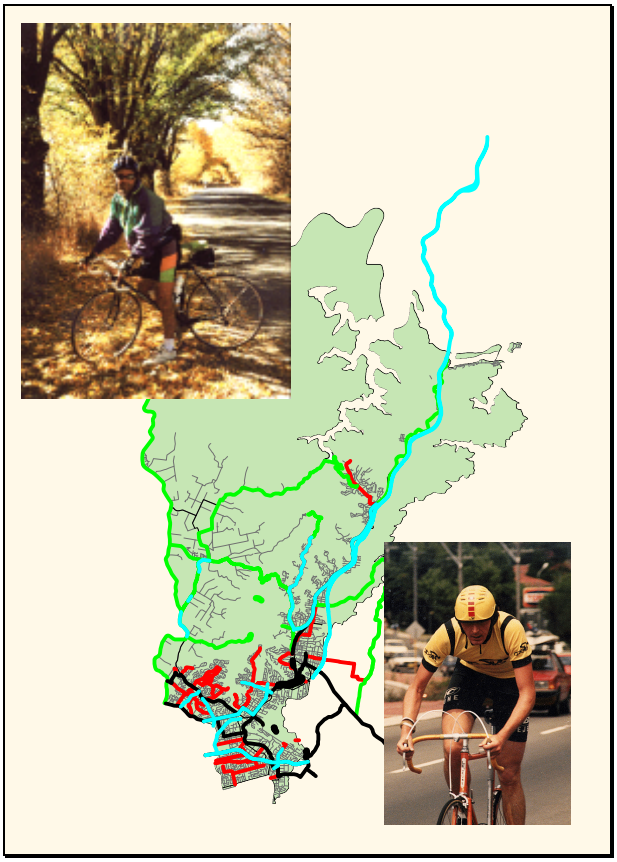
HORNSBY SHIRE COUNCIL



November 1998

Hornsby Bike Plan
Final Report

Sinclair Knight Merz Pty Ltd
A.C.N. 001 024 095
100 Christie Street
PO Box 164
St Leonards NSW
Australia 2065
Telephone: (02) 9928 2100
Facsimile: (02) 9928 2500

SINCLAIR KNIGHT MERZ

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FOREWORD

The Shire of Hornsby presents many unique opportunities for its residents, workers and visitors to enjoy a different cycling experience.

The 'Bushland' Shire has a fantastic array of natural wonders, mixed with rural and urban development that is unique in Sydney. No other local area provides this diversity of landuse and natural environment within Sydney.

The challenge facing Council in promoting "Better Bicycling" has been taken up by Council officers and local cyclists in an attempt to raise the general community's awareness of the benefits of bicycling as a form of transport as well as recreation.

AUSTROADS has recognised that inadequate attention has been given to cyclists (and pedestrians) in the past. Cycling was an important form of transport before 1960 in Australia. It has the potential to assist in improving urban air quality, health, public transport patronage and road traffic congestion. It is also recognised that the use of bicycles for short trips can help overcome pollution problems from cold motor vehicle starts.

Bicycle ownership is high at about one for every two people, and the bicycle is often used for recreational travel on many of the new bicycle paths emerging in our Australian cities.

The main problem with bicycle use is the matter of safety. Our users have asked through surveys for a better network of separate cycle paths. We believe such a network is necessary in Hornsby and indeed generally before there will be any significant increase in bicycle use for such things as short trips to school, recreation centres, sporting events and public transport stations.

The potential to increase the size of catchment areas for public transport stations and employment centres by providing much improved bicycle storage facilities at these locations is evident from overseas experience and community comments. Hornsby is just starting to see the benefit of this type of facility.

I commend the Hornsby Bike Plan Report to you as a framework to promote "Better Cycling" in our Shire. I look forward to receiving support from the wider community for its initiatives which are aimed at improving the "quality of life" in our "Bushland Shire".

Mark Waugh
Project Manager

Executive Summary

Hornsby Shire Council has made a commitment to providing "Better Bicycling". This report is the culmination of investigations that span almost ten years. Council first undertook to develop a comprehensive Bike Plan for the Shire in 1988.

The 1998 Hornsby Bike Plan builds on past experience.

The 1988 Draft Hornsby Bike Plan was in some ways ahead of its time. Ahead in terms of the general principles of modern urban design, which aims to promote better integration of land use and transport, with recognition given to alternatives to using the private motor vehicle.

The Draft 1998 Hornsby Bike Plan builds on the extensive work conducted already for Council. It includes updating of community attitudes towards cycling, as well as some fresh initiatives aimed at promoting more general use of bicycles.

Safety is essential to encourage more cycling.

SAFETY is of paramount importance. Without safe riding environments, only the experienced road cyclist will be seen on our streets. More general cycling activity will not occur.

CONTINUITY influences many cyclists choice of whether to ride or use alternative transport. The ability to provide this will be a factor in how well new facilities are received, and used.

Flexibility and continuity of facilities affects how they will be used.

FLEXIBILITY. Not all cyclists want to ride on "footpaths". Likewise, not all cyclists feel comfortable sharing road space with motor vehicles. Our approach has been to develop a series of parallel facilities that give cyclists a choice with which they are comfortable.

Promotion of the plan is essential.

"POSITIVE PROMOTION". The success or otherwise of this plan will depend on the level of commitment and exposure it receives within the wider community. This requires leadership in terms of education and selling of its basic principles.

Cycle Routes

We have developed a range of facilities, recognising the diversity of bicycle users. These are:

RTA Regional Routes - RTA nominated routes as part of an overall Sydney Region Cycling network. Routes are of varying standard.

Trunk Cycle Routes - Cycle routes of regional significance, performing as Principal Commuter routes and "collecting" cyclists from local precincts. Focus is on major attractors within the Shire such as railway stations and shops consistent with the principles of the RTA regional network.

Recreational Routes - Cycle routes which are recognised for their scenic qualities, which are used principally for the pleasure of cycling rather than as a form of transport commuting.

Local Cycle Routes - Within local communities there are many opportunities for promoting safe cycling to our schools, parks, local community facilities and local shops.

Types of Cycle Ways

We have grouped route facilities into three broad categories.

Cycleways - On road Cycling facility

Cycle Paths - Off road sealed facility, often a dual cycle/pedestrian facility.

Cycle Trails - Off road unsealed facility.

Our route schedules have been developed with continuity of these broad categories in mind.

Bicycle Furniture

Basic furniture included in the plans:

Bicycle Storage Lockers - Managed by BNSW, a secure locker facility capable of taking bicycle and ancillary equipment.

Bicycle Racks - Facilities available for securing bicycles.

Holding Rails - Facilities provided at crossings to allow cyclists to remain on their bike while waiting to cross a road.

Transitions - Purpose built sections of cyclepath designed to provide a smooth transition between on and off road facilities, particularly at on road squeeze points.

Bicycle Parking - Provision within trip generating developments for storage of bicycles, in a similar manner to traditional car policy.

The 10 Year Strategy

The strategy for developing the Plan includes:

The comprehensive plan has identified $2 million of cycle facilities requiring funding from Council and other sources. Its delivery within a 10 year period will be dependent on securing funding from a number of sources.

The strategy of developing the plan focuses on first implementing facilities that serve the highest profile destinations within the shire. Recommended actions are covered in the following 10 point plan, which will promote Hornsby as **THE** cycling centre destination in Sydney.

RTA Involvement

1. Develop the Trunk (Regional) Cycle Route Network in conjunction with the RTA that services:
   - Hornsby Town Centre
   - Pennant Hills
   - Epping

Allocating road space

2. Where road space is already available implement on line marking of shoulders as space for cyclists lanes through Council's maintenance expenditure program. Cycling symbols can be added to highlight potential use by cyclists, without being designated as a cycle lane.

Off-road facilities

3. Incorporate off road facilities for cycling within the Plans of Management for:
   - Fagan Park
   - Hornsby Park
   - Dartford Road
   - Old Man Valley
   - Pennant Hills Park

Planning instruments

4. Encourage cycling facilities within all planning instruments as a matter of priority.

Lower speeds

5. Encourage lower speed limits within local precincts as a traffic calming measure, which will also aid in "improving" cycling and pedestrian safety.

Local support

6. Enlist the support of local business and community groups to support facilities and promote cycling.

Safe cycling

7. Promote Safe Cycling through active education programs.

"Events"

8. Organise a regular "Hornsby Bike Event" and program to raise the profile of cycling in our community and beyond. (establish Annual Hornsby Bike Festival). This should cover the full range of cycling activities.

Integrate with Public Transport

9. Promote the use of bikes for regular, short journeys to railway stations, shopping centres, sports facilities. Bike lockers should be provided at these facilities where a demand is identified. For example, at Berowra railway station these should be installed immediately, due to the requests from the surveys.

The Hornsby Bike Map

10. Produce a Hornsby Shire Bike Map, to be available as a general information and promotional tool. This map could also be provided at a local level on information boards currently used at railway stations and libraries.

Funding Sources

Strategy recognises variety of potential funding sources

We live in a very competitive environment where funds appear limited for things such as cycling facilities. Cycling is recognised as having tremendous potential to assist in urban air quality, health, public transport patronage and road traffic congestion. We therefore recommend the following actions to secure additional funding for the Hornsby Shire Bike Plan.

1. Secure RTA commitment to fund and develop the identified trunk cycle network as part of the Sydney Regional Bike Network. The initiatives here are consistent with RTA objectives.

2. Concentrate Council's limited direct funds on improving local cycle facilities, particularly transitions.

3. Allocate and tie some of Council's road maintenance budget each year to the development of on road cycle lanes. These can be made consistent with Council's construction and maintenance programs.

4. Introduce incentives for local business to provide bicycle facilities.

5. Incorporate bicycle facilities into Council's planning instruments to allow collection of contributions from future development.

Recommendations

We recommend the following Council activities at this time:

Council incorporates the Hornsby Bike Plan as past of its forward planning and seeks funding assistance from RTA

1. Council incorporates the Hornsby Bike Plan into its forward planning processes such as planning instruments and funding by Council.

2. Seek formal endorsement of the Plan from RTA and funding commitment to the trunk (regional) cycle initiatives in this plan as part of the RTA's network.

3. Support in principle the introduction of cycleways in railway easements as areas to provide selected high standard separate cycle facilities. Pursue implementation in conjunction with the Department of Transport and rail authorities.

The draft 1998 Hornsby Bike Plan Maps and Work Schedule Summary are attached.

1. Introduction

Hornsby Council appointed consultants Travers Morgan in 1987 to undertake the Hornsby Shire Bicycle Transport Study. Its aims were to:

- establish a safe system of "off-road' and "on-road" facilities for bicycles in the shire
- develop a program of community education/encouragement in relation to cycling
- establish priorities for implementation.

Council did not formally adopt the plan in the 1980's.

This document is a result of Council requesting a review and update of the 1987 study, with the aims of:

- seeking renewed community involvement in the plan
- establishing a revised and updated implementation plan
- presentation to the community and adoption by Council with a commitment to implementation over a 10 year program.

This document is the final version of the plan. This plan, after public exhibition, was formally adopted by Council in October 1998.

2. The Existing Situation

2.1 Data Collection and Surveys

To obtain community feed back and input to the Bike Plan, Sinclair Knight Merz completed a number of surveys. These surveys were completed at various times through out the duration of the study and covered a broad spectrum of the community. The surveys were aimed at school children, by sending forms to 15 schools in the region and these forms were completed by children of various ages.

To obtain details from the wider community, surveys were also completed at locations where there are a focus of people. These were at railway stations and shopping centres. By completing surveys at these locations, it was additionally possible to gauge the requirements for providing facilities for people to cycle to these facilities and cause a change in travel mode. For railway stations, there are also possibilities to create dual use transport, with people cycling to the stations and switching to trains for the remainder of the journey.

The surveys were completed to obtain community input to the final Bike Plan. The surveys have also been used to raise the public's awareness of the Bike Plan and the Council's continuing improvements in cycling facilities. The surveys have in addition created an interest in the community which it is hoped will encourage the community to adopt the Bike Plan and create increased use of bikes within the Shire of Hornsby (and Greater Sydney).

2.2 The Road Hierarchy

Our study has focused on the functional classification of roads as determined by the RTA's Sydney Road Hierarchy Plan . A road hierarchy is a recognition of the functional importance of roads. Our focus has been to avoid higher order arterial roads with high traffic volumes - inherently unsafe for cyclists.

2.3 Traffic Volumes

Traffic volume data was provided by both the RTA and Hornsby Shire Council, with the majority of this data provided at intersections. The RTA traffic data was sourced from the 1993 Sydney Region traffic flows. This publication provides details on traffic flows on all roads controlled by the RTA.

The additional traffic data provided by Hornsby Shire Council was sourced from data collected by the Council for their own requirements or from data provided by consultants as part of traffic studies completed within the Hornsby Shire Council district. The traffic data provided by Hornsby Shire Council were not restricted to 1993 and varies between 1991 and 1997. Available traffic data (AADTs) are illustrated in **Figure 2.1**.

As part of this study, no additional traffic surveys have been completed. For the purposes of this study, it was felt that the available data was sufficient to

provide an overall picture of the traffic patterns in Hornsby Shire Council district as they relate to road use for cycling.

2.4 Accident History

Accident data was provided by Hornsby Shire Council. This information is provided by the RTA which in turn obtains the data from the Police. This information is obtained from the accident forms completed by the Police when visiting the scene of an accident. The information provided from these Police records is limited, due to the fact that the majority of cycling accidents are not recorded by the Police. This is either because the accidents do not involve another vehicle (and hence only get logged by hospitals as a general accident) or that the cyclist is not seriously injured and does not require medical attention. Thus, the information on accidents involving cyclists will generally highlight serious accidents and does not present a true picture on the total number of accidents involving cyclists.

Notwithstanding the data's limitations, it is useful to illustrate trends. For example **Figures 2.2 to 2.4** show recorded accident history over a five year period, and clearly highlight the concentration of accidents on major roads. **Figure 2.5 and 2.6** extract pedestrian and cyclist accidents, and show that these also follow the same trend.

It is the intention therefore of this study to focus on establishing cycling routes that do not rely on major arterial roads wherever possible.

2.5 Blackspot Identification

From the information provided, there would not appear to be an identifiable accident blackspot. The accident history for Hornsby indicates that there have been 3 fatalities for cyclists and these all happened in 1987. No fatal accidents involving cyclists have occurred since 1987.

As part of the safety measures adopted by Hornsby Shire Council, accidents are continually monitored so as to install measures to decrease the opportunities for future accidents. This monitoring of accidents will have determined past accident blackspots and the Council will have improved these locations to improve safety. This identification and improvement of accident blackspots is an on-going task which rectifies accident blackspots as and when they're identified.

As fatal accidents involving cyclists have not occurred since 1987, it can be assumed that there are currently no identifiable accident blackspots within the Shire. While accidents with cyclists still occur, there is no concentration or identifiable area which needs specific attention. However the number of people cycling generally in Sydney has decreased over time, due in part to cyclists no longer feeling 'safe' riding our busy roads.

3. Strategic Planning

3.1 Hornsby Housing Strategy

The NSW Department of Urban Affairs and Planning has recently accepted Hornsby Council's Draft Housing Strategy as the basis for future development within the Shire. The strategy recognises the unique characteristics of different areas of our LGA and delivers the State Governments objectives for housing by concentrating new development around key employment and transport works.

Key Features of the Strategy that will have influence on the Bike Plan are:

- Completion of the development of the Cherrybrook community. However it does not propose altered residential zoning, nor seek expanded residential development in Cherrybrook.

- Potential for significant residential development in the Thornleigh/Westleigh employment area through changes to current zoning (up to 1200 dwellings). At this stage, however, rezoning to allow residential development is not proposed.

- Concentration of high density residential development in the area surrounding the Hornsby Town Centre.

- Protection of the character of much of the rural portion of the Shire.

In summary, the extent of development is limited to augmenting housing within the existing urban borders. This is important because it means much of our Plan needs to be retrofitted rather than developed in conjunction with new estates.

3.2 Hornsby Shire Rural Lands Study

Council has completed a review of the planning provisions which apply to the rural areas of Hornsby Shire. The study adopted a number of key objectives in relation to the role of rural lands, and how these should be preserved and developed. This included recognising the principles of Total Catchment Management (TCM), preserving natural and built resources, recognising the role of agriculture as well as a variety of housing, community and recreational needs.

The rural lands strategy recommends that "*pedestrian and bicycle routes should be developed following logical routes that link sporting facilities, community facilities, playgrounds, schools and adjoining areas".*

3.3 Hornsby Open Space Plan

Council received the final report for the Hornsby Open Space Plan in September 1996. The objectives of the Strategy are to provide:

- An equitably distributed open space network of high quality that meets the community's needs.

- Open space areas for a range of organised and informal functions to cater for all ages and abilities.

- Greater use of existing open space through improving access and increasing the range and quality of experiences available.

- User friendly and well maintained areas.

- Well defined linkages within Hornsby and to neighbouring LGA.

Bicycles and their use are both a part of the open space network and a key in terms of meeting the objectives of improving access to facilities.

3.3.1 Fagan Park Plan of Management

Fagan Park's tremendous potential as a major attraction for Hornsby Shire has been recognised by Council. A draft Plan of Management was produced in September 1996 to allow community input into the plan.

The surveys conducted as part of the plan indicated that over 20% of respondents valued exercise/sport (including cycling) highly. It also indicated some support for providing cycle facilities in recreational areas.

Fagan Park is an area of fifty five hectares. It is conceivable and indeed Council has already considered introducing a cycle facility in the form of a CARES facility.

We recommend the following inclusions:

- Active pursuit to secure the cycling facilities within Fagan Park.

- Consideration of provision of a dedicated space for off road cycling activity.

- Introduction of formalised cycle trials in some areas of the park.

- Provision of paths that allow for dual pedestrian and cycle use.

3.3.2 Dartford Road Site Plan of Management

Kenley Park and the Dartford Road site represent a significant open space area within the heart of the Hornsby Shire. Various uses have been put forward over the years, including areas for passive recreation, golf driving range, etc.

In its current form the Plan of Management recognises that the site should be developed for the following types of facilities:

- bicycle riding
- skate board, roller blading
- half court skill practice areas
- court games
- informal kick around spaces
- picnic/barbecue areas
- walking trails
- rock climbing

We fully support this initiative by Council and commend the following specific facilities for consideration.

- Dual use Cycle paths around the site for access and recreational use.

- Links to the adjacent trunk cycle route connecting Hornsby to Pennant Hills.

- Allocation of land for off road activities such as cycling, skate boarding etc as an alternative to a golf driving range.

3.4 The Relationship of the 1988 Bicycle Plan

The 1988 Bicycle Plan included a comprehensive data collection exercise focussing on schools, railway stations and shopping centres as some of the major attractors of bicycle trips. The current study has replicated this process to give an up to date view.

The 1988 Concept Plan recognised the unique topography of Hornsby Shire, which has resulted in a series of isolated village developments along the ridges (surrounding Berowra Creek and Lane Cove River).

The 1998 Plan draws on this concept, strengthening it by focussing on the key trunk routes that connect these villages, and then link them to surrounding attractions. This is an important distinction, in the current, plan, which recognised that cycling routes extend to major destinations such as:

- Macquarie University (Community/Education)
- North Shore Rail Corridor destinations such as Gordon, Chatswood and beyond (Community)
- Kuring-Gai National Park
- Castle Hill and beyond to Parramatta

The engineering principles incorporated into the 1988 plan were essentially sound, and where possible have been incorporated into the current draft Plan.

The focus in terms of priorities and implementation has shifted through to recognise the importance of the development of the trunk routes.

