included examining the extent of the existing bicycle network, in particular bike lanes and sealed shoulders and bicycle parking facilities within each town. A comprehensive assessment of existing facilities was necessary to be able to determine where new (on-road) bicycle facilities are required.

Task 3 – Prepare Information on Existing Facilities – This task involved collating the information obtained during Tasks 1 and 2 to enable the preparation of plans depicting existing facilities within each town. The plan includes shared paths, footpaths, and any existing trails and informal bicycle routes. Depicting the location of all existing facilities on a plan provides a valuable visual representation to be made, a record or snap shot of facilities available at the time.

Task 4 – Determine Location of Major Trip Attractors – This task included a review of places within each town likely to be major trip attractors for cyclists. Locating these attractors ensures the bicycle network adequately provides access to the attractions, as well as the determination of appropriate bicycle parking facilities. Trip attractors include schools, shops, recreation grounds, public transport facilities (eg. train stations) and various community facilities.

The provision of appropriate facilities to and around land uses likely to attract cyclists is one of the surest ways of encouraging a shift in journeys from cars to bicycles. Importantly, it also provides a safer infrastructure for those who already choose to use a bicycle for their trip to school, the shops, workplaces and other destinations.

Task 5 – Preparation of Recommendations for New Facilities and Improvements – This task included collating all relevant information to enable the preparation of plans which depict locations where specific (or spot) improvements are required, or facilities and links which need to be established (ie. constructed), to ensure the provision of a comprehensive network of bicycle facilities which caters for the range of bicycle users within each town.

The fieldwork undertaken in the preparation of this strategy resulted in a considerable quantity of information needing to be mapped. The preparation of plans enables the various proposals and recommended facilities to be quickly identified.

Task 6 – Preparation of an Engineering Works Schedule – This task included the preparation of detailed schedules of works for the construction of additional components of the bicycle network and all recommended improvements. The schedule includes details of the works required, with recommended priorities. This includes works required on existing on-road facilities to bring them up to a desired standard and safe condition.

Though some preliminary cost estimates are provided, it is expected that the Corangamite Shire will undertake detailed costings of the works at the time of construction of the facility.

It is important that staff and Council of the Corangamite Shire be presented with a detailed, itemised schedule of all the improvements and new facilities required, with a clear indication of which of the proposed projects are the most important. This task enables the preparation of a detailed account all recommended improvements and the level of importance or priority.

Task 7 – Prepare and Submit Draft Bicycle Strategy Report

This task includes the preparation of this report outlining the recommended improvements to the network, including the Engineering Works Schedule.

The Bicycle Strategy report provides amongst other matters information on the importance of planning and providing for cyclists, a rationale for determining priorities, a detailed account of all recommended improvements, a schedule of engineering works and priorities.

Task 8 – Consultation

This task includes consultation with major stakeholders and representatives of groups within the community to gain information on a range of cycling issues, including safety concerns, barriers or obstacles and suggestions for new facilities or improvements.

Comments and suggestions on improving the bicycle network emanating from the community is vital in achieving a network that meets demands, needs and expectations of the community. Facilities need to serve the community, they need to be located where they will be used and where safety and health benefits will accrue because of their construction.

Task 9 - Modification and Final Report

This task involves the preparation of a final report incorporating any modifications required by the Corangamite Shire into the report. The final report also includes revisions deemed necessary as a result of the community review period.

4.0 Planning for Cyclists

4.1 The Benefits of Cycling

Cycling is a cheap and convenient transport option in an urban area, an activity that provides substantial health benefits. The World Health Organisation advises that regular physical activity:

- reduces the risk of dying prematurely
- reduces the risk of dying from heart disease or stroke, which are responsible for one-third of all deaths
- reduces the risk of developing heart disease, colon cancer and type 2 diabetes
- helps to prevent/reduce hypertension, which affects one-fifth of the world's adult population
- helps control weight and lower the risk of becoming obese
- helps to prevent/reduce osteoporosis, reducing the risk of hip fracture in women
- reduces the risk of developing lower back pain can help in the management of painful conditions, like back pain or knee pain
- helps build and maintain healthy bones, muscles, and joints and makes people with chronic, disabling conditions improve their stamina
- promotes psychological well-being, reduces stress, anxiety and depression
- helps prevent or control risky behaviours, especially among children and young people, like tobacco, alcohol or other substance use, unhealthy diet or violence

The significant benefits accruing from the activity should not be underestimated. A recent report prepared for the Commonwealth Department of Health and Aged Care and the Australian Sports Commission's 'Active Australia' program has stated that:

- In 1997 44% of all Australian adults were 'insufficiently active'.
- Physical inactivity contributes to the risk of 8,600 deaths p.a. in Australia. Of these deaths, 1531 occur in people under the age of 70 years and contribute to an estimated 77,603 potential years of life lost because of inactivity.
- The annual direct health care cost attributable to physical inactivity is conservatively estimated at around \$377 million, while indirect costs are much higher.

The bicycle is recognised as being one of the most efficient forms of human transport. It is a transport mode that is available to a wide cross-section of the community.

In comparison to motor vehicles, bicycle travel provides substantial savings for all levels of society. Bicycles do not contribute to noise or air pollution and do not draw on fossil fuel reserves that produce greenhouse gases.

Bicycles are probably the quickest and most efficient mode of transport over short distances in urban areas and in country towns. Bicycles are widely regarded as one of the solutions to reducing traffic congestion and car parking problems. Cycling also provides health benefits. There is substantial evidence that regular aerobic exercise such as cycling is beneficial to general physical and psychological health.

Various studies in Australia have demonstrated that the majority of bicycle trips are for transport purposes, with the average length of a bicycle trip being just over 2 kilometres. Considering that in many cities of Australia around 33% of ALL trips are 3 km or less, the potential for increasing the level of bicycle use for these short trips is enormous. In towns the size of those under investigation, it is reasonable to assume that this percentage would be much higher – most residential areas and trip attractors are within the townsites are within 3 - 5 km of each other. The transference of many of these short distance (car) trips to a bicycle would have significant benefits to the community in terms of improved health, enhanced social contacts, greater independence and health benefits for children riding to the schools or other destinations.

Planning for cyclists attempts to provide for their safe and convenient movement. It seeks to increase mobility for people without access to a car, and to encourage a transfer of journeys from private cars to bicycles. A major aim of this Bicycle Strategy is to increase the level of bicycle use by making all destinations more easily accessible and bicycle travel safer. This can be achieved in a number of ways including the removal of barriers and hazards, the provision of new or improved facilities and by providing suitable end-of-trip facilities such as bicycle parking.

Surveys undertaken in various local government bike plans (prepared by Transplan Pty Ltd – eg. Melville Bike Plan; Fremantle Bike Plan; Western Suburbs Bike Plan – all in WA) show more people would ride a bicycle if more (and better) facilities were provided, if on-road cycling conditions were improved, if traffic conditions were better, if motor vehicle speeds were reduced, and if 'end-of-trip facilities' (such as bike parking) were commonplace.

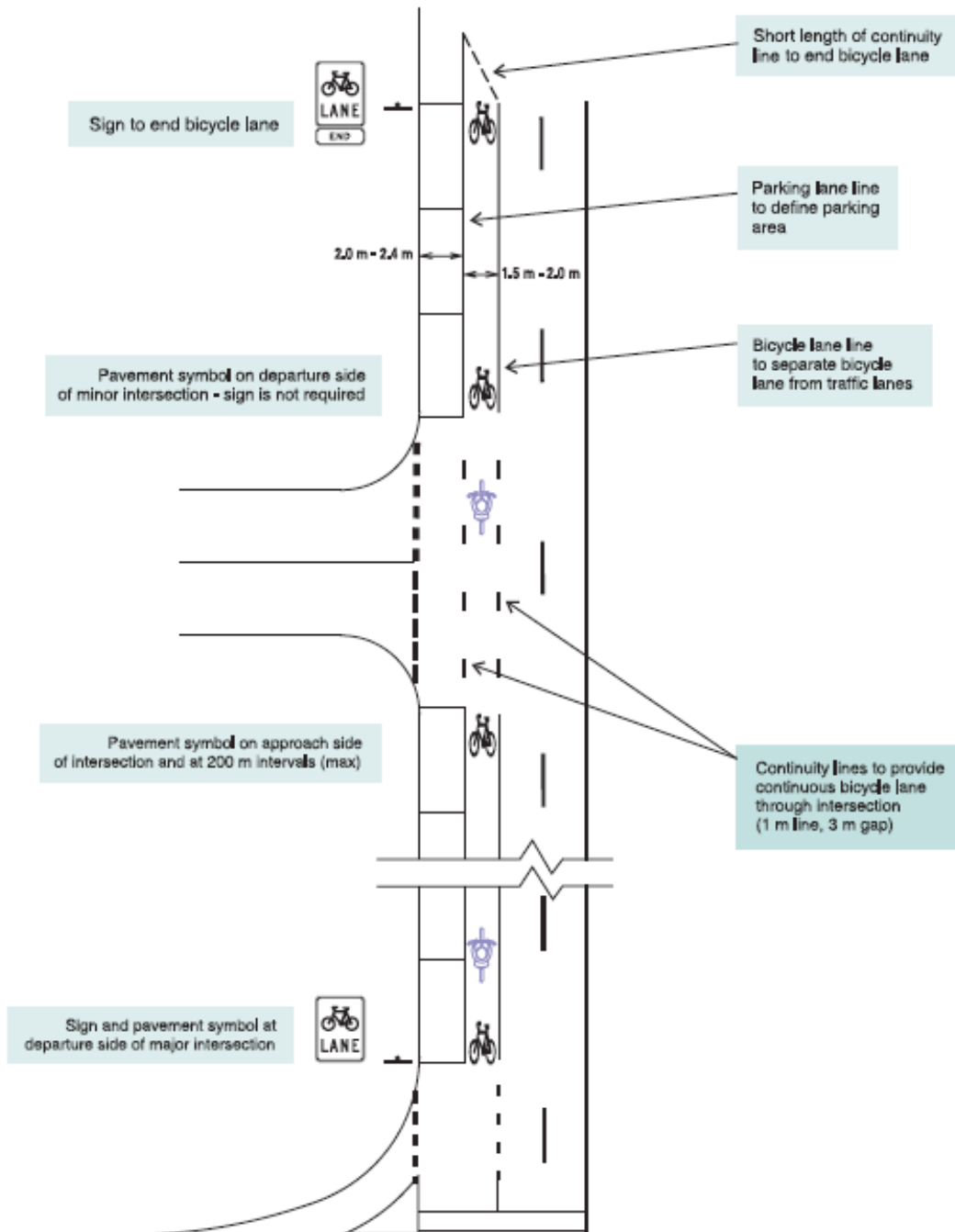
4.2 Typical On-Road Bicycle Facilities

The following series of diagrams illustrate the approved techniques for providing on-road facilities for cyclists.

Signs and Linemarking for On-Road Bicycle Lanes

On-road bicycle lanes are defined by painting two, 100 mm wide, solid white lines each side of the bicycle lane, by painting bicycle logos on the pavement and by installing bicycle lane signs.

The following diagram provides guidance on providing signs and linemarking for an on-road, shared bicycle/parking lane.



For further design details on the lines and bicycle pavement logos, please refer to: Australian Standard: AS 1742.9 - 2000 - Manual of Uniform Traffic Control Devices Part 9: Bicycle Facilities.

Source: Cycle Notes No. 12 - Design Standards for Bicycle Facilities, October 2002

Bicycle Facility Widths

Austrroads Guide to Traffic Engineering Practice Part 14, Bicycles, are the agreed national guidelines for designing bicycle facilities. Designers of bicycle facilities should become familiar with these guidelines. The bicycle lane and path widths provided in this edition of *Cycle Notes* are from the guidelines.

Where a new road is being constructed and there is sufficient space within the road reservation, the "desirable" width of bicycle facility outlined in the

tables should be provided. When bicycle facilities are being retrofitted to an existing road, bicycle facilities should be provided if they fall into the "acceptable range".

On-road bicycle lane widths are measured to the face of kerb. Whilst cyclists generally do not ride in the channel, it is usable clearance space which can be included in the bicycle lane width. However, the channel space is only useful if the joint between the asphalt road surface and the concrete channel is as smooth as possible.

