2012

Armidale Bicycle Strategy and Action Plan

Armidale Dumaresq Council June 2012

Document Issue

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Background

The Armidale Bicycle Strategy and Action Plan 2012 has been prepared to review, update and expand on the 2004 Bike Plan.

This strategy and plan is intended to be the primary guiding document for the construction of cycleways and shared paths in the Armidale Local Government Area (LGA). The resulting table of works will assist Council to program, forecast and apply for funding for cycleways and shared paths into the future.

The preparation of this strategy/plan is an integral task required of Council to fulfill obligations contained within the NSW State Government Integrated Planning and Reporting (IP&R) framework, that has been developed as part of the NSW Local Government reform program generating improvements to Council's long term community, financial and asset planning.

The proposed new planning and reporting framework requires Council to identify and plan for funding priorities and service levels in consultation with their community, while preserving local identity and planning for a more sustainable future.

The Armidale Dumaresq Community Strategic Plan 2011-2026 was subsequently prepared and released in 2011, and contains the Community Vision of 'Excellent Lifestyle – Sustainable Growth', with associated Community aspirations including:

- *the retention and enhancement of a prosperous and learning community,*
- *access to a wide range of quality recreational, social and cultural activities,*
- *a natural environment that is enhanced, protected and conserved and,*
- *a community that feels a high sense of wellbeing, is healthy, safe and engaged.*

A key element of the Community Strategic Plan for infrastructure to improve transport options, including well integrated cycleways, footpaths and roads. A specific target is to expand the cycleway network by 10 to 15% by 2020, from a base year of 2011/12.

A bike strategy is a means of achieving the outcomes of the Community Strategic Plan.

The primary aim of this plan then is to provide a holistic and planned approach to improving the pedestrian and cycling environment within the Armidale region for its community and visitors to the region. Tasks that have been identified as being important in achieving this aim include:

a. identifying opportunities for upgrading and improving the existing network,
b. identifying additional cycleway linkages that:
    i. support connectivity of existing cycleways and shared paths,
    ii. complement popular and high use routes
c. identifying opportunities for cycling tourism,
d. identifying associated facilities and infrastructure that are required to support the network, and
e. adopting a network that:
    i. encourages cycling and walking as an alternative to the motor vehicle,
    ii. integrates walking and cycling into the transport network, and
    iii. (in conjunction with other access and mobility plans), removes barriers to walking and cycling, and improves access, to all members of the Armidale Dumaresq LGA communities.

The Armidale Bicycle Plan (2012) is a strategy to facilitate cycling, which will have benefits for the environment, for the health and fitness of Armidale residents, and for better transport mobility for all, cyclists and non-cyclists.

The review has been conducted with due consideration to:

- Competition for limited road and footpath space between motorists, cyclists and pedestrians,
- Concerns that have been expressed about the appropriateness of some routes proposed in the Armidale Bike Plan 2004, areas of development pressure across Armidale and the cost of implementation of bike routes,
- Ongoing benefits in regard to motor vehicle emissions and air pollution, traffic congestion, demand for parking spaces, and health related issues such as obesity.

Since the bike plan was adopted in 2004, approximately **4300m** of shared path works (proposed in the plan) have been constructed. This study reviews the effectiveness of the works which have been completed, assesses the routes which are yet to be completed and their appropriateness for inclusion in the future bike strategy. This study also proposes specific treatments and actions for those routes recommended to be retained as part of the bicycle network.

The key elements of the Armidale Bicycle Strategy and Action Plan 2012 are:

- A recognition of the Armidale Dumaresq Bike Strategy (2004),
- An assessment, and targeted completion of, all **Regional, Local** and **Scenic** cycleways, as identified in the 2004 Bike Strategy,
- A compilation, and targeted completion of, new **Regional, Local** and **Scenic** cycleways,
- Completing all routes that provide connectivity to other important bike routes,
- Every Street a Cycling Street – promoting and facilitating cycling on all local roads, with minimum new construction,
- Scenic, or Recreational routes, for safe and family-friendly cycling in the vicinity of parks and reserves,
- Integrated policies and planning instruments – inclusion of cycle facilities and considerations within road reconstruction and maintenance programs as well as in development planning,
- Targets to provide a balance between civil works and encouraged programs, including a ride-to-school strategy to develop sustainable travel habits and cycling confidence from a young age.

Priority works and Works Plans

A categorisation of the various cycleways that have been constructed, as well as those identified in previous studies, has been necessary to formulate planning and programming of works, as well as all other preconstruction tasks. The identification of these proposed routes has been formed in meetings with the Armidale Bike Committee, as well as discussions with Council's Strategic Planning staff.

Based on consultation with ADC Strategic Planning, ADC Engineering, and the Armidale Bike Plan 2011 working group, the Bike Strategy and Action Plan 2012 proposes three classes of routes:

- **Regional** – direct travel routes on and off road, connecting regional centres and adjacent LGA's ; the roads may be quite busy and would be represented by the more heavily trafficked Class 'A' Local Distributor and Class 'B' Collector or Arterial streets and roads ; with some of these routes being only suitable for experienced riders wanting a direct route,
- **Local** – mainly using local roads and off road paths to connect to Regional routes, commercial centres, recreational facilities etc. can be categorised as potentially Class 'A' or Class 'B' for local distributors or collector/arterial streets (of much less traffic volumes and vehicle speeds), and Class 'C' Local Access type roads. Class 'C' Local

Access type roads are less busy and generally more suitable for older children, novice riders, family groups and local trips. They are usually less direct than regional routes but allow for novice riders the option to plan a more comfortable trip that minimises their exposure to traffic,

- **Scenic** – mainly using local roads, off road paths and trails, their primary purpose is for recreation, touring and sport/fitness (eg local fitness circuits as identified in the ADC Recreation Plan 2012). Some Scenic, Local and Regional routes will serve a range of roles (eg the Creeklands Cycleway) doubles as a commuting circuit for the University and CBD, as well as providing interconnection to Local Routes and obvious tourist and recreational uses. Proposed connectivity to the Creeklands cycleway with the numerous cycleways proposed in conjunction with residential development works in East Armidale will also serve dual purposes as 'Regional', 'Local' and 'Scenic' routes.

The Armidale Bike Strategy 2012 will outline not just the strategically important regional, local and scenic routes and cycleways that have been identified by the Armidale Bike Plan working group, but also those cycleways identified and documented in the Armidale Dumaresq Bike Plan 2004.
Of all of these strategically important cycleways, the 2012 Bike Strategy will also provide those 'priority' works that are considered the most significant in being planned and constructed over the next few financial years as funding sources allow.
Priority routes have been considered in the context of strategic importance with respect to connectivity to future residential subdivision activity, connectivity to other completed cycleways (ie short connecting segments), and significant 'regional' routes within Armidale. (Note that, influences such as residential development etc that are initiated during the next two to five years will have an ability to modify the priorities listed within this strategic plan).

Recommended actions are detailed in **Table 1**, page 16 and 17. The estimated cost of **Priority works** are:

Priority routes (ie Regional, Local and Scenic classification), Medium to Long term scope,

- On and Off Road, is $515,000 (see **Table 1**), for Regional class off-road, and some on-road routes, and
- Mixed Traffic, is $36,750 (see **Table 2**, pages 23-24), ie for Local Class, on-road routes – 'Every Street a Cycling Street'

A total cost of $552,000, which will achieve approximately 30% of the total cycling network required for the Armidale Dumaresq Local Government Area Bicycle Strategy and Action Plan 2012.

The review has resulted in some routes or part routes identified in the 2004 plan but not yet implemented being excluded or amended from the 2011 plan (see **table 10, Appendix 11**).

Some of these routes will be treated under the 'Every Street is a Cycle Street' strategy or are now considered inappropriate. The removal of these routes will result in a small reduction in costs.

Appendices 2 and 3 include all detailed Priority works for the 'Regional' and 'Local' categories, ie On-road and Off-road.

Figure 1 – Scholes Road (between Harden St and Link Road) constructed in 2010/2011. Note Solar powered lights.

1. Introduction

1.1 Brief

Armidale Dumaresq Council's existing Bike Plan was adopted by Council in 2004 and briefly reviewed in 2007. Since this time, there has been some implementation of the 2004/07 Strategy, resulting in nearly 4300m of cycleway works being constructed up to 2010. Armidale Dumaresq Council seeks to revisit and improve the existing bike strategy for reasons including:

- Completion of some of the works recommended by the Armidale Dumaresq Council (ADC) Bike Plan 2004,
- Concerns about the current relevance and appropriateness of some items within the ADC Bike Plan 2004,
- Changes to specific items ie the placement of on-street bike only lanes has been investigated and considered as unsafe and as such, a replacement program has included the placement of on-street symbols, raising the awareness of on road cycle usage to other road users,
- Increasing community concerns over transport related issues such as increased motor vehicle traffic and associated congestion as well as health-related issues such as obesity,
- Increased incidence of and support for cycling and other forms of active transport in the community,
- A desire for improved conditions for cycling and cycle users, and other forms of active transport.

Armidale Dumaresq Council considers that a review of the Bicycle Strategy and Bicycle Plan (2004) is important, and that an evaluation of the existing completed and proposed routes and treatments identified within the Bike Plan must be ongoing, along with the preparation of updated strategies to ensure that both walking and cycling are viable, safe and an attractive transport option. This report details the findings and recommendations of the Armidale Dumaresq Bicycle Strategy and Armidale Dumaresq Bike Plan 2004/07 review.

1.2 Strategy Objective

The objective of the Bicycle Strategy is to develop an appropriate, practical bike strategy consistent with the topography, needs and demographics of Armidale and towns/villages within Armidale Dumaresq Council, particularly with respect to the resident's and business community so that cycling becomes a legitimate and viable form of transport.

The Armidale Bike Plan 2011 seeks to improve the bicycle network within this local government area with respect to:

- Coherence i.e. logical connections,
- Directness,
- Safety,
- Comfort, (particularly as Armidale is quite hilly),
- Equal access for all user groups in the community.

The purpose of the review is to:

- Analyse the Armidale (and smaller town and villages) street layout, topography and the Armidale Dumaresq Council Bike Plan 2004 and identify a bicycle route network and associated facilities consistent with the NSW Bicycle Guidelines,
- Consult with relevant stakeholders in Armidale Dumaresq Council Local Government Area (LGA),
- Identify gaps, mismatches, deficiencies and opportunities, as well as redundant and/or impractical routes, in the existing/planned bicycle network,

- Make recommendations to Council for a local bicycle network with appropriate links to major or 'regional' bicycle routes to serve the transport and access needs of the community,
- Raise community awareness of the potential benefits of cycling and the Armidale Dumaresq Bicycle Strategy.

With the pressure on funding resources, a key element of the Bike Strategy review is to identify ways to balance the cost of new facilities and upgrade of older ones, including priorities for a program of works that ensures that walking and cycling are viable, safe and practical transport choice for residents and visitors with the associated aim of increasing cycling and pedestrian activity.
A significant characteristic of the Armidale Dumaresq LGA is the suitability of the many sealed local roads to be utilised for cycling purposes ie recreational and active transport. Treatment measures for these roads, and a map detailing Cycleways of Armidale are also included as part of the revised strategy.

With respect to the Bike Plan (2004/07) review, the methodology adopted was to:

- Review the existing Bike Plan (2004), existing facilities, mapping data and key destinations,
- Conduct surveys throughout Armidale, including consultation with Bicycle user groups,
- Undertake peak hour cyclist counts,
- Undertake consultation with Armidale Bicycle Working party,
- Develop and map a network of new and amended routes and associated facilities, focusing on consolidation of the existing network,
- Prepare a map with an agreed bike network, routes and end-of-trip facilities,
- Prepare a works program, costs estimates and priorities (matched to Council resources),
- Report the priorities and rationale for the network and the works program,
- Develop an education and encouragement action plan with measures to increase cycling participation,
- Provide a series of maps of the agreed Draft Bike Strategy Plan 2012 for public exhibition,
- Review the submissions and amend the draft plan where necessary.

1.3 Policy Context

In Australia, there has been considerable discussion about policies on congestion and pollution, the promotion of local accessibility, and of personal health. An increase in cycling can be a central factor in offering an environmentally sustainable and health promoting local transport option. Over the years moves to highlight the role of cycling have been taken in a series of key strategic Government policy documents and guidelines as follows:

- National Cycling Strategy 2011-2016,
- RTA Action for Bikes 2010,
- Planning Guidelines for Walking and Cycling (Dept. of Planning),
- Australian Standard AS1742.9 Bicycle Facilities,
- Austroads Guide to Road Design – Part 3:Geometric Design, and Part 6A: Pedestrian and Cycle Paths, (with Part 14 (Bicycles) now superseded),

At a local level Councils are also developing policies and plans which aim to encourage and promote cycling or reduce dependency on car travel. Key existing Armidale Dumaresq Council documents include:

- Armidale Traffic and Transport Study (G.H.D., 1996),
- Armidale Dumaresq Council Bike Plan (2004 and 2007),
- Armidale Dumaresq Community Strategic Plan 2011-2026, Operational Plan (2012-13), Delivery Program and Resourcing Strategy, (all of which now supersede the Armidale Dumaresq Management Plan of 2008 – 2012),
- Armidale Dumaresq Local Environmental Plan (2008),

- Armidale Dumaresq Council: Achieving Sustainable Infrastructure, Services and Finances (Review Today P/L, 2009)

2. Background

2.1 Global Issues

Cycling and walking have been defined as “Healthy and Active Transport”. Public transport is also considered an active transport mode as it invariably involves a component of walking to and from bus stops. There is substantive evidence that healthy and active transport provides a strong and effective policy response to key global public policy issues, including:

- **Public health** – Physical inactivity is one of the major causes of ill health in Australia. Half the Australian adult population is insufficiently active to protect against sedentary lifestyle disease, such as diabetes. It is well-documented that regular physical activity, such as cycling and walking, significantly reduces the incidence and fatality rate from cardiovascular disease;
- **Congestion** – private automobile use is considered a major cause of congestion in Armidale, and with Australian Bureau of Statistics Data indicating that for Travel to Work options, the rate of car use (as single occupant/driver) has increased from 70.4% to 72.0% to 74.6% in the years from 1996-2000 to the years 2001-2006 (New and Rissel 2008). Thus Armidale’s roads are becoming more utilised by motorised vehicles and cycling is an effective method of reducing unnecessary car use.
- **Climate Change** – motorised transport is a significant and growing source of greenhouse gas emissions. As a zero emission form of transport, cycling is increasingly seen both in Australia and internationally as a way of reducing greenhouse gas emissions. The Commonwealth Carbon Pollution Reduction Scheme, which was due for implementation in 2010 (until being deferred by the then Prime Minister Rudd) was to include transport. This should have increased the importance of providing carbon free forms of transport, to lower the costs to the community of responding to climate change. (Note - At the time of completing this strategy report, the Federal Government political debate was concentrated on the Gillard Labor Governments’ Carbon Tax and particularly the Garnaut Report on Climate Change and Carbon emissions. Unfortunately, it is difficult to elicit any information on the likely impacts to transport at this stage).
- **Peak Oil and Petrol Prices** – since 2004, world oil prices have increased significantly and hit record levels in 2008. The rise in petrol prices coincides with the increase in bicycle sales particularly in Australia and the United States (Cycling Promotion Fund, 2007). Strategic transport modelling emphasises sensitivities to increases in fuel price with shifts to public transport, walking and cycling. The provision of cycling infrastructure and encouragement programs, in combination with public transport improvements offers a very effective method of increasing the resilience to higher fuel prices.

2.2 Local and Regional issues

Levels of cycling and the state of cycling infrastructure and services - levels of cycling by the community are an indicator of the condition of infrastructure and services that vary greatly by locality within NSW.

In the City of Sydney, and surrounding inner local government areas, the levels of cycling have increased quite dramatically between the last two ABS Census counts of journey to work by bicycle, from 1996-2000 and 2001-2006 (New & Rissel 2008).

In areas outside Sydney, there are some disappointing reports from Armidale, for example, 2006 census data from the Australian Bureau of Statistics on travel to work in Armidale reveals that:

- Cycling decreased from 2.4% in 1996 to 1.9% in 2001 to 1.4% in 2006.
- Bus travel decreased from 1.6% to 1.2% to 1.0%
- Car as passenger from 12.2% to 11.2% to 9.0%

- Walking has fared better, going from 10.4% to 8.7% to 9.3%
  With the big increase being car ('as driver'), from 70.4% in 1996, to 72.0% in 2001, to 74.6% in 2006.

Journey to work data from the 2006 ABS Census indicates that Armidale has a decreasing percentage of cyclists actively using bicycles as a mode of commuting to work, and an increase in both public transport, pedestrian and cars as a means of commuting to work.

Key factors that may influence the decreasing levels of cycling participation in Armidale include:

- Relatively low density of housing and land uses generally within the city area,
- Relatively distant proximity of trip attractors and generators to residential areas, making bicycle travel an inconvenient mode choice,
- Relatively ample supplies of motor vehicle parking areas and spaces within and around the CBD,
- Relatively low levels of traffic congestion (when compared to larger metropolitan centres) on key roads, resulting in relatively higher travel times by bicycle,
- topography of Armidale being generally hilly, and in some areas of the city, quite steep, and generally not conducive to cycling (however, studies such as the PCAL Regional Bike Planning Study for Dubbo (2008) indicate that in Victoria, undulating and uneven or hilly topography has not lessened the take-up rate of all forms of bicycle transport in that state).

Figure 2 - Armidale's Creeklands cycleway, adjacent to Dumaresq Creek

A Literature review for this strategy/action plan has not been able to locate an in depth analysis of the cycling and bicycle usage specifically related to Armidale. However, other regional centres of comparable size within regional NSW such as Port Macquarie and Dubbo, may exhibit similar characteristics of the "snap-shot" of conditions existing in regional centres that may inhibit increased cycling participation or commuting. Characteristics of these centres that are found in reports such as the PCAL reports for these respective cities, and as may apply equally to Armidale include:

- it being vital to identify, promote and attract new members to the respective cycle clubs that may exist,
- a focusing and promotion of road safety programs via such initiatives as Bike Week, as may be undertaken by Armidale Dumaresq Council,
- encouraging children to ride to school is important vis-à-vis health and obesity levels and the excessive "bussing" of schoolchildren, with perhaps the independent travel option exploration for children,
- the promotion and support of Armidale New England Bike User Group (NEBUG) support for cycling as a transport option due to the sustainable nature of cycling,
- exploit information regarding the RTA Toolkit designed to encourage cycling, which is available on the RTA Website,
- local businesses and major employers need to be involved or become more prominent in the strategy action, ie UNE, NE Health, Armidale Dumaresq Council,
- the potential for Council's Youth Development Officer to promote cycling as part of a street wise program, particularly during school holidays,
- positive reinforcement is needed to promote incidental exercise and benefits attained through cycling for short trips,
- lack of maintenance of cycling facilities discourages cycling and new cyclists from taking up cycling,
- inadequately designed bicycle facilities will discourage cycling and cycling take-up,
- connecting of disparate, separate, isolated cycleways to each other will have a large impact on connectivity of existing infrastructure and potentially shorten commuting trips as well,
- bicycle end-of-trip facilities are required. This may involve the trialling some options or facilities such as secure bike lockers etc,
- the promotion of groups and organisations such as Tourism NSW, Armidale Tourist Information Centre and Chamber of Commerce etc to encourage, advertise, promote and support bicycle tourism,
- the maintenance of both on and off road bicycle routes and cycleways is very important to encourage and maintain cycling. The maintenance issues commonly incurred within Armidale include:
    - waste, rubbish and glass on cycleways,
    - vehicles, plant and signage occupying the designated cycle lanes,
    - weeds and cracks showing up through the AC wearing course,
    - water and mud remaining on the cycleway long after rainfall event,
    - insufficient prioritisation of replacement programs for existing (and failing or failed) sealed cycleways.
- Improved end-of-trip facilities are required at workplaces and shopping centres,

Increased cycling offers a number of benefits to both the individual and the wider community, and can include:

- Increased road safety,
- Travel time reductions,
- Reduced greenhouse emissions and associated climate change impacts,
- Improved workplace productivity and reduced sick leave,
- Public health improvements,
- Reduced external costs,
- Reduced household fuel costs,

In contrast, however, concerns have been raised in Armidale about the initial (and ongoing) costs of specific facilities (especially the larger shared paths), the visual impacts of proposed bike awareness symbols (PS2 Symbols), the limited amount of road carriageway and road reserve space available, the impact on car travel and the slow uptake of cycling on newly constructed facilities.

An effective, and therefore supported, bicycle strategy for Armidale must therefore address the concerns, while realising the potential benefits.

The provision of high quality bicycle routes, both on and off-road, is considered fundamental to encourage cycling. Various treatments are available for bicycle routes, ranging from mixed traffic to bike lanes and off-street cycle paths depending somewhat on the variables such as the speed and volume of traffic, availability of space and projected level of usage. As part of any future Transport Management and Access Plans i.e. T.M.P. or P.A.M.P., bicycle routes to transport interchanges ie Armidale's various bus stops as well as the newer 'hail and ride' (C.P.T.I.G. funded) bus stops, need to be also identified and thus maximise ease of use by bicycles.

One of the major reasons people choose not to cycle is a lack of end-of-trip facilities such as secure bicycle parking. Provision of these facilities is increasingly seen as an important method of encouraging cycling and associated trips. High quality bicycle parking encourages bus passengers to arrive at the bus stop or hail-and-ride location by bicycle, and leave their bike at the bus-stop, rather than bringing it on the bus and/or continuing onto their nominal arrival point via bicycle when public transport may provide a quicker, more convenient transport solution. This scenario could also be applicable where bus stops or hail-and-ride stops do not provide adequate coverage within the urban area, and infilling of the access to the bus-stop can be provided by cycling.

Bicycle parking at the proposed transport 'changeovers' needs to cater for both the regular and infrequent users. Regular users generally prefer high security bicycle enclosures, while infrequent users generally have their needs met by on-street racks. This would be a different, though potentially workable, concept for Armidale, with an assessment, and or trial, warranted.

2.3 Characteristics of Armidale

2.3.1 General

Armidale Dumaresq LGA is located between the Councils of Tamworth, Bellingen, Uralla and Guyra. Armidale, the largest population centre within the LGA, has a population of 24,533 (30 June 2006 ABS figure), and is part of the New England plateau, which rises to 1,000m above sea level.
Located on the New England Highway, 567 km from Sydney, 467 km from Brisbane, 256 km from Port Macquarie and 191 km from Coffs Harbour, Armidale is only 2.5 hours by road to the road to the east coast along the scenic Waterfall Way.

Climate - four distinct seasons: warm summer with low humidity, mild, colourful autumn, crisp, invigorating winter and pleasant spring. Mean minimum and maximum temperatures range from 13° C to 27° C in the warmer months to 0° C to 16° C in the cooler months. Rainfall is highest in summer and averages approximately 800mm annually.

Major industries - fine and superfine wool, merino sheep breeding, cattle and lamb production, fruit, vineyards and educational services. A number of societies for breeds of cattle and other farmed livestock are represented in Armidale. Improvements in communication infrastructure, including broadband capacity, have encouraged the relocation of businesses to Armidale which include industry areas such as Information Technology, education and research.

Educational facilities in the New England Area comprise the University of New England, New England Institute of TAFE, six secondary schools, seventeen primary schools, nine preschools, six child care centre's and a number of home based day care centre's. Three of the six secondary schools offer boarding facilities. The student population of UNE makes up a significant proportion of the city's population of 24,533.
(Source - http://www.armidale.nsw.gov.au/files/133897/File/Armidale_Profile).

2.3.2 Topography

The Armidale city and surrounding rural areas adjacent are typified by topography that ranges from undulating to hilly, and quite steep in some areas as well. Major roads within the urban area are aligned in generally a grid system, and the roading arrangement is influenced by the realignment of the New England Highway, which traversed the centre of the city up till 1994. Note that areas which are steep ie greater than a 1 in 12 grade can be deterrents for some cyclists.
Many sealed and unsealed rural access roads exist, adjacent to, and emanating from Armidale. These are gaining a popularity for recreational usage by both Armidale residents and tourists alike. A map featuring and promoting the more popular urban and rural cycleways has been produced and is included as an attachment in **Appendix 16**.