There are several key distinctions in the current plan:

- use of on road line marking even though a standard facility is not practical
- Marking/sign posting of cycle routes as well as designated paths
- Inclusion of major off road facilities

A commentary of the 1988 Bicycle Plan is incorporated in **Appendix B**.

4. Consultation

4.1 Bicycle Facilities Working Group

Hornsby Council have established a Bicycle Facilities Working Group, which has a specific aim of increasing bicycle awareness and promoting cycling within the Shire of Hornsby. The Working Group has a number of members, who represent council, bicycle clubs and the general community. In addition, the group has a member who is a councillor of Hornsby Shire Council.

As part of the study, Sinclair Knight Merz have had five meetings with this group, to discuss progress and to ensure that the group can have input into the study progress and input to the final Bike Plan.

4.2 Community Consultation Program

To obtain feedback from the community, surveys were completed at four shopping centres. These shopping centres were the same as surveyed in 1998. The four shopping centres were:

1.	Cherrybrook	18 responses
2.	Carlingford	22 responses
3.	Berowra	3 responses
4.	Hornsby	77 responses

This gives a total of 120 responses, which compares with 100 people surveyed during the 1988 study. The major findings from these survey forms are as follows;

- Overall, 79% of the shoppers currently ride a bike, of which 48% ride once a week or more.
- 95% of the respondents would consider cycling for shopping or recreational purposes with 82% of the responses indicating that storage lockers would be a positive attractive measure.
- The major reason for not cycling more frequently are traffic volumes on the road (65%) and personal safety on the road (72%).
- The major facilities which would encourage increased use of cycles would be physically segregated cycle lanes (86%) and cycle lanes marked on roads (69%). The provision of security measures also figured high in people's responses.
- The most common mode of transport to the shops (or leisure facility) is to drive (57%).

4.3 School Consultation

As part of the 1988 Bicycle Plan study, the consultant completed a survey of 15 schools, to obtain details on current use and comments from school children. These children were in years 5 to 12. As part of this study, the same schools were surveyed, so that a possible trend could be established for cycling use and demands.

The schools surveyed for the current study were:

1.	Normanhurst West Public School	77 responses
2.	Hornsby Heights Public School	108 responses
3.	Epping North Public School	48 responses
4.	Berowra Public School	64 responses
5.	Thornleigh West Public School	168 responses
6.	Mt Kuring-Gai Public School	4 responses
7.	Pennant Hills High School	549 responses
8.	Carlingford High School	147 responses
9.	Mt Colah Public School	53 responses
10.	Wideview Public School	204 responses
11.	Epping Boys High School	125 responses
12.	Normanhurst Boys High School	86 responses
13.	Asquith Boys High School	99 responses
14.	Galston High School	254 responses
15.	John Purchase Public School	146 responses

Thus the total number of responses was 2132 from the schools. The major findings from the survey forms are as follows;

- From the responses, 1654 children currently ride bicycles (78%), of which 70% ride once a week or more.
- 957 children (or 45%) would consider cycling to school, with this increasing to 1139 children (or 53%) if storage lockers were provided in the schools for bikes and clothes.
- The major reason for the children not to cycle to school were the high traffic volumes on the road (81%), with lack of secure storage for the bike given as the second major reason (74%). This indicates that security is a risk for children cycling to school.
- The major attractor, which would encourage children to cycle to school, is somewhere secure to lock their bike (87%), with physically segregated bike lanes the second major attractor (82%). This again indicates that security is an issue for children cycling to school.
- Currently, 10% of the children cycle to school with a further 20% walking to school. 643 children were driven to school (30%).

4.4 Commuters

As part of the study, three railway stations within Hornsby LGA were surveyed. The three railway stations chosen were the same as used for the 1988 study, again to obtain consist results and possibly trends. The three stations surveyed were:

1.	Hornsby	88 responses
2.	Epping	97 responses
3.	Berowra	60 responses

All these stations have been observed to have a number of people who cycle to the station and leave their bikes at the station to commute to work by train. During the 1988 survey, cycles were not allowed on trains during peak hours but now bikes are allowed on trains during peak hours. However, no cyclists were observed to carry their bikes on to the trains during the survey periods.

During the 1988 surveys, over 500 forms were handed out of which 83 completed forms were returned. During our survey in 1997, approximately 550 forms were handed out and a total of 245 forms were returned. This would indicate that people are generally more concerned and interested in cycling and that there is increased demand for cycling facilities (especially at railway stations).

The major findings from the survey were:

- 208 people who responded (85%) were cyclists, of which 41% ride more than once a week with a further 16% riding once a week.
- 231 people (94%) of the responses indicated that they would cycle to shops or leisure facilities, with a lower value of 200 responses indicating that storage lockers are desirable. This would indicate that security is an important issue.
- 145 of the respondents (59%) indicated that they would consider cycling to work, with 50% of the respondents indicating that high traffic volumes and lack of personal safety were major reasons not to cycle.
- Approximately 60% of the respondents indicated that physically segregated cycle paths or cycle lanes marked on roads would encourage them to cycle to work. Additionally, 45% indicated that security facilities could encourage them to cycle to work.
- Comments received from these survey forms indicates that there are a large number of regular commuters who cycle to Berowra station. These commuters have also indicated that theft and vandalism of bikes at this station is high. From this, consideration should be given to providing bicycle lockers at this station.

4.5 Recreational Users

Recreational users were difficult to survey, though it would hoped that these people would have been covered by the various surveys completed at the shopping centres and railway stations. The major recreational users who provided information were from local bike user groups. These groups included:

1. Bike North
2. Northern Sydney Cycle Club
3. Bicycle New South Wales

To obtain further feed back from recreational users and residents of Hornsby, two workshops were held with the assistance of Hornsby Shire Council.

4.6 General Survey Comments

For all survey forms, additional space was provided for people to give general comments and views about cycling. A number of comments were provided, with five comments occurring regularly. These were:

1. Physically segregated cycle paths are highly desirable and provide the most desirable and safest means of using bikes.
2. Bicycle theft and vandalism was high at Berowra railway station and it was felt that bicycle lockers could be provided here to alleviate this problem.
3. A cycle park area is desirable for children. Children and their parents would like an area where children can ride their bikes well away from traffic and allow a good area for cycling and play.
4. Existing cycling facilities need to be maintained. While cyclists appreciate the benefits of sealed shoulders and bicycle paths, a large amount of debris collects in these areas and is not removed often enough.
5. Driver attitude and behaviour towards cyclists was an issue raised by a large number of people. Examples were given of verbal abuse and aggressive, physical behaviour towards cyclists. The respondents felt that something should be done to raise driver's awareness of cyclists and that cyclists are a legitimate road user.

A summary of the results of the survey is included in **Appendix C.**

5. Development of the Bicycle Plan

5.1 Planning Districts

Hornsby Shire has in past been divided into nine districts for planning purposes. We have adopted these same districts as the basis for the Bike Plan to allow its elements to be readily incorporated into Councils Planning instruments. A summary of the Districts is provided here in Table 6.1

Table 5.1: Description of Planning Districts

District	Locality Description
1	Epping, North Epping, Cheltenham, Beecroft, Carlingford
2	Pennant Hills, West Pennant Hills, Thornleigh, Normanhurst
3	Wahroonga Waitara, Hornsby (excluding Town Centre
4	Asquith, Mt Colah, Mt Kuring-Gai, Hornsby Heights
5	Cowan, Berowra and Berowra Heights
6	Glenhaven Dural, Port Middle Dural, Galston, Arcadia, Glenorie
7	Berrilee, Forest Glen, Canoelarks and Williams Ferry
8	Cherrybrook, Port Dural and Castle Hill
9	Hornsby Town Centre

Source: Hornsby Shire Council

Our plans for the Bike Plan are presented to cover these areas.

5.2 Definition of Cycle Routes

RTA Regional Routes- Cycle routes nominated by the RTA as part of the Sydney Region Cycle Network. The routes are of varying standard.

Trunk Cycle Routes - Cycle routes of regional significance, performing as Principal Commuter routes and "collecting" cyclists from local precincts. Focus is on major attractors within the Shire such as railway stations and shops.

Recreational Routes - Cycle routes which are recognised for their scenic qualities, which are used principally for the pleasure of cycling rather than as a form of transport community. Some of these routes include unsealed trails.

Local Cycle Routes - Within local communities there are many opportunities for promoting safe cycling to our schools, parks, local community facilities, local shops.

5.3 Definition of Cycle Ways

We have grouped route facilities into three broad categories.

Cycleways -	On road Cycling facility (or Cycle lane)
Cycle Paths -	Off road sealed facility, often a dual cycle/pedestrian facility.
Cycle Trails -	Off road unsealed facility.

Our route plans have been developed with continuity of these broad categories in mind.

5.4 Classification of Cycle Facilities

Basic furniture included in the plans:

Bicycle Storage Lockers -	Managed by BNSW, a secure locker facility capable of taking bicycle and ancillary equipment.
Bicycle Racks -	Facilities available for securing bicycles.
Holding Rails -	Facilities provided at crossings to allow cyclists to remain on their bike while waiting to cross a road.
Transitions -	Purposed built sections of cyclepath designed to provide a smooth transition between on and off road facilities, particularly at on road squeeze points.
Bicycle Parking -	Provision within trip generating developments for storage of bicycles, in a similar manner to traditional car policy.

5.5 Cycling Safety Features

A key to the success of any transport network is the ability of users to find their way around safely and conveniently. It is critical therefore to have a high degree of signage and definition of facilities to aid in route selection guidance, hazard warning and protection for all road users. Consistency is also important here to avoid confusion.

A second major element of the safety features of the BikePlan is to promote Local Traffic Zones. Local Traffic Zones can be defined as areas where the only vehicles using the roads in the zone are local traffic i.e. non-through traffic and traffic which is accessing areas of residential development only. Within these zones, the emphasis should be that the area is for pedestrians and cyclists, and cars need to proceed with caution and reduced speeds. These areas are characterised by short lengths of road, with frequent intersections and direct frontage to dwellings. By promoting the area as a pedestrian and cyclist zone and the associated reduction in vehicle speeds,

the area will become a safe environment for cyclists (and vulnerable pedestrians such as children and the elderly) and hence will become more popular for use by cyclists. While dedicated cycling lanes are more desirable, the dual use of the roads by cyclists and vehicles has to be maintained, due to the constraints of the roadway width and the requirement for on-street parking.

5.6 Route Option Selection

In many areas of the Shire, alternative routes for cycling are limited (reflecting remote areas, limited access etc).

However, in some key corridors there are a range of alternatives including:

- use of local streets
- arterial road corridors
- railway corridors
- use of open spaces

The philosophy adopted for trunk route selection has focused on providing dual facilities. That is:

- where a satisfactory local road is available for promoting on road facilities, such has been recommended;

- where there is potential for development of parallel off-road facilities in open space and other corridors, this has been promoted as a longer term objective.

The reasons for this approach being:

- installing on road lanes provides the community with facilities early within the Bike Plan development. It also satisfies the needs of one of our user groups.

- Identifying alternative off road facilities for development will ultimately cater to the needs of the broader community.

The "duplication" is recognised as catering for different cycling needs and should be viewed as a positive feature of the plan.

Our draft of the Bike Plan is shown in concept on the Hornsby Bike Map.

6. Engineering Design

The Engineering Design Standards adopted for the Bicycle Plan have been developed in accordance with standards provided in Austroads "Guide to Traffic Engineering Practice - Part 14 Bicycles". This guide gives details for all cycling facilities, and is the adopted standard for Australia.

6.1 Road Maintenance

Road surface irregularities can present many hazards to cyclists. Unlike other road vehicles, most bicycles do not have suspension other than their tyres. They cannot absorb shock caused by uneven road surfaces. To avoid discomfort and loss of control, cyclists tend to avoid rough road surfaces, pot-holes, raised or depressed drainage grates, and other surface irregularities which may not present problems to motorists. Sudden or unexpected manoeuvres to avoid these irregularities can bring cyclists into conflict with other vehicles or can themselves cause loss of control if poorly executed. In these circumstances crashes may occur.

Variable road surface conditions occur along the recommended routes but for the most part they are generally of a reasonable standard for cyclists. Where road maintenance problems exist, appropriate low-cost treatments have been identified. **Appendix E** lists such treatments.

As a general recommendation, an acceptable standard of road surface upkeep should be maintained. All routes within the Bicycle Plan should be periodically inspected to ensure that deficiencies are detected and rectified as soon as possible.

6.2 On Road Cycle Lanes

There are six main factors influencing the quality of the on road cycling environment:

- motor vehicle traffic volumes
- vehicle speeds
- width of road pavement available
- % of heavy vehicles
- squeeze points along the route
- bicycle safe grates

For reasons of safety, cyclists should not be encouraged to use busy arterial roads and on-road bicycle lanes should be avoided on busy arterial roads wherever possible. Most of the recommended on-road local routes in Hornsby Shire are on either collector or local roads. The RTA now has a policy for all new arterial road construction to include wider kerbside lanes to improve safety for cyclists. These facilities are not always marked as exclusive cycling lanes, but are shown as part of the RTA's regional bike routes on its recently released Sydney Bike Maps.

On-road facilities generally apply to kerbed roads. On unkerbed roads eg. Old Northern Road, a sealed shoulder provides a suitable place for cyclists to ride outside the main traffic stream, as well as reducing edge maintenance. A width of 1.5 metres is desirable for sealed shoulders used by cyclists, however a width of less than 1.5 metres may be appropriate in some instances.

The installation of bicycle safe grids would be a priority on identified on-road bicycle routes. It is desirable for all grids to be bicycle safe.

6.3 On-road cycling Standards

After discussion with Council, it has been determined that there needs to be two standard lane widths for vehicles within the Shire. Where the roads are used by scheduled buses, the minimum lane width for vehicles needs to be 3.2 metres. However, when the road is not used by scheduled buses, the minimum lane width for vehicles could be reduced to 3.0 metres.

For cycling lanes, the guide provides a number of facilities. Whilst exclusive lanes marked out for cyclist are desirable, in practice this will generally not be feasible. This is mainly due to the existing width of the roads within the shire but also to the fact that exclusive cycle lanes prohibit cars from parking against the near side kerb and hence creates parking problems. The desirable width for these exclusive cycling lanes would be 2.0 metres, with the minimum desirable width being 1.5 metres. The absolute minimum is 1.0 metres.

The desirable standard to adopt for cycling facilities are combined bicycle/ parking lanes. These lanes provide space for cars to park adjacent to the kerb whilst providing an exclusive lane for cyclists, which general traffic should not enter. The desirable minimum width for these types of lanes is 4.0 metres with the suggested minimum width being 3.5 metres. This suggested minimum width is applicable where traffic speeds are low and there are space restrictions. This type of treatment would be suitable within residential zones, where kerb side parking is required and traffic speeds will be low.

As can be seen in **Figure C1**, using the above assumptions and road widths, a number of standard cross-sections can be developed. These cross-sections then need to be compared with the width of the carriageways within the Shire of Hornsby. From this comparison, it can be seen that there are severe restrictions on the possibilities for proving bicycle/ parking lanes and less onerous restrictions for sole use cycle lanes. However, as mentioned above, the major restriction for sole cycle lanes on roads is the restriction on kerb side parking zones. One alternative would be to legalise parking on the verge (or partial use of verges) but this has significant maintenance and liability risks for council and is not recommended here.

6.4 Off-road paths (sealed)

For general cycling use and regular use e.g. commuters, all off-road paths must have a sealed, smooth surface. The surface can be made of a flexible material such as a bituminous concrete or a rigid surface such as concrete. The choice of path will be dependent on the adjacent surfacing and the surroundings. The path must be designed to tie in with and blend in with the surroundings, and will obviously differ between paths adjacent to existing footpaths and paths which run through a green area.

Typical cross sections and construction details are shown in **Appendix D, Option 11**.

6.5 Off-road paths (un-sealed)

An increasing number of cyclists require off-road paths for leisure use and do not desire the paths to be sealed. Indeed, the mountain bike fraternity appreciate the challenge and texture of un-sealed tracks. For tracks identified for this type of use, it is proposed to use existing, established tracks and paths with no treatment to the surface. These paths should be monitored though, and could require increased maintenance. If it is found that the path is highly used and suffers from severe erosion, then the path surface will need to be strengthened, partially sealed on steep slopes, and repaired with a crushed rock to maintain its structure.

6.6 Off-Road Bicycle Paths

Off-road bicycle paths fall into 2 categories:

a) Exclusive Bikepaths; and
b) Dual-use Bikepaths

6.6.1 Exclusive Bicycle Paths

Exclusive bicycle paths are those specifically constructed or dedicated for bicycle riders. Very few exclusive bicycle paths have been proposed in the study area. Those proposed are mainly connecting links either through a railway reserve or a recreation route through a park or reserve.

Exclusive paths are not widely recommended here as they will be used by pedestrians. We have therefore considered most will nearly always be dual-use or shared paths. Design of these paths should follow the Austroads Guidelines. It is desirable that exclusive bicycle paths should be not less than 2.5 metres wide, however in many situations in practise there is insufficient width to accommodate the full 2.5 metres but the paths are often appropriate. Suitable access for maintenance purposes should be considered along the route.

6.6.2 Dual-use Paths

Dual use paths mainly refer to the use of footpaths for cycling. Dual use paths are not usually suitable for commuter-cyclists because of accident-risks associated with poor sight distances at driveways and possible collision with pedestrians. They are an effective treatment of known cycling hazards associated with high traffic volumes and narrow lanes.

In locations where driveway and cross streets are infrequent, dual use paths may be appropriate, particularly where bicycle traffic mainly consists of school children.

6.6.3 Off-Road Path Location

Dual-use paths as transitions are recommended on the following basis:

a) for transitions, where carriageway width is not sufficiently wide to accommodate an exclusive bicycle lane or bicycle/parking lane;
b) where school children cyclists are the major users;
c) where footpaths are sufficiently wide and well constructed to give a smooth comfortable ride or rectification works can be undertaken;

The construction of walls and fences on property lines on roads where dual-use paths are installed would severely reduce the available sight distance at driveways. If possible, small corner truncations at driveway intersections would help to provide better sight distance and minimise potential conflict at these locations.

Control of construction of walls and fences on road boundaries by Council is recommended. Council should undertake action to maintain good sight distance at driveways along dual-use path routes.

6.7 Off-Road Path/Road Intersections

Careful treatment of intersections between dual-use paths and roads is essential to safety. The standard treatments recommended are as follows:

i. Where an off-road path crosses a minor local street, the treatment required can just be kerb ramps to the same width as the dual-use path, without a lip in the gutter, and with signposting.
ii. Where an off-road path crosses a collector road junction carrying considerable traffic, treatment should include, in addition to the kerb-ramps, a zebra pedestrian crossing, if the crossing warrant is satisfied. (This needs to be verified at the time of implementation.
iii. An off-road path crosses a sub-arterial or arterial road, where a median island is present, a median opening with rest rails should be constructed to allow bicycle passage in addition to the above treatments.

iv. If traffic signals are installed at the intersection concerned, a hand-rest rail installed on the left hand side of the path would be desirable.

6.8 Path Riding Conditions

The importance of good riding road surfaces free of irregularities, loose materials and other hazards has been stressed earlier. The same requirements apply to cycle paths. A number of deficiencies have been detected on some of the routes recommended including:

- surface irregularities caused by wear and damage by vehicles, improved driveways, poor construction joint finishing and vegetation encroachment;
- accumulation of loose materials, including loose stone, sand, grass and other debris.

It is recommended that Council, undertake regular checks, repairs and maintenance of the paths to ensure that the riding conditions are free from any irregularities and loss materials.

