

**Shoalhaven Pedestrian Access and Mobility Plan
(PAMP) Stage 1
Nowra Bomaderry / Bay & Basin / Milton Ulladulla**

Shoalhaven City Council
Final Report

March 2002

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Summary

Background

The Pedestrian Access and Mobility Plan (PAMP) is an area based study to develop a plan for pedestrian facilities that are practical and cater for the needs of different users. PAMPs are currently being prepared for local government areas throughout New South Wales. The PAMP Stage 1 study for the Shoalhaven area is jointly funded by the NSW Roads and Traffic Authority and Shoalhaven City Council. The study area includes the urban areas of Nowra Bomaderry, the Bay and Basin area and the Milton Ulladulla area.

Study objectives

The main objectives of the PAMP are as follows:

- ❑ Integrate walking into the transport system
- ❑ Link the pedestrian network with key land uses and activities
- ❑ Reduce pedestrian severance – remove barriers to walking
- ❑ Improve access for all
- ❑ Ensure the consistent development of facilities
- ❑ Encourage more walking
- ❑ Improve safety for pedestrians

Integrated Pedestrian Planning

There are a number of documents which contain issues relevant to pedestrian planning in the Shoalhaven Area. The PAMP will combine these issues to provide a coordinated approach to pedestrian planning. These documents include:

- ❑ Shoalhaven PAMP Pedestrian Needs and Demands Report (Draft) (2000)
- ❑ Shoalhaven Parks Draft Walking Tracks Strategy (2000)
- ❑ CityPlan (2000)
- ❑ Shoalhaven Integrated Transport Strategy (2000)
- ❑ Bay and Basin Traffic Study (2000)
- ❑ Shoalhaven Youth Services Strategic Plan 2000/1 – 2005/6 (2000)
- ❑ Shoalhaven Community Plan 2000 – 2001 (2000)
- ❑ Safe Routes to School documentation (2000)
- ❑ Community Survey 1999
- ❑ Shoalhaven Road Safety Strategic Plan (1998)
- ❑ Shoalhaven Bicycle Strategy (1997)
- ❑ Policies for Planning Development: Shoalhaven Beyond 1990
- ❑ Various Tourist/Walking Pamphlets
- ❑ Visit Shoalhaven – Everything You Need to Know (Tourist Brochure)

Characteristics of the study area

The study area includes the urban areas of Nowra Bomaderry, the Bay and Basin area (including Huskisson, Vincentia, St Georges Basin, and Sanctuary Point) and the Milton Ulladulla area (including Mollymook).

The study area is made up of a number of distinct communities linked in a north – south direction by the Princes Highway. Nowra in the north and Ulladulla in the south provide the main commercial centres, with other areas being mainly residential development interspersed with community facilities and local retail centres.

Bomaderry is the last stop on the coastal rail line that links to Berry, Kiama and Wollongong in the north.

The Shoalhaven area is connected in the north-south direction by the Princes Highway. This route provide important corridors for local and regional traffic, but has become a difficult barriers for pedestrian movement, and has resulted in the severance of communities. Bomaderry Rail Station is located on Meroo Road in Bomaderry and is an important attractor of pedestrians. There are a number of bus routes that service the study area. Bus stops are located throughout the study area.

The population of Shoalhaven City was 76,726 in 1996. Out the total population, children aged 5 and under make up around 9% of the population and the elderly (over 65 years old) form around 18% of the population. The population within Shoalhaven City Council area is expected to increase by almost 50% to 113,000 between 1996 and 2016. In addition to this resident population, the number of people staying in the Shoalhaven area is estimated to increase to around 320,000 people during the peak holiday seasons.

Existing pedestrian facilities

We have gathered information on existing pedestrian facilities in the study area from Council sources and supplemented this with field observations that collected information on available facilities and also gave an appreciation of the general pedestrian environment.

In general pedestrian facilities within CBD / shopping areas are good, however some improvements are required, in particular to ensure consistent and continuous facilities.

Pedestrian facilities within residential areas are either very poor or non-existent. Most residential streets do not have footpaths and where they are provided they are generally not linked with other pedestrian facilities or do not join origins and destinations. Most residential streets are very wide and could incorporate a footpath, but the current situation only serves to encourage high vehicle speeds and increase fears for pedestrian safety.

There are a number of examples of good pedestrian facilities, with continuous and well maintained facilities including footpaths, pram ramps, refuges and well marked shared facilities.

Pedestrian network

One of the outcomes of the PAMP is the development of a pedestrian network for the Shoalhaven area. This has been developed using the following methodology:

- ❑ Examining the land use pattern
- ❑ Identifying the location generators (residential areas) and attractors (activities such as shops, community facilities, commercial areas, rail station) of pedestrian movement
- ❑ Linking the major pedestrian activity centres with pedestrians desire lines
- ❑ Based on these desire lines a network of pedestrian routes has been developed, using suitable streets and off-street paths

Major pedestrian issues

The study has identified a number of key issues for pedestrians in Shoalhaven. These include:

- ❑ Existing public transport services are minimal and therefore walking and cycling provide an important mode of travel for people without access to a car.
- ❑ In general pedestrian facilities within the CBD / shopping areas are good – however some improvements are required to ensure consistent and continuous facilities.
- ❑ Many existing pedestrian facilities are not continuous or do not link the places that people want to visit.
- ❑ The Princes Highway currently presents a huge barrier to pedestrian movement within the study area.
- ❑ The majority of residential streets are not currently provided with footpaths.
- ❑ There are large influxes of tourists in the peak holiday seasons that significantly increase the population of the study area and cause a high variability in demand for pedestrian facilities.
- ❑ The existing needs and demands of the resident community need to be met to ensure that people have access to their local facilities and surrounding suburbs.
- ❑ Population estimates show that there will be a large increase in the permanent population of the study area over the next 15 years. Pedestrian facilities need to be provided to accommodate this increase, and in particular facilities should be incorporated in all new residential developments from the outset.

Community consultation

The development of the plan included consultation with the community regarding pedestrian issues and the measures proposed in the PAMP. This consultation involved an initial survey of stakeholder issues, discussions with Council officers and other key representatives. The Draft PAMP was then put on public exhibition and comments were sought from the community. These comments have been taken into consideration in the development of the draft PAMP. The most frequently made comments from the community meetings so far have been:

- ❑ Existing public transport services are minimal and therefore walking and cycling are often the only transport options for people without access to a car – and these need to be considered as ‘legitimate’ modes of travel.
- ❑ Scooters/skateboards are an important mode of travel for young people. Melbourne CC has developed a code of conduct for scooters/skateboards that may provide a useful basis for a similar code for Shoalhaven.
- ❑ Existing and new pedestrian paths and facilities need to be promoted with local people as well as visitors/tourists. Many local people are currently not aware of some of the newer facilities that have been constructed.
- ❑ Many young people use the rail station at Bomaderry and then walk into Nowra – continuous pedestrian facilities need to be provided on this route.
- ❑ There are a number of off-street bushtracks that could be integrated with the PAMP.
- ❑ The shared pedestrian/cycle path between Huskisson and Sanctuary Point Shopping Centre is very popular.
- ❑ Shared pedestrian and cycle paths provide a useful facility, but require further education for users (especially to reduce the perception of elderly people that these paths are not safe) and more signposting.

- ❑ The St Georges/Sanctuary Point area is currently experiencing a high growth in its elderly population. There are a number of community transport schemes running in the area, but in general local facilities and pedestrian access to them is poor.
- ❑ Young people will often walk relatively long distances to access facilities/see friends etc as they have no other means of transport and like to retain their independence.
- ❑ Council needs to strengthen links between the provision of new developments and transport strategies – including the possibility of using Section 94 funding.
- ❑ The lack of footpaths and crossing points were listed as the major discouragements to walking. The improvement to these facilities represents was indicated as the best way to increase the amount of walking.

Review of pedestrian design principles

A review of pedestrian facilities and the current design standards was undertaken in order to develop a series of recommendations for future implementation of facilities and to ensure a consistent approach throughout the Council area. The documents reviewed included AUSTRROADS Guide to Traffic Engineering Practice, NSW Roads and Traffic Authority guidelines and the Australian Model Code for Residential Development.

A series of recommendations have been made on the specification and design of a number of pedestrian facilities including footpaths, pram ramps, pedestrian crossings, treatments at roundabouts, drainage, the placement of trees, landscaping and street furniture and lighting. This will provide Council with a sound basis for implementing future pedestrian facilities and ensure the consistent provision of facilities throughout the study area in future.

Proposed Pedestrian Network

The pedestrian network has then been specified in order to link pedestrian origins and destinations with a clear, connected and continuous network of high quality pedestrian facilities, rather than link every house in the study area with every other street. Given the current level of provision of pedestrian facilities and, in particular, the lack of facilities in the majority of residential streets, it is felt that this is an appropriate approach in order to provide an achievable implementation plan for pedestrian facilities within the current budget levels.

That is not to say that the new facilities proposed as part of this study will be the only ones on Council's work program – there will be additional pedestrian facilities required to alleviate specific individual pedestrian issues (particularly in relation to safety) that will also be included in the overall work program.

The Shoalhaven Bicycle Strategy 1997 proposed that shared pedestrian/cycle facilities could be used where possible due to the relatively low numbers of pedestrians and cyclists. The suggested shared pedestrian/cycle routes have been taken into account in preparing the proposed pedestrian network.

Recommended improvements and actions

As a result of the study work and the comments from the community, a series of recommended improvements and actions were developed in order to make walking more attractive and increase the number of trips made on foot. This included

infrastructure improvements as well as a number of non-infrastructure measures that will help to achieve these objectives.

The proposed program of footpath works has focussed on providing a continuous, consistent and safe path of travel throughout the pedestrian network. The pedestrian network proposed as part of this study is a strategic network to increase the amount of walking in the urban areas in general. It will not necessarily include all the footpaths and pedestrian facilities in the Shoalhaven City Council Schedule of Works. A number of the recommendations made will need to be reviewed individually to determine if the required warrants for their adoption are met. Some will also require further assessment and community consultation to determine if they suit the needs of the community as a whole.