Exclusive Bicycle Lanes and Sealed Shoulders ¹			
	Overall Bicycle Facility Width (m)		
Road Speed (km/h)	60	80	100
Desirable Width (on new roads)	1.5	2.0	2.5
Acceptable Range (when retrofitting to roads)	1.2 - 2.5	1.8 - 2.7	2.0 - 3.0



Shared Parking and Bicycle Lanes ¹		
	Overall Bicycle Facility Width (m)	
Road Speed (km/h)	60	80
Desirable Width (on new roads)	4.0	4.5
Acceptable Range (when retrofitting to roads)	3.7 - 4.5	4.0 - 4.7



Wide Kerbside Lanes ¹		
	Overall Bicycle Facility Width (m)	
Road Speed (km/h)	60	80
Desirable Width (on new roads)	4.2	4.5
Acceptable Range (when retrofitting to roads)	3.7 - 4.5	4.3 - 5.0



Source: VicRoads Cycle Notes No. 7 - On-Road Arterial Bicycle Routes, August 2000

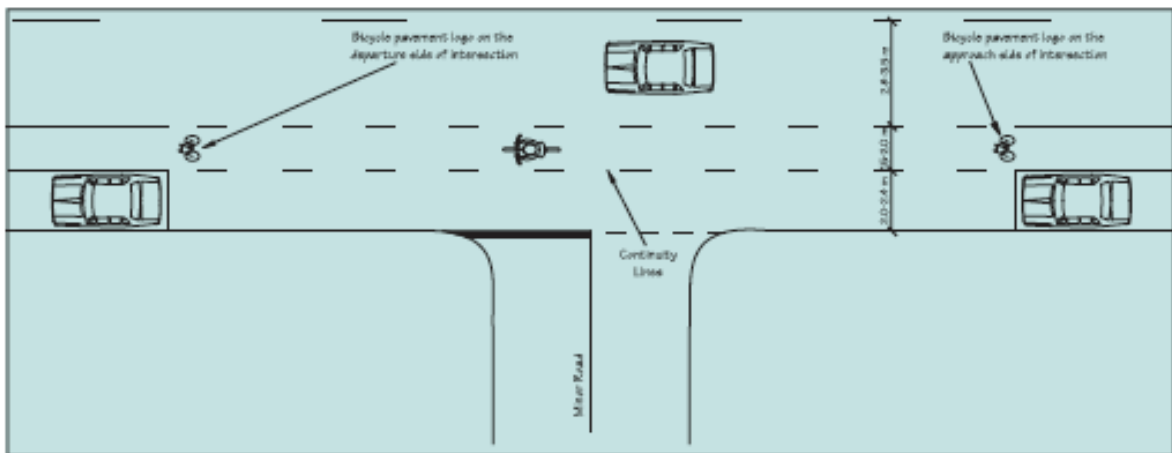


Figure 1: Bicycle lanes should continue through minor intersections

Source: Cycle Notes No. 2 - Bicycle Lanes, May 1999

Bicycle Pavement Logos

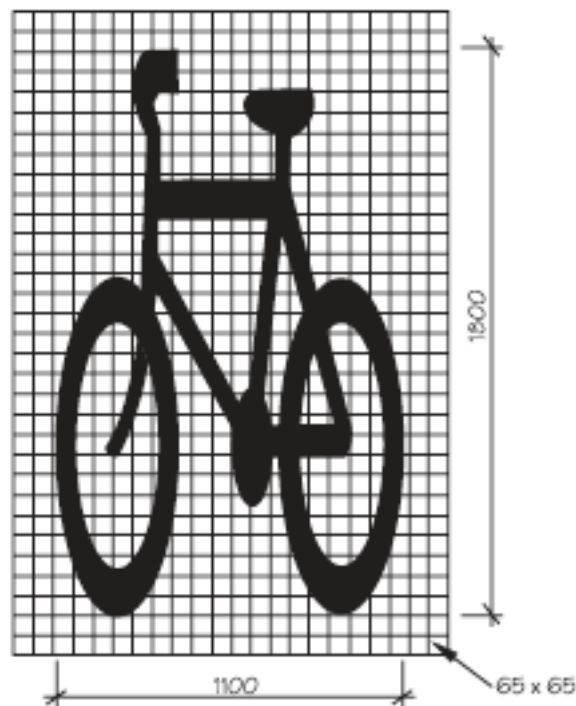


Figure 2: Bicycle Pavement Logo

(Source: AS 1742.9 Manual of Uniform Traffic Control Devices, Part 9, Bicycle Facilities)

Bicycle lane pavement logos should be 1100 mm wide and 1800 mm long. The shape of the logo should comply with Australian Standard AS1742.9 as shown in Figure 2.

Source: Cycle Notes No. 2 - Bicycle Lanes, May 1999

5.0 Literature Review and Background Reports

5.1 Trails Development Plan

Prepared for the Corangamite Shire Council by Stratcorp Consulting Pty Ltd in 2003.

The Trails Development Plan was developed in recognition of the benefits that could be derived from having a well developed and connected trails system. The benefits cited in the plan included improved health and well-being, better connection for isolated communities, and enhanced environmental tourism opportunities for the Corangamite Shire.

The Corangamite Trails Development Plan considered the needs of all potential users and uses of an off-road trails system, including pedestrian, cycling and horse riders. In summary, 16 existing trails were identified, with the majority of these requiring some type of improvement or upgrade to increase their level of usage by a wider cross section of the local community, or by visitors to the area. Over 20 potential (or new) trails were also identified, with some of these requiring significant resources to be constructed and maintained.

Implementation of the Trails Development Plan will result in a comprehensive network of trails across the Shire, and result in an influx of trail users – many of whom will arrive on bikes or have brought bikes with them.

Improved on-road cycling conditions in towns and between towns will make access to the trails network safer and more convenient.

5.2 VicRoads Cycle Notes

Cycle Notes is a series of information bulletins on design standards for cycling infrastructure, intended for engineers, planners and cycling enthusiasts. *Cycle Notes* provide guidance on topics not covered in the Austroads Guide to Engineering Practice, Part 14 Bicycles. A full list of *Cycle Notes* is included in the reference list in Appendix 2.

In terms of providing / improving on road conditions and facilities for cyclists, Cycle Note 9 lists nine possible treatments:

- Reduce Width of Traffic and/or Parking Lanes
- Seal Shoulders
- Indent Car Parking
- Prohibit Car Parking
- Use Existing Service Roads
- Widen Road into the Median
- Widen Road into the Nature Strip
- Remove Traffic Lane
- High Standard Off-Road Path

These techniques were considered in the preparation of this Bicycle Strategy.

5.3 Recreation Plan 2005 – 2009 (prepared in July 2005)

The Shire's Recreation Strategy Plan prepared in 2001 identified a need for Council to improve its network of trails, paths and walking tracks as one means to further encourage and assist older adults to increase their participation in recreation activity. This is particularly important given the current high proportion of the Shire's population aged over 50 years, and the future projections for this trend to continue.

In the Action Plan associated with the 2005 Recreation Plan, Council identified several actions related to cycling and trails and the need for improved infrastructure, in particular the need to complete a cycle path plan.

This plan acknowledges that cycling is one of the top four activities favoured by Victorians (see table).

Activity	Participants (000's)	% of population	Unstructured activity only (000's)	% of population
Walking	1,177	30.5	1,144	29.6
Aerobics	614	15.9	288	7.5
Swimming	519	13.5	417	10.8
Cycling	404	10.5	371	9.6
Tennis	339	8.8	153	4.0
Golf	314	8.1	147	3.8
Running	291	7.5	257	6.7
Australian Rules	184	4.8	54	1.4
Basketball	180	4.7	45	1.2
Bushwalking	172	4.5	140	3.6

The 2005 Recreation Plan makes reference to findings of the Sport and Recreation 2005-2010: A Discussion Paper (Department for Victorian Communities, 2004) which highlighted the significant impact and contribution sport and recreation has on the health, social and economic wellbeing of Victorian communities. In particular these benefits include providing opportunities for participation in an active and healthy lifestyle, social interaction and connectedness, community strengthening and community pride, job and skill recruitment and development, and the involvement of a large proportion of our communities as participants, spectators and/or volunteers.

The plan also refers to several emerging issues, including:

- The aged population is increasing in absolute terms and relative to the whole population. In 1999, 12% of the Victorian population was over 65 years and by 2051 over 25% will be aged over 65.
- Older people are less likely to participate in structured activity and may require different leisure and recreational services as well as encouragement to maintain an active lifestyle.

- Childhood obesity levels in Australia now appear to rival those in the United States and exceed those in the United Kingdom and are attributable to both a decline in physical activity and a rise in energy intake.

The 2005 Recreation Plan also refers to research conducted regarding sport and recreation participation provides some valuable information to consider when developing a recreation plan for Corangamite Shire.

Statistics support the notion that people are increasingly looking for unstructured physical activity opportunities, highlighted by the significant popularity of walking as a physical activity choice. Particularly significant is the preference of older people for unstructured activity. Also in the top 10 choices for physical activity are other unstructured options such as swimming, cycling, running and bushwalking.

The development of this Bicycle Strategy recognises the contribution that improved facilities can make on people's decision to participate in cycling for recreation, exercise and transport.

5.4 Strategic Development Plans

In 2001 Ochre Consultants Pty Ltd prepared a series of strategic development plans for each of the towns with the Corangamite Shire. The Development Plans set out a strategic framework for the development of each town to the year 2010.

As noted in the *Trails Development Plan*, many of these town Strategic Development Plans recommend some level of trail or path development to improve pedestrian and cyclist circulation in the towns.

For example, the Strategic Development Plan for Derrinallum referred to the possibility of providing a bicycle and walking trail between Derrinallum and Lismore to improve access.

StratCorp has incorporated the various trails and pathway projects highlighted in these various town Strategic Development Plans into the *Trails Development Plan*.

5.5 Urban Development Frameworks

A series of Urban Design Framework documents were also reviewed for their implications on the proposed on-road bicycle facilities recommended in this Bicycle Strategy. The UDF's were prepared by Urban Futures in October 2004 for the following towns:

- Derrinallum
- Lismore
- Simpson
- Princetown
- Noorat

Significant recommendations contained within these documents, often relating to improving linkages between attractions of the town, have been embodied in either this Bicycle Strategy or the earlier Trails Development Plan. For example, the UDF for Simpson recommends improved linkage between the town centre and the Sport/Recreation Reserve. This Bicycle Strategy recognises this need.

Some of the UDF's recommend the development of off-road paths or trails between towns (eg. between Derrinallum and Lismore). This type of bicycle facility is not within the brief for this Bicycle Strategy, and has been previously given consideration in the Trails Development Plan. The suggested improvements to the shoulders of roads to improve cycle access are, however, a part of this Bicycle Strategy and have been considered.

5.6 Tourism Strategy

The tourism strategy (prepared by Macroplan in 2001) aims to build upon the significant interest in the natural attractions of the region in order to entice visitors to stay and experience the range of coastal and hinterland attractions available in the Corangamite Shire.

The strategy identifies existing tourism products relating to interpretative/nature walks and trails. Though not specifically referring to bicycle tourism, the strategy also identifies the need for a tourism trail network including improved signage directing visitors to attractions throughout the area and supported by strategic upgrades to the road network. As well as applying to visitors in motor vehicles, this could also apply to visitors using bicycles.

The strategy also recognises the importance of developing the network of regional and local walking and cycling trails to enhance visitor experiences.

5.7 Cycling Workshops in Melbourne and Regional Victoria

In 1999 and 2000, VicRoads convened a series of cycling workshops in Melbourne, Ballarat, Shepparton and Traralgon on behalf of the Victorian Bicycle Advisory Council.

The purpose of the workshops was to obtain input from key cycling stakeholders and to identify and prioritise issues associated with the provision of cycling in regional Victoria.

The workshops were attended by representatives from the Department of Sport and Recreation, the Department of Natural Resources and Environment, Parks Victoria and VicRoads. The workshops were also attended by representatives from local Councils, Bicycle User Groups, Victoria Police, bicycle retailers, the bicycle industry and other interested members of the public.

The issues identified by participants in the workshops included:

- The need to develop effective bicycle routes and provide bicycle facilities within larger cities and towns in regional Victoria;
- The importance of continuing to improve cyclist safety and to reduce the numbers of cyclists involved in crashes, and
- The benefits to cyclists of providing better bicycle parking and end-of trip facilities in shopping centres, at schools, in community centres and at work places.

6.0 Bicycle Crash History

6.1 VicRoads CrashStats

The crash statistics of VicRoads were examined to determine:

- The number and severity of crashes involving cyclists;
- The location where crashes occurred within the Corangamite Shire; and
- Whether any common causes or themes were particularly noticeable.

The following tables indicate the results of the interrogation of VicRoads database of crashes involving cyclists for the five calendar years ending December 2005.



In total, 10 crashes involving cyclists occurred in the 5-year period ending 31.12.2005.

The location of these crashes were:

#	Road Name	Town/Locality
1	Mid-block – Terang-Mortlake Rd	North of Terang
2	Intersection – Princes Hwy and Cobden-Terang Rd	Terang
3	Intersection – back roads	Terang
4	Mid-block – Princes Hwy (near Terang-Mortlake Rd)	Terang
5	Intersection – back roads	Terang
6	Mid block – Camperdown-Cobden Rd (near Cobden-Stoneyford Rd)	Cobden
7	Intersection – Camperdown-Cobden Road	Camperdown
8	Intersection – Camperdown-Cobden Road	Camperdown
9	Intersection – Lavers Hill – Cobden Rd	Simpson
10	Mid-block – Great Ocean Road	East of Princetown

Table 1 – Severity of Crashes

Location is LGA(s): CORANGAMITE; Query: Bicyclist casualty accidents – all ages; Date range is 01/01/2001 to 31/12/2005.

Summary by Severity			
Name	Count	%	
Fatal	0	0%	
Serious injury	4	40%	
Other Injury	6	60%	
Total	10	100%	

Source: VicRoads CrashStats web site

From the table above it can be seen that there were no fatal crashes in the 5-year period, though 4 of the 10 were considered serious.

Table 2 – Causes of Crashes

Location is LGA(s): CORANGAMITE; Query: Bicyclist casualty accidents – all ages; Date range is 01/01/2001 to 31/12/2005.

Summary by DCA Groups		
Name	Count	%
Pedestrian (100-109)	0	0%
Cross traffic (110)	1	10%
Right turn near (113)	2	20%
Head on – not overtaking (120)	0	0%
Right turn against (121)	0	0%
Rear end (130-132)	2	20%
Head on – overtaking (150-159)	1	10%
Off path on straight (170-179)	1	10%
Off path on curve (180-189)	0	0%
Other	3	30%
Total	10	100%

Source: VicRoads CrashStats web site

From the table above it can be seen that there is a wide range of causes for the 10 bicycle crashes in the Corangamite Shire, with no obvious common causes.

Table 3 – Location of Crashes

Location is LGA(s): CORANGAMITE; Query: Bicyclist casualty accidents – all ages; Date range is 01/01/2001 to 31/12/2005.