2.3.3 Trip Attractors and Generators

Trip attractors and generators are the important places which cyclists most commonly visit and are the main determinant of cyclist desire lines (ie a trip attractor is defined as an activity, facility or event which attracts or generates the need for travel). The main trip attractors/generators within the Armidale urban area and greater built up areas, include commercial and retail centres, the Armidale CBD, educational facilities (particularly the University of New England to the north-west of Armidale), recreational areas and hospital/medical facilities.
Other trip attractors include the local road system that service the rural areas, as well as providing access to the various National Parks and Conservation Areas surrounding Armidale and some of the larger villages such as Ebor to the east of Armidale.

2.4 Existing Bicycle Use

Journey-to-work data from the 2006 Census (See **Appendix 13**) shows that approximately 251-500 residents from within the Armidale Dumaresq LGA travelled to work by bicycle ie 1.4% of 24,000 is 343 people, however, as ABS Data shows, cycling decreased from 2.4% in 1996 to 1.9% in 2001 to 1.4% in 2006!

2.5 Potential for Cycling

Cycling participation levels are typically the highest along key 'corridors' that connect residential, employment locations and the University in Armidale, as well as corridors where better quality cycle infrastructure is provided. Improvements in cycle infrastructure (in particular off-road paths) and connectivity have helped increase the use of cycling as a transport option or alternative.

2.6 Benefits and Barriers

The Bicycle Strategy provides Council with a proactive policy to increase bicycle use as an important sustainable form of transport, with health and economic benefits for the community. Bicycle travel also provides additional recreational activities and experiences for visitors.

The bicycle strategy aims to build strategically on the benefits of bicycle travel and at the same time to consider ways to remove barriers to greater participation.

General Community Benefits

- The bicycle is ideal for convenient, door to door travel. It starts instantly, it is easy to park and impervious to traffic congestions. It is particularly suited to travel trips up to 5km, which includes a large number of local trips within the Armidale built up area,
- Cycling travel times are predictable and reliable,
- Construction of a workable bicycle network is , or can be, relatively cheap, when compared to construction of facilities for other modes of transport, and bicycle infrastructure can be easily (and cost effectively) included with road upgrades and maintenance works,
- Bicycle traffic does not pollute, does not emit greenhouse gases, is not noisy and is a practical way of reducing dependency on oil,
- Bicycles take up very little space, either when being ridden or when parked,
- Bicycle traffic has a humanizing effect on neighbourhoods,
- Cycling is good for getting into and staying in shape, and is generally relaxing,
- Bicycle travel is affordable and accessible to all able-bodied people.

Physical Barriers to Cycling

- Fragmented cycling networks with a lack of continuity and connectivity,
- Limited number of safe and convenient opportunities to cross major roads and intersections,
- Lack of end-of-trip and parking facilities,
- Poor integration with general road transport system – ie integrating with the major distributors and arterial road network, along popular trip attractor lines,
- threatening behaviour of motorists,
- unsafe routes, 'pinch' and 'squeeze' points or locations,
- terrain and weather,
- narrow and poorly maintained roads, shoulders, and footpaths.

Perceived Barriers to Cycling

- lack of confidence and cycling experience,
- insufficient knowledge of available network facilities and alternative 'back-street' routes,
- perception of cycling as a physical activity (ie too hard, too hot, too hilly, too dangerous, too difficult etc),
- lack of 'how to' knowledge on cycling as an activity, eg where to ride, what to wear, what type of bike, what type of bike suit or apparel, equipment issues, navigation issues etc,
- perceived unsafe road layouts.

While some of these barriers are beyond intervention, a majority can be managed or addressed by individuals, communities and governments through physical works and education. The actions outlined in the Bicycle Strategy seek to address these issues and create an environment with minimal barriers to cycling.

2.7 Council Policies and Plans

This section provides the overview of the cycling issues as referenced in the various planning instruments in Armidale Dumaresq Council, including:

- Armidale Traffic and Transport Study (G.H.D., 1996),
- Armidale Dumaresq Council Bike Plan (2004 and 2007),
- Armidale Dumaresq Community Strategic Plan 2011-2026, Operational Plan (2012-13), Delivery Program and Resourcing Strategy, (all of which now supersede the Armidale Dumaresq Management Plan of 2008 – 2012),
- Armidale Dumaresq Council: Achieving Sustainable Infrastructure, Services and Finances (Review Today P/L, 2009)

Armidale Traffic and Transport Study 1996

The Armidale traffic and transport study details the performance of the existing traffic and transport system and identifies its effect on Armidale. The original brief of works was to develop a management plan for the vehicular, pedestrian and cyclist routes and interactions within the city up to the year 2011. Objectives relative to cycling included for road safety improvements with respect to black spots, pedestrian and cyclist conflicts etc. Other objectives included a review of the public transport system, options and facilities as affecting bicycle usage, a review of traffic calming of the road network and the impacts on pedestrian and cycling 'friendly' routes.
The study aimed to develop strategies which would improve the existing system, reduce the need to travel by car and encourage travel in more sustainable ways such as by bicycle. Notably, through stakeholder consultation it was discovered that there were insufficient bicycle facilities, cycle routes etc to provide connectivity. These issues have hopefully been detailed within the 2004 and 2011 Bicycle Strategy and Action Plans.

Armidale Dumaresq Council Bike Plan 2004 and 2007

The Armidale Dumaresq bike plan adopted by council in 2004, and reviewed in 2007, details recommended routes and treatments for safe and convenient bicycle access within and around Armidale. The study identifies a two level hierarchy of regional and sub-regional (or major and minor) routes for the bicycle network.

Since the adoption of this plan approximately **40 %** of the total length of the proposed bicycle network has been implemented. The Bike Plan routes and their current status are assessed in subsequent sections of this report.

Armidale Dumaresq Community Strategic Plan 2011-2026

The Armidale Dumaresq Community Strategic Plan is a requirement of the NSW State Government Integrated Planning and Reporting Framework. It has been developed as part of the Local Government Reform Program and proposes changes to the *Local Government Act 1993* to improve a council's long term community, financial and asset planning. In 2009 the NSW State Govt. introduced the new reporting framework to replace the former Management Plan and Social Plan with an integrated framework.

The framework now comprises:
- The Community Strategic Plan (a 15 year plan),
- A Resourcing Strategy including a long term Financial Plan, a work force plan and an Asset Management Strategy,
- An Delivery Program (4 years),
- An Operational Plan (annual).

The proposed new planning and reporting framework requires councils to identify and plan for funding priorities and service levels in consultation with their community, while preserving local identity and planning for a more sustainable future.

The key drivers for changing the current planning and reporting framework include:
- increased expectations on local government,
- innovation of some councils with positive effects,
- recent findings from reviews of council strategic performance, and
- the need for improved asset management and long term financial planning.

The Armidale Dumaresq Community Strategic Plan contains the Community Vision of 'Excellent Lifestyle – Sustainable Growth', with associated Community Aspirations and Visioning Outcomes including the retention and enhancement of a prosperous and learning community, access to a wide range of quality recreational, social and cultural activities, a

natural environment that is enhanced, protected and conserved and, a community that feels a high sense of wellbeing, is healthy, safe and engaged.

Armidale Dumaresq Operational Plan (2012-13) includes particular objectives, operational tasks and service level targets that relate specifically to cycleways, including:

Function Objectives

- Optimise traffic flow throughout the road network to maximise community benefits.
- Minimise accident potential for all road users within the road network.
- Provide clear and safe traffic guidance throughout the road network (line marking and signposting).
- Administer the Local Armidale Traffic Committee, Development Advisory Committee (Infrastructure SEPP, 2007), and provide technical support and advice.
- To improve the safety of all users of land transport systems through investigation and education.

Major Operational Tasks

- Conduct a traffic survey of 25% local roads within Armidale Urban area with road classifiers to measure traffic volume, type and speed profiles - December 2012.
- Coordinate speed management (measurement and education) program to reduce speed and identify hot spots - ongoing.
- Implement first stage of Bicycle Strategy Plan by June 2012. *(some have already started)*

Service Level

- To provide technical assistance on the need of vulnerable road users (motorcyclists, cyclist and pedestrians)
- To contribute to broad-scale research into road crash trends and evaluation of countermeasure effectiveness.
- To support Bicycle Strategy Steering Committee.

The Armidale Dumaresq Management Plans ie 2008 – 2011 and 2010 – 2013, were utilised in the formulation of the 2004 Bike Strategic and Action Plan, and presented a rolling three year plan for services, facilities and projects.

Armidale's strategic vision for delivering these services was to support and promote active community participation to achieve a healthy social environment, appropriate cultural services and efficient infrastructure. The emphasis from these earlier Management plans and Operational and Service works was to maximise the use of on street cycle lanes throughout various locations within Armidale. These have subsequently been removed progressively from many of Armidale's streets due to concerns for cyclist safety, and as the 12.8m wide carriageway that predominates in Armidale has been considered as too narrow to contain a suitably linemarked vehicle through or travel lane, a suitably designated vehicle parking corridor and a suitably delineated Bicycle Lane.

The various Management Plans have now been superseded by the Integrated Planning Instruments.

3. Data Collection and Consultation

3.1 Cycle Counts

Cycle counts, including categorisation of cyclist user group, were undertaken during peak periods at locations in the Armidale area on Tuesday the 1st of March 2011. The peak periods and locations for cyclist counts were chosen based on surrounding land uses, expected levels of activity, primary traffic routes (including important cycleways within Armidale), and proposed cycleway localities from the Strategic Bike Plan. For example, cyclists accessing the UNE were recognised from a survey of the QE Drive and Creeklands shared path locality. The survey was restricted to a peak morning timeframe from 7am to 9am, in 15 minute segments.
The date and timing coincided with Bicycle Victoria Super Tuesday program of national bicycle counts and usage survey. Armidale did not participate in this program. However, it would be advisable to carry out a yearly program, coinciding with this date and common locations, to monitor bicycle usage patterns.

The locations and times of the surveys are as follows:

- Taylor Street and Creeklands shared path cycleway intersection (7:00 am – 9:00 am);
- Donnelly St and Creeklands shared path cycleway intersection (Hegarty Bridge) (7:00 am – 9:00 am);
- Markham Street and Dumaresq Street intersection (7:00 am – 9:00 am);
- Rusden Street and Dangar Street intersection (7:00 am – 9:00 am);
- Madgwick Drive and Cluny Road intersection (7:00 am – 9:00 am).

The weather on the survey day was fine with a moderate temperature.

The peak hour results for each location are summarised in **Appendix 12**, **Table 11**.

4. Armidale Dumaresq Bicycle Strategy 2012

4.1 Key Elements of the Bicycle Strategy

The preparation of a Bicycle Strategy for the Armidale Dumaresq LGA recognises the unique challenges and distinctive character of both the larger, urban built up areas such as Armidale, but also the rural roads and villages such as Ebor. These characteristics include, but are not limited to:

- Heritage quality, particularly in the inner urban areas of Armidale,
- Topography, with some steep and hilly roads in and around Armidale,
- Constrained and variable road reserve cross sections, carriageway widths and road alignments, that also may be affected by the topography and though the general layout of road network is grid style, historical development patterns have also had an influence on the road layout,
- Though the recent parking studies would indicate that Armidale is amply supplied with vehicle parking spaces, significant on-street parking pressures can occur in various locations both within the CBD as well as many local streets, sometimes due to historical development of the area, with some limited off-street residential parking, however, compared to say the older Sydney inner suburbs, this is not as problematic,
- A relatively un-congested regional and local road network, with many alternative local routes to key destinations, albeit influenced by local topography,
- Competing priorities for the limited road reserves available and the associated attitudes towards cycling from the local community,
- Existing above average cycling participation levels as compared to say Sydney, however, unfortunately the levels of cycling participation (particularly in work commuting) are declining in Armidale.

The key elements of the Armidale Dumaresq Bike Strategy 2012 have been identified as follows:

- Completing the 'Regional' classification routes, of highest priority, that provide regional connectivity,
- "Safe family-friendly cycling" - By capturing all potential 'Local' class type 'short trip' opportunities from home to a range of activities and facilities, will make for safe family-friendly cycling.
- 'Scenic' class, or recreational routes, for safe and family friendly cycling in the vicinity of parks and reserves
- "Every Street a Cycling Street" - A strategic focus on this, not just the development of commuter and recreational links between major activity centres, will provide for making cycling more widely attractive to everyone able to ride.
- Integrated policies and planning instruments – the inclusion of cycle facilities and considerations within road construction and maintenance programs as well as in development planning to be ongoing,
- Targets to provide a balance between planned priority and long term civil works and encouraged programs, including a ride-to-school strategy (ideally to be building on the strategy as developed within the 2004 Action Plan) to develop sustainable travel habits and cycling confidence from a young age.

Appendix 1 contains the map of all proposed (and existing) cycleway routes, to be constructed over the short and long term within the Armidale Dumaresq Local Government area, as per the Armidale Bike Plan 2012.

4.2 Priority Routes

4.2.1 Overview

Many established Cycleway networks in both the larger metropolitan and smaller regional LGA's are characterised by the composition of Regional Routes that form the 'main roads' of the bicycle network. These routes are commonly aligned with the major Classified or State roads and/or the major arterial roads within that particular LGA.

Armidale is characterised by major cycleways not necessarily aligned with the Classified or State Roads networks, but more so with the major arterial road network and also with the cycleways aligned alongside or adjacent to the creeklands circumventing Armidale from east to west, particularly Dumaresq Creek.

The pattern of cycleway development is also characterised by articulation with residential development. This has also proved a reflection of the matching of funding currently offered by the Roads and Traffic Authority, and Council's strategic funding of Capital works on a hierarchial system of importance.

4.2.2 Review of Existing Regional Bicycle Network

The 2011 Strategy review includes an assessment and report of the existing network, to determine those works that have been completed, those that remain as proposed routes, and those that have been removed or modified from the strategy.

The 2004 Strategy and Action plan highlighted the problems encountered by motorists, cyclists and pedestrians in the safe utilisation with on-road cycle lanes, with an extract included for reference:

The traditional road reserve width within Armidale is 20 metres, with a 12.8 metre carriageway. This severely restricts the installation of facilities such as bicycle/parking lanes on most roads. Many road carriageways are even less wide than 12.8 metres, particularly in newer residential areas.

Kerb-to-kerb width measurements of road carriageways along these routes were undertaken. Although the traditional standard carriageway width in Armidale is 12.8 metres, the survey found width variation along streets and between streets. Many sections were narrower, presenting a significant constraint to the installation of on-road bicycle lanes. Even a width of 12.8 is not ideal for the installation of lanes (Austroads, 1999: 24).
Based on a combination of community consultation and technical considerations, advisory pavement symbols (PS2) is the preferred treatment for most on-road routes within the Armidale urban area. Width constraints and parking demand along numerous road lengths permits only discontinuous application of exclusive bicycle lanes or bicycle/parking lanes. It is considered more desirable to have a consistent treatment application along a route.

Bi*cycle pavement symbols shall be marked to the right of the 2.1 metre parking at the approach to and departure of each intersection, midblock and a maximum interval of 200 metres along the route. Each symbol shall be accompanied by a 'bicycle warning' sign.*

This treatment will serve the purposes of:

- *highlighting a continuous route between lengths with marked lanes.*
- *alert motorists to the presence of cyclists.*
- *encourage cyclists to ride more than 2 metres to the right of the kerb.*

This shall be the preferred treatment for 'secondary', or ***Local*** *class, on-road routes.*

At locations with high demand for on-street parking, 2.1 metre wide parking bays shall be marked to encourage motor vehicle drivers to park in close proximity to the kerb. These locations shall also have pavement symbols marked at much closer intervals.

A consensus of thought with respect to Armidale's existing On Road Bicycle Lanes, located on streets nearby to the CBD, is that they should be removed and replaced with the on street cyclist awareness symbols. See plan of overall layout and a typical plan of placement of symbols along Dumaresq Street within **Appendix 15**.

(See **Appendix 15** for a map showing the proposed placement of Cycle Awareness symbols PS-2 along all proposed cycleway routes (both 'Regional' and 'Local' type classifications) as discussed, and agreed to, in the various Bicycle Strategy consultations and meetings.)

Other Upgrades

Over the past seven years Armidale Dumaresq Council has implemented a reasonably large proportion of the network recommended in the 2004 Bike Plan. Much of this work has been carried out in a reasonably cost effective manner by either utilising co-funding towards the various Capital works from the RTA, by having works in vicinities that were generally 'easier' to carry out by Council, and/or works were tied to residential development and were a condition of consent to the proposed land development.

Cycle routes installed as part of traffic calming endeavours were minimal since the last Bike Plan of 2004.

Installation of shared path facilities has also benefited pedestrian mobility through pavement upgrades. Improvements to crossings (ie refuges, linemarking and signage) such as at Dangar Street and Niagara St. on the Creeklands Cycleway, have benefited both cyclists and pedestrians while maintaining traffic flows.

While there is an ongoing need to reduce signage and road marking clutter, this has to be balanced with Council's duty of care to provide a safe operating environment for all users, whether motorists, cyclists or pedestrians.

As detailed above, Armidale shares the problem of relatively narrow urban streets (when considered in the context of the problems of attempting to retro-fit cycle facilities to these streets) and will be an ongoing challenge to cycle network development both presently, and in the future. The NSW Bicycle Guidelines were developed in 2003 by the RTA in response to these issues and these guidelines contain a number of innovative treatments designed specifically to integrate cycle facilities into relatively narrow urban streets. The main treatment which has been recommended from these guidelines is the Shared Street on-road bicycle awareness symbols.

Discussions with traffic and cycleway development staff in other regional LGA's has revealed that modifications to and trials of practices within the RTA NSW Bicycle Guidelines are occurring, and are worth mentioning -

Correspondence between David Maunder and Newcastle City Council (NCC) Traffic Engineer Mr Simon Gulliver on the 16th Dec. 2010

- *Newcastle City Council (NCC) have also trialled the recommended RTA/Austroads carriageway delineation i.e. Parking, Bicycle and Traffic Through lane and have also found the required lane width for bicycles to be too narrow for bicyclist safety. They are currently formulating a trial section of urban roadway, of 12.8m carriageway width and 4000 V.P.D., to place minimum delineation of ,*
    - *2.0m Parking lane width,*
    - *1.7m Bicycle Lane width, and*
    - *2.7m General traffic through lane.*
- *No legal significance inferred or otherwise in the placement of the PS-2 symbols on the roadway, however, all Bicycle lanes on road must certainly have the symbols placed and they carry regulatory controls,*
- *NCC have also found that the placement of Bicycle Symbol PS-2 as a means of raising awareness to other road users is a measure most favoured by the Newcastle Bicycle User group. The symbols have been placed in Newcastle in local streets of*

higher bicycle usage, i.e. not the main arterials or thoroughfares, and are placed approx. 2.5 to 2.7m from the kerb face, a location that does not then coincide with the car door opening range.

- *Roundabout and intersections have symbols placed to the centre of the layout to give greater awareness to motorists,*
- *Symbols are also placed generally in keeping with the dedicated Bicycle Lane configuration, except that they are offset towards the road centreline to be placed outside of the car door range, as mentioned above.*

4.2.3 Priority works for 'Regional' class routes

The Regional Routes form the then 'main roads' of the bicycle network. Separated facilities are generally recommended where possible, due to traffic speeds, composition and volumes.

The Regional Routes of highest priority ie where planning, design and construction works should commence before other programmed works, are shown in Table 1 below.

Table 1: Priority 'Regional' Classification Routes

SP11– Erskine Street to Ash Tree Drive, From Erskine St. north of Northcott end of Ash Tree Dr. With Northcott St advisory pavement symbols, connects Creeklands Cycleway to North Hill – UNE via Duval St route.	Off road path. **Not Commenced**	Medium cost, Medium feasibility, Medium benefit.	Potential for construction with future development of 215A Erskine Street. Part currently subject of Contributions Plan No. 4/1993 Northcott Street and Munro Street footpaths.	285m	Long term, *(estimate for complete works, if constructed now, is approx.* $53,000). Approximately $14000 in developer contributions received to date. Total projected contributions for both footpaths is $31,180.
OR3 – North Hill: UNE via Duval St. - Gordon St. and Richardson Ave to Glen Innes Rd.: (PS-2)… - Chestnut Ave and Simpson Ave (x2): (PS-2)……. - Off road, shared path to Glen Innes road…… - Duval St., Crest Rd. + Munro St.: (PS-2)…… - Monroe St. (west) to Golden Crescent (east): (O.R.P)…… - Golden Crescent + Ash Tree Drive: (PS-2)…… - Ash Tree Dr. (west) to Madgwick Dr.: (O.R.P)……	Advisory pavement symbols along various streets, and off road bicycle path. **Not commenced.**	High cost, Medium feasibility, High benefit.	*(Note: easement for connection between Ash Tree Drive (west) and Madgwick Drive exists over D.P. 865309.* *Construction could possibly be required in conjunction with future development of 1A Niagara Street – if not required beforehand).*	(1030m.) (400m.) (360m.) (220m.) (75m) (485m.) (380m.) (425m.)	Short term to Long term. <u>PS-2:</u> Upfront cost = $7370, Yearly maintenance = $2200. <u>O.R.P.:</u> $180,000

-Grandview Crescent (off Golden Grove) : (PS-2) -Monroe Street to Baird Place: Extended width pathway (1500mm width) is proposed, to allow for projected lower volume pedestrian and cyclist usage.	(Existing Crown Rd that has been recently converted to Public Road (Unformed) status		*(Note: Munro Street link is subject to Contributions Plan 4/1993.* Part currently subject of Contributions Plan No. 4/1993 Northcott Street and Munro Street footpaths.	(260m.) Approx. 330m	ORP = approx. $60,000

SP2 – Stage 2 From Canambe St. (and Box Hill Drive intersection) to Cookes Rd, south of Macdonald Drive with some short links from proposed S.P. to Macdonald Drive……	Off road path. **Not Commenced** Co-contribution funding has been sought from RTA. Residential subdivision investigations in progress for land east of Cookes Road (as per Resolution 128/11) for contributions plan (to be formulated by Council Planning staff).	High cost, High feasibility, High benefit.	Expectation is that Council will need to budget for construction of this segment, although portion of costs may be recouped in the future via contributions plan as development of land east of Cookes Road eventuates.	1050m (approx.)	Long term, *(estimate for complete works, if constructed now, is approx.* $274,000)
SP41 - Scholes Road From Harden Street to Link Road, via underpass of the N.E. Highway	Off road path. **50% Completed** Co-contribution funding of 50% from the RTA has enabled for partial construction to be completed up to the overpass	High cost, High feasibility, High benefit.	Completion of works scheduled for 2011/12. Subject to Contributions Plan 1/1996 Link Road and Scholes Road shared path.	780m (total length.)	Short term, *(estimate for complete works, if constructed now, is approx.* $267,000 plus $55,000 for 5 solar lights

Table 1 (cont.): Priority 'Regional' Classification Routes

4.3 "Every Street a Cycling Street"

4.3.1 Overview

Depending on trip origin and destination, many Armidale residents will undertake part of a cycle trip on local roads that do not have formal bicycle route provisions. Cycling on local roads with low traffic volumes should be encouraged through cycle-friendly road maintenance, local area traffic management (LATM) and reconstruction projects, as well as through community education. This promotes sharing of the road reserve between all road users as well as raising the expectation and awareness of cycling activity. Improved amenity for all cyclists also benefits pedestrians and mobility-impaired road users.

In accordance with the NSW Bicycle Guidelines, streets with low traffic volumes and slow speeds can operate with mixed traffic environments, without the need for formal cycling facilities as shown in **Appendix 14**, Figure 3.2 - *Separation of bicycles and motor vehicles according to traffic speed and volume*, (in the green area). This graph also indicates that as traffic volumes and speeds increase, separated cycle facilities should be provided in the form of bicycle lanes and/or bicycle shoulder lanes (ie the yellow area) or separate paths (ie the orange area).