Recommended improvements include:

- ❑ **Footpaths** – the review of existing footpaths and the specification of the pedestrian network highlighted those locations where facilities should be provided or improved. A schedule of proposed footpaths is provided, including the priority of each.
- ❑ **Pedestrian crossing facilities** – A number of new or improved crossing facilities are specified in a schedule of works (each with a designated priority). Facilities have been specified for a number of reasons including improving the standard of existing facilities, providing a crossing on a desire line, reducing the severance effects of highways and reducing the likelihood of a pedestrian accident.
- ❑ **Signposting** – improving the use of the pedestrian routes and in particular the recreational walks which can improve general health through increased activity.
- ❑ **Lighting** – improvements to road and path lighting to improve personal safety and road pedestrian safety by making pedestrians more visible.
- ❑ **Pram Ramps** – installation of pram ramps have been recommended for existing locations where they are not present.
- ❑ **Speed Zone Changes** – introduction of School Speed Zones and adjustments to changes in speed zones to reinforce special speed restrictions.
- ❑ **Intersection Controls** – reduce confusion about right-of-way at four intersections by installation of priority signs.
- ❑ **Community campaigns** – campaigns can play a key role in encouraging more people to walk and educating them of the benefits and safety aspects of walking. Campaigns could include road safety awareness, health education, driver education and enforcement.
- ❑ **Positive pedestrian planning** – making the shift from the car to more sustainable means of travel, including walking, will require a more balanced approach to transport and urban planning. Pedestrians should be given a higher priority in the planning process including the assessment of development proposals, allocation of funding and appointing a ‘Pedestrian Champion’ within Council.
- ❑ **Bicycle, Skateboard, Roller Blade & Scooter ‘Code of Conduct’** – reduce conflicts between pedestrians and other users of the existing and proposed shared paths by promoting a ‘Code of Conduct’
- ❑ **School Speed Zone** – Increase understanding of driver responsibilities and how & when to obey the 40km/h School Speed Zones by advertisements in local newspapers and working with the NSW Police Department and the RTA.

Infrastructure Prioritisation

The infrastructure projects recommended have been allocated a priority using a formula for ranking projects based on a number of criteria. It is recommended that two additional criteria be added to the formula used to increase the value of projects which satisfy the objectives of this PAMP. The new criteria are ‘use by young people’ and ‘increasing the connectivity of the pedestrian network’.

Funding and implementation

There are a number of opportunities for Council to obtain funding to implement the measures identified in the PAMP. These include:

- ❑ Section 94 contributions – these may be used for upgrading footpaths, installation of pram ramps or crossing facilities in any new developing areas.
- ❑ Direct developer contributions – through the DCP and designed to reflect the need for improved pedestrian facilities within an area. This may be particularly appropriate in developments aimed at the elderly or children.
- ❑ Existing Council budgets – depending on Council priorities but could include provision of footpaths, street lighting and street signs.
- ❑ Specific government grants or contributions

The PAMP study is one of the first stages in the process of improving pedestrian planning in the Shoalhaven area and therefore marks the start of an ongoing process. The PAMP may be adapted and updated to reflect the changing needs of pedestrians in the local area as well as any major land use or transport infrastructure developments. The remaining areas of Shoalhaven City will be addressed in the future stages of the study.

Implementation of the facilities and measures identified in this document must also be closely linked with related initiatives across all Council departments and relevant external organisations including health, road safety, maintenance and land use planning issues. This should ensure that all initiatives are implemented in a coordinated and complementary manner and lead to an effective program of measures that will make a real difference to pedestrian amenity. Effective communication between Council Departments and external organisations is therefore a key factor in ensuring the successful implementation of the PAMP.

1. Introduction

Sinclair Knight Merz has been commissioned by Shoalhaven City Council to undertake an investigation of pedestrian facilities and planning to produce a comprehensive Shoalhaven Pedestrian Access and Mobility Plan (PAMP) Stage 1 for the urban areas of Shoalhaven City Council.

The PAMP is a method of improving planning for pedestrian amenity and facilities developed by the Roads and Traffic Authority (RTA) and Councils. The PAMP is designed to improve the pedestrian environment and encourage more walking by identifying existing issues and proposing solutions across a number of areas including engineering, education, enforcement and encouragement.

The study area includes the urban areas of Nowra Bomaderry, the Bay and Basin area (including Huskisson, Vincentia, St Georges Basin, and Sanctuary Point) and the Milton Ulladulla area.

The PAMP process ensures that pedestrian facilities will:

- ❑ be deployed in an effective way;
- ❑ address identifiable pedestrian accident locations; and
- ❑ remain appropriate to their locations' changing movement patterns.

The objectives of the PAMP include:

- 1) Integrating walking into the transport system as a legitimate form of transport to encourage more walking.
- 2) Linking pedestrian concentrations to pedestrian facilities to facilitate accessibility and mobility.
- 3) Identify and resolve pedestrian crash clusters.
- 4) Development and integration of intra and inter pedestrian concentration routes that complement the 'Safer Routes to Schools' project and LATM schemes.
- 5) To reduce pedestrian access severance and enhance safe and convenient crossing opportunities on major roads.
- 6) To facilitate improvements in the level of personal mobility and safety for pedestrians with disabilities and older persons through the provision of pedestrian infrastructure and facilities that cater for the needs of all pedestrians.
- 7) To ensure pedestrian facilities are employed in a consistent and appropriate manner throughout Shoalhaven Council area.
- 8) Link existing road user plans in a coordinated manner.
- 9) To ensure that pedestrian facilities remain appropriate and relevant to existing and future land use and pedestrian user groups.
- 10) To accommodate special events needs of pedestrians.

1.1 Strategic Issues

For a number of years transport planning has concentrated on providing an acceptable service to a wide range of users, but with particular emphasis on motor vehicles and public transport. This planning has meant that other forms of transport, such as walking and cycling, have been squeezed out of the planning process. With increased

congestion and greater awareness of environmental, social and economic impacts, it is now recognised that other modes of transport should be pursued.

Action for Transport 2010: An Integrated Transport Plan for New South Wales sets out the Government's commitment to reducing the impacts of vehicle transport (and in particular reducing the growth in vehicle kilometres travelled) by developing more sustainable transport systems throughout the state.

Sustainable transport modes, such as walking or cycling, can help to reduce congestion on the roads and public transport, improve the environment, increase accessibility to a wider section of the community, as well as providing valuable health benefits. These health benefits are two-fold, with increases in personal health levels and a reduction in health costs for treatment of lifestyle related illnesses.

Whilst cycle planning has advanced with developments by the NSW Roads and Traffic Authority (RTA) and Local Government BikePlans, the RTA and Local Government Authorities have determined that a more positive and coordinated approach is required to promote walking. This coordinated approach is designed to increase the number of pedestrians through an enhanced pedestrian environment and improved facilities that can be used by all members of the community.

Council has already completed a number of studies that are of direct relevance to this project. In particular the Shoalhaven Pedestrian Needs and Demands Working Paper (2000) identified a number of issues and potential pedestrian routes within the study area. In addition the Shoalhaven Bicycle Strategy (1997) identifies a network of cycle routes that link residential areas with key activity centres. Many of the existing and proposed paths are shared facilities for pedestrians and cyclists, and therefore the outcome of this PAMP needs to be closely linked with this network of routes.

The PAMP will link the pedestrian issues in these two studies to ensure a coordinated approach to pedestrian planning in the Shoalhaven area.

1.2 Structure of this report

The existing pedestrian conditions and facilities are then described in **Section 2**, including a brief description of the study area, the results of the foot surveys, description of the road hierarchy and a summary of recent accident statistics.

The second stage of the study comprised a literature review of all relevant existing reports and studies, in order to put this study into context and to gather existing information. This is provided in **Section 3** of this paper.

Consultation with the community is an important aspect of the PAMP process and in this study the consultation will take place in two stages. Initially a selected group of individuals and local representatives were asked to raise issues relating to pedestrian movement within the study area through completion of a questionnaire. A number of discussions were also held with Council officers to identify further issues and possible solutions. Consultation with the wider community has been undertaken through the display of the draft PAMP material and the invitation for public comment. The results of this process are discussed in **Section 4** of this document.

Section 5 provides the results of the pedestrian surveys that have been undertaken as part of this PAMP. Existing and future pedestrian demands and needs within the study area, including an examination of current and future land use patterns and resulting pedestrian concentrations, are included in this section.

The development of the pedestrian network for the study area is described in **Section 6**, along with the existing pedestrian conditions and facilities on these routes.

The acceptable design principles to deliver a consistent and coherent approach to the provision of pedestrian facilities with improved safety is described in **Section 7**. Standards for facilities are recommended based on standard industry guidelines and improvements for specific local conditions.

Section 8 provides a series of recommendations designed to improve the pedestrian environment and increase the number of trips made on foot, based on both infrastructure and non-infrastructure projects.

Section 9 outlines the funding available to implement the recommendations of the PAMP and the process for implementation.

2. Background Information

The section provides some background information on the study area including:

- ❑ geographical characteristics;
- ❑ community profile;
- ❑ accident history; and
- ❑ road hierarchy.

2.1 Study area

The study area is shown in **Figure 2.1**. It includes the urban areas of Nowra Bomaderry, the Bay and Basin area (including Huskisson, Vincentia, Sanctuary Point and St Georges Basin) and the Milton Ulladulla area.

These urban areas are spread along the coastal fringe of the Shoalhaven City area and form the major settlements in the City. This population spread and the distances involved have resulted in dispersed facilities and activity centres and a very car dominated community.

The study area is therefore made up of a number of distinct communities linked in a north –south direction by the Princes Highway. Nowra in the north and Ulladulla in the south provide the main commercial centres, with other areas being mainly residential development interspersed with community facilities and local retail centres. Bomaderry is the last stop on the coastal rail line that links to Berry, Kiama and Wollongong in the north.

The study area is a major tourist destination and the population increases significantly during vacation periods. Many of the dwellings are holiday homes and this can lead to a very quiet feel to many of the residential areas outside of the peak holiday periods.

In general the provision of services such as footpaths, pedestrian crossings and bus stops has been slow to meet community expectations for a number of reasons, including:

- ❑ the rapid growth of some areas means that Council is not able to provide facilities at the same rate as the development progresses;
- ❑ many new residents to Shoalhaven have migrated from other areas, including big cities such as Sydney and Wollongong where the provision of facilities is high and therefore expectations are raised; and
- ❑ the diverse population and current economic viability are such that it is not economical to provide comprehensive facilities.

Therefore, for a number of reasons, there a large number of people within the study area that do not have access to a car. These people therefore rely on walking, cycling and public transport for travel, and the facilities available to assist these modes are not always provided or up to standard.