Summary by Road Geometry		
Name	Count	%
Cross intersection	2	20%
'T' Intersection	3	30%
'Y' Intersection	1	10%
Multiple intersection	0	0%
Not at intersection	4	40%
Dead end	0	0%
Road closure	0	0%
Private property	0	0%
Unknown	0	0%
Total	10	100%






Source: VicRoads CrashStats web site

From the table above it can be seen that the bicycle crashes occurred in a variety of situations, some at intersections and some away from intersections. The mapping of crash sites available on-line at the VicRoads web site indicates that as many crashes occurred within towns as occurred between towns.

Of particular note is the relatively high incidence or concentration of bicycle crashes in and around Terang. This may just be a coincidence, as there are no obvious common causes or crash sites in the Terang locality.

Table 4 – Day of Week of Crashes

Location is LGA(s): CORANGAMITE; Query: Bicyclist casualty accidents – all ages; Date range is 01/01/2001 to 31/12/2005.








Summary by Day			
Name	Count	%	
Sunday	2	20%	
Monday	3	30%	
Tuesday	1	10%	
Wednesday	0	0%	
Thursday	0	0%	
Friday	3	30%	
Saturday	1	10%	
Total	10	100%	

Source: VicRoads CrashStats web site

From the table above it can be seen that bicycle crashes are generally spread over most days of the week, and the table below indicates that the 10 crashes that occurred in the last 5 years took place in the afternoon, but at a variety of times.

Table 5 –Time of Day of Crashes

Location is LGA(s): CORANGAMITE; Query: Bicyclist casualty accidents – all ages; Date range is 01/01/2001 to 31/12/2005.

Summary by Time of Day			
Name	Count	%	
11:00 - 11:59	0	0%	
12:00 - 12:59	2	20%	
13:00 - 13:59	1	10%	
14:00 - 14:59	1	10%	
15:00 - 15:59	0	0%	
16:00 - 16:59	2	20%	
17:00 - 17:59	1	10%	
18:00 - 18:59	1	10%	
19:00 - 19:59	2	20%	
20:00 - 20:59	0	0%	
21:00 - 21:59	0	0%	
22:00 - 22:59	0	0%	
23:00 - 23:59	0	0%	
Unknown	0	0%	
Total	10	100%	

Source: VicRoads CrashStats web site

6.2 Bicycle Crash Conclusions

The information available from VicRoads CrashStats data, as set out in the tables above, reveals no commonality of bicycle crash causes, or common locations and minimal indications of how best to prevent further crashes from occurring.

6.3 The Value of Bike Lanes

There are several ways to improve streets for cyclists, and designs for how streets are retrofitted will be done on a case-by-case basis. Some streets – usually residential streets – will benefit from traffic calming measures, which also can enhance the travelling environment for bicyclists, as speeds will be low and cyclists can more comfortably share the road with motorists (eg. Port Campbell shared zone). Marked bicycle facilities – bike lanes – are usually the appropriate choice for wider arterial streets.

All the evidence available suggests that marking bike lanes on the roadway has a positive impact on the actual and perceived safety of bicyclists. Bike lanes help promote an orderly flow of traffic and increase the predictability of both motorists and bicyclists.

According to the City of Cambridge in the USA, bike lanes:

- support and encourage cycling as a means of transportation;
- help define road space;
- promote a more orderly flow of traffic;
- encourage cyclists to ride in the correct direction, with the flow of traffic;
- give cyclists a clear place to be so they are not tempted to ride on the footpath;
- remind motorists to look for cyclists when turning or opening car doors;
- signal motorists that cyclists have a right to the road;
- reduce the chance that motorists will stray into cyclists' path of travel;
- make it less likely that passing motorists swerve toward opposing traffic; and
- decrease the stress level of bicyclists riding in traffic.

*(Source: City of Cambridge, Massachusetts, USA,
http://www.ci.cambridge.ma.us/%7ECDD/et/bike/bike_safety.html)*

Cyclists have clearly stated their preference for marked on-street bicycle lanes in numerous surveys. Two examples follow:

- A bike commuter route choice study in Austin, TX, showed that the presence of bike facilities was the second most important factor in how cyclists choose routes (the most important factor was length of trip, supporting the fact that cyclists prefer shorter more direct routes to their destinations rather than longer circuitous routes, even if they have to travel on busy streets rather than quiet streets). Bike lanes were preferred over wide outside lanes even when on-street parking is present.
- A 1999 paper to the Transportation Research Board concluded "given the stated preference of bicyclists for bike lanes in prior surveys, along with the increased comfort level found on bike lanes found in the development of the Bicycle Compatibility Index [also for FHWA] use of this facility is recommended at sites where there is adequate width for a standard 1.2m (4-ft) bike lane, in that bike lanes are more likely to increase the amount of bicycling than wide curb lanes."

*(Source: City of Cambridge, Massachusetts, USA,
http://www.ci.cambridge.ma.us/%7ECDD/et/bike/bike_lanes.html)*

Bicycle lanes have improved safety, in terms of both the number and the severity of crashes in cities throughout the US and internationally. Bike lanes have reduced crash rates for all users – bicyclists, pedestrians and motorists.

Bicycle lanes also have been associated with safer bicyclist behaviour – less wrong-way and footpath riding and more obedience to traffic controls (e.g. stop signs). For example, a national study in the USA comparing streets with bike lanes to those without found that 15% of cyclists on streets without bike lanes rode on the footpaths, vs. 3% on the streets with bike lanes. In addition, on streets with bike lanes, 81% of cyclists obeyed stop signs, vs. 55% on streets without.

Well-designed facilities encourage proper behaviour and decrease the likelihood of crashes. Numerous studies have shown that bicycle lanes improve safety and promote proper riding behavior.

- In 1996, over 2000 League of American Bicyclist members were surveyed about the crashes (accidents) they were involved in over the course of the previous year. From the information, a relative danger index was calculated which shows that streets with bike lanes were the safest places to ride, having a significantly lower crash rate than either major or minor streets without any bicycle facilities; moreover, they are safer than trails and sidewalks as well.
- The addition of bicycle lanes in Davis, California reduced crashes by 31 percent.
- Bicycle lanes on a major avenue in Eugene, Oregon resulted in an increase in bicycle use and a substantial reduction in the bicycle crash rate. The crash rate per 100,000 bike miles fell by almost half and the motor vehicle crash rate also fell significantly.
- When the city of Corvallis, OR installed 13 miles of bicycle lanes in one year, the number of bicycle crashes fell from 40 in the year prior to the installation to just 16 in the year afterwards, and of the 5 crashes that occurred on streets with bike lanes, all involved bicyclists riding at night with no lights.
- In Chicago, Illinois, crash severity was reduced in one study of marking bike lanes in a narrow cross section where 5 foot bike lanes were marked next to 7 foot parking lanes.
- In Denmark, bicycle lanes reduced the number of bicycle crashes by 35 percent. Some of the bike lanes reached risk reductions of 70 to 80 percent.
- In a national study in the USA comparing streets with bike lanes and those without, several important observations were made:
 - Wrong-way riding was significantly lower on the streets with bike lanes.
 - In approaching intersections, 15% of cyclists on streets without bike lanes rode on the sidewalks, vs. 3% on the streets with bike lanes.
 - On streets with bike lanes, 81% of cyclists obeyed stop signs, vs. 55% on streets without.

*(Source: City of Cambridge, Massachusetts, USA,
http://www.ci.cambridge.ma.us/%7ECDD/et/bike/bike_safety.html)*

7.0 Criteria For Setting Priorities

Bicycle facilities should be built where there is the greatest potential for increasing bicycle use and reducing the potential for crashes. Priority should be given to facilities that serve children travelling to and from schools, where there is high current bicycle use or where there is the greatest potential for attracting new users and serving residents or tourists.

In this Bicycle Strategy for the Corangamite Shire, priorities have focussed on facilities that will do the most to:

- a) Encourage cycling (especially to destinations likely to attract cyclists);
- b) Improve the safety of cyclists using the major roads to and within the towns;
- c) Provide recreational opportunities for visitors and local people.

A number of factors have been used to determine which projects should be implemented sooner than others, including:

1. The extent to which the safety of cyclists is improved – priority has been given to actions that seek to reduce (or eliminate) the potential for cyclist crashes in the future (while acknowledging that few crashes have occurred – see Section 6);
2. Estimated future demand for cycling in a town, such as at locations where major recreation trails exist or are planned;
3. Contribution to the completed bicycle network – actions that provide a 'missing link' will be given a higher priority;
4. Developing facilities that connect to cyclist destinations (schools, shops, etc);
5. Project cost and likely funding sources (including VicRoads); and
6. Partnerships with external stakeholders and funding partners.

Priorities generally focus on facilities that will do the most to encourage cycling and reduce the number and severity of crashes involving cyclists. In other words, bicycle facilities should be built where there is the greatest potential for increasing use and reducing the number of crashes – in particular, along roads serving schools.

Priority therefore has been given to projects that serve local destinations such as schools, shops, tourist attractions, recreation venues and commercial establishments.

The provision of appropriately designed bicycle parking is often regarded as a cost effective technique for encouraging cycling. Locations where rails should be installed are suggested.

The recommended on-road bicycle improvements are based on several factors, namely:

- The location of existing on-road bicycle facilities, and connecting path networks;
- The merit of the proposed bicycle route with respect to safety (especially near schools);
- The existing configuration (lane widths, etc) of roads;
- Community needs and expectations;
- Available funding sources (eg. VicRoads) and future planning opportunities; and
- Rectification/maintenance programs planned (such as road widening).

Priorities outlined in this Bicycle Strategy are only valid for five years. After the five year period, the Bicycle Strategy will need to be updated or prepared again.

8.0 Bicycle Strategy Plans

8.1 Camperdown

The key issues determining the provision of on-road bicycle facilities in Camperdown are:

- Main road through town is Princes Highway.
- Camperdown is at junction of several important regional roads, connecting with other major centres of the shire.
- Very walkable and rideable town, surrounded by residential areas. Most locations within easy walk/ride distance.
- Extremely attractive and large town. Would attract cycle tourists.
- There is already a history of providing on-road facilities for cyclists in the town.
- Bike lanes already exist on Princes Hwy through Camperdown.
- Bike lanes already exist on Camperdown – Lismore Rd from Manifold St to Longmore St (2.4m car parking lanes; 1.5m bike lanes; 3.0m traffic lanes – see photos).
- Opportunities for improving on-road facilities on a number of other roads.
- Leura St provides a low motor vehicle traffic volume on-road (alternative) route for cyclists riding to Camperdown College Secondary Campus.
- More bicycle parking required.

Several on-road bicycle route improvements are recommended for the Camperdown townsite:

- Alterations to the lane configuration on the Camperdown-Cobden Road, to provide additional space for cyclists; and by the addition of bicycle logos to the existing car parking / bike lane;
- Re-painting of the bike lane lines on Princes Hwy which are badly faded, and re-painting of the bicycle logos within the bike lanes;
- The addition of bike lanes to Brooke St; this would provide improved cycling conditions to primary school;
- The addition of bike lanes to Pike St; and
- The addition of bike lanes to McNicol St.
- *Note: VicRoads Cycle Note 7 (On-Road Arterial Bicycle Routes) makes provision for bike lanes to be as narrow as 1.2m wide when being retrofitted to existing roads (where speed limit is 60kph)*

The following table sets out in greater detail the extent of work recommended:

#	Location	Issues / Comments	Solution / Action
1	Princes Hwy – eastern end of town	Existing bike lanes vary in width, but generally around 1.7m wide on north side. Shared car parking and bike lane on south side is 4.2m wide. Traffic lanes are 3.5m wide.	Re-paint lane lines and re-paint bike logos in bike lanes.

2	Princes Hwy – western end of town	<ul style="list-style-type: none"> Existing bike lanes vary in width, but generally around 1.5m wide on north side. Shared car parking and bike lane on south side is 4.0m wide. Traffic lanes are 3.5m wide. 	Re-paint lane lines and re-paint bike logos in bike lanes.
3	Princes Hwy – in town east of Brooke St	<ul style="list-style-type: none"> Bike lane is 2.3m wide (north side of highway); few logos 	Install logos in bike lane at regular intervals.
4	Princes Hwy – between Camperdown - Cobden Rd and McNicol St	<ul style="list-style-type: none"> Bike lane exists, but lane lines are faded. 	Re-paint bike lane lines and re-paint bike lane logos.
5	Pike St – Manifold St to Fergusson St	<ul style="list-style-type: none"> Angled parking both sides. No centre lining. No bike lanes. Widths are: 4.6m parking; 8.5m; 4.6 parking. 	Install centre lining to road, and install 1.25m bike lanes (with logos) and 3.0m wide traffic lanes.
6	Pike St – Fergusson St to Longmore St (near the railway station)	<ul style="list-style-type: none"> Wide road approx. 15metres. No centre lining or lane marking. Wide enough to accommodate bike lanes. 	Install centre lining to road, and install 2.4m car parking lanes; 1.5m bike lanes and 3.6m wide traffic lanes.
7	Camperdown – Cobden Rd (Princes Hwy to Scott St)	<ul style="list-style-type: none"> Car parking lanes (with marked bays). Lane widths are 2.4m for car parking; 4.0 – 4.2 for travel lane. Opportunity for adding 'edge line' to travel lane to create a wider shared car parking/bike lane 	<p>Install edge line to traffic lanes to create 3.0m wide traffic lanes. (See table below).</p> <p>(Note: as resultant lanes to not comply with accepted standards for bike lanes, logos should not be added).</p>
8	Camperdown – Cobden Rd (Scott St to Brooke St)	<ul style="list-style-type: none"> 3.1m wide car parking lanes – unmarked bays. Traffic lanes are 3.5m wide. Opportunity to create better bicycle facility by adding logo to straddle edge line or could re-mark lane lines and have 3.0 – 3.1 traffic lanes and 3.5m car parking and bike lane. 	Re-mark road to create 3.0m wide traffic lanes and 3.5m wide shared car parking and bike lanes.
9	McNicol St – Princes Hwy to Scott St	<ul style="list-style-type: none"> Road is approx. 20m wide. Angled parking both sides. No centre lining. 	Install centre lining to road, and install 1.25m wide bike lanes (with logos) and 3.0m wide traffic lanes.
10	McNicol St – Scott St to Campbell St	<ul style="list-style-type: none"> Possibility for installing unmarked car parking lane. 	Consider installing shared car parking and bike lanes, with 3.0m wide traffic lanes.
11	Brooke St – between Princes Hwy and McNicol St	<ul style="list-style-type: none"> Road is relatively wide, and could have bike lanes. Currently, road has 2.5m wide marked car parking bays each side. No centre lining. 	Install centre lining to road, and install 1.4m wide bike lanes (with logos) and 3.0m wide traffic lanes.