The 'mixed traffic' environment applies to not only many of the local streets ie sub-arterials, collector streets of Armidale, but also many of the major arterials would be classified, or warranted, as per the Methods of Separation graph. Under the Bicycle Strategy, and wherever possible, simple directional signposting could be used instead of an engineering intervention such as linemarking, pavement symbols ie PS-2, signage and other physical devices where these may be considered obtrusive, not in keeping with local historically significant residential or cultural buildings and not of clear benefit for new local routes.
(Note though that linemarking is still subject to conditions whereby visibility is hampered in wet conditions).

This strategy is attempting to recognise cyclists in all future traffic management works and not just along formal cycle 'routes'. The Strategy updates have also included amendments, modifications to and inclusions of relevant cycleway proposals on the relevant Proposed Cycleway Map, see example of plan in **Appendix 15**.

It should be noted that there is significance in highlighting cyclist awareness treatments to other road users by the utilisation of line marking, symbols etc, particularly on important 'on-road' cycleways or network links, where motorist and pedestrian awareness and cyclist confidence should be improved.

4.3.2 Selection of Bicycle Facilities

Mixed traffic environments for bicycles and motor vehicles are the preferred means of bicycle access along 'local' roads with 'low' traffic speeds and volumes such as residential areas (ie carriageways up to say 12.8m), and on the more narrow sub-arterial roads (ie up to 8m wide carriageways), where the aim is to keep the motorised vehicle speeds as low as possible or feasible. Two key issues for this type of street:

- The type of operating space for shared road environments. *NSW Bicycle Guidelines* recognises three types of shared space –
    - Spacious profile - it is clear that a car can safely pass a cyclist,
    - Tight profile - no passing, suitable for short distances only,
    - Critical profile – a rather ambiguous statement, to be avoided.
- Slow speeds and good inter-visibility between road-users is important. Effective speed management and road safety improvements over the past few years is widely recognised to have contributed to the strong reduction in the NSW road toll, with 2008

recording an historic 64 year low (source – NSW Minister for Roads (2009). News release – Historic low Road toll for NSW, 1 Jan. 2009).

Mixed traffic facilities are not suitable, however, for busier roads, where visual or physical separation for bicycles is required. The *NSW Bicycle Guidelines* state that when separation is provided for bicycles, there are equally great benefits to motorists. Bicyclists normally travel much slower than motorised traffic. When bicycles are required to share normal lanes, they often find themselves in a very stressful and unpopular situation. This can create disruption to the motor vehicle traffic flows and also potentially increase the risk of danger to the cyclist. By allocating road space to bicycles, road designers and builders can improve safety for all users, and increase the efficiency of the roadway.

4.3.3 'Local' Class (or sub-regional type) Cycleway Network

This strategy seeks to determine those works that have been completed and those that remain as proposed routes. The review assesses whether the proposed routes are appropriate for inclusion in the latest Bike Strategy, and suggests specific treatment and action for those routes recommended to be retained as part of the 'cycle network'.

Table 3, Appendix 4, includes a summary of the completed Armidale Bike Plan 2004 routes.

4.4 Proposed 'Local' Class Network

The 'Local' type routes support the 'Regional' routes of the bicycle network and connect also to local attractors and key places of interest including schools, playing fields, shopping areas and employment areas. A combination of separated facilities, quality on-road facilities and mixed traffic facilities are recommended for these routes, each suited to the characteristics of the road network traffic speeds, composition and volume generally. However, within Armidale there may be a blurring of the 'warranted' roadways that would be accommodated within these recommended guidelines.

Many of the routes are located on local streets and roads which need only relatively minor engineering improvements to enable bicycle riders to get to trip destinations more easily and with less stress than on the existing network.

Some of the sub-regional and local routes include bicycle and pedestrian links at cul-de-sacs, which provide a competitive advantage and encourage travel on foot and by bike. Table 2 below contains the details of proposed (priority) works for 'Local' (or sub-regional) routes.
See also **Appendix 15** for a map showing the proposed placement of Cycle Awareness symbols PS-2 along all proposed cycleway routes (both 'Regional' and 'Local' type classifications) as discussed, and agreed to, in the various Bicycle Strategy consultations and meetings.)

Table 2: Priority works for the 'Local' (or Sub-regional) class ' Mixed Traffic' category routes.

OR11 – East Armidale to West Armidale, via Mann St. - Mann St., Canambe to Markham Streets: PS2 APS…… (Allingham to Canambe Streets)	Advisory bicycle symbols along Mann St. Provides connectivity to OR1, OR2, OR6, OR14, OR8, OR5, OR4 and OR15. **Not commenced.**	Low cost, High feasibility, High benefit.		2140m. (1900m)	Short term. Upfront cost = $6300, Yearly maintenance = $1900. Upfront cost = $5500, Yearly maintenance = $1400).
OR8 – North Hill to South Hill, via Taylor St. **-** Taylor St, Erskine to Kentucky to Lynches Rd: (PS-2)……..	Advisory bicycle symbols along various streets. Provides connectivity to OR12, OR13, OR11, OR10, OR9 and SP1. **Not commenced.**	Low cost, High feasibility, High benefit.		3220m.	Short term. Upfront cost = $9500, Yearly maintenance = $2850.
OR10 – East Armidale to West Armidale, via Rusden St. - Rusden St., Taylor to Niagara Streets: (PS-2)…… (Taylor to Marsh Streets)	Advisory bicycle symbols along Rusden St. Provides connectivity to OR8, OR5, OR4, OR15 and OR1. **Not commenced.**	Low cost, High feasibility, High benefit.		2140m. (total length) (275m)	Short term. Upfront cost = $6300, Yearly maintenance = $1900. (Upfront cost = $880, Yearly maintenance = $150

Table 2 (cont.): Priority, 'Mixed Traffic' routes for the Sub-Regional and 'Local' class

OR18 – Allingham Street, Mossman St to Dumaresq Street	Advisory symbols PS **Not commenced.**	Low cost, High feasibility, High benefit.		1100m	Short term. Upfront cost = $2875, Yearly maintenance = $960.
OR9 – East Armidale to West Armidale, via Dumaresq St. - Dumaresq St., Canambe to Ohio to Niagara Streets: (PS-2)……	Advisory bicycle symbols along Dumaresq Street. Provides connectivity to OR6, OR8, OR5, SP35, OR15 and OR1. Special treatment required for roundabouts in the HPAZ area. **Not commenced.**	Low cost, Medium feasibility, Medium benefit.	To be discussed with B.S.C. for determination of hierarchy. Consideration needs to be given to whether there is justification for continuation of proposed route through HPAZ.	3020m.	Short term. Upfront cost = $8910, Yearly maintenance = $2675.
OR15 – Butler Street (priority is **Mann Street to Dumaresq Street)**	Advisory symbols PS **Not commenced.**	Low cost, High feasibility, High benefit.		980m	Short term. Upfront cost = $2875, Yearly maintenance = $960.

4.5 Routes to be removed

The review has resulted in a number of routes identified in the 2004 Strategy and Action Plan, but either:

- Not yet implemented, and being excluded from the 2011 Bike Strategy and Action Plan, or
- Existed in the 2004 Strategy as completed works, but is to be removed as a cycleway in the 2011 Bike Strategy and Action Plan, as the 'Every Street a Cycling Street' Strategy will remove the need to create (or retain) many minor routes - see **Appendix 11** below.

4.6 Recreational routes

4.6.1 Overview

Recreational routes are off-road routes which provide a safe and family-friendly environment in the vicinity of parks and reserves where people can enjoy recreational cycling, or those rural roads that provide connectivity to local features of interest as attractors, or the route itself being used by cyclists for recreation.

4.6.2 Proposed Recreational Cycle Network

A review of the existing road network that is utilised by recreational cyclists, as well as consultation with various Armidale cycling clubs (listed below) was carried out. The aim of the consultation process was to prepare a map depicting the Popular Bike routes used recreationally both in and around Armidale, and the smaller outlying population centres such as Invergowrie and Ebor. The resultant Armidale Cycleways Map was released at the 2010 Sustainable Living Expo in Armidale, as well as being placed on Armidale Councils Website (http://www.armidale.nsw.gov.au/roads/1401/331713.html), and placed with the Armidale Tourist Information centre.

It is a document containing information on:

- Popular bike routes in and around Armidale
- Getting started, and benefits of cycling,
- What you need to know about cycling in the streets of Armidale (ie Bikes are legal vehicles on all roads and streets. Hence you must obey the same road rules as all other road users. All legal vehicles on the road are obliged to share the road),
- Cycle clubs in and around Armidale i.e.
    - New England Bicycle User Group - Phone: 6771 2360 Website: http://users.tpg.com.au/adsloy2k/nebug/
    - Armidale Cycling Club - Phone: 6772 3718 Website: www.armidalecyclingclub.org/
    - Armidale Triathlon Club - Website: www.armidaletriathlon.org
    - University of New England Mountaineering Club - www.une.edu.au/unemc/biking/
    - New England Mountain Bike Club - Phone: 0429 792 473 Website: http://www.nemtb.com.au

4.7 Developing Cycle and Cyclist Facilities

4.7.1 Existing bicycle parking

Armidale Dumaresq Council is responsible for parking within the public domain and within Council property only. It provides parking facilities for bicycle riders as a direct response to the unsustainable growth of demand for on-street car parking. Existing bicycle parking facilities within the LGA include

4.7.2 Existing Facilities (and to be replaced)

• PF1 East end of Central Beardy Mall – west of Faulkner St.
• PF2 West End of Central Beardy Mall – east of Dangar St.

4.7.3 Proposed Bicycle Parking

The most important issues to consider with cycle parking are to ensure that:

- The number of spaces provided meets the current demand as a minimum,
- The facility is located where people want to go,
- It is easily accessible,
- It is secure (whether passive or active),
- It is easy to use and enables cyclists to secure front and rear wheels and frame.

It is important that a consistent approach be taken to cycle parking to ensure that the type of racks used are practical and appropriate for the location.

The list below includes the proposed priority bicycle parking sites.

• PF3 Armidale Aquatic Centre - south of Dumaresq St.
• PF4 Belgrave Twin Cinema – north of Dumaresq St.
• PF5 Near southwest corner of Jessie St and Beardy St.
• PF6 Beardy St between Marsh and Faulkner St.
• PF7 Armidale Dumaresq Council Civic Administration Building – north of Rusden St.
• PF8 Wicklow Oval – at clubhouse west of Taylor St and north of intersection between Taylor St and Douglas St.
• PF9 Harris Park – toilet block south of Kirkwood St.
• PF10 Elizabeth Park – north and south of Dumaresq Creek
• PF11 Central Park – north of Tingcombe Ln..
• PF12 Curtis Park – between Creeklands Cycleway and childrens playground, south of Dumaresq Creek.
• PF13 New England Regional Art Museum – south of Kentucky St.
• PF14 Aboriginal Cultural Centre and Keeping Place – south of Kentucky St.
• PF15 Girraween Shopping Centre – between Queen Elizabeth Dr and service station and other location near shops at east end.
• PF16 Moore St, closer to Dangar St.
• PF17 Near entrance to Woolworths supermarket, north of Rusden St.
• PF18 Near entrance to IGA supermarket, north of Rusden St.

Also work in conjunction with all schools, TAFE and UNE to encourage the on-site provision of secure, modern facilities as specified in the Engineering Design Guidelines.

4.8 Integrated policies and planning instruments

4.8.1 Overview

Integration of the Armidale Bicycle Strategy with general Council programs, policies and planning instruments will increase the cost-effectiveness of all Armidale public domain infrastructure investment. Coordination and integration of new public works is a logical strategy to maximise its benefits, both across Council divisions and with adjacent jurisdictions.

To ensure the maximum integration of cycling provision across all operational departments of Armidale Dumaresq Council, a number of recommendations are included below. It is noted that this Council has already implemented some of these recommendations, partially or fully:

- All bicycle routes and recommendations for physical infrastructure improvements in the geographic information system (GIS) to ensure that all future works are co-ordinated with other street improvements, including road resealing and maintenance works. Coordinate with the RTA to ensure that this also applies to any potential works undertaken within the LGA by the RTA,
- Continued review of Council's road, road based engineering standards, engineering codes, subdivisional and development control plans and codes, and Armidale's Aus-Spec code that will soon supersede it's other engineering codes and standards, to ensure that bicycle riders are included and 'planned' for. This is to ensure that roads and facilities which are potentially hazardous to bicycle riders are not inadvertently installed, and particularly applies to road widths (present and future), intersection layouts, path clearances and widths, standard Local Area Traffic Management facilities etc,
- Include provision for cycling in all future Council plans and developments,
- Review Council's current planning policies to include for provision for cycling requirement in development control plans (DCP's) for new and modified developments as detailed in the *Planning Guidelines for Walking and Cycling (DOP 2004)*,
- The location of residential areas within 3 kilometers of significant employment generating developments be one of the matters for consideration when preparing local environment plans
- Continue to develop internal processes and procedures whereby all Council departments can coordinate and support the development and delivery of their cycling programs and projects,
- Continue to operate regular meetings of the ADC Bicycle committee to discuss and develop bicycle infrastructure and Action plans as outlined in this Strategy, along with discussions of any other cycling-related issues, this group should also seek to provide 'representation' at Local Traffic Committee meetings,
- Re-introduce and re-invigorate or re-implement a regular cycleway maintenance program as part of the existing maintenance program to ensure that on-road and off-road bicycle facilities are kept in good repair,
- Develop a Council [policy on provision for roadworks that includes cycling, and/or cyclists irrespective of the existence of marked bicycle routes, (reference to be made here to various new Austroads design manuals and supplements, as well as NSW Bicycle Guidelines (RTA, 2003),
- Expand on the Armidale local, and Armidale Dumaresq Council maintenance request, defect reporting, cycleway deficiencies etc as a revision of sources of complaints and notifications. On-line sources should be centralised at Council.

5. Costs and Priorities Summarised

Details of the various categories of proposed routes, assigning of priority, characteristics of the proposed routes ie dimensions, etc, and estimate of costs for planning and programming purposes, are included in the following appendices:

Appendix 5: Table 4 – All proposed Regional category routes - a summary of proposed On-Road (OR) and Off-Road (SP) paths for future works planning.

Appendix 6: Table 5 – All proposed Local category routes. A summary of proposed On Road (OR) and Off-Road (SP) paths for future works planning.

Appendix 7: Table 6 – All proposed Scenic (or recreational) category routes. A summary of proposed On-Road (OR) and Off-Road (SP) paths for future works planning.

Appendix 8: Table 7 – All proposed short links between Regional, Sub-regional and Local classified cycleways, including: connectivity between existing cycleways, and miscellaneous routes.

Appendix 9: Table 8 - Proposed improvements and upgrades of existing cycleways and cycleway infrastructure.

Appendix 10: Table 9 – Proposed cycleway infrastructure (including bicycle storage racks etc.)

6. Funding Opportunities

This section relates to the identification of funding opportunities that exist for both the construction of infrastructure and hosting events within NSW.

The key recommendations will be the future guiding actions for the Council in relation to funding the expansion of the footpath and cycleway networks.

Appendices 2 to 7 contain an estimated cost for the construction of the various cycleways (On and Off road, cycleway infrastructure and existing cycleway upgrades based on costs calculated by Council's Engineering Department between November 2010 and March 2011.

It should be noted that the estimated costs for cycleway construction is based on a Shared Path of 2.5m width, and costings and estimates are based on both Australian Road Research Board and Armidale Dumaresq Council estimates and final costings for paths, shared paths and on road treatments.

The final value of the works identified may be different from that stated in the various Appendices, as the construction plan and estimate ages, and the actual site preparation works that are determined. Additionally, the estimated cost does not include support facilities such as seats, directional signage, detailed connections to existing cycleways or additional infrastructure such as creek or railway crossings

6.1 RTA Funding

- Explore the opportunities for funding from the RTA

Key Recommendations
Council apply for funding through the RTA for projects which improve the existing cycleway network. Some of the funding opportunities include:

a) Major Works program - infrastructure for cycling is considered in all major works programs,
b) RTA-Council Co-funding Programs - Infrastructure projects which are funded by both Council and the RTA,
c) Cycleway – Co-funds design and construction of on- and off-road cycleways by local councils in line with the NSW Bike Plan 2010,
d) Bicycle Facilities Grants Program – Co-funds council improvements to the operation of existing cycleways,
e) Bike Week Funding Grants Program – this web page provides guidelines on applying for NSW Bike Week Funding from the NSW RTA. Funding is not for a fixed amount and is only provided for the promotion and advertising component of an event's budget,
f) Bicycle User Support Grants Program – this program funds the increased use of cycling through research, training and promotion, including the preparation of maps.

6.2 NSW Government Funding

- NSW Health's Non-Government Organisations Program
- NSW Sport and Recreation Grants

Key Recommendations:

a) Explore opportunities for funding from NSW Health which has a variety of capacity building and other grant programs.
b) Explore opportunities for funding from NSW Sport and Recreation which has a variety of relevant resources on running clubs, training and grants. Of particular relevance to funding cycling projects are grants and financial assistance, fundraising and sponsorship

6.3 Council Budgets

Council to allocate funds for the construction, repair and maintenance of cycleways.

Key Recommendations:
That Council consider:

- Increasing the funding allocated to the construction of cycleways and wide footpaths and the associated support facilities,
- The establishment of a separate line item in the general budget to construct footpaths and cycleways within the rural villages of Armidale Dumaresq Council,
- The budgetary allocations for specific major cycleway projects as it prepares its 5 or 10 year Management Plan (and Operation Plan within the Integrated Planning Reporting) to ensure funds become available for major projects :
    i. see Table 1 - Priority 'Regional' Classification Works (p. 17 + 18) and,
    ii. Table 2 - Priority 'Mixed Traffic' Classification Works, for the 'Local' (or Sub-regional) category, pps. 20 - 21.
- The allocation of a separate budget line item for the maintenance of both footpaths and cycleways,
- The allocation of funds for promotion and education programs for the network.

6.4 Section 94 Contribution Plans, (and Section 94A Contribution Plans and Voluntary Planning Agreements)

- Include the construction of cycleways and support facilities into future Section 94 Contribution plans

Key Recommendations:

a) Include cycleways as part of specific Section 94 Contribution Plan,
b) Council require developers to install cycleways as required,
c) Review Section 94 Contribution Plans to include cycleways, where appropriate, identified within this plan,
d) Council accept the construction of Cycleways as part of any proposed Voluntary Planning Agreement.

6.5 Other Sources of Funding

- Local businesses to sponsor the production of the route maps, signage, road based symbols, sections of cycleway.

Key Recommendations:

a) Investigate the opportunities for external funding for cycleways, additional facilities and promotion and marketing within the Armidale region,

b) Investigate opportunities for local businesses to produce the route maps or cycling brochures etc.

6.6 Summary

Section 6 has identified potential sources of external and internal funding that Council could utilise to fund the construction of cycleways in the region. Some of the key recommendations include:

- Council continue to apply for funding of projects through the RTA for projects which improves the existing cycleway network within Armidale, and seek to support the case for villages within the Armidale LGA to apply for funding to commence with or complete the shared pedestrian and cyclist paths that have already been constructed. Some of the funding opportunities include:
    1. Major (Capital) works programs,
    2. RTA-Council Co-funding programs,
    3. Cycleway
    4. Bicycle Facilities Grants Programs,
    5. Bike Week Funding Grants programs,
    6. Bicycle User Support Grants programs
- That Council consider increasing the funding allocated to the construction of cycleways and associated support facilities.
- Include cycleways as part of specific Section 94 contribution Plans,
- Council consider the establishment of specific financial reserves for major projects.

7.0 Priorities

This section seeks to assign a general priority for the construction works shown on **Map 1** in **Appendix 1** and listed in the tables of Appendices:
Appendix 5: Table 4 – All proposed **Regional** category routes - a summary of proposed On-Road (OR) and Off-Road (SP) paths for future works planning.
Appendix 6: Table 5 – All proposed **Local** category routes - a summary of proposed On-Road (OR) and Off-Road (SP) paths for future Works planning.
Appendix 7: Table 6 – All proposed **Scenic** (or recreational) category routes - a summary of proposed On-Road (OR) and Off-Road (SP) paths for future works planning.
Appendix 8: Table 7 – All proposed short links between Regional and Local classified cycleways, including connectivity between existing cycleways, and miscellaneous routes.
Appendix 9: Table 8 - Proposed improvements and upgrades of existing cycleways, and cycleway infrastructure.
Appendix 10: Table 9 – proposed cycleway infrastructure, including bicycle storage racks etc.

For ease of recording the assigned property, it has been included as a column in the various tables.
The following factors have been considered in assigning a priority for the schedule of works:

a) Will the project connect to the existing or future cycleway or footpath network?
b) Will the project rectify a connectivity issue or complete a missing link?
c) Will the project service a large section of the community?
d) Is there an alternate or safer route available?
e) Will the project directly improve the recreation network?
f) Can the project be appropriately funded?

The priorities are listed with respect to cost, feasibility and benefit of the project works (ie high, medium and low cost, feasibility and benefit).
A rating of all projects has allowed for the compilation of **Priority works** from the **Regional** and **Local** categorised routes, see:
Table 1, p.17-18, Regional class Priority works (ie mostly off-road, with some on-road), and
Table 2, p. 21-22, Local class Priority works (ie mostly on-road, 'Every Street a Cycling Street', for Mixed Traffic areas).

The higher priority tends to reflect that the project has been assessed as having the highest feasibility, highest benefit and greatest chance of being funded, and should be completed at the first opportunity as funding and opportunity arises.

Other assessments of routes for second, third and fourth tier priorities will need to be made for Armidale.

A second tier of Priority routes should be assessed for those routes as having a moderate priority, and should be completed as appropriate funding and demand arises, but equally once the highest priority route works are completed. Third tier priority works should identify those routes as having a low priority and should only be completed when funds are available, with a fourth priority tier assessing for those projects that are reliant on other factors occurring or other works being completed first, such as the subdivision of the land. The works should be completed as opportunities arise, e.g. as part of subdivision works, and should form part of any future development consent conditions.

Special project status should also be considered as a classification, when a funding source (other than the normal cycleway budget) is available e.g. Section 94 funds, grants or special Council reserves.

8.0 Key Recommendations

This section provides the overall summary of the recommendations under this plan worthy of consideration by Council.

Proposed cycleways

1. Cycleways to be constructed as illustrated on **Maps** within **Appendices 1,2** and **3**, and
   Tables 1 and **2** within the **Executive Summary**, and
   Table 4 in **Appendix 5**,
   Table 5 in **Appendix 6**,
   Table 6 in **Appendix 7**,
   Table 7 in **Appendix 8**,
   Table 8 in **Appendix 9**,
   Table 9 in **Appendix 10**.

Mapping the network and map availability

2. Make the Armidale region cycle maps (in **Appendix 16)** available to visitors and residents via Council's corporate and tourism websites, Visitor Information Centre, Library, bicycle shops, commercial accommodation establishments, aquatic centre and service stations.
3. Update the mapping of the new paths as constructed.
4. Update the online version of the map regularly,
5. Print new cycleway maps regularly to ensure that the maps are current and reflect any new cycleway construction or road works etc,
6. Improve the availability of the maps to the community,
7. Create an eye-catching brochure display for businesses to use. For example a bike wheel or set of handlebars.

Funding and grants

8. Council apply for funding projects through the RTA for projects which improves the existing cycleway network. Some of the funding opportunities include:
   a. Major (Capital) works programs – infrastructure for cycling is considered in all major works programs.

   b. RTA-Council Co-funding programs, infrastructure projects which are funded by both Council and the RTA.

   c. Cycleway – co-funds design and construction of on-road and off-road cycleways by both local councils in line with the NSW Bike Plan 2010 and 2011.

   d. Bicycle Facilities Grants Programs, Co-funds council improvements to the operation of existing Cycleways

   e. Bike Week Funding Grants programs, this web page provides guidelines on applying for NSW Bike Week funding from the NSW RTA. Funding is not for a fixed amount and is only provided for the promotion and advertising component of an event's budget.

f. Bicycle User Support Grants programs – this program funds the increased use of cycling through research, training and promotion 9including the preparation of maps).

9. Explore the opportunities for funding from NSW Health which has a variety of capacity building and other grant programs.