6.9 Intersection Controls

Cyclists are expected (and required by law) to follow any intersection control like other road users. Crashes often occur because motorists cannot correctly anticipate cyclists manoeuvres. Apart from sign posting and line marking, special treatments for bicycle riders should be introduced at intersections with bicycle lanes or paths.

A conflict situation occurs when bikeways are required to cross other routes at intersections. At key road junctions, pedestrian and bicycle crossings should be controlled. Where signalled crossings do not exist the cyclists may make use of existing pedestrian crossings. However, they do not have priority as cyclists, but have the legal protection that is afforded to pedestrians when they are dismounted. For this reason, proposing pedestrian crossings at collector and local routes where no warrant exists for one, will not benefit cyclists. Safety is of paramount importance, so it is recommended that “Give Way” signs be erected at the end of every bikepath, to ensure that cyclists stop and observe traffic conditions before crossing where they do not have priority.

Off-Road Bicycle Path Intersections

Three general solutions have been identified for Bicycle Path/Road junctions. The treatment used will depend on the traffic density along that route.

Key intersections require the most comprehensive treatment. In addition to dropped kerbs and signalled crossings, holding rails with push-buttons are recommended where the cyclist is asked to stop. Examples of this treatment

would be at Waitara Avenue, Bridge Road and Duffy Avenue and Victoria Avenue.

Collector and local route crossings require signposting, dropped kerbs and a pedestrian crossing where a warrant exists (see **Figure E-1** in **Appendix E**). Hand rails may be required where the visibility may be poor or peak traffic density is high. The Dartford Road crossing an example of this type of treatment.

On-Road Bikelane Intersections

The junctions are potentially more hazardous than bikepath intersections since the cyclist share the carriageway with other uses.

Due to the high traffic densities associated with Arterial and Collector roads, bicycles will be diverted off the road onto a shared path and then instructed to cross at a signal or pedestrian crossing (see **Figure E-2**). The Esplanade/Hill Road is an example.

Local road junctions can be satisfactorily negotiated by clearly marking the continuation and termination of bicycle lanes (see **Figure E-3**).

6.10 Roundabouts

Cyclists experience particular difficulty in negotiating roundabouts. Provision must be made that allow them to cross connecting roads and reservations safely. In order to achieve this off-road bicycle paths and dropped kerbs should be provided between the connecting routes. Where island reservations existing, provision for crossing them via dropped kerbs must be provided or have crossing indicated before them (see **Figure E-4**). Roundabouts along Bellamy street will require treatment in this way.

6.11 Speed Reduction Devices

Slow-points and road-humps are often used to reduce speed on residential streets. Such devices are very effective in controlling motor vehicle speeds but also provide a hindrance to bicycle travel. A speed-reduction device should be designed to allow easy bicycle passage, otherwise provision should be made to allow bicycles to travel along the footpath.

6.12 Bicycle Plan Work Schedule

The bicycle Plan Cost estimates have been built up on a route by route basis. Each cycle route has been costed independently. Where a route is made up of several projects, these are costed individually to give an overall cost. However, the overall plan cost estimate may not always equal to the additive sum of all the projects - savings or further costs may be incurred when staging of projects over time is considered.

A breakdown of the capital costs estimates is provided in **Appendix F - Work Schedule**.

Security measures

A recognised restriction on the use of bicycles is the security risk for un-attended bicycles, especially for long-term parking. To help encourage bicycle use, increased security measures need to be provided. Major attractors should be provided with secure lockers for cyclists to lock their bikes and belongings in e.g. clothes and helmet. Major attractors are railway stations (for commuters), shopping centres, schools, sports centres, and swimming pools. At these locations, people tend to leave their bikes for extended periods, and security is a major risk. This in particular has been highlighted from the surveys at Berowra railway station, where a number of respondents have complained of theft and vandalism to bikes parked for the day at the station.

Bicycle lockers are currently being installed at a number of railway stations around Greater Sydney and are managed by Bicycle New South Wales. This system should be adopted and extended within the BikePlan. Further lockers should be installed at Berowra station immediately, and a poster campaign organised. The poster campaign should be used to gauge the demand at key locations around the Shire. The posters would advertise bike lockers for use by regular customers, with a telephone number for further details. When Council receives adequate formal requests for bicycle lockers, the lockers would be installed and then monitored for use. It would be hoped that as more people see these lockers, the demand would increase and hence further lockers would be installed. The poster campaign should include but not be limited to the following locations:

- All railway stations within the Shire
- Hornsby TAFE
- All major sports complexes
- Major centre of employment e.g. centre of Hornsby, Pennant Hills
- Shopping centres

Where demand for cycle parking can be determined, but lockers are not suitable e.g. not all day parking or not regular parking demand by the same person, then bicycle parking rails should be installed in a high profile location to reduce the risk of vandalism and theft of bikes.

Bicycle lockers should be installed in areas of existing high density residential development, where demand for bike lockers could be high but limited garage parking on site.

Bicycle parking stands can be provided at locations such as shopping centres, libraries, public swimming pools, parks and gardens and railway stations for casual parking. The basic requirements for a bicycle facility are:

i. it should be sturdy to support any type of bicycle without damaging it;
ii. it should be possible to secure both the bicycle wheel and the frame to the stand;
iii. the un-used stand should not be a hazard to pedestrians; and
iv. it should be conspicuous, sign posted and placed at the point of demand.

A parking stand in the form of a metal post fitted with a through-hardened chain for locking the frame and rear wheel to the post is recommended.

Figure E-5 illustrates bicycle locker and stand post designs.

Bicycle stand posts are recommended at the following stations in order of priority:

1. Hornsby
2. Epping
3. Berowra
4. Waitara
5. Pennant Hills
6. Asquith

Bicycle storage racks are located at Berowra but require up-grading. Proposed locations for bicycle stands and lockers are described in **Table 6.1.**

Table 6.1: Proposed Locations for Bicycle Storage

Location	Proposed Action
Berowra Station	Install lockers and upgrade racks
Hornsby Station	Install lockers on both sides (completed)
Epping Station	Install lockers on east side
Waitara Station	Install racks on both sides
Asquith Station	Install racks on east side
Pennant Hills Station	Install racks on west side
Hornsby Shopping Centre	Install racks in Centre Car Park
Carlingford Shopping Centre	Install racks in Centre Car Park
Cherrybrook Centre	Install racks in Centre Car Park

7. Funding Opportunities

A budget of $100,000 has been allocated specifically for cycle facilities in the 1997/98 financial year. Our initial estimates of expenditure require to complete to Cycle Plan as documented here is in the order of $2 million.

7.1 Funding Strategies

Our funding strategy comprises the following:

- Seek and confirm RTA's commitment to trunk (regional) facilities within the Shire as part of the Sydney Regional Bike Network and maximise specific grants and 50/50 funding.

- Focus Council's limited direct budget on key local transitions in the cycle network.

- Focus Provision of local on road facilities through allocation of funds from road maintenance programs.

- Introduce bicycle facilities as a specific facility within Council's planning instruments and contribution phase. All new development related facilities should be at no cost to Council through Section 94 funding.

- Actively promote and encourage local business and community groups to support/adopt the Bike Plan

7.2 RTA Bicycle Planning

By way of further explanation of Item 1 in the above strategy, Council has an opportunity to seek full funding of key routes in the LGA that form part of the RTA's regional cycle network.

Where full funding is not realised the RTA also offers assistance in bicycle facility construction on a dollar-for-dollar basis in the following way:

- bicycle path construction
- road repair necessary for safe bicycle use
- other construction near dangerous or conflicting uses
- road improvements specifically for bicycles
- signposting for bicycle facilities.

Applications for Council must have their detailed cost and design checked by RTA. The Pembroke Street facility is an example of use of this funding.
Where the facility is recognised as part of the Regional network, funding of the full facility should be sought from the RTA.

8. The 10 Year Strategy

The 10 Year Strategy

The comprehensive plan has identified $2 million of cycle facilities requiring funding from Council and other sources. We do not believe this is achievable in the 5 years originally envisaged and so have adopted a 10 year planning horizon.

The strategy of developing the plan focuses on first implementing facilities that serve the highest profile destinations within the shire. Recommended actions are covered in the following 10 point plan, which will promote Hornsby as *THE* cycling centre destination in Sydney.

As part of the development process, cycle routes proposed in potentially sensitive areas such as bushland need to undergo an environmental assessment process, as determined by Council.

1. Develop the Trunk Cycle Route Network in conjunction with the RTA that services:
   - Hornsby Town Centre
   - Pennant Hills
   - Epping

2. Where road space is already available implement on road cycle lanes through Council's maintenance expenditure program.

3. Incorporate off road facilities for cycling within the Plans of Management for:
   - Fagan Park
   - Hornsby Park
   - Dartford Road
   - Old Man Valley

4. Incorporate cycling facilities within all planning instruments as a matter of priority.

5. Encourage lower speeds within local precincts as a traffic calming measure, which will also aid in "improving" cycling and pedestrian safety. (i.e. Apply for inclusion on the current speed reduction program)

6. Enlist the support of local business and community groups to provide facilities and promote cycling.

7. Promote Safe Cycling through active education programs.

8. Organise a regular "Hornsby Bike Event" and program to raise the profile of cycling in our community and beyond. (establish Annual Hornsby Bike Festival). This should cover the full range of cycling activities.

9. Promote the use of bikes for regular, short journeys to railway stations, shopping centres, sports facilities. Bikes lockers should be provided at these facilities where a demand is identified. At Berowra railway station these should be installed immediately, due to the requests from the surveys.

10. Produce a Hornsby Shire Bike Map, to be available as a general information and promotional tool. This map would also be provided at a local level on information boards currently used at railway stations and libraries.

Funding Sources

We live in a very competitive environment where funds appear limited for things such as cycling facilities. Cycling is recognised as having tremendous potential to assist in urban air quality, health, public transport patronage and road traffic congestion. We therefore recommend the following actions to secure additional funding for the Hornsby Shire Bike Plan.

1. Secure RTA commitment to fund and develop the identified trunk cycle network as part of the Sydney Regional Bike Network. The initiatives here are consistent with RTA objectives.

2. Concentrate Council's limited direct funds on improving local cycle transitions.

3. Allocate and tie some of Council's road maintenance budget each year to the development of on road cycle lanes.

4. Introduce incentives for local business to provide bicycle facilities.

5. Incorporate bicycle facilities into Council's planning instruments to allow collection of contributions from future development.

9. Engineering Program

The 1988 Bike Plan put forward a priorities program based on ensuring the most cost effective elements were built first, based on traffic volume, safety and convenience. This was a 3 grade Ranking, A to C.

The current bicycle plan also adopts a prioritisation, which is incorporated into the detailed work schedule (**Appendix F**).

It is grouped as follows:

A Short Term 0-2 years

1. Focus on delivery of Trunk Routes
2. Delivery of Local Road Facilities through Maintenance Program
3. Direct council focussed on key transitions.

B Medium Term 2-5 years

4. Key Rail Corridor "Missing Link"
5. Continue RTA funding of trunk route program

C Long Term 5-10 years

6. Possible future projects such as Off Road Facilities, requiring commitments on land, community involvement, environmental and engineering difficulty.

Details of the suggested program are included in **Appendix F.**

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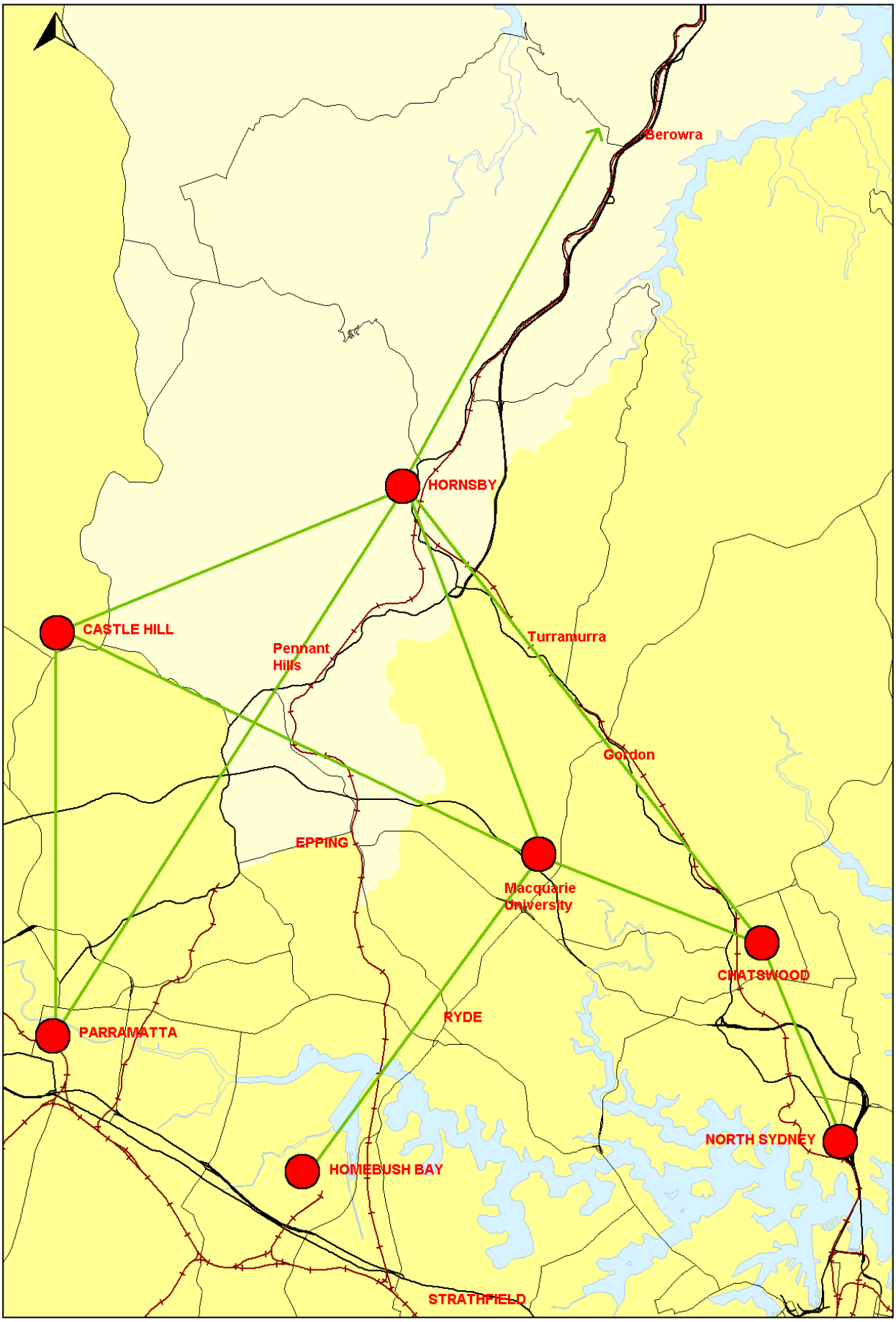
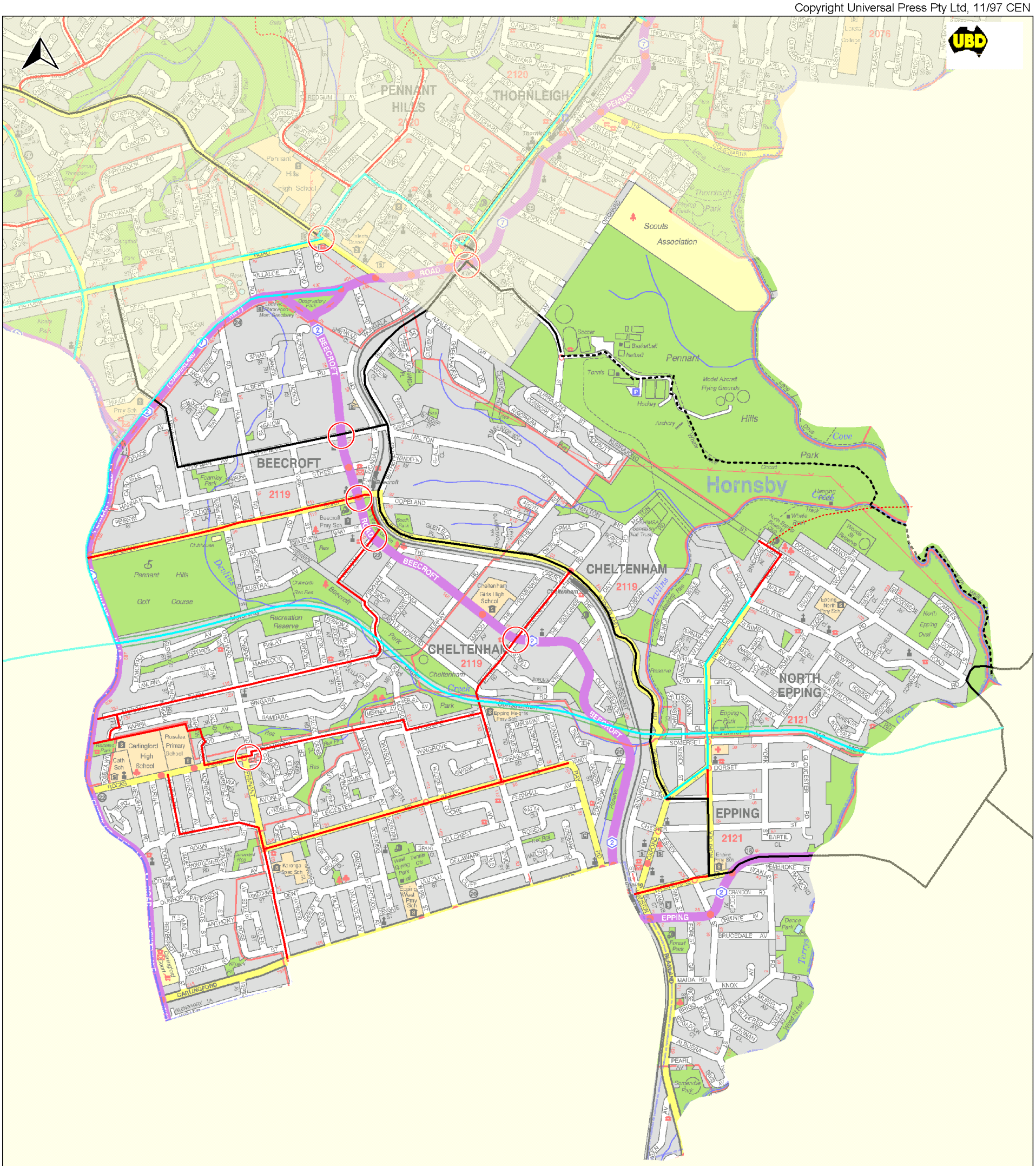
Appendix A - The 1998 Hornsby Bike Plan



SINCLAIR KNIGHT MERZ

Elements of Concept RTA
Sydney Bicycle Network:
Routes Passing Through Hornsby Shire