Each of the urban areas within the scope of this study is shown in **Figures 2.2 to 2.4**. The main features of each centre is described in the following points:

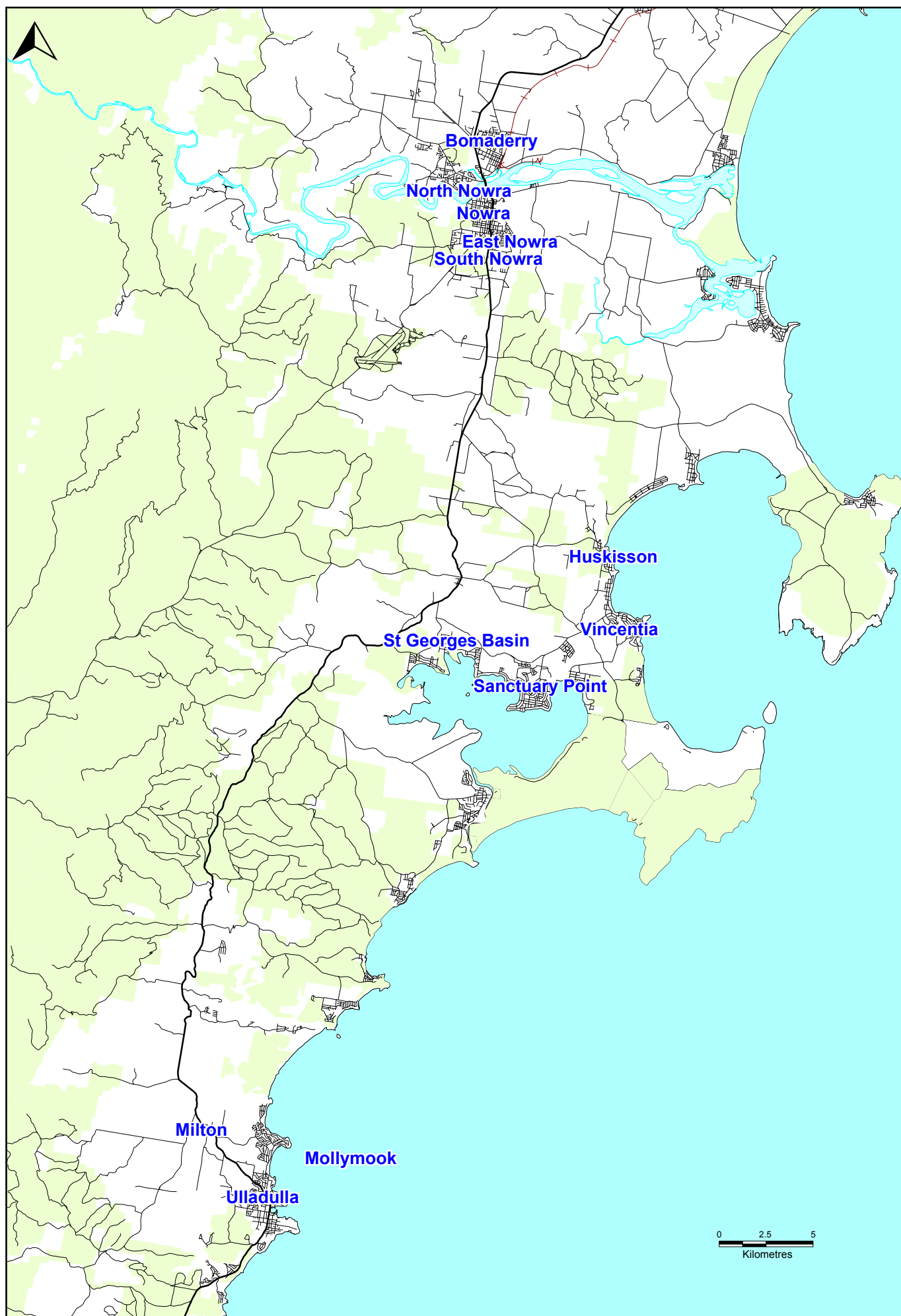


Figure 2.1: Study Area

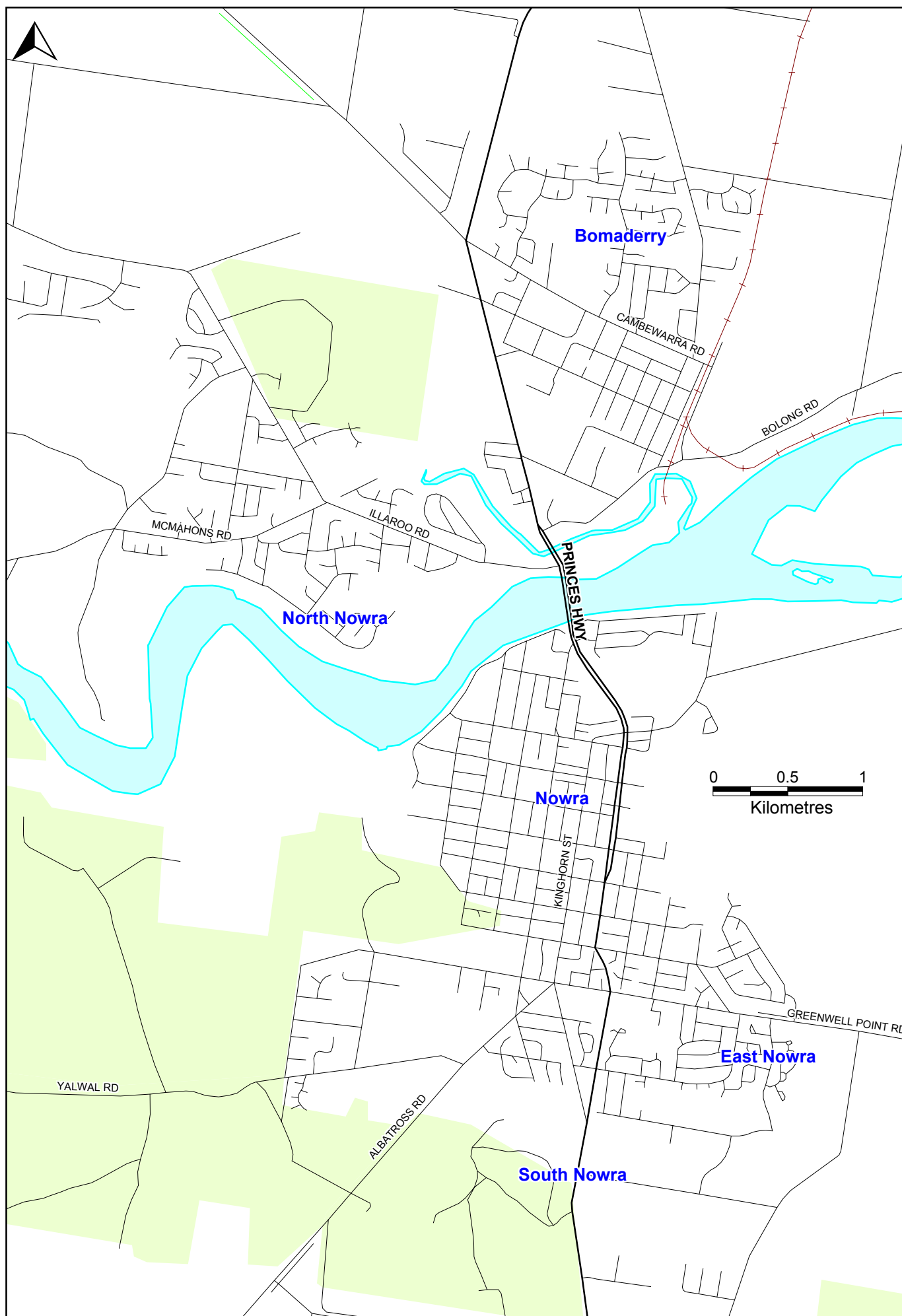


Figure 2.2: Nowra & Bomaderry

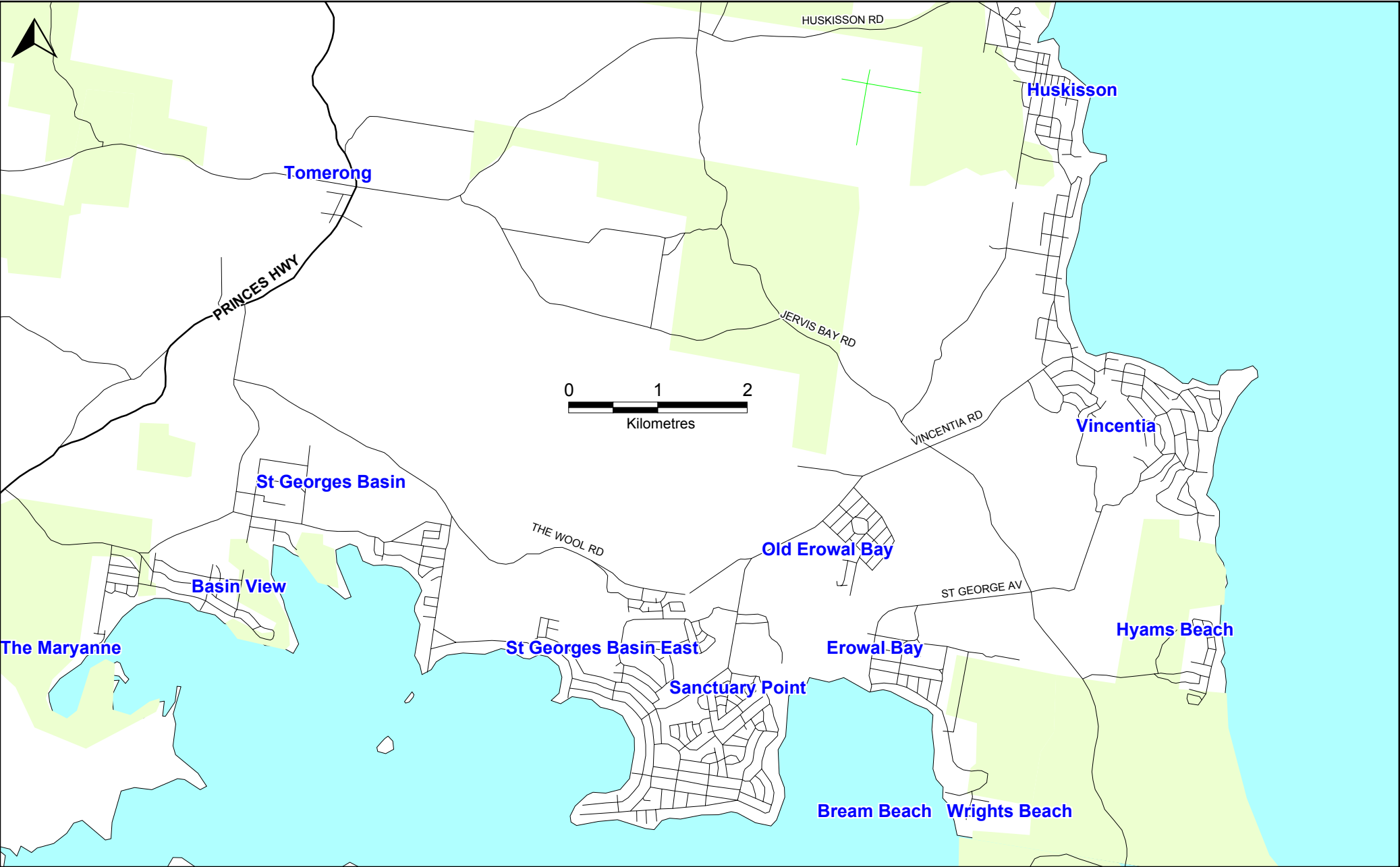


Figure 2.3: Huskisson, Vincentia, Sanctuary Point & St Georges Basin

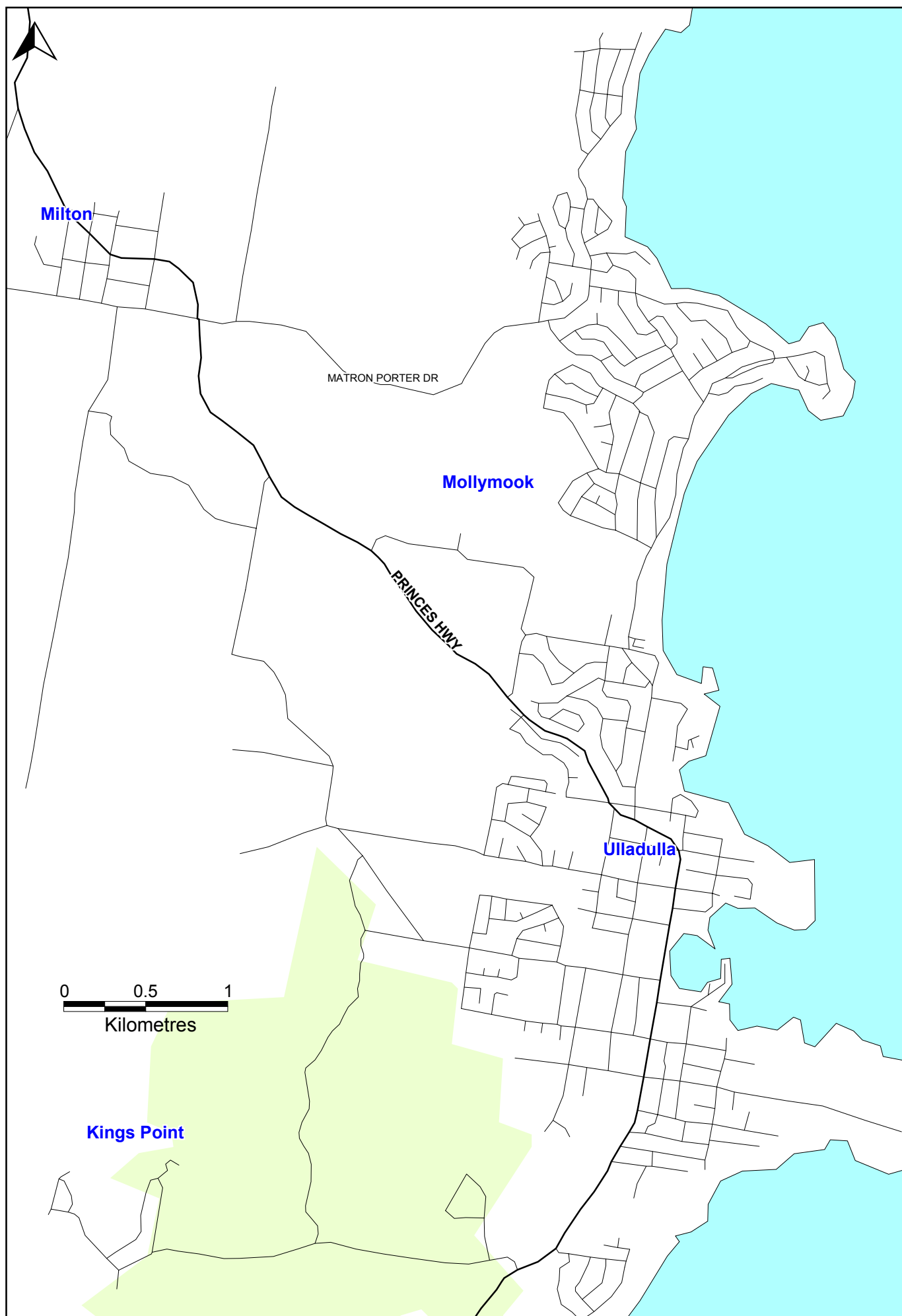


Figure 2.4: Milton , Ulladulla & Mollymook

- ❑ **Nowra Bomaderry (Figure 2.2)** – This area is formed by three separate but closely linked urban areas of Bomaderry and North Nowra to the north of the Shoalhaven River and Nowra to the south of the river. A bridge over the river provides vehicular, cycle and pedestrian access between the centres.

Nowra provides the main commercial and retail centre, with the main activity centred around Junction Street, Kinghorne Street, Worrigee Street, Berry Street, North Street, Nowra Lane and O’Keefe Avenue.

Activity in Bomaderry centres around the rail station on Meroo Street, with a smaller retail centre on Lyndhurst Drive and a number of leisure facilities and schools located on Cambewarra Road.

North Nowra is predominantly residential with a small shopping centre at the intersection of Illaroo Road, McMahons Road and Jamieson Road.

- ❑ **Bay and Basin Area (Figure 2.3)** – This area is formed by four coastal ‘villages’ of Huskisson, Vincentia in the north and Sanctuary Point and St Georges Basin to the south.

Huskisson and Vincentia are on the shores of Jervis Bay around the mouths of the Currumbene Creek and Moona Moona Creek and stretching along a number of popular beaches. Development is mainly residential with retail centres on Owen Street in Huskisson and in the shopping centre on Burton Street in Vincentia.

Sanctuary Point and St Georges Basin are on the shores of St Georges Basin. The villages are dominated by residential development with retail activity centred on Paradise Beach Road in Sanctuary Point.

- ❑ **Milton Ulladulla (Figure 2.4)** – There are three urban areas within this location – Ulladulla, Mollymook and Milton. Ulladulla and Mollymook are on the shores of the Tasman Sea and Milton is a small inland village on the Princes Highway.

Ulladulla is the main commercial and retail centre with activity centred around the Princes Highway, Green Street, Boree Street and Wason Street. Mollymook has two small retail centres on Ocean Street and Tallwood Avenue, with the majority of development being residential.

Milton is focus for tourist activity with a number of speciality shops on and around the Highway.

2.2 Community Profile

Shoalhaven City is a large area comprising around 4,660 square kilometres on the South Coast on New South Wales. The commercial centres of Nowra and Ulladulla provide retail, commercial and community facilities to the immediate residents as well as the regional area. Further local and community facilities are spread amongst the residential development of a number of smaller towns and villages.