10. Explore opportunities for funding from NSW Sport and Recreation which has a variety of relevant resources on running clubs, training and grants. Of particular relevance to funding cycling projects are Grants and financial assistance, fundraising and sponsorship

11. That Council consider:
    a. Increasing the funding allocated to the construction of cycleways and the associated support facilities,
    b. The establishment of a separate line item in the general budget to construct cycleways and/or oversize footpaths (1500mm width) within the rural villages,
    c. The budgetary allocations for specific major footpath and cycleway projects as it prepares its 5 and 10 year Management Plans to ensure funds become available for major projects. See **Tables 1 and 2** for all priority works or projects for the Regional and Local Classified cycleway routes.
    d. The allocation of a separate budget line item for the **maintenance** of cycleways,
    e. The allocation of funds for promotion and education programs for the network.

12. Investigate opportunities for external funding for cycleways, additional facilities, oversize footpaths and promotion and marketing within the Armidale Region.

New subdivisions

13. Include cycleways (and possibly oversize footpaths) as part of specific Section 94 contribution areas, where appropriate or feasible,

Policy development

14. Council develop a Policy for receiving and dealing with ad hoc requests for works to the footpath and cycleway environment (eg requests for additional gutter ramps, repairs to existing cycleway, irregular maintenance requests etc) which are not programmed or form part of this plan. A more centralised form maintenance requests, pathway and cycleway damage reporting etc needs to be formulated by Council. An example is listed for reference within **Appendix 17.**
15. Develop a policy for the maintenance of the footpath and cycleway networks.

Young rider education

16. Investigate the construction of a separate facility, or use of an existing facility (ie The Armidale Traffic Education Centre), as a free public bicycle education facility for children and cyclists in road behaviour, bicycle skills and pedestrian safety, including the use of the road circuit at the Traffic Education centre. Other LGA's to have developed this infrastructure and programs include Campbelltown Council. Other initiatives worth researching include the C.A.R.E.S. program run in St Ives and Bass Hill.
17. Encourage schools to actively run cycle education programs and continue to investigate new opportunities to provide support facilities for the large range of schools within the Armidale Dumaresq Local Government Area.
18. Develop specific 'Young Rider Friendly' routes and maps that identify safe, low traffic volume on-road routes and cycleways.

Bicycle racks

19. Council to signpost the existing and future bicycle racks within the Armidale region.
20. Council to install new bicycle parking at Council owned facilities and within the footpath environment or in prominent locations within the CBD, see **Appendix 10, Table 9** for proposed locations.
21. Council to incorporate bicycle parking requirements into the Development Control Plans for new commercial and business developments where appropriate.
22. Council to investigate options for temporary bicycle parking at community events.
23. Bicycle racks to be co-located with all existing and future public toilets, particularly those located in recreation reserves along cycleways.
24. Storage nodes – bicycle racks to be co-located with public transport major set down and pick up points for buses. An investigation of likely Transport nodes to be carried out.
25. Encourage existing major businesses to install onsite bicycle parking for their employees e.g. Government offices, Armidale Dumaresq Council, University of New England (various locations), New England Credit Union, Armidale Ex-Services and Armidale Bowling Clubs, existing shopping centres, neighbourhood shopping centres etc.
26. Encourage the schools within the Armidale region to provide bicycle parking facilities.

Tourism opportunities

27. Develop guided walking trails, associated maps and interpretative signage for the Armidale region in relation to:
    - Heritage (e.g. the Armidale Historic Buildings walk)
    - Ebor Falls, at Ebor

28. Investigate opportunities for disability tourism within the Armidale Region
29. Develop trails, associated maps and interpretative signage within the Armidale region for tourist loops or with a specific theme, for example:
    - To the various National Parks within short cycling distance of Armidale, and not traversing the major, heavily trafficked roads
    - Key Armidale sights,
    - Key heritage sites
30. Encourage the development of a bicycle hire business for the Armidale region
31. Promote the existing bicycle activities with Bike Week and other events
32. In conjunction with the University of New England, Armidale Cycling and Armidale Tourism, continue to promote the benefits of Armidale as a hosting locality for such events as the NSW Junior Cycling Championships, as will be held in Armidale in 2011 and 2012.
33. Investigate the opportunities for a bicycle event similar to Mudgee's 'Bike Muster'.
34. Promote the Armidale region as a cycle friendly regional city through brochure development.
35. Promote the existing and future cycle events.
36. Involve the Walcha, Uralla and Guyra Councils in the planning for a regional cycle route.
37. Encourage cycle tourism through the development of regional cycling loops.
38. Organise specific media groups to the region to participate in Armidale's cyclist or pedestrian friendly activities e.g. Cycling magazines.
39. Work with Cycling NSW to participate in their events and utilise their marketing tools.
40. Promote the Armidale region at other major cycling events through either:
    - Team gear / participation,
    - Display stand
    - banners
41. Promote cycle trails to other Bicycle User Groups throughout the state.

Education program

42. Develop a community education program for drivers and cyclists highlighting each others responsibilities (eg Share the Road type programs),
43. Link into cycle events for major education programs,
44. Implement part of the 'Sharing the Road' program produced by VicRoads, and 'Every Street a Cycling Street' from the NSW Bicycling Guidelines, to assist the education of cyclists and motorists alike of their respective obligations while using public roads,
45. Encourage the acceptance of the Code of Conduct for cyclists,
46. Promote and encourage participation in 'National Walk to Work Day', 'National Ride to Work Day', and 'National Ride 2 School Days' held annually,

Support facilities

47. Path obstructions (such as vehicle bollards etc) to be designed or located at a height to minimise the obstruction to the user,
48. Directional signage to be installed at the start, end, and at intersections of the cycleway network,
49. On-road routes (existing bike lanes to be retained) to be linemarked and have either a bike symbol painted on the road surface or be signposted; On-road routes (proposed PS-2 Bike awareness, 'Every Street a Cycling Street' routes) to have the symbol painted at required locations (see **Appendice 3** and **Appendice 15)** and appropriate signage ie fingerboard type directional signs, and Regulatory signage as may be required.
50. Off-road shared paths to be linemarked, have bike symbols placed on the pavement surface, and signposted appropriately,
51. Where footpaths are an appropriate width (refer to **Austroad Cycling Guidelines** in References listing), or have a low volume of users, signpost as a cycleway.
52. Signage to be located and designed in accordance with the Austroads guidelines and RTA supplements to Austroads.
53. Council to consult with Country Energy (Essential Energy) to investigate options, including solar lighting and motion sensors, for installing lighting on the existing network, as funding becomes available.
54. Lighting to be provided at intersections and where appropriate surveillance is not available (eg away from a public road along the Creeklands Cycleway, or in other isolated locations).
55. Seating and shade should be co-located adjacent to the cycleway network.
56. Seating should be located at points of interest e.g. scenic views, near interpretative signage, heritage locations).
57. Provide a sealed area from the path to the seat.
58. Provide a sealed apron adjacent to seats for prams, wheelchairs or mobility scooters.
59. Provide public toilets at key recreation areas and parks, where appropriate.
60. Provide water stations at the beginning of any loop or extended cycleway i.e. Creeklands cycleway, and where Council's existing water infrastructure allows.
61. Investigate the need for lighting and/or additional lighting within the footpath and cycleway networks.
62. Install the support facilities at the completion of a project.
63. Signpost or mark and provide permanent distance markers on the longer, continuous cycleways.

Engineering guidelines

64. The Council's Guidelines for Engineering Works, Civil Engineering Construction Guidelines etc to be comprehensively reviewed and translated to the adopted Aus-Spec Engineering Code. The Engineering Code to be utilised for the interim. Elements of a contradictory nature to be elicited from the Development Code and modified accordingly. At the time of preparation of the Bike Strategy, IPWEA, as publisher of the Aus-Spec suite of Standards, were calling for submissions into a review of National Standards for Footpaths and Cycleways.

65. Engineering Codes, Standards and Aus-Spec Standards to consider the requirement of gutter ramps to be installed within rollover kerbs for the identified strategic routes.
66. Councils Codes and Standards to be amended to include the following support facilities, where appropriate, for new cycleway construction:
    - Seats
    - Directional and distance signage
    - Shade trees
    - Lighting
    - Toilets
    - Water stations
    - Dog waste tidy bag dispenser.

67. Amend the Engineering Code and Standards to reflect that if an intersection is to be constructed (i.e. a roundabout), that the existing footpath and cycleway connectivity is to be considered in the design.
68. Amend the Engineering Code and Standards to allow for cyclists to be contained wholly within refuge islands.

Other

69. Council to require the construction of the footpath or cycleway prior to subdivision release or seek funding for the construction of the path under a relevant Section 94 Contribution Plan
70. Develop, monitor, and compile issues within a Hazard Report Form, and make it available on Council's website i.e. initial report and actioned repairs.
71. Support facilities to be funded and installed at the time of cycleway construction where possible.

9.0 Conclusion

Following a review of the previous key Strategic Plans, community consultation and a review of key strategic routes, Council has developed a comprehensive plan for an expanded network of cycleways within the Armidale Region.

Resulting from the consultation and survey process a number of issues relating to the available support facilities for the cycleway (and footpath) network are again raised from previous studies, and have been raised within this report.

Council has included a wide range of key recommendations within the report which will guide Council in scheduling and prioritising construction works to expand the networks.

References

Armidale Bike Plan 2004 and 2007 Review, author T. Fisher.

New C. and Rissel C., 2008 *Cycling to work in Sydney: analysis of journey to work Census data from 2001 and 20069*, Health Promotion Service Sydney South West Area Health Service, Sydney.

NSW Bicycle Guidelines, RTA, 2003

Australian Bureau Of Statistics (ABS), 2006 Census of Population and Housing – Expanded Community profile, ABS Canberra.

Austroads, 1999 *Guide to Traffic Engineering part 14 – Bicycles* Austroads, Sydney.

Austroads, 2011 *Guide to Traffic Engineering Various – Bicycles* Austroads, Sydney – see below for specific references:

Cycling promotion fund website (2007)
http://www.cyclingpromotion.com.au/CPFMovingForwards

Austroads Road and Cyclepath Design manuals (recently released, and replacing Manual 14 – Cycling) - (see below for various extract locations within manuals)

Austroads Guide to Road Design				
Part 2: Design Considerations	Chapter 1 Design Objectives	1.9 Provision for cyclists and pedestrians		p6
Part 4: Intersections and Crossings – General	Chapter 9 Cyclist Crossings			pp76 - 94
Part 4A: Unsignalised and Signalised Intersections	Chapter 8 Left-turn Treatments			pp127 & 137
Part 4B: Roundabouts	Chapter 5Pedestrian and Cyclist Treatments			pp48 -59
Part 4C: Interchanges	Chapter 4 Structures	4.4 Pedestrian/Cyclist Grade Separations		p25
	Chapter 14 Cyclists			pp77-80
Part 6A: Pedestrian & Cyclist Paths	Entire document			
Part 6B: Roadside Environment	Chapter 4 Roadside Infrastructure	4.4 Off-street Parking	4.4.8 Bicycle Parking Facilities	p85
Guide to Traffic Management				
Part 3: Traffic Studies & Analysis	Chapter 2 Traffic Studies & Surveys	2.5. Traffic Surveys	2.5.5 Pedestrian & Bicycle Surveys	p22
	Chapter 3 Traffic Analysis – capacity & level of service	3.3 Factors Affecting Capacity, Level of Service, Degree of Saturation	3.3.5Pedestrians & Cyclists	p32
Part 4: Network Management	Chapter 4.6Bicycle Networks			pp33-38
Part 6:	Chapter 4	4.5 Road space	4.5.2Cyclists	p43

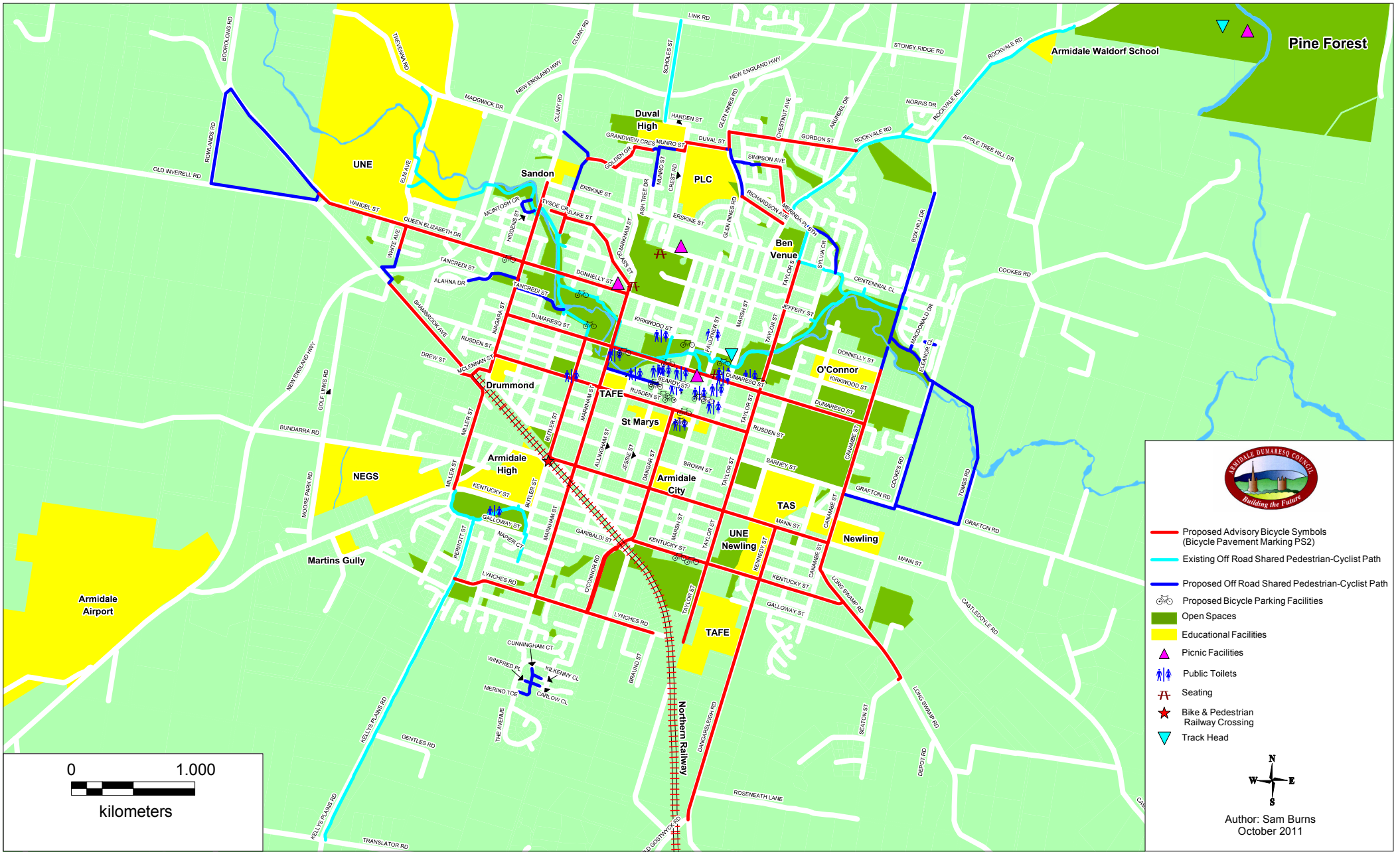
Intersections, Interchanges & Crossings	Roundabouts	allocation & lane management		
	Chapter 6 Interchanges	6.4 Road space allocation & lane management	6.4.4Pedestrians & cyclists	p89
	Chapter 7 Rail Crossings	7.6 Path crossings of railways	7.6.2Paths – shared	p132
	Chapter 8 Pedestrian & cyclist crossings of Roads			pp139-144
Part 7: Traffic Management in Activity Centres	Chapter 3 Techniques for traffic management in activity centres	3.8 Providing for Pedestrians & Cyclists		pp41-46
Part 8: Local Area Traffic Management	Chapter 7 Selection of LATM Schemes & Treatments	7.5 Signs, Linemarking & Other Treatments	7.5.11 Bicycle Facilities	p120
	Chapter 8 Design Considerations for LATM Schemes	8.12 Catering for Cyclists & Pedestrians		pp132-138
Part 10: Traffic Control & Communication Devices	Chapter 8 Traffic Signals	8.1 Types of Displays & their Meanings	8.1.4 Bicycle Aspects	p116
		8.3 Display Sequences	8.3.7 Bicycle Signals	p132
		8.5 Special Uses	8.5.5 Bicycle Facilities	p152
Part 11: Parking	Chapter 6 Off-Street Parking	6.8 Parking Provisions for Other Road Users	6.8.5 Bicycles	p36
	Chapter 7 On-Street Parking	7.8 Provision for Other Road Users	7.8.5 Bicycles	p51
Part 12: Traffic	Chapter 3 Traffic	3.2 Road User	3.2.7 Cyclists	p19

Impacts of Development	Management for Developments	Considerations		
Guide to Project Evaluation				
Part 8: Examples	Chapter 3 Examples	3.10 Bicycle network evaluation		pp33-37
Guide to Road Safety				
Part 6: Road Safety Audit	Chapter 7 Case Studies	7.7Road User Group Audit		p95

Appendix 1

Map: All Cycleway routes, Proposed and Existing.

To be constructed over the short and long term,
within the Armidale Dumaresq Local Government area,

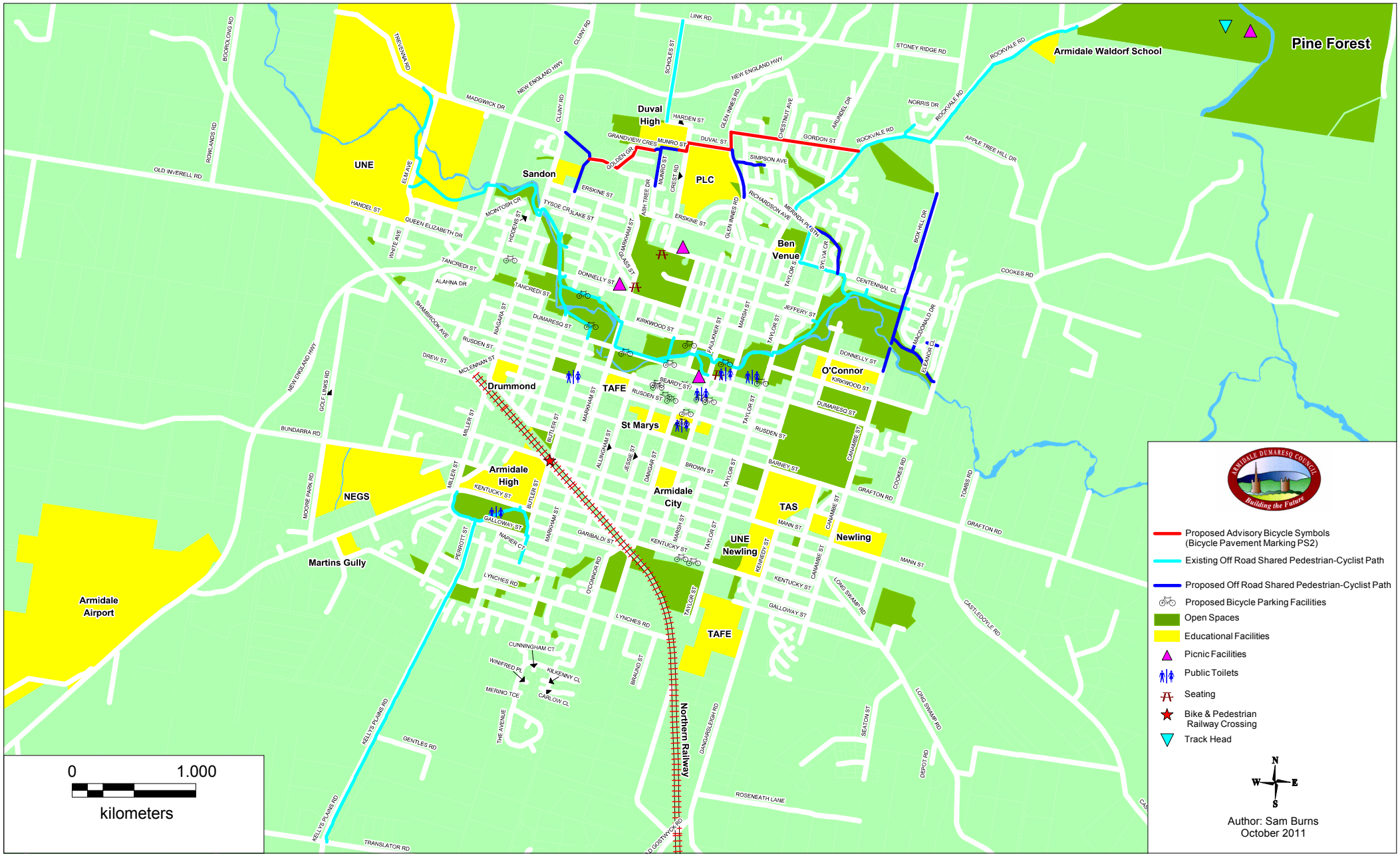


ARMIDALE DUMARESQ COUNCIL BICYCLE STATEGY 2011
EXISTING AND PROPOSED NETWORK COMPLETE

Appendix 2

Map: Priority Works – Off-Road routes i.e. Shared Paths

and some interconnecting On-road Cycleway routes.
Priority 'Regional' Classification Cycleway routes to be constructed within the Armidale Dumaresq Local Government area.

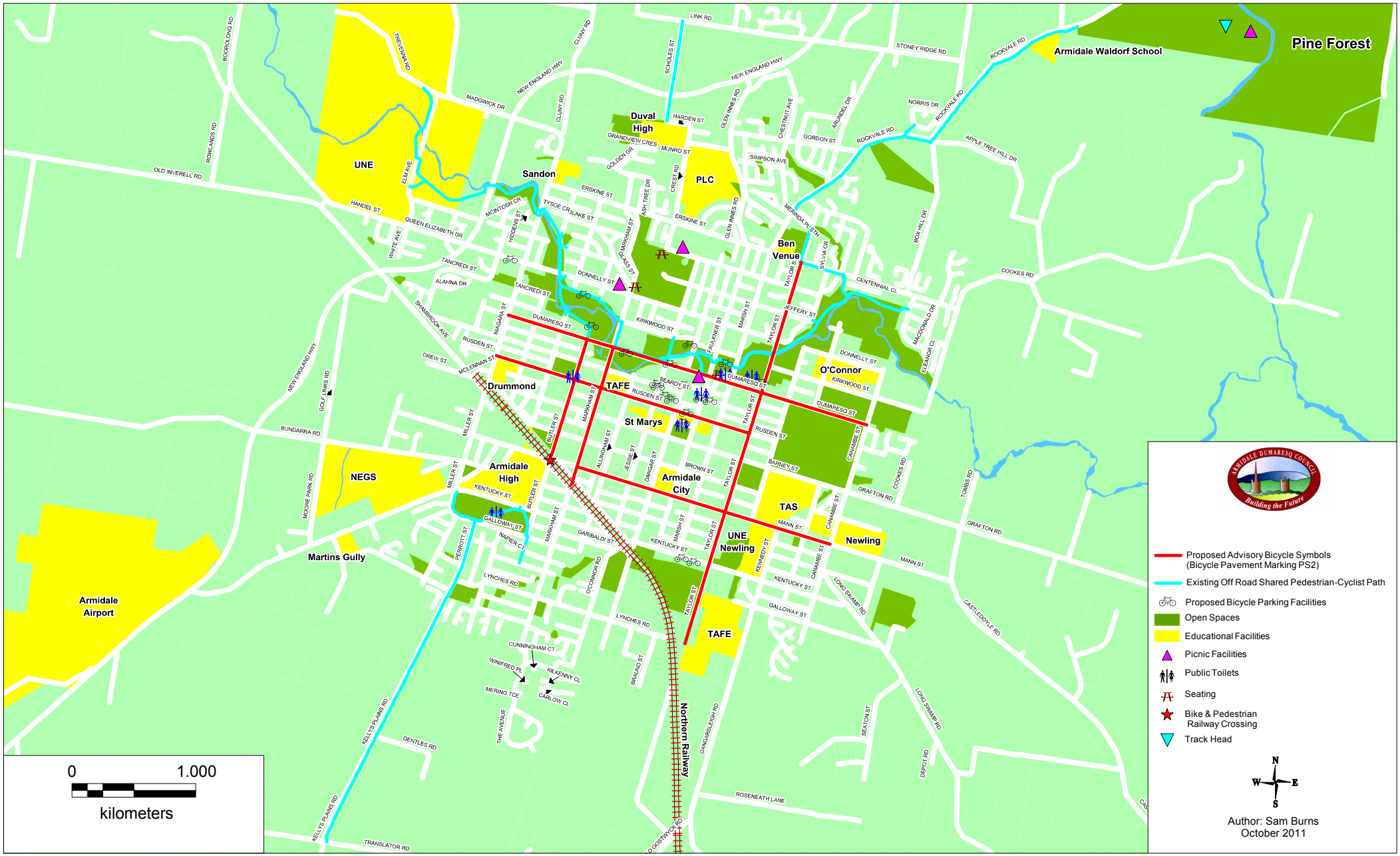


ARMIDALE DUMARESQ COUNCIL BICYCLE STRATEGY 2011
EXISTING NETWORK AND PRIORITY WORKS: OFF ROAD SHARED PATHS
(AS RECOMMENDED IN STRATEGY AND ACTION PLAN ON TABLE 4)
(SP11, SP2(2), SP41, OR3 - TOTAL COST $515,000)

Appendix 3

Map: Priority Works – On-Road routes

Priority 'Local' Classification Cycleway routes, identified within the 'Every Street a Cycling Street' strategy, to be constructed within the Armidale Dumaresq Local Government area.



