

SHOALHAVEN
BIKEPLAN

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Executive summary

The *Shoalhaven Bike Plan (Plan)* identifies priority projects and infrastructure needs to guide Shoalhaven City Council to develop an integrated cycling network spread across a unique geographical and natural environment. This environment has heavily influenced settlement patterns and infrastructure provision such as transport corridors. The cycle network also builds on this environment and consists of on-road, off-road and mountain bike trail routes.

The *Plan's vision* is:

To create a safe and accessible bike route network that builds on existing assets and works towards connecting key cycling destinations and encourages people of all ages to use their bikes for everyday transportation and recreation.

The *Plan* is based on six key outcome areas, being:

- Bike friendly streets and roads;
- Safety and education;
- Connecting to public transport;
- Start, on-route and destination facilities;
- Promotion to residents and visitors; and,
- Leadership and advocacy.

Each of these outcomes are supported by guiding principles, objectives and actions to assist its implementation by Council, other government agencies and where possible assistance from community groups to meet the *Plan's* goals.

The integration and connection of a Shoalhaven cycling network will lead to the creation of safe and accessible travel routes that will improve the liveability, sustainability and tourist potential of the area while in turn encourage people of all ages to use bikes for everyday transport and enjoyment.

The bike route network proposed in this *Plan* will be challenging for Council to deliver due to its extensive coverage and requirement for a long term funding commitment. To meet this challenge, actions and priority projects identified in the *Plan* will be implemented as funding sources are identified (including grant funding) and/or relevant in-kind assistance is provided by community groups.

To successfully implement the *Plan*, will also rely on it being flexible to meet changing priorities over time and which changes to the *Plan* are overseen and by a dedicated community cycling committee which includes Council, RMS and community representatives. To guide the decisions of such a Committee, key actions and priority projects are detailed in Sections 4 and Appendix 4 of the *Plan*.

The bike route network which consists of existing and proposed components can be viewed by clicking on the internet link below:

<http://shoalhaven.nsw.gov.au/DiscoverShoalhaven/Walksandcycling.aspx>

Glossary & abbreviation of terms

The following is a glossary of terms and abbreviations detailed in this plan.

Bicycle contra-flow lane - Some streets permit motorised vehicles to travel in one direction only. Bicycles are permitted in the opposite direction by the use of a bicycle lane.

Bicycle lane - A lane that is sign posted for use by bicycle riders only and marked with painted lines or a coloured surface, without a physical separation from motor vehicles. Riders are required to use these lanes unless it is impractical to do so.

Bicycle path - A length of path for the exclusive use of bicycle riders. A bicycle path must have either designated signage or pavement markings.

Bike route network – All of the bike routes in the City, considered collectively.

Bike route – The lines of travel marked on the maps in this *Plan*. They may be on-road or off-road and are categorised as connector travel routes, local travel routes or scenic/recreational routes.

CBD – Central Business District.

Connector travel routes - Connecting regional centres, towns and villages, high activity areas and adjacent Local Government areas. Connector travel routes may be on-road or off-road, but because of the long distances and nature of the roads, most will be on-road. Some on-road routes may be busy and therefore suit more experienced riders.

Council – Shoalhaven City Council.

Cycleway – Generic term for on-road or off-road bike route.

Cycling facility – Generic term used to explain parts of the bike route network and supporting infrastructure such as parking.

Cyclist / Rider – In the context of this *Plan* mean the same i.e. person that rides a bicycle.

Local travel routes - Providing access to and within commercial centres, key transport nodes, recreational and community facilities, schools and other education facilities. Local travel routes may link to connector travel routes and mainly use local roads and off-road paths. The roads are likely to be less busy and may suit less experienced riders.

Mixed traffic facilities – Bike routes shared with motor vehicles with or without bicycle markings or signage.

Mountain bike trails – Provide cycling opportunities on both gravel roads and purpose built tracks.

On-road – Cycling facility that forms part of a road, such as bicycle lanes, road shoulder lane or mixed traffic.

Off-road – Cycling facility that does not form part of a road, such as a bicycle path, shared path or separated path.

PAMP - Pedestrian Access and Mobility Plan.

Plan – In the content of this document, the term on its own refers to *Shoalhaven Bike Plan*.

RMS – NSW Roads & Maritime Service.

Road shoulder lane - Shoulder lanes are not designed to be used by motor vehicles for general travel, however may be used for emergency or breakdown purposes. Unless explicitly prohibited, bicycles are permitted on all shoulder lanes.

Scenic or recreational routes - Primary purpose is for recreation, touring and sport or exercise. Scenic or recreational routes mainly use local roads, off-road paths and mountain trails.

Separated path - A length of path where an exclusive bicycle path is complementary to an adjacent footpath. The separation may be visual (painted line) or physical (dividing strip or raised median).

Shared path - A path open to the public (except a separated path) that is designated for use by bicycle riders and pedestrians. A shared path must have either designated signage or pavement markings.

Shoalhaven LGA - Shoalhaven Local Government Area.

Shoulder – That part of the road outside the surface on which motor vehicles normally travel. May be sealed or unsealed.

Transport nodes – Places where people can connect with public and community transport, such as train stations and bus stops.

1 Introduction

1.1 Purpose

The purpose of the *Shoalhaven Bike Plan (Plan)* is to:

- Provide a holistic and prioritised approach to cycling planning, including supporting infrastructure, education and benefits to local business/tourism;
- Attract greater grant funding to develop the Shoalhaven bike route network;
- Encourage community input and ownership and greater use of the Shoalhaven bike route network;
- Improve the current level of maintenance and infrastructure appointments (i.e. signage, line marking, etc) of the Shoalhaven bike route network;
- Provide a safe, continuous and convenient bike route network with supporting infrastructure;
- Integrate with other key planning documents;
- Promote bike route networks with land use planning and other modes of transport;
- Foster bike riding as an alternative and active transport option for short trips and a tourism feature of the Shoalhaven; and,
- Guide and prioritise development of the Shoalhaven bike route network.

1.2 Vision

The vision that guides development of the *Plan* is:

To create a safe and accessible bike route network that builds on existing assets and works towards connecting key cycling destinations and encourages people of all ages to use their bikes for everyday transportation and recreation.

1.3 Goals

The goals of the *Plan* are:

- To increase the number of bike trips made within the Shoalhaven.
- To reduce the number of bicycle crashes and casualties in the Shoalhaven.
- To encourage greater knowledge and respect between all road users.
- To encourage bike riding as a sustainable method of transport within the Shoalhaven.
- To provide a list of bike riding priority projects to inform Council's and RMS Capital Works programs.
- To provide bike specific information to inform Council's and RMS maintenance work programs.

Photo 1: Collingwood Beach Shared Path



1.4 Outcomes

To achieve the above vision and goals, this *Plan* focuses on developing guiding principles, objectives and actions for the following six key outcome areas, being:

- Bike friendly streets and roads;
- Safety and education;
- Connecting to public transport;
- Start, on-route and destination facilities;
- Promotion to residents and visitors; and,
- Leadership and advocacy.

The guiding principles, objectives and actions are presented in Section 4 of this *Plan*.

1.5 Strategic overview

As a strategic document guiding Shoalhaven City Council's development and enhancement of its bike route network and facilities, the *Plan* is Council's primary reference document. In doing this, the *Plan* is the overarching document to guide associated asset standards and hierarchies. However, cycling uses both specific and shared assets (i.e. bike tracks v's roads, shared paths, etc) and is too broad in nature to contain within one strategic document.

Therefore, the *Plan* recognises that bike routes and facilities that are detailed in the following Council documents may subsequently need to be included in future reviews of this document:

- Pedestrian Access Mobility Plan
- Relevant Plans of Management
- Development Control Plans
- Relevant Asset Management Plans.

Further to the above, the *Plan* will also be an overarching document that:

- Prioritises development of the overall bike route network;
- Identifies needs for further supporting studies; and,
- Informs promotion of the bike route network.

The *Plan* is supported by a framework of Federal, State and Local Government documents which seek to promote cycling within the Shoalhaven. These documents include:

- Australian National Cycling Strategy 2011 – 2016
- NSW BikePlan
- Shoalhaven Community Strategic Plan
- Shoalhaven Integrated Transport Strategy.

1.6 Community ownership

The *Plan's* success relies on community ownership from both the cycling community and the wider Shoalhaven community. To encourage this ownership, *Plan* development has involved a number of community participation and feedback processes. Further to developing the *Plan*, where appropriate, it will encourage opportunities for the community to be involved in delivering associated actions.

1.7 Plan development

Development of this *Plan* involved undertaking the following key stages:

1. Review of current bike route network / facilities;
2. Detailing the Shoalhaven context;
3. Seek guidance from key bike representative groups (Working Group);
4. Formation of guiding principles, objectives and actions;
5. Identification of current and future bike route network;
6. Working draft circulated for discussion / feedback from representative groups;
7. Identification of priority projects and funding;
8. Public exhibition of the draft Plan;
9. Review of submissions from the public exhibition process; and
10. Adoption of the *Shoalhaven Bike Plan*.