12	Brooke St – between McNicol St & Camperdown - Cobden Rd	<ul style="list-style-type: none"> Road is relatively wide, and could have bike lanes. No centre lining. 	Install 3.8m wide shared car parking and bike lanes, with traffic lanes 3.0m wide.
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Camperdown – Cobden Rd (Princes Hwy to Scott St)					
Existing					
W Kerb	2.4	4.2	4.0	2.4	E Kerb
Proposed					
W Kerb	3.6	3.0	3.0	3.4	E Kerb

Camperdown – Cobden Rd (south of Scott St)					
Existing					
W Kerb	3.1	3.5	3.5	2.8	E Kerb
Proposed					
W Kerb	3.6	3.0	3.0	3.4	E Kerb



Bike lanes have already been installed on the Camperdown Lismore Rd, between Princes Hwy (Manifold St) and the railway.



Though bike lanes exist along Princes Hwy through Camperdown, the lane lines are faded and logos are difficult to find.



Some local streets such as Brooke St are important links in the cycle network, and are wide enough to have marked bike lanes.



The addition of centrelines and edge lines on roads in congested areas would benefit cyclists and other road users.



A major improvement to the on-road cycle network in Camperdown would be the re-painting of bike lane lines and logos, such as on Princes Hwy.



In some locations the bike lane lines on Princes Hwy through Camperdown are very visible, though the addition of logos is recommended.



Re-configuration of car parking lines would result in improvements to the bicycle facility network to and through Camperdown.



The use of red coloured asphalt on the shoulders of Princes Hwy is an excellent technique for distinguishing on-road cycling facilities.

8.2 Cobden

The key issues determining the provision of on-road bicycle facilities in Cobden are:

- Several roads in town marked with bike logos (faded) in either shared car parking/bike lanes, or bike lanes.
- Good network of on-road bicycle facilities.
- Some important shared paths throughout town, especially along Neylon St (Camperdown Cobden St).
- Some recently installed bike parking rails – of good design – exist in town. More bicycle parking required throughout town.
- Camperdown Timboon Rail Trail passes through town. Trail is soon to be upgraded.

Several on-road bicycle route improvements are recommended for the Cobden townsite:

- Installation of bike lanes on Curdie St, between Adams St and Victoria St;
- Re-painting of the bike lane lines on Curdie St which are faded, and re-painting of the bicycle logos within the bike lanes;
- The widening of the major through road (Camperdown Cobden Rd) to create a wide sealed shoulder (or bike lane);
- The addition of bike lanes to Victoria Street, between Curdie St and Parrott St.

The following table sets out in greater detail the extent of work recommended:

#	Location	Issues / Comments	Solution / Action
1	Curdie St – between Adams St and Terang Mortlake Rd	▪ Shared car parking and bike lanes in place. Bike logos are faded.	Re-instate all faded logos and lane lines on Curdie St and Victoria St.
2	Curdie St - Adams St to Victoria St	▪ Angled car parking – no bike lanes. Appears to be faded bike lanes.	Re-instate logos and re-paint bike lane lines.
3	Victoria St - between Stirling St and bridge	▪ Has shared car parking (parallel) and bike lane in place.	Re-instate all faded logos and lane lines.
4	Victoria St - between bridge and Curdie St	▪ Angled car parking and bike lane.	Re-paint all faded logos.
5	Victoria St - south of Curdie St	▪ Angled car parking marked. No centre line or bike lane. Bike lane could be extended between Curdie St and Parrott St – no need for bike lanes south of Parrot St.	Install centre line and bike lane (with logos).
6	Curdie St – Victoria St to Walker St	▪ Angled car parking and bike lane (no logos) exists both sides.	Install bike lane logos.

7	Camperdown - Cobden Road	<ul style="list-style-type: none"> Lane widths vary from 3.4m at western end of town (Terang Mortlake Rd) to 3.7m opposite golf course, to 3.6m at eastern end of town (at Cemetery Rd). 	Widen and seal shoulders (by up to 1.2m) to create 1.5m bike lanes (and 3.1m traffic lanes).
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Throughout Cobden is evidence of previous work to identify an on-road cycle network. Faded bike lane logos should be re-instated.



The on-road cycle network of Cobden is extensive, as evidenced by signage and road markings.



Wide bike lanes on Curdie St, in the heart of the commercial district of Cobden, provide excellent facilities for cyclists.



Despite the presence of wide bike lanes on Curdie St, conditions could be improved by the re-instatement of the bike lane logos.



The shared parking and bicycle lane lines and logos on Curdie St need re-painting.



Opportunities exist for the addition of bike lanes to the road network of Cobden such as along some sections of Curdie St.

8.3 Derrinallum

The key issues determining the provision of on-road bicycle facilities in Derrinallum are:

- Hamilton Highway (a heavy haulage route) passes through town, but ample road width kerb to kerb.
- Main Street (service road off Hamilton Hwy) is a low speed, relatively low traffic volume road. Appears no need for special treatment for cyclists.
- Bicycle parking occurs at two locations in the upgraded streetscape of Main Street – outside the grocery store and outside the milk bar / deli.
- Little or no shoulder beyond edge line on highway between towns.
- Access to sports ground (tennis courts; football oval) is limited – need for a shared path.
- New pathway to bowling club (would enable use by gophers).
- Difficult to access Derrinallum College and sports centre via the narrow road carriageways of Manse Rd and Campbell St (too narrow for any on-road improvements). The existing shared use trail along Hodson St road reserve should be upgraded (sealed).

Several on-road (and off-road) bicycle route improvements are recommended for the Derrinallum townsite:

- The addition of bike lanes to Hamilton Highway. The highway is very wide, and there is ample width to create a bike lane through the town on the highway, with a parking lane.
- The development of a shared path between the eastern end of Main Street to the entrance to the Recreation Reserve – including a safe road crossing - (as recommended in the Urban Design Framework).
- The sealing of the existing shared use trail along Hodson St, between Lloyd Street and Campbell Street.

The following table sets out in greater detail the extent of work recommended:

#	Location	Issues / Comments	Solution / Action
1	Hamilton Highway	<ul style="list-style-type: none"> ▪ Opportunity for bike lanes on Hamilton Hwy, between Chatsworth Rd and Ligar St, due to width of paved surface. Road width of highway is 8.3m (north side); 7.0m (south side). ▪ Visitor car parking needed on north side alongside amenities. 	<p>Install bike lanes on highway. Centre line may need to be re-located. Overall width is 15.3m. lane widths could be: 2.45m parking lanes; 1.5m bike lanes; 3.7m through lane.</p> <p>(Alternatively, leave centre line in place, and install shared car parking and bike lane on south side – between Camperdown-Derrinallum Rd and 50m west of Chatsworth Rd).</p>
2	Hamilton Highway - Main Street to Recreation Reserve	<ul style="list-style-type: none"> ▪ Need for pedestrian/cyclist access to recreation reserve. No path exists at present. Ample verge width on north side of highway. 	<p>Construct a 2.5m wide shared path between the eastern end of Main Street to the entrance to the Recreation Reserve (150m).</p>
3	Hodson St	<ul style="list-style-type: none"> ▪ Existing shared use trail is not sealed (is loose gravel). 	<p>Seal trail between Lloyd Street and Campbell Street.</p>



Hamilton Hwy, which passes through the centre of Derrinallum, is wide enough to accommodate bike lanes.



A loose gravel shared use trail connects the town with the Derrinallum College on Campbell St. The trail should be upgraded.



A recently constructed asphalt path links the main street with residential areas and recreational facilities, as well as the gravel shared use trail which connects the town with the school and indoor recreation centre.



Main Street of Derrinallum has recently been upgraded through a streetscape improvement program. Good quality bike parking facilities have been provided.



The Derrinallum School is connected to the town by means of roads too narrow for on-road bicycle facilities.



The best option for improving cycling and walking to the Derrinallum School is by means of an upgraded pathway along the Hodson Street reserve.

8.4 Lismore

The key issues determining the provision of on-road bicycle facilities in Lismore are:

- Hamilton Highway is a heavy haulage route.
- Narrow bridge crossing east side of town. Potentially dangerous, though improvements can be made – need to seal the shoulder.
- Bike lanes appear to have been decommissioned. Re-instatement of bike lanes is recommended, resulting in a bike lane completely through town.
- Bike parking should be installed at several locations.
- Higher speeds on highways between towns – these roads are only suitable for experienced cyclists.
- Improvements in town suitable for 'regular' cyclists' or 'non-cyclists'. New facilities will encourage more trips by bike (in tandem with provision of secure bike parking facilities).
- Generally wide back roads in towns with low traffic volumes – no need for any special treatment.

Several on-road bicycle route improvements are recommended for the Lismore townsite:

- Opportunity for re-instating bike lanes along Hamilton Highway – they were there but appear to have been removed (logos have been painted out);
- Re-painting of the bike lane lines on Hamilton Highway which are badly faded, and re-painting of the bicycle logos within the bike lanes;
- Installation of a short new section of shared path (and 2 kerb ramps) to connect school crossing with Main Street;
- Seal the shoulders on the highway across the bridge;
- Construct sealed shoulders along Hamilton Hwy on both sides of the bridge.

The following table sets out in greater detail the extent of work recommended:

#	Location	Issues / Comments	Solution / Action
1	Hamilton Hwy (north side) – from Richardson Lane (golf club) in west to Gray St in east	<ul style="list-style-type: none"> ▪ Parking lane (or sealed shoulder) extends along both sides of highway. ▪ Wide through-traffic lane was re-marked to create a bike lane; logo added; then painted out. ▪ Lane widths: Were: 4.4m and 2.8m. Became: 3.3m; 1.5m; and 2.4m. ▪ Bike lane lines are fading. Logos appear to have been painted over. 	Repaint the bike lane lines on Hamilton Highway that are badly faded, and re-paint the bicycle logos within the bike lanes.
2	Hamilton Hwy (south side) – Brown Street in west to	<ul style="list-style-type: none"> ▪ Parking lane (or sealed shoulder) extends along both sides of highway. ▪ Wide through-traffic lane was re-marked to create a bike lane; 	Repaint the bike lane lines on Hamilton Highway that are badly faded, and re-paint the bicycle logos within the bike lanes.

	Gray St in east	<p>logo added; then painted out.</p> <ul style="list-style-type: none"> ▪ Lane widths: Were: 4.4m and 2.8m. Became: 3.3m; 1.5m; and 2.4m. ▪ Bike lane lines are fading. Logos appear to have been painted over. 	
3	Bridge crossing on Hamilton Hwy – east side of town	<ul style="list-style-type: none"> ▪ Lane widths are 3.3m and 3.3m with 0.8m shoulders. ▪ Shoulders require sealing to create better space for cyclists. 	Seal both shoulders across bridge (0.8m over distance of 30m).
4	Hamilton Hwy: approach to bridge – eastbound – south end of bridge	<ul style="list-style-type: none"> ▪ Asphalt of highway is badly deteriorating (lumps and dips). (It appears action has already been scheduled). 	Re-surface Hamilton Hwy over distance of 10m (2.0m wide). (Already marked on road).
5	Hamilton Hwy – north and south of bridge	<ul style="list-style-type: none"> ▪ Bike lane through town tapers out before reaching bridge. Shoulders could be widened to provide safer on-road conditions (an extension to the bike lane). 	Widen shoulders on approaches to bridge; between Gray Street and Cemetery Road. (220 metres south-west side; 180 metres on north- east side)
6	Hamilton Hwy – south end of bridge	<ul style="list-style-type: none"> ▪ 80kph sign should be relocated to north side of bridge to provide safer on-road environment for cyclists across narrow bridge. 	Relocate speed zone signs to north-east side of bridge.
7	Hamilton Hwy – school crossing	<ul style="list-style-type: none"> ▪ School crossing does not physically connect with Main Street. 	Construct a short new section of shared path (and 2 kerb ramps) to connect school crossing with Main Street.



Hamilton Hwy through Lismore carries heavy haulage traffic. Bike lanes do exist, as a result of reducing traffic lane widths.



The logos in the bike lanes along the Hamilton Hwy in Lismore appear to have been decommissioned.



The logos in the bike lanes need to be re-painted so they are clearly visible to all road users.



The school crossing over the Hamilton Hwy could be enhanced by the construction of a short segment of shared path.



Consideration should be given to the relocation of the speed zone sign to the east of the bridge.



A new seal on the shoulder of the highway over the bridge in Lismore would provide a much safer on-road environment for cyclists.