The population of Shoalhaven City was 76,726 in 1996. **Table 2-1** shows predicted population increases for the city for the next 15 years.

■ **Table 2-1 Population Estimates for Shoalhaven City Council**

Year	Population
1996	76,726
2000	85,000*
2008	100,000*
2016	113,000*

*Population estimates

The figures show that the population is expected to increase by almost 50% between 1996 and 2016, a considerable increase. The population of the Nowra Bomaderry area is expected to increase from around 30,000 residents in 2000 to around 45,000 residents in 2016, an increase of 50%.

In addition to this resident population, the number of people staying in the Shoalhaven area is estimated to increase to around 320,000 people during the peak holiday seasons.

Population densities

Areas with a higher population would be expected to have a greater demand for pedestrian facilities given the higher number of residents. **Figures 2.5 – 2.7** show the number of residents in each section of the study area (data from the 1996 Census by Collection District). The figures show that the areas with the highest population are located in the Nowra and Bomaderry areas (particularly in western North Nowra and East Nowra) and in Ulladulla (just south of the Highway).

Many of the other residential areas may have a low permanent residential population. However due to the large number of vacation dwellings within some of these areas, there is likely to be a higher temporary population during the peak tourist seasons, and therefore a potentially higher demand for walking during these times.

The pattern of population densities therefore shows a potential demand for walking between;

- ❑ East Nowra, the local shopping centre and the CBD
- ❑ Western North Nowra and the local shopping centre
- ❑ North Nowra, Bomaderry Station and Nowra CBD
- ❑ North Bomaderry, the local shopping centre and the rail station
- ❑ Northern Ulladulla and the town centre area

Special needs

In addition, the make up of the population in each residential area needs to be considered as some sections of the community have higher requirements for pedestrian facilities. This includes areas with a high concentration of groups such as the elderly, young children (those under the age of five often require prams or strollers) or school children, who would be expected to have a higher level of demand for improved facilities.

Figures 2.8 – 2.13 show the density of resident elderly people and children for each urban area. Out the total population, children aged 5 and under make up around 9% of the population and the elderly (over 65 years old) form around 18% of the population. **Figures 2.8 – 2.10** show that the density of elderly residents is highest in central and western Nowra, Milton (to the north of the Highway) and the northern suburbs of