ARMIDALE DUMARESQ COUNCIL BICYCLE STATEGY 2011
EXISITING NETWORK AND PRIORITY WORKS: EVERY STREET A CYCLING STREET
(AS RECOMENDED IN STRATEGY AND ACTION PLAN ON TABLE 5)
OR11, OR8, OR10, OR18, OR9, OR15 - TOTAL COST $36,750)

Appendix 4

Table 3: All Completed Cycleways and Cycleway Infrastructure since 2004

Table 3: Completed Works since 2004 – Summary

2011 Route Number and Description	Review comments & summary of recommended action	Detailed route description	Length (m)	Description of recommended action	Total item cost
SP1 – Stage 1 (Rockvale Rd)	Constructed (2006) Approx. 1875 m2, 2.5m wide, AC surface. Difficult project, with considerable opposition from adjacent landowners.	From existing SP2 Creeklands cycleway (south of Erskine St.), to Rockvale Rd., via Taylor St. and Merinda Place (southern side).	765m.		$102,000 (approx. $55/m2)
SP1 – Stage 2 (Rockvale Rd)	Constructed (2007/08)	Merinda Place to Gordon Street along eastern side of Rockvale Rd,	770m.		$236,931 (includes utility relocations)
SP1 – Stage 3 (Rockvale Rd)	Constructed (2002/03) Initial cycle track comprised crusher dust and loose aggregate, placed for usage by MTBB users. Decision was made subsequently to seal the aggregate for non-offroad bicyclist usage.	Gordon Street to Waldorf School, along eastern side of Rockvale Rd,	1820m.		
SP2 – Stage 1 (Creeklands)	Constructed (2004/5)	From existing Creeklands cycleway, east towards Macdonald Drive (between sports fields), south of Centennial Close, to the junction of Canambe and Box Hill Drive.	645m		
SP8 (Rockvale Rd)	Constructed (2008/09) (Note that project was 50/50 funded by contribution from RTA, and that minimal select gravel was required as a high quality insitu base exists.)	From Apple Tree Hill (Waldorf School) to Pine Forest Road, along eastern side of Rockvale Rd.	300m.	2m. wide path	$37,205 (Includes $14,100 for box culvert placement)

Table 3 (cont.): Completed Works since 2004 - Summary

SP41 - Scholes Road From Harden Street to Link Road, via underpass of the N.E. Highway	Off road path. **50% Completed** Co-contribution funding of 50% from the RTA has enabled for partial construction to be completed up to the overpass	High cost, High feasibility, High benefit.	Completion of works scheduled for 2011/12.	Approx. 50% ie 390m has been completed	Cost to date is approx. $135,000, plus $55,000 for 5 solar lights.
I **Imrovements to Existing Creeklands Cycleway**					
SP12 – Donnelly and Butler Streets vicinity	Reinforced concrete section at area subject to flooding, south of Donnelly St., and west of Butler Street. **Completed**				
SP13 – Dumaresq Creek Bridge approaches at O'Dell and Butler Streets, north of O'Dell Street.	Replace existing structure and realign/reconstruct approaches of Dumaresq Creek Bridge **Completed**				
SP14 – Elm Ave., Niagara and Markham Streets	Construct new road crossing points. 75% complete	Low cost, High feasibility, Medium benefit.	Place pedestrian refuges at either side of Elm Ave crossing, in conjunction with signage and linemarking. (Elm Ave is a No Stopping zone, of 7.5m carriageway width). Niagara St pedestrian refuges, signage and linemarking were placed in 1999. Markham St crossing (refuge, signage and linemarking) has also been placed.		Approx. $7500

SP15 – Dumaresq Creek, adjacent to Aquatic Centre entrance	Construct new crossing point over Dumaresq Creek, and new parking facilities. **Completed**	Pedestrian Refuges installed at front of Aquatic Centre, along with improvements to parking.			
SP16 – Taylor St. and Dumaresq Creek causeway	Realign path west of Taylor St over existing path space on Dumaresq Creek causeway, to create new crossing point location north of Dumaresq Creek. **Completed**				
SP27 Dumaresq St. (west of carpark) between Faulkner and Marsh Streets	**Completed**			150m	

Appendix 5

Table 4: All 'Regional' Category Routes.

A Summary of Proposed On Road (OR) and Off Road (SP) paths for future Works Planning.

Table 4: All proposed 'Regional' Class cycleways – On and Off Road

2011 Route Number, Description and Proposed Treatment	Review comments	Summary of recommended action	Description of recommended treatment	Length	Priority and cost estimate for all projects
On Road (OR) Routes					
OR1 – UNE to South Hill via Niagara St. - Madgwick Drive (existing bike lane). - Niagara, Barney, Railway Pde., Brown : (PS-2 advisory pavement symbols), - exclusive bicycle lane across rail line to Mossman Street, adjacent to Markham, and, - connection to proposed OR15, OR3 and OR4 on road routes.	Advisory pavement symbols along various streets. **Works not commenced.** Requires further investigation and concurrence of ADC BSC and perhaps RTA, with respect to proposed route through Industrial precinct along Miller St. Defer works. Investigate alternatives with ADC BSC such as alternative placement of proposed advisory bicycle symbols (PS-2) along Niagara to Barney, Brown, Butler, Mann and Markham Streets (ie connecting to OR4+OR11), instead of along Miller Street. Also, consideration to be given to an alternative route along QE Drive (westwards), connecting with (and across Handel St.) onto Shambrook Ave., removing the need to construct an off road path from White Ave. Short to Medium term. PS-2 Symbols - At a longitudinal spacing of 75m for PS-2 symbols, for two traffic lanes – Approx 65 symbols @ $110 each, Total for symbol placement = $7150. Maintenance replacement @ 30% per year = $2145 Upfront cost = $7150, Yearly maintenance = $2145. Bicycle Lane - $55,000	Low cost, Medium feasibility, Medium benefit.	Defer works.	2385m 50m	Short to Medium term. Upfront cost = $7150, Yearly maintenance = $2145. Bicycle Lane - $55,000

OR2 – UNE to South Hill via Shambrook Ave. - Elm Ave. to QE Drive to end of White Ave. (PS-2)…… - end of White Ave, across railway line, under N.E. Highway to Shambrook Ave..: (O.R.P.)…….. - Shambrook Ave. (from Handel St.), Drew St., McLennan St. and connection to OR1: (PS2)……	Proposed Offroad (Bicycle only) paths and advisory symbols. **Not commenced.** (Note that this sub-proposal could be inconsistent with Condition 17 of DA-266-2008 for western portion of Shambrook Ave and that the development consent is valid until 8th of September 2013 if not substantially commenced beforehand. The original development condition requires a provision for pedestrians/cyclists along the top side ie northern side of development works. Requires further investigation and concurrence of ADC BSC and perhaps RTA, with respect to proposed route through Industrial precinct along Miller St. Access via White Ave. is identified as a preferred option, subject to consent of owner of 38 White Ave. Investigate alternatives with ADC BSC, such as: (1) placement of advisory bike symbols along Elm Ave. rather than construct bike only off road path, and, (2) alternative placement of proposed advisory bicycle symbols (PS-2) along Shambrook to Drew, McLennan, Niagara to Barney, Brown, Butler, Railway Parade and Markham Streets (ie connecting to OR4+OR11), instead of along Miller Street,	High cost, Medium feasibility, Medium benefit.	Defer works. Application to be made to Local Traffic Committee for review of 80 km/h speed zonage along Shambrook Ave., with consideration being given to reduce speed to 50 km/h.	(1320m.) (270 m.) (2080 m.)	Short term to Long term. <u>PS-2 Symbols</u> Upfront cost = $11,550, Yearly maintenance = $3465. <u>O.R.P.</u> Shared path construction works only - $70,000 to $100,000 Land acquisition, legals etc - $10,000 to $30,000

OR3 – North Hill: UNE via Duval St. - Gordon St. and Richardson Ave to Glen Innes Rd.: (PS-2)…				(1030m.)	Short term to Long term.
- Chestnut Ave and Simpson Ave (x2): (PS-2)…….	Advisory pavement symbols along various streets, and off road bicycle path. **Not commenced.**	High cost, Medium feasibility, High benefit.		(400m.) (360m.) (220m.)	PS-2: Upfront cost = $7370, Yearly maintenance = $2200.
- Off road, shared path to Glen Innes road……			*(Note: easement for connection between Ash Tree Drive (west) and Madgwick Drive exists over D.P. 865309. Construction could possibly be required in conjunction with future development of 1A Niagara Street – if not required beforehand).*	(75m)	
- Duval St., Crest Rd. + Munro St.: (PS-2)……..				(485m.)	O.R.P.: $180,000
- Monroe St. (west) to Golden Crescent (east): (O.R.P)……				(380m.) (425m.)	
- Golden Crescent + Ash Tree Drive: (PS-2)……..				(260m.)	
- Ash Tree Dr. (west) to Madgwick Dr.: (O.R.P)……			*(Note: Munro Street link is subject to Contributions Plan 4/1993.*		
-Grandview Crescent (off Golden Grove) : (PS-2)	(Existing Crown Rd that has been recently converted to Public Road (Unformed) status				
-Monroe Street to Baird Place: Extended width pathway (1500mm width) is proposed, to allow for projected lower volume pedestrian and cyclist usage.			Part currently subject of Contributions Plan No. 4/1993 Northcott Street and Munro Street footpaths.	Approx. 330m	ORP = approx. $60,000

OR4– South Hill: UNE via Markham St **-** Markham St, from Lynches to Donnelly Streets: (PS-2)……. - Donnelly St, from Markham to Niagara Street: (PS-2)…… - QE Drive, from Niagara St to Golgotha St.: (PS-2)…… - QE Drive, Golgotha to Martin St.: dedicated bike lanes……. - QE Drive, Martin St to Elm Avenue: (PS-2)……	Combination of: - Exclusive bike lane, - Advisory bicycle symbols along various streets, - Shared path around roundabout, Provides connectivity to OR1 + OR2. Not commenced.	Medium cost, High feasibility, High benefit.	Crucial route for connectivity between north and south Armidale. To be discussed with B.S.C. for determination of hierarchy.	(2500m.) (900m.) (240m.) (400m.) (285m.)	Short term. PS-2: Upfront cost = $11,550, Yearly maintenance = $3465 Dedicated Bike lane: $7500, (assuming no other works other than surface linemarking and signage).
OR5 – South Hill: CBD via Dangar St. **-** O'Connor Rd, Lynches Rd to Kentucky St.: (PS-2)…… - Dangar St, Kentucky to Moore Streets: (PS-2)……	Combination of: - Exclusive bike lanes, - Advisory bicycle symbols, - Shared path around roundabout, Provides connectivity to OR1 + OR2. Not commenced.	Low cost, Medium feasibility, High benefit.	Important route for connectivity between south Armidale and CBD. To be discussed with B.S.C. for determination of hierarchy.	(570m.) (1460m.)	Short term. PS-2: Upfront cost = $6000 Yearly maintenance = $1800.

OR6 – South East to North East Armidale. - Long Swamp Rd, Seaton to Canambe Streets: (Sealed shoulders)……..…. - Canambe St, Mossman to Donnelly Streets: (PS-2)……	Combination of: - Advisory bicycle symbols, - Sealed shoulders. Provides connectivity to OR13, OR11, SP2, OR9, SP3. **Not commenced.**	Medium cost, Low feasibility, Low benefit.		(1080m.) (1690m.)	Short to Medium term. <u>Sealed shoulders:</u> (2 x 2m. wide full pavement sealed shoulders) $151,000 <u>PS-2:</u> Upfront cost = $5000, Yearly maintenance = $1500.
OR7	Removed following public exhibition April 2007.				
OR8 – North Hill to South Hill, via Taylor St. - Taylor St, Erskine to Kentucky to Lynches Rd: (PS-2)……	Advisory bicycle symbols along various streets. Provides connectivity to OR12, OR13, OR11, OR10, OR9 and SP1. **Not commenced.**	Low cost, High feasibility, High benefit.		3220m.	Short term. Upfront cost = $9500, Yearly maint. = $2850.
OR9 – East Armidale to West Armidale, via Dumaresq St. - Dumaresq St., Canambe to Ohio to Niagara Streets: (PS-2)……	Advisory bicycle symbols along Dumaresq Street. Provides connectivity to OR6, OR8, OR5, SP35, OR15 and OR1. Special treatment required for roundabouts in the HPAZ area. **Not commenced.** Consideration needs to be given to whether there is justification for continuation of proposed route through HPAZ.	Low cost, Medium feasibility, Medium benefit.	To be discussed with B.S.C. for determination of hierarchy.	3020m.	Short term. Upfront cost = $8910, Yearly maintenance = $2675.

OR10 – East Armidale to West Armidale, via Rusden St. - Rusden St., Taylor to Niagara Streets: (PS-2)…… (Taylor to Marsh Streets)	Advisory bicycle symbols along Rusden St. Provides connectivity to OR8, OR5, OR4, OR15 and OR1. **Not commenced.**	Low cost, High feasibility, High benefit.		2140m. (total length) (275m)	Short term. Upfront cost = $6300, Yearly maintenance = $1900. (Upfront cost = $880, Yearly maintenance = $150
OR11 – East Armidale to West Armidale, via Mann St. - Mann St., Canambe to Markham Streets: PS2 APS……. **(**Allingham to Canambe Streets)	Advisory bicycle symbols along Mann St. Provides connectivity to OR1, OR2, OR6, OR14, OR8, OR5, OR4 and OR15. **Not commenced.**	Low cost, High feasibility, High benefit.		2140m. (1900m)	Short term. Upfront cost = $6300, Yearly maintenance = $1900. Upfront cost = $5500, Yearly maintenance = $1400).
OR15 – Butler Street (priority is Mann Street to Dumaresq Street)	Advisory symbols PS **Not commenced.**	Low cost, High feasibility, High benefit.		980m	Short term. Upfront cost = $2875, Yearly maintenance = $960.
OR18 – Allingham Street, Mossman St to Dumaresq Street	Advisory symbols PS **Not commenced.**	Low cost, High feasibility, High benefit.		1100m	Short term. Upfront cost = $2875, Yearly maintenance = $960.

Off Road (SP) Routes					
SP11– Erskine Street to Ash Tree Drive, From Erksine St north of Northcott to west end of Ash Tree Dr. With Northcott St advisory pavement symbols, connects Creeklands Cycleway to North Hill – UNE via Duval St route.	Off road path. **Not Commenced**	Medium cost, Medium feasibility, Medium benefit.	Potential for construction with future development of 215A Erskine Street. Part currently subject of Contributions Plan No. 4/1993 Northcott Street and Munro Street footpaths.	285m	Long term, *(estimate for complete works, if constructed now, is approx.* $53,000). Approximately $14000 in developer contributions received to date. Total projected contributions for both footpaths is $31,180.
SP2 – Stage 2 From Canambe St. (and Box Hill Drive intersection) to Cookes Rd, south of Macdonald Drive with some short links from proposed S.P. to Macdonald Drive……	Off road path. **Not Commenced** Co-contribution funding has been sought from RTA. Residential subdivision investigations in progress for land east of Cookes Road (as per Resolution 128/11) for contributions plan (to be formulated by Council Planning staff).	High cost, High feasibility, High benefit.	Expectation is that Council will need to budget for construction of this segment, although portion of costs may be recouped in the future via contributions plan as development of land east of Cookes Road eventuates.	1050m (approx.)	Long term, *(estimate for complete works, if constructed now, is approx.* $274,000)
SP41 - Scholes Road From Harden Street to Link Road, via underpass of the N.E. Highway	Off road path. **50% Completed** Co-contribution funding of 50% from the RTA has enabled for partial construction to be completed up to the overpass	High cost, High feasibility, High benefit.	Completion of works scheduled for 2011/12. Subject to Contribution Plan 1/1996 Link Road and Scholes Road shared paths.	780m (total length.)	Short term, *(estimate for complete works, if constructed now, is approx.* $267,000 plus $55,000 for 5 solar lights

Table 4 (cont.): All proposed 'Regional' Class Cycleways – On and Off Road

Appendix 6

Table 5: All Local Category Routes.

A Summary of Proposed On Road (OR) and Off Road (SP) paths for future Works Planning.

Table 5: All proposed 'Local' or sub-regional Routes summary

On Road (OR)					
OR12 – Lynches Rd - Lynches Rd, Perrott St/Kellys Plains Rd to Braund St: (PS-2). - Lynches Rd, from Braund St. to Taylor St.: (O.R.P.)	Advisory symbols PS-2 **Not commenced.**	Low cost, Low feasibility, Low benefit.	To be discussed with B.S.C. for determination of hierarchy. (note – conditional on residential development and development contributions in future).	460m	Short term. Upfront cost = $1430, Yearly maintenance = $500.
OR13 – Kentucky Street	Advisory symbols PS **Not commenced.**	Low cost, Low feasibility, Low benefit.	To be discussed with B.S.C. for determination of hierarchy.	1800m	Short term. Upfront cost = $5280, Yearly maintenance = $1760.
OR14 – Kennedy Street	Advisory symbols PS **Not commenced.**	Low cost, Low feasibility, Low benefit.	To be discussed with B.S.C. for determination of hierarchy.	2900m	Short term. Upfront cost = $8500, Yearly maintenance = $2800.
OR16 – Glass St, from Markham St and Donnelly Street roundabout to Blake St	Advisory symbols PS **Not commenced.**	Low cost, Low feasibility, Low benefit.	To be discussed with B.S.C. for determination of hierarchy.	1030m	Short term. Upfront cost = $3020, Yearly maintenance = $1000.
OR17 – Northcott St	Advisory symbols PS **Not commenced.**	Low cost, Low feasibility, Low benefit.	To be discussed with B.S.C. for determination of hierarchy.	360m	Short term. Upfront cost = $1100, Yearly maintenance = $370.
OR18 – Miller St, from Bundarra Rd to Kentucky Street	Advisory symbols PS **Not commenced.**	Low cost, Low feasibility, Low benefit.	To be discussed with B.S.C. for determination of hierarchy.	206m	Short term. Upfront cost = $550, Yearly maintenance = $200.

Off Road (SP)					
SP41 From end of SP2 (Stage 2) on Cookes Rd to Grafton Rd, intersecting with SP2 (Stage 6)……	Off road path. **Not Commenced** Co-contribution funding has been sought from RTA. Residential development investigations in progress. Note – Bridge reconstruction works for Cookes Rd.	High cost, High feasibility, High benefit.	Development design plans to be submitted.	980m (approx.)	Long term, *(estimate for complete works, constructed now is approx. $392,000)*
SP2 – Stage 3 East of Cookes Rd, from end of SP2 (Stage 2), into future residential area. Path to be constructed within proposed subdivision either as a shared path immediately adjacent to suitable road carriageway (within road reserve) and/or adjacent to Dumaresq Creek within riparian zone of dedicated open space (<u>northern side only</u>). Path to continue on to northern side of Dumaresq Creek only, with alignment to Tombs Road……	Off road path. **Not Commenced** To be constructed as part of the proposed subdivision (as it occurs) as per adjacent description. Thus, there would be no requirement for a contribution – either Sec. 94 or RTA as it would be developer funded. There is no Council resolution for a Contributions plan for this section of Shared Path.	High cost, High feasibility, High benefit.	Development design plans to be submitted. Proposed cycleways to be constructed as part of subdivisional works (ie as respective works occur), as per detailed (proposed) works in - Description and Proposed Treatment column (adjacent). Thus, no requirement for a Contributions Plan to be prepared.	900m (approx.)	Long term, *(estimate for complete works, if constructed now, is approx.* $180,000)

SP2 (Stage 4) – Tombs Rd From southern side of Dumaresq Creek, opposite SP2 (Stage 3), along Tombs Rd (on eastern side), within a dedicated, 10m wide, (closed) crown road corridor, to the Grafton Rd intersection, (as per condition 29 of DA 19-2009, which requires a shared path from the proposed subdivision entrance (on Tombs Road) to Waterfall Way (Grafton Rd), and then west (along the northern side of Waterfall Way) to Cookes Road, with construction subject to development occurring).	Off road path. **Not Commenced** Co-contribution funding has been sought from RTA. At this stage, no Council resolution for the formulation of Developer Contribution plans, however, consideration should be given to preparation of contributions plans for SP2 and SP41 south of Dumaresq Creek. Further discussion required amongst B.S.C. – see also CP 1/1993.	High cost, High feasibility, High benefit.	Development design plans to be submitted. (See condition 29 of DA-19-2009 which requires for a shared path from the proposed subdivision entrance (on Tombs Road) to Waterfall Way, and then west (ie along the northern side of Waterfall Way) to Cookes Road. Construction is subject to development occurring.	470m (approx.)	Long term, *(estimate for complete works, if constructed now, is approx.* $175,000)
SP2 (Stage 5) – Waterfall Way (Grafton Rd) - Tombs Rd. to Cookes Rd. to Canambe St. *(Northern side of Waterfall Way from Tombs Rd to Cookes Rd, and then crossing Waterfall Way, and continueing along the southern side of Waterfall Way between Cookes Rd. and Canambe Street).*	Off road path. **Not Commenced** Co-contribution funding sought from RTA. Developer Contributions will be required from developer of land adjacent to Tombs Rd.	High cost, High feasibility, High benefit.	(See condition 29 of DA-19-2009 which requires for a shared path from the proposed subdivision entrance (on Tombs Road) to Waterfall Way, and then west (ie along the northern side of Waterfall Way) to Cookes Road. Construction is subject to development occurring. Note that a part funding request has been made to RTA.	960m (approx.), plus road crossing.	Long term, *(estimate for complete works, if constructed now, is approx.* $236,000)

SP3 (Stage 1) – Canambe St. From SP2 (Stage 2) on Northern side of Dumaresq Creek, south towards, and across, Dumaresq Creek, to Donnelly Street (East) intersection……	Off road path. **Not Commenced** Co-contribution funding has been sought from RTA.	High cost, Low feasibility, Medium benefit.	At this stage, no Council resolution for the formulation of Developer Contribution plans, however, consideration should be given to preparation of contributions plans for SP2 and SP41 south of Dumaresq Creek. Further discussion required amongst B.S.C. – see also CP 1/1993.	325m (approx.)	Long term, *(estimate for complete works, if constructed now, is approx.* $140,000)
SP3 (Stage 2) – Box Hill Drive From Erskine St. and Box Hill Drive intersection, along Box Hill Drive to Rockvale Rd……	Off road path. **Not Commenced**	High cost, Low feasibility, Low benefit.	The feasibility of preparing a developer contributions plan to be investigated.	1280m	Long term, *(estimate for complete works, if constructed now, is approx.* $240,000)
SP4 – Alahna Drive From end of Alahna Drive, Tancredi St., Golgotha St., Niagara St., Ohio St., O'dell St. Adjacent to Creeklands cycleway……	Off road path. **Not Commenced**	High cost, Low feasibility, High benefit.	The feasibility of preparing a developer contributions plan to be investigated.	950m	Long term, *(estimate for complete works, if constructed now, is approx.* $175,000)
SP5 – Dumaresq St etc Dumaresq St + Butler St. intersection, Markham St., Beardy St., to Jessie St.	Off road path. **Not Commenced**	High cost, Low feasibility, High benefit.	The feasibility of preparing a developer contributions plan to be investigated.	650m	Long term, *(estimate for complete works, if constructed now, is approx.* $163,000)
SP6 – Bona Vista Rd and Kearney St. From Kellys Plains Rd.	Off road path. **Not Commenced**	High cost, Low feasibility, High benefit.	The feasibility of preparing a developer contributions plan to be investigated.	850m	Long term, *(estimate for complete works, if constructed now, is approx.* $160,000)

SP7 – Miller St. to Butler St., via Barry St. Miller St. to Butler St. via Barry St.	Off road path. **Not Commenced**	High cost, Low feasibility, Low benefit.	The feasibility of preparing a developer contributions plan to be investigated.	980m	Long term, *(estimate for complete works, if constructed now, is approx.* $180,000)
SP9– Kelly's Plains Road – extension of existing AC Shared path from Translator Road to Platform Road.	Off road path. **Not Commenced**	High cost, Low feasibility, Medium benefit.	The feasibility of preparing a developer contributions plan to be investigated.	2340m	Long term, *(estimate for complete works, if constructed now, is approx.* $430,000 to $470,000).
SP10 – Boorolong Rd, Rowlands Rd and Old Inverell Rd	Off road path. **Not Commenced**	High cost, Low feasibility, Low benefit.	The feasibility of preparing a developer contributions plan to be investigated.	2860m	Long term, *(estimate for complete works, if constructed now, is approx.* $343,000-$500,000, dependent on subgrade quality).