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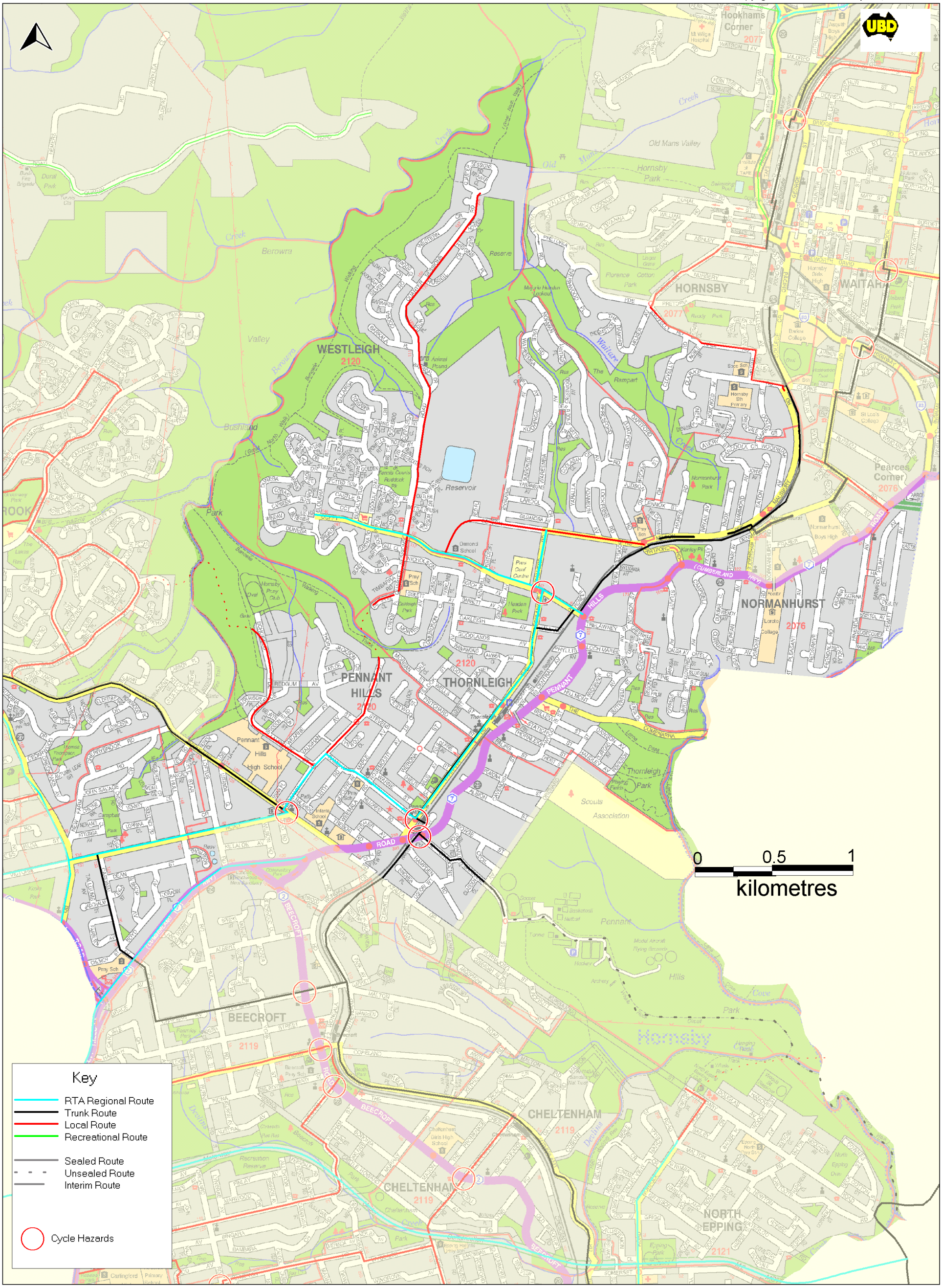
1998 Hornsby Bike Plan
Routes through Planning District 1



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1998 Hornsby Bike Plan
Routes through Planning District 2

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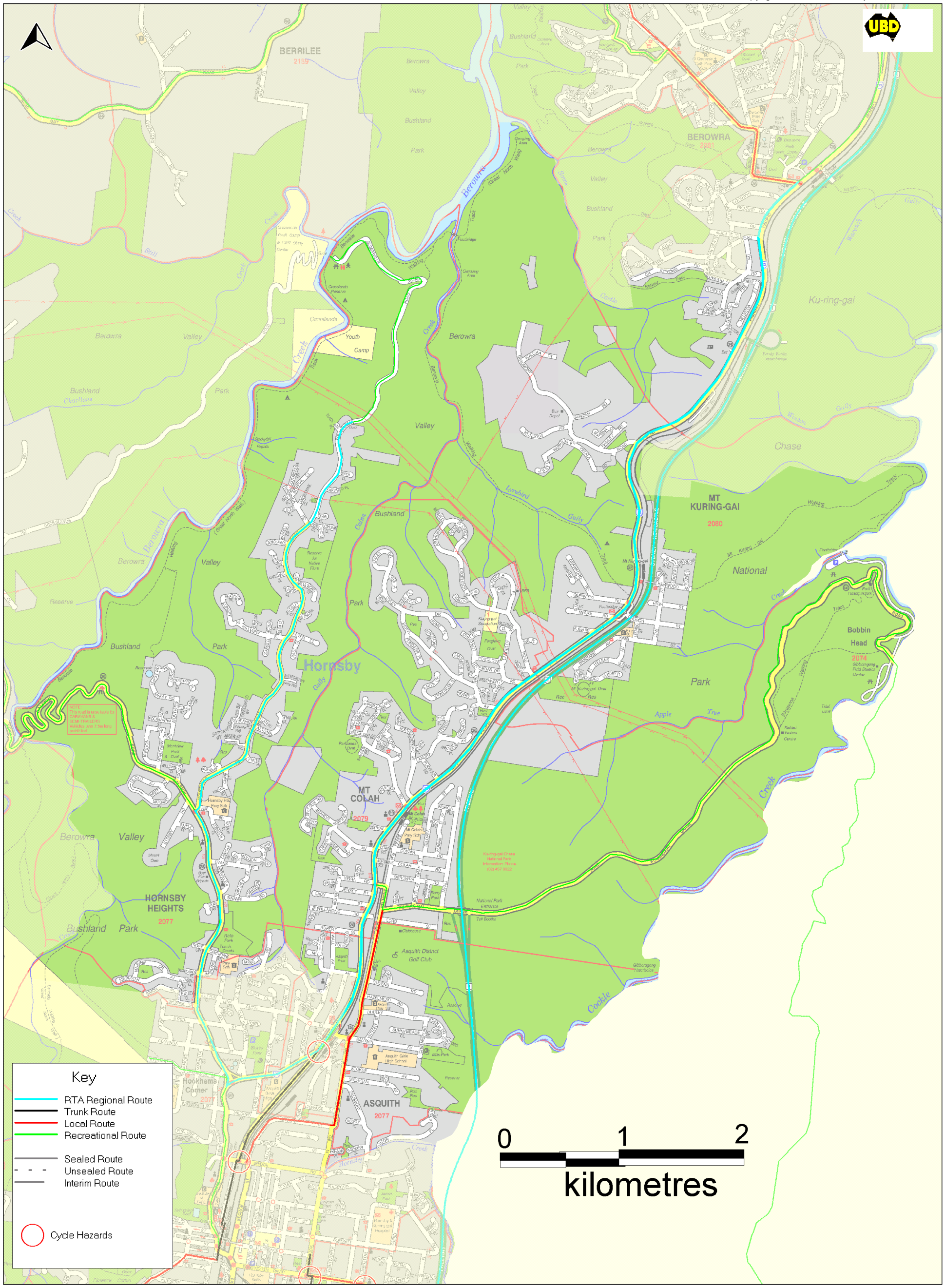
1998 Hornsby Bike Plan
Routes through Planning Districts 3 & 9



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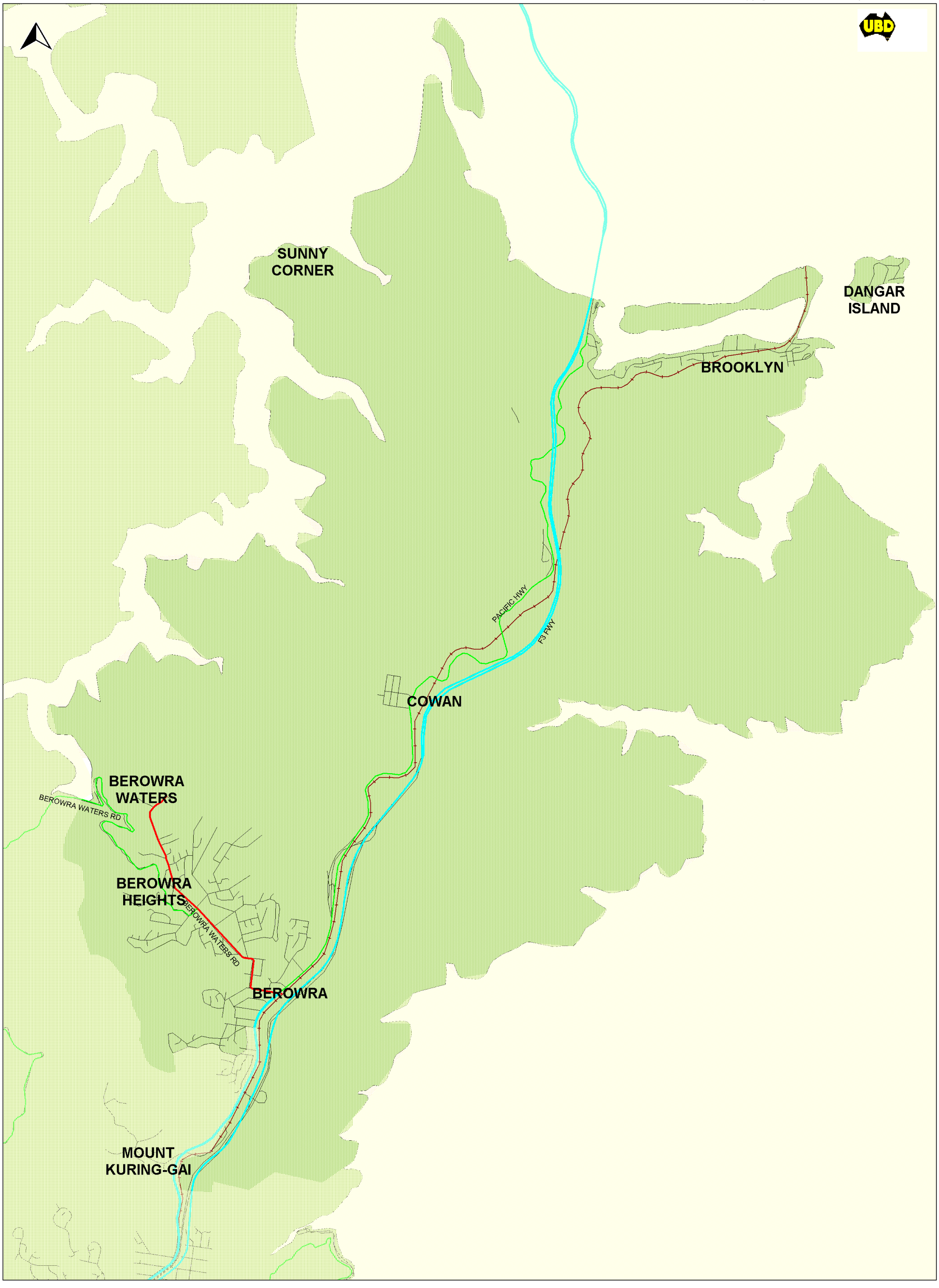
1998 Hornsby Bike Plan
Routes through Planning District 4



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1998 Hornsby Bike Plan
Routes through Planning Districts 5 & 7

LAUGHTONDALE

WISEMANS FERRY

LOWER HAWKESBURY

SINGLETONS MILL

BECKETTS FOREST

CANOELANDS RD

CANOELANDS

YOOTHAMURRA

FOREST GLEN

OLD NORTHERN RD

GLENORIE

FIDDLETOWN

BEROWRA WATERS

BAY RD

BERRILEE

ARCADIA

CARRS RD

ARCADIA RD

MID DURAL RD

MIDDLE DURAL

GALSTON

GALSTON RD

DURAL

Key

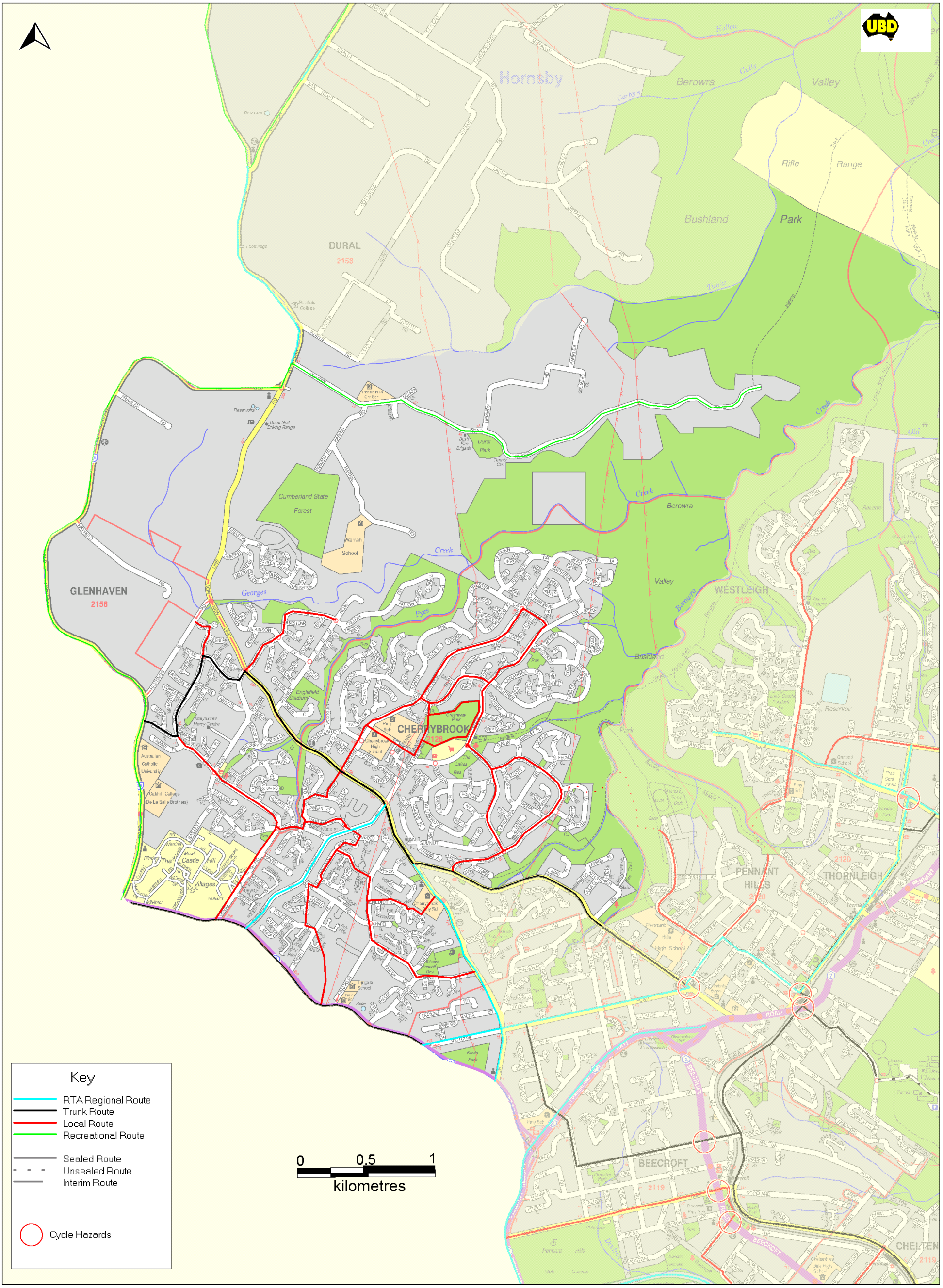
- RTA Regional Route
- Trunk Route
- Local Route
- Recreational Route
- Sealed Route
- Unsealed Route
- Interim Route
- Cycle Hazards

0 2 4

kilometres

SINCLAIR KNIGHT MERZ

1998 Hornsby Bike Plan
Routes through Planning District 6



SINCLAIR KNIGHT MERZ

1998 Hornsby Bike Plan
Routes through Planning District 8

Appendix B - 1988 Plan Review

Appendix B - 1988 Plan Review

	Area/Location	Land Use	Specific Features	Strategy	1998 Plan
	Local Area Strategies				
1.	Berowra/Berowra Heights	□ Residential area with neighbourhood shopping facilities □ 3 local primary schools □ 40% of population under 20 years of age	Separated by topography and distance from remainder of Shire.	Provide internal links with local schools and shopping centre. Provide bicycle access to Railway Station for dual mode commuting and travel. Ensure secure bicycle storage at Railway Station.	Incorporated Strategy is consistent with current initiatives.
2.	Beaumont Road Industrial Area	□ Industrial Area □ Recreational cycling	Isolated from Berowra and Mt Ku-ring-gai single connection with Pacific Highway. Very little weekend traffic. The road is already used for road cycling races on the occasional weekends by the Northern Suburbs Cycling Club. The road is suitable for this use and its width and smooth paved surface.	Low weekend traffic and the wide road provides ideal opportunity for recreational bicycle racing as is already undertaken. This use is to encouraged. Signposting and monitoring of entering vehicular traffic would be required during racing events.	Some 7 day operations now in this estate. Traffic regulation tightened to avoid conflicts.
3.	Mt Ku-ring-gai, East of Pacific Highway	□ Residential area □ Public school □ Railway station	Separated from remainder of Mt Ku-ring-gai by the F3, railway and Pacific Highway. Footbridge crossing at one point only.	Local roads carry no through traffic, Low traffic volumes provide safe on road riding conditions. Improve Pacific Highway crossing for bicycle use.	Pacific Highway recognised as key transition
4.	Mt Kur-ring-gai, West of Pacific Highway	□ Residential area □ Small local shopping centre	Isolated from east Mt Ku-ring-gai connection with remainder of Shire only via Pacific Highway.	Local roads carry low traffic volumes allowing integrated traffic on local roads. Opportunity for shared bike path linking local roads along the western side of the Pacific Highway. This route could be extended to provide similar service to Mt Colah connecting both local areas with the major centres of Asquith and Hornsby. Future low traffic volumes on Pacific Highway may allow the installation of a parallel bikelane.	Old Pacific Highway identified as part of 1998 plan.
5.	Mt Colah, East of Pacific Highway	□ Residential area □ Public school □ Railway station □ Recreational/open space	connection with Ku-ring-gai Chase National Park via Ku-ring-gai chase Road. This road provides a recreational link with North Turramurra and St Ives. The road is the responsibility of the National Parks and Wildlife Service.	Local roads sufficient for integrated traffic flow connection with development on west side of Pacific Highway. Link Asquith via Royston Parade. Signpost Ku-ring-gai Chase Road as a recreational route. Its characteristics and the proposed treatment would be similar to that provided for the Galston-Gorge-Berowra Waters Loop.	Incorporated strategy is consistent with current initiatives.
6.	Mt Colah, West of Pacific Highway	□ Residential area □ Local shops	Local roads are not extensively inter-connected other than along the Pacific Highway.	Local roads sufficient for integrated traffic. Improve connections between local roads to allow movement through Mt Colah and to Asquith avoiding the Pacific Highway.	Act on Local Road connections where development allows change.