8.5 Noorat

The key issues determining the provision of on-road bicycle facilities in Noorat are:

- Town is not on a major highway, and is a walkable/rideable neighbourhood.
- Noorat Primary School – well catered for by buses. Some school children walk (most make use of school crossings); some ride bikes.
- Mercy Regional College (O’Keeffe Campus) is located on south side of McKinnons Bridge Noorat Rd. Connected to town centre by narrow concrete path along south side of McKinnons Bridge Noorat Rd.
- Safety outside primary school is well organised. Several school crossings exist. School children put out safety crossing flags.
- Existing ‘bike lanes’ outside primary school, either side of school crossing. ‘Bike lanes’ – vary in width from 900mm to 1.5m. Not marked with bike lane logos.
- Plenty of school ‘traffic’ (ie. parents in cars collecting children).
- Short path connects school, across median and on to ‘service road’ of McKinnons Bridge Noorat Rd.
- An off-road gravel trail (at time of inspection) connects Noorat with Terang along eastern verge of Mortlake Terang Road.
- An off-road path connection to the Noorat Recreation Reserve is highly desirable.
- Bike parking could be installed at a couple of locations.

Several on-road (and off road) bicycle route improvements are recommended for the Noorat townsite:

- alterations to the lane configuration on the Terang Mortlake Rd, south of McKinnons Bridge - Noorat Rd, to provide 1.5m wide bike lanes (or 4.3m wide shared car parking and bike lanes);
- constructing 750m long shared pathway along northern verge of McKinnons Bridge - Noorat Rd, with 30m connection (median crossing) to Mercy College – to improve walking and cycle access to the recreation reserve (as recommended in the Urban Design Framework).
- painting bike lane logos within the bike lanes on McKinnons Bridge - Noorat Rd.

The following table sets out in greater detail the extent of work recommended:

#	Location	Issues / Comments	Solution / Action
1	Terang Mortlake Rd (south of McKinnons Bridge - Noorat Rd.	<ul style="list-style-type: none"> ▪ Wide road provides opportunity for marked bike lanes. Road is centre lined, with 7.5m wide lanes. 	Install 1.5 metre wide bike lanes both sides of road for 180m south of McKinnons Bridge - Noorat Rd. If car parking is required in vicinity of hotel, install 4.3m wide shared car parking and bicycle lanes – with bike logo.
2	McKinnons Bridge - Noorat Rd	<ul style="list-style-type: none"> ▪ Existing bike lanes outside primary school do not have bike lane logos. 	Paint bike lane logos within the bike lanes.
3	McKinnons Bridge - Noorat Rd	<ul style="list-style-type: none"> ▪ Absence of shared use path between town centre, schools and recreation centre. 	Construct 750m (@ 2.0m wide) shared path along north side of McKinnons Bridge - Noorat Rd between recreation centre and primary school.
4	McKinnons Bridge - Noorat Rd	<ul style="list-style-type: none"> ▪ Need for connection from Mercy College to proposed new path to recreation centre. 	Construct 30 metre path connection across median between roads.



Bike lanes have been installed on McKinnons Bridge – Noorat Rd outside the Noorat School.



A 620m shared path is recommended along the northern verge of McKinnons Bridge – Noorat Rd to connect the two schools with the Noorat Recreation Reserve.



A 180m length of the Mortlake - Terang Rd in Noorat is wide enough to accommodate bike lanes.



The Noorat to Terang Trail, paralleling the road, provides a safe recreational path between the two towns.



There are several locations throughout Noorat where bike parking rails should be installed.



The Alan Marshall Heritage Trail is a feature of the town.

8.6 Skipton

The key issues determining the provision of on-road bicycle facilities in Skipton are:

- The narrow bridge on Glenelg Highway (Mt Emu Creek) is being replaced, and this is an opportunity for improved bicycle and pedestrian facilities to be provided at the time of the bridge replacement. New bridge will provide safer cycling conditions.
- Glenelg Hwy is the major through route for cyclists, as well as providing cycle access to shops in the town centre. Some efforts have previously been made to incorporate on-road bicycle facilities, by the designation of bike lanes (with coloured surface and texture).
- Opportunities exist for on-road improvements to Glenelg Highway, such as by the widening of the shoulders.
- Angled parking on some roads – makes it relatively dangerous for cyclists riding past.
- The path network throughout the town is comparatively poor. However, a path has been constructed along the northern verge of Glenelg Hwy to enable school children to access the school crossing and school.
- There is a limited amount of bike parking throughout the town.
- The Ballarat Skipton Rail Trail has its southern terminus just on the southern edge of Skipton. Improved connection with town (through improved directional signage, etc) is warranted. When the entire rail trail is upgraded it will be a major attraction for cyclists.

Several on-road bicycle route improvements are recommended for the Skipton townsite:

- The addition of bike lanes to Glenelg Hwy through the town centre, east of the bridge.
- The widening of the road and the sealing of the shoulders on Glenelg Hwy west of the bridge (as far west as the Beaufort Skipton Rd).
- The provision of bike lanes on the bridge crossing, at the time the bridge is replaced. VicRoads has confirmed that design accommodates cyclists.
- The addition of 1.5m bike lanes to the Lismore – Skipton Road, as far south as Station Street (520m).
- The widening of the road and the sealing of the shoulders on Glenelg Hwy from 120m to 600m east of bridge (ie. to the 80kph sign);
- The addition of 1.5m bike lanes to the Rokewood – Skipton Road, for 100m south of Glenelg Hwy.

The following table sets out in greater detail the extent of work recommended:

#	Location	Issues / Comments	Solution / Action
1	Glenelg Highway – west of old bridge	<ul style="list-style-type: none"> ▪ Existing lane widths: 3.3m north side and 3.4m south side. ▪ Opportunity exists to widen shoulder west side of bridge between 0 and 470 metres (to opposite Beaufort Skipton Rd C172). 	Install 800 - 1000 mm sealed shoulders for 470 metres west of bridge, both sides of road.

2a & 2b	Glenelg Highway – east side of bridge	<ul style="list-style-type: none"> ▪ Wide expanse of bitumen though commercial centre. ▪ Parking either side of road. ▪ Opportunity for bike lanes between bridge and 120 – 140 metres (east of bridge). ▪ Opportunity for installing sealed shoulders (by widening road) from 120m to 600m east of bridge (ie. to the 80kph sign). ▪ May be pinch point near school crossing. 	<p>Install bike lanes on Glenelg Hwy (Hamilton Road) for 120m east of bridge (subject to bridge replacement program proposals) – both sides of road. Maximise separation from angled car parking bays.</p> <p>Install sealed shoulders on Glenelg Hwy (120m – 600m east of bridge) – both sides.</p> <p>Modify school crossing to enable continuation of sealed shoulder.</p>
3	Mt Emu Creek Bridge	<ul style="list-style-type: none"> ▪ Existing narrow bridge crossing with inadequate space for cyclists. ▪ Mt Emu Creek Bridge Replacement project (VicRoads AH473) will alleviate problem. ▪ Current advice from VicRoads (Geelong Office) is that bridge will be 11.0 metres wide, with traffic lanes of 3.5m and 'significant' width shoulders. 	<p>Mt Emu Creek Bridge Replacement project will enable adequate on-road bike lanes in bridge replacement program. Road improvements either side should also cater for on-road cycling.</p> <p>Road improvements either side of new bridge will include upgrading of shoulders.</p>
4	Lismore – Skipton Road	<ul style="list-style-type: none"> ▪ Wide road (lane widths are 5.1m west side and 4.6m east side). ▪ Available width to enable bike lane to be installed (between Glenelg Hwy and Station Street – 520m). ▪ Significant road for cyclists travelling to other towns in Shire. ▪ Provides access to rail trail. ▪ Angled parking on east side of road just south of to Glenelg Hwy, as may be insufficient width. Solution is to remove angled parking (is it needed?). Maybe remove angled parking and instead create parallel parking, thereby enabling sufficient width for bike lanes. 	<p>Install 1.5m wide bike lanes between Glenelg Hwy and Station Street (520m).</p>
5a & 5b	Rokewood – Skipton Road	<ul style="list-style-type: none"> ▪ Narrow road, apart from first 100 metres south of Glenelg Hwy. Lane widths south of this point are 2.8m north side; 3.0m south side. Some deco has been used on shoulders. ▪ Significant road for cyclists travelling to other towns in Shire. ▪ Few opportunities for on-road improvements. 	<p>Install bike lanes on Rokewood – Skipton Road (both sides of road) for first 100 metres south of Glenelg Hwy.</p> <p>Shoulders could be sealed between 100m and 350m (80kph sign).</p>



Glenelg Hwy through Skipton has ample width for improvements to the on-road cycling environment.



A combination of bike lanes and sealed shoulders will provide a safer route through Skipton for cyclists.



It is recommended that bike lanes be installed on both sides of Glenelg Hwy through the commercial heart of Skipton.



Attempts have previously been made to install bike lanes through Skipton on the Glenelg Hwy.



The shoulders of the Glenelg Hwy on the western outskirts of town should be widened and sealed to accommodate cyclists.



The proposed replacement program for the narrow bridge will accommodate on-road cyclists much better.

8.7 Simpson

The key issues determining the provision of on-road bicycle facilities in Simpson are:

- Simpson is a small settlement – with low traffic volumes. On road cycling would be a comparatively safe activity. There is little or no need for young cyclists to cross busy roads.
- All roads in to and out of town have narrow lanes and no edge lines – little can be done in terms of a quick fix for cyclists.
- Land uses are dispersed – there is a small commercial ‘core’ (consisting of a supermarket and hardware store, and hotel).
- Most roads in residential and commercial areas have a narrow path on one or both sides. Narrow footpaths connect all major land uses.
- Path connects town with recreation reserve, though there is a short discontinuity on the path.
- There are several locations where bike parking could be provided.

On-road bicycle route improvements recommended for the Simpson townsite:

- Marking edge lines on the main through road (Lavers Hill – Cobden Rd), creating lanes of 3.1m and allowing sufficient widths at the sides of the road for a wide sealed shoulder (or bike lane if width permits).

The following table sets out in greater detail the extent of work recommended:

#	Location	Issues / Comments	Solution / Action
1	Lavers Hill – Cobden Rd	▪ Wide road through town. Has no edge lines. Some scope for improvements for cyclists by installing edge lines and creating sealed shoulder.	Mark edge lines on Lavers Hill – Cobden Rd, with 3.1m lanes, and create sealed shoulders for cyclists.
2	Lavers Hill – Cobden Rd	▪ Existing path to recreation reserve does not connect with paths to and through town.	Construct 10m new concrete path on east side of Lavers Hill – Cobden Rd.



The Simpson locality has considerable heritage, and the quiet country roads lend themselves to cycle touring.



On-going programs to widen and seal the shoulders of roads through the district will benefit cyclists (and motorists).



Some scope exists for improving on-road conditions for cyclists on the Lavers Hill – Cobden Rd, painting edge lines (to create a sealed shoulder for cycling).



The installation of bike parking rails at selected locations throughout Simpson will benefit all cyclists.



A narrow path connects the recreation reserve with the path network of the town.



A short piece of the path to the recreation reserve (at the crossing of Lavers-Hill Cobden Rd) is missing and needs to be constructed.

8.8 Terang

The key issues determining the provision of on-road bicycle facilities in Terang are:

- Princes Hwy passes through town – a major heavy haulage route.
- Bike lanes exist on Princes Highway through town – need for re-painting logos and new logos. Bike lanes are as much as 2.3m wide on eastbound carriageway; and 2.3m on westbound carriageway.
- Minor upgrading/widening of shoulders on west side of town along Princes Hwy.
- More bicycle parking required.
- Replace old style bicycle parking racks with new style (see Section 11.0).
- Wide back roads (8 – 12 metres wide) – suitable for cycling without need for special facilities. Roads often have no centre-lining.
- A trail extends eastwards for some distance from Cosgrove & Littles Rd. Signposted for horse use only.

Several on-road bicycle route improvements are recommended for the Terang townsite:

- Re-painting of the bike lane logos on Princes Hwy, which are faded;
- Installation of missing segments of sealed shoulder, and widening of shoulders, on Princes Hwy on west side of town; and
- The addition of bike lanes to Terang – Mortlake Rd, between Princes Hwy and Swanston St. Road is 14.0m wide (6.5m west side; 7.5m east side).

The following table sets out in greater detail the extent of work recommended:

#	Location	Issues / Comments	Solution / Action
1	Princes Hwy	<ul style="list-style-type: none"> ▪ Bike lane logos are faded on the lanes along Princes Hwy through town. 	Re-paint bike lane logo within bike lanes at regular intervals through town.
2	Princes Hwy – west side of town	<ul style="list-style-type: none"> ▪ Shoulder of highway is narrow, and requires widening (between exit from Terang Primary College and 150m west – to the 60kph sign). 	Widen shoulder for 150m west of exit from Terang Primary College (both sides of highway).
3	Terang – Mortlake Rd	<ul style="list-style-type: none"> ▪ Road is very wide (14.0m) between Princes Hwy and Swanston St. 	Install bike lanes over distance of 310 metres, both sides of road.



Princes Hwy (High Street) eastbound through Terang. Marked bike lanes provide excellent conditions for on-road cycling.



Princes Hwy (High Street) westbound through Terang. Marked bike lanes should have more bike lane logos.



Marked bike lanes occur on Princes Hwy through Terang. However, lane lines and logos are fading and need re-marking.



Princes Hwy provides a good cycling environment. There are some locations where improvements are recommended.



The back roads of Terang are wide, with low traffic volumes, and there appears no need for special bicycle facilities.



The installation of bike parking rails is recommended for a number of locations in the town – such as the Post Office.