1.8 Bike Plan Working Group

To assist Council achieve the above vision, goals, outcomes and community ownership of the *Plan*, a dedicated Working Group was established to represent the cycling needs and guide development of the *Plan*. The Working Group members and the groups or interests that they represent are detailed in Table 1.

Table 1: Bike Plan Working Group members

Working Group member	Groups or interests represented
Jim Florence	Shoalhaven Bicycle Users Group
Bob Lavender	Shoalhaven Bicycle Users Group
Judi Puru	Shoalhaven Bicycle Users Group
Omar Khalifa	Increasing cycling opportunities
Duncan Marshall	Bike safety
Ken Price	Jervis Bay Triathlon Club
Bart Salafia	Bike shop owner / Milton Ulladulla District Mountain Bikers
Doug Holland	Nowra Velo Club
Roger Croft	Involved in past bike planning
Lexie Meyer	Southern Shoalhaven Business Chamber

Photo 2: Cyclists using a popular rural road



2 Shoalhaven context and influence

2.1 Topography, natural environment and settlement pattern

The topography and natural environment of the Shoalhaven Local Government Areas (LGA) is unique and has heavily influenced settlement patterns and infrastructure provision such as transport corridors. This has resulted in the provision of a major north - south “spine” road (Princes Highway) which is bordered by mountain ranges to the west and the Tasman Sea to the east.

With the exception of Kangaroo Valley and Cambewarra, the majority of the main settlement pattern is located immediately adjacent and/or to the east of the Princes Highway. The settlement patterns to the east of the Highway is further divided by the topography and natural environment which consists of waterways, flood lands, significant natural areas and farming land. Therefore, in many instances transport corridors to these settlements (villages) have only one access point to / from the Highway and subsequently neighbouring settlements are not directly connected (i.e. a transport routes link back to the Highway is needed to access a neighbouring settlement).

2.2 Planning influence

The Shoalhaven’s towns and villages, for planning purposes are divided into five Planning Areas. A map and summary of the towns and villages located in each Planning Area is detailed in Appendix 1. The majority of these towns and villages are then defined in the following Settlement Hierarchy under Council’s Growth Management Strategy – see Table 2.

Table 2 Council’s Settlement Hierarchy

Settlement type	Settlement name
Major Regional Centre	Nowra-Bomaderry
Major Town	Ulladulla (includes Burrill Lake, Dolphin Point, Narrawallee, Mollymook and Kings Point), St Georges Basin District (includes St Georges Basin, Sanctuary Point, Basin View, Erowal Bay, Old Erowal Bay), Vincentia (including Bayswood)
Towns – Coastal Town	Shoalhaven Heads, Culburra Beach / Orient Point, Huskisson, Sussex Inlet
Towns – Rural Town	Milton, Berry, Kangaroo Valley
Villages – Coastal Village	Greenwell Point, Callala Bay / Callala Beach, Currarong, Myola, Hyams Beach, Cudmirrah / Berrara, Bendalong, Manyana, Cunjurong, Berringer Lake, Lake Conjola, Conjola Park, Lake Tabourie, Bawley Point, Kioloa, Depot Beach, North Durras
Village – Rural Village	Cambewarra, Falls Creek, Bewong, Tomerong, Wandandian, Fishermans Paradise

2.3 Population statistics / future growth

In 2011, the total residential population of Shoalhaven LGA was estimated at 96,043 people. The LGA is expected to experience an increase of over 30,000 people over the next 20 years to 126,944 by 2031, at an average annual growth rate of 1.29% per annum.

The main towns and villages predicted to experience significant urban expansion to meet this growth are:

- Nowra-Bomaderry (i.e. Worrigeer, North Nowra, Mundamia)
- Vincentia (i.e. Bayswater development);
- Manyana / Bendalong
- Milton
- Ulladulla / Mollymook (i.e. subdivisions west of Ulladulla / Mollymook)
- Dolphin Point

2.4 Benefits of cycling

Natural environment

Cycling has many positive outcomes for the natural environment and is a sustainable transport option compared to motorised transport options. A significant benefit toward greater use of bikes is the potential to reduce the dependency on non-renewable fossil fuels and reduce both greenhouse and toxic gas emissions from motorised transport. Another significant benefit is to reduce the dependency for large areas of land to be cleared and seal for road corridors to accommodate motorised transport which also compromises existing land uses (i.e. rural, residential, environmental land uses).

Health & social

The outcomes of health research in Australia indicates that an increasing number of Australians are becoming more obese and that most people need around 30 minutes of moderate intensity physical activity each day to maintain good health. An obvious and available option to achieve this activity is cycling. The benefits of cycling or similar exercise in a person's daily routine is the potential to minimise the health risks linked to obesity such as diabetes, heart disease, cancer and stroke.

A further benefit is that cycling is a low impact form of exercise which causes less strain and injuries than some other forms of high impact exercise and can also be easily incorporated into daily routines with added social and mental benefits. Cycling also allows easier social interaction as people have greater opportunity to interact openly and with less physical barriers.

Transportation

The use of a bike for transportation is an alternative option to motorised transport. Bike usage has the potential to offer a very efficient method of transport for short trips within Shoalhaven's towns and villages. However, as previously noted (Section 2.1) the topography, natural environment and road network coverage limits the opportunities outside these settlements and therefore assistance to cover larger distances may be required by complementary public or private service.

Economic

When compared to motorised transport, the costs of owning and operating a bike are relatively minimal. Further to this, the associated cost for parking, depreciation, insurance, etc are much lower and provide a more economic outcome for those who can use this option. Cycling has the potential to reduce journey travel times, the dependency for motorised transport needs for short trips and the need to take time out for separate physical activity to maintain the recommended 30 minutes a day and therefore this has additional economic benefits.

Cycling also contributes to the local economy via both direct and indirect expenditure. Within the Shoalhaven LGA there are a number of bike shops and businesses that hire bikes. This is complemented by the number of bike riding events (both on-road and off-road) that are also hosted in the LGA which attract people from afar and subsequently stay or holiday in the area. Further to this the Shoalhaven's natural attributes and east coast location makes it an attraction for cycle tourism (i.e. a tour within or through the area). The attraction of reaching a destination or simply socialising after a ride also has economic benefits for supporting businesses such as coffee shops, food outlets, etc.

Photo 3: Cyclists meet at a popular Nowra coffee shop / Jervis Bay Triathlon



2.5 Bike usage statistics

The National Cycling Participation Survey 2011 was commissioned by the Australian Bicycle Council to obtain baseline data on cycling participation in Australia. The following is a summary of results.

- In a typical week around 18% of Australians ride a bicycle for transport and recreation.
- 3.6 million people ride for recreation, leisure or sport.
- 1.2 million people make at least one transport journey by bicycle each week. This includes trips to school, university, work, shops and to visit friends and family.
- NSW has the lowest rate of participation in Australia.
- In a typical week children have the highest levels of cycling participation:
 - nearly 1/2 of all 2 to 4 year olds;
 - nearly 2/3 of all 5 to 9 year olds; and,
 - 1/3 of all 10 to 17 year olds.

- Men and boys are more likely to ride a bicycle than women and girls: 22% of males and 13% of females ride in a typical week. The gender difference is smallest for children under 10.
- All states and territories see a dramatic decrease in participation in adulthood. This is especially marked in people aged 40 and over.

As detailed in Table 3, 2006 Australian Bureau of Statistics indicated that within the Shoalhaven the use of a bike as a method of transport to work for persons aged 15 years plus accounted for 0.8% of the workforce which was slightly higher than the Regional NSW average of 0.7%.

Available statistical information to analyse bike usage in Shoalhaven is limited and subsequently does not detail a clear picture of current cycling participation. When an opportunity arises, Council should consider capturing ongoing data on cycling participation.

Table 3: Approximate number of workers who use a bike for transport

Main method of travel	Number	%
Train	122	0.4
Bus	95	0.3
Tram or Ferry	5	0.0
Taxi	37	0.1
Car - as driver	19,135	62.5
Car - as passenger	2,078	6.8
Truck	683	2.2
Motorbike	231	0.8
Bicycle	256	0.8
Walked only	1,189	3.9
Other	309	1.0
Worked at home	1,946	6.4
Did not go to work	3,984	13.0
Not stated	545	1.8
Employed persons	30,615	100.

Photo 4: Cyclist commuting to work



2.6 Crash analysis

In developing this *Plan*, attempts have been made to gather and review information related to crash statistics. However, it is recognised that such information may not be truly representative and relies on the reporting of an accident to the police and / or hospital. Minor accidents or near misses are not usually reported.

Therefore, in the absence of reliable and accurate crash information this analysis has been omitted from the *Plan*. However, if this information becomes available it can be considered in future *Plan* reviews.

2.7 Need for a new planning approach

While Council has been actively extending its bike route network, a new approach is needed to address weakness and shortfalls identified in its current planning approach in the Pedestrian Access and Mobility Plan and Previous Bike Strategy.