	Area/Location	Land Use	Specific Features	Strategy	1998 Plan
7.	Asquith, West of Main Northern Railway Line	□ Residential area □ Local shopping centre □ High schools	Major intersections at Jersey Street and Pacific Highway and Pacific Highway and Galston Road connection with eastern part of Asquith constricted to a single signalled crossing.	Provide bicycle link connecting Hornsby Heights and Hornsby exploiting road improvements on Galston Road. Allow flow of bicycle traffic to Asquith Station and Asquith High Schools avoiding Pacific Highway.	Incorporated strategy is consistent with current initiatives.
8.	Asquith, East of Main Northern Line	□ Residential area □ Railway station	Steep terrain is an obstacle to bicycle transport to Hornsby via Sherbrook Avenue.	Provide bicycle link with Mt Colah along Roystone Parade. Provide local connection with commercial area opposite on Pacific Highway.	Royston Parade/Stewart link promoted
9.	Hornsby Heights	□ Residential area □ Local primary schools	Extended linear residential development along Galston Road and Sommerville Road.	Provide bicycle links along main axis of development from Hornsby Heights to Amor Street to join with commercial centre of Hornsby (see Strategy 9 below).	Incorporated strategy is consistent with current initiatives.
10.	Galston and environs	□ Residential/rural □ Village shopping centre	Village isolated by topography and distance from remainder of Shire. Most streets are not kerbed. High speed traffic on Galston Road.	Local roads with sufficiently low vehicle traffic to support integrated bicycle traffic. Exception along Galston Road and Arcadia Road. Opportunity to extend and increase effectiveness of Galston High School bikeway as link between Carters road and Arcadia Road via the village and Primary School.	Previous local route initiatives incorporated.
11.	Hornsby (East)	□ Commercial area □ Residential area	High levels of traffic and heavy vehicles. Large commercial centre.	Emphasis on local links radiating from shopping centre. Opportunity for bikeways exploiting LATM and a commuter route aligned east-west connecting Ku-ring-gai.	Focus on track routes approaching town centre.
12.	Hornsby (West)	□ Residential area □ Commercial area	Steep terrain to the south and west	Provide safe connection between shopping centre/railway station and Hornsby Heights. Provide secure bicycle storage at Hornsby Station. Local routes to the south inhibited by steep terrain.	Local routes connecting to railway station lockers already installed.
13.	Precinct bounded by Pacific Highway/Pennant Hills Road and the Main Northern Railway Line	□ Commercial area □ Residential area □ 3 secondary schools	A concentration of school bicycle traffic in an enclosed area.	Provision of safe bicycle access to schools as well as links to Hornsby commercial area and to Normanhurst and Thornleigh to the south.	Focus on pennant Hills to Hornsby trunk route via schools.

	Area/Location	Land Use	Specific Features	Strategy	1998 Plan
14.	Normanhurst West	□ Residential area □ Primary School	Isolated by topography road connections at Chilvers Road and Milson Parade only.	Local streets carry sufficiently low traffic to support integrated traffic.	Supported
15.	Thornleigh/Westleigh	□ Residential area □ Industrial area on Chilvers Road □ Commercial area on Pennant Hills Road □ Primary Schools	Thornleigh partially separated from both Normanhurst and Pennant Hills by valleys. Westleigh isolated on ridgeline only link with Thornleigh.	Local network to link Thornleigh and Westleigh Development (Quarter Sessions Road)	Potential Duffy Avenue link to Thornleigh through new development.
16.	Pennant Hills, West of Pennant Hills Road	□ Residential area □ Commercial area □ High School	School traffic emanating from Pennant Hills High School forms a significant proportion of the local bicycle traffic.	Link to Cherrybrook connecting with local feeding routes to Pennant Hills High School and through to Pennant Hills Station and shops. Opportunity for Thornleigh Link.	Incorporated consistent with current initiatives.
17.	Normanhurst to Cheltenham, East of Pennant Hills Road and Beecroft Road	□ Residential area □ Open space □	Steep terrain very little interconnection of local roads other than with Pennant Hills Road. Pennant Hills Park is a significant sporting complex locating tennis, archery, soccer, cricket, football and netball facilities. It is situated on a flat ridgetop surrounded by native bush.	Severe constraints to bicycle planning. This area can be linked to Pennant Hills commercial district and railway station via local roads. Opportunity for recreational route to Pennant Hills park. Existing lanes inside the park or purpose built bike paths around the perimeter of the park could be used for the greatest appreciation of the area.	No change recommended.
18.	Cherrybrook	□ Residential □ Primary schools □ Proposed High school □ Local shopping centres	New release area	Provide local network link to Pennant Hills. Future network to be planned for further new release areas eventually linking Castle Hill developments.	
19.	West Pennant Hills (North of Castle Hill Road)	□ Residential area	Undulating land bounded by arterial roads: Castle Hill Road and Pennant Hills Road	Provide local link with Pennant Hills and Pennant Hills High School (see Strategy 16). Proposed future link with proposed development between Castle Hill and Cherrybrook.	Incorporated consistent with current initiatives.
20.	Beecroft	□ Residential area □ Local shops	Steep terrain bounded by arterial roads: Pennant Hills and Beecroft Road	Steep terrain is a constraint to bicycle planning. No formal bicycle network proposed.	

	Area/Location	Land Use	Specific Features	Strategy	1998 Plan
21.	Carlingford	□ Residential area □ Shopping centre	Concentration of school traffic on North Rocks Road.	Provide local network linking schools and local shopping centres. Links with Epping commercial centre.	Off-road link possible in Roselen/Beecroft linear park to support schools. See Strategy 20.
22.	North Epping/Epping	□ Residential area □ Primary school □ Commercial centre □ Near railway station	Residential area isolated by topography bounded by Epping Road to the south. North Epping has low through traffic.	Provide local network linking North Epping to the commercial centre of Epping. Provide facilities for dual mode commuting at Epping Station. Formalise links to the east - Epping Boys High School, Macquarie Uni.	Focus on Norfolk Road and Epping Road link routes.
23.	Epping (South of Epping Road)	□ Residential area	Bounded by Blaxland Road and Terrys Creek. Low through traffic volumes	Provide local link with Epping commercial area and railway station.	See Strategy 22.
24.	**Regional Strategies** Hornsby - Pennant Hills		Pennant Hills Road is the major road connecting these two commercial centres. The heavy traffic and expected increases in traffic volume upon the opening of the F3 connection (and later the F2-F3 connection) will further increase the cycle hazards along this route. Road improvements underway make no specific provision for cyclists. The existing road shoulders and pavements are variable in width and surface condition with numerous intersections at connecting roads and driveways.	Alternative bicycle routes should be developed. Networks proposed for Waitara/Normanhurst, Thornleigh and Pennant Hills could be incorporated into a regional link between Hornsby and Pennant Hills. Sections of the railway reserve could be used along the route to avoid cycling squeeze points.	Incorporated consistent with current initiatives.
25.	Asquith - Mt Ku-ring-gai			The local network planned for Royston Parade in conjunction with shared bikepaths on the western side of the Pacific Highway through Mt Colah will form the basis of this link. Predicted decreases in future traffic volumes on the Pacific Highway may permit an on-road facility.	Incorporated strategy is consistent with current initiatives.

	Area/Location	Land Use	Specific Features	Strategy	1998 Plan
26.	Hornsby - Hornsby Heights			These locations could be linked along the main arterial and collector roads following the Hornsby Heights ridgeline. Where engineering criteria are met, bicycle traffic on collector and local roads could be located on-road while on the Pacific Highway at Hornsby bicycle traffic should be diverted to off-road facilities.	Incorporated strategy is consistent with current initiatives.
27.	Hornsby - Wahroonga		Sufficient commuter and shopping-cyclist demand exists for a separate cycling link with the Ku-ring-gai Municipality as an alternative to the Pacific Highway.	Future provision could be made to link-up with Junction Road and to extend this route to Mona Vale Road. Such a strategy would require participation from Ku-ring-gai Municipal council. The current proposal would terminate at Palmerston Road.	Incorporated strategy is consistent with current initiatives.
28.	Pennant Hills - Cherrybrook - Castle Hill			Local bikeway proposals in Pennant Hills and Cherrybrook can be linked to form a continuous bikeway between Pennant Hills and the Shire boundary at Castle Hill. Baulkham Hills Municipal Council should be continually consulted.	Incorporated strategy is consistent with current initiatives.
29.	Galston Gorge - Berowra Waters Loop	□ Recreational	This physically demanding circuit is frequently used by experienced cyclists for training and recreation.	Galston Road/Berowra Waters Road should be encouraged as an integrated recreational route for experienced cyclists. While the roads do not lend themselves to specific treatment, integrated traffic could be catered fro by the provision of guide and warning signs.	Incorporated strategy is consistent with current initiatives.

Appendix C - Summary of Survey Results

Hornsby Bike Plan
Survey Results Summary

Shopping Centres

Q1. Do You Currently ride a bicycle?

Shopping Centre	**No. Responses**	**No. Cyclists**	
Cherrybrook	18	16	
Carlingford	22	18	
Berowra	3	2	
Hornsby	77	59	
Total	**120**	**95**	**79%**

Q2. How often do you ride your bike?

More than once per week	42
Once per week	16
Once a fortnight	12
Once per month	11
Less frequent	15
No Response	24

Q3. Would you consider cycling to shops or leisure facilities or friends, etc?

Yes	115
No	5
No Response	0

Q4. Would you cycle to the shops or leisure facilities if you had a storage locker for a bike and clothes?

Yes	98
No	18
No Response	4

Q5. Would you consider commuting to work by bike?

Yes	56
No	58
No Response	6

Q6. What factors stop you riding your bike more frequently?

Scale of 1 to 5, 1 being a minor problem, 5 being a major problem

	1	2	3	4	5	No Response	Average
Traffic volumes on road	13	4	13	23	65	2	4.04
Personal safety on road	10	10	8	17	72	3	4.12
Distance too great	40	16	26	12	22	4	2.66
The weather	35	26	31	11	13	4	2.49
Lack of change facilities at work	43	17	20	15	12	13	2.40
Lack of security at work	43	16	19	17	14	11	2.48

Q7. What facilities would encourage you to cycle more frequently?

Scale of 1 to 5, 1 being a minor problem, 5 being a major problem

	1	2	3	4	5	No Response	Average
Physically segregated cycle lanes	8	5	5	10	86	6	4.41
Cycle lanes marked on roads	12	0	14	18	69	7	4.17
Unsealed off road routes	21	10	28	17	35	8	3.32
Provision of change facilities	31	22	28	14	13	12	2.59
Provision of security facilities	21	11	24	23	32	9	3.31

Q8. What is your normal mode of transport to shops or leisure facilities?

Car (driver)	68
Car (passenger)	7
Bus	2
Walk	5
Cycle	3
Combination	28
No Response	7

Q9. What is the postcode for your home address?

	Most Common	% of responses
Cherrybrook	2126	100%
Carlingford	2118	59%
Berowra	2082	100%
Hornsby	2077	55%

Q10. What is the postcode for your work address?

	Most Common
Cherrybrook	2077
Carlingford	2011
Berowra	#N/A
Hornsby	2000

Q11a. Are you male or female?

Male	75
Female	36
No Response	9

Q11b. What is your age bracket

Less than 20	20
20 to 30	18
30 to 40	32
40 to 50	28
50 to 60	15
Greater than 60	3
No Response	4

Hornsby Bike Plan
Survey Results Summary

Train Stations

Q1. Do You Currently ride a bicycle?

Train Station	No. Responses	No. Cyclists	
Epping	97	85	
Hornsby	88	75	
Berowra	60	48	
Total	**245**	**208**	**85%**

Q2. How often do you ride your bike?

More than once per week	102
Once per week	38
Once a fortnight	17
Once per month	24
Less frequent	29
No Response	35

Q3. Would you consider cycling to shops or leisure facilities or friends, etc?

Yes	231
No	11
No Response	3

Q4. Would you cycle to the shops or leisure facilities if you had a storage locker for a bike and clothes?

Yes	200
No	34
No Response	11

Q5. Would you consider commuting to work by bike?

Yes	145
No	95
No Response	5

Q6. What factors stop you riding your bike more frequently?

Scale of 1 to 5, 1 being a minor problem, 5 being a major problem

	1	2	3	4	5	No Response	Average
Traffic volumes on road	19	15	33	50	122	6	4.01
Personal safety on road	21	18	35	35	130	6	3.98
Distance too great	84	43	42	20	45	11	2.57
The weather	48	65	71	26	25	10	2.64
Lack of change facilities at work	110	31	27	31	27	19	2.27
Lack of security at work	117	25	24	23	40	16	2.32

Q7. What facilities would encourage you to cycle more frequently?

Scale of 1 to 5, 1 being a minor problem, 5 being a major problem

	1	2	3	4	5	No Response	Average
Physically segregated cycle lanes	19	5	20	24	170	7	4.35
Cycle lanes marked on roads	12	11	41	43	130	8	4.13
Unsealed off road routes	51	31	41	43	63	16	3.16
Provision of change facilities	85	42	37	30	29	22	2.44
Provision of security facilities	41	43	33	43	72	13	3.27

Q8. What is your normal mode of transport to shops or leisure facilities?

Car (driver)	111
Car (passenger)	7
Bus	7
Walk	27
Cycle	18
Combination	69
No Response	6

Q9. What is the postcode for your home address?

	Most Common	% of responses
Epping	2121	95%
Hornsby	2077	75%
Berowra	2082	98%

Q10. What is the postcode for your work address?

	Most Common
Epping	2000
Hornsby	2000
Berowra	2000

Q11a. Are you male or female?

Male	181
Female	61
No Response	3

Q11b. What is your age bracket

Less than 20	32
20 to 30	60
30 to 40	64
40 to 50	57
50 to 60	22
Greater than 60	7
No Response	3

Hornsby Bike Plan
Survey Results Summary

Schools

Q1. Do You Currently ride a bicycle?

School	No. Responses	No. Cyclists	
Normanhurst West P.S.	77	73	
Hornsby Heights P.S.	108	90	
Epping North P.S.	48	43	
Berowra P.S.	64	61	
Thornleigh West P.S.	168	140	
Mt Kuring-Gai P.S.	4	4	
Pennant Hills H.S.	549	369	
Carlingford H.S.	147	81	
Mt Colah P.S.	53	52	
Wideview P.S.	204	176	
Epping Boys H.S.	125	85	
Normanhurst Boys H.S.	86	64	
Asquith Boys H.S.	99	88	
Galston H.S	254	202	
John Purchase P.S.	146	126	
Total	**2132**	**1654**	**78%**

Q2. How often do you ride your bike?

More than once per week	827
Once per week	335
Once a fortnight	224
Once per month	148
Less frequent	159
No Response	438

Q3. Would you consider riding your bike to school?

Yes	957
No	1159
No Response	16

Q4. Would you cycle to the school if you had a storage locker for a bike and clothes?

Yes	1139
No	961
No Response	32

Q6. What makes riding easier or harder for you?

	Easy	Hard	No Response	% Hard
Lots of vehicles in the road	383	1682	67	81%
If you do not feel safe on the road	576	1480	76	72%
If you have to ride a long way	880	1176	74	57%
If the weather is wet	624	1438	70	70%
Lack of somewhere to lock your bike	534	1510	88	74%

Q7. Would you ride your bike more often if the following were provided near your home?

	Yes	No	No Response	% Yes
Bike lanes away from roads	1684	380	65	82%
Bike paths marked on roads	1423	625	83	69%
Dirt tracks away from roads	1508	541	80	74%
Somewhere to lock your bike	1804	261	66	87%

Q8. How do you normally get to school?

Car	643
Bus	720
Walk	437
Cycle	220
Combination	59
No Response	53

Q9. What is the postcode for your home address?

	Most Common	% of responses
Normanhurst West P.S.	2120	96%
Hornsby Heights P.S.	2077	98%
Epping North P.S.	2121	98%
Berowra P.S.	2081	69%
Thornleigh West P.S.	2120	98%
Mt Kuring-Gai P.S.	2080	75%
Pennant Hills H.S.	2120	58%
Carlingford H.S.	2118	52%
Mt Colah P.S.	2079	96%
Wideview P.S.	2082	97%
Epping Boys H.S.	2122	91%
Normanhurst Boys H.S.	2077	34%
Asquith Boys H.S.	2077	61%
Galston H.S	2156	36%
John Purchase P.S.	2126	95%

Q10. What is the postcode of your school?

	Most Common
Normanhurst West P.S.	2120
Hornsby Heights P.S.	2077
Epping North P.S.	2121
Berowra P.S.	2081
Thornleigh West P.S.	2120
Mt Kuring-Gai P.S.	2080
Pennant Hills H.S.	2120
Carlingford H.S.	2118
Mt Colah P.S.	2079
Wideview P.S.	2082
Epping Boys H.S.	2122
Normanhurst Boys H.S.	2076
Asquith Boys H.S.	2077
Galston H.S	2159
John Purchase P.S.	2126

Q11a. Are you male or female?	
Male	1202
Female	892
No Response	38

Q11b. What is your age bracket	
Less than 10	341
10 to 15	1662
Older than 15	97

Hornsby Bike Plan
Survey Results Summary

Hornsby TAFE

Q1. Do You Currently ride a bicycle?

Yes	26	
No	69	
No Response	0	
Total	**95**	**27%**

Q2. How often do you ride your bike?

More than once per week	8
Once per week	7
Once a fortnight	2
Once per month	5
Less frequent	8
No Response	65

Q3. Would you consider cycling to shops or leisure facilities or friends, etc?

Yes	46
No	49
No Response	0

Q4. Would you cycle to the shops or leisure facilities if you had a storage locker for a bike and clothes?

Yes	40
No	55
No Response	0

Q5. Would you consider commuting to work by bike?

Yes	26
No	67
No Response	2

Q6. What factors stop you riding your bike more frequently?

Scale of 1 to 5, 1 being a minor problem, 5 being a major problem

	1	2	3	4	5	No Response	Average
Traffic volumes on road	25	11	20	11	25	3	3.00
Personal safety on road	25	8	18	8	33	3	3.17
Distance too great	15	11	20	11	34	4	3.42
The weather	19	18	15	14	25	4	3.09
Lack of change facilities at work	32	17	14	12	16	4	2.59
Lack of security at work	34	17	14	10	17	3	2.55

Q7. What facilities would encourage you to cycle more frequently?

Scale of 1 to 5, 1 being a minor problem, 5 being a major problem

	1	2	3	4	5	No Response	Average
Physically segregated cycle lanes	24	6	16	15	32	2	3.27
Cycle lanes marked on roads	22	8	20	15	28	2	3.20
Unsealed off road routes	29	10	21	14	19	2	2.83
Provision of change facilities	24	13	28	9	19	2	2.85
Provision of security facilities	27	15	17	8	26	2	2.90

Q8. What is your normal mode of transport to shops or leisure facilities?

Car (driver)	45
Car (passenger)	8
Bus	4
Walk	8
Cycle	1
Combination	27
No Response	2

Q9. What is the postcode for your home address?

Most Common	% of responses
2077	47%

Q10. What is the postcode for your work address?

Most Common
2077

Q11a. Are you male or female?

Male	43
Female	48
No Response	4

Q11b. What is your age bracket

Less than 20	55
20 to 30	24
30 to 40	3
40 to 50	10
50 to 60	1
Greater than 60	1
No Response	1

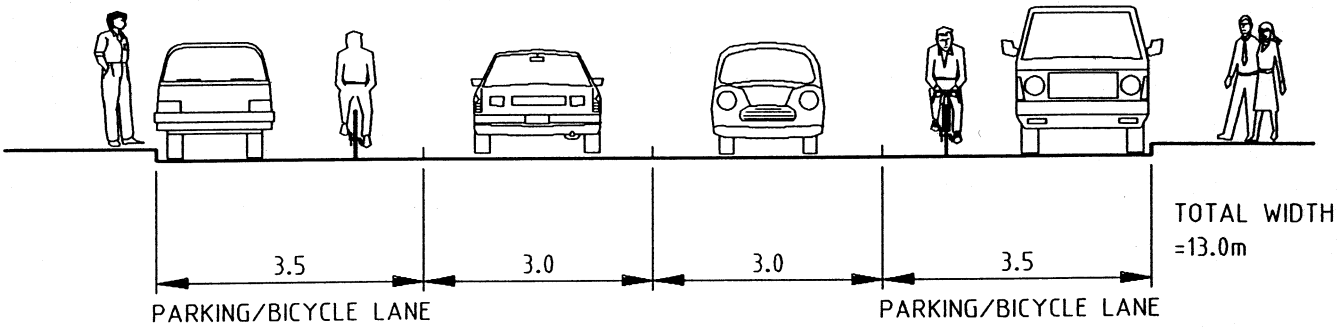
Hornsby Bike Plan
Survey Results Summary

Total Responses

Q1. Do You Currently ride a bicycle?