Table 5 (cont.): All proposed 'Local' or sub-regional Routes summary

Appendix 7

Table 6: Scenic (or Recreational) Category Routes.

A Summary of Proposed On Road (OR) and Off Road (SP) paths for future Works Planning.

Table 6: All proposed 'Scenic' (or Recreational) Class Cycleway Routes summary

Rural (on-road) route improvements	Sealed shoulders (both sides) are proposed for crest/sag locations with poor sight distance, enabling cyclists to veer to lane edge or sealed shoulder for safety and allow for motor vehicle traffic flow.				
Dangarsleigh Rd		To Dangars Falls Rd			
Boorolong Rd		To Dumaresq Dam Rd			
Bundarra Rd		To LGA boundary			
Waterfall Way		Intersection of New England Highway to O'Connor Rd - along northern lane			
Kellys Plains Rd		To Platform Rd			
Gostwyck Rd		Knobs Rd to Dangarsleigh Rd			
Castledoyle Rd		Mann St to Blue Hole Rd intersection			

Appendix 8

Table 7: Proposed Works Various

- Short links between Regional and Local classified Cycleways,
- Connectivity between existing Cycleways,
- Miscellaneous.

Table 7: All proposed Short Links, Connectivity Links, etc summary

Secondary Routes Ie short links to existing Off Road routes. Construct short shared path to link Creeklands cycleway with:					
SP19 Elm Ave at intersection with Meredith Rd.	Not commenced.	Medium cost, Low feasibility, Low benefit.		150m	Short term works, Approx. cost of 2.5m wide shared path = $26,500.
SP20 Martin St. (at northern end)	Not commenced.	Medium cost, Low feasibility, Low benefit.		105m	Short term works, Approx. cost of 2.5m wide shared path = $18,350.
SP21 Bain Cr. (at northern end)	Not commenced.	Medium cost, Low feasibility, Low benefit.		80m	Short term works, Approx. cost of 2.5m wide shared path = $14,500.
SP22 McIntosh Crescent, at northern end.	Not commenced.	Medium cost, Low feasibility, Low benefit.		70m	Short term works, Approx. cost of 2.5m wide shared path = $12,500.
SP23 Hiddens Street (at northern end)	Not commenced.	Medium cost, Low feasibility, Low benefit.		129m	Short term works, Approx. cost of 2.5m wide shared path = $32,000, incl. four kerb ramp modifications.
SP24 Tysoe Cr. (at western end)	Not commenced.	Medium cost, Low feasibility, Low benefit.		55m	Short term works, Approx. cost of 2.5m wide shared path = $11,000.
SP25 P.G. Love Ave. (at western end)	Not commenced.	Medium cost, Low feasibility, Low benefit.		95m	Short term works, Approx. cost of 2.5m wide shared path = $17,500.

SP26 Butler St., (north), at southern end.	**Not commenced.**	Medium cost, Low feasibility, Medium benefit.	Reconstruct existing pedestrian path to 2.5m wide shared path standard, and connect to roadway via suitable kerb ramp.	55m	Short term works, Approx. cost of 2.5m wide shared path = $7500.
SP28 Dumaresq Street, east to western edge of Belgrave Cinema, to new parking area.			Remove proposed short link and replace with on road treatment with PS-2 symbols on Dumaresq Street	95m	Short term works, Approx. cost of 2.5m wide shared path = $17,500.
SP29 Donnelly St., at eastern end.	**Not commenced.**	Medium cost, Medium feasibility, Medium benefit.		50m	Short term works, Approx. cost of 2.5m wide shared path = $8750.
SP30 Jeffery St., at eastern end.	**Not commenced.**	Medium cost, Low feasibility, Medium benefit.		92m	Short term works, Approx. cost of 2.5m wide shared path = $16,500.
SP31 Newton St., at eastern end.	**Not commenced.**	Medium cost, Low feasibility, Medium benefit.		185m	Short term works, Approx. cost of 2.5m wide shared path = $33,000.
SP32 Centennial Close, at western end.	**Not commenced.**	Medium cost, Low feasibility, Low benefit.	Due to having to acquire land for placement of shared path, minimal likelihood of this works proceeding. Adjacent short links to cycleway can provide all suitable connectivity. Remove this from strategy	40m	Short term works, Approx. cost of 2.5m wide shared path = $7500, plus costs of land acquisition.
SP33 Edwards St to Claude St, and Claude St. to Creeklands cycleway.	**Not commenced.**	High cost, Low feasibility, Low benefit.		Total length of approx. 140m	Short term works, Approx. cost of 2.5m wide shared path = $25,200, plus bridging over Dumaresq Creek

Short links between roads (ie reconstruct existing pedestrian only paths (of approx. 1.2m width) to a Shared Path (of 2.5m width).					
SP34 MacDonald Drive to Eleanor Close (between No. 31 and 33 MacDonald Drive and No. 11 and 13 Eleanor Close).	**Not Commenced**	High cost, Low feasibility, Low benefit.	Existing concrete pedestrian path of 1.2m width, situated midway between a 3.0m dedicated open space corridor between residential properties. To place a 2.5m wide shared path would necessitate the temporary removal of both property boundary fencing to accommodate plant for construction, and replacement on completion of works. Difficulties would exist in addition of two segments of concrete adjacent to existing concrete path.	90m	Approx. $50,000
SP35 Kirkwood St to Dumaresq St (between Danger and Markham Streets)	**Not Commenced**	High cost, Medium feasibility, High benefit.	Existing earthen path to be reconstructed to a shared path of say granular pavement and AC surface. Bridging works ie culverts etc will be required over Dumaresq Creek	200m	Approx. $36,000, plus bridging works over Dumaresq Creek.
SP36 Butler Street, from Mann St. to Railway Parade, via bicycle accessible pedestrian crossing. Pedestrian and cycle crossing over railway lines…….. Shared Path through Watson Park..	**Not Commenced**	Medium cost, Low feasibility, High benefit.	Approvals required from ARTC.	55m 270m	Approx. $6300 for shared path, plus railway crossing works. $40,500

SP37 Murray Ave to Catherine St. to Napier Court to Butler St. to Kentucky St. across Arboretum, to Armidale High School (including new link to west end of Catherine St.)	**Not Commenced**	High cost, Low feasibility, Low benefit.	No formed pedestrian footpath currently exists – will require construction of new granular pavement and AC surfacing to Shared path standards and widths.	440m	Approx. $79,200
SP38 Galloway St to Kentucky St., across Arboretum.	**Not Commenced**	High cost, Low feasibility, Low benefit.	More advantageous to combine with SP37 above.		
SP39 Bishop Crescent to Nathaniel Pidgeon Close	**Not Commenced** Existing concrete pedestrian path of 1.2m width, situated midway between a 3.0m dedicated open space corridor between residential properties.	High cost, Low feasibility, Low benefit.	To place a 2.5m wide shared path would necessitate the temporary removal of both property boundary fencing to accommodate plant for construction, and replacement on completion of works. Difficulties would exist in addition of two segments of concrete adjacent to existing concrete path.	110m	Approx. $40-50,000
SP40 Cunningham Court to Kilkenny Close to Carlow Close to Winifred Place to Merino Terrace.	**Not Commenced**	High cost, Low feasibility, Low benefit.	Combination of existing concrete pedestrian paths to be reconstructed to shared path standard, in conjunction with open space areas that will require construction of new shared paths.	Approx. 490m	Approx. $85,750
SP42 Erskine Street to Taylor Street, from the North St and Erskine Streets intersection and connecting to existing off-road shared path at Merinda Place.	**Not Commenced**	High cost, Medium feasibility, Medium benefit.	Proposed shared path through open space, and adjacent to existing drainage channel, with connections to existing roadways and cul-de-sacs.	Approx. 480m	Approx. $75,750

Table 7 (cont.): All proposed Short Links, Connectivity Links, etc summary

Appendix 9

Table 8: Improvements and upgrades of existing cycleways and infrastructure.

Table 8: All proposed Improvements and upgrades of existing Cycleways and Infrastructure

Imrovements to Existing Creeklands Cycleway					
SP14 – Elm Ave., Niagara and Markham Streets	**Construct new road crossing points.** **75% complete**	Low cost, High feasibility, Medium benefit.	Place pedestrian refuges at either side of Elm Ave crossing, in conjunction with signage and linemarking. (Elm Ave is a No Stopping zone, of 7.5m carriageway width). Niagara St pedestrian refuges, signage and linemarking was placed in 1999. Markham St crossing (refuge, signage and linemarking) has also been placed.		Approx. $7500
SP17 – Butler St	**Improve drainage of Butler St. branch.** **Not Commenced**				
SP18 – Niagara St. west, McIntosh Cres., Markham St. west, Butler St. south, Douglas St. east, Erskine St. south.	**Re-align path to remove unnecessary curves.** **Not Commenced**	Medium cost, Low feasibility, Low benefit.	To be discussed with BSC. Existing alignment is parallel to and adjacent Dumaresq Creek. This alignment provides a suitable connection to creekland for recreational bicyclists and pedestrian users, and should be retained. Consideration should be given to removing this construction item from strategy.	Niagara St. and McIntosh Cr. segment = 175m…	Approx. cost for 2.5m shared path = $31,500

Older sections of Creeklands Cycleway	Much of the existing (central) shared path was constructed in the early 1980's period, over a clay subgrade. Pavement quality is difficult to ascertain without further geotechnical investigations, however, assumptions are that inferior quality pavement materials exist. Rehabilitation of the existing pavement surfacing has been carried out intermittently with Asphaltic Concrete overlays.		Long term rehabilitation of the shared path would involve replacement with a quality granular pavement and AC surfacing, or full depth concrete, with associated drainage, surface markings etc.		Approximate costings – see appendix 'A' for Net Present Value summaries in Strategic Management Group (SMG) submission for SP2.
Imrovements to other Existing Cycleways					
Kellys Plains Road - Shared Path	Constructed in the mid-90's under a unskilled/ unemployed scheme. Works were generally unsupervised, and indications of a quality pavement are difficult to confirm. Most of the underlying subgrade is comprised of heavy clay. Failures in the existing path are prevalent. Rehabilitation is warranted, with either replacement by concrete or AC surfaced quality granular pavement, with suitable drainage, lane delineation and signage and markings.		Approximate costings – see Net Present Value summaries in Strategic Management Group (SMG) submission for SP2.	Approx. 1300 to 1400m	(For a replacement granular pavement and AC wearing course, approx. cost of $15,000 per 100m, or $210,000 for the total works from Lynches Rd to Translator Rd).
Parking facilities for Bicycles **Replace existing facilities:**					
PF1 Western end of Central Beardy St. Mall, (ie east of Dangar Street.		New Bike restraints have been placed at the western end of the Mall (ie Dangar Street end) recently.			

Table 8 (cont.): All proposed Improvements and upgrades of existing Cycleways and Infrastructure

Appendix 10

Table 9: Proposed cycleway Infrastructure to be constructed

including Bicycle Storage Racks etc

Table 9: Proposed Cycleway Infrastructure

Parking facilities for Bicycles **(i) Replace existing facilities:**					
PF1 East end of Central Beardy St. Mall, west of Faulkner Street.			To be replaced with similar bike restraints as have been placed at the western end of the Mall (ie Dangar Street end). 3 x semi-circular ring type or post and ring type units, cast fully into paving.		At approx. $500 per unit = $1500 per set of three storage units. With successful application to RTA for co-funding, this would cost Council $750 per storage facility.
(ii) Install new facilities					
PF3 Armidale Aquatic Centre, south of Dumaresq Street.					Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.
PF4 Belgrave Cinema, Dumaresq Street.			Would require consideration and approvals from Cinema owners.		Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.
PF5 near South-west corner of Jessie and Beardy Streets, ie with proximity to TAFE College.			Would require liason with TAFE for suitable storage facility – Bike Rack may be more appropriate.		Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.
PF6 Beardy St., between Marsh and Faulkner Streets.			Mid-block, northern side, at front of nose-in parking area		Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.

PF7 ADC Civic Administration building.					Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.
PF8 Wicklow Oval – at clubhouse west of Taylor Street, and north of intersection between Taylor and Douglas Streets					Approx $1500(with co-contribution from RTA) for a 3 x semi-circular ring layout.
PF9 Harris Park – at the toilet block south of Kirkwood Street			Bike Rack may be more appropriate.		Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.
PF10 Elizabeth Park – north and south of Dumaresq Creek			Bike Rack may be more appropriate.		Approx $1500 (with co-contribution from RTA) for a 3 x semi-circular ring layout.
PF11 Central Park – north of Tingcombe Lane			Bike Rack may be more appropriate.		Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.
PF12 Curtis Park – between Creeklands Cycleway and childrens playground, south of Dumaresq Creek.			Bike Rack may be more appropriate.		Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.
PF13 New England Regional Art Museum (NERAM), Kentucky Street.					Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.
PF14 Aboriginal Cultural centre, Kentucky Street.					Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.

PF15 Girraween Shopping centre – between QE Drive and service station etc			Bike Rack may be more appropriate.		Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.
PF16 Moore Street, closer towards Dangar Street.			Bike Rack may be more appropriate.		Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.
PF17 Near entrance to Woolworths supermarket, north of Rusden Street.	The businesses have changed in this area now, with a large liquor outlet and electrical goods retailer now occupying the site. Consideration could still be given to installing bicycle storage and security facilities.		Bike Rack may be more appropriate.		Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.
PF18 Near entrance to IGA supermarket on carpark north of Rusden Street.			Bike Rack may be more appropriate.		Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.
PF19 At front of Centro Shopping centre, at northwestern corner of intersection of Beardy and Jessie Streets.			Bike Rack may be more appropriate.		Approx $750 (with co-contribution from RTA) for a 3 x semi-circular ring layout.
Continuation of support of placement of security and storage facilities within ADC schools, technical and further education and university facilities.					

Table 9 (cont.): Proposed Cycleway Infrastructure

Appendix 11

Table 10: Cycleways and Cycleway Infrastructure to be removed

as a requirement of the Bike Plan 2011.

Table 10: Cycleways and Cycleway Infrastructure to be Removed

Existing (On Road) Bicycle Lanes to be removed		
EOR1 – East Armidale – UNE via Mann St, comprising various bicycle/parking lanes, including:		
Mann St. from Canambe to Douglas Streets… Douglas St, from Mann to Brown Streets … Brown St., from Douglas to Faulkner Streets……. Faulkner St., from Brown to Mann Streets…..…… Mann St., from Faulkner to Butler Streets……. Butler St., from Mann to Dumaresq Streets ……	Lane lines delineating dedicated Bicycle Lane, Parking and motor vehicle travel lanes, having being placed in the past, are to be removed or sealed over. Community reaction to the bike lanes includes that the lane widths for respective traffic allocation are considered too narrow and present as safety risks to cyclists. Alternative treatment to include On Road PS-2 Bicycle Rider Awareness symbols as shown on Bicycle Strategy map. Provision to be made for future trial of dedicated (On Road) Bicycle lane, with modifications to lane widths as per trial currently being conducted by Newcastle City Council.	
EOR3 Taylor St Taylor St. from Creeklands Cycleway to Brown Street….		
Part OR1 – Miller Street	On road Bicycle Awareness Symbols not placed along Miller Street from Bundarra Rd to McLenagan and Drew Streets. The area is zoned commercial, and a major component of the traffic comprises larger vehicles such as semi-trailers and heavy plant. The route would not be permitted under the *NSW Bicycle Guidelines – Separation of bicycles and motor vehicles according to traffic, speed and volume* guidelines.	

Appendix 12

Table 11: Armidale Bike Survey 2011 Counts

Table 11: Summary of Cyclist Counts (all Cycling transport modes including recreational and work commuting)

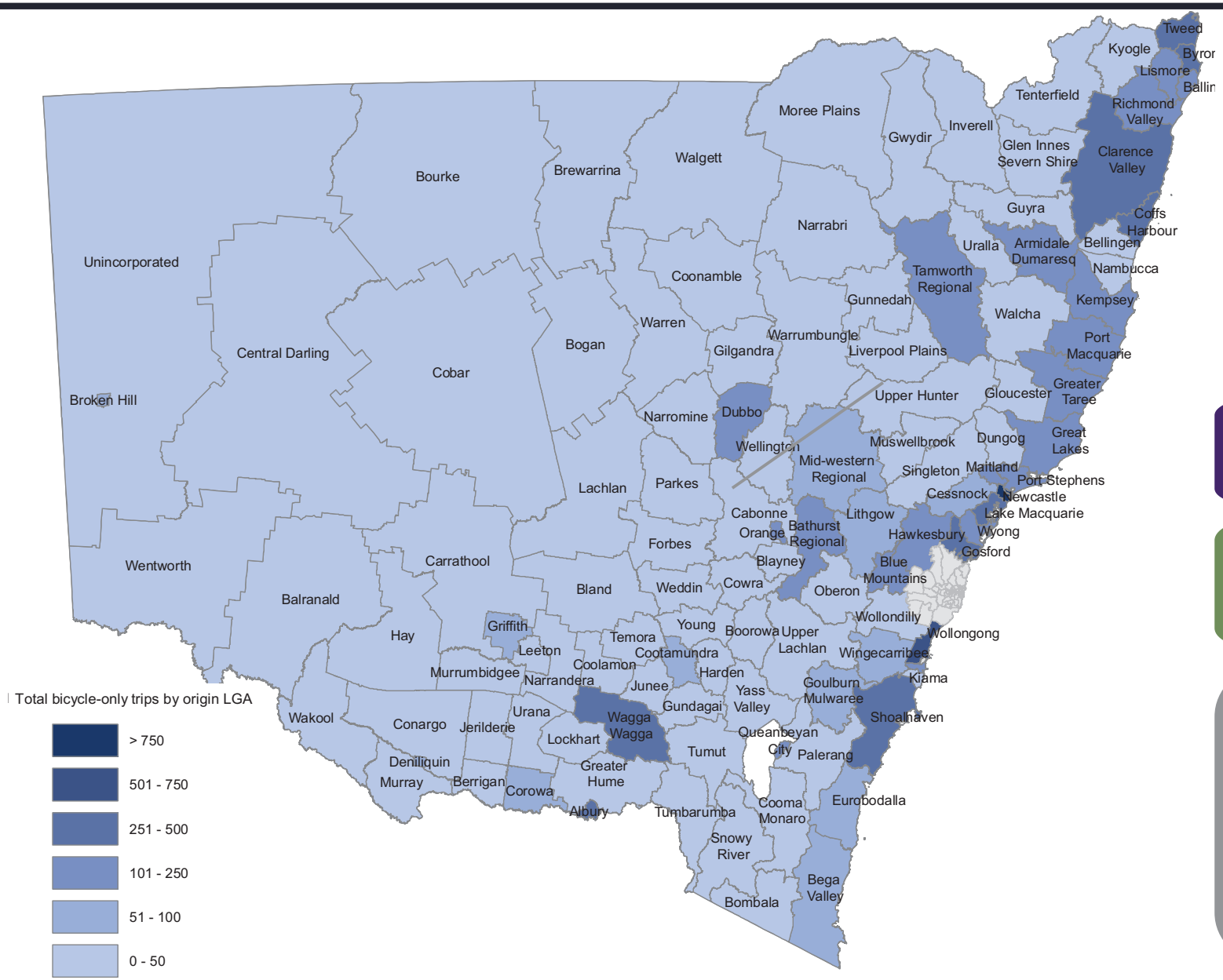
Site Details		Total number of cyclists				
		7.00am – 7.30am	7.30am – 8.00am	8.00am – 8.30am	8.30am – 9.00am	Total
Taylor Street and Creeklands Cycleway (Shared Path):	Taylor Street	2	3	3	4	12
	Creeklands Cycleway	3	5	5	2	15
Donnelly Street and Creeklands Cycleway/Shared Path locality	Donnelly Street	11	0	0	3	14
	Creeklands Cycleway	2	6	21	13	42
Markham Street and Dumaresq Street intersection	Markham St.	8	3	5	3	19
	Dumaresq St.	3	5	9	2	19
Rusden Street and Dangar Street intersection.	Rusden St.	2	4	3	0	9
	Dangar St.	1	3	2	0	6
Madgwick Drive and Cluny Rd Intersection	Madgwick Drive (to UNE)	6	2	4	4	16
	Madgwick Drive (from UNE)	0	0	0	0	0
	Cluny Rd	0	1	0	0	1
TOTAL		**38**	**32**	**52**	**31**	**153**

Appendix 13

Statistical Data on Numbers of Commuting Cyclists for each NSW Local Government Area,

(sourced from Premier's Council for Active Living report into Cycling in NSW, prepared by Parsons Brinkerhoff, Dec. 2008).

The LGAs with the highest levels of cycling to work in NSW are in inner Sydney and Newcastle



Worth noting:

More bicycle trips were reported in coastal LGAs and metropolitan Sydney.

Relevant data sources:

Australian Bureau of Statistics (ABS), 2006 Census Journey to Work, by Origin LGA.

About the data:

On Census day the highest-performing LGAs recorded over 750 bicycle trips commuting from homes in that LGA.

About these maps:

The data used to generate this map was sourced from the 2006 ABS census data. It is the number of persons per LGA who reported that their method of travel to work was 'One method: Bicycle.'