Pedestrian Access and Mobility Plan

The Shoalhaven Pedestrian Access and Mobility Plan (PAMP) was adopted by Council in October 2001 with a main objective of encouraging greater pedestrian and cycling movements via an integrated transport system. In doing this the PAMP has focused on addressing pedestrian / cycle accident areas and servicing pedestrian and cycling movements within urban areas (i.e. town centres, schools, etc). A recent example of this success is the shared path on Elizabeth Drive, Vincentia. However, a weakness of the PAMP is that it has not focused on on-road cycling infrastructure, cycle tourism, mountain bike riding and competitive cycling.

The intent of the Bike Plan is not to replace PAMP but to define a wider bicycle network which makes use of both on-road and off-road bike routes. Therefore, where appropriate shared paths identified in the PAMP form part of the bike route network. However, recognising the different types of cyclists (as detailed in Section 3.2) at times there may be duplication of both on-road and off-road infrastructure .

In recognition that both the Bike Plan and PAMP are different strategies their priority projects are not necessarily aligned however it should be recognised that some overlapping of priority projects could occur.

Previous Bike Strategy

The Shoalhaven Bike Strategy was adopted by Council in 1997 to guide provision of both on-road and off-road bike infrastructure networks across the City. The former Strategy identified a number of strategic bike routes to make the Shoalhaven a "cycle friendly" City and guide Council's Capital Works program at the time. Priority was given to "spine routes" within the main urban areas of Nowra / Bomaderry, Jervis Bay / St Georges Basin, Milton / Ulladulla and Sussex Inlet. Spine routes were defined as main routes that connected attractors such as schools and residential areas.

The Strategy was successful in making headway to get cycling improvements on Council's Work Program, however the document was never regularly reviewed and on-ground work subsequently focused on off-road path works in the Strategy. The Strategy was superseded by the Shoalhaven Pedestrian Access and Mobility Plan.

Other strategic considerations

Further to the above, a new approach to planning is needed to consider:

- Requests from community groups for cycling network / facility improvements;
- A variety of cycling opportunities which cater for both residents and tourist routes;
- All bike users ranging from young people to cycling for recreation and competition;
- Establishing connections to appropriate lands not managed by Council (i.e. State Forests / National Park, rides and fire trails, etc).
- Co-ordinate both Council's and RMS capital works and RMS maintenance work programs.

2.8 Partnerships opportunities

To achieve the vision, goals and outcomes of the *Plan* requires developing and fostering partnership opportunities with many organisations and interest groups. Whilst the input and value of these partnerships will vary, the outcome will contribute overall to improving bike facilities for Shoalhaven. Therefore, where possible Council should encourage partnership opportunities in developing a Shoalhaven wide bike route network.

2.9 Popular bike rides

Both the Shoalhaven Bicycle Users Group and Council promote a number of popular bike rides which have been reviewed and incorporated into this *Plan*. These rides combine a number of the bike route network's connector, local and scenic routes (as described in Section 3.4 and shown in Section 5 link). Through further detailed analysis of these routes, it is proposed that most of these will continue to be promoted as both popular recreational and tourism assets. The rides are described in Appendix 2.

Photo 5: Cyclists meet at Nowra Tourist Centre before going on a “popular bike ride”



2.10 SWOT Analysis

To further understand the Shoalhaven bike planning context, and influence the following brief a SWOT analysis of strengths, weakness, opportunities and threats related to current bicycle user facilities has been undertaken.

Strengths

- Examples of some very good shared paths for residents, families, tourists, cyclists, runners and walkers (i.e. Greenwell Point, Huskisson, Vincentia, Sanctuary Point, Sussex Inlet, Mollymook).
- Strong local cycling interest (i.e. Shoalhaven Bicycle Users Group, Nowra Velo Club, South Coast United Mountain Bikers, Jervis Bay Triathlon Club, Milton Ulladulla District Mountain Bikers, etc.)
- Variety of riding opportunities available.
- Great natural scenery / destinations for recreational & tourist cycling (i.e. beaches, mountains, open space).
- Sections of roads with good shoulders that encourage on-road cycling (i.e. flat, wide and maintained shoulders on Forest Road, part Coolangatta Road, part Bolong Rd, part Highway 92, etc.)
- Eight bike shops supporting cyclists, employment and tourism.
- Cycling supports the local economy (i.e. bike shops, events, tourism, cafes, etc).
- Examples of some good commuting routes (i.e. Nowra to Flinders Estate, Albatross, and Technology Park, etc).
- Variety of mountain bike opportunities.

Photo 5: Example of a shared path at Greenwell Point and sealed road shoulder on Coolangatta Road



Weakness

- Very few continuous, safe bike routes that can be easily identified.
- Lacking a holistic and coordinated approach to bike planning and infrastructure delivery (i.e. there are a number of unfinished routes).
- Few, if any, on-road exclusive bicycle lanes in the Shoalhaven meet Austroads standards.
- Reactive cycling improvements.
- No provision for bike parking in CBD areas to encourage recreational / tourist cyclists to park and spend.
- Many roads have failing shoulders, loose gravel, pot holes, grass and rubbish / debris (i.e. Terara Road, Jindyandy Lane).
- Shared path squeeze points that cyclist and pedestrians cannot share (i.e. Moona Moona Creek Bridge)
- No dedicated Council funding allocation to maintain, improve and expand existing cycling routes.
- No reliable data collection on cycling participation and crash statistics.

Photo 6: Example of squeeze point at Moona Moona Creek Bridge and a failing road shoulder on Coolangatta Road



Opportunities

- Creation of a cycling route hierarchy to guide maintenance, improvements and expansion.
- Creation of a priority list to guide cycling routes maintenance, improvements and expansion.
- To partner cycling groups such as Shoalhaven Bicycle Users Group, Nowra Velo Club, South Coast United Mountain Bikers, Jervis Bay Triathlon Club, Milton Ulladulla District Mountain Bikers, etc to improve infrastructure needs.
- To work in partnership with government agencies such as RMS to incorporate cycling route improvements in both maintenance and Capital Works programmes.
- Local cycling interest groups to own and advocate for the *Shoalhaven Bike Plan*.
- Create “cycling gateways” at the main entry Shoalhaven LGA entry points (i.e. build on and link to improvements done in Wollongong / Shellharbour / Kiama and Eurobodalla Council areas).
- Provide improved bike access and supporting facilities CBDs (i.e. Nowra, Huskisson, Vincentia, Milton, Ulladulla and Berry).
- Develop cycling route links with public transport (trains and buses) and other transport infrastructure (i.e. car parks).
- Dedicated community cycling committee / representative within Council.
- To continue to educate road users of the benefits of sharing the road.

Photo 6: Example of dedicated on-road bike lane and “Share the road” signage



Threats

- Road shoulders are disappearing with erosion and weed invasion.
- New and inexperienced road cyclists are discouraged due to feeling of being unsafe.
- Political agendas may change and cycling improvements become a lesser priority.
- Lack of funding dedicated to maintain, improve and expand the cycling routes.
- Failure to promote the vision of the *Shoalhaven Bike Plan* in the wider community, particularly the benefits of cycling.

Photo 7: Example of the road shoulder on Terara Road disappearing weed invasion / Minimal road shoulder on the Princes Highway



3 Understanding cyclist needs

3.1 Why do we ride a bike?

Generally there are two main reasons why people ride, being for a form of:

Transport

Cycling provides the mechanism to make a journey for activities such as work, education or shopping.

Recreation

Cycling is done for the experience that it provides such as activities for leisure, sports and tourism. This also includes children playing on their bikes.

3.2 Different types of cyclists

For the purpose of planning, cyclists can be grouped into three types.

Child / novice

These are children and beginner adults. Depending on their age, the cycling abilities of this group can be unpredictable and they do not have a good appreciation of road hazards and are generally unfamiliar with road rules. Young children, due to their size, are often difficult to see from a vehicle.

These cyclists most commonly ride to school and shops and for recreation near their homes. They also prefer separation from other traffic and therefore may prefer off-road facilities.

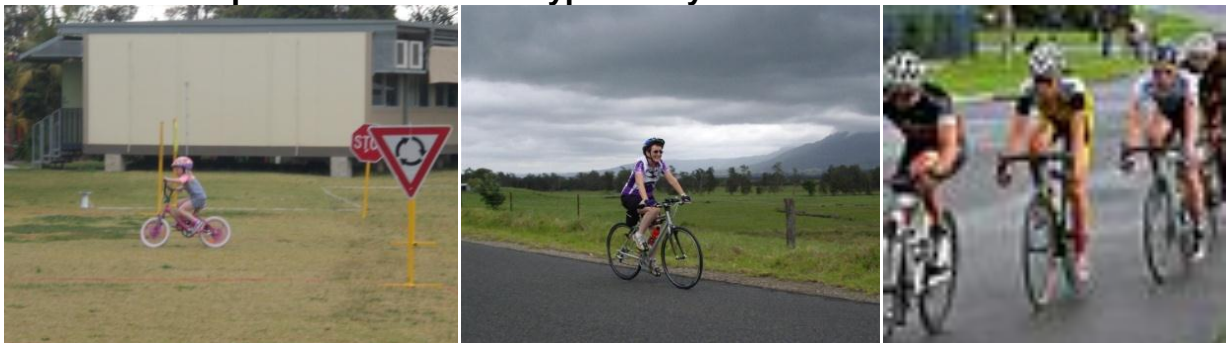
Basic competence

These are cyclists that have a basic level of cycling competence. They generally cycle for transport or for recreation. These cyclists generally prefer quiet two-lane roads and are comfortable manoeuvring through low usage and low speed traffic areas.

Experienced

These cyclists have usually many hours of experience and are comfortable manoeuvring through high usage and high speed traffic areas. They typically cycle for long commuting trips, sports training, racing and touring. They also may prefer on-road facilities.

Photo 8 : Examples of the different types of cyclists



3.3 Cycling route requirements

The bike route network in this *Plan* was developed taking into consideration the following elements of good network design:

1. Coherence and Connectivity: Make routes continuous and recognisable; link popular destinations with residential streets via local and connector travel routes; maintain a consistent quality of infrastructure along the length of a route; provide clear and appropriate signage.

2. Directness: respect desire lines: Provide routes that are as direct as safely practicable; avoid long detours for cyclists using local and connector routes. (Generally this is an urban area requirement and not necessary for recreation and tourism cyclists.)

3. Safety: Maintain or improve the safety of riders, pedestrians and motorists; where appropriate, minimise potential conflict by separating cyclists from vehicles; where appropriate, provide reminders for both on-road and off-road users to share facilities; maximise opportunities for social interaction and casual surveillance.

4. Cycling facilities: Provide attractively designed and located facilities that complement the surrounding environment and enhance the riding experience; well designed and located paths can become an attraction in themselves.

5. Comfort and ease of use: Where possible provide smooth surfaces, easy gradients, appropriate infrastructure and treatments, and good maintenance.

Photo 9: Example of cycling signage and road delineation treatments



3.4 Cycling route types

Shoalhaven offers a variety of cycling routes. These routes in the context of the *Plan* are grouped into the three main categories and form the following hierarchy:

1. **Connector travel routes:** Connecting regional centres, towns and villages, high activity areas and adjacent Local Government areas. Connector travel routes may be on-road or off-road, but because of the long distances and nature of the roads, most will be on-road. Some on-road routes may be busy and therefore suit more experienced riders.
2. **Local travel routes:** Providing access to and within commercial centres, key transport nodes, recreational and community facilities, schools and other education facilities. Local travel routes may link to connector travel routes and mainly use local roads and off-road paths. The roads are likely to be less busy and may suit less experienced riders.
3. **Scenic or recreational routes:** Primary purpose is for recreation, touring and sport or exercise. Scenic or recreational routes mainly use local roads, off-road paths and mountain trails.

Any cycle route in the network might fit into more than one of the above categories. In that case it is considered in this *Plan* to be in the higher level of the hierarchy. For example, a connector route between two rural or coastal towns might also be very scenic. In this *Plan* such a route would be classed as a connector. Each of these route categories can also include various kinds of both off-road and on-road infrastructure which are identified in Appendix 3.

Photo 10: Example of cycling route types



3.5 Standards

Primary standards that relate to the planning, design and traffic management of cycling facilities are contained in the Austroads *Guide to Road Design*, *Guide to Traffic Management* and *Guide to Road Safety*. Key information from these Austroads guides has been collected together in 'Cycling Aspects of Austroads Guides'. Other important documents include the NSW Government's 'NSW Bicycle Guidelines' and 'Delineation Section 12 – Pavement Markings for Bicycle Facilities.'

The *NSW Bicycle Guidelines* provide guidance on selection of separate or mixed facilities on bike routes for urban areas based on traffic speed and volume. However, a significant consideration in Shoalhaven relates to the lack of road shoulders on rural roads. Where a road is unkerbed, as is the case for most rural roads in Shoalhaven, and provision for cyclists is required, *Austroads Cycling Aspects of Austroads Guides* (Section 4.2.4) states that a smooth sealed shoulder is the preferred treatment. Such treatments may improve cyclist, pedestrian, motorist safety, reduced long term road maintenance costs, and should be considered when upgrading and / or maintaining rural roads identified in this *Plan*.

On-road bike lanes (urban areas)

Dimensions for exclusive bicycle lanes in urban areas are specified in Table 4 and it is stated in *Austroads Cycling Aspects of Austroads Guides* (Section 4.2.4) that widths required for sealed shoulders for bicycle usage are generally the same as those required for exclusive bicycle lanes. Resourcing the full implementation of these dimensions will be difficult for Council to achieve in the short to medium term given many streets and roads which make up the bike route network routes identified in this *Plan* do not currently meet these widths.

Council will use these guidelines as the optimum width to achieve in the long term however, such a width may need to be achieved over subsequent road widening programs or it is acknowledging the road constraints and resourcing requirement may unfortunately prevent the optimum width being achieved.

Table 4: Exclusive bicycle lane dimensions in urban areas

Speed limit (1) (km/h)	Lane width(2),(3) (m)		
	60	80	100
Desirable	1.5	2.0	2.5
Acceptable range	1.2 – 2.5	1.8 – 2.7	2.0 – 3.0

Notes:

1. The posted or general speed limit is used, unless 85th percentile speed is known and is significantly higher.
2. Interpolation for different speed limits is acceptable.
3. The width of the lane is normally measured from the face of the adjacent left hand kerb. The width of road gutters / channels (comprising a different surface medium) should be less than 0.4 m where minimum dimensions are used. The figures in the table presume that surface conditions are to be of the highest standard. Where there are poor surface conditions (see the *Guide to Road Design – Part 6A: Pedestrian and Cyclist Paths 2009 e*) over a section of road adjacent to the gutter, then the width of the exclusive bicycle lane should be measured from the outside edge of that section.
4. Source of information - Table 4.17 in *Austroads Guide to Road Design Part 3: Geometric Design*.

On-road shoulder lanes

On-road shoulder lanes can be considered on both rural and urban roads. However, recognising that available funding sources are limited, resourcing the full implementation of these dimensions will be difficult for Council to achieve in the short to medium term given and therefore Council will use these guidelines as the optimum width to achieve in the long term.

For reasons of both driver and bike rider safety, and road structural integrity, when upgrading existing or building new roads, an objective will be to bring these roads closer to the lane widths specified by Austroads for single carriageway rural road widths specified in Table 5. The added benefit of this improvement is to provide a sealed on-road shoulder.

Table 5: Single carriageway rural road widths (m)

Element	Design DDT				
	1 – 150	150 – 500	500 – 1,000	1,000 – 3,000	> 3,000
Traffic lanes ⁽¹⁾	3.7 (1 x 3.7)	6.2 (2 x 3.1)	6.2 – 7.0 (2 x 3.1/3.5)	7.0 (2 x 3.5)	7.0 (2 x 3.5)
Total shoulder	2.5	1.5	1.5	2.0	2.5
Minimum shoulder seal ^{(2),(3),(4),(5),(6)}	0	0.5	0.5	1.0	1.5
Total carriageway	8.7	9.2	9.2 – 10.0	11.0	12.0

Notes:

1. Traffic lane widths include centre-lines but are exclusive of edge-lines.
2. Where significant numbers of cyclists use the roadway, consideration should be given to fully sealing the shoulders. Suggest use of a maximum size 10mm seal within a 20 km radius of towns.
3. Wider shoulder seals may be appropriate depending on requirements for maintenance costs, soil and climatic conditions or to accommodate the tracked width requirements for Large Combination Vehicles.
4. Short lengths of wider shoulder seal or lay-bys to be provided at suitable locations to provide for discretionary stops.
5. Full width shoulder seals may be appropriate adjacent to safety barriers and on the high side of superelevation.
6. A minimum 7.0 m seal should be provided on designated heavy vehicle routes (or where the AADT contains more than 15% heavy vehicles).
7. Source of information - Table 4.5 in *Austroads Guide To Road Design Part 3: Geometric Design*.

Council's Asset Management Plan for Transport Infrastructure (Sealed Roads)

Council's Asset Management Plan for Transport Infrastructure (Sealed Roads) briefly mentions the need to bring roads up to the appropriate standard for the classification of the road. To allow for a consistent and justified approach it is recommended that, for those roads that are identified in this *Plan* as being part of the bike route network, the Asset Management Plan include a clear statement that it is Council's standard practice to seek to widen roads and provide improved shoulders where required to satisfy current standards, subject to local constraints and budget consideration. Such a statement should also be included in design briefs for road construction and rehabilitation.

On-road signage and markings

With respect to signage and markings, the guideline document '*Delineation Section 12 – Pavement Markings for Bicycle Facilities*' specifies pavement markings for bicycle lanes and bicycle paths. As previously noted (Section 2.9) few, if any, on-road exclusive bicycle lanes in Shoalhaven meet Austroads standards and so it would be inappropriate to mark them as per the above specification (such as with green surface).

Nevertheless, there are locations in Shoalhaven where it is desirable to indicate to other road users that cyclists may be present or to indicate to cyclists where they are expected to ride. This is important for the coherence of the bike route network and for users to be able to find and follow routes.

Austroads Cycling Aspects of Austroads Guides (Section 4.2.6) states that “advisory treatments are used to indicate or advise road users of the potential presence of cyclists and of the location where cyclists may be expected to ride on a road. They use pavement markings, warning signs or guide signs, and as such have no regulatory function. The purpose of these treatments is usually to define a bicycle route rather than a type of facility to which specific road rules apply. The form of the treatment is a matter for local jurisdictions.”

An appropriate specification for advisory treatments should be developed by Council taking into account whether or not the marked facility meets appropriate standards and therefore whether this might expose Council to liability issues.

Photo 11: On-road signage and marking example – Forest Road



Off-road shared paths

Dimensions for off-road paths that are stated in the Austroads *Cycling Aspects of Austroads Guides* (Section 7.5.4) is specified in Table 6. However, the full implementation of these dimensions will be difficult for Council to achieve in the short to medium term as many existing paths which make up the bike route network routes identified in this *Plan* do not currently meet these widths.

Council will use these guidelines as the optimum width to achieve in the long term. However, as an interim measure Council will aim to meet these specifications for RMS co-funded projects and a lesser width may need to be a compromise for projects that are fully funded by Council in recognition of its limited resources.

Table 6: Off-road shared paths

	Path width (m)		
	Local access path	Commuter path	Recreational path
Desirable minimum width	2.5	3.0	3.5
Minimum width – typical maximum	2.5(1) – 3.0(2)	2.5(1) – 4.0(2)	3.0(1) – 4.0(2)

Notes

1. A lesser width should only be adopted where cyclist volumes and operational speeds will remain low.
2. A greater width may be required where the numbers of cyclists and pedestrians are very high or there is a high probability of conflict between users (e.g. people walking dogs, roller bladers and skaters etc.).
3. Source of information - *Cycling Aspects of Austroads Guides*, Section 7.5.4

Photo 12: Off-road shared paths

Off-road shared paths

Nowra / River



Sussex Inlet



Mollymook Beach



3.6 Supporting bike facilities

In addition to identifying a bike route network, this *Plan recognises the need to provide supporting facilities that enable or complement the cycling purpose* (i.e. transport and/or recreation). When developing the network consideration should be given to providing supporting bike facilities such as:

- Learn to ride facilities
- Training areas
- Secure bike parking
- End of trip facilities
- Trip facilities (i.e. access to water, toilets, shops, etc).

Photo 13: Example of supporting bike facilities



3.7 New development areas

In the context of this planning document it is difficult to accurately predict the uses and outcomes of new development areas which include both green field and in-fill areas. Therefore, such development should consider and incorporate the key outcome areas and corresponding guiding principles, and bike route network identified in this *Plan*. This will result in the *Plan* being incorporated in Council's Development Control Plans and strategies which guide development of Council managed land. Such a change will result in new development contributing to the *Plan's* actions which in turn will need to be considered in future *Plan* reviews.

4 Outcome guiding principles, objectives and actions

Each of the following six key outcome areas of this *Plan* (detailed in Section 1.4) identifies specific guiding principles, objectives and actions to assist in their implementation. While the majority of the associated actions will be the responsibility of Council to undertake, opportunities should be investigated to work in partnership with government agencies such as RMS, and where appropriate, relevant community groups.

4.1 Bike friendly streets and roads

Guiding principles

- Shoalhaven aims to be a bike-friendly City.
- Cycling is a legitimate, healthy and ecologically sustainable form of transport.
- Every street and road provides a cycling opportunity however, cyclists should be encouraged to use roads and streets with the appropriate infrastructure.
- Cycling along quieter local streets can reduce the need for separate cycling facilities.
- Each settlement should have access, or relatively close access, to a cycling route opportunity which is guided by a corresponding infrastructure provision hierarchy.
- Where possible, existing well-utilised cycling routes should be improved, concentrating on finishing part developed versus new cycling routes.
- Smooth, debris-free surfaces are a fundamental requirement for riding bicycles in safety on paths and roads.
- Improving the type and condition of road shoulders is critical to improving safety and convenience for cyclists (as well as for driver safety and for ongoing structural integrity roads).

Objectives

- To provide all residents and visitors of Shoalhaven the opportunity to cycle safely with convenient links to other major destinations outside their neighbourhood.
- To consider cyclists needs when planning for road and footpath upgrades, new roads and footpaths, bypasses and bridges.



Actions

- Undertake detailed assessments of each route in the bike route network, commencing with those priority routes identified in this *Plan* (see Appendix 4) to determine the works required on each network component.
- Identify current path design issues and devise processes or modifications to address them.

- Ensure all cycling facilities are appropriately identified and where appropriate signposted.
- Include provisions in Asset Management Plan for Sealed Roads that recognise the importance of sealed road shoulders to cyclists. For those roads that are identified in this *Plan* as being part of the bike route network, include a clear statement in the Asset Management Plan that states:

Council's standard practice to seek to widen roads and provide improved shoulders where required to satisfy current standards, subject to local constraints and budget consideration; also include such a statement in design briefs for road construction and rehabilitation.
- For those roads that are identified in this *Plan* as being part of the bike route network, assess on case by case basis whether additional seal can be applied to shoulders without major reconstruction and raising of road crown to provide adequate drainage of the road surface.
- Review the "Management of Risk" and "Maintenance Actions" of Asset Management Plans for Sealed Roads and the "Sealed Road Risk Management Procedure" of the corporate Risk Management Policy to ensure they take into account the needs of cyclists, particularly in relation to pot holes and edge breaks on shoulders of roads identified as part of the bike route network.
- Ensure the budgets for road maintenance, reconstruction and resurfacing programs incorporate amounts for bike route network improvements.
- Investigate ways of undertaking bike route improvements without necessarily waiting for significant road redevelopment funding programs.
- Ensure that maintenance practices for road shoulders are carried out with the needs of cyclists in mind.
- Include the needs of cyclists in training of roads maintenance staff.
- Continue to work with RMS to determine appropriate entry and exit facilities for cyclists along the Princes Highway.
- Encourage the RMS to continue providing dedicated road shoulders and facilities for cyclists on the Princes Highway and other arterial roads under its control.
- Continue to promote and respond to the "Report a problem" which is located on Council's web page.
- Council work towards resourcing the optimum width of both on-road and off-road cycling facilities as detailed in this *Plan*.

4.2 Safety and education

Guiding principle

- Education can reduce conflict between bike riders and vehicles and make cycling safer.

Objective

- To increase the safety of cyclists, reduce the number of road accidents involving cyclists and reduce conflict with motor vehicles.



Actions

- Collect and / or collate data to measure cyclists involved in on-road accidents.
- Assist in the establishment of a bike ride training area / scheme / learn to ride facilities in Shoalhaven.
- Contribute to the development of a "share the road" education program (e.g. with signage and bumper sticker).
- Develop an appropriate specification for advisory treatments, taking into account whether or not the marked facility meets appropriate standards and therefore whether this might expose Council to liability issues.
- Provide clear and appropriate signage which includes warning signage at squeeze points or conflict points in the bike route network.
- Increase awareness amongst cyclists of their responsibilities on the road e.g. knowing and obeying road rules, giving signals.
- Increase awareness amongst drivers of cars and trucks of rights of cyclists on the road.
- Increase awareness of vulnerability of cyclists and encourage considerate and safe behaviour by drivers of cars and trucks.
- Educate cyclists on the importance of ensuring they are considerate, visible on the road, e.g. through high visibility clothing and lights.
- Support schools in teaching children how to ride safely.
- Participate in cycling education programs.

4.3 Connecting to public transport

Guiding principles

- Public and community transport services are important in Shoalhaven, particularly for connecting outlying communities with regional centres within and beyond Shoalhaven.
- Cycling can play an important role in getting residents and visitors from residential areas to public and community transport nodes.
- Better conditions for cyclists at bus stops and train stations will make public and community transport a more attractive alternative.

Objectives

- To provide residents and visitors of Shoalhaven the opportunity to cycle from their neighbourhood to the nearest public and community transport facilities.
- To complement the actions set out in the *Shoalhaven Integrated Transport Strategy*.



Actions

- Ensure the bike route network connects to public and community transport facilities.
- Promote a “cycle and ride” scheme (similar to “park and ride” for drivers) to encourage people to cycle to public and community transport nodes.
- Encourage the provision of suitable cycle parking and storage facilities at transport interchange facilities (i.e. bus stops / train stations) and key cycling destinations (i.e. CBC area, shopping centres, etc).

4.4 Start, on-route and destination facilities

Guiding principles

- Recognition that not all rides start / end at home and some facilities may be needed for high usage locations (i.e. secure car parking, changing areas).
- On-route facilities such as toilets and drinking water refill stations need to be clearly identified.
- Cyclists need secure parking and possibly change rooms and showers when they reach long stay destinations (i.e. work, accommodation, etc).

Objective

- To provide better conditions for cyclists at start, on-route and at destinations to make riding a bike a more attractive alternative and encourage cycling participation.



Actions

- Encourage the installation of secure and convenient bike parking facilities at cycling destinations, such as commercial and retail centres, transport nodes, recreation facilities, major public buildings and venues, libraries and workplaces.
- Encourage schools, work places, shops, entertainment and recreation locations to provide convenient storage facilities (for bikes and helmets) and changing / shower facilities.
- Seek the provision of short term parking, e.g. bike lockers, at appropriate locations such as train stations and bus stops.
- Ensure bike parking facilities are convenient and visible when approaching destinations.
- Require consideration of start / on-route / destination facilities and signage, where appropriate, in new developments.

4.5 Promotion to residents and visitors

Guiding principles

- Cycling can be a means of everyday transport and recreation for the Shoalhaven community and promotion has the potential to increase participation.
- Bike riding has the potential to improve the quality of life for both residents and visitors.
- Cycle-based tourism has potential for significant growth in Shoalhaven with economic benefits to local economy.

Objectives

- To make residents aware of opportunities for cycling as an alternative to driving for everyday transportation in their neighbourhoods and to promote the benefits of riding to work, school, shops and recreation places.
- To promote cycle-based tourism in Shoalhaven and establish Shoalhaven as a destination for recreational, social and club-based cycling and cycle tours.



Actions

- Ensure all cycling promotional material is easily accessible and available in formats suitable for the range of platforms used by the diversity of consumers (e.g. paper, web, mobile, etc).
- Provide up to date information on the Shoalhaven bike route network for inclusion in promotional information.
- Update, build on and promote existing map guides for recreational, sport and touring rides and consider signposting or road-marking routes.
- Continue to include locations of other relevant infrastructure such as toilets and drinking water refill stations on promotional material.
- Investigate use of dedicated signage to promote cycling routes identified in this *Plan*.
- Investigate use of signs pointing to businesses, sponsorship or advertising on bike routes and invite business operators to contribute to the bike route network.
- Prepare and promote Shoalhaven as a cycling destination through the actions in the *Shoalhaven Tourism Masterplan*.

4.6 Leadership and advocacy

Guiding principles

- Cycling is a legitimate form of transport and also is an important and popular recreational pursuit.
- Council plays a central role in provision of facilities and implementation of many measures that can encourage greater bike usage in Shoalhaven.

Objective

- To engage with Australian and NSW Governments, neighbouring Local Governments, commercial entities and local communities to help make Shoalhaven a bike-friendly City through means such as improvements to facilities that they manage and funding of initiatives set out in this *Plan*.



Actions

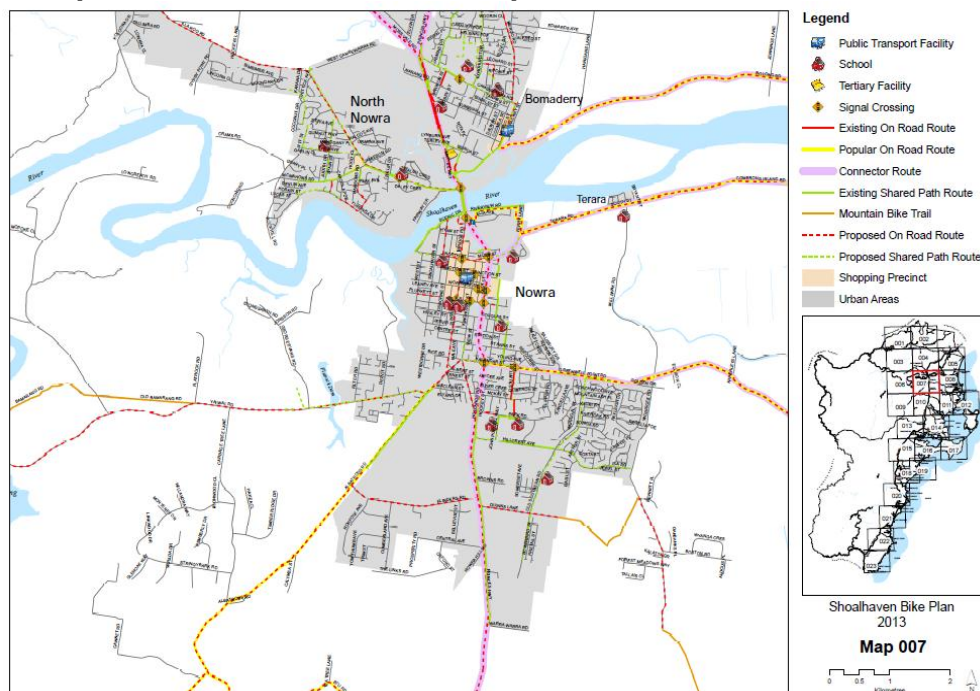
- Council to consider the establishment of a Bike Plan Subcommittee that annually reviews implementation and updates of the *Shoalhaven Bike Plan*.
- Integrate the *Shoalhaven Bike Plan* with other transport strategies in Shoalhaven and in other jurisdictions.
- Allocate dedicated budget amounts annually for investigation and the provision of cycling facilities and implementation of this *Plan*.
- Actively seek financial assistance for cycling facilities identified in this *Plan*.
- Encourage partnerships to develop a Shoalhaven wide bike route network.
- Update and create relevant Council plans / policies (i.e. DCP - 100 Subdivision Code) to encourage cycling and connection to the route network identified in the *Shoalhaven Bike Plan*.
- Capturing ongoing data on cycling participation when an opportunity arises, such as through the Australian Cycling Participation Survey.
- Encourage cycling generators (i.e. schools, government agencies) to promote nearby bike routes and provide cycling user facilities (parking, showers, etc).
- Engage local communities to determine their priorities for cycling facilities within settlements and when defined included them in this *Plan*.
- Include and map in this *Plan* connections to bike routes / rides that have been approved by other agencies (i.e. State Forests / National Park, etc).
- Encourage community groups to be involved in route assessments, provision of facilities and preparation / distribution of promotional material.

5 Current and future bike route network maps

The bike route network described in this *Plan* has been designed using the 'Cycling route requirements' and 'Cycling route types' as described in Section 3.3 & 3.4. However, recognising that often "Local travel routes" and "Scenic or recreational routes" overlap these are identified as "Popular routes" on the bike route network maps. The bike route network which consists of existing and proposed components can be viewed on maps by clicking on the internet link below:

<http://shoalhaven.nsw.gov.au/DiscoverShoalhaven/Walksandcycling.aspx>

Example of bike route network map



6 Bike route network challenges

The bike route network proposed in this *Plan* is challenging for Council to deliver due to its extensive coverage and requirement for a long term funding commitment. Compared to metropolitan Local Government areas, the Shoalhaven LGA is large in area and has long distances through rural areas between settlements.

As noted elsewhere in this *Plan*, detailed assessments of each route will need to be done to identify the works and costs required on each network component. With many proposed routes over such long distances it will take a long time for all assessments to be carried out and subsequent resourcing of works to be done.

To guide delivery of the *Plan*, the Bike Plan Subcommittee will annually review implementation and the priority projects.

6.1 Priority projects

To commence building the priority projects of this *Plan*, Bike Plan Working Group members were asked to start the process by providing opinions on what they considered to be the bike route network priorities. This process tapped into the significant local knowledge of cyclists that live and work in Shoalhaven. Working Group members also provided information on the problems with and desirable works for each of their priority routes.

Many of the highest priority projects are the most popular non-motorised commuting routes for people going to and from school, work, sports and the beach. To rank and score the priority projects, the following ranking criteria has been applied (see Table 7).

Table 7: Ranking criteria system

Ranking Criteria	Score
Does it provide a significant improvement to cyclist safety (minimise conflict with vehicles)? (vehicle speed \leq 80km/h = 2)	2
Is it used daily by individual cyclists or regular cyclist groups? (regular cyclist group = 2)	2
Is it regularly used for a planned cycling event? (i.e. cycling organisation and/or approved by Council, RMS etc).	1
Does it complete or extend an existing cycleway network component (either on-road or off-road)?	1
Does it connect to at least one of the following destinations? education facility / key transport node / shopping centre / recreational facility / community facility	1
Does it have the potential to be promoted as a scenic / tourism ride?	1
It is relatively easy or cheap to provide (i.e less than \$20,000)?	1
At present, is it likely to be funded or part provided by another agency or group (i.e. RMS, Community Group, etc)?	1
Is there an alternative or safer route available for cyclists?	-1
Total possible score	10

The lists provided by working group members were also considered in conjunction with priorities in the *Shoalhaven Tourism Master Plan* and the *Shoalhaven Pedestrian Access and Mobility Plan* and have been collated into the list presented in a table shown in Appendix 4.

Recognising the listing of priority projects is a new works program for Council to consider, and availability of funding may change, this list is recommended to be reviewed annually. Therefore the *Plan* will not set in stone a program for development and maintenance of a bike route network that cannot be amended as the City evolves and demand or uses change. However, such a review should consider involvement from a dedicated group such as the Bike Plan Subcommittee.

Despite this priority list and annual reviews, there will be occasions when opportunities arise for other network components, not included in the list, to be developed, for example:

- Road upgrades not identified in the priority project list.
- When new residential or commercial developments are planned / completed.
- Community initiatives (in-kind work) are planned / resourced.

In addition, any blackspots or hazardous locations that become apparent may result in a higher priority. Therefore, subsequent *Plan* review needs to be incorporated into organisational systems and processes to ensure that these opportunities can be seized by Council.

6.2 Assessment and costing

The priority projects listed in Appendix 4 have not been subject to detailed assessment or costing which is beyond the scope of this *Plan*. To commence this initial assessment input could be considered from key interest groups such as the Shoalhaven Bike Plan Working Group under the direction of Council or alternately solely undertaken by Council staff. This assessment should also consider ways of undertaking improvements without necessarily waiting for other programs such as significant road redevelopment.

The outcome of detailed assessment will be a proposed schedule of works and budget estimate (i.e. project costing). It is important to note that these outcomes may have not been integrated into Council's Capital Works Delivery program. Therefore, the subsequent delivery of this assessment needs to be considered along with other Capital Works funding priorities.

Photo 14: An example of recent projects that have improved cycling conditions



6.3 Funding and implementation

To implement priority recommendations and actions of this *Plan* ultimately requires the provision of a dedicated source. Annually Council provides funding allocations for shared path construction and bike rack provision however no dedicated on-road funding source currently exists.

Recognising that this *Plan* has identified priority projects not previously identified by Council, additional funding will be sourced from:

- Future Council budget bids
- Development contributions (identified in Council's Contributions Plan)
- Grant funding programs.

However, recognising competing budget funding priorities, and that it may not be possible in the short term to fund some new work, consideration should be given to seek delivery as a parts of works already budgeted (i.e. upgrades to or provision of new bridges, roads, car parks or recreation facilities). A more cost effective approach in the short term could be installation of warning signage on some route to make drivers aware of cyclists using the road. Ideally, the implementation of this *Plan* should have a dedicated budget identified by Council for investigation and infrastructure provision.

Further to seeking funding sources, where possible, in-kind assistance from community groups should be encouraged to implement relevant *Plan* actions such as route assessments, provision of facilities, preparation and distribution of promotional material and involvement in safety and education campaigns.

7 Monitor & review

As previously noted (Section 4.6), the monitoring of action implementation and review of priority projects in this *Plan* should be undertaken annually. This monitoring and review should be undertaken by the Bike Plan Subcommittee at a time that allows budgetary input into funding requirements for the following financial year.

A more significant review of the *Plan's* success in achieving its vision, goals and outcomes is also needed to respond to new information, challenges in implementing this *Plan* or changing external factors (such as technological change, significant changes for other forms of transport, demographic and land use changes) should be considered 5 years after *Plan* completion.

Appendices

Appendix 1 – Towns and villages located in each Planning Area

Planning Area 1	Planning Area 2	Planning Area 3	Planning Area 4	Planning Area 5
Berry Bomaderry Cambewarra Greenwell Point Kangaroo Valley Nowra Shoalhaven Heads Terara	Callala Bay Callala Beach Culburra Beach Currarong Myola Orient Point	Basin View Bewong Erowal Bay Huskisson Hyams Beach Old Erowal Bay Sanctuary Point St Georges Basin Tomerong Vincentia Wandandian Woollamia Wrights Beach	Berrara Cudmirrah Sussex Inlet Swan Haven	Bawley Point Bendalong Burrill Lake Conjola Park Cunjurong Depot Beach Dolphin Point Durras North Fishermans Paradise Kings Point Kioloa Lake Conjola Lake Tabourie Manyana Mollymook Milton Narrawallee Ulladulla

A map showing the above towns and villages in each planning area follows.

Shoalhaven's towns and villages



Appendix 2 – Popular bike rides

Berry Loop: The ride commences / returns to Nowra / Bomaderry via - Bolong Road – Backforest Road – Coolangatta Road – Wharf Road – Berry – Beach Road – Gerroa Road (ride also links with cycle routes in the Kiama Council area).

Berry to Seven Mile Beach: The ride commences at Berry via - Princes Highway – Tannery Road - Beach Road - Seven Mile Beach.

Berry – Back Forest – Bomaderry – Meroo – Berry Loop: The ride commences at Berry via Prince Alfred Street – Wharf Road – Coolangatta Road – Bryces Road - Back Forest Road - Bolong Road – Meroo Street – Meroo Road – Princes Highway - Prince Alfred Street.

Berry to Kangaroo Valley Over Berry Mountain: The ride commences at Berry via Prince Alfred Street – Kangaroo Valley Road – Kangaroo Valley.

Kangaroo Valley – Upper Kangaroo River Loop: The ride commences and concludes at Kangaroo Valley via Moss Vale Road – Upper Kangaroo River Road.

Kangaroo Valley – Mt Scanzi – Bugong – North Nowra: The ride commences at Kangaroo Valley via Moss Vale Road - Mt Scanzi Road – Bugong Road – Illaroo Road - North Nowra.

Fitzroy Falls – Meryla Pass – Jacks Corner - Kangaroo Valley: Mountain bike trail) – The ride commences at Fitzroy Falls via Moss Vale Road – Redhill Fire Trail – Links Fire Trail – Griffins Fire Trail - Jacks Corner Road - Moss Vale Road - Kangaroo Valley.

North Nowra – Bugong – Coolendel Lookout Loop: The ride commences and concludes at North Nowra via Illaroo Road – Bugong Road – Lower Bugong Road.

Nowra – Shoalhaven Forest – Albatross Road Loop: The ride commences and concludes at Nowra via Albatross Road – Cabbage Tree Lane - Yalwal Road - Albatross Road.

Albatross Road Loop: The ride commences / returns to Nowra via- Bridge/Berry Street – Albatross Road – BTU Road – South Nowra Cycle Way – Central Avenue – Bellevue Street – Central Avenue - Albatross Road - Bridge/Berry Street.

Main Road 92 Loop: The ride commences / returns to Nowra via- Bridge/Berry Street – Albatross Road - Main Road 92.

Flinders Industrial Estate: The streets which form the Estate are regularly used on weekends by the Nowra Velo Club for a race circuit.

Nowra – Terara - Comerong Island Loop: The ride commences and concludes at Nowra via – Riverview Road – Terara Road – Comerong Island Road.

Greenwell Point Trainer: The ride commences / returns to Nowra via – Riverview Road – Terara Road – Jindyandy Lane – Greenwell Point Road – Greenwell Point – Greenwell Point Road - Kalandar Street.

Forest Road – Callala / Culburra link: The ride commences at the intersection of Princes Highway / Forest Road and concludes at Culburra via - Forest Road – Currarong Road – Callala Bay Road (Callala Bay) – Coonemia Road – Culburra Road (Culburra).

Tomerong Loop: The ride commences and concludes at Tomerong via - Hawkins Road – Grange Road – Wool Road - Naval College Road - Jervis Bay Road – Pine Forest Road.

Jervis Bay Views: The ride commences / returns to Jervis Bay Road via – Woolamia Road – Huskisson-road – Tomerong Street - through Huskisson – Keppel Street – Burrill Street – Elizabeth Drive – Wool Road (To Naval College Road) – Naval College Road - Jervis Bay Road.

Huskisson – Vincentia – St Georges Basin Loop: The ride commences and concludes at any of the following roads – Owen Street – Foreshore Shared Path – The Wool Road Shared Path – Larmer Avenue Shared Path - Paradise Beach Road – Walmer Road – Loralyn Avenue – Island Point Road – The Wool Road – Grange Road – Pine Forest Road – Huskisson-road.

Huskisson – Vincentia – Greenfields Beach Loop: The ride commences and concludes at any of the following roads – Owen Street – Foreshore Shared Path – Vincentia Shared Path - Elizabeth Drive - Greenfields Beach.

Sussex Inlet – Badgee – Swan Haven – Berrara: The ride commences at Sussex Inlet via Jacobs Drive – Inlet Shared Path – Lyons Road – Granville Road - Thompson Street – The Springs Road - Collier Drive.

Milton to the Sea: The ride commences at Milton and concludes at Mollymook via - Milton – Matron Porter Drive – Valley Drive – Carroll Avenue – Garside Road – Mitchell Parade Mollymook.

Milton to Burril Lake: The ride commences at Milton and concludes at Ulladulla via Princes Highway.

Narrawallee Inlet – Ulladulla Harbour: The ride commences at Narrawallee Inlet via Matron Porter – Bannister Head Road – Mitchell Parade – Ocean Street – Golf Avenue – Buchan Street – Murramerang Street - Conjola Street – Burrill Street - Ulladulla Harbour.

Ulladulla – Milton Loop (Alternative to Princes Highway): The ride commences and concludes at any of the following roads – North Street – Pirrarea Road - Slaughterhouse Road – Windward Way – Warden Road - Wilfords Lane –Croobyar Road - Matron Porter Drive – Garside Road – Donlan Road – Mitchell Parade – Ocean Street- Golf Avenue – Princes Highway - St Vincent Street.

Appendix 3 – Examples of both off-road and on-road infrastructure

The following examples of both off-road and on-road infrastructure have been taken from the NSW Roads and Maritime Service's 'How to Prepare a Bike Plan'.

Examples of off-road infrastructure

<p>Bicycle path: A length of path for the exclusive use of bicycle riders. A bicycle path must have either designated signage or pavement markings.</p>		
<p>Shared path: An area open to the public (except a <i>separated path</i>) that is designated for use by bicycle riders and pedestrians. A shared path must have either designated signage or pavement markings.</p>		
<p>Separated path: A length of path where an exclusive bicycle path is complementary to an adjacent footpath. The separation may be visual (painted line) or physical (dividing strip or raised median).</p>		

Examples of on-road infrastructure

Bicycle lane: A lane that is sign posted for use by bicycle riders only and marked with painted lines or a coloured surface, without a physical separation from motor vehicles. Riders are required to use these lanes unless it is



Road shoulder lane: Shoulder lanes are not designed to be used by motor vehicles for general travel, however may be used for emergency or breakdown purposes. Unless explicitly prohibited, bicycles are permitted on all shoulder lanes.



Bicycle contra-flow lane: Some streets permit motorised vehicles to travel in one direction only. Bicycles are permitted in the opposite direction by the use of a bicycle lane.



Mixed traffic facilities: Shared with motor vehicles with or without bicycle markings or signage.



Appendix 4 – Priority projects

Planning Area	Route Type (Map Refer.)	Road / Path (RMS Bold)	Works Description	Rational / Comment	Weight Score
1	Connector (7,4)	Moss Vale Road	Install signage	This is an on-road cycling route that connects cyclists from Cambewarra to Bomaderry.	8
1	Connector (7,8)	Riverview Road – Terara Road – Jindyandy Lane – Greenwell Point Road	Widen road shoulder / install signage	This is a very popular on-road cycling route for recreational and training cyclists which connect cyclists from Nowra to Greenwell Point.	8
1	Connector (7,8)	Bolong Road	Widen road shoulder / install signage	This is an on-road cycling route that connects cyclists from Shoalhaven Heads to Bomaderry. The priority is between Shoalhaven Heads and Broughton Creek.	8
1	Connector (5)	Gerroa Road	Widen road shoulder / install signage	This will extend the on-road cycling route (which already exists from Gerroa to Gerringong) to Shoalhaven Heads with the potential to connect to Nowra.	7
1	Connector (7,4,5)	Princes Highway (Berry – Bomaderry.)	Provide road shoulder lane / install signage	This will commence establishing a vital dedicated cycling spine route from Berry to Bomaderry and will encourage wider cycling tourism.	6
1	Connector (8, 5)	Coolangatta Road / Wharf Road	Widen road shoulder / install signage	This is an on-road cycling route that connects cyclists to the adjacent settlements of Shoalhaven Heads and Berry. Alternative routes could utilise Back Forest Rd and Swamp Road, Tannery Road and Beach Road or Agars Lane.	6

Planning Area	Route Type (Map Refer.)	Road / Path (RMS Bold)	Works Description	Rational / Comment	Weight Score
1	Scenic / recreational (7,4,3)	Illaroo Road – Budgong Road – Mt Scanzi Road	Install signage	This route that connects cyclists from North Nowra to Kangaroo Valley and avoids use of Moss Vale Road.	6
1	Local (7)	Flinders Road connection to Princes Highway	Define route / Widen road shoulder / install signage	Work with RMS to determine the on-road route that connects cyclists between Albatross Road and Princes Highway	5
1	Local / Scenic / recreational (7)	Bridge Road - Berry Street - Albatross Road	Install signage	This is an on-road cycling route that connects cyclists from Nowra to Flinders Estate, HMAS Albatross and Main Road 92.	5
1	Scenic / recreational (10)	BTU Road	Widen road shoulder / install signage	This is an on-road cycling route that connects cyclists from Albatross Road / HMAS Albatross via Nowra Hill to Princes Highway.	5
1	Local (4)	Hockeys Lane - Illaroo Road	Widen road shoulder / install signage	This is an on-road cycling route that connects cyclists to the adjacent settlements of Cambewarra and North Nowra and avoids use of Moss Vale Road.	3
2	Connector (10,11)	Forest Road - Callala Beach - Callala Bay Road	Widen road shoulder / install signage	This is an on-road cycling route that connects cyclists to the adjacent settlements of Callala Bay, Callala Beach and Myola to the Princes Highway. Forest Road also provides connections to a number of mountain bike trails. Road widening needed between Callala Beach and Callala Bay Roads.	5
2	Local (11)	Callala Beach – Myola shared path	Provide a shared path adjacent to Myola Road	This is a proposed off-road cycling route that connects cyclists to the adjacent settlements of Myola and Callala Beach instead of using / widening Myola Road.	5

Planning Area	Route Type (Map Refer.)	Road / Path (RMS Bold)	Works Description	Rational / Comment	Weight Score
2	Local / Scenic / recreational (11)	Callala Bay - Callala Beach shared path	Extend shared path in the reserve to connect these villages	The existing share path network between the adjacent settlements of Callala Bay and Callala Beach has the potential to be extended and provide off-road cycling opportunities in the foreshore reserve as well as further connect cyclists to these settlements.	4
3	Connector (14)	Moona Moona Creek Shared Path Bridge	Widen bridge	This is an off-road cycling route that connects both cyclists and pedestrians from Huskisson to Vincentia and forms part of the Round The Bay Walk and Foreshore Shared Path route.	8
3	Connector (10,11,14)	Jervis Bay Road / Woollamia Road	Widen road shoulder / install signage	This is an on-road cycling route that connects cyclists from the Princes Highway to Huskisson.	7
3	Local (14)	Vincentia shared path	Extend existing shared path	This is an off-road cycling route that provides cycling opportunities for residents / tourist of Vincentia.	6
4	Connector (16)	The Springs Road	Widen road shoulder / install signage	This is both an on-road and off-road cycling route that connects cyclists to the adjacent settlements of Sussex Inlet, Swanhaven, Cudmirrah and Berrara. The off-road route uses an existing shared path between Swanhaven to Cudmirrah.	6
4	Connector (15, 16)	Sussex Inlet Road	Highway	This is an on-road cycling route that connects cyclists from the Princes Highway to Sussex Inlet.	5
5	Connector (20)	Princes Highway (Ulladulla–B. Lake)	Provide road shoulder lane / install signage	This is an on-road and off-road cycling route that connects cyclists to the adjacent settlements of Ulladulla and Burrill Lake.	7
5	Local (20)	Matron Porter Drive / Bannister Head Road / Mitchell Parade	Provide shared path	This is a proposed off-road cycling route to connect cyclists between the Princes Highway at Milton to the existing shared path at Mollymook Beach.	7

Planning Area	Route Type (Map Refer.)	Road / Path (RMS Bold)	Works Description	Rational / Comment	Weight Score
5	Connector (22)	Bawley Point Road – Murramarang Road	Provide shared path	This is a proposed off-road cycling route that connects cyclists to the adjacent settlements of Bawley Point and Kioloa.	6
5	Connector (20)	Princes Highway (Milton–Ulladulla)	Provide road shoulder lane / install signage	This is an on-road cycling route that connects cyclists to the adjacent settlements of Milton and Ulladulla.	6
5	Local (20)	Princes Highway (Ulladulla)	Install signage / crossing opposite Ulladulla Civic Centre	This form part of an on-road and off-road cycling route that connects Mollymook to Ulladulla.	6
5	Scenic / recreational (20)	Wason Street – South Street - Did-Dell Street - Deering Street	Widen road shoulder / install signage	This is an on-road cycling route that connects cyclists from Ulladulla -Warden Head (Ulladulla Lighthouse).	6
5	Local (19)	Bendalong Road / Inyadda Drive / Berringer Road	Provide road shoulder lane / install signage / shared path	This is a proposed on-road and off-road cycling route that connects cyclists to the adjacent settlements of Bendalong and Manyana.	5
5	Local (20)	Croobyar Road	Extend existing shared path	This is an off-road cycling route that connects Milton Showground to the Princes Highway.	4
5	Scenic / recreational (20,21)	Woodstock Road - Wheelbarrow Road - Princes Highway	Widen road shoulder / install signage	This is an on-road cycling route that connects cyclists from Milton to Burrill Lake as an alternative route to the Highway.	5