8.9 Timboon

The key issues determining the provision of on-road bicycle facilities in Timboon are:

- Southern terminus of Camperdown Timboon Rail Trail; would attract large numbers of recreational cyclists and touring cyclists. Many more to be expected when rail trail is upgraded.
- Timboon will become a significant location along the proposed Coast to Crater Trail – attracting large numbers of recreational cyclists and touring cyclists.
- Bike lanes can be installed on several roads as widths are adequate.
- More bicycle parking is required.

Several on-road bicycle route improvements are recommended for the Timboon townsite:

- Install bike lanes on Bailey St (C163) between Curdies River Rd and Hospital Rd as road is as much as 12.8m wide. Lanes are 5.9m each side (north of Fahey St); 4.8m and 4.5m near George St. North of Hospital Rd the lane width is 4.55m on north side and 4.1m on south side.
- Widen Bailey St (C163) between Hospital Rd and Curdievale Rd to enable sealed shoulder to be constructed (for bicycle use);
- Install bike lanes to Curdievale Rd (road width is 9.2m);
- Install bike lanes on Barrett St (C163) between Morgan St and Bond St (road is 10.0m wide); widen Barrett St south of Bond St by sealing the shoulder on west side by 1.0m (and install edge lines to road to create 3.0m lane and 1.0m shoulder on east side and 3.0m lane and 1.5m bike lane on west side);
- Timboon Port Campbell Rd through commercial centre of Timboon is wide enough to enable creation of 1.5m bike lanes (over distance of 80m). This road is high traffic movement area, and though bike lanes are short in distance, they would educate motorists, demonstrate effort being made to cater for cyclists, as well as being reminder to all road users that cyclists are likely to be riding in town. Angled parking occurs at road sides (and adequate distance between proposed bike lanes and angled parking).

The following table sets out in greater detail the extent of work recommended:

#	Location	Issues / Comments	Solution / Action
1	Bailey St – Curdies River Rd to George St	▪ Road is at least 12.8m wide – ample width for bike lanes of 1.5m and traffic lanes of 4.9m	Install 1.5m wide bike lanes on Bailey St between Curdies River Rd and George St.
2	Bailey St – George St to Hospital Rd	▪ Road is 9.3m wide – ample width for bike lanes of 1.4m and traffic lanes of 3.25m	Install 1.4m wide bike lanes on Bailey St between George St and Hospital Rd.
3	Bailey St – Hospital Rd to Curdievale Rd	▪ Road narrows, and available space is insufficient for bike facility. Localised road widening would be necessary.	Widen and seal shoulders to create 1.0m wide shoulder.

4	Curdievale Rd	<ul style="list-style-type: none"> ▪ Lane widths are 4.6m in each direction. Ample width for installation of bike lanes. 	Install 1.5m wide bike lanes on Curdievale Rd between Hayward Rd and Lambert St.
5	Barrett St – Morgan St to Bond St	<ul style="list-style-type: none"> ▪ Road is 10.0m wide (5.0m each way) – ample width for bike lanes of 1.5m and traffic lanes of 3.5m 	Install 1.5m wide bike lanes on Barrett St between Morgan St and Bond St.
6	Barrett St – Bond St to Bailey St	<ul style="list-style-type: none"> ▪ Road surface narrows to 3.5m on west side, and 4.0m on east side. Opportunity available for widening shoulder on west side. No options available on east (steep hill) side. 	Widen and seal shoulder on west side by 1.0m. Install edge lines to road to create 3.0m lane and 1.0m shoulder on east side and 3.0m lane and 1.5m bike lane on west side.
7	Timboon Port Campbell Rd (through commercial centre)	<ul style="list-style-type: none"> ▪ Sufficient road space to line-mark traffic lanes of 3.0 – 3.2m with bike lanes 1.5m wide (over distance of 80 metres). 	Paint edge lines for traffic lanes (3.0 – 3.2m), and create 1.5m wide bike lanes through Timboon’s commercial centre (over distance of 80m).



The lanes of Bailey Street in Timboon are as wide as 5.9m – ample room for the creation of bike lanes.



Where the lane widths along Bailey St become narrow, localised road widening to create a sealed shoulder is recommended.



Much of the length of Barrett Street is wide enough to accommodate a bike lane.



Curdievale Road in Timboon is wide enough at 4.6m in each direction for a 1.5m bike lane both sides.



The main road through Timboon has adequate width to accommodate marked bike lanes.



The recently installed bike parking rails should have been placed in a more convenient location.

9.0 Improving Roads Between Towns

This bicycle strategy has focussed on improving on-road facilities within towns, where it is expected that most interactions between motor vehicles and cyclists will occur. The road network within the towns is also where the majority of cycling will occur, and hence greater effort needs to be put into improving cycling conditions within the towns.

However, cyclists do travel between towns and consideration needs to be given to the practical and affordable means of improving conditions on rural roads.

In particular, it is known that there are some training routes that may need to be appropriately signed and perhaps be incorporated into this strategy (i.e. Camperdown, Timboon and Terang). Input from groups in these towns is sought as it is acknowledged that not all roads can be signed as training routes.

Roads between towns are usually narrow – even for motor vehicle traffic. Often there are no shoulders and no edge line.

During the course of the preparation of this Bicycle Strategy it was observed that there is some disquiet and concern within the communities of the Corangamite Shire over the low quality of rural roads. Future road upgrading programs will therefore need to satisfy all existing and potential road users – including cyclists.

There are some well-recognised techniques for accommodating cyclists on rural roads. Generally, cyclists on rural roads would be experienced and very used to dealing with fast traffic. Widening shoulders to permit a reasonable space for cyclists to travel in is perhaps the most common technique for improving conditions for cyclists. There is therefore a need to progressively add sealed shoulders and edge lines to rural roads in road upgrading and/or re-sheeting programs – recognising that it is prohibitively expensive to widen all roads to establish sealed shoulders.

The use of "Bicycle Warning" (W6-7) and "Cyclists Training Route" (W6-V101) signage on major rural roads is a common practice. Sign W6-7 should be used where the presence of bicycles travelling along the road may be expected. Sign W6-V101 is used to warn motorists that they may encounter groups of cyclists on designated training routes for clubs affiliated with Victorian Cycling Inc. The signs may be placed where cyclists first enter the road and repeated at 5km spacings, or just beyond significant intersections as appropriate. It is understood that VicRoads is considering the addition of a supplementary "Share the Road" plate below the W6-V101 sign plate.

In a report prepared for VicRoads, entitled *Rural Circuit Riding Around Warrnambool*, the author recommends a number of actions to improve on-road cycling conditions for rural roads within the Warrnambool area. They include:

- Revamped major pictorial "Cyclists" signs at the commencement of the major circuits and at points where cyclists enter major roads. "Supplementary Distance Signs" may be added to these signs.
- Greater interactions between the Council's Maintenance Manager and cyclists, to identify and rectify problems on the circuits, and to be informed of impending road and bridge works and general maintenance.
- Repair of isolated potholes, depressions and broken edges.
- Removal of debris at edges of roads, sweeping of shoulders of bridges, etc.
- Securing of special funding to include road-upgrading programs for cyclists, such as sealed shoulder widening of roads at curves and crests.

These recommendations are also applicable to roads used not only by cyclists in training, but also for cycle tourists in the Corangamite Shire.

The development of a bicycle user group or cycle club in Corangamite Shire would help facilitate greater communication between cyclists and those responsible for road upgrading and maintenance programs. A process whereby the maintenance staff of the Corangamite Shire can be alerted to road deficiencies and road problems is required. In urban areas, it has been practice in some local governments (elsewhere in the world) for a "Hazard Report Form" to be made available at various locations within the local government area (or electronically, via the internet), for cyclists (and/or pedestrians) to complete and submit to Council for action. See dpi.wa.gov.au/cycling/2345.asp for an example of the system currently operating in Western Australia. The Corangamite Shire (or local BUG's) could adopt a similar system.

The following photographs indicate some of the issues involved in the current situation of cycling on rural roads, and some of the preferred solutions. Generally, as/when roads are upgraded a sealed shoulder should be added (making the road safe for cycling, as well as reducing the maintenance requirements for road edges).

	
<p><i>Some sections of the highways through the Corangamite Shire have good sealed shoulders suitable for cycling.</i></p>	<p><i>Shoulders on highways are not always uniform in width and some end abruptly. An ongoing program is required to ensure all highways have shoulders of adequate width.</i></p>
	
<p><i>Quality and width of shoulders varies from highway to highway, and locality to locality. This wide, red coloured shoulder is on the western outskirts of Terang.</i></p>	<p><i>Sign W6-V101 ("Cyclists Training Route") advises other road users of the probable presence of cyclists on the roads. It could have a wider application, to cover the likely presence of cycle tourists.</i></p>



Pavement re-sheet on Terang Mortlake Rd. 3.8m wide lanes; edge line could be at 3.2, with 0.6m wide shoulder.



Roads are regularly being upgraded, such as the addition of a shoulder to the edge of the Lavers Hill-Cobden Road, north of Simpson.

10.0 Cost Estimates – Proposed New Facilities and Improvements

The following tables summarise the on-road bicycle facility improvements recommended for each of the towns of the Corangamite Shire investigated during this project:

Camperdown (C)

	Road Name	Section From	Section To	Length (km)	Action	Cost	Agency	Priority
C1	Princes Hwy	Wright St	Camperdown-Cobden Rd	1,050m	Re-paint lane lines and re-paint bike logos in bike lanes.	\$5,400	VicRoads	1
C2	Princes Hwy	Old Timboon Rd	Brooke St	850m	Re-paint lane lines and re-paint bike logos in bike lanes.	\$4,600	VicRoads	1
C3	Princes Hwy	Brooke St	McNicol St	360m	Install logos in bike lane at regular intervals.	\$1,200	VicRoads	1
C4	Princes Hwy	Camperdown-Cobden Rd	McNicol St	250m	Re-paint bike lane lines and re-paint bike lane logos.	\$1,600	VicRoads	1
C5	Pike St	Manifold St	Fergusson St	100m	Install centre lining to road, and install 1.25m bike lanes (with logos) and 3.0m wide traffic lanes.	\$1,200	Council	1
C6	Pike St	Fergusson St	Longmore St	350m	Install centre lining to road, and install 2.4m car parking lanes; 1.5m bike lanes and 3.6m wide traffic lanes.	\$4,500	Council	2
C7	Camperdown – Cobden Rd	Princes Hwy	Scott St	100m	Install edge line to traffic lanes to create 3.0m wide traffic lanes.	\$200	VicRoads	2

C8	Camperdown – Cobden Rd	Scott St	Brooke St	750m	Re-mark road to create 3.0m wide traffic lanes and 3.5m wide shared car parking and bike lanes.	\$7,500	VicRoads	2
C9	McNicol St	Princes Hwy	Scott St	100m	Install centre lining to road, and install 1.25m wide bike lanes (with logos) and 3.0m wide traffic lanes.	\$1,200	Council	2
C10	McNicol St	Scott St	Campbell St	100m	Install shared car parking and bike lanes, with 3.0m wide traffic lanes.	\$1,000	Council	2
C11	Brooke St	Princes Hwy	McNicol St	620m	Install centre lining to road, and install 1.4m wide bike lanes (with logos) and 3.0m wide traffic lanes.	\$6,420	Council	2
C12	Brooke St	McNicol St	Camperdown-Cobden Rd	330m	Install 3.8m wide shared car parking and bike lanes, with traffic lanes 3.0m wide.	\$2,220	Council	2

Cobden (CO)

	Road Name	Section From	Section To	Length (km)	Action	Cost	Agency	Priority
CO1	Curdie St	Adams St	Terang Mortlake Rd	800m	Re-instate all faded logos and lane lines.	\$4,000	VicRoads	1
CO2	Curdie St	Adams St	Victoria St	200m	Re-instate logos and re-paint bike lane lines.	\$1,400	VicRoads	1
CO3	Victoria St	Stirling St	Bridge	400m	Re-instate all faded logos and lane lines.	\$2,900	VicRoads	1

CO4	Victoria St	Bridge	Curdie St	250m	Re-paint all faded logos.	\$1,500	VicRoads	1
CO5	Victoria St	Curdie St	Parrott St	100m	Install centre line and bike lane (with logos).	\$1,200	VicRoads	2
CO6	Curdie St	Victoria St	Walker St	200m	Install bike lane logos.	\$900	VicRoads	1
CO7	Camperdown-Cobden Road	Terang Mortlake Rd	Cemetery Rd	2,700m	Widen and seal shoulders (by up to 1.2m) to create 1.5m bike lanes (and 3.1m traffic lanes).	\$48,600	Council	5

Derrinallum (D)

	Road Name	Section From	Section To	Length (km)	Action	Cost	Agency	Priority
D1	Hamilton Highway	Chatsworth Rd	Ligar St	750m	Install bike lanes on highway. Centre line may need to be re-located.	\$7,500	VicRoads	2
D2	Hamilton Highway	Main Street	Recreation Reserve	150m	Construct a 2.5m wide shared path.	\$12,000	VicRoads / Council	2
D3	Hodson St	Lloyd St	Campbell St	510m	Seal existing trail	\$40,800	Council	3

Lismore (L)