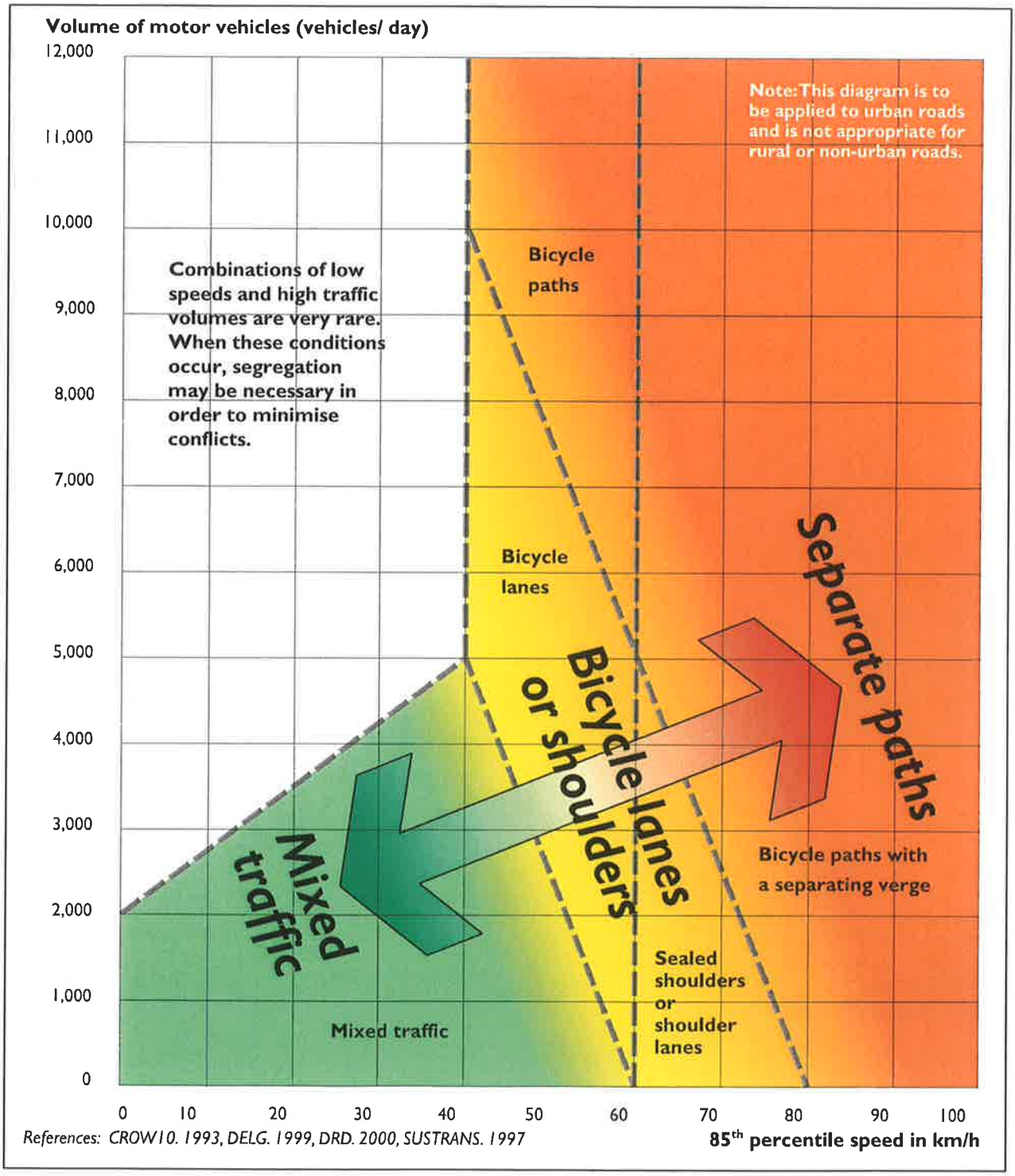
Other than Sydney, maps show absolute cycle trips rather than a rate of usage in order to highlight what are small numerical differences between LGAs.

Appendix 14

A table displaying the separation of Bicycles and motor vehicles according to traffic speed and volume

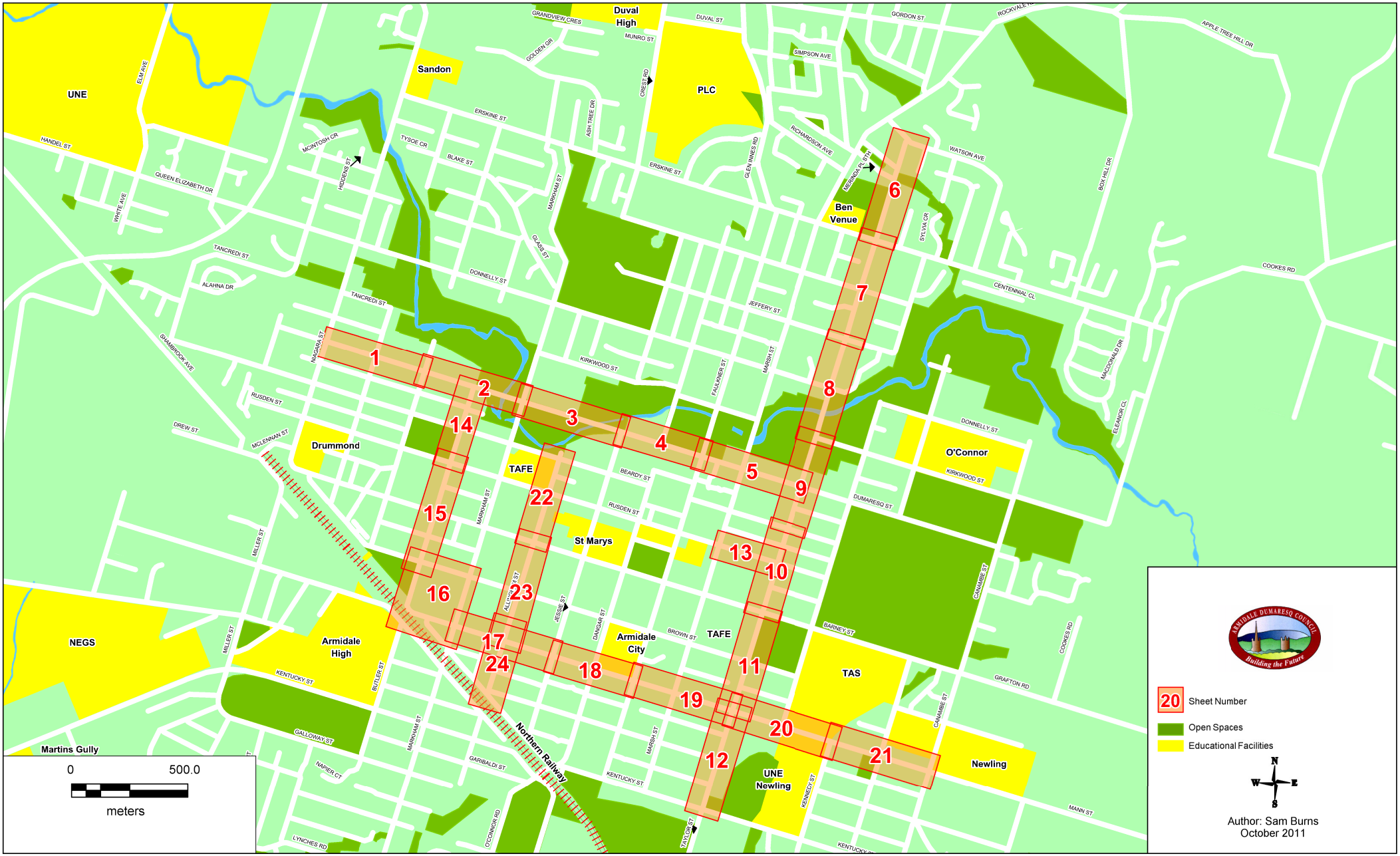
RTA NSW Bicycle Guidelines, 2010

Figure 3.2: Separation of bicycles and motor vehicles according to traffic speed and volume.

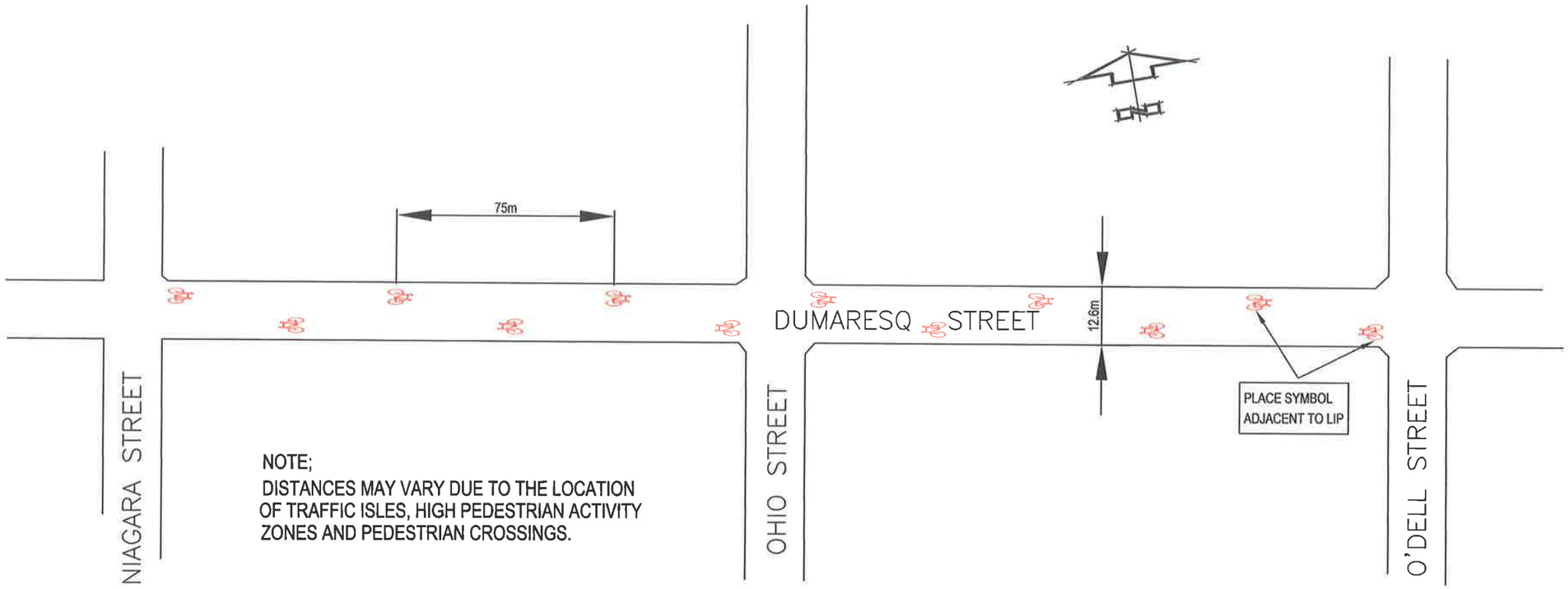


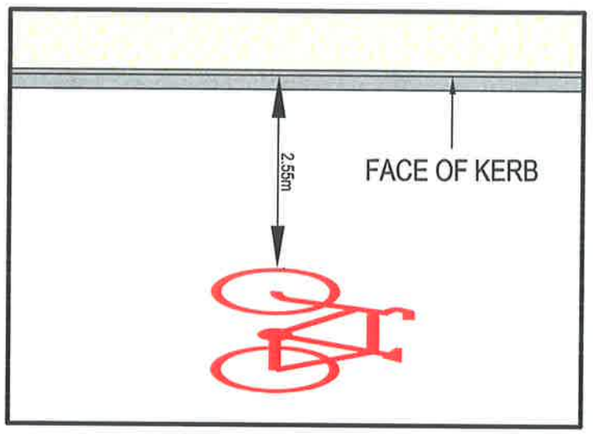
Appendix 15

Plan: PS-2 Bicycle Awareness Symbols to be placed on nominated cycle routes as shown in Mixed Traffic category for Armidale.



ARMIDALE DUMARESQ COUNCIL BICYCLE STATEGY 2011
PREFERED ON ROAD CYCLE ROUTES

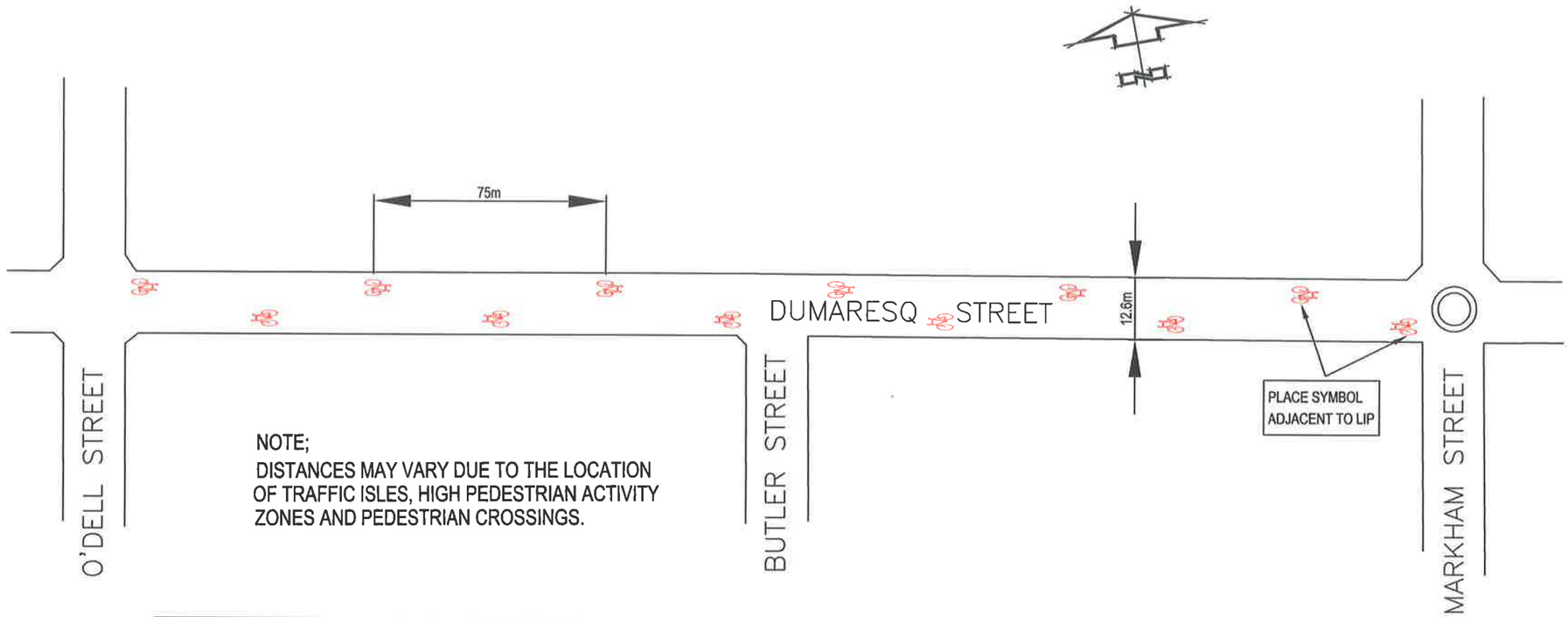




DUMARESQ STREET

NIAGARA TO O'DELL

SHEET 1



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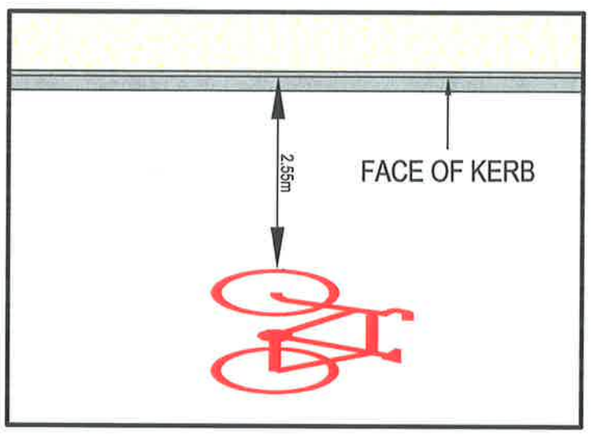
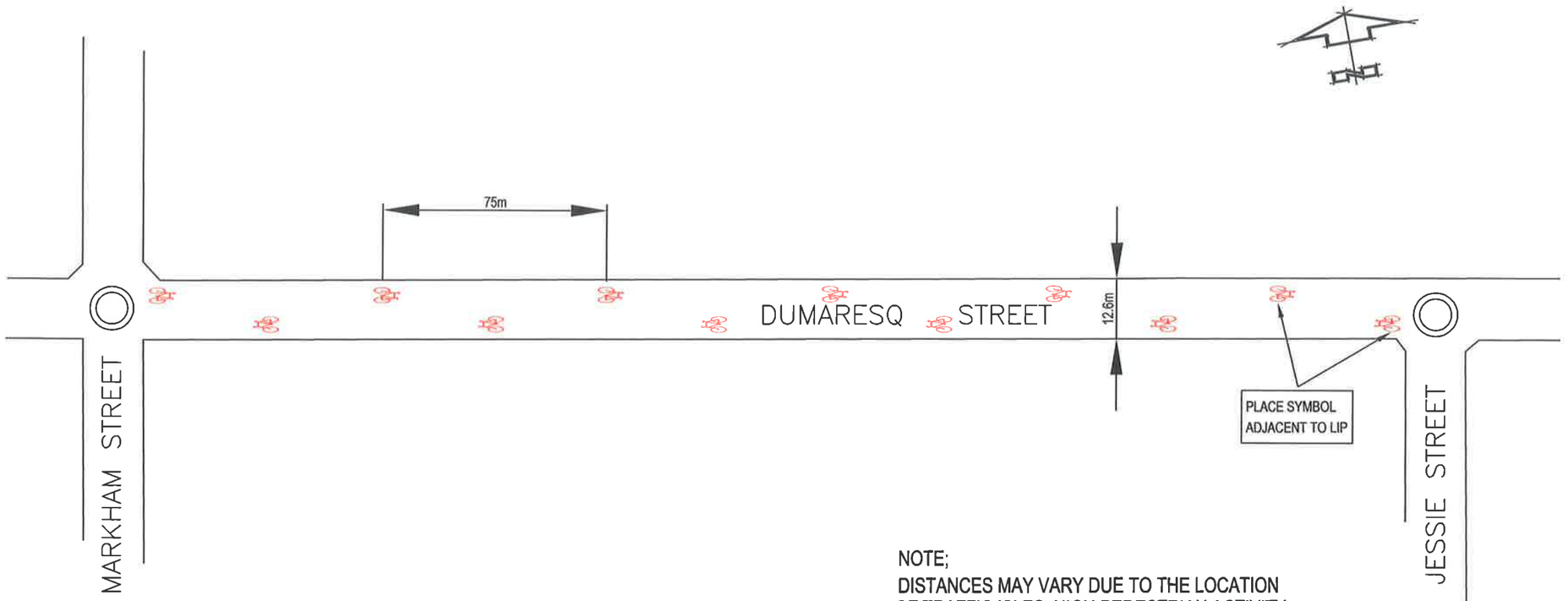


DUMARESQ STREET
O'DELL TO MARKHAM
SHEET 2



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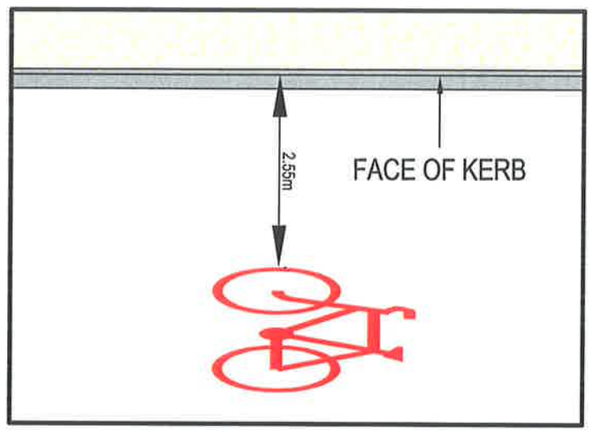
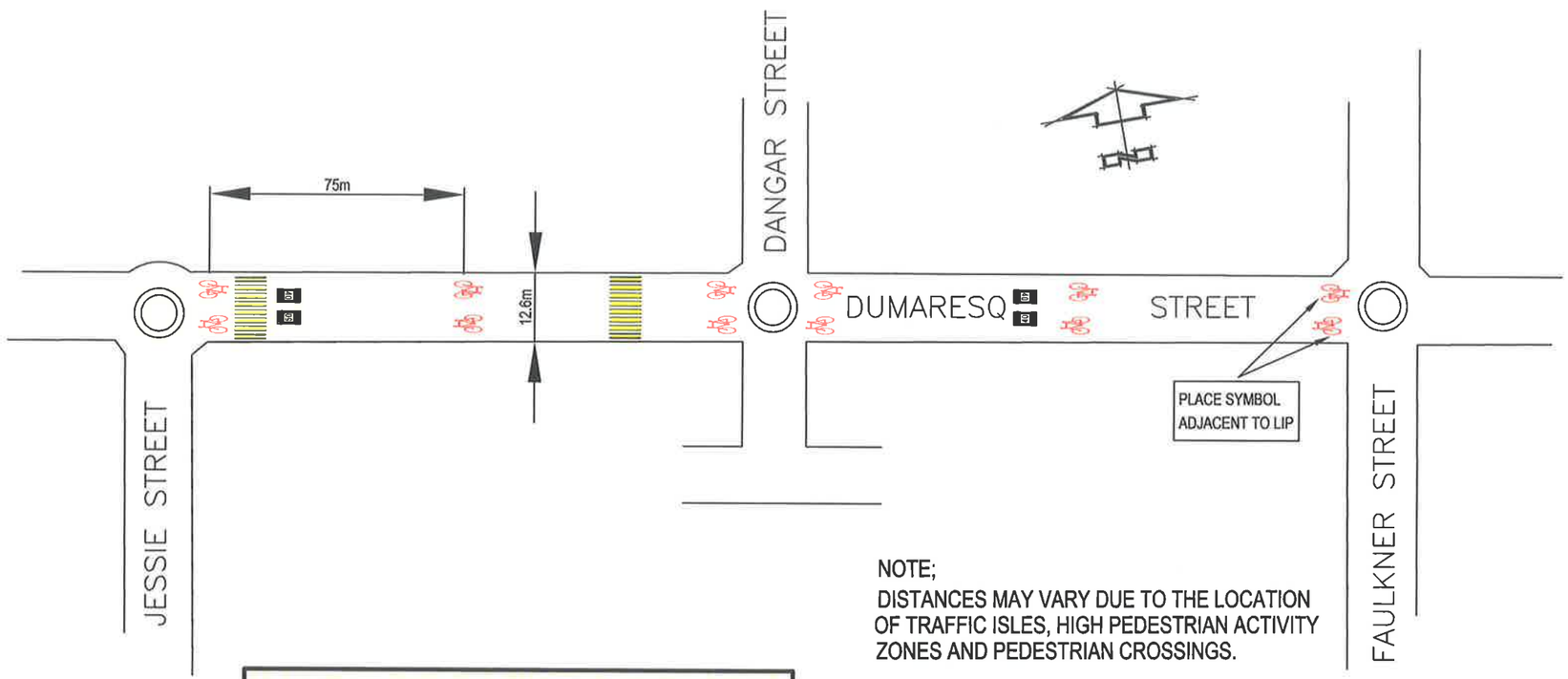


DUMARESQ STREET
MARKHAM TO JESSIE
SHEET 3



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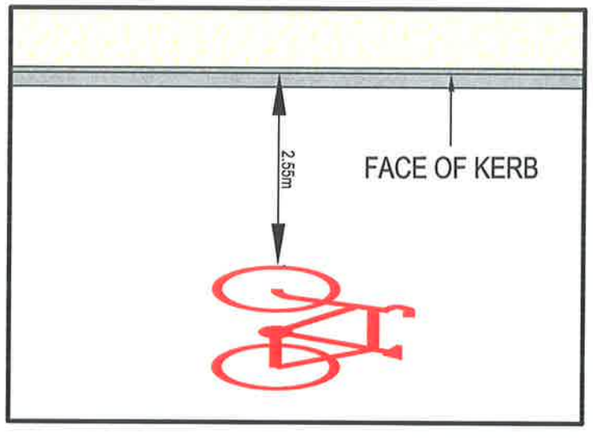
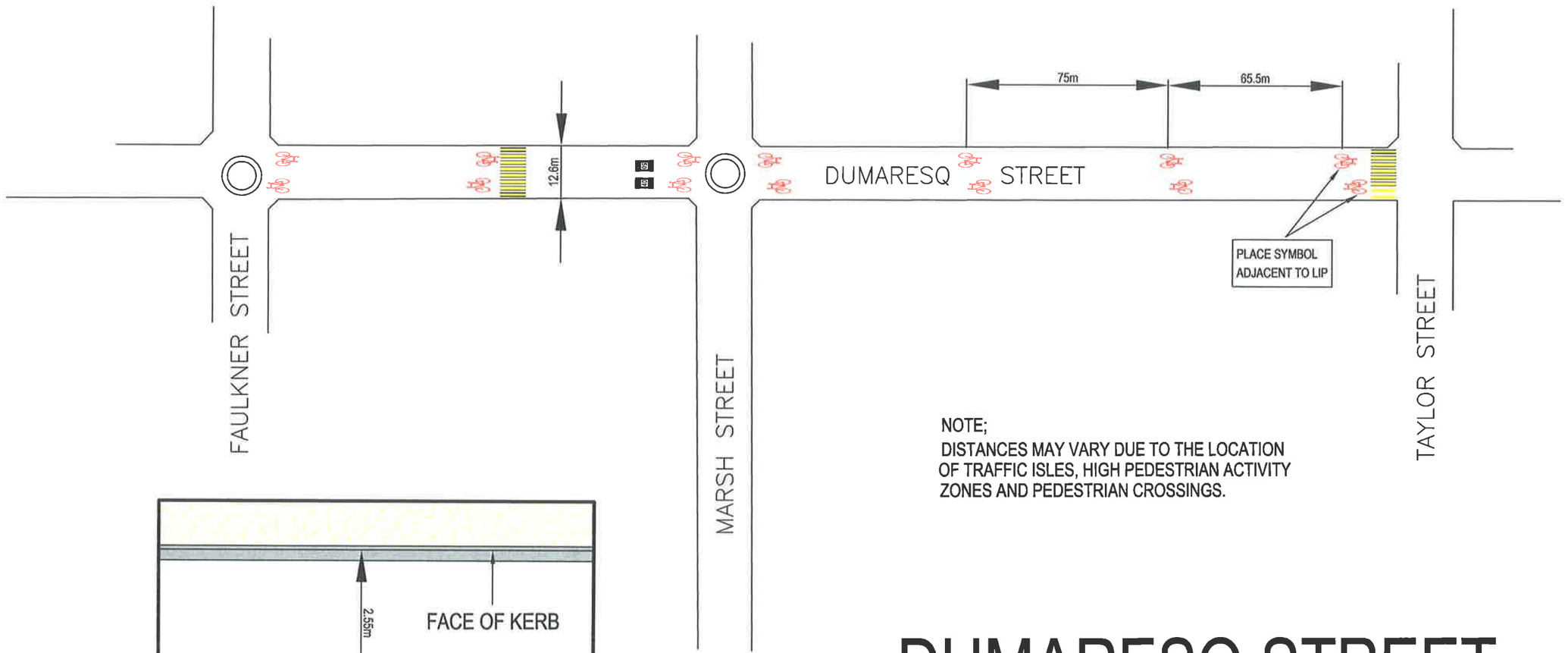


DUMARESQ STREET
JESSIE TO FAULKNER
SHEET 4



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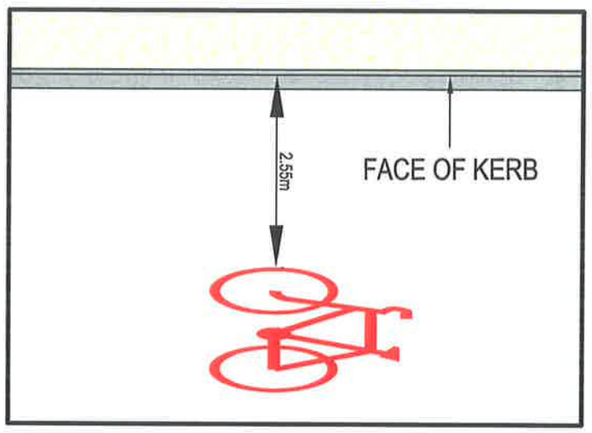
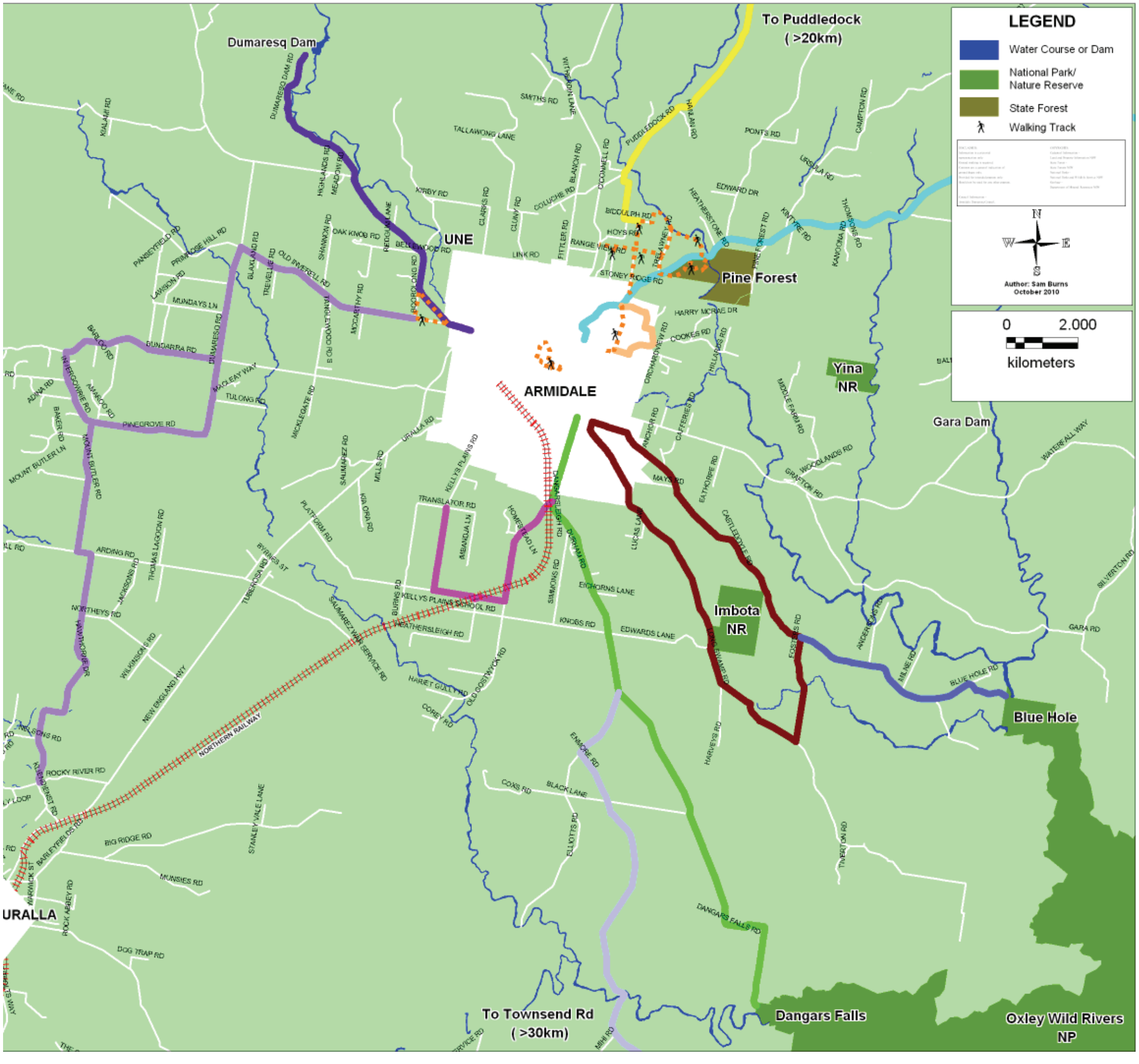


DUMARESQ STREET
FAULKNER TO TAYLOR
SHEET 5

Appendix 16

Detail Map for Urban and Rural Roadways, featuring existing cycleways, and cycling scenic and recreational routes

prepared for Sustainable Living Expo in 2010 and 2011.



ARMIDALE DUMARESQ RURAL MAP

Getting Started

- Practise riding off-road until you are competent and confident, can ride steadily with one hand while signalling and can check behind for following traffic without wobbling.
- Practise on-road on a quiet weekend day, checking out possible routes for your expected journeys.
- In some cases a less than direct route may be quicker if it avoids hills.
- A return journey may follow a different route.
- Set an achievable goal, i.e. ride to work one day a week.

Benefits of cycling

- Individual health benefits.
- Reductions in fossil fuel consumption and pollution.
- Reduction in transport costs.
- Less congestion in urban area and CBD carparks.
- Less parking problems – go straight to your destination.

What you need to know about cycling in the streets of Armidale

Bikes are legal vehicles on all roads and streets, hence you must obey the same road rules as all other road users.

All legal vehicles on the road are obliged to SHARE THE ROAD.

"*Drivers and cyclists must take joint responsibility and share the road. Just like motorists, cyclists are permitted to ride on the road. In doing so, however, cyclists are expected to obey the road rules, just as motorists are. Cyclists are legitimate road users who have an equal right to be on the road and motorists have a major role in making cycling enjoyable for recreation and commuting*". Source – Motorists and Cyclists Share The Road Campaign, Port Macquarie Hastings Council, March 2006.

As a cyclist, you must:

- Obey all road rules and traffic signs.
- Signal your intentions when turning.
- Ride with traffic on the left hand side of the road.
- Be mindful of all other road users by responding to road and traffic conditions.
- Wear high visibility clothing and correctly fitted approved helmet.
- Install a suitably mounted white light (steady or flashing) on the front of your bike, and a red light (steady or flashing) on the rear of your bike for use when visibility is poor. These lights must be visible for at least 200m. Your bike must also have a red reflector visible for at least 50m to the rear.
- When using a footpath or shared pedestrian/cycle path, keep to the left and give way to pedestrians.

As a vehicle driver, be aware that:

- Cyclists may be encountered at all places on the road network, and bikes are legal vehicles.
- Cyclists need to be at least one metre wide of parked cars to avoid injury from the opening of car doors.
- When turning left at an intersection, look for bikes, and don't cut in front of them.
- When approaching roundabouts, cyclists will position themselves in the middle of the traffic lane, in order to be visible to both following **and** approaching traffic.

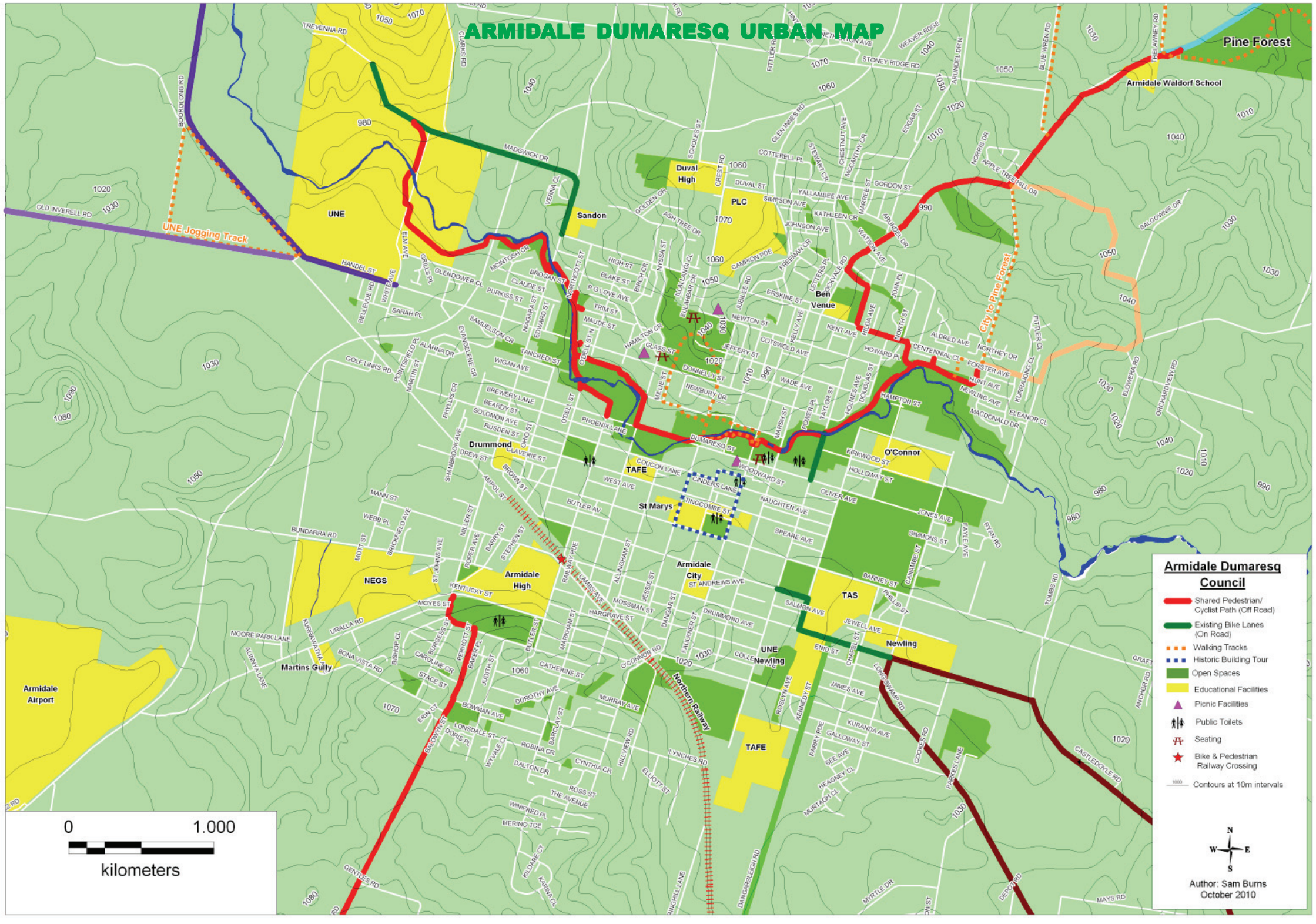
ALL road users should slow down at give-way intersections and roundabouts, and should look out for pedestrians, cyclists, motorcyclists and all other motor vehicles, AND BE PREPARED TO STOP COMPLETELY.

It is against the law for bicyclists to ride on footpaths, unless they are:

- Under 12 years of age.
- An adult 18 years or older supervising a child under 12 years old.
- Under 18 years old and riding with an adult who is supervising for a child under 12 years old.
- On a footpath that is for shared use by pedestrians and bicycle riders.
- On a designated bicycle path.

CYCLE CLUBS

New England Bicycle User Group - Phone: 6771 2360
Website: http://users.tpg.com.au/adsloy2k/nebug/
Armidale Cycling Club - Phone: 6772 3718 Website: http://www.armidalecyclingclub.org/
Armidale Triathlon Club - Website: www.armidaletriathlon.org
University of New England Mountaineering Club - www.une.edu.au/unemc/biking/
New England Mountain Bike Club - Phone: 0429 792 473 Website: http://www.nemtb.com.au/



Popular Bike Routes in and around Armidale

Popular bike rides nominated by the New England Bicycle User Group. For more information contact them by:

Phone: 6771 2360 Website: www.pushon.com.au.

- Dumaresq Dam Road (via Boorolong Road)
  A great ride, particularly after recent road reconstruction and sealing works.. It is about a 25km return trip from the centre of Armidale, undulating terrain, takes about 1 ½ hours for average riders to complete. Watch for traffic where sight distance is restricted.
- Pineforest & Armidale Northern Loop Walking tracks (via Rockvale Road).
  Access to walking tracks is via off road shared path adjacent to Rockvale Rd. in Northern Armidale. Path starts at Erskine St. and continues to Trelawney Rd. (approx. 4km in length). This is the start of the Southern Loop Walk, or, walk/ride along Blue Wren Rd (unsealed) to the Northern Loop Walk.Continue along Rockvale Rd. for approx. 15km to the Chandler Rd intersection for a more challenging ride.
- Apple Tree Hill Rd and Cookes Rd Bike Route (via Rockvale Road)
  A diversion from the Rockvale Rd Shared Path to the Apple Tree Hill Rd and Cookes Rd walking and bike route, of approx. 5-6km and returning to Armidale via Erskine St; gravel and sealed road sections, limited sight distance - care is required; scenic, undulating countryside, and passing by many small farms.
- Long Swamp Rd, Fosters Rd and Castledoyle Rd Loop
  A scenic bike route through mostly sealed roadways to the southeast of Armidale. Round trip of approx. 25km, with Fosters Rd being gravel.
  Popular route for the competitive bike riding scene including Armidale Cycle Club and Triathlon Club – see their websites for further details.
- Blue Hole, via Castledoyle Road
  A scenic bike route (75/25 sealed/gravel) to the east of Armidale. Popular picnic and walking tracks within Oxley Rivers National Park; round trip of approx. 30km, with some traffic, undulating terrain, sections of limited sight distance and loose gravel in parts.

- Dangars Falls, via Dangarsleigh and Dangars Falls Roads
  A scenic bike route (50/50 sealed/gravel) to the southeast of Armidale. Round trip of approx. 50km, with New England BUG describing the route as significant grades and some traffic– see their website for further details.
- Enmore Road via Dangarsleigh Rd
  A sealed route to the south of Armidale. Round trip of approx. 70km; small traffic volumes; undulating terrain; some sections of limited sight distance (caution warranted); close proximity (over gravel road) to significant landmarks such as Gostwyck Chapel and Deeargee Shearing Shed.
- Invergowrie via Bundarra Rd; Mt Butler Rd, Arding Rd, Hawthorn Close and Pinegrove Rd, Macleay Rd Loop. A sealed route to the west of Armidale. Round trip of approx. 30km; Bundarra Rd has larger traffic volumes, other roads of small traffic volumes; undulating terrain; some sections of limited sight distance (caution warranted); popular route for the competitive bike riders including Armidale Cycle Club – see their website for further details.
- Puddledock Rd from intersection of New England Highway.
  A sealed route to the north of Armidale. Round trip of approx. 40km; small traffic volumes; undulating to steeper terrain; some sections of limited sight distance (caution warranted); scenic route along farmland.

CAUTION – FOR ROADS RUNNING EAST-WEST , EARLY IN THE MORNING AND LATE IN THE AFTERNOON CAN BE UNSAFE FOR CYCLING DUE TO LOW SUN ON THE HORIZON.

ARMIDALE DUMARESQ COUNCIL BICYCLE STRATEGY PLAN

The current Bicycle Strategy was adopted by Council in 2004, and partially amended in 2007. A Bicycle Strategy Steering committee was formed in 2008 to assist Council in developing a new Bicycle Strategy that is due for completion in early 2011. The Action plan in the Strategy Plan will ensure new residential development proposals will increase the number of cycling and pedestrian routes within and around Armidale.

ARMIDALE DUMARESQ CYCLEWAYS

Cyclists thrive in Armidale

Appendix 17

Copy of online Bicycle Facility Defect Report

Bicycle Facility Defect Report

Location of bicycle facility or road defect

☐ Road ☐ Off-road path ☐ Other

Road or street name:

Suburb or locality:

_____

Precise location on Street or road: *(House number, nearby landmark, power pole number, intersecting road and distance from it)*:

_____

_____

_____

Side of road/path or travel or travel direction:

_____

Type of bicycle facility or road defect

☐ **Road surface** (pothole, surface roughness or cracking, loose gravel, linemarking, excessive lip on kerb ramp, etc)

☐ **Debris on the path or road** (glass, gravel, vehicle debris, fallen trees, overhanging branches etc)

☐ **Roadside/pathside furniture and fittings** (signs, guard fencing, holding rails, bridge railings, lighting etc)

☐ **Lights and crossings** (activation of traffic signals, visibility of lights, lamps not functioning etc)

☐ **Drainage** (water ponding, drainage grate, running water across path etc)

☐ **Squeeze points** (speed humps, chicanes, turn lanes etc)

☐ **Other –** please provide details below:

_____
_____
_____
_____
_____

Comments or Suggestions:

_____
_____
_____
_____

Defect reported by: **Date reported:** / /

Your name: _____
Address: _____
Locality/postcode:

_____
Email address:

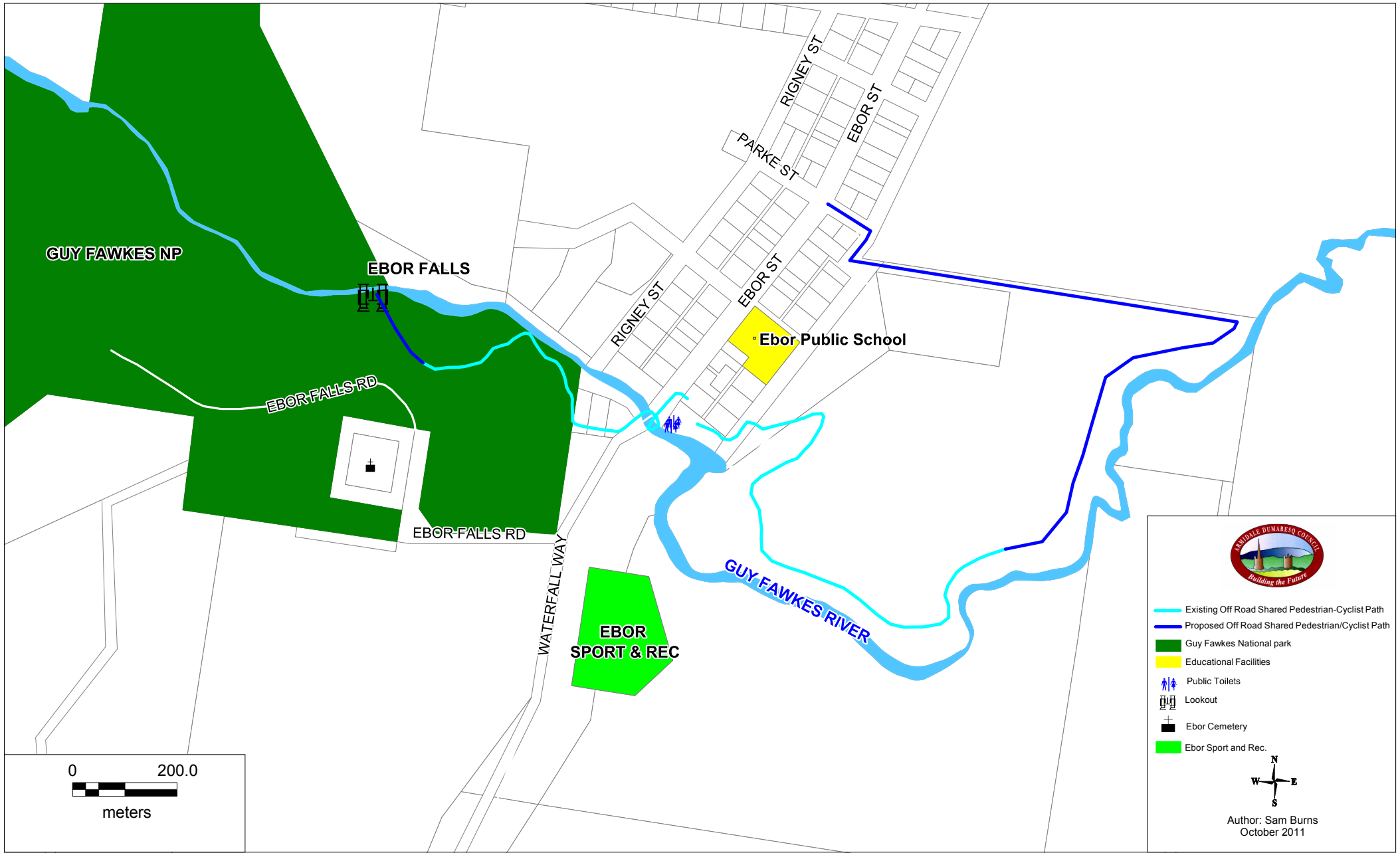
_____
Phone (H): ( ) _____ Phone (W) : ( ) _____

Send Completed Form To:

Armidale Dumaresq Council Fax: 02 6772 9275
Email: Council@armidale.nsw.gov.au

Appendix 18

Ebor – Plan of Existing and Proposed Cycleway/Pathways



ARMIDALE DUMARESQ COUNCIL BICYCLE STRATEGY 2011
EBOR - EXISTING AND PROPOSED PEDESTRIAN FOOTPATH AND CYCLEWAY NETWORK