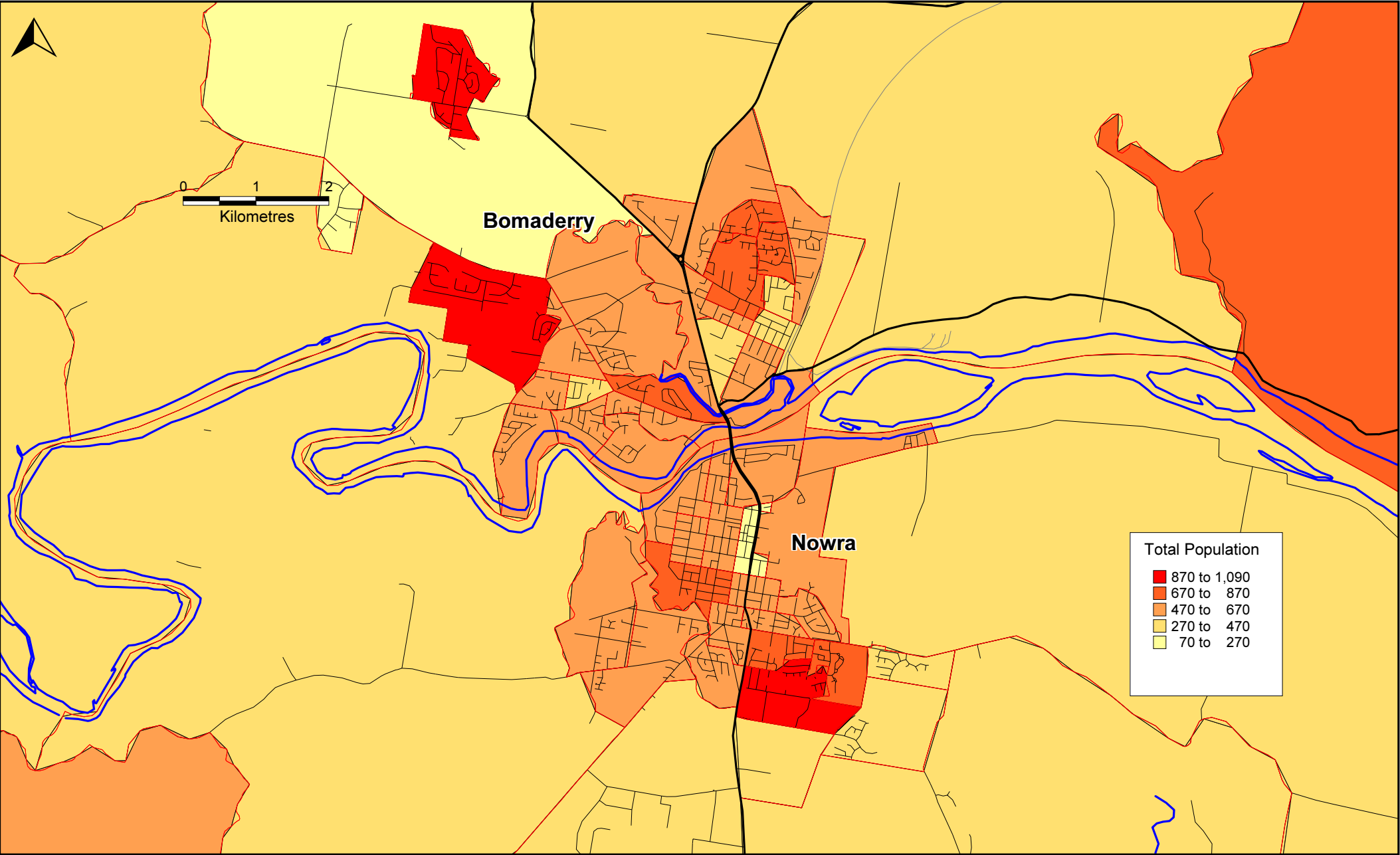


Figure 2.5: Total Population by Collector District - Nowra/Bomaderry

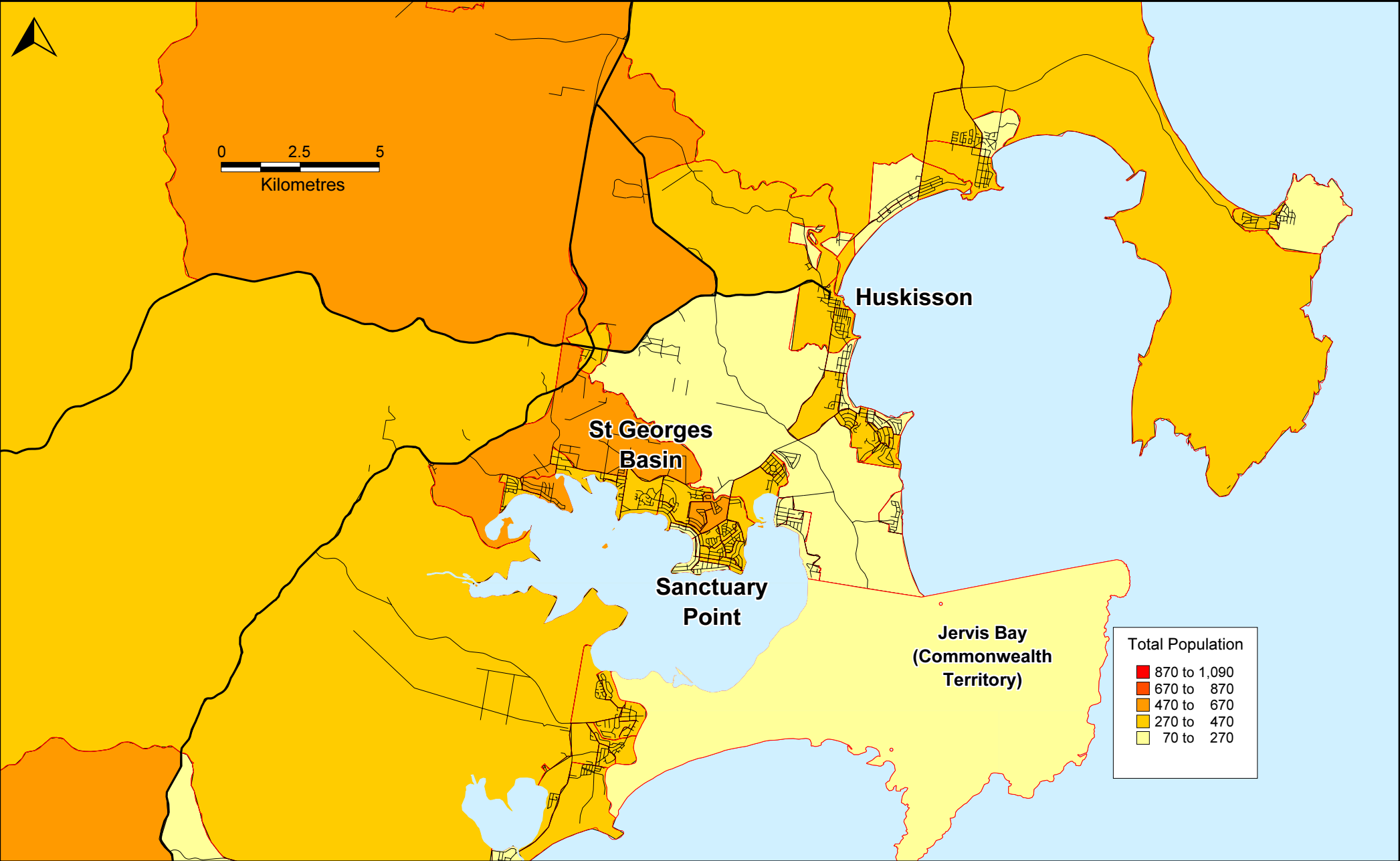


Figure 2.6: Total Population by Collector Districts - St Georges Basin/Jervis Bay

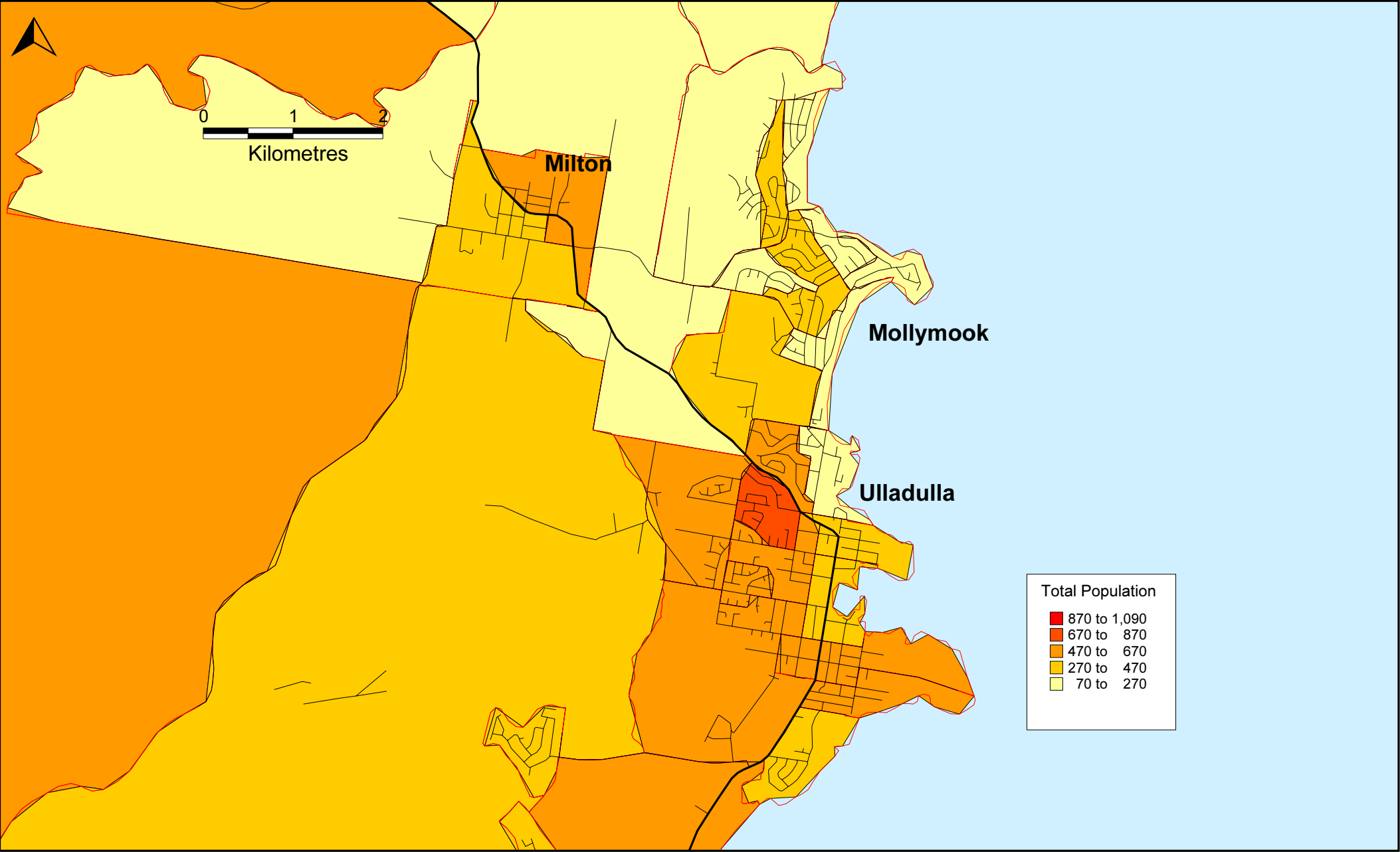


Figure 2.7: Total Population by Collector Districts - Milton/Mollymook/Ulladulla

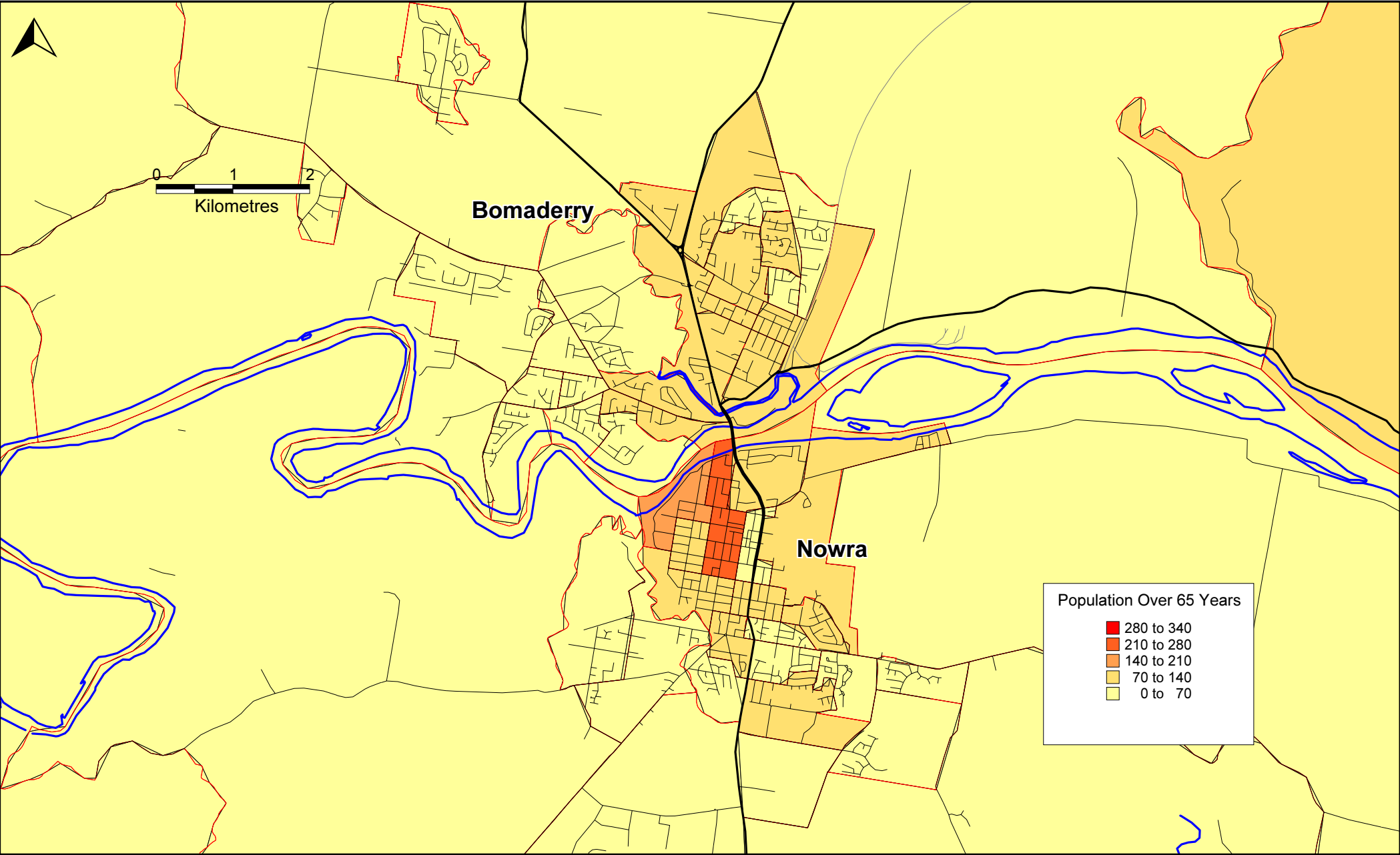


Figure 2.8: Population Aged Over 65 Years - Nowra/Bomaderry

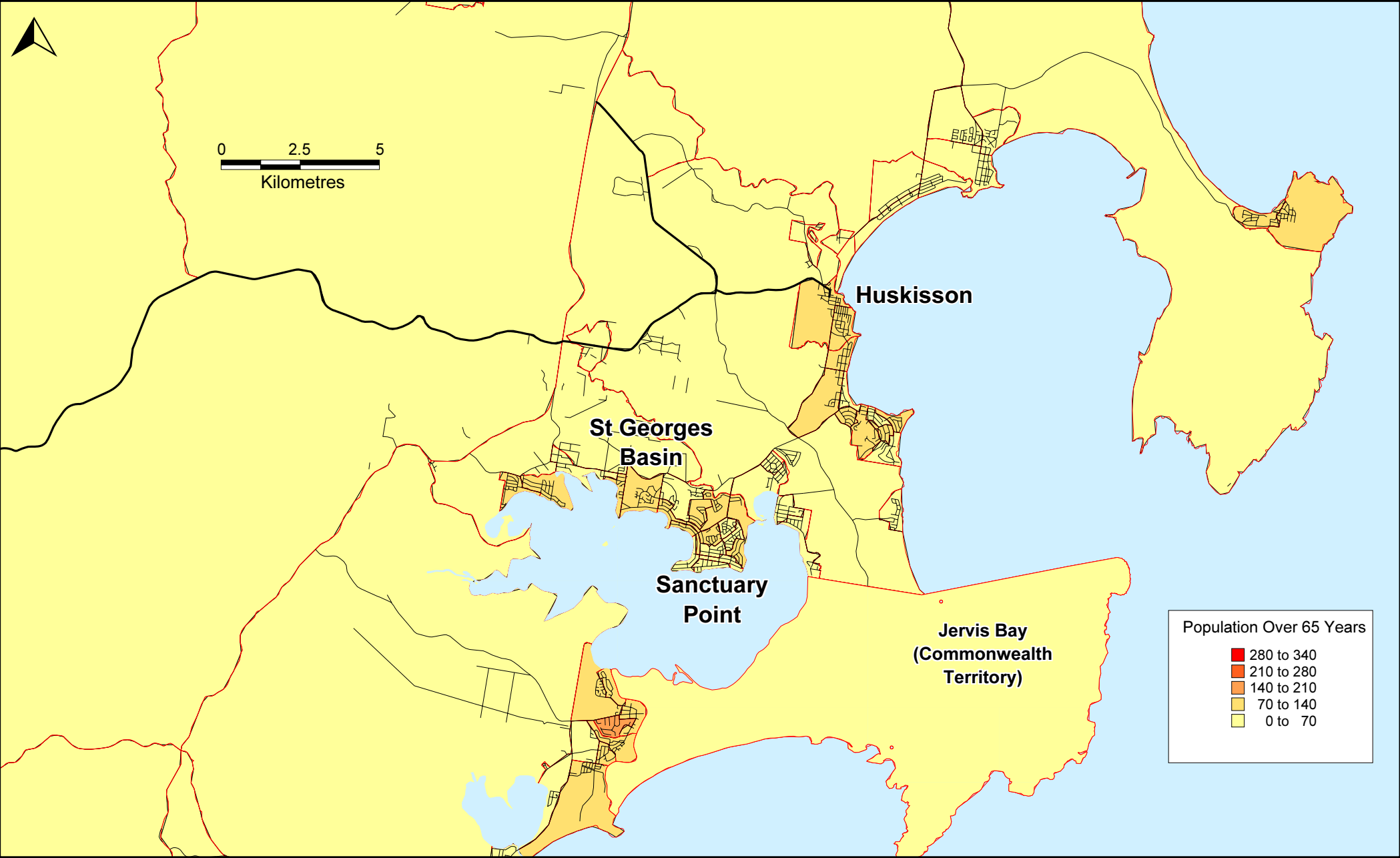


Figure 2.9: Population Aged Over 65 Years - St Georges Basin/Jervis Bay

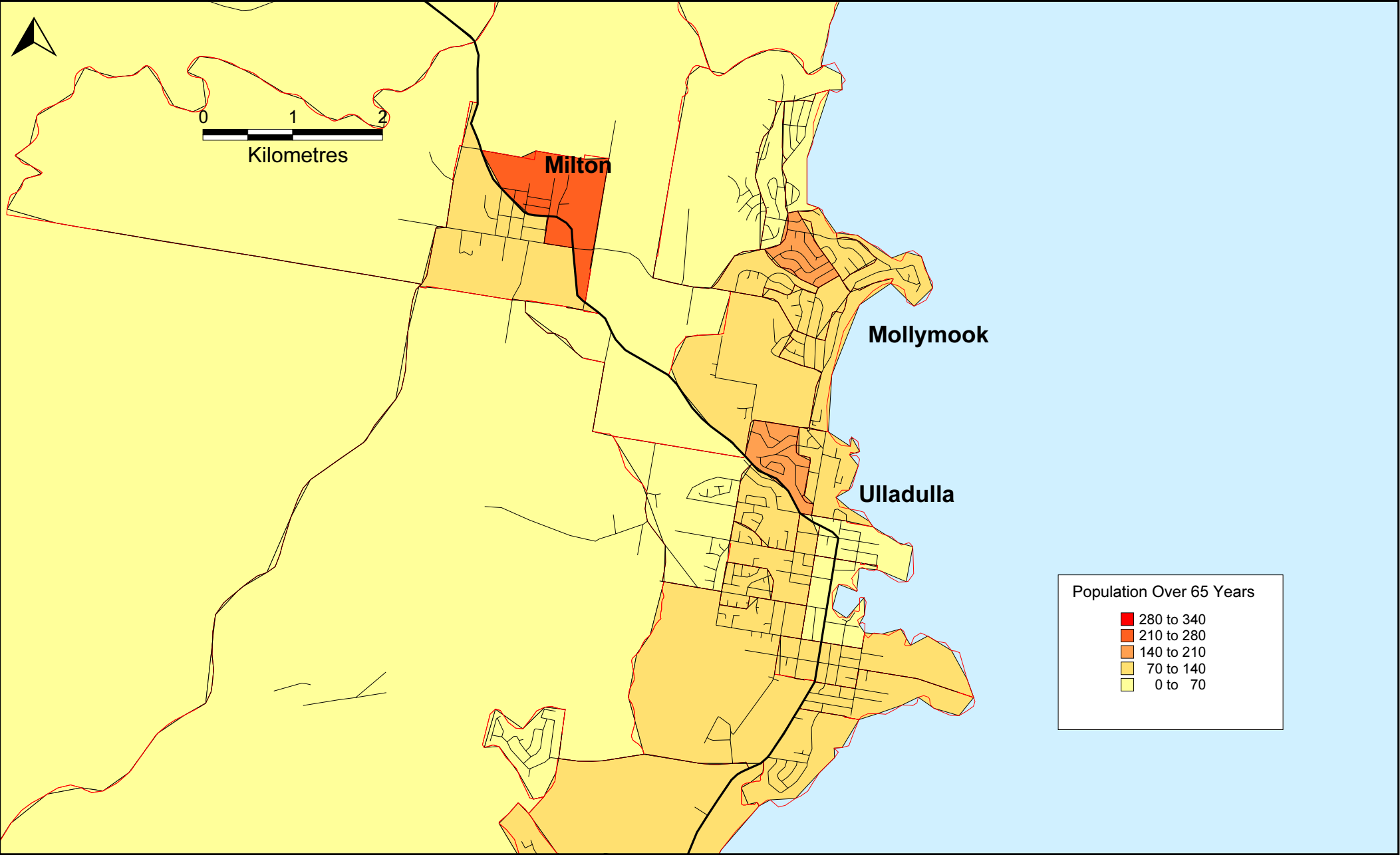


Figure 2.10: Population Aged Over 65 Years - Milton/Mollymook/Ulladulla

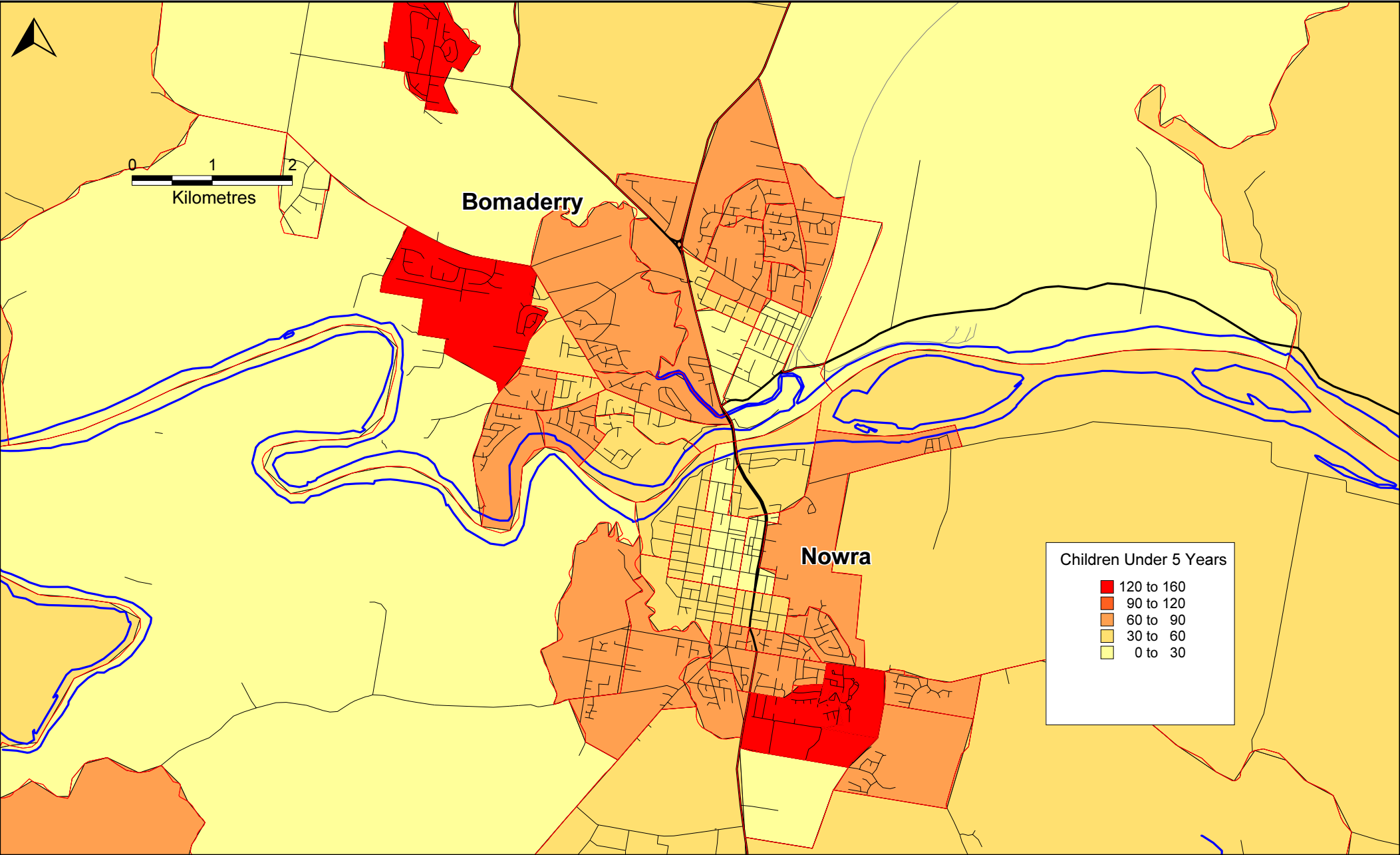


Figure 2.11: Population Aged Under 5 Years - Nowra/Bomaderry

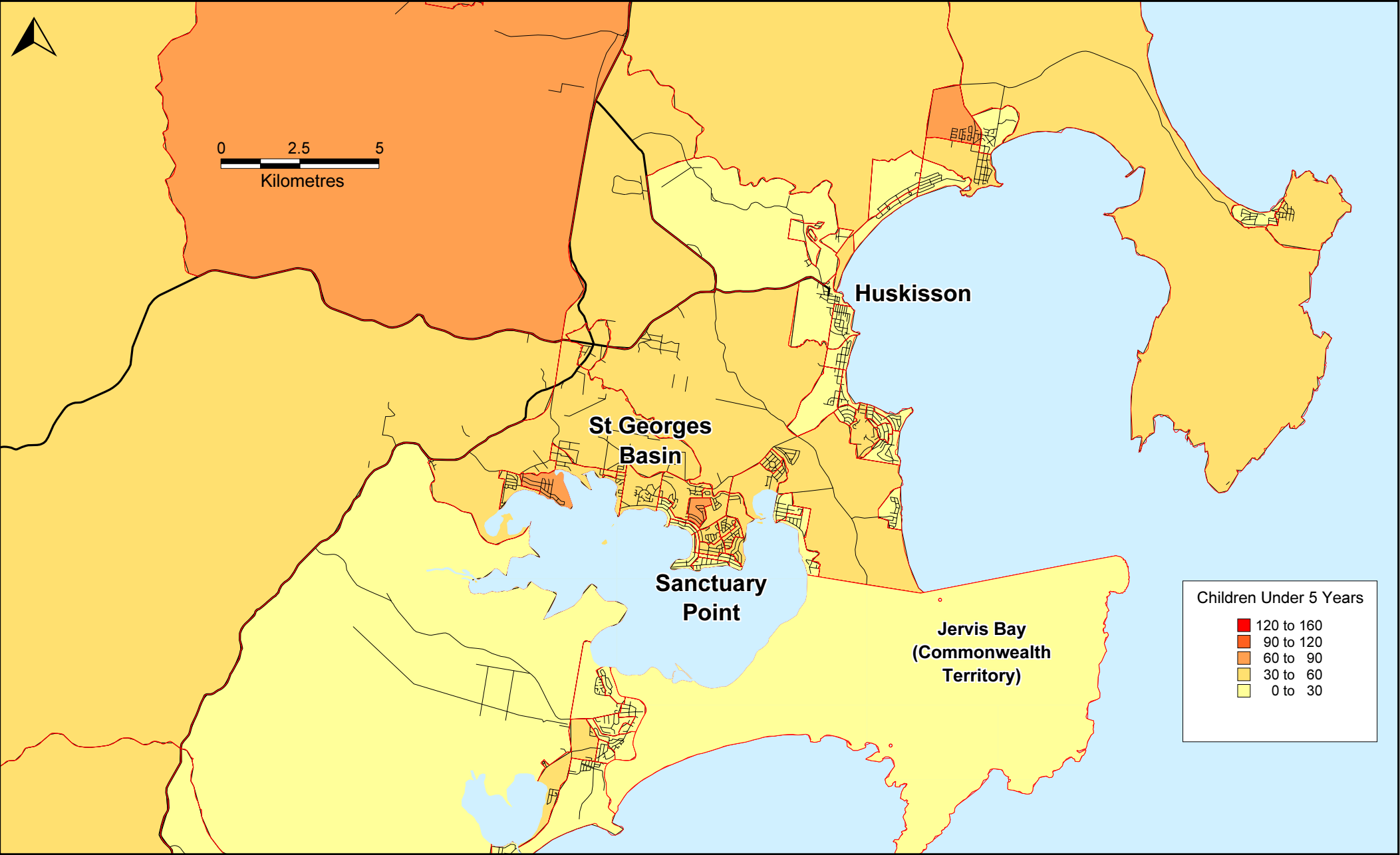


Figure 2.12: Population Under 5 Years - St Georges Basin/Jervis Bay

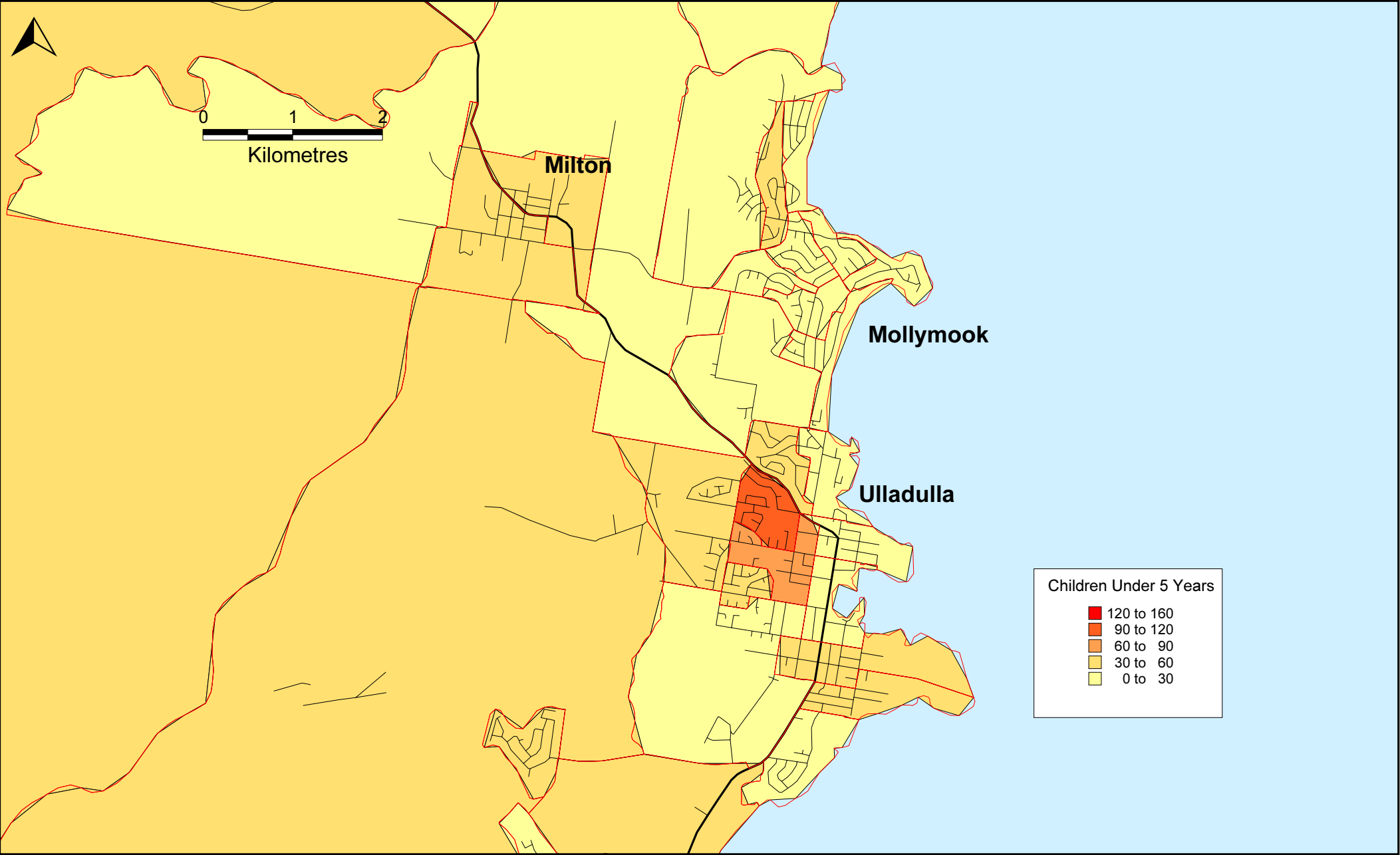


Figure 2.13: Population Under 5 Years - Milton/Mollymook/Ulladulla

Ulladulla and Mollymook. It will be important to attach a high priority to improving pedestrian facilities along routes between these residential areas to local retail and community facilities in order to assist the elderly with access to meet their local needs.

Figures 2.11 – 2.13 show that the highest concentrations of children occur in East Nowra and in the western suburbs of North Nowra and in the residential suburbs to the west of Ulladulla town centre.

In designing pedestrian facilities, it is important that the needs of these groups are given particular attention, due to the higher specification facilities required. It is generally accepted that if pedestrian facilities are designed to this higher specification then it will not just benefit those particular groups, but will also provide improved pedestrian facilities for all sections of the community.

2.3 Accident Data

Accident data for the town centres within the study area (for period 01/01/1996 to 30/06/2000) was provided by the RTA. **Table 2-2** summarises the accidents involving pedestrians over the last five years. (Note that the data for 2000 is up until the end of June only.)

■ **Table 2-2 Number of Pedestrians involved in Accidents in Each Year**

Year	Bomaderry	Nowra	Vincentia	Sanctuary Point	Milton	Mollymook	Ulladulla	Total
1996	1	22		1		1	8	33
1997	2	4	1(F)		1		5	13
1998	2	13		1	1	1	3	21
1999	2	14			1	1	2	20
2000*	1	6					1	8
Total	8	59	1(F)	2	3	3	19	95

F= Fatal Accident

* = January to June data only

The highest number of accidents occurred in Nowra and Ulladulla, which is to be expected, since these are the main population and activity centres of the region.

The following further observations are made from the accident data:

- ❑ The pedestrian killed was a 19 year old male.
- ❑ Five drivers were distracted at the time of the accident, one fell asleep.
- ❑ Two of the pedestrians had a physical infirmity or chronic illness.
- ❑ Two drivers were disobeying a traffic control, one was overtaking on the left, one was braking hard and one was driving at excessive speed (resulting in fatality).
- ❑ Two pedestrians were disobeying traffic controls, three walked from behind a parked vehicle, three walked from behind an object, one was a child who broke free from its supervisor.
- ❑ 31 occurred on State Highways, 3 on Trunk Roads and 56 on Local Roads.
- ❑ 6 occurred at marked pedestrian crossings, 3 at a give way sign.
- ❑ 17 occurred when the road surface was wet.
- ❑ 68 during daylight hours, 1 at dusk and 21 at night (including one fatal).
- ❑ 8 occurred at traffic signals, another 4 occurred at traffic signal junctions where the signals were not operating at the time.

Table 2-3 shows the age of pedestrians involved in accidents. A large number of the accidents involved children/teenagers and older people, justifying concern for these population groups in particular in relation to pedestrian safety issues.

■ **Table 2-3 Age of pedestrians involved in accidents**

Age	Bomaderry	Nowra	Vincentia	Sanctuary Point	Milton	Mollymook	Ulladulla	Total
0-5		3		1			1	5
5-10	1	9		1			1	12
10-20	4	16	1(F)		1	1	4	27
20-40	3	20						23
40-60		3			1		5	9
>60		8			1	2	8	20
Total	8	59	1(F)	2	3	3	19	95

F= Fatal Accident

Table 2-4 records the speed of the vehicle(s) involved in accidents, as estimated by the attending police. 72 of the 94 vehicles involved in accidents were travelling below 60 km/h, highlighting that excessive speed is not always a factor in crashes involving pedestrian and that built up areas are susceptible to traffic/pedestrian accidents as well as the Highway environment.

■ **Table 2-4 Speed of vehicle involved in pedestrian accidents¹**

Speed (km/h)	Total
0-20	23
20-40	20
40-60	29
>60	9
>60 ²	1
N/A	11
Total	94

1. Includes multiple vehicle accidents.

2. Speed not recorded, but excessive.

As shown in **Table 2-5**, the overwhelming majority of defined accidents occurred when a pedestrian emerged from behind a vehicle, presumably a parked vehicle. This emphasises the dangers involving pedestrian movements in built-up areas. Six of the 90 accidents involved pedestrians walking on the road, with or against traffic. This suggests the absence of adequate footpaths, forcing pedestrians onto the roadway.

■ **Table 2-5 Road User Movement Code**

Road User Movement Code	Total
Vehicle Hit Pedestrian on Near Side	3
Vehicle Hit Pedestrian Emerging from Behind Vehicle	27
Vehicle Hit Pedestrian on Far Side	9
Vehicle Hit Pedestrian Playing, Working, Lying, Standing on Carriageway	5
Vehicle Hit Pedestrian Walking with Traffic	3
Vehicle Hit Pedestrian Walking against Traffic	2
Vehicle Hit Pedestrian on Driveway	2
Other	39
Total	90

The peak times for pedestrian movements are during the day, and **Table 2-6** shows that this is also the peak time for pedestrian accidents. The highest accident rates occur from 2-4pm and from 8am-12pm. These correspond with before and after school periods, and peak times for shopping and other activities. A number of

accidents also occurred from 4-8pm, which encompasses times of twilight/sunset, where visibility for motorists and pedestrians is often impaired.

■ **Table 2-6 Time of pedestrian accidents**

Time Period	Total
Midnight-2am	1
2-4am	1
4-6am	1
6-8am	2
8-10am	10
10-12am	16
12-2pm	8
2-4pm	22
4-6pm	10
6-8pm	6
8-10pm	5
10pm-midnight	8
Total	90

Table 2-7 gives details of the location of the accident and shows that over half the accidents detailed occurred on two-way undivided road, as opposed to intersections. This is consistent with the data in **Table 2-5**, suggesting a large proportion of accidents occurred around parked vehicles, which are not necessarily factors at intersections. However, accidents at intersections account for almost one quarter of accidents.

■ **Table 2-7 Location of Accident**

Location	Bomaderry	Nowra	Vincentia	Sanctuary Point	Milton	Mollymook	Ulladulla	Total
Cross Intersection		9					1	10
'Y' Junction		1						1
'T' Junction	3	5			1		4	13
'L' Junction						1		1
2-way Undivided	3	27	1	2	2	2	11	48
Divided Road	2	14					1	17
Total	8	56	1(F)	2	3	3	17	90

2.4 Road hierarchy

The Shoalhaven Pedestrian Needs and Demands Report (PNDR) (2000) sets out the road hierarchy that will be used across the city as a basis for determining the level of provision of pedestrian facilities.

The definitions for road hierarchy are based on the AMCORD (Australian Model Code for Residential Development, November 1990) and are as follows:

- **Local Streets** – Local streets have a traffic volume of up to 2,000 vehicles per day (vpd). The PNDR notes that it is accepted but not preferred that local streets implement Shared Zones for vehicles and pedestrians. However the trend not to provide a paved footpath is not in the best interests of most pedestrians, particularly those with mobility difficulties, as they are forced to travel on the roadway with vehicular traffic.

- ❑ **Collector Roads** – Collector roads have traffic volumes up to 6,000 vpd. These streets should be provided with a paved footpath separate from the general vehicle space.
- ❑ **Arterial Roads** – Arterial roads have traffic volumes greater than 6,000 vpd, and the principle function of the road is to move vehicular traffic. The purpose and priorities on arterial roads is an issue in a number of locations within the study area where the arterial road (Princes Highway) forms the main shopping street in areas such as Ulladulla, Milton and South Nowra. This can cause a number of conflicts between pedestrians and vehicles, including the potential for collisions as well as conflicts between space and time priorities.

3. Literature Review

There are a number of documents that relate to the local area and provide information on existing and future pedestrian facilities. These include Council documents as well as a number of consultant reports prepared on behalf of Council as follows:

- 1) Shoalhaven PAMP Pedestrian Needs and Demands Report (Draft) (2000)
- 2) Shoalhaven Parks Draft Walking Tracks Strategy (2000)
- 3) CityPlan (2000)
- 4) Shoalhaven Integrated Transport Strategy (2000)
- 5) Bay and Basin Traffic Study (2000)
- 6) Shoalhaven Youth Services Strategic Plan 2000/1 – 2005/6 (2000)
- 7) Shoalhaven Community Plan 2000 – 2001 (2000)
- 8) Safe Routes to School documentation (2000)
- 9) Community Survey 1999
- 10) Shoalhaven Road Safety Strategic Plan (1998)
- 11) Shoalhaven Bicycle Strategy (1997)
- 12) Policies for Planning Development: Shoalhaven Beyond 1990
- 13) Various Tourist/Walking Pamphlets
- 14) Visit Shoalhaven – Everything You Need to Know (Tourist Brochure)

The information in these documents will provide background information for the PAMP and help to ensure that all issues are considered and taken into account during the study process.

3.1 Shoalhaven PAMP Pedestrian Needs and Demands Working Paper

Shoalhaven City Council prepared a Pedestrian Needs and Demands Working Paper (PNDR) in 2000, with the main aims to:

- ❑ recognise the needs of pedestrians and to ensure that suitable provisions are made for them within Shoalhaven;
- ❑ integrate walking into the transport system, and to encourage walking;
- ❑ link pedestrian concentrations to the pedestrian facilities network, facilitating access and mobility;
- ❑ identify clusters and patterns of pedestrian accidents; and
- ❑ develop and integrate pedestrian concentration routes that complement local initiatives.

The aims of the study include the improvement of facilities and levels of safety for pedestrians, maintaining the appropriateness of pedestrian facilities (taking into account the surrounding land uses and needs of pedestrians), and the advancement of council's obligations to provide facilities for pedestrians with disabilities.

The report outlines a number of envisaged benefits of developing a community PAMP, based mainly around the ideas of health and aesthetic improvements as a result of a switch to non-motorised transport. The economic benefit of improved pedestrian facilities, particularly through tourism, is seen as a major benefit.

Three groups, within the broad category of 'pedestrians', are identified for particular attention, namely people with disabilities, young children and the elderly. Special

considerations for these (and other) groups are provided. An outline of potential pedestrian hazards, their causes and potential solutions are also offered.

A number of options for pedestrian facilities are considered, with specifications for each outlined in the report. These include surface type, height and width requirements for pathways, and considerations for less mobile pedestrians.

The concept of shared pathways for bicycles and pedestrians is mentioned, having been proposed in the Shoalhaven Bicycle Strategy. Concern is raised about potential conflict that can arise with such facilities, but their implementation is endorsed for their ability to often maximise utility and benefit of facilities.

Profile of the Shoalhaven Area

The PNDR also includes a profile of the Shoalhaven area. It notes that Shoalhaven LGA is located on the South Coast of New South Wales, equidistant from