	Road Name	Section From	Section To	Length (km)	Action	Cost	Agency	Priority
L1	Hamilton Hwy (north side)	Richardson Lane	Gray St	1,400m	Repaint the bike lane lines, and re-paint the bicycle logos within the bike lanes.	\$4,600	VicRoads	1
L2	Hamilton Hwy (south side)	Brown Street	Gray St	1,000m	Repaint the bike lane lines, and re-paint the bicycle logos within the bike lanes.	\$3,500	VicRoads	1
L3	Bridge crossing	Both shoulders of		30m x 2	Seal both shoulders	\$720	VicRoads	2

	on Hamilton Hwy	bridge			across bridge (0.8m over distance of 30m).			
L4	Hamilton Hwy	Approach to bridge – south end of bridge		10m	Re-surface Hamilton Hwy over distance of 10m (2.0m wide).	\$2,000	VicRoads	1
L5	Hamilton Hwy	Gray Street	Cemetery Road	220m & 180m	Widen shoulders on approaches to bridge.	\$5,600	VicRoads	4
L6	Hamilton Hwy	South end of bridge			Relocate speed zone signs to north-east side of bridge.	\$300	VicRoads	2
L7	Hamilton Hwy	School crossing		25m	Construct new section of shared path (and 2 kerb ramps).	\$3,400	Council	2

Noorat (N)

	Road Name	Section From	Section To	Length (km)	Action	Cost	Agency	Priority
N1	Terang Mortlake Rd	McKinnons Bridge – Noorat Rd	180m south	180m	Install 1.5 metre wide bike lanes both sides of road.	\$1,320	VicRoads	2
N2	McKinnons Bridge – Noorat Rd	Terang Mortlake Rd	Glenormiston Rd	120m	Paint bike lane logos within the bike lanes.	\$600	VicRoads	1
N3	McKinnons Bridge – Noorat Rd	Primary School	Recreation Reserve	750m	Construct new section of shared path (and 1 kerb ramps).	\$80,000	Council	3
N4	McKinnons Bridge – Noorat Rd	Mercy Regional College	Proposed new path	30m	Construct new section of shared path (across median in road).	\$3,600	Council	3

Skipton (S)

	Road Name	Section From	Section To	Length (km)	Action	Cost	Agency	Priority
S1	Glenelg Highway	Bridge	Beaufort Skipton Rd	470m	Install 800 – 1000 mm sealed shoulders.	\$7,520	VicRoads	4
S2a	Glenelg Highway	East side of bridge		120m	Install bike lanes for 120m east of bridge (subject to bridge replacement program proposals) – both sides of road.	\$1,080	VicRoads	2
S2b	Glenelg Highway	East side of bridge	80kph sign	480m	Install sealed shoulders – both sides.	\$7,680	VicRoads	4
S3	Mt Emu Creek Bridge				Provide safe bicycle access to and over bridge.	n/a	VicRoads	1
S4	Lismore – Skipton Road	Glenelg Hwy	Station Street	520m	Install 1.5m wide bike.	\$3,040	VicRoads	2
S5a	Rokewood – Skipton Road	Glenelg Hwy	100m south	100m	Install bike lanes.	\$800	VicRoads	4
S5b	Rokewood – Skipton Road	100m south of Glenelg Hwy	350m south of Glenelg Hwy	250m	Shoulders could be sealed.	\$3,500	VicRoads	4

Simpson (SI)

	Road Name	Section From	Section To	Length (km)	Action	Cost	Agency	Priority
SI1	Lavers Hill – Cobden Rd	Murrock St	Williams Rd	150m	Mark edge lines, with 3.1m lanes, and create sealed shoulders.	\$3,000	VicRoads	2

SI2	Lavers Hill – Cobden Rd	Opposite Williams Rd		10m	Construct 10m link path	\$1,000	VicRoads	2
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Terang (T)

	Road Name	Section From	Section To	Length (km)	Action	Cost	Agency	Priority
T1	Princes Hwy	Lyons Street	Estcourt Street	740m	Re-paint bike lane logo within bike lanes at regular intervals through town.	\$1,800	VicRoads	1
T2	Princes Hwy	West side of town		150m x 2	Widen shoulder for 150m west of exit from Terang Primary College (both sides of highway).	\$2,100	VicRoads	2
T3	Terang – Mortlake Rd	Princes Hwy	Swanston St	310m	Install bike lanes, both sides of road.	\$2,740	VicRoads	2

Timboon (TI)

	Road Name	Section From	Section To	Length (km)	Action	Cost	Agency	Priority
TI1	Bailey St	Curdies River Rd	George St	740m	Install 1.5m wide bike lanes.	\$3,880	VicRoads	1
TI2	Bailey St	George St	Hospital Rd	350m	Install 1.4m wide bike lanes.	\$1,600	VicRoads	1
TI3	Bailey St	Hospital Rd	Curdievale Rd	100m	Widen and seal shoulders to create 1.0m wide shoulder.	\$2,700	VicRoads	2
TI4	Curdievale Rd	Lambert St	Hayward Rd	740m	Install 1.5m wide bike lanes.	\$2,680	Council	1
TI5	Barrett St	Morgan St	Bond St	350m	Install 1.5m wide bike lanes.	\$1,600	VicRoads	1

TI6	Barrett St	Bond St	Bailey St	550m	Widen and seal shoulder on west side by 1.0m. Install edge lines to road to create 3.0m lane and 1.0m shoulder on east side and 3.0m lane and 1.5m bike lane on west side.	\$4,050	VicRoads	4
TI7	Timboon Port Campbell Rd	Through Timboon's commercial centre		80m	Paint edge lines for traffic lanes (3.0 – 3.2m), and create 1.5m wide bike lanes.	\$920	VicRoads	1

Notes:

1. Cost of line marking estimated at \$1.00 per lineal metre.
2. Cost of bike lane logo estimated at \$150 per logo.
3. Cost of widening roads (by sealing shoulder) estimated at \$10,500 / km for 1.5m width; \$7,000 / km for 1.0m width; and \$3,500 / km for 0.5m width.
4. Roads with the classification designation of either A, B or C are roads under the jurisdiction of VicRoads. Bike lane line marking and bike lane logos are generally the responsibility of VicRoads as they occur on A, B or C class roads.

11.0 Bicycle Parking

Research indicates that the lack of secure bicycle parking facilities at the destination deters many 'would-be' cyclists from making some trips by bicycle. In towns such as those examined in this Corangamite Bicycle Strategy, one of the most effective and low cost improvements to the cycling environment is the provision of bicycle parking. However, the bike parking facilities must be appropriately located, and of a suitable design. All too often local government staff bemoans the fact that bicycle parking is not used – without realising that the facility provided may be a poor design, and probably not located where cyclists want it.

Good, secure bicycle parking encourages bicycle use.

Cyclists' needs for bicycle parking range from simply a convenient piece of street furniture, to storage in a bicycle locker that affords weather, theft and vandalism protection, gear storage space, and 24-hour personal access. Where a cyclists' need falls in this range is determined by several factors:

- Type of trip being made: whether or not the bicycle will be left unattended all day or just for a few minutes.
- Weather conditions: covered bicycle parking is more important during winter.
- Value of the bicycle: the more a cyclist has invested in a bicycle, the more the concern the cyclist will show for theft protection.

Bicycle parking facilities were observed within a number of the towns of the Corangamite Shire. Most were of an acceptable design and usually well located.

The preferred style of bicycle parking facility for casual use is a simple rail bent from steel pipe (ie. an inverted "U" shape – see illustration which follows). This style of bicycle parking rail allows use of all common types of locks. Because the parking rail supports the frame of the bicycle, there is no risk of damage to the wheels.

To encourage additional local trips to be made by bicycle, the installation of parking rails at several destinations within the commercial area of each town, sporting venues and other community facilities is recommended.

The following list provides detail about where bicycle parking facilities should be provided within each townsite.

Bicycle Parking (Camperdown)

	<i>Place</i>	<i>Parking Required</i>	<i>Location</i>
North side Princes Hwy			
1	Picture Theatre	2	Outside entrance
2	Mechanics Institute	1	Replace old style parking at front of entrance (cnr Manifold & Bath)
3	Camperdown Community Centre (library)	2	Outside entrance
4	Post Office	1	NW corner Manifold & Church

5	Video shop	1	W corner Manifold & Pike
6	ANZ Bank	1	NE corner Manifold & Pike
7	Clock Tower Café	1	Outside entrance
8	Fish & Chips / Commonwealth Bank	1	Outside entrance
9	Community Health	1	Outside entrance
10	Adult Education Centre	1	Outside entrance
11	Bakery	1	NW corner Manifold & Cressy
South side Princes Hwy			
12	The Fish Shack	1	SE corner Leura/Princes
13	Public toilets	1	Between Leura & Camperdown-Cobden Rd
14	Café Caffe	1	SW corner Camperdown-Cobden Rd & Princes
15	IGA supermarket	1	Outside entrance
16	Near Café 153	1	On kerb extension for pedestrian crossing
17	Leura Hotel	1	NE corner Princes/McNicol
18	Court A'fair Café	1	Outside entrance
19	Corangamite Shire Offices	1	Outside entrance
20	National Australia Bank	1	On kerb extension for pedestrian crossing
21	Davis' Milk Bar	1	On kerb extension for pedestrian crossing
22	Newsagent	1	Outside entrance
23	Bakery / Cobb Loaf Café	1	On kerb extension
Other locations			
24	Railway Station	1	Outside entrance
Total		26	

Bicycle Parking (Cobden)

	Place	Parking Required	Location
1	Each corner of junction of Victoria St and Curdie St (ie. outside Thompsons Hotel; NAB; Curdie St Clinic; Bendigo Bank)	4	On 'streetscaped' areas
2	Post Office	1	Outside entrance
3	Newsagent (Curdie Arcade)	2	Outside entrance
4	Pharmacy	1	Outside entrance
5	Bakery / milk bar	1	Outside entrance

6	Library	1	Outside entrance
7	Fruit and veg shop (on Victoria St)	1	Outside entrance
8	Swimming Pool	2	Outside entrance
9	Apex Park	2	Near picnic / parking area
Note 1	Existing parking at: fish and chip shop; IGA; Copy Shop' Milk Bar.		
Note 2	Old style bike parking exists at golf club.		
Total		15	

Bicycle Parking (Derrinallum)

	Place	Parking Required	Location
1	Post office / library	1	Outside entrance
2	DISC	1	Outside entrance
3	Public toilets	2	Near entrance
Note	Existing bike parking at grocer and milk bar/newsagency (see photos)		
Total		4	

Bicycle Parking (Lismore)

	Place	Parking Required	Location
1	The Blue Yabby	1	Outside entrance
2	Public toilets (opposite Blue Yabby)	2	Near entrance
3	Post Office	1	Outside entrance
4	Foodworks	1	Outside entrance
5	Health Care Centre	1	Outside entrance
Total		6	

Bicycle Parking (Noorat)

	Place	Parking Required	Location
1	General store	1	Outside entrance
2	Post Office	1	Outside entrance
Total		2	

Bicycle Parking (Skipton)

	Place	Parking Required	Location
1	Swimming pool	3	Replace old style parking at front of entrance
2	Post office	1	On path outside building
3	Bank	1	On path outside building
4	Chrissie Ries Takeaway	1	On path outside building
5	Skipton Hotel	1	On path outside building
6	Foodworks	1	On path outside building
Note	Existing bicycle parking at public toilets (info bay) on Montgomery St		
Total		8	

Bicycle Parking (Simpson)

	Place	Parking Required	Location
1	Shopping 'centre' (The Settlement / Goodfellows)	2	Outside entrance
2	Simpson takeaway	1	Outside entrance
3	Recreation Reserve	1	Near entrance
4	Simpson Hall	1	Outside entrance
Total		5	

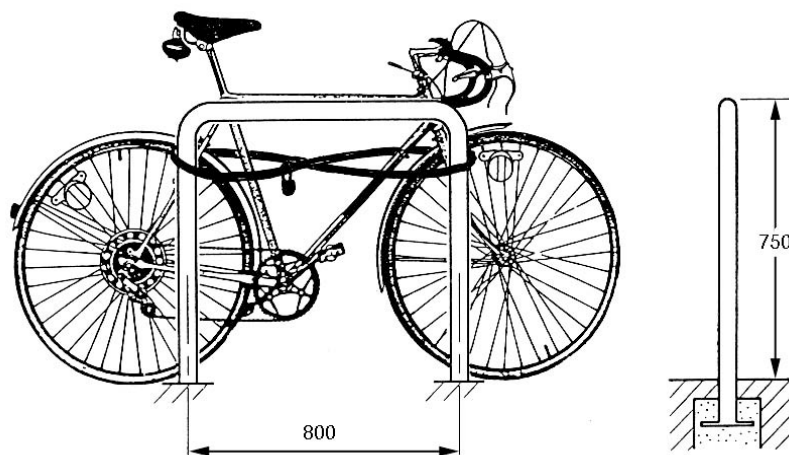
Bicycle Parking (Terang)

	Place	Parking Required	Location
1	Swimming pool	2	Outside entrance
2	Tourist information building (in median)	1	Outside entrance
3	Various shops in main commercial centre between Shadforth St and Estcourt St - north side of Princes Hwy	5	Outside entrances
4	Railway station	2	Outside entrance
5	Post Office	1	Outside entrance
6	Replace old style racks from outside IGA store	2	Outside entrance
7	Replace old style racks from outside squash centre	2	Outside entrance
8	Various locations on south side of Princes Hwy between	2	Outside entrances

	McKinnon St and Estcourt St (milk bar; grocer)		
9	ANZ and NAB banks	2	Outside entrances
10	The Civic	2	Outside entrance
11	Terang library	1	Outside entrance
12	Public toilets	1	Outside entrance
Total		23	

Bicycle Parking (Timboon)

	Place	Parking Required	Location
1	Timboon Hotel	2	Near entrance
2	NAB	1	Outside entrance
3	Timboon Newsagency	1	Kerb extension
4	Timboon Post Office	1	Outside entrance
5	Replace old style racks from outside Timboon Sporting Centre	2	Outside entrance
Note	Existing parking rails at IGA (2), butcher (2), Resource Centre (2)		
Total		7	



The recommended (and Australian Standard approved) bicycle parking facility is the simple but effective "hitching rail", as illustrated in this diagram.