School	No. Responses	No. Cyclists	
Normanhurst West P.S.	77	73	
Hornsby Heights P.S.	108	90	
Epping North P.S.	48	43	
Berowra P.S.	64	61	
Thornleigh West P.S.	168	140	
Mt Kuring-Gai P.S.	4	4	
Pennant Hills H.S.	549	369	
Carlingford H.S.	147	81	
Mt Colah P.S.	53	52	
Wideview P.S.	204	176	
Epping Boys H.S.	125	85	
Normanhurst Boys H.S.	86	64	
Asquith Boys H.S.	99	88	
Galston H.S	254	202	
John Purchase P.S.	146	126	
Hornsby TAFE	95	26	
Total	**2132**	**1654**	**78%**

Appendix D - Standard Road Treatments



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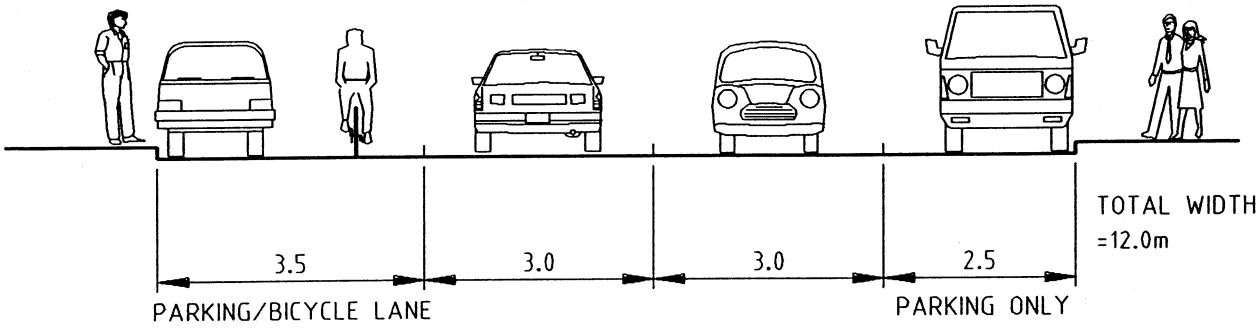

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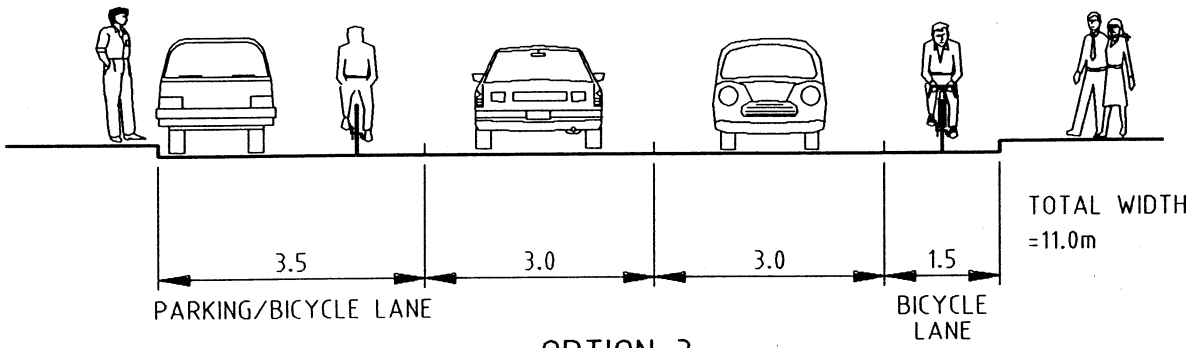

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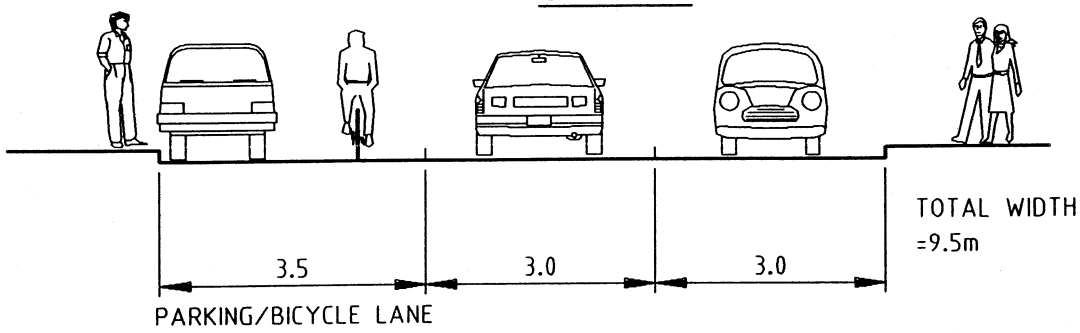

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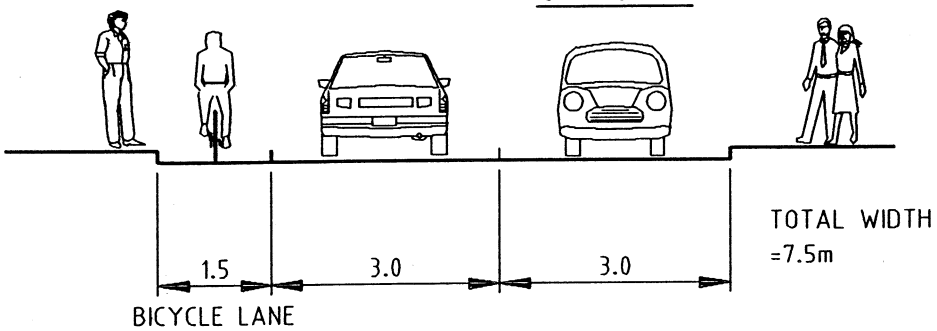

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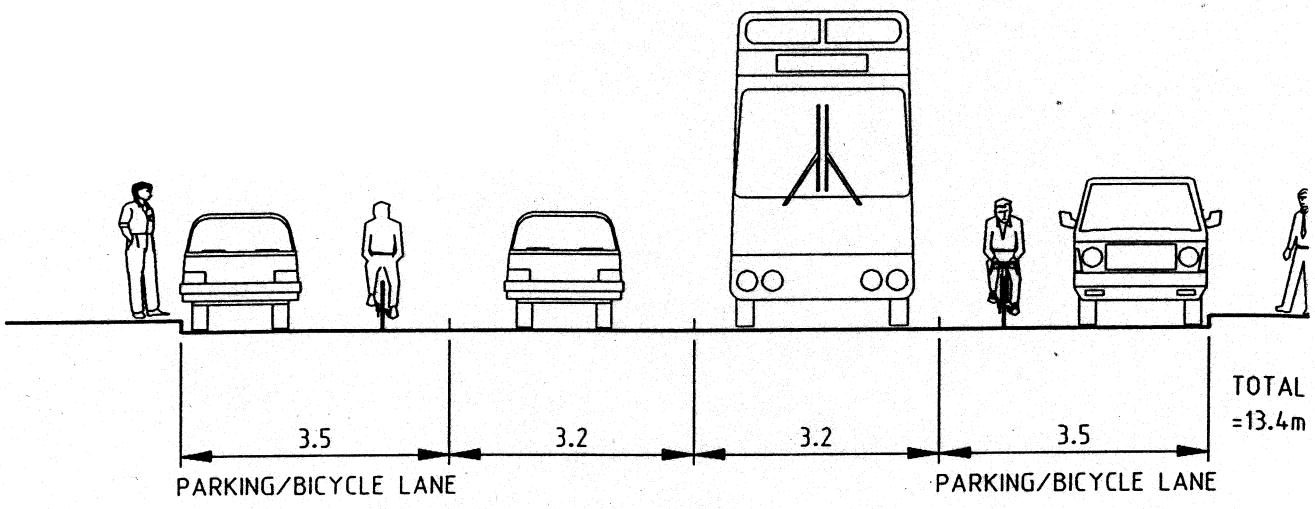

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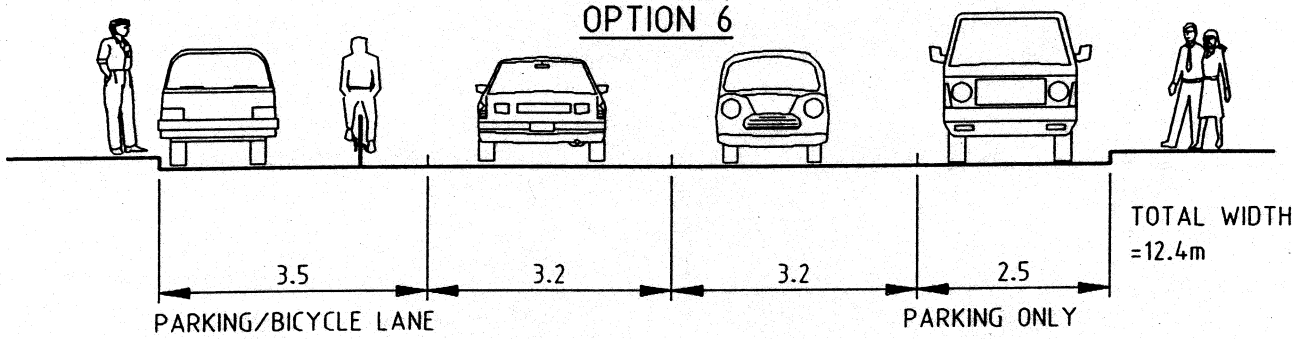

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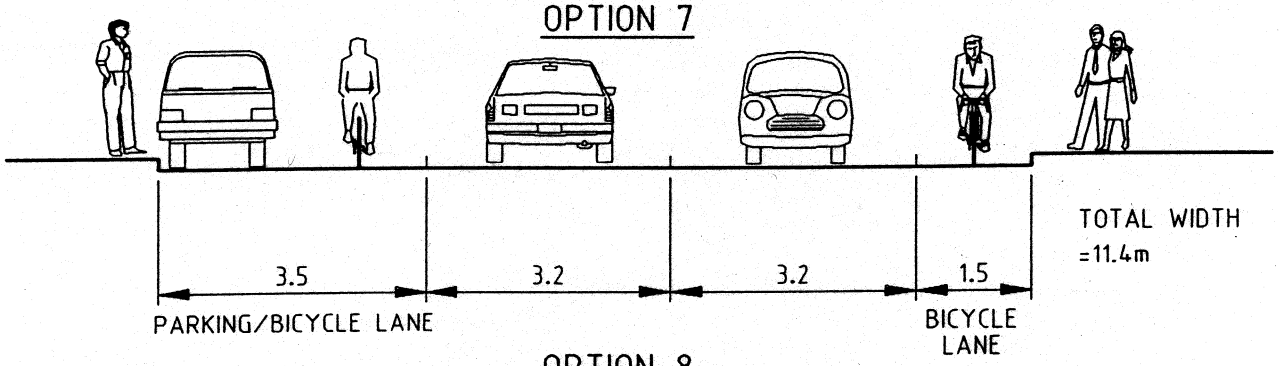

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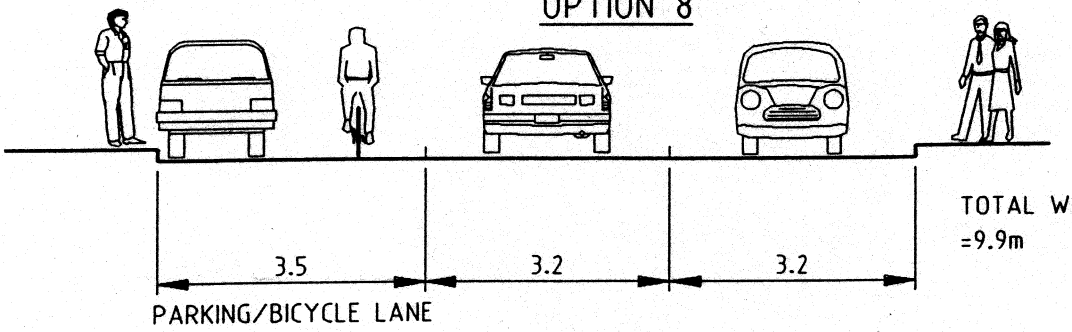

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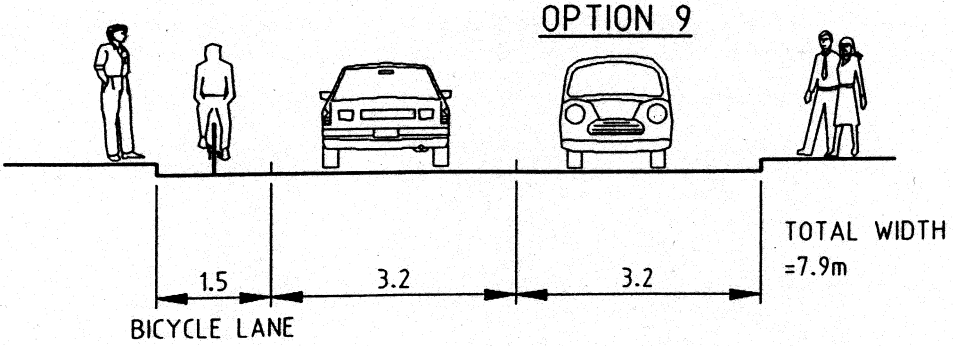


