Wyong Shire Council

On-Road Bicycle and Shared Pathway Strategy

Background and Supporting Information

Wyong Shire Council
CENTRAL COAST

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Wyong Shire Council 2010
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INTRODUCTION

On-road bicycle lanes and shared pathways play an important role in supporting Wyong Shire Council's goal of enhancing the quality of life of residents and visitors, both now and into the future. Bicycle lanes provide an efficient alternative transport route and training corridor for cyclists whilst shared pathways can be utilised by the entire community for a range of social, transport and recreational reasons.

The Wyong Shire On-Road Bicycle and Shared Pathway Strategy is a culmination of extensive research and community engagement process incorporating input from pedestrians, walking groups, social and competitive cyclists, students, community groups and the wider community.

The strategy demonstrates Council's desire to support healthy living and sustainable transport for all members of the community. The strategy focus is on improving the health, the environment, quality of life and wellbeing of residents and visitors to the Shire through providing connections to key destinations and initiatives which encourage and support walking and cycling activity.

The Wyong Shire On-Road Bicycle and Shared Pathway Strategy comprises three reports.

The **Wyong Shire On-Road Bicycle and Shared Pathway Strategy** sets a direction and policy framework to achieve an improved on – road cycling and shared pathway network and environment over the next 10 years. It establishes a long term vision for formed on-road bicycle routes, shared pathways and cycling activities and identifies a range of infrastructure requirements (e.g. cycle lanes, parking, etc), and behavioural requirements (e.g. education and promotional activities) necessary to deliver the vision.

The **Background and supporting information report** provides an overview of the policy context of cycling within the community, the key findings from the community engagement and key planning and design issues that are critical in establishing an effective path and connected network.

The **Action plan** identifies the key actions that are necessary to achieve this vision and the ten priority pathway projects that Council will focus on to improve the connectivity, accessibility and use of the existing network.

CHAPTER 1: BACKGROUND RESEARCH

1.1 Policy Context

All levels of government recognise the multiple social, economic and environmental benefits of cycling and walking and have made commitments to achieving on-going and measurable increases in participation. These commitments are reflected in a number of strategies, briefly discussed below. A detailed description of the specific actions and commitments relating to the ongoing support and development of cycling and waking is provided in Appendix A.

1.1.1 Local Governments Strategies

- ***Wyong Shire Strategic Vision*** **-** The Wyong Shire Strategic Vision establishes the strategic vision for the Shire and the direction for the community over the next 20 years. The Wyong Shire Strategic Vision includes a four-year delivery program which indentifies Council's priorities, programs and budgets from 2010 /11 to 2013/14 to help achieve the vision. Within the strategy is an aim to "Improving and linking the bicycle/shared pathway network and related facilities to encourage more cycling opportunities".

- ***Wyong Shire Council Management Plan 2009-2010*** - The Management Plan outlines the key strategic issues and actions Wyong Shire Council will be undertaking over the forthcoming financial year. Within the strategy are the aims" To extend the shared pathway network throughout the shire to link communities and provide enhanced recreational experiences" and "To encourage an enhanced, affordable, integrated and sustainable transportation system within the shire and to/from the shire".

- ***Wyong Shire Council Community Plan 2008-2013*** **-** The Wyong Shire Council Community Plan 2008-2013 reflects the challenges, aspirations and key social issues facing the Wyong Community. It is the major planning document guiding the activities of Council and the community regarding the enhancement of community and social outcomes (WSC Community Plan, 2008, 11). A key action of the plan is "The provision of integrated pathways which connect and link to key areas within and between communities".

- ***Wyong Shire Council Recreation Facilities Strategy*** **-** Wyong Shire Council Recreation Facilities Strategy establishes a system of facilities aimed at supporting healthy lifestyles and social engagement and facilitating community participation in recreation and sporting activities. Key actions of the plan include" Develop, support and promote programs for active lifestyles such as walking and cycling" and "Develop programs and innovative approaches to activating facilities and improve social connectedness, health and fitness".

- ***Wyong Shire Council Bicycle Plan 2001*** **-** The Bicycle Plan identifies existing and proposed location of on-road and off-road cycleways and contains a prioritised works programme.

1.1.2 State and Federal Governments Strategies

State and Federal Governments recognise the multiple social and environmental benefits of cycling and walking and has made commitments to achieving an on-going and measurable increase in the numbers of people who cycle. These commitments are reflected in a number of strategies, including:

- **Central Coast Regional Strategy -** The NSW Government's strategic planning framework for the Central Coast region. It includes a outcome objective of "connecting centres to destinations such as recreation areas, schools and residential areas…" and a key action of providing passenger interchanges that are centrally located, visible from public areas, integrated into overall centres and well connected to both pedestrian and bicycle paths.

- ***The Central Coast Transport Action Plan*** - The NSW Government's strategic plan to encourage cycling as a form of transport for both commuting and recreation on the Central Coast.

- ***Shaping Our Cities*** - The NSW Metropolitan Planning Strategy for the Greater Metropolitan Region. It includes a principle to "enhance opportunities for walking, cycling and using public transport and contain the growth of travel demand in all land use and development decisions".

- ***Action for Bikes: Bikeplan 2010*** - The NSW Government's policy on cycling, it includes a $251M bicycle master plan that describes the Government's cycleway construction program until 2010.

- ***Action for Air*** - The NSW Government's air quality management plan. It includes an aim to "provide more and better transport choices" and a strategy to "provide for cycling and walking".

- ***Simply Active Everyday*** - The NSW Government's action plan to promote physical activity, including walking and cycling. A key action of the plan is development of the *Creating Active Communities* guidelines.

- ***The National Charter for Integrating Land Use and Transport*** - A Commonwealth-level agreement committing to a set of good-practice planning principles, including "route continuity through local streets for pedestrians, cyclists and public transport".

- ***The National Greenhouse Strategy*** - A Commonwealth strategy which includes a number of greenhouse reduction modules, one of which is "efficient transport and sustainable urban planning". Within this module is an aim to "encourage greater use of public transport, walking and cycling".

1.1.3 Other Strategies

- ***Healthy by Design: A planner's guide to environments for active living*** – A planning tool development by the Heart Foundation, it includes design consideration, evidence and case studies to support the incorporation of healthier design considerations into planning of the public realm. A key design objective within the guide is "To promote an accessible integrated network of walking and cycling routes for safe and convenient travel to local destinations and points of interest".

- ***The Australian National Cycling Strategy 2005-2010 –*** identifies the responsibilities that lie with the various governments of all levels, community and industry stakeholders to encourage and facilitate increased cycling in Australia. It sets out actions, with targets, timeframes and resources that will ensure the continued growth of this important component of Australia's transport system.

1.2 The Benefits of Pedestrian and Cycling Paths

There are a number of widely recognised social, environmental and transport benefits communities can achieve through cycling and walking. Table 1.2 briefly outlines some of these benefits.

Table 1.2: The Benefits of Cycling and Walking to the Community

Health	Cycling and walking increases physical activity which reduces the risk of life threatening illnesses, including cardiovascular disease, type- 2 diabetes, high blood pressure, obesity, various cancers and premature death. Physical activity can improve mental health by reducing anxiety and depression. Improved individual health through increased physical activity reduces costs to the health care system.
Transport	More bikes and fewer vehicles on the road will reduce traffic congestion (which benefits in fewer vehicle kilometres travelled and lower stress levels). Cycling can result in time-savings. Research shows bicycles are often quicker than cars over distances up to 5km. Cycling can extend catchments of existing public transport services as up to 10 times more households are within cycling distance of public transport than are within walking distance. Cycling and walking for transport is a time-effective way of exercising.
Social Equity	Cycling and walking can provide social equity as a low cost, healthy form of transport. Cycling provides low cost transport and access for young people, older people and for those without a driving licence or access to a car or public transport. Cycling complements the public transport system, providing multi modal journey options for longer trips at low costs. Shared paths can be used by people with a disability and mobility impaired persons, thus improving access to this transport disadvantaged group.

More Liveable Cities	Cycling is an essential element of a sustainable transport system and a more liveable city. Bicycles and pedestrians cause insignificant road trauma compared to motor vehicles. Cycling and walking can improve access and sociability within communities. Cycling and walking are two of the top four physical fitness recreational activities undertaken annually by Australians.
Environment	Bicycles offer a non-polluting and silent mode of transport that occupies minimal space during use and when parked (1car:10 parked bikes). Using bicycles for transport reduces transport noise, air and stormwater pollution, reduces greenhouse gas emissions and fuel use. Research shows that cycling 10 kilometres each way to work instead of driving can save approx 1.3 tonnes of greenhouse gas emissions per year.
Economy	Bicycles cause significantly less damage to road surfaces than other vehicles. Increased cycling will reduce the cost of maintaining the transport network. Cycling can reduce the need to purchase a second car. The NRMA estimates the cost of running a car is $108.70 - $313.74 per person. Bicycle parking is free, and is more accessible than vehicle parking.

(Source: The Australian National Cycling Strategy, 2005; 5-8)

1.3 Participation in Cycling and Walking

Research undertaken by the Australian Bureau of Statistics (ABS) on the types and levels of participation in sport and recreation activities by Australians identifies:

- Participation in non – organised bike riding was over three times higher than participation in the most popular organised sporting activity for males and female children aged 5-15years (*Sport and Recreation: A statistical overview Australia* 4156.0 2008 - edition 2).

- Since 2001, walking and cycling have continued to be the first and fourth most participated activity within NSW and Australia respectively (*Participation in Sports and Physical Recreation* ABS 4177.0 2005-06).

The Federal Government's 2008 Exercise, Recreation and Sports Survey (ERASS) identified:

- Walking and cycling as the first and fourth most popular physical activities in Australia;
- Walking and cycling have consistently been one of the five most participated in activities in Australia over the past decade;
- 1,928,100 Australians rode a bike in 2008, a 21% increase (337,000 people) on the year before;

Table 1.3 provides a summary of the physical activity most participated in by Australians between 2001 and 2008.

Figure 1.3 identifies levels of cycling participation for specific age cohorts.

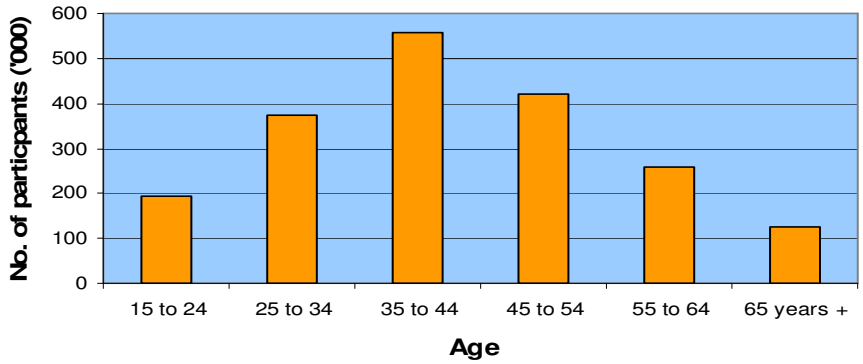
Table 1.3: Top 5 Activities by Number of Participants Australian 2001, 2005, 2008.

Activity	2001		2006		2008		
	Rank	Number of Participants ('000)	Rank	Number of Participants ('000)	Rank	Number of participants ('000)	% Change 2001-08
Walking	1	4355.9	1	5811.3	1	6508.4	**49.4%**
Aerobics/Fitness	3	1961.0	2	3074.5	2	3901.9	**99.0%**
Swimming	2	2415.5	3	2200.0	3	2414.3	**0%**
Cycling	4	1438.3	4	1642.8	4	1928.1	**34.1%**
Tennis	5	1381.8	6	1100.7	6	1122.5	**-18.8%**

(Source: Participation in Exercise, Recreation and Sport Survey 2001, 2006, 2008, ASC)

Note: Figures include both organised and non – organised participation. Walking figures exclude bush walking.

Figure 1.3: Cycling Participation within Australia by Age, 2008



(Source: Participation in Exercise, Recreation and Sport Survey, 2008 Annual Reports, ASC)

1.4 Cycling to work

Every five years the Census asks Australians how they travelled to work. During the 2006 Census, a dramatic rise in the number of people riding a bicycle to work was recorded. Specifically;

- Australian capital cities recorded a 28.9% increase in the number of people riding to work (bicycle only), compared with Census 2001.
- Australians cycled over 189, 392, 000 kilometres to work in 2006, an increase of over 42,000,000 kilometres from the 2001 Census (ABS, 2007).
- The areas of Australia that have invested most heavily in bicycle infrastructure have seen the sharpest increases in people riding to work.

In the Wyong LGA, the Census identified:

- Approximately 217 residents travelled to work by bicycle (0.4% of commuter trips);
- Approximately 989 residents walked to work (1.9% of commuter trips);

This compares with 0.6% and 2.2% of commuter trips made by bicycle for the Greater Sydney region.

Detailed Journey-to-work data for the Wyong LGA from the 2006 Census is provided in Table 1.4.

Table 1.4: Wyong LGA Journey-to-Work Data, 2006 Census

(includes multi-mode journeys) Enumerated Data	Wyong Shire						
	2006			2001			Change 2001 to 2006
	Number	%	Sydney Statistical Division %	Number	%	Sydney Statistical Division %	
Train	2,281	4.3	12.3	2,709	5.7	13.3	-428
Bus	560	1.1	5.4	556	1.2	5.3	4
Tram or Ferry	7	0	0.3	9	0	0.3	-2
Taxi	34	0.1	0.3	38	0.1	0.4	-4
Car - As Driver	33,661	63.5	53.7	28,115	59.5	52.1	5,546
Car - As Passenger	3,504	6.6	5.3	3,222	6.8	5.6	282
Truck	1,139	2.2	1.3	1,263	2.7	1.6	-124
Motorbike	250	0.5	0.5	239	0.5	0.4	11
Bicycle	217	0.4	0.6	199	0.4	0.5	18
Walked Only	989	1.9	4.2	1,040	2.2	3.8	-51
Other	487	0.9	0.9	672	1.4	1.1	-185
Worked at Home	2,093	4.0	3.9	2,061	4.4	4.1	32
Did not go to Work	6,676	12.6	9.5	6,247	13.2	9.8	429
Not Stated	1,070	2.0	1.9	860	1.8	1.7	210
Total	**52,968**	**100.0**					

(Source: Australian Bureau of Statistics, Census of Population and Housing, 2006, 2001, 1996, 1991).

1.5 Cycling in NSW

The Premier's Council for Active Living report titled, "*Cycling in New South Wales - What the data tells us"* identifies who is cycling in NSW. The key findings of this report indentified:

- More people are choosing to cycle in denser, urban areas;
- More commuter cyclists prefer to cycle for the whole trip, rather than combining cycling with another mode;
- More cycling accidents occur in urban areas;
- More men cycle than women.

In comparison to cycling in other localities and states, the report found:

- Bicycle use across NSW and Sydney is low compared to other states and capital cities;
- World cities with high bicycle mode share have seen a consistent annual investment in connected bicycle infrastructure;
- Variables like topography were not found to provide a satisfactory explanation for low rates of cycling in NSW compared to Victoria.

There is significant potential to increase cycling in NSW. The report found:

- Bicycle ownership in Sydney is higher than bicycle usage figures would suggest;
- Cycling accounts for a small proportion of commuter trips in NSW;
- Regardless of trip purpose, most trips involving cycling are less than 5 kilometres;
    - 50% of all trips are less than 5 kilometres
    - 71% of trips involving cycling are less than 5 kilometres
- Cycle mode shares are much lower for non-commuting purposes than for commuting on a weekday.
- On a weekend, cycle mode share is much higher for short trips. These may be trips undertaken by those who commute by bicycle during the week.

The report indicates that there is significant potential for an increase in cycling growth. Most of this potential comes from short car trips that could be undertaken by bike.

1.6 Bicycle Sales

Over the past decade bicycles sales have averaged approximately 1.1 million per year (CPF, 2010). In 2002, the number of bicycle sold in a year exceeded one million, with this trend continuing ever since. In comparison, car sales have never reached one million in a year.

Table 1.6 summarises the annual bicycle and motor vehicle sales in Australia between 2001 and 2009.

Table 1.6: Annual bicycle and motor vehicle sales in Australia 2001-2009

Year	No. Bicycles Sold	No. Motor Vehicles Sold	Difference
2009	1,154,077	937,328	23%
2008	1,203,648	1,012,164	19%
2007	1,427,738	1,049,982	36%
2006	1,273,781	962,521	32%
2005	1,168,601	988,269	18%
2004	1,247,991	955,229	31%
2003	1,003,844	909,811	10%
2002	1,109,736	824,309	34%
2001	774,938	772,681	0.30%

(Source: Cycling Promotion Fund, 2010)

CHAPTER 2: CHARACTERISTICS OF THE WYONG LGA

Council's annual State of the Shire report presents a snapshot of the Shire's current social, environmental and economic status as well as comparing the Shire's status in a number of areas against other councils or State averages. The following information has been taken directly from the 2009 State of the Shire annual report and provides a brief summary of the key characteristics of the Wyong LGA and its implications for the development of a bicycle and shared pathway network.

2.1 Population

- Over the past 25 years Wyong Shire has changed from a holiday and retirement area to an urban fringe area of Sydney. The Shire's change in population is through in-migration of people moving to the Shire from other areas. The rate of in-migration has been influenced by the overall rate of immigration to Australia (that still predominately settles in Sydney pushing further growth to the outer fringes) ; the relative 'affordability' of land and housing compared to prices in greater Sydney area; and perceived lifestyle.

- The Shire currently has an estimated population of 146,589.

- The Shire comprises a large proportion of people in the 0-17 age groups (25.7%) and over 60 age groups (23.3%) reflecting the area's popularity as a place to bring up children and retire. Out-migration within the 25-34 age groups is high.

- In June 2008 the Wyong LGA ranked 16th in population size out of the 152 LGA's in NSW.

- Wyong Shire's population is expected to increase to 197, 358 by 2031, at an average growth rate of 1.17%.

- The most significant increase in population is expected in the Warnervale-Wadalba and The Entrance social planning districts based on substantial greenfield residential expansion. Detailed population projections are identified in Appendix B.

- All areas in the Shire are expected to have an increase in the early retiree, retiree and 75yrs + age groups.

- It is anticipated that the out-migration of 25-34 year olds will continue.

- The importance of Wyong Shire as a destination for families and retirees from areas is expected to continue.

Table 1: Central Coast Population Projections 2009 – 2031

Year	2009	2011	2016	2021	2026	2031
WSC Projections	146,589	147,819	160,384	172,824	185,098	197,358
Gosford Projections	166,361	170,090	174,783	180,384	186,645	193,432

(Source: Wyong Council website (.id Consulting, 2009)).

2.2 Land Use

- Wyong Shire is characterised by a rich and impressive natural environment, with an abundance of national parks, beaches, foreshores, lakes and rivers. The area comprises the major service centre of Wyong and townships spread around Tuggerah Lake, Budgewoi Lake, Lake Munmorah and the southern shore of Lake Macquarie.

- Wyong is predominately a residential area consisting of approximately 30,000 households. The majority of the population reside in large urban clusters close to Tuggerah Lakes with smaller population pockets spread throughout the shire. The western half of the Shire is predominantly rural.

- Significant commercial areas are currently located in Tuggerah, Bateau Bay, The Entrance and Lake Haven. Industrial areas within Wyong include the North Wyong, Berkeley Vale and East Industrial Areas. Other major land uses include the Tuggerah Business Park, Ourimbah Campus of the University of Newcastle and Warnervale Aerodrome.

- The Central Coast Regional Planning Strategy 2008 proposes an additional 70,000 people and 45,000 jobs for Wyong Shire over the next 25 years. This includes 23,500 homes to be located in centres and urban areas and 16,000 new homes to be located in greenfield release areas. The rate of development however will be influenced by tensions between the natural and built environment (State of the Shire, 2009, 15).

- The Warnervale Wadalba precinct is planned to be the greenfield growth area for the Shire over the next 20 years. This precinct will eventually house over 40,000 people and provide employment for many residents through initiatives such as the Wyong Employment Zone and Warnervale Town centre (State of the environment report, 2007, 15).

2.3 Employment

- The Central Coast has a low labour force participation rate compared to other NSW regions. In March 2009, the region's participation rate was 56.7% compared to the NSW rate of 63.8%.

- The 2006 Census found that the most common occupations in the Wyong Shire are trade workers and technicians (17.1%) while representation in professional and managerial roles (23.2%) is low in comparison with Sydney and NSW. The most significant industries employing Shire residents are retail trade (14.5%), health care and social assistance (11.7%), manufacturing (11.3%) and construction (10.5%).

- Over previous decades, increases in population have exceeded the growth in local employment opportunities. Approximately one – third of the Shire's residents commute beyond the Central Coast for employment, with the majority travelling to Sydney.

- A 744 hectares site known as the Wyong Employment Zone has recently been rezoned for the purposes of generating employment opportunities in the Shire. The area is able to facilitate approximately 6000 local jobs, and could generate a minimum of $1.5 billion of investment in the Central Coast economy. The rezoning will encourage employment generating land use activities and may improve the capacity of the local workforce.

2.4 Transport

- Transport within and around the Shire is challenging due to the geography and the dispersed pattern of urban development and population settlement patterns. Isolated communities, especially in the northern part of the Shire, three large lakes and narrow, slow roads up the valleys make travel times slow. Private transport is heavily relied upon as the result of this dispersed pattern of development which reduces the competitiveness of public transport (State of the Shire, 2009, 41).

- Wyong is serviced by the main Newcastle – Sydney railway line with main stations at Tuggerah and Wyong. Ourimbah and Warnervale stations have smaller platforms and more intermittent timetables. There is a new commuter - based station planned for Warnervale as part of the Warnervale Town Centre to service the Warnervale – Wadalba urban release area (State of the Shire, 2009, 41).

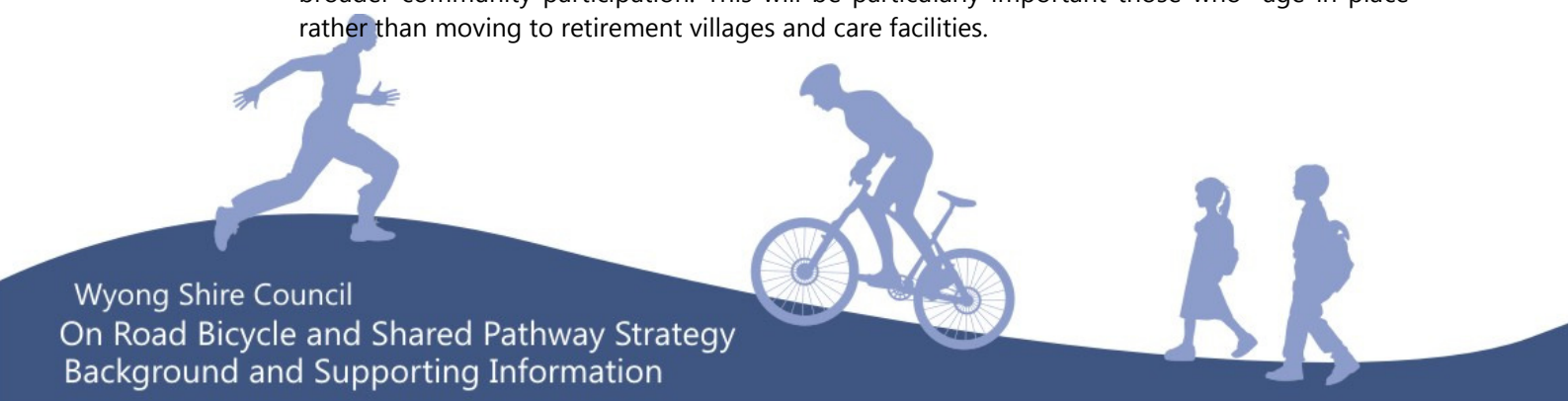
- The NSW Department of Transport and Infrastructure has let two contracts for bus servicing on the Central Coast. The bus companies are paid for establishment and fleet costs and maintenance and a rate per kilometre of travel (State of the Shire, 2009, 41).

- Wyong Shire is struggling to keep up with the increase in travel demand due to the population increase. There has been a general increase in traffic volumes on main roads throughout the Shire since 1988 (SoE 2003/04). Journeys to work via public transport has declined in favour of private motor vehicle which has been reflected in the 4% increase in vehicle registrations on the Central Coast during 2006/07 compared to a population increase of less than 1% over the same period (State of the Shire, 2006, 10). Of those travelling to Sydney for work, 55% do so by car (State of the Shire, 2009, 41).

2.5 Implications for the Development of Pedestrian and Cycling Facilities

- The increasing proportion of the population aged over 50+ will present challenges and opportunities as the ageing population is very diverse in terms of their physical mobility.

- For those without a licence or access to a motor vehicle, footpaths and shared pathways will be instrumental in maintaining mobility and preventing withdrawal from social activities and broader community participation. This will be particularly important those who "age in place" rather than moving to retirement villages and care facilities.



- For the increasing retired and semi- retired population, on-road bicycle lanes and shared pathways will be an instrumental in component in maintaining mobility, fitness and social networks. The desire to walk and cycle in a range of settings and locations is estimated to generate increased demand for quality on-road bicycle lanes, shared paths and footpaths throughout the entire Shire.

- The important role shared paths and footpaths play in providing connection between people and facilities and services is increasingly being recognised. Demand for footpaths and shared pathways, particularly by people without access to private or public transport and in areas with higher concentrations of older people and those using motorised scoters will increase.

- The increasing number of children and young families within the Shire is also estimated to generate increased demand for shared paths and footpaths. Cycling is a very important transport mode for children and a popular recreational activities for families with young children. Providing local opportunities for young children and families to cycle safely in attractive environments will increase.

- Community awareness of the effects a sedentary lifestyle and the benefits of regular exercise are increasing. Walking and cycling are low-impact activities recommended by health professionals. The increase in population is estimated to generate increased demand for quality on-road bicycle lanes, shared paths and footpaths throughout the Shire.

- The proposed development of the Wyong Employment Zone and its proximity to new and existing residential housing presents a great opportunity for commuting by bicycle. Cycling offers a great alternative to the car, especially for short trips. It is estimated this development will generate increased demand for quality on-road bicycle lanes, shared paths from surrounding areas to this site.

- The high proportion of Shire's residents which commute beyond the Central Coast for employment is estimated to result in a lower demand for on-road bicycle commuting infrastructure as compared to inner - city local government areas.

CHAPTER 3: COMMUNITY ENGAGEMENT

An extensive engagement program was undertaken to obtain an understanding of the existing bicycle and walking environment and the future aspirations of the Wyong community. This engagement incorporated a variety of techniques including;

- Focus groups;
- Workshops;
- Public displays;
- Meetings; and
- Surveys.

The objectives of the engagements were to:

- Identify existing patterns of cycling and walking;
- Understand what is currently working well within Wyong;
- Identify the key locations and facilities the community want connections to;
- Identify and understand the barriers and key issues affecting cycling and walking;
- Identify the key actions that can improve and support the cycling and walking.

The information provided during the community engagement program provided a great insight into the use and challenges of the existing on-road bicycle and shared pathway network and provided vital guidance for the development of the Strategy.

The following section outlines the activities and key findings from the community engagement program.

3.1 Community Engagement Process

3.1.1 Community and Stakeholder Workshops

Council facilitated 13 community workshops, which were attended by a broad range of stakeholders, community groups, bicycle users and members of the broader Wyong community. The workshops provided Council with the opportunity to:

- Identify existing patterns of cycling and walking;
- Understand what is currently working well within Wyong;
- Identify the key locations and facilities the community want connections to;
- Identify the current barriers and the ways to overcome them;
- Understand the key issues affecting cycling and walking in Wyong.

The responses provided great insight into the usage and problems of the existing on-road bicycle and shared pathway network within the LGA and the actions necessary to encourage and support greater participation throughout the shire.

3.1.2 Focus Groups

A series of focus groups were conducted with Wyong Council staff as part of the community engagement program. The purpose of the focus groups was to explore views about cycling and walking and identify the things that make it either easy or hard to cycle and walk within the shire. The focus group sessions were aimed at a range of people, including:

- Non-riders and walkers;
- Occasional riders and walkers; and
- Regular riders and walkers.

The responses provided great insight into key barriers to bicycle and shared pathway use and the actions necessary to encourage and support greater participation throughout the shire.

3.1.3 Workshop on Wheels/Workshop on Feet

Observation and discussion of existing cycling conditions was held via a group cycle ride with the Toukley and Cycling Club. Cycling infrastructure, on-road cycling lanes, shared pathways, motorist behaviour and desired cycling routes was discussed. A similar workshop discussing shared pathway infrastructure, cyclist behaviour and pedestrian conflict was held via a group walk with the Gorokan Walking group.

3.1.4 Public Displays

Council organised and conducted public displays at various locations including the 2009 Warnervale Spring Fair and the 2009 Bike Week Community Breakfast. Each display allowed the community to identify key facilities and destinations, indicate on a map desired routes and identify the barriers and the potential solutions to problems currently being faced by cyclists and shared pathway users.

3.1.5 Wyong Shire Council Officer Meetings

Meetings were held with a number of Council staff to obtain information in relation to Council operations, maintenance, events, funding sources and potential opportunities for on-road bicycle and shared pathway network Development.

3.1.6 External Stakeholders Meetings

Council officers met with and/or held discussions with representatives of Central Coast Cycling Association, Toukley District Cycling Club, Gosford and Lake Macquarie Councils and the NSW Roads and Traffic Authority to discuss proposed inter – council cycleway connections cycleway planning, funding, constraints and partnerships opportunities for bicycle facilities in Wyong Shire.

3.1.7 Bicycle and Shared Pathway Online Survey

A survey was developed for users and non users of Wyong Shire bicycle and shared pathways including commuter and recreational cyclists/walkers and non users. This survey was posted on Council's website with more than 150 responses received during the questionnaire period. The analysis of this information provided useful insight into existing participation, problems and future aspirations of the Wyong community in relation to cycling and walking.

3.2 Key Findings of Community Engagement

The engagement phase provided a valuable snapshot of the profile, concerns and aspirations of existing cyclists and walkers in Wyong (including those cyclists from the surrounding areas who may cycle to or through Wyong). The collated responses have been grouped into broad categories to assist in interpretation.

3.2.1 Existing Patterns of Cycling and Walking

- The community enjoys walking and cycling. They are popular activities which are undertaken by a whole range of people throughout the Shire.

- Walking is undertaken primarily along road edges/road reserves due to the ease of access of this infrastructure and the stability of the surface. Shared pathways are the preferred pathway for many pedestrians however they are not easily accessible to many residents. Cycling is predominantly undertaken along the road network and shared pathways.

- Recreational and fitness rides/walks appear to be the most popular type of trip in Wyong. This corresponds with the majority of users saying they cycle and walk for exercise/fitness. The ability to walk together with family members, children and pets, the environmentally friendly nature, convenience and practicality of cycling as means of getting to destinations were also popular reasons.

- On-road cycling is predominately performed by experienced and confident cyclists for training purposes and for commuting.

3.2.2 What is Currently Working Well within Wyong for Cycling and Walking

- The existing shared pathway network along the Tuggerah lakes foreshore. It provides a fantastic vista of the lakes and is of a high standard.

3.2.3 Key Locations and Facilities the Community want Connections to

The key facilities the community want pedestrian and cycling links to are:

- Open spaces
- Shopping areas/precincts
- Sport and recreation facilities
- Community facilities
- Educational institutions

Other facilities the community want links to are:

- Employment areas
- Public transport facilities
- Tourist's facilities + attractions
- Medical facilities
- Aged care facilities

3.2.4 Key issues and barriers affecting cycling and walking in Wyong LGA

Many people throughout the community experienced barriers which prevent and limit participation in cycling and walking activities. These include:

Cycling Activities

- Fragmented on-road and off-road networks with a lack of continuity and connectivity;
- Limited or no infrastructure within the local community;
- Narrow on-road cycling lanes/road shoulders/ lack of bicycle lanes;
- Inconsistent and lack of on-road bicycle lane markings;
- Unsafe routes, pinch points and dangerous intersections + roundabouts;
- Poor condition/quality of road surface of bicycle lanes;
- Poorly maintained roads, road shoulders and shared pathways;
- Poor integration with the road system
- High speed and high traffic volumes along popular trip desire lines;
- Lack of safety;
- Threatening behaviour of motorists and attitude to cyclists;
- Lack of confidence and cycling experience;
- Lack of confidence or fitness and cycling skills;
- Insufficient knowledge of available network;
- Perception of cycling as a difficult physical activity (too hard, too hot, too hilly, too dangerous etc);
- Perceived unsafe road layouts;
- Lack of information on the location of network;
- Lack of signage;
- Lack of supportive infrastructure;
- Lack of promotion, activities and events;
- Lack of end-of-trip and parking facilities.

Walking Activities

- Limited infrastructure provision and lack of path network continuity within local community;
- Unstable and poorly maintained road verges;
- Speed of vehicles and safety of pedestrians while walking alongside road verges;
- Threatening behaviour and attitude of motorists to pedestrians;
- Limited number of safe and convenient opportunities to cross major roads;
- Narrow pathways limiting the ability to pass other users safely, especially
- Threatening behaviour and attitude of cyclists to pedestrians;
- Insufficient knowledge of available network.

3.2.5 Key Actions that can Improve and Support the Cycling and Walking.

The community want to be able to walk and cycle. They want to do so for a range of health, transportation, social and environmental reasons. To create an environment that supports and encourages walking and cycling, a number of key actions have been identified by the community:

- **Define the network.** The development of an overall strategy which identifies the facilities, destinations, attractors the network will link to is essential. Identifying the key locations which attract and generate cycling and pedestrian activity is necessary to ensure the network reflects established and desired travel patterns.

- **Complete missing links**. In order to maximise and facilitate use of the existing infrastructure, "missing links" or "gaps" in the existing network need to be completed. This is required for both the on-road and off-road network. The development of the network in a logical and progressive way is essential to avoid future gaps and 'paths to nowhere'.

- **Provide quality maintenance.** In order to facilitate, promote and maximise the community's use of the existing infrastructure, bicycle lanes and shared pathways needs to be adequately maintained. This will increase the safety of the surfaces and improve user confidence.

- **Provide a safe environment.** In order to maximise current and future utilisation of the existing on-road and off –road bicycle and shared pathway network, a safe environment needs to be provided. To achieve this:

    - Infrastructure, surface quality, line markings and signage need to be consistent across the network;
    - Infrastructure needs to provide maximum safety to users from vehicles;
    - Pedestrians/cyclists/motorists need to be aware on how to use and interact with other pathway/road users;
    - Shared pathways and bicycle lanes need to be free of obstructions and debris;
    - Pedestrians and cyclists need to be highly visible.

- **Support and promote pathways** In order to encourage and facilitate community use of the existing infrastructure, and support healthy lifestyles, supportive actions need to be undertaken. The community needs to:

    - Be aware of where existing pathways are;
    - Be aware of how to access existing pathways;
    - Be aware of the benefits of cycling and walking;
    - Be confident in their ability to use this infrastructure;
    - Be provided with a range of ideas, options and infrastructure which encourage, promote and support healthy lifestyles and pathway use. This includes toilets, seats, water, shelter, storage etc.

CHAPTER 4: EXISTING NETWORKS AND USER GROUPS

4.1 Pedestrian and Cycling Infrastructure

Wyong has over 300 kilometres of designated pedestrian and cycling paths throughout the shire. The various types of pathways are briefly discussed below.

4.1.1 Footpaths

Footpaths are off-road paths which have been principally designed for foot traffic. They are mostly located in road reserves and are used extensively for a wide range of trip purposes. There are approximately 154 km of constructed footpaths throughout the Wyong Shire.

4.1.2 Off–Road Shared Pathways

Shared Pathways are off-road widened footpaths which can be shared by pedestrians and cyclists. They are physically separated from the road and are often located in recreational reserves and along foreshore areas.

There are approximately 107 km of constructed shared pathways throughout the Wyong Shire which are predominately located along lakes foreshore reserves, designed primarily for recreation.

4.1.3 On–Road Bicycle Lanes

On – road bicycle lanes are located on the side of the roadway, either on the outside of parked vehicles or next to the kerb line. They are designated by painted white lines and bicycle symbols and sometimes with signage to highlight its use by cyclists.

There are approximately 50 km of on-road bicycle lanes throughout the Wyong Shire. On-road bicycle lanes are predominately located along major state and regional roads such as the Central Coast (Pacific) Highway and Wyong Road. They are used primarily for competitive cyclists for athletic training.

The existing bicycle and shared pathways are shown in Appendix C and Appendix D.

The existing network is fragmented and currently lacks connectivity within itself and to the key attractors and destinations identified by the community. Due to this poor connectivity, the network is readily accessible only to a small proportion of the shire residents and is limited in its ability to be efficiently used to connect communities or as an alternative transport option.

4.2 Infrastructure programmes

The development of formed on-road bicycle and shared pathway throughout the Shire is currently undertaken through a number of programmes. These programmes are briefly discussed below.

- **The WSC Annual Footpath Programme**
  This programme aims to provide an integrated footpath network throughout the Shire. Projects are identified through community requests, crash/accident data and local area traffic management schemes (LATM's) and included within Council's 5 – year capital works programme.

- **The WSC Annual Shared Pathway Programme.**
  This programme aims to provide an integrated network of shared pathways throughout the Shire. Priority projects include The Entrance North to Toukley shared pathway and Budgewoi – Buff Point connection as part of the Tuggerah Lakes Estuary Management Plan (EMP). The shared pathway programme is regularly supplemented through grants via the Federal and NSW Government, the NSW Roads and Traffic Authority (RTA) in addition to developer contributions.

- **Residential Subdivision Development.**
  Shared pathways and on-road cycle lanes are funded and constructed annually by developers in association with urban residential and commercial development. These new bicycle lanes and pathways are predominantly located in new urban release areas and aim to provide linkages to key facilities within the new community and to the existing wider network.

- **Roads Improvement Programme.**
  This programme is undertaken annually by Council which is aimed at repairing and upgrading the local road network. As part of this programme, new footpaths and on-road bicycle lanes are regularly provided. This programme includes projects funded by the State and Commonwealth Government.

  The NSW Roads and Traffic Authority (RTA) also coordinate and funds major road improvement projects on the State Road network. As part of these projects, footpaths and on-road bicycle lanes and shared pathways are often provided. The major project currently being undertaken by the RTA within the Shire includes Stage 3 of Pacific Highway upgrade at Ourimbah.

4.3 Cycling and Walking Clubs

There are a number of established cycling and walking groups who coordinate a range of social, recreational and competitive activities within the Wyong LGA annually. These groups specifically utilise pedestrian cycling infrastructure within the Shire and are reliant on these facilities for the coordination of their activities. These clubs and their activities are briefly discussed below.

4.3.1 The Central Coast Cycling Club

The Central Coast Cycling Club is the largest cycling club on the Central Coast. It is a non-profit organization which runs track, road and criterion racing catering to all grades and abilities.

Criterion Racing is held on local roads within the North Wyong Industrial Estate on Friday evenings during the summer period. Track racing is staged at the Adcock Park Velodrome, Gosford on Wednesday's during the winter period. Road racing events are scheduled on a 50km circuit at Calga on Saturday's during the summer competition season.

In addition to competitive events, the club coordinate a number of community learn to ride workshops annually.

4.3.2 Toukley and District Cycling Club

The Toukley and District Cycling Club is a recreational based club that schedules weekly bicycle rides throughout the Central Coast. Membership is free with members ranging in age from the mid – forties to seventy and beyond. Bicycle rides incorporate both on-road bicycle lanes and off-road shared path and range in difficulty and duration.

4.3.3 Central Coast Touring Cycle Club

The Central Coast Touring Cycle club is a social club who schedules recreational bicycle rides on Sunday mornings. It is not a racing club, but rather a touring club with the difficulty of rides graded. The first Sunday of the month is traditionally an easy ride with more difficult and challenging rides scheduled on alternate weekends.

Rides incorporate both on-road bicycle lanes and off-road shared paths in addition to mountain bike rides and range in destinations throughout the Central Coast.

4.3.4 Gorokan Walking Group

The Gorokan Walking group is an informal group of people who have been undertaking recreational walks on Monday mornings for the past 20 years. The group has a variety of walks around the Gorokan area which caters to all grades and abilities.

4.3.5 Walking for Pleasure Groups

Walking for Pleasure groups have been set up all over Australia with people participating in regular walks on a weekly and fortnightly basis. There are 5 Walking for Pleasure groups established on the Central Coast, four of which are based within the Wyong LGA. Walks are undertaken in a variety of locations including natural bush areas, foreshore areas and beaches.

4.4 Central Coast Lifelong Learning Centre (C.A.R.E.S)

The Central Coast Life Long learning Centre is located off Palmdale Road at Palmdale. This facility, often referred to as the Community Awareness, Road, Education and Safety (C.A.R.E.S) facility, a joint initiative of Wyong Council, Gosford Council, NSW Police and the NSW State Government, is staffed by two NSW Police officers who deliver a specialist road education program to primary aged students.

The CARES program incorporates a combination of practical activities and classroom lessons which provide students with road safety knowledge and an opportunity to develop their practical skills. The program is designed specifically for school years 5 and 6, and focuses on:

- Road Safety
- Bicycle Skills
- Coping with Traffic
- Awareness of hazards to pedestrians and cyclists.

The maintenance of the facility is co-funded by Wyong and Gosford Council and managed by the NSW Police Association.

CHAPTER 5: PLANNING ISSUES

5.1 Types of Pedestrian and Cycling Paths

There are a variety of pathways available for pedestrians and cyclists use. Within the Wyong LGA three types of pathways have been provided; footpaths; shared path and on-road bicycle lanes. Separated paths and separated on-road bicycle lanes are also commonly utilised by pedestrians and cyclists within Australia, but are not currently provided within the Wyong Shire.

A brief description of these paths is presented below. A detailed description of the specific advantages and disadvantages of each type of pathway is provided in Table 5.1.

5.1.1 Footpaths

Footpaths are off-road paths which have been principally designed for foot traffic. They are mostly located in road reserves and are used extensively for a wide range of trip purposes. Footpaths are popular as they separate pedestrians from road users. They facilitate pedestrian and cycle movements to neighbourhood facilities, especially local shops and schools and are especially useful in assisting young children aged 12 and under to acquire bicycle handling skills in a safe environment.

5.1.2 Off–Road Shared Pathways

Shared Pathways are off-road widened footpaths which can be shared by pedestrians and cyclists. They are physically separated from the road and are often located in recreational reserves and along foreshore areas.

Shared pathways are popular as they separate cyclists from road users and minimise the potential conflict with motor vehicles.

Financially, the integration of cyclists and pedestrians onto the same path is an efficient solution whilst also providing a less confrontational environment for cyclists as compared to on-road bicycle lanes.

Shared pathways require cyclists to be aware of pedestrians and other users of the path and as a result, travel more slowly (Wadsley, 2008, 1).

5.1.3 On–Road Bicycle Lanes

On – road bicycle lanes are located on the side of the roadway, either on the outside of parked vehicles or next to the kerb line. They are designated by painted white lines and bicycle symbols and sometimes with coloured green paint to highlight its use by cyclists.

On-road cycle lanes are more conductive to the needs of more experienced cyclists who are more comfortable to mix with other road users. They provide a quicker operating environment for commuting and sports training cyclists and appeal less to recreational cyclists as there is little segregation from other road users (Wadsley, 2008, 1).

5.1.4 Separated Off – Road Pedestrian Paths/Off – Road Bicycle Paths

Separated off – road bicycle and pedestrian paths are paths which are used exclusively by cyclists or pedestrians. They are popular as they separate cyclists and pedestrians from road users and each other and minimise potential collision and conflict. Separated off – road bicycle and pedestrian paths provide maximum benefit to cyclists and are regularly used as commuter paths.

Separated off – road bicycle and pedestrian paths can adjoin each other (separated by a designated white line) or be two totally separate paths. Financially, the separation of cyclists and pedestrians onto separate paths is an expensive solution but provides a less confrontational environment for cyclists and pedestrians as compared to on-road bicycle lanes and shared pathways.

Figure 5.1.4a: A pedestrian + bicycle path separated path separated by line marking.

Figure 5.1.4b: A separated pedestrian + bicycle path (two directional bicycle path)

5.1.5 Separated On – Road Bicycle Lanes (Copenhagen Style)

Separated on – road bicycle lanes are located on the side of the roadway, either on the outside of parked vehicles or next to the kerb line. They are completely separated from pedestrians and cars by means of an island/barrier which separate the bicycle lane from traffic and parked cars. Pedestrians remain on the footpath, which is sometimes separated from the on-road cycle lane by edging, bollards or landscape.

Separated on-road bicycle lanes eliminates the risk of cyclist colliding with vehicles and open car doors and provide a safer option for less experienced cyclists by removing the potential conflict with both motorists and pedestrians. They appeal to a wider range of recreational, utility cyclist as well as commuters (Wadsley, 2008, 1).

Figure 5.1.5: A separated on –road (Copenhagen style) bicycle lane, Melbourne Australia.

Table 5.1: Types of Paths Available to Pedestrians and Cyclists and Other Users

Path	Description	Advantages	Disadvantages	Recommendation
Footpath	Can only be used legally by pedestrians and an adult accompanying child under 12.	Pedestrians can generally proceed without delays.	Sometimes used by cyclists when their own facilities are relatively poor or absent. Narrow width often unable to accommodate other users (wheelchairs, motorised scooters).	
Off–Road Shared Path	Shared with pedestrians and others.	Useful to cyclists and pedestrians, maximum benefit to community. It is beneficial to vulnerable cyclists where an existing footpath can be adapted/widened. Provides separation from motor vehicles	Pedestrian-cyclist conflict is common with significant volume of cyclists and pedestrians or a mix of recreational pedestrians, commuting cyclists and other users. LOS for cyclists can be poor where interference by other path users results in slower speeds.	Shared paths are beneficial to a range of path users but need to be managed effectively. Appropriate with modest numbers of pedestrians and cyclists. Important that the path's design is suitable for its use and demand, that users' behaviour is monitored and the connections between path, road and driveways are carefully considered.
Separated Off-road Paths	Separate sections for cyclists and pedestrians. Paths can only be used legally by cyclists or pedestrians. * *None located within Wyong Shire.*	May help to avoid pedestrian-cyclist conflict common on shared paths. Cyclists can ride without the delays possible on shared paths. Usually a higher LOS. Provides separation from motor vehicles.	Higher cyclist speeds are possible, however pedestrians from the separated path can stray into cycling space. Cycling paths sometimes used by pedestrians when their own facilities are relatively poor. Higher cost of path due to increased width/duplication.	Preferred where there are likely to be significant volumes of commuter cyclists. Appropriate if large numbers of cyclists and pedestrians will use them. Care is required to ensure that pedestrians or cyclists can be accommodated elsewhere if only 1 path is provided. There should be adequate separation) between cyclists and pedestrians (e.g. different paths).

Path	Description	Advantages	Disadvantages	Recommendation
On–road Bicycle Lane	Separate section of road carriageway for cyclists. May be paved in a different colour and texture from adjoining Sections.	Can offer a fast route that can be very attractive to many cyclists. Particularly helpful for short lengths such as squeeze points in the road carriageway.	Cyclists on paths are required to give way to other traffic when crossing side roads, which results in delays. Intersections are where cyclists are at highest risk. Path obstructions/visibility issues: - Inadequate clearance for visibility at driveways - Frequent or busy driveways - Inadequate clearance from opening doors of parked vehicles - Bus passengers boarding and alighting from cycle path. Where cyclists ride in both directions along paths, drivers using driveways and side roads may not expect cycle traffic from both directions. Difficult to turn right from cycle path. Expensive due to relocating kerb lines	Between intersections, cycle paths next to roads can provide attractive and safe facilities for a wide range of cyclists. Consider safety and delay issues at intersections where it's preferable for the path to rejoin the roadway.

Path	Description	Advantages	Disadvantages	Recommendation
Separated On–road Bicycle Lane (Copenhagen style)	Separate section of road carriageway for cyclists. Generally paved in a different colour and texture from adjoining sections of the berm. Separated by a low kerb. *None located within Wyong Shire.*	Can offer a fast route and a low-stress environment that can be very attractive to many cyclists. Particularly helpful for short lengths such as squeeze points in the road carriageway. Provides separation from motor vehicles.	Same as for On-road bicycle lane.	

(Source: Adapted from Austroads Guide to Traffic Engineering Practice Part 14 – Bicycles, 1999, 6)

5.2 Planning for Pedestrians and Cyclists

5.2.1 Planning Tools

Council can influence the level of pedestrian and bicycle participation and infrastructure provision within the Shire through land use planning strategies and policies. Furthermore, land use planning can have a major influence on the level of bicycle friendliness of a given area.

Car dependent developments may impact negatively on the attractiveness of cycling as a transport or recreational option. Conversely, higher density, mixed use planning often results in an environment conducive to bicycling, as trip distances are shorter (www.cyclingresourcecentre.org.au).

Integrating land use and pedestrian/bicycle transport, providing greater transport choice, improving accessibility to pedestrian and cycling infrastructure and encouraging more sustainable transport modes other than the private car, such as public transport, walking and cycling can all be achieved through planning instruments.

.At the broadest level, Metropolitan strategies, Master plans and Local Environmental Plans (LEP's) can help create urban form that is conducive to walking and cycling. At a more detailed level development control plans, developer contributions plans and development assessment processes can reinforce these broader plans through funding mechanisms and the provision of facilities and design outcomes that are supportive of walking and cycling (www.pcal.nsw.gov.au/planning_and_design_guidelines).

Through incorporating walking and cycling provisions into planning strategies and instruments, Council will have a legal obligation to consider these provisions when assessing development applications. Furthermore, for larger developments, there also may be the requirement for referrals to State agencies which creates opportunities for additional consideration of walking and cycling issues (DoP, 2004, 41).

The use of planning tools and policies will be an important component in the provision of infrastructure and supporting pedestrian and cycling use across Wyong Shire.

5.2.2 Pedestrian and Cycling Catchments

The identification of catchment areas is essential in the development of a usable bicycle and shared pathway network. In this instance, a catchment is defined in terms of the number of people within a certain area who are most likely to be attracted and/or access a key location or activity centre. Facilities and destinations of regional or greater significance will attract people from further afield, whilst local destinations will be key attractors to local residents.

The NSW Department of Planning's Guidelines for Walking and Cycling identifies walking catchments of approximately a five minute ride or around 1.5 – 2.0km (DoP, 2004, 19). Catchment areas may be reduced however where routes are perceived to be unsafe or where there are substantial barriers to movement such as major roads or rail lines (Austroads, 2006).

Identifying both key destinations and the catchment areas that will predominately access the facility allow for the development of effective routes and a usable bicycle and shared pathway network.

The formed on-road bicycle and shared pathway network is based upon providing connections to the key destinations for both pedestrians and cyclists. The NSW Department of Planning's' Planning Guidelines for Walking and Cycling' identifies walking catchments of radius 400m or 5 minutes walk around a centre, and 800m or 10 minutes walk around a centre that includes a public transport stop.

As bicycles travel three to four times faster than a person on foot, the bicycle catchment for a five minute ride is around 1.5- 2.0km.

5.2.3 Impacts of Climate Change on Pathways

As a coastal community with an extensive lake system, Wyong Shire is particularly vulnerable to flooding. There is also potential for permanent coastal inundation and increasing coastal hazards associated with changing weather patterns and extreme weather events.

Sea level rise is an incremental process and will have medium- to long-term impacts. Projections of sea level rise along the NSW coast are for a rise relative to 1990 mean sea levels of 0.4m by 2050 and 0.9m by 2100 (NSW DECCW, 2009, 1).

The Environmental Planning and Assessment Act (1979) requires consent authorities such as Council to consider coastal and flooding hazards in their planning and development approval decisions. The NSW Coastal Policy and Coastal Regional Strategies also require consideration of sea level rise, as does the standard instrument for Local Environmental Plans.

To minimise the risk of damage from flood inundation, consideration will need to be given to the location of future foreshore shared pathways located along Tuggerah lakes, rivers and coastal foreshore areas. The provision of adequate buffer distances between foreshore areas and future development will be necessary to maximise use and safety of these community assets.

The location of existing foreshore pathways will also need to be reviewed against future sea level rise planning levels as they near the end of their asset life threshold.

5.3 Planning for Competitive Cyclists

The Central Coast Cycling Club coordinates competitive track, road and criterion racing on the Central Coast. Criterion racing is held within the North Wyong Industrial Estate; track racing is staged at the Adcock Park Velodrome and road racing events are at held at Calga. In addition to competitive events, cycling training is undertaken by competitive cyclists on the road network, primarily on State and Regional roads. Within the Wyong Shire this includes the following roads:

- Wyong Road
- Central Coast highway
- Wilfred Barrett Drive
- Budgewoi Road
- Scenic Drive
- Elizabeth Bay Drive
- Sparks Road

The aforementioned roads are high speed high volume roads. They are often considered dangerous for cycling due to the speeds and volume of vehicles but are used as they provide cyclists with long distance routes which is required for cycling training.

While the needs of competitive cyclist are generally incorporated within the design criteria discussed in "Chapter 6 – Design Considerations", connectivity of the on-road bicycle network is critical for competitive cyclist training. The existing on-road bicycle network is fragmented and currently lacks connectivity. Inconsistent line markings, gaps within the network, vehicles parked in bicycle lanes, debris located in lanes and intersections that do not provide safe passage for cyclists create a dangerous environment for cyclists using state and regional roads.

Although bicycle riders are legitimate road users and are as entitled to use the road as any other vehicle, both motorists and cyclists prefer a designated bicycle lane to maximise both cyclist safety, traffic flow and speeds. Overcoming these problems is essential in providing an on-road network which can safely meet the training needs of cyclists.

5.4 Opportunities

A number of opportunities and potential partnerships for the development of the network have been identified. These are explained below.

5.4.1 Asset Protection Zones

An Asset Protection Zone (APZ) is a buffer zone located between a bush fire hazard and buildings. APZ are located throughout the Shire along the urban – bushland interface and are managed progressively to minimise fuel loads and reduce potential damage to life and property.

While the primary function of APZ is to provide a buffer zone located between a bush fire hazard and buildings, they also provide opportunities for movement corridors and locations for shared pathways. The development of shared pathways within APZ's can also assist through providing permanent fire fighting vehicle access thus further improving access and property safety.

The potential use and benefits of utilising APZ's in providing direct linkages to key generators and attractors will be examined during the development of the on-road bicycle and shared pathway network.

5.4.2 Existing Footpaths

Footpaths often provide the most direct connection between key generators and attractors within the community. To increase the functionality of these pathways and further expand the on-road bicycle and shared pathway network there may be opportunities to widen and transform existing footpaths into designated shared pathways.

The potential use and benefits of widening specific existing footpaths to providing direct linkages to key generators and attractors will be examined during the development of the on-road bicycle and shared pathway network.

5.4.3 Bike Racks on Buses

The integration of cycling and public transport is a major opportunity for the Shire. Successfully operating in other locations including Canberra, bike racks on buses enable cycling and public transport to complement each other and, increasing the flexibility and reach of both.

Buses containing bike racks have the ability to link residents from strategic locations to schools, employment areas and transport interchanges. Such facilities are well suited to lower density areas such as Wyong Shire and have the potential to assist transport disadvantaged residents with limited or remote access to public transport.

Working in partnership with the NSW Ministry of Transport and their contacted bus companies Busways and Red Bus, will be essential to provide an integrated bicycle and bus network which provides linkages and access to key destinations.

5.4.3 Partnerships

Working in partnership with a range of landowners and organisations will be essential to provide a successful and integrated network which provides linkages and access to key destinations. Land owners who have been identified as having a potential significant impact on the development of bicycle and shared pathway infrastructure include:

- Darkinjung Land Council;
- Delta Electricity;
- Pioneer Diary Trust;
- National Parks and Wildlife Service;
- NSW State Forrest;
- NSW Rail Corporation;
- NSW Roads and Traffic Authority; and
- Private land owners.

The development of walking and cycling initiatives will be integral to supporting and encouraging community use of these facilities. There are a number of ways in which Council can promote, support and encourage the communities' participation in walking and cycling activities. These initiatives could be undertaken by Council in partnership with the local community and/or be coordinated by external organisations with support from Council.

Organisations which have been identified potential key partners in the development and delivery of these initiatives include:

- Central Coast Cycling Club
- Central Coast Touring Cycling Club
- Gorokan Walking Group
- Northern Sydney Central Coast Area Health Promotions Unit
- NSW Department of Sport and Recreation
- NSW Police
- NSW Roads and Traffic Authority
- Toukley District Cycling Club
- Wyong Shire Walking for Pleasure groups

The development of key partnerships with government, private sector, community organisations and other stakeholders will be critical in realising the vision for on-road and shared pathway network within the Shire.

CHAPTER 6: DESIGN CONSIDERATIONS

6.1 Designing for Pedestrians and Cyclists

There are a number of different types of pedestrian and cycling users within the community, each of which has varying skills and expectations that need to be provided for. An indication of the variety of users includes;

- **Pedestrians** – Joggers, walkers, dog walkers, people pushing prams, elderly, family groups; people with a disability (visual, cognitive, hearing and mobility impaired);
- **Cyclists** - Commuters, athletes, utility riders, students, children and recreational.
- **Other wheel vehicles** – Wheelchairs, electric scooters/ gophers, inline skaters, skate boarders, roller skates, scooters (adapted from Austroads, 1999, 69).

Pedestrians and cyclists have basic requirements whenever they ride. In most instances these requirements apply equally to pedestrians and cyclists. This includes:

- Adequate space to operate;
- Appropriate surface;
- Maintenance of speed;
- Connectivity;
- Lighting;
- Direction and
- End of trip facilities.

These requirements apply equally to cyclists, using on- road bicycle lanes and off-road shared paths.

6.1.1 Space to Operate

The operating space and the widths of formed on-road bicycle lanes and shared paths have a significant bearing on the level of use, convenience, conflict and safety. Cyclists require safe clearances from cars in order to remove potential for physical contact and to ensure that users do not feel unduly threatened by general motor traffic (Austroads, 2009, 21). Pedestrians also require safe clearances from cars and adequate distance from other path users in order to remove potential for physical contact and minimise feelings of intimidation (Austroads, 1999, 14).

Bicycle lanes and shared pathway widths must allow for the width of users including bicycles, motorised scooters, wheelchairs and prams and for variations in tracking. Not all users, especially young bicycle riders can steer a straight line and when riding up-hill experienced riders work the bicycle from side to side whilst the inexperienced may wobble. Elderly persons on motorised scooters may similarly experience tracking difficulties when riding up- hill.

Cyclists, particularly those using on-road bicycle lanes also need adequate clearances to fixed objects and to passing vehicles in addition to the path envelope (Austroads, 2009, 22). Wheeled mobility devices have manoeuvrability issues and kerb ramps, refuges and bollards should be wide enough to allow for safe access.

The operating space and the widths of paths is often the most important characteristic affecting usability. A small increase in width can reduce pedestrians' and cyclist fear of being run into and improve path efficiencies and the enjoyment of users.

6.1.2 Appropriate Surface

Of critical importance to pedestrians is the quality of the walking surface. Pedestrians require a stable, firm, even and relatively smooth but slip resistant surface. A flat surface is essential for people in wheelchairs, crutches and for those who are unsteady of their feet (*Austroads Guide to Traffic Engineering Practice Part 13 – Pedestrians, 1995, 24).*

Bicycles require a high quality surface to operate safely and efficiently. Compared to motor vehicles, bicycles are significantly lighter, having narrower tyres inflated to high pressure to reduce drag and little to no suspension. ***Surfaces used for cycling should be smoother than those acceptable for motor vehicles***. Small details such as cracks, concrete joints, smoothness and cleanness of the kerbside bicycle lane or shared pathway may have little influence on the handling of a motor vehicle, but can cause significant difficulties for cyclists (NSW bicycle guidelines, 2005, 61).

If a bicycle lane or shared pathway has a debris – covered, poor quality surface, pedestrians and cyclists will not use the path. In the case of on-road bicycle lanes, cyclists will often ride in the traffic lanes rather than negotiating the hazards within the bicycle lane (NSW bicycle guidelines, 2005, 61). A smooth (albeit skid resistant) surface is therefore essential for bicycles to be used effectively, comfortably and safely.

There are a number of additional factors that need to be considered when choosing an appropriate surface for pathways. The cost of the surface is an important factor. Hard surfaces have relatively high construction costs, but have lower maintenance requirements. In particular, concrete paths tend to be the most expensive to install, but are often the most durable and lasting surfaces. Alternatively, soft surfaces are cheaper to construct, but are likely to require higher levels and frequency of maintenance.

The location of the path and condition of the site will also affect the surface of a path. If the path is located on a riverbank or lake foreshore where it may be subject to inundation, a concrete path may be more suitable. The need for paths to support motor vehicles, both travelling along and across them for maintenance, emergencies and to access adjoining properties are also important considerations (Pedestrian Cyclist Information Note No 5, 2006).

A synopsis of the advantages and disadvantages of different surface materials for pathways is contained in Table 6.1.2a. Typical construction costs for different surfaces are shown in Table 6.1.2b.

Table 6.1.2a: Path Surface Synopsis

Surface Material	Advantages	Disadvantages
Asphalt/Bitumen	Hard surface, supports most types of use, all weather, does not erode, accommodates most users simultaneously, low maintenance.	High installation cost, costly to repair, not a natural surface, freeze/thaw can crack surface, heavy construction vehicles need access.
Concrete	Hardest surface, easy to form to site conditions, supports multiple use, lowest maintenance, resists freeze/thaw, best cold weather surface.	High installation cost, costly to repair, not a natural looking surface, construction vehicles will need access to the trail corridor.
Recycled Materials	Good use of materials, surface can vary depending on materials.	High purchase and installation cost, life expectancy unknown.
Granular Stone	Soft but firm surface, natural material, moderate cost, smooth surface, accommodates multiple use.	Surface can rut or erode with heavy rainfall, regular maintenance to keep consistent surface, replenishing stones may be a long-term expense.
Soil Cement	Uses natural materials, more durable than native soils, smoother surface, low cost.	Surface wears unevenly, not a stable all-weather surface, erodes, difficult to achieve correct mix.
Native soil Natural Material	lowest cost, low maintenance, can be altered for future improvements, easiest for volunteers to build and maintain.	Dusty, ruts when wet, not an all weather surface, can be uneven and bumpy, limited use, not accessible

(Source: NJDOT Bicycle Compatible Roadways and Bikeways - Planning and Design Guidelines, 1996)

Table 6.1.2b: Typical Construction Costs for On-road Bicycle Lane + Shared Pathways

Material	Construction Cost (per km)	Maintenance Implications
Asphalt (a)	$120,000	High maintenance costs, easy to replace and restore heavy construction vehicles need access.
Concrete (b)	$250,000	Minimal ongoing maintenance required, costly to repair, heavy construction vehicles need access to the trail corridor.
Concrete Boardwalk (b)	$2,000,000	Life expectancy unknown, costly to repair heavy construction vehicles need access to the trail corridor.
Recycled Plastic (b)	$2,000,000	Life expectancy unknown, costly to repair, construction vehicles will need access to the trail corridor.

(Source: WSC, 2010).

Notes:
a Assuming 1.6m wide lane, 1 km, line marking inclusive
b Assuming a 2.50m wide path, 1 km, no structures

6.1.3 Maintenance of Speed

For bicycles to be most effective as a means of transport, cyclists must be able to maintain speed without having to slow or stop often. Cyclists typically travel at speeds between 20 km/h and 30 km/h although they may reach in excess of 50 km/h down hills. Once slowed or stopped it can take considerable time and effort to regain the desired operating speed.

Bicycle routes, especially off-road, should be designed for continuous riding, minimising the need to slow or stop for any reason including steep gradients, rough surfaces, sharp corners, obscured sight lines, or to give way to other people because the width available is too narrow. On most roads cyclists are confined to the extreme left hand side by motor vehicles, with rough surfaces and debris preventing cyclists from maintaining an acceptable speed (Austroads, 1999, 14).

Intersections are locations where there is considerable potential for conflict between cyclists and motor vehicles. The ability for all road users to deal with the range of complex conditions and situations is often difficult and errors in judgement often occur (Austroads, 1999, 47). Crash data indicate that most bicycle accidents occur at intersections, involve a car and are serious in nature. Providing a clear path for cyclists at intersections is essential to maintaining continuity and safety.

Motorists often park fully or partially in bicycle lanes, blocking the path and forcing cyclists into the adjacent lane. Cyclists' taking evasive action at speeds up to 50km/h is extremely dangerous and can lead to catastrophic injury for both cyclists and motorist. Unless on-road bicycle lanes remain uninterrupted, the network will be unsafe and ultimately unusable.

6.1.4 Connectivity

Pedestrians and cyclists need to be able to undertake and complete meaningful trips. Routes comprising roads and paths should combine to form an effective, convenient and safe network and link to key destinations. Connectivity is a critical component of effective bicycle routes. The purpose of the route should be clear as well as all of the routes which users are likely to access in travelling to and from the paths, bicycle lanes and roads forming the network.

Cycle routes in particular need to be direct, convenient and comfortable if they are to be well used. If the bicycle route involves a significant detour or increase in gradient, then cyclists may refuse to use it (Austroads, 1999, 14).

6.1.5 Lighting

Public lighting is important in all of the environments used by pedestrians and cyclists, particularly roads, due to the relatively inconspicuous form of cyclists and as a vulnerable road user. As such there is justification for high levels of lighting along strategic on – road bicycle and shared pathway routes (Austroads, 1999, 17). Such routes should be illuminated in accordance with the relevant standards for roadway lighting

Solar powered lighting, which can obviate the cost and difficulties often associated with connecting an isolated light to an electricity source, should be considered in the deliver of any pathway lighting.

6.1.6 Direction and Signage

Bicycle routes should be signposted to indicate both destinations and the distances to them. A route which starts and ends abruptly is undesirable and may be hazardous as it may lure inexperienced users to a point where they are at risk, perhaps having to ride along or across busy roads to complete their intended trip (Austroads, 1999, 17).

Maps should also be available showing the route, facilities and points of interest along it, its relationship to the surrounding road system and relevant facilities. Maps, markings and signage should be consistent in terms of destination names and other information (Austroads, 1999, 17).

6.1.7 End of Trip Infrastructure

Providing end of trip facilities, particularly to workplaces and educational institutions can encourage people to ride longer distances. These facilities can also benefit other people pursuing other physical activities such as running walking or in-the –workplace activities. The following are they key end of trip facilities considered essential to support cycling.

Bicycle Racks

Bicycle racks are an effective and low cost method of providing short to medium term parking. Bicycle racks need to be located in areas with good visibility, surveillance and lighting to provide cyclists with confidence that their bicycle will be present upon their return.

Bicycle racks needs to be easily accessible from the road or bicycle path. They also need to be close to the entrance of buildings. Poorly positioned bicycle racks may be the difference between a well-used facility and one that is ignored in favour of a banister, pole or tree.

To promote cycling as a mode of transport for local trips, bicycle racks are ideally located at corner stores, local supermarkets, recreation and community facilities across the shire.

Figure 6.1.7 a: The Pushbike Tree provides a dual purpose tree guard and high-density bike parking in Sydney CBD.
http://www.pushbikeparking.com/pushbike-tree

Figure 6.1.7b: Visible and well located bicycle racks, Sydney.

Bicycle Enclosures

Bicycle enclosures provide long term bicycle parking and are usually associated with workplaces and education establishments and other key destinations where people commute. Long-term bicycle parking enclosures need to provide security, weather-protection and the ability to hold a large group of bicycles.

To be effective, bicycle enclosures, particularly for employees, needs to be located close to showers, clothes lockers and change rooms.

Lockers

Bicycle lockers provide long term storage of clothing and personal items and are usually associated with workplaces and education establishments and other key destinations where people commute. Lockers are best located with change rooms.

Showers and Toilet Facilities

For cycling to become a realistic form of transport, the installation of showers and toilet facilities at workplaces is essential. Showers and toilet facilities are best located with lockers and change rooms.

Table 6.1.7 provides advice on the minimum recommended number of showers for workplaces.

Table 6.1.7: Recommended Staff Shower Requirements

No. of Staff	Recommended Shower Provision
0 - 19	One (1) shower
20 - 49	Two (2) showers, 1 male and 1 female in separate change rooms
50 - 149	Four (4) showers, 2 male and 2 female in separate change rooms
150 - 299	Six (6) showers, 3 male and 3 female in separate change rooms
300 - 500	Eight (8) showers, 4 male and 4 female in separate change rooms
> 500	Additional shower facilities will be required at a rate of 1 female and 1 male shower for every 250 staff

(Source: Queensland Transport Cycle Note No. 4, 2006, 4)

Figure 6.1.7c: The Green Pod is the size of one car park space and comes in two configurations; 1 Shower, 1 Change Room, 10 Bicycles, 10 Lockers or 2 Showers, 2 Change Rooms, 28 Lockers, 0 bicycles
(Source: http://www.pushbikeparking.com/green-pod#inside)

Additional Facilities

There is a wide range of additional end-of-trip facilities and services that can help make cycling more attractive. These include:

- Toilets in close proximity to showers
- Basins and mirrors
- Power points and shaving plugs
- Benches and clothing hooks
- Hairdryers
- Irons and ironing boards
- Power-point for recharging bicycle lights
- Washing machines and dryers
- Towel services
- Drinking water
- First-aid kits
- Bicycle toolkits including a foot pump, tyre levers and puncture repair kit

(Source: Queensland Transport Cycle Note No. 4, 2006, 6)

6.2 Cyclists and Motor Vehicles Conflict

Even though cycling promotes good health and longer life, cycling is often perceived as "too dangerous" by many in the community. This perception is a barrier to cycling within the Shire, especially to on-road cycling.

Unfortunately, cyclists are more exposed to injury when riding compared with the occupants of motor vehicles. Even collisions with cars at low speeds can result in serious injury to cyclists. Children and teenagers, for whom cycling is an important and frequent mode of transport, are particularly vulnerable.

Bicycle lanes are essential spaces in the transport network to support cycling activities. If they are to effectively support increased usage by the community, the design of infrastructure together with the attitude and behaviour of drivers to on-road cyclists will need to be improved (Austroads, 2006, 1).

6.3 Pedestrian and Cyclists Conflict

The interaction between cyclists and pedestrians on shared pathways is increasingly causing safety concerns, exacerbated by poor design, inadequate provision and the increasing presence of wheeled recreational devices, including powered scooters and gophers. Some of these concerns are real and others are perceived, but nevertheless important in terms of people's willingness to walk and cycle.

Pedestrians and cyclists, whilst both being vulnerable road users compared to motorised vehicles, differ greatly from each other in terms of speed of travel and ability to take evasive action. Conversing with a fellow pedestrian is likely to make pedestrians less aware of the presence of other users, including cyclists which may lead to or result in collisions (Austroads, 2006,1).

Wyong Shire's population is ageing, with continuing increases in the proportion of seniors and persons with disabilities. Whilst these trends are often thought of in terms of limitations on physical mobility, it also will see an increasing dependence on alternative transport such as wheelchairs and gophers and use of shard pathways. Other disabilities, such as vision-impairment and hearing-impairment, associated with ageing, have implications for the level of awareness of other users and the ability to interpret signage and other information while using a path (Austroads, 2006,1).

If the conflict occurring on shared pathways is not addressed, it can result in:

- An increased potential for injury for both bicycle riders and pedestrians;
- Ongoing frustration resulting in decreased use of the facility;
- Physical violence;
- Pressure to ban pedestrians or cyclist on particular bicycle lanes and shared paths.

(Source: Reducing conflict between bicycle riders and pedestrians - Cycle Note, Queensland Transport, June 2006).

As governments and local communities are more successful in increasing the amounts of walking and cycling, the greater these concerns will become – potentially limiting the extent and sustainability of such gains (Austroads, 2006, 1).

6.4 Path type

The RTA NSW Bicycle Guidelines provides advice to planners when considering the type of cycle facility for urban roads. This advice is based on the existing Annual Average Daily Traffic (AADT) 85th percentile speed information for any particular road. Where vehicle speeds and volumes are high it suggests separate cycle paths, and where they are low it suggests that cyclists can share the road space with general traffic without a need for any cycle facilities, apart from possibly cycle signs, markings and logos.

Although there is a basis to this approach there are a number of additional key factors which need to be considered when determining the type of bicycle and shared pathway facility. These include;

- Levels of cyclists safety, both real and perceived;
- Cyclist skill;
- Attitudes of motorists;
- Condition of road;
- Quality of bicycle infrastructure; and
- Trip purpose

The provision of separate paths designed specifically for each different type of cyclists and pedestrians within the community is not spatially or financially realistic. As a result, it will often be necessary to cater for more than one group within a single pathway corridor.

The safe integration of cyclists, motorists and pedestrians is extremely difficult as each differ greatly from each other in terms of abilities, levels of mobility, cycling skills, speed of travel, ability to take evasive action and the nature of the movement activity. Arguably the most effective method of integrating a mix of users in a limited space is through separation.

Separation can occur visually, through marked bicycle lanes and the use of green surface paint (to designate operating space) and physically, through widened bicycle lanes and Copenhagen – style paths which utilise barriers.

Separation is one of the most important considerations in pathway design and will significantly influence the number of accidents and the level of acceptance of the network.

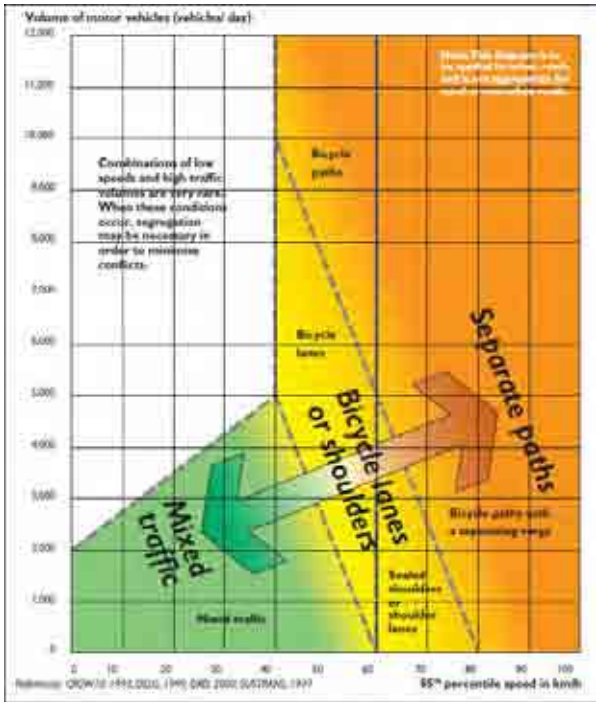


Figure 6.4: The Separation of bicycles and motor vehicles
(Source: NSW Bicycle Guidelines, 2005)

6.5 Maintenance

The maintenance of the formed on-road bicycle and shared pathway network is essential to ensure safety to users in addition to maximising community the use of this infrastructure.

The characteristics of both pedestrians and bicycles mean that minor defects are likely to present a greater safety issue to path users as compared to motorists. Pedestrians and cyclists are more easily to trip or lose control as result of cracked and lifting pavements, gaps between road joints, intruding vegetation and build-up of debris.

It is important that a build-up of debris on bicycle facilities is prevented from occurring. Bicycle lanes are particularly prone to the accumulation of debris as they fall outside the swept path of motorised vehicles. This means that the sweeping action of passing motor vehicles tends to push debris from general traffic lanes into bicycle lanes, where it collects. Shared paths can also suffer from the same problem as they are often located beneath trees which drop leaf litter vegetation and do not have motor vehicles travel along them to push debris away.

Regular sweeping, particularly for primary routes, is therefore essential to ensure that on-road bicycle lanes and pathways remain free from a build-up of debris. On-road bicycle lanes may be swept as part of regular road sweeping operations, however roads with bicycle lanes need to be swept more often relative to other roads. Formed off-road shared paths also require regular sweeping which is usually done by using a small mechanical sweeping machine.

Other key bicycle and shared pathway maintenance activities include:

- Surface repairs, particularly potholes and gaps which may develop between service covers/drainage grates and the path surface;
- Trimming of adjacent and overhanging vegetation to maintain sight distances and clearances;
- Grass cutting and weed management to prevent encroachment onto paths;
- Repainting of pavement markings/line markings;
- Sign cleaning and replacement.

Council currently undertakes an annual risk assessment of footpaths and shared pathways to identify any defects or hazards that may pose a risk to users and addressing them proactively. Informal inspections of is also undertaken of shared pathways located in recreation areas during mowing of reserves.

Problems and defects located within the on-road bicycle network are infrequently identified during road inspections. There is no formal inspection program for on-road bicycle lanes, nor a scheduled street sweeping schedule or program for repainting of bicycle lanes.

There are number of hazards associated with bicycle and shared pathway network. The development of designated maintenance programs is essential to identify and repair these defects.

In addition to Council's inspection schedule, users of the bicycle and shared pathway network are a valuable source of information on the current condition of facilities. The development of a simple and easy to use system, such as a web page - based feedback form, where feedback from path users can be collected would assist in maintaining a safe and useable network.

Figure Bicycle path sweeping machine
Source: NSW Bicycle Guidelines, 2005

6.6 Supporting Initiatives

Promoting and supporting walking and cycling are integral to raising public awareness of these activities and their benefits so that the community may take advantage of them. There are a number of ways in which Council can promote, support and encourage the communities' participation in walking and cycling activities. A number of these initiatives could be undertaken by Council in partnership with the local community and organisations with other projects coordinated by external organisations with support from Council.

A number of key initiates are identified bellow.

6.6.1 Bicycle and Shared Pathway Network Map

Maps are a valuable resource in helping new and experienced users and tourists discover the bicycle and shared pathway network. Maps can make a bicycle journey safer and more enjoyable by helping people to find paths, to choose a more efficient route and link up to key destinations.

Useful information to include on maps includes the location of:

- Amenities and drinking water;
- Bicycle racks, lockers and storage facilities;
- Path surface and difficulty;
- Distances or approximate travel time between locations;
- Contact details for more information.

Maps should be available on Council's web page, at information/ tourist centres, bike shops and displayed on a large scale at strategic locations.

6.6.2 Community Programs and Events

There are many National and State government bicycle initiatives that are held annually throughout Australia aimed at promoting walking and cycling and the benefits of healthy lifestyles. These include Ride and Walk to work day, Ride to school day and NSW Bike week. Furthermore, there are many bicycle rides, races and walking programs that are regularly held within Wyong by various community groups annually.

These events actively promote pedestrian and cycling within the broader community and Council should look at participating and partnering with the community to support such initiatives.

6.6.3 Learn to Ride Workshops

Improving the confidence and skills of new and existing users is an important step in actively encouraging and supporting pedestrian and cycling and sharing the benefits of this infrastructure within the broader community.

There are a number of established cycling proficiency training (CPT) courses designed for adults who would like to improve their cycling skills and confidence**. *Back on Your Bike*** courses are designed for people who have seldom cycled, lack the confidence and skills for cycling, and would like to mainly ride on bike paths. ***Commute by Bike*** courses usually target people with cycling experience but lacking confidence and skills to ride on the road and negotiate traffic.

Local organisations including the Central Coast Cycling Club and Northern Sydney Central Coast Area Health Promotions Unit have offered such programs in recent years. The presence of the C.A.R.E.S facility provides a fantastic resource for such courses and Council should look at partnering with the community to deliver and support such initiatives.

REFERENCES

Australian Bicycle Council 2005, *Bikeability Toolkit*.
http://www.abc.dotars.gov.au/index.aspx

Austroads 2004, *Guide to Traffic Engineering Practice – Part 10: Local Area Traffic Management*. Austroads: Sydney, NSW

Austroads, 2006. Minimising Pedestrian-Cyclist Conflict on Paths. Information Note No. 3
http://www.austroads.com.au/documents/03_Urban_Design.pdf

NSW Department of Urban Affairs and Planning, *2001. Integrating Land Use and Transport, Improving Transport Choice — Guidelines for planning and development*.

NSW Department of Infrastructure, Planning and Natural Resources, 2004. *Planning Guidelines for walking and cycling*

New Jersey Department of Transport,1996, *Bicycle Compatible Roadways and Bikeways - Planning and Design Guidelines.*

Wadsley J 2008, *Sandy Bay Walking and Cycling project – potential design solutions.*

Wyong Shire Council, 2007. *State of the Environment report*

Wyong Shire Council, 2009. *State of the Shire report*

APPENDICES

Appendix A: Specific cycling and pedestrian actions contained within key strategies

Appendix B: Wyong LGA Population projections 2006- 2031

Appendix C: Existing Shared Pathway network

Appendix D: Existing On-road Bicycle network

Appendix A: Specific Cycling and Pedestrian Actions contained within Key Strategies

There are a number of policy documents that recognise the importance of cycling and walking and seek to promote these activities within the local community. These documents are discussed below;

Strategy 1 - Wyong Shire Strategic Vision

The Wyong Shire Strategic Vision (SSV) establishes the strategic vision for the Shire and the direction for the Wyong community over the next 20 years. The SSV includes a four-year delivery program which indentifies Council's priorities, programs and budgets from 2010 /11 to 2013/14 to help achieve the vision. The following priority objectives and strategies are consistent with the strategy:

Communities will be vibrant, caring and connected with a sense of belonging and pride in their local neighbourhood.

- **Expanding and supporting programs that increase participation among all ages.** This could be in the community, business, sports and recreation, education and creative sectors. It could also encourage training or leadership programs which foster lifelong community involvement.

- **Expanding and supporting programs and activities that encourage and enhance neighbourhood connections.** This could include street parties and a "Get to know your Neighbours" Program. It will help improve interaction between different generations and cultures and encourage more neighbourly support of each other.

There will be ease of travel within the Shire, and to other regional centres and cities. Travel will be available at all hours and will be safe, clean and affordable.

- **Improving and linking the bicycle/shared pathway network and related facilities to encourage more cycling opportunities.** This includes improved road crossings, signage and installing lockers and showers at key centres. Businesses should also provide financial incentives for the purchase of bicycles.

- **Improving commuter parking at railway stations.** This should focus on being safe, accessible and appealing. Landscaping and bicycle facilities should also be provided.

- **Improving commuter hubs along the freeway.** These should be planned and designed to encourage carpooling and should provide safe, easy parking for vehicles, bicycles and buses. Some hubs should have kiosks selling coffee and newspapers.

Communities will have access to a diverse range of affordable and coordinated facilities, programs and services.

- **Providing and maintaining local and regional community facilities for recreation, culture, health and education.** This will include major new regional centres in the Shire such as a Wyong Cultural Centre, cinema complex and Aquatic and Healthy Lifestyle Centre as well as maintaining and supporting existing facilities such as surf clubs and the Bateau Bay sports fields.

- **Providing and maintaining a range of community programs focused on community development, recreation, culture, environment, education and other issues.** This will support a wide range of community activities.

- **Providing recurrent funding for community support and development services.** This should target all ages and abilities and include business support programs, cultural and recreational programs as well as educational and health services.

- **Promoting community facilities to help maximize their benefits and use.** This should ensure people know what facilities are available, how to make use of them, how to participate in the programs offered and how they can help maintain and manage them

There will be a sense of community ownership of the natural environment through direct public involvement with environmental programs.

- **Improving and promoting public access to environmental areas.** This will help increase community awareness and involvement, encourage greater use among all ages and abilities, and improve community ownership.

- **Establishing and maintaining projects and programs to encourage more active participation in community based environmental activities.** This should include an "Adopt a Park/Nature Trail Program", and other activities which can break down barriers and help people become actively involved in improving and maintaining their local environment.

- **Creating and promoting a network of renowned natural trails. These could include:**

  - A world-class "Beach and Cliff Walk" along the coastline.
  - A "Mountains to the Sea Trail".
  - Improved promotion and facilities for the Great North Walk.
  - Shared pathways around the entire Tuggerah Lakes system that connects to Lake Macquarie to enhance a lakes focus for Wyong Shire.

Strategy 2 - Wyong Shire Council Asset Management Strategy

The Asset Management Strategy identifies how Wyong Shire Council will manage its existing assets while planning for new assets to meet the needs of a growing community. The results of the Shire Strategic Vision process indicate that an asset management priority is Community Facilities (including community, sporting and recreation areas). Council will concentrate on providing higher levels of maintenance and rebuilding of existing assets, upgrade bicycle/shared pathway network, develop new facilities for the growing population.

Strategy 3 - Wyong Shire Council Management Plan 2009-2010

The Management Plan outlines the key strategic issues and actions Wyong Shire Council will be undertaking over the forthcoming financial year. A number of strategic directions which are significant for the development of on-road bicycle and shared pathways have been identified. They include;

- To safeguard the health of the community and encourage healthy lifestyles (Ref No. 1.4.3)
- To contribute to a safe community (Ref No. 1.6.1)
- To encourage an enhanced, affordable, integrated and sustainable transportation system within the shire and to/from the shire (Ref 1.7.1)
- To extend the shared pathway network throughout the shire to link communities and provide enhanced recreational experience (Ref No. 1.7.2) Ref No. 1.8.3
- To plan, provide, maintain and manage a range of natural areas, open space and quality recreation facilities at local, district and regional levels Ref No. 1.8.1
- To improve access to and encourage participation at existing facilities Ref No. 1.8.2

Strategy 4 - Wyong Shire Council Community Plan 2008-2013

The Wyong Shire Council Community Plan 2008-2013 reflects the challenges, aspirations and key social issues facing the Wyong Community. It is the major planning document guiding the activities of Council and the community regarding the enhancement of community and social outcomes (WSC Community Plan, 2008, 11).

The Wyong Shire Council Community Plan incorporates a 5 year action plan, identifying a number of key targets which are significant for the development of on-road bicycle routes, shared pathways, cycling and walking initiatives. They include;

Our Community

- Develop and implement initiatives that enhance a sense of community and community spirit to assist communities to have strong sense of place and take an active interest in what is happening around them.

Places and Spaces

- Provide a range of sporting facilities to encourage participation in sporting activities and promote healthier lifestyles in Wyong Shire.
- Install infrastructure to promote increased informal use of community open space.
- Provide additional resources to maintain community facilities to a level that promotes community pride and encourages the use of these spaces as a key resource for the community.

Diversity

- Develop a Disability Action Plan to promote access and inclusion in our community for people with a disability.

Health

- Develop a healthy by Design Framework in partnership with relevant agencies to integrate the principles of building a healthy community in planning and design.
- Work in partnership with NSCCAHS Health Promotion Unit and other agencies on programmes that contribute to promoting healthy lifestyles.

Habitat

- Utilise best practice approaches in the planning and design of new communities e.g. planning cities for children, active communities, and healthy communities.

On the Move

- Assist in the identification of transport needs and work with partners to address transport disadvantage and gaps in Wyong shire.
- Provided integrated pathways which connect and link to key areas within and between communities i.e. parks and open space areas, community centres, town centres, transport hubs, medical facilities, recreation facilities, shops, schools etc.
- Complete the draft Bicycle Plan with comprehensive public and other sector consultation and report to Council.

Strategy 5 - Recreation Facilities Strategy

Wyong Shire Council Recreation Facilities Strategy establishes a system of facilities aimed at supporting healthy lifestyles and social engagement and facilitating community participation in recreation and sporting activities. The following strategic targets are consistent with the strategy;

Address Climate Change adaptation actions for Local Government recommended by the Commonwealth and State Governments

- Use planning, location and distribution strategies for facilities to minimise car dependence.

Use planning and compliance opportunities to support healthy lifestyle opportunities

- Use the layout of subdivisions to promote local incidental exercise
- Audit existing and proposed facilities and paths to improve accessibly
- Plan and design vehicle and bicycle parking for group visits to facilities
- Reference the NSW Premier's Council for Active Living, National Heart Foundation's Healthy by Design guidelines
- Locate paths and road crossings to remove activity barriers.
- Plan and Design vehicle and bicycle parking for group visits to facilities.

Prepare specific Recreation and Sporting Facility Strategies to improve decision making.

- Complete the Bicycle and Shared Pathway Strategy to guide decisions on a network of facilities to support cycling, walking, running and other forms of movement to promote recreational and sporting opportunities and incidental exercise.

Improve public information about and facilities for healthy lifestyles and recreation facilities and activities

- Develop, support and promote programs for active lifestyles such as walking and cycling.
- Program and support events and activities to showcase the range of recreation settings in the Shire and to promote specific facilities

Develop and improve liaison with recreation and sporting facility stakeholders to support the community.

- Develop programs and innovative approaches to activating facilities and improve social connectedness, health and fitness.

Plan and provide accessible recreation facilities equitably spread across the Shire.

- Use new facilities as an opportunity to provide accessible facilities.

Protect future flexibility in development of recreation and sporting facilities. Ensure that the design and implementation of infrastructure improvements do not limit the flexible use of facilities.

- Provide end of trip facilities such as lockers and showers at public car park and amenities facilities.

Plan for and implement a program to upgrade existing settings and facilities that provide for parallel activities and promote incidental exercise and social interaction by the community such as:

- Shared pathways,
- Exercise stations to paths,
- Bubblers,
- Seating and shade,
- Accessible parking,
- Community gardens
- Bicycle storage facilities.

Prepare and implement a program to upgrade and renew existing water edge facilities of ocean, beach and lake for water based activities to improve the capacity for use, access and sustainability:

- Upgrade and renew beach access and parking to encourage beach use

Complete the planned Recreation Facility Works to upgrade and renew existing areas in the Estuary Management Plan:

- Upgrade Recreation Facilities to existing shared pathways to encourage movement.

Plan and develop new facilities and public spaces as both attractors and generators of incidental exercise and parallel activities to promote social interaction across a range of ages:

- Community Gardens.
- Youth spaces in public places.
- Furniture and exercise opportunities for seniors.
- Signage, shade, bike racks, water and toilets provided as attractors.
- Accessible facilities and sites.
- Linkages that support incidental exercise to access the sites.
- Shared pathways and bike routes.
- Public art integrated into public space and facilities.

Use the landscape of the Shire to encourage recreation and exercise:

- Plan for and implement our section of the Marie Byles Coastal Walk, linking Newcastle and Sydney via Lake Macquarie and the Central Coast.
- Plan for better links to support the Great North Walk.
- Plan for and develop new sustainable walking trails in Council's bushland estate at Norah Head, Mt Alison and Glenning Valley.

Liaise with other sectors to provide opportunities for trails and walkways:

Plan to address the major issues still outstanding from the Suter Report May 2002;

- Cycling facility
- Criterion – opportunity Ourimbah District Sports Precinct.

Strategy 6 – Central Coast Regional Strategy

The Central Coast Regional Strategy is the NSW Government's strategic planning framework for the Central Coast region. It contains a number of actions aimed at ensuring destinations such as centre, recreation areas, schools and residential areas and well connected to both pedestrian and bicycle paths, including;

Action 10.3 - For centres that are subject to redevelopment strategies, councils are to identify, in consultation with the Ministry of Transport, passenger interchanges that are centrally located, visible from public areas, integrated into overall centres and well connected to both pedestrian and bicycle paths.

Action 10.4 - The Roads and Traffic Authority is to continue to plan for and implement upgrades to the Pacific c Highway, the Central Coast Highway, Terrigal Drive, Avoca Drive and Sparks Road and to incorporate bus priority and cycleway initiatives where justified and feasible.

Action 10.12 - Councils and the NSW Government to work together to align walking and cycling networks with public transport routes to improve accessibility to public transport. This will include completion of the NSW Coastal Cycleway network.

Appendix B: Wyong LGA Population Projections 2006- 2031

Forecast Population (Area)	Forecast Year			Change between 2006 and 2013	
	2006	2016	2031	Number	Average annual % change
Wyong Shire	142,723	160,384	197,358	54,635	+1.3%
Gorokan SPD	19,087	20,108	22,902	3,815	+0.7%
Northern Lakes SPD	14,680	20,108	22,092	2,514	+0.6%
Ourimbah-Rural South SPD	4,434	4,393	4,839	405	0.4%
Rural West SPD	1,790	1,835	2,020	230	0.5%
San Remo-Budgewoi SPD	19,715	20,422	22,910	3,195	0.6%
Southern Lakes SPD	25,034	24,993	25,991	957	0.2%
The Entrance SPD	23,651	27,760	33,516	9,865	1.4%
Toukley SPD	9,111	9,597	12,644	3,533	1.3%
Warnervale-Wadalba SPD	10,927	20,814	34,317	23,390	4.7%
Wyong SPD	14,294	15,400	21,025	6,731	1.6%

Source: Wyong Shire Population and Household Forecasts (.id Consulting, 2009)

Appendix C: Existing Shared Pathway Network

Appendix D: Existing On-road Bicycle Network