12.0 Implementation Program

The following table presents a detailed, itemised schedule of all the improvements and new facilities required, with a clear indication of which of the proposed projects is the most important.

Project	Recommended Improvement	Prelim Cost Estimate	Priority
Year 1 – 2007-2008			
C1	(Camperdown) Princes Hwy - Re-paint lane lines and re-paint bike logos in bike lanes.	\$5,400	1
C2	(Camperdown) Princes Hwy - Re-paint lane lines and re-paint bike logos in bike lanes.	\$4,600	1
C3	(Camperdown) Princes Hwy - Install logos in bike lane at regular intervals.	\$1,200	1
C4	(Camperdown) Princes Hwy - Re-paint bike lane lines and re-paint bike lane logos.	\$1,600	1
C5	(Camperdown) Pike St - Install centre lining to road, and install 1.25m bike lanes (with logos) and 3.0m wide traffic lanes.	\$1,200	1
CO1	(Cobden) Curdie St - Re-instate all faded logos and lane lines.	\$4,000	1
CO2	(Cobden) Curdie St - Re-instate logos and re-paint bike lane lines.	\$1,400	1
CO3	(Cobden) Victoria St - Re-instate all faded logos and lane lines.	\$2,900	1
CO4	(Cobden) Victoria St - Re-paint all faded logos.	\$1,500	1
CO6	(Cobden) Curdie St - Install bike lane logos.	\$900	1
L1	(Lismore) Hamilton Hwy (north side) - Repaint the bike lane lines, and re-paint the bicycle logos within the bike lanes.	\$4,600	1
L2	(Lismore) Hamilton Hwy (south side) - Repaint the bike lane lines, and re-paint the bicycle logos within the bike lanes.	\$3,500	1

L4	(Lismore) Hamilton Hwy - Re-surface Hamilton Hwy over distance of 10m (2.0m wide).	\$2,000	1
N2	(Noorat) McKinnons Bridge - Noorat Rd - Paint bike lane logos within the bike lanes.	\$600	1
S3	(Skipton) Mt Emu Creek Bridge - Provide safe bicycle access to and over bridge.	N/A	1
T1	(Terang) Princes Hwy - Re-paint bike lane logo within bike lanes at regular intervals through town.	\$1,800	1
TI1	(Timboon) Bailey St - Install 1.5m wide bike lanes.	\$3,880	1
TI2	(Timboon) Bailey St - Install 1.4m wide bike lanes.	\$1,600	1
TI4	(Timboon) Curdievale Rd - Install 1.5m wide bike lanes.	\$2,680	1
T15	(Timboon) Barrett St - Install 1.5m wide bike lanes.	\$1,600	1
T17	(Timboon) Timboon Port Campbell Rd - Paint edge lines for traffic lanes (3.0 - 3.2m), and create 1.5m wide bike lanes.	\$920	1
Total Year 1		\$47,880	
Year 2 - 2008-2009			
C6	(Camperdown) Pike St - Install centre lining to road, and install 2.4m car parking lanes; 1.5m bike lanes and 3.6m wide traffic lanes.	\$4,500	2
C7	(Camperdown) Camperdown - Cobden Rd - Install edge line to traffic lanes to create 3.0m wide traffic lanes.	\$200	2
C9	(Camperdown) McNicol St - Install centre lining to road, and install 1.25m wide bike lanes (with logos) and 3.0m wide traffic lanes.	\$1,200	2
C11	(Camperdown) Brooke St - Install centre lining to road, and install 1.4m wide bike lanes (with logos) and 3.0m wide traffic lanes.	\$6,420	2
C12	(Camperdown) Brooke St - Install 3.8m wide shared car parking and bike lanes, with traffic lanes 3.0m wide.	\$2,220	2

D1	(Derrinallum) Hamilton Highway - Install bike lanes on highway. Centre line may need to be re-located.	\$7,500	2
L3	(Lismore) Bridge crossing on Hamilton Hwy - Seal both shoulders across bridge (0.8m over distance of 30m).	\$720	2
L6	(Lismore) Hamilton Hwy - Relocate speed zone signs to north-east side of bridge.	\$300	2
L7	(Lismore) Hamilton Hwy - Construct new section of shared path (and 2 kerb ramps).	\$3,400	2
N1	(Noorat) Terang Mortlake Rd - Install 1.5 metre wide bike lanes both sides of road.	\$1,320	2
S2a	(Skipton) Glenelg Highway - Install bike lanes for 120m east of bridge - both sides of road.	\$1,080	2
S4	(Skipton) Lismore - Skipton Road - Install 1.5m wide bike.	\$3,040	2
SI1	(Simpson) Lavers Hill - Cobden Rd - Mark centre line, with 3.1m lanes, and create sealed.	\$1,200	2
SI2	(Simpson) Lavers Hill - Cobden Rd - Construct 10m link path.	\$1,000	2
C8	(Camperdown) Camperdown - Cobden Rd - Re-mark road to create 3.0m wide traffic lanes and 3.5m wide shared car parking and bike lanes.	\$7,500	2
C10	(Camperdown) McNicol St - Install shared car parking and bike lanes, with 3.0m wide traffic lanes.	\$1,000	2
CO5	(Cobden) Victoria St - Install centre line and bike lane (with logos).	\$1,200	2
T2	(Terang) Princes Hwy - Widen shoulder for 150m west of exit from Terang Primary College (both sides of highway).	\$2,100	2
T3	(Terang) Terang - Mortlake Rd - Install bike lanes, both sides of road.	\$2,740	2
TI3	(Timboon) Bailey St - Widen and seal shoulders to create 1.0m wide shoulder.	\$2,700	2
Total Year 2		\$51,340	

Year 3 – 2009-2010			
N3	(Noorat) McKinnons Bridge – Noorat Rd. Construct 750m of shared path (and 1 kerb ramp).	\$80,000	3
N4	(Noorat) Construct 30m of shared path (across median in road).	\$3,600	3
Total Year 3		\$83,600	
Year 4 – 2010-2011			
D2	(Derrinallum) Hamilton Highway - Construct a 2.5m wide shared path.	\$12,000	4
L5	(Lismore) Hamilton Hwy - Widen shoulders on approaches to bridge.	\$5,600	4
S1	(Skipton) Glenelg Highway - Install 800 - 1000 mm sealed shoulders.	\$7,520	4
S2b	(Skipton) Glenelg Highway - Install sealed shoulders – both sides.	\$7,680	4
S5a	(Skipton) Rokewood – Skipton Road - Install bike lanes.	\$800	4
S5b	(Skipton) Rokewood – Skipton Road - Shoulders to be sealed.	\$3,500	4
TI6	(Timboon) Barrett St - Widen and seal shoulder on west side by 1.0m. Install edge lines to road to create 3.0m lane and 1.0m shoulder on east side and 3.0m lane and 1.5m bike lane on west side.	\$4,050	4
Total Year 4		\$41,150	
Year 5 – 2011-2012			
CO7	(Cobden) Camperdown- Cobden Road - Widen and seal shoulders (by up to 1.2m) to create 1.5m bike lanes (and 3.1m traffic lanes).	\$48,600	5
Total Year 5		\$48,600	

Five-Year Work Program for Implementation

5 Year Work Program for Implementation					
	Year 1	Year 2	Year 3	Year 4	Year 5
Priority 1 Projects	\$47,880				
Priority 2 Projects		\$51,340			
Priority 3 Projects			\$83,600		
Priority 4 Projects				\$41,150	
Priority 5 Projects					\$48,600

Bicycle Parking Costs

94 bicycle [parking racks (at approx. \$300 each) have been recommended. This is an additional \$28,200.

The cost of parking rails could be spread over Years 1 and 2 of the program suggested in the above table.

Appendix 1 Funding Opportunities

Several funding opportunities exist that may assist the implementation of this bicycle strategy. These include:

VicRoads

VicRoads is responsible for upgrading and completing strategic sections of the Principal Bicycle Network in metropolitan Melbourne and Priority Bicycle Routes in regional cities and towns. Bicycle facilities are also provided as part of major road projects, where appropriate.

As well as providing bicycle facilities as part of VicRoads' Bicycle Program, VicRoads also provides bicycle facilities as part of major road projects and whenever roads are upgraded.

It is proposed to spend approximately \$16.7 million to provide bicycle facilities as part of six major road projects in 2005/2006. When completed these facilities will add about 42 km of new bicycle facilities

VicRoads provides funding for the cycle network on state roads and Council should look to maintain regular liaison with VicRoads on the works identified in this Strategy.

Bicycle Facilities Projects Program 2005/2006

VicRoads is spending approximately \$20 million on bicycle projects in 2005/2006 to add about 100 km of new bicycle facilities to existing networks. This is divided between the Bicycle Facilities Program and spending as part of major road projects.

VicRoads Bicycle Facilities Program has a \$3.845 million budget for bicycle projects in 2005/2006, divided between metropolitan Melbourne and regional Victoria as shown in the following table:

Area	No. of projects	Distance	Allocation
Metropolitan Melbourne	9	8.7 km	\$1.998
Regional Victoria	33	42.7 km	\$1.847
<i>Total</i>	<i>42</i>	<i>51.4 km</i>	<i>\$3.845</i>

Traffic and Transport Integration Program – (T&TI – VicRoads)

Funding may be available through VicRoads' Traffic and Transport Integration Program.

The Transport Act 1983 gives VicRoads responsibility for developing and implementing traffic management strategies and practices to achieve the efficient and safe movement of traffic.

The Traffic and Transport Integration Program is delivered taking into account the Victorian Government's vision for growing and linking all of Victoria outlined in Growing Victoria Together.

VicRoads has a key role in implementing these plans including:

- Improving road safety
- Providing safer and better access to public transport

- Improving facilities for pedestrians and cyclists
- Improving the reliability and flow of road-based public transport
- Making existing roads operate better
- Improving outer metropolitan roads
- Improving freight connections and access to key freight routes
- Improving travel choice and local amenity.

Department of Infrastructure (DOI) and the Department of Sustainability and Environment (DSE) - TravelSmart

Provides funding for activities that promote walking and cycling among the local community under the TravelSmart program.

Road to Recovery Funding Program

The Australian Government has extended its Roads to Recovery Programme to continue addressing the problem that much of the local government road infrastructure in Australia was about to reach the end of its useful life and its replacement was beyond the capacity of the councils to pay. This program has been in operation since December 2000.

The Australian Government announced that a further \$1.2 billion will be paid out for a further four years from June 2005. The funding will be distributed at a rate of \$300 million a year. Eligible works can include:

- Footpaths and bicycle paths
- Lighting and other roadside amenities

While the Roads to Recovery funding is allocated to the rehabilitation of existing roads by Council and this will remain a priority, coordination of the roads to recovery works with the strategy will ensure that any proposals that can be incorporated into rehabilitation works are addressed.

Appendix 2 References

Austrroads – **Guide to Traffic Engineering Practice – Pt 14 – Bicycles**

Bauman, A. (1999), **Physical Activity Levels of Australians. Results of the 'Active Australia' Baseline Survey** - Australian Sports Commission, Canberra ACT, November 1997)

Strategic Services – South Australian Tourism Commission **Cycling Tourism – A Background Research Paper** (June 1999)

VicRoads **Cycle Notes: Design standards for bicycle facilities**

Cycle Notes is a series of information bulletins on design standards for cycling infrastructure, intended for engineers, planners and cycling enthusiasts. Cycle Notes provide guidance on topics not covered in the Austrroads Guide to Engineering Practice, Part 14 Bicycles (link to Austrroads website).

Titles in the series

Cycle Notes No. 1 [PDF, 53 KB, 2 pages] - Bicycle Facility Design Guidelines, March 1999

Cycle Notes No. 2 [PDF, 105 KB, 2 pages] - Bicycle Lanes, May 1999

Cycle Notes No. 3 [PDF, 139 KB, 2 pages] - Shared Bicycle/Pedestrian Path Design, July 1999

Cycle Notes No. 4 [PDF, 104 KB, 2 pages] - Clearway Bicycle Lanes, September 1999

Cycle Notes No. 5 [PDF, 82 KB, 2 pages] - 'Head Start' Storage Areas at Intersections, February 2000

Cycle Notes No. 6 [PDF, 87 KB, 2 pages] - Signing of Rural Training circuits, April 2000

Cycle Notes No. 7 [PDF, 648 KB, 4 pages] - On-Road Arterial Bicycle Routes, August 2000

Cycle notes No. 8 [PDF, 270 KB, 4 pages] - Providing for Cyclists at Signalised Intersections, February 2001

Cycle Notes No. 9 [PDF, 450 KB, 4 pages] - Creating On-Road Space for Cyclists, April 2001

Cycle Notes No. 10 [PDF, 435 KB, 4 pages] - Shared Path Behavioural Signs, July 2001

Cycle Notes No. 11 [PDF, 343 KB, 4 pages] - Directional Signing for Off-Road Paths, July 2002

Cycle Notes No. 12 [PDF, 337 KB, 4 pages] - Design Standards for Bicycle Facilities, October 2002

Cycle Notes No. 13 [PDF, 526 KB, 4 pages] - Wide Kerbside Lane Markings, July 2004

Cycle Notes No. 14 [PDF, 361 KB, 4 pages] - Coloured Surface Treatments for Bicycle Lanes, April 2005

Cycle Notes No. 15 [PDF 777 KB, 8 pages] - Providing for Cyclists at Roundabouts, June 2005

Cycle Notes No. 16 [PDF 563 KB, 8 pages] - Safe Road Crossings for Off-Road Paths, August 2005

Cycle Notes No. 17 [PDF 290 KB, 4 pages] - Terminal Treatments for Off-Road Paths, October 2005

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