OPTION 10

Appendix E - Key Transition Treatments

Figure E-1: Standard Treatment A

Figure E-2: Standard Treatment B

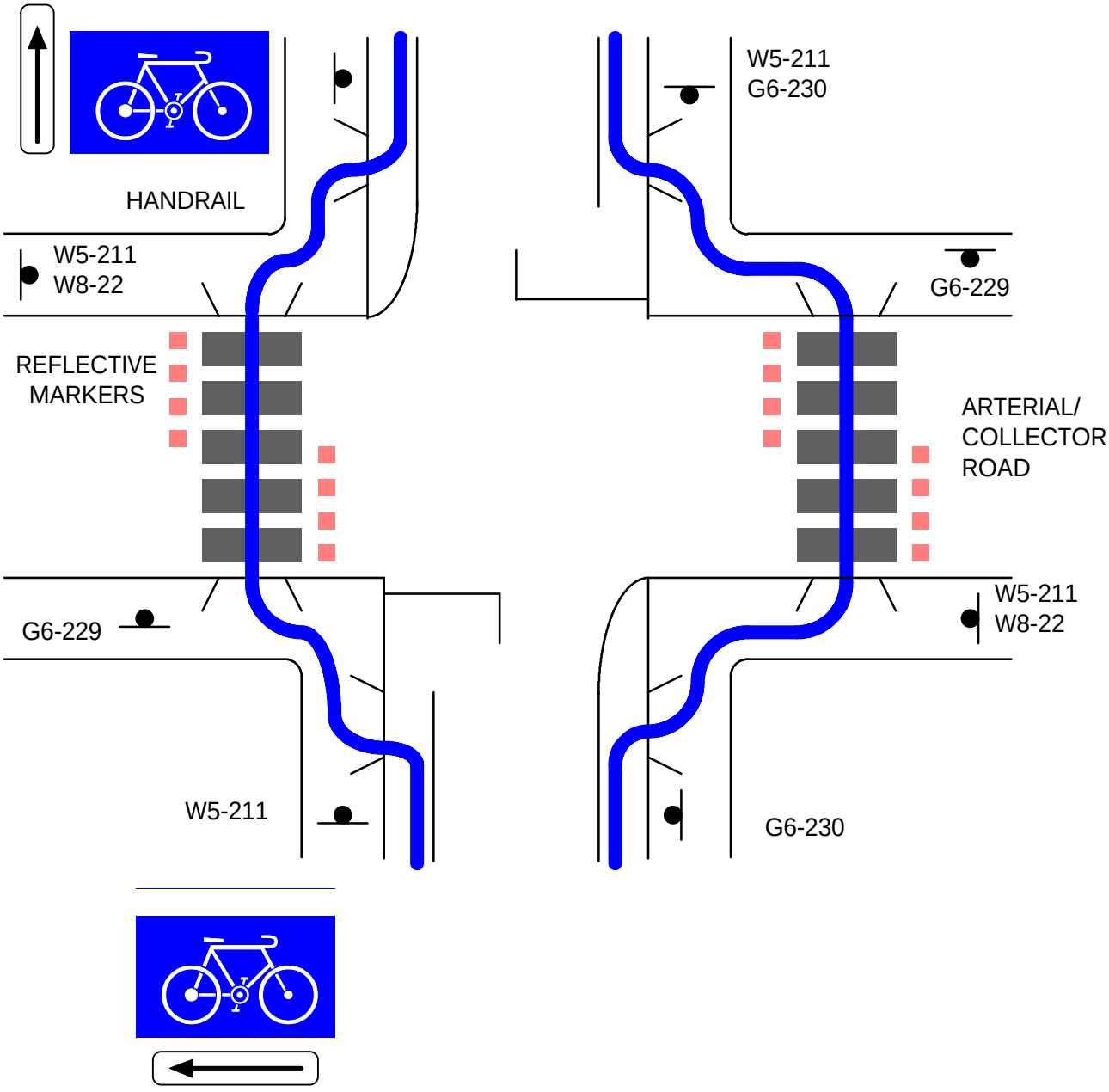


Figure E-3: Standard Treatment C

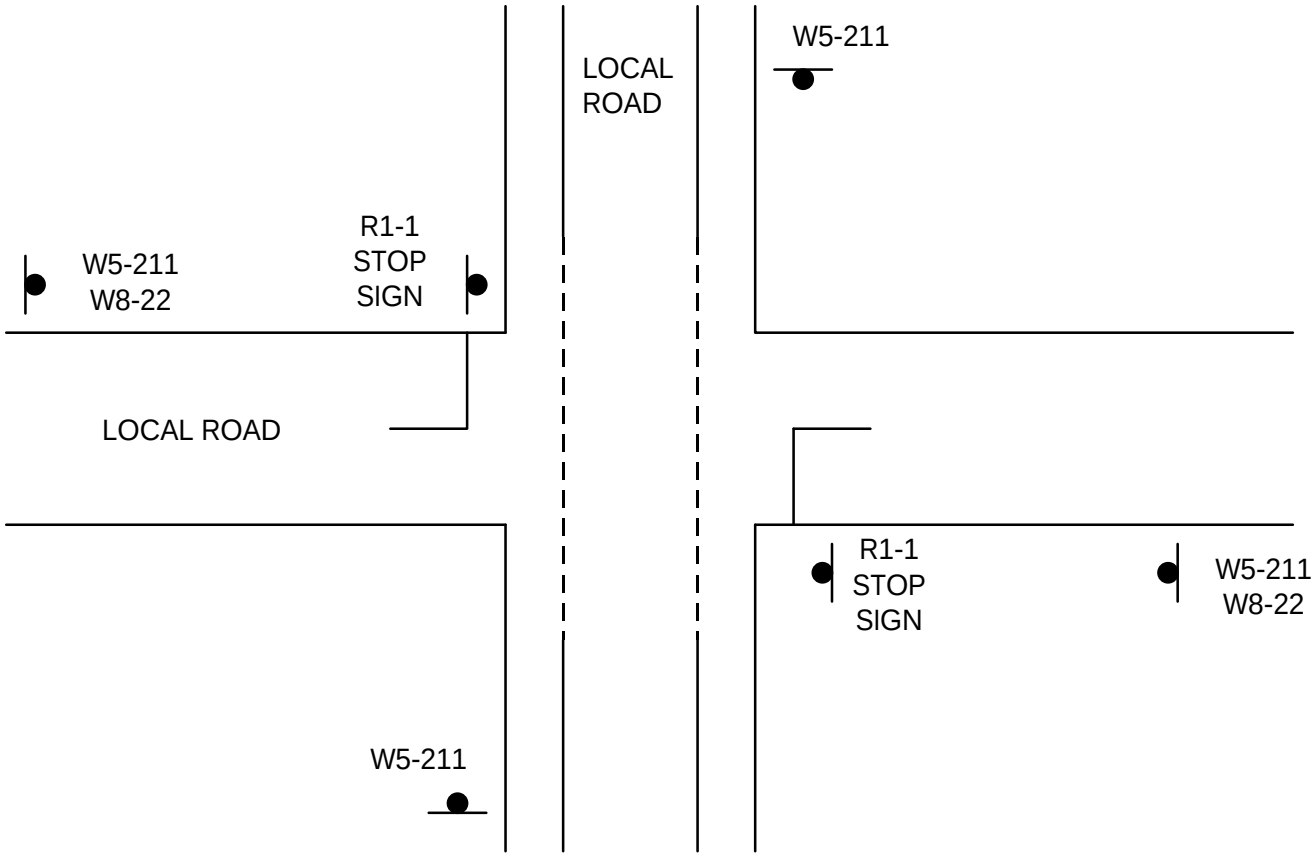
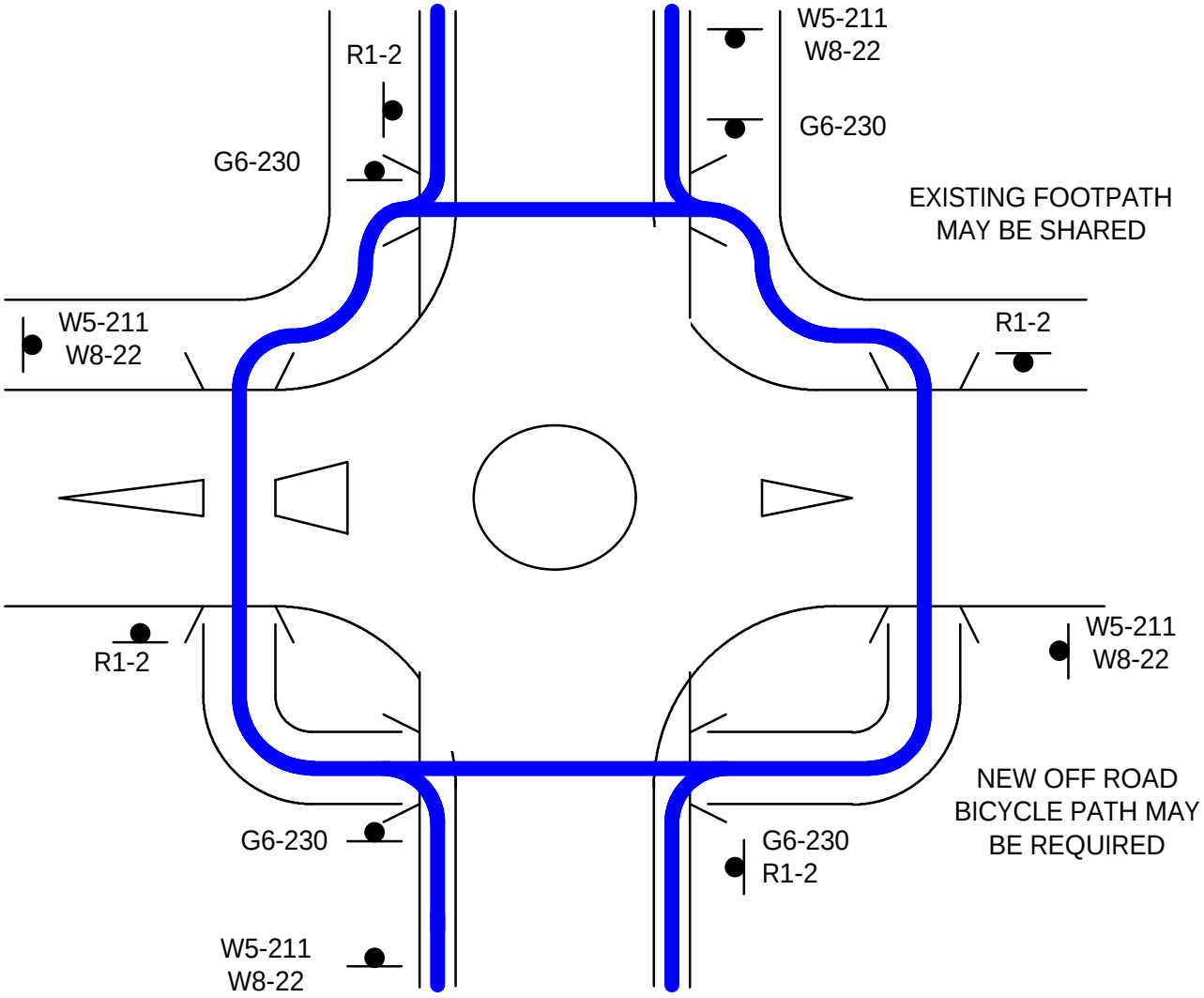


Figure E-4: Standard Treatment D



Sign Descriptions

Regulatory Signs

R2-207

The cycleway sign -a regulatory sign with legal significance which permits cycling on the path designated. Signs R3-203/4 or R3-205 are preferred. (Do not confuse this with the bike route sign G6-230).

R2-208

Cycleway ends - the terminating sign on a permitted cycle path.

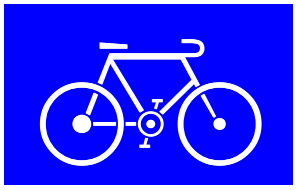
R3-205

Shared cycle path - supplementary “Give Way” plate might be necessary.

R1-2A

It is recommended that this sign be placed whenever a cyclist approaches a road crossing. The sign should be carefully positioned on the bicycle route so that it does not distract other road users.

Guide Signs



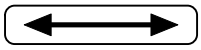
G6-230

The bike route sign. This sign differs from the cycle way sign (G2-226) in that it has no regulatory significance. It should be used wherever appropriate to designate a bike route and may be erected in conjunction with parking, guide (bike route0, or other signs.

Warning Signs

W5-211

Warning - to motorists or pedestrians that bicycles may be expected. The exact location of the bike route must also be visible and apparent, and a supplementary plate showing the distance to a conflict point is often appropriate.



W8-22

This supplementary plate is used with W5-211 to warn other road users that cyclists may be crossing the road ahead.

G9-244

To warn turning vehicles where the bikeway is close to an intersection, or where turning vehicles present a particular hazard.

G9-245

As for G9-244.

G6-229

To warn cyclists of possible conflict. **Do not use this sign where the condition is obvious**, but where an inattentive cyclist might be caught by surprise.

Appendix F - Work Schedule

Summary of Engineering Works Schedule

Route No	Road Name	Location Start	Location Finish	Width (m)	Treatment	Length (km)	Special Treatment	Responsibility	Strategy Priority	Cost ($)
Trunk										
1	Pacific Hwy	Asquith Stn	Berowra WtrsRd		On Road			RTA	Existing	$0
2	Pacific Hwy	Asquith Stn	Hornsby Stn		On Road			RTA	Short	$3,000
3	Galston Road	Pacific Hwy	Somerville Rd		On Road			RTA	Medium	$5,000
4	Berowra Wtrs Rd	Pacific Hwy	Galston		On Road			RTA	Medium	$7,000
5	Dartford Road	Denman	Unwin		On Road			RTA	Short	$60,000
6	Milson/Malsbury	Pacific Hwy	Sefton Road		On Road			RTA	Short	$10,000
7	Sefton Road	Malsbury	Chilvers		On Road			RTA	Short	$5,000
8	Yararra/Esplanade	Duffy Ave	Pennant Hills Rd		On Road			RTA	Short	$25,000
9	Alexandra Pde	Waitara Ave	Council Bdy		On Road			RTA	Short	$25,000
10	Boundary Road	Pennant Hills Rd	New Line Road		Off Road			RTA	Medium	$75,000
11	New Line Road	Boundary Road	Hastings Road		Off Road			RTA	Medium	$110,000
12	New Line Road	Boundary Road	Castle Hill Rd		On Road			RTA	Short	$10,000
13	Victoria Street	Castle Hill Rd	Boundary Rd		On Road			RTA	Short	$70,000
14	Sutherland Road		M2		On Road			RTA	Short	$10,000
15	Pennant Hills Pk		Council Bdy		Off Road			RTA	Long	$400,000
16	Jersey Street	Bridge Road	Coronation St		Off Road			RTA	Short	$55,000
17	Asquith Rail Link	Asquith Stn	Bridge Road		Off Road			RTA/SRA	Medium	$150,000
18	Beecroft Rail Link	Pennant Hills Rd	Sutherland Rd		Off Road			RTA/SRA	Medium	$200,000
19	M2 Motorway				On Road			Hills M'way	Existing	$0
Recreational										
20	Berowra Wts Road	Berowra	Galston		On Road		Signage	RTA	Medium	$10,000
21	Galston Road	Hornsby Heights	Galston		On Road		Signage	RTA	Medium	$10,000
22	Mt Ku-ring-gai Rd	Mt Ku-ring-gai	Bobbin Head		On Road		Signage	RTA	Medium	$10,000
24	Old Northern Road	Castle Hill	Wisemans Ferry		On Road		Signage	RTA	Long	$25,000
25	Pacific Highway	Berowra	Brooklyn		On Road		Signage	RTA	Long	$20,000
Local										
26	Turner Road	Berowra Wtrs Rd	Alston Rd		On Road			Hornsby	Medium	$5,000
27	Royston/Railway	Sherbrook	Stephen		On Road			Hornsby	Medium	$5,000
28	Edgeworth David		Council Bdy		On Road			Hornsby	Medium	$5,000
29	Duffy Avenue				On Road			Hornsby	Short	$5,000
30	Quarter Sessions Rd				On Road			Hornsby	Short	$7,500
31	Somerville	Galston Rd			On Road			Hornsby	Short	$5,000
32	Norfolk Rd				On Road			Hornsby	Medium	$2,000
33	Ray Rd				On Road			Hornsby	Medium	$4,000
34	Pennant Pd				On Road			Hornsby	Medium	$3,000
35	Murray Farm Road				On Road			Hornsby	Medium	$6,000
36	Cherrybrook				On Road			Hornsby	Short	$5,000
37	Cherrybrook				Off Road			Hornsby	Medium	$110,000
Precincts Plans	Traffic Calming				Signage			Hornsby/RTA	Long	$500,000
Summary										
	Line Marking									$200,000
	Signs									$150,000
	Cyclepaths									$500,000
	Transitions									$300,000
	Off Road									$150,000
	Route Guidance									$100,000
	Promotion									$50,000
	Fees- @15%									$217,500
	Fees- @25%									$362,500
	TOTAL- Lower Bound									$1,667,500
	TOTAL- Upper Bound									$1,812,500

Hornsby Bike Plan
Appendix F
Trunk Routes

Route	From	To	Status	Facility Type	Road Width (m)	Length (m)	Facility Type	Responsibility	Comment	
Pennant Hills -	Pennant Hills Rd & Yarrara			Intersection				RTA	Treatment for cyclists required	
Hornsby	P.H. Rd & Yarrara	Yarrara & Stevens	High Priority	On Road	12	510	1 Cycle, 1 Park & Cycle	HSC	Bus route along Yarrara/Esplanade	
	Yarrara & Stevens	Esplanande & Eddy	High Priority	On Road	12	540	1 Cycle, 1 Park & Cycle	HSC		
	Esplanande & Eddy	Esplanade & Janet	High Priority	On Road	12	330	1 Cycle, 1 Park & Cycle	HSC		
	Esplanade & Janet	Esplanade & Hall	High Priority	On Road	12	220	1 Cycle, 1 Park & Cycle	HSC		
	Esplanade & Hall		High Priority	Intersection			Rest Rail	HSC		
	Esplanade & Hall	Hall & W. Path	High Priority	On Road	7	160	Warning	HSC		
	Esplanade & Janet	Hall & W. Path	Long Term	Off Road		280		HSC/SRA	Longer term alternative	
	Hall & Path	W. Path & Duffy	Existing?	Off Road		200		HSC	Parallel to Railway	
	W. Path & Duffy	W. Path & Dartford	Existing?	Off Road		800		HSC		
	W. Path & Dartford		High Priority	Intersection			Rest Rail	HSC		
	W. Path & Dartford	E. Path & Dartford	Existing?	On Road	7	20	Warning	HSC	Parallel to Railway	
	E. Path & Dartford		High Priority	Intersection			Rest Rail	HSC		
	E. Path & Dartford	E. Path & Buckingham	Existing?	Off Road		720		HSC		
	E. Path & Buckingham	Buckingham & Denman	High Priority	On Road	9	10	2 Cycle OR Park & Warn	HSC		
	Buckingham & Denman	Denman & Edwards	High Priority	On Road	11	710	1 Cycle, 1 Park & Cycle	HSC		
	Denman & Edwards	Edwards & Unwin	High Priority	On Road	8	180	Lane Line & Warning	HSC		
	Edwards & Unwin	Unwin & Pacific	High Priority	On Road	10	990	2 Cycle OR Park & Warn	HSC		
	Unwin & Pacific	Romsey & Pattison	High Priority	On Road	12	100	1 Cycle, 1 Park & Cycle	HSC		
	Romsey & Pattison	Pattison & Alexandria	High Priority	On Road	10	120		HSC		
	Pattison & Alexandria	Alexandria & Myra	High Priority	On Road	8	870		HSC		
	Alexandria & Myra	Alexandria @ Freeway	High Priority	On Road	8	350		HSC		
Pennant Hills -	Railway St & Path	Path & Azalea	Existing	Off Road		280		HSC		
Marsfield	Path & Azalea	Path, Sutherland & Tristania	Existing	Off Road		290		HSC		
	Path & Sutherland	Sutherland & Chapman	Medium Priority	On Road	8	570	Lane Line & Warning	HSC		
	Sutherland & Chapman	Sutherland & Copeland	Medium Priority	On Road	8	420	Lane Line & Warning	HSC		
	Sutherland & Copeland	Sutherland & Cheltenham	Medium Priority	On Road	8	1280	Lane Line & Warning	HSC		
	Sutherland & Cheltenham	Sutherland & M2	Medium Priority	On Road	8	1150	Lane Line & Warning	HSC		
	Derby & M2	Derby & Surrey	Medium Priority	On Road	11	360	1 Cycle, 1 Park & Cycle	HSC		
	Derby & Surrey		Medium Priority	Intersection			Rest Rail	HSC		
	Derby & Surrey	Surrey & Norfolk	Medium Priority	On Road	10	230	2 Cycle OR Park & Warn	HSC		
	Surrey & Norfolk		Medium Priority	Intersection			Rest Rail	HSC		
	Surrey & Norfolk	Norfolk & Pembroke	Medium Priority	On Road	10	500	2 Cycle OR Park & Warn	HSC	Bus route? (North Epping)	
	Norfolk & Pembroke	Pembroke & Epping	Medium Priority	On Road	13	130	1 Cycle, 1 Park & Cycle	HSC	Bus route (high frequency)	
	Pembroke & Epping	Epping @ Terrys Ck	Medium Priority	On Road	13	560	1 Cycle, 1 Park & Cycle	HSC/RTA		
										16,922.00
Pennant Hills -	Yarrara & Ramsay	Ramsay & Bellamy	High Priority	On Road	13	730	1 Cycle, 1 Park & Cycle	HSC		
Dural	Ramsay & Bellamy	Bellamy & Boundary	High Priority	On Road	10	460	2 Cycle OR Park & Warn	HSC		
	Victoria, Boundary & Bellamy		High Priority	Intersection				HSC/RTA	Treatment for cyclists required	
	Bellamy & Boundary	Boundary & New Line	Medium Priority	On Road		2420		RTA	Bus route.	
	Boundary & New Line	New Line & Hastings	Medium Priority	On Road	12	2020		RTA	Bus route	
	New Line & Hastings	Hastings & Old Northern	Medium Priority	On Road				RTA	Bus route	
	Hastings & Old Northern		Medium Priority	Intersection				RTA	Treatment for cyclists required	
										3,956.75
Pennant Hills -	PH Rd & The Crescent	The Crescent & Brittania	Long Term	On Road	6	240	Warning	HSC	Should be a lot wider	
Vimera Rd	The Crescent & Brittania	Brittania & park	Long Term	On Road	9	590	2 Cycle OR Park & Warn	HSC		
	Brittania & park	park & fire trail	Long Term	On Road	9	800	2 Cycle OR Park & Warn	HSC		
	park & fire trail	track & Vimera Rd	Existing	Off Road		3500		HSC		
										5,011.75

Route	From	To	Status	Facility Type	Road Width (m)	Length (m)	Facility Type	Responsibility	Comment	
Boundary Rd - Rogans Hill	Boundary & Victoria	Victoria & Cardinal	High Priority	On Road	9	1260	2 Cycle OR Park & Warn	HSC		
	Victoria & Cardinal	Victoria & New Line	High Priority	On Road	9	200	2 Cycle OR Park & Warn	HSC		
	Victoria & New Line	Victoria & Castle Hill	High Priority	On Road	9	580	2 Cycle OR Park & Warn	HSC		
	Victoria & Castle Hill	Castle Hill & David		On Road	9	1950	2 Cycle OR Park & Warn	RTA	Bus route	
	Castle Hill & David	Castle Hill & Old Northern		On Road	9	780	2 Cycle OR Park & Warn	RTA	Bus route	
										15,860.25
W. Pennant Hills - Beecroft Option (a)	Victoria & Cardinal	Cardinal & PH Rd	Medium Priority	On Road	9	750	2 Cycle OR Park & Warn	HSC		
	Cardinal & PH Rd	Cardinal & Chapman	Medium Priority	On Road	9	440	Lane Line & Warning	HSC	Bus route	
	Cardinal & Chapman	Chapman & Beecroft	Medium Priority	On/Off Road	10	980	2 Cycle OR Park & Warn	HSC	Section of wide pathway (narrow bridge)	
	Chapman & Beecroft		Medium Priority	Intersection				RTA	Treatment for cyclists required	
	Chapman & Beecroft	Chapman & Sutherland	Medium Priority	On Road	10	290	2 Cycle OR Park & Warn	HSC		
										8,003.50
W. Pennant Hills - Beecroft Option (b)	Victoria & Cardinal	Cardinal & PH Rd	Medium Priority	On Road	9	750	2 Cycle OR Park & Warn	HSC		
	Cardinal & PH Rd	Cardinal & Hannah	Medium Priority	On Road	9	650	Lane Line & Warning	HSC	Bus route	
	Cardinal & Hannah	Hannah & Beecroft	Medium Priority	On Road	9	990	Lane Line & Warning	HSC	Bus route	
	Hannah & Beecroft	Hannah & Wongala	Medium Priority	On Road	9	140	Lane Line & Warning	HSC	Bus route	
	Hannah & Wongala	Wongala & Copeland	Medium Priority	On Road	12	190	1 Cycle, 1 Park & Cycle	HSC	Bus route	
	Wongala & Copeland	Copeland & Sutherland	Medium Priority	On Road	12	80	1 Cycle, 1 Park & Cycle	HSC		
										8,598.00
M2	Pennant Hills & M2	M2 & Beecroft	Existing	On Road		3100				
	M2 & Beecroft	M2 @ Terrys Ck	Existing	On Road		1690				
										8,598.00
Hornsby -Berowra	High & Station	Station & Jersey	High	On Road		310		RTA		
	Station & Jersey	Jersey & Bridge	High	Off Road		560		RTA		
	Jersey & Bridge	Jersey & Pacific	High	Off Road		1160		RTA		
	Jersey & Pacific		High	Intersection				RTA/SRA	Treatment for cyclists required	
	Jersey & Pacific	Pacific & Berowra Waters	Existing	On Road		8700		RTA/SRA		
	Pacific & Berowra Waters		High	Intersection				RTA/SRA	Treatment for cyclists required	
										-
Normanhurst - Hornsby	Buckingham & Denman	Pretoria & Fullers	Long Term	Off Road		1450		HSC/SRA	Utilises SRA maintenance track	

Hornsby Bike Plan
Appendix F
Recreational Routes

Route	From	To	Status	Facility Type	Road Width (m)	Length (m)	Facility Type	Responsibility	Comment
Rogans Hill-	Castle Hill & Old Northern	Old Northern & Hastings	Long Term	Off Road		1600		RTA	
Wisemans Ferry	Old Northern & Hastings	Old Northern & Kenthurst	Long Term	Off Road		3160		RTA	
	Old Northern & Kenthurst	Old Northern & New Line	Long Term	Off Road		1120		RTA	
	Old Northern & New Line	Old Northern & Galston	Long Term	On Road		1870	Lane Line & Warning	RTA	
	Old Northern & Galston	Old Northern & Mid-Dural	Long Term	On Road		4430	Lane Line & Warning	RTA	
	Old Northern & Mid-Dural	Old Northern & Wylds	Long Term	On Road		2280	Lane Line & Warning	RTA	
	Old Northern & Wylds	Old Northern & Cairnes	Long Term	On Road		2950	Lane Line & Warning	RTA	
	Old Northern & Cairnes	Wisemans Ferry	Long Term	On Road		27000	Lane Line & Warning	RTA	
Galston -	Old Northern & Galston	Galston & Mid-Dural	Medium Term	On Road		3600	Lane Line & Warning	RTA	
Asquith and Hornsb	Galston & Mid-Dural	Galston & Arcadia	Medium Term	On Road		40	Lane Line & Warning	RTA	
	Galston & Arcadia	Galston & Crosslands	Medium Term	On Road		1100	Lane Line & Warning	RTA	
	Galston & Crosslands	Galston & Somerville	High Priority	On Road		6400	Lane Line & Warning	RTA	Includes signage
	Galston & Somerville	Galston, Carrington & Pacific	High Priority	On Road		2460	Lane Line & Warning	RTA	
	Galston, Carrington & Pacific	Pacific & Bridge	High Priority	On Road		670	Lane Line & Warning	RTA	
	Pacific & Bridge	Pacific & Station	High Priority	On Road		700	Lane Line & Warning	RTA	
	Galston, Carrington & Pacific	Pacific & Jersey	High Priority	On Road		780	Lane Line & Warning	RTA	Asquith Stn Branch
Mid-Dural Rd	Old Northern & Mid-Dual	Mid-Dural & Galston		On Road		2290	Lane Line & Warning	RTA	
Crosslands Rd	Galston & Crosslands	end Crosslands		On Road	6	6500	Lane Line & Warning	HSC	
Galston -	Galston & Arcadia	Fagan Park		On Road	6	1140	Lane Line & Warning	HSC	
Brooklyn	Fagan Park	Arcadia & Gartung		On Road	6	1300	Lane Line & Warning	HSC	
	Arcadia & Gartung	Arcadia & Fagans		On Road	6	1900	Lane Line & Warning	HSC	
via	Arcadia & Fagans	Arcadia PS		On Road	6	890	Lane Line & Warning	HSC	
Berowra	Arcadia PS	Arcadia & Vision Valley		On Road	6	50	Lane Line & Warning	HSC	
Waters	Arcadia & Vision Valley	Arcadia & Calabash		On Road	6	1570	Lane Line & Warning	HSC	
	Bay & Calabash	Bay & Chilcott		On Road	6	2680	Lane Line & Warning	HSC	
	Bay & Chilcott	Berowra Waters Ferry		On Road	6	3660	Lane Line & Warning	HSC	
	Berowra Waters Ferry	Berowra Waters & Barnetts		On Road	12	4070	Lane Line & Warning	HSC	Road width incorrect- probably 6m
	Berowra Waters & Barnetts	Berowra Waters & Turner		On Road	12	150	Lane Line & Warning	HSC	
	Berowra Waters & Turner	Berowra Waters & High St		On Road	12	1040	Lane Line & Warning	HSC	
	Berowra Waters & High St	Berowra Waters & Crowley		On Road	12	390	Lane Line & Warning	HSC	
	Berowra Waters & Crowley	Berowra Waters & Pacifc		On Road	12	410	Lane Line & Warning	HSC	Includes signage
	Berowra Waters & Pacifc	Pacific & Fraser	Existing?	On Road	12	4700	Lane Line & Warning	RTA	
	Pacific & Fraser	Pacifc & Brooklyn	Long Term	On Road	12	8000	Lane Line & Warning	RTA	
Mt Colah -	Pacific & Rail Bridge	Rail Bridge & Belmont	Medium Term	On Road	7	100	Lane Line & Warning	RTA	
Bobbin Head	Rail Bridge & Belmont	Belmont & Ku-Ring-Gai Chase	Medium Term	On Road	7	200	Lane Line & Warning	RTA	
	Belmont & Ku-Ring-Gai Chase	Ku-Ring-Gai Chase @Cockle Creek	Medium Term	On Road	7	7000	Lane Line & Warning	RTA	

Hornsby Bike Plan
Appendix F
Local Routes

Route	From	To	Status	Facility Type	Road Width (m)	Length (m)	Facility Type	Responsibility	Comment
Pembroke St	Langston & Pembroke	Norfolk & Pembroke	Medium Term	On Road	12	450	1 Cycle, 1 Park & Cycle	HSC	Bus route
Surrey St-	Surrey & Norfolk	Norfolk & Boundary	Medium Term	On Road	10	1560	2 Cycle OR Park & Warn	HSC	
Gt North Walk	Norfolk & Boundary	Boundary & Whale Rock Track	Medium Term	On Road	8	150	Lane Line & Warning	HSC	
	Boundary & Whale Rock Track	Whale Rock Track & Cheltenham Track	Existing	Off Road		350		HSC	
	Whale Rock Track & Cheltenham Track	Cheltenham Track & Gt North Walk	Existing	Off Road		710		HSC	
Ray Rd	Kandy & Ray	Ray & Pennant	Medium Term	On Road	10	1880	2 Cycle OR Park & Warn	HSC	Bus route
Pennant Pde	Carlingford & Pennant	Pennant & Nth Rocks	Medium Term	On Road	11	1220	2 Cycle OR Park & Warn	HSC	Bus route
Roselea Res.-	Pennant Hills & Roselea Res	Roselea Res & Carlingford High	Medium Term	Off Road		150		HSC/DEd	
Cheltenham	Carlingford High	Carlingford High	Medium Term	Off Road		270		HSC/DEd	
	Roselea P.S.	Roselea P.S.	Medium Term	Off Road		160		HSC/DEd	
	Reserve & P.S.	Norwood Ave	Medium Term	Off Road		230		HSC	Cross reserve near Marion Pl- informal track exists
	Norwood Ave	Norwood & North Rocks	Medium Term	On Road	6	120	Warning	HSC	
	Norwood & North Rocks	North Rocks & Pennant/Orchard	Medium Term	On Road	12	290	1 Cycle, 1 Park & Cycle	HSC	Existing LATM may need modification
	North Rocks & Pennant/Orchard	North Rocks & Pennant/Orchard	Medium Term	Intersection				HSC	Treatment for cyclists required
	North Rocks & Pennant/Orchard	Midson & Wycombe	Medium Term	On Road	10	910	2 Cycle OR Park & Warn	HSC	
	Midson & Wycombe	Wycombe & Kent	Medium Term	On Road	7	460	Warning	HSC	
	Wycombe & Kent	Castle Howard	Existing	Off Road		80		HSC	Footbridge
	Castle Howard	Cheltenham Rd	Existing	Off Road		80		HSC	Staircase
	Cheltenham Rd	Cheltenham & Beecroft	Medium Term	On Road	10	320	2 Cycle OR Park & Warn	HSC	
	Cheltenham & Beecroft		Medium Term	Intersection				RTA	Treatment for cyclists required
	Beecroft & Cheltenham	Cheltenham & Sutherland	Medium Term	On Road	10	520	2 Cycle OR Park & Warn	HSC	
Murray Farm Rd	Pennant Hills & Murray Farm	Murray Farm & Orchard	Medium Term	On Road	11	1650	1 Cycle, 1 Park & Cycle	HSC	Path connecting MF & PH
- Welham St	Murray Farm & Orchard	Murray Farm & Midson	Medium Term	On Road	11	370	2 Cycle OR Park & Warn	HSC	
	Murray Farm & Midson	Murray Farm & Castle Howard	Medium Term	On Road	7	50	Warning	HSC	Bus route
	Murray Farm & Castle Howard	Castle Howard & Welham	Not sealed	Off Road		180		HSC	
	Castle Howard & Welham	Welham & Beecroft	Medium Term	On Road	10	320	2 Cycle OR Park & Warn	HSC	
Neale Rd Loop	Victoria & New Line	New Line & Cherrybrook PS	Medium Term	On Road	12	1050	1 Cycle, 1 Park & Cycle	HSC	
	Cherrybrook PS		Medium Term	Off Road		200		HSC/DEd	
	Cherrybrook PS & All Saints	All Saints & Benedictine	Medium Term	On Road	7	120	Warning	HSC	
	All Saints & Benedictine	Benedictine & Franklin	Medium Term	On Road	7	320	Warning	HSC	
	Benedictine & Franklin	Franklin & Neale	Medium Term	On Road	7	320	Warning	HSC	
	Franklin & Neale	Neale & Edward Bennett	Medium Term	On Road	10	430	2 Cycle OR Park & Warn	HSC	
	Neale & Edward Bennett	Edward Bennett & New Line	Medium Term	On Road	10	440	2 Cycle OR Park & Warn	HSC	Edward Bennett connected to New Line via path.
Cherrybrook local	New Line & Purchase	Purchase & Forest	Medium Term	On Road	10	190	2 Cycle OR Park & Warn	HSC	Bus route along Purchase Rd
	Purchase & Forest	Purchase & Beechwood	Medium Term	On Road	10	680	2 Cycle OR Park & Warn	HSC	
	Purchase & Beechwood	Purchase & Eldridge	Medium Term	On Road	10	1070	2 Cycle OR Park & Warn	HSC	
	Purchase & Eldridge	Eldridge & Shepherds	Medium Term	On Road	10	250	2 Cycle OR Park & Warn	HSC	
	Eldridge & Shepherds	Shepherds & Beechwood	Medium Term	On Road	12	630	Warning	HSC	
	Shepherds & Beechwood	Shepherds & Macquarie	Medium Term	On Road	12	520	Warning	HSC	
	Shepherds & Macquarie	Shepherds & Glamorgan	Medium Term	On Road	12	530	Warning	HSC	
	Shepherds & Glamorgan	Glamorgan & Cherrybrook THS	Medium Term	Off Road		200		HSC	
	Glamorgan & Cherrybrook THS	Cherrybrook THS & Purchase Rd	Medium Term	Off Road		210		HSC/DEd	
	Purchase & Beechwood	Beechwood & Shepherds	Medium Term	Off Road		620		HSC	
	Beechwood & Mark	end Mark	Medium Term	Off Road		80		HSC	
	Greenway Pk circuit		Medium Term	Off Road		1370		HSC	
	Shepherds & Shepherds L	Greenway Pk circuit	Medium Term	Off Road		80		HSC	
	Shepherds & Macquarie	Macquarie & Francis Greenway (N end)	Medium Term	On Road	12	260	1 Cycle, 1 Park & Cycle	HSC	Bus route
	Macquarie & Francis Greenway (N end)	S end Macquarie	Medium Term	On Road	12	670	1 Cycle, 1 Park & Cycle	HSC	Bus route
	Macquarie & Francis Greenway	Francis Greenway & Parkhill	Medium Term	On Road	10	650	2 Cycle OR Park & Warn	HSC	Bus route
	Francis Greenway & Parkhill	Francis Greenway & Macquarie	Medium Term	On Road	10	70	2 Cycle OR Park & Warn	HSC	Bus route

Route	From	To	Status	Facility Type	Road Width (m)	Length (m)	Facility Type	Responsibility	Comment
	Francis Greenway & Macquarie	Francis Greenway & Boundary	Medium Term	On Road	10	50	2 Cycle OR Park & Warn	HSC	Bus route
Franklin Rd	Castle Hill & Franklin	end Darlington Dr	Medium Term	Off Road		1610		HSC	
	near Woodgrove	Doulton & Franklin	Medium Term	Off Road		250		HSC	
	Doulton & Franklin	Franklin & Benedictine	Medium Term	On Road		160		HSC	
David Rd -	Castle Hill & David	David & Woodgrove	Medium Term	On Road	10	830	2 Cycle OR Park & Warn	HSC	
New Line Rd	David & Woodgrove	Woodgrove & Greywood	Medium Term	On Road	10	220	2 Cycle OR Park & Warn	HSC	
	Woodgrove & Greywood	Greywood & Darlington	Medium Term	On Road	7	80	Warning	HSC	
	Greywood & Darlington	Darlington & Merriwa	Medium Term	On Road	7	320	Warning	HSC	
	Darlington & Merriwa	end Merriwa	Medium Term	On Road	7	130	Warning	HSC	
	end Merriwa	New Line & Purchase	Medium Term	Off Road		90		HSC	
Woodgrove Av	Woodgrove & David	David & Oakhill	Medium Term	On Road	10	660	2 Cycle OR Park & Warn	HSC	Possibly a bus route
- Dural	David & Oakhill	Oakhill & Willowbrook	Medium Term	On Road	10	430	2 Cycle OR Park & Warn	HSC	
	Oakhill & Willowbrook	Willowbrook & Highclere	Medium Term	On Road	7	120	Warning	HSC	
	Willowbrook & Highclere	end Highclere	Medium Term	On Road	7	220	Warning	HSC	
	end Highclere	Old Northern	Medium Term	Off Road				HSC	
	Oakhill & Willowbrook	Oakhill & Fernbrook	Medium Term	On Road	10	640	2 Cycle OR Park & Warn	HSC	
	Oakhill & Fernbrook	Fernbrook & Belltree	Medium Term	On Road	7	230	Warning	HSC	
	Fernbrook & Belltree	end Belltree	Medium Term	On Road		70		HSC	Width data not provided- probably 7m.
	end Belltree	Hastings Rd	Medium Term	Off Road				HSC	
	Oakhill & Fernbrook	Oakhill & David	Medium Term	On Road	10	350	2 Cycle OR Park & Warn	HSC	
	Oakhill & David	David & New Line	Medium Term	On Road	10	100	2 Cycle OR Park & Warn	HSC	
	New Line & James Henty	James Henty & Jenner	Medium Term	On Road	10	950	2 Cycle OR Park & Warn	HSC	Bus route?
Laurence St-	Bellamy & Laurence	Laurence & Schofield	Medium Term	On Road	10	710	2 Cycle OR Park & Warn	HSC	Substantial school bus services to PHHS
Cherrybrook	Laurence & Schofield	end Schofield	Medium Term	On Road	10	480	2 Cycle OR Park & Warn	HSC	
	end Schofield	Parkhill & Francis Greenway	Medium Term	Off Road		940		HSC	
Duffy Ave	PH Rd & Duffy	Duffy & The Esplanade	Medium Term	On Road	10	320	2 Cycle OR Park & Warn	HSC	Bus route?
	Duffy, The Esplanade & Chilvers		Medium Term	Intersection				HSC/RTA	Treatment for cyclists required
	Chilvers & Duffy	Duffy & Quarter Sessions	Medium Term	On Road	10	970	2 Cycle OR Park & Warn	HSC	Bus route?
	Duffy & Quarter Sessions	Duffy & Elouera	Medium Term	On Road	10	580	2 Cycle OR Park & Warn	HSC	
Pennant Hills -	Bellamy & Ramsay	end Bellamy	Medium Term	On Road	10	830	2 Cycle OR Park & Warn	HSC	
Westleigh	end Bellamy	end De Saxe	Medium Term	Off Road		390		HSC	
	end De Saxe	De Saxe & Quarter Sessions	Medium Term	On Road	7	160	Warning	HSC	
	De Saxe & Quarter Sessions	Quarter Sessions & Duffy	Medium Term	On Road	12	400	1 Cycle, 1 Park & Cycle	HSC	
	Quarter Sessions & Duffy	Quarter Sessions & Coral Heath	Medium Term	On Road	12	250	1 Cycle, 1 Park & Cycle	HSC	Bus route?
	Quarter Sessions & Coral Heath	end Quarter Sessions	Medium Term	On Road	12	2200	1 Cycle, 1 Park & Cycle	HSC	Bus route?
Sefton Rd	Chilvers & Sefton	end Sefton	Medium Term	On Road	12	500	1 Cycle, 1 Park & Cycle	HSC	
	end Sefton	Duffy Ave	Medium Term	Off Road		370		HSC	
Edwards Rd	PH Rd & Edwards	Edwards & Denman	Medium Term	On Road	8	320	Lane Line & Warning	HSC	
	Edwards & Denman	Edwards & Unwin	Medium Term	On Road	8		Lane Line & Warning	HSC	Part of trunk route
	Edwards & Unwin	end Edwards	Medium Term	On Road	8	150	Lane Line & Warning	HSC	
Hornsby West	Malsbury & Clarke	Clarke & Neutral	Medium Term	On Road	9	240	2 Cycle OR Park & Warn	HSC	
	Clarke & Neutral	Neutral & Hall	Medium Term	On Road	9	180	2 Cycle OR Park & Warn	HSC	
	Neutral & Hall	Clovelly & Pretoria	Medium Term	On Road	8	790	Lane Line & Warning	HSC	
	Pretoria & Frederick	Frederick & William	Medium Term	On Road	12	760	1 Cycle, 1 Park & Cycle	HSC	
	Frederick & William	William, Pacific & Station	Medium Term	On Road	12	250	1 Cycle, 1 Park & Cycle	HSC	
Waitara	Alexandria & Romsey	Romsey & Edgeworth David	Medium Term	On Road	12	300	1 Cycle, 1 Park & Cycle	HSC	
Stephen St	Bridge & Railway	Railway & Stephen	Medium Term	On Road	9	470	2 Cycle OR Park & Warn	HSC	
	Railway & Stephen	Stephen & Sherbrook	Medium Term	On Road	9	460	2 Cycle OR Park & Warn	HSC	
Carrington Rd	Galston & Carrington	Carrington & Rosamond	Medium Term	On Road	8	380	Lane Line & Warning	HSC	
	Rosamond & Stewart	end Stewart	Medium Term	On Road	8	310	Lane Line & Warning	HSC	
Quarry Rd	end Quarry Rd	Quarry & Old Northern	Medium Term	On Road	7	4000	Warning	HSC	
Hornsby Heights	Galston & Somerville	Somerville & Black Ash	Medium Term	On Road	11	3530	1 Cycle, 1 Park & Cycle	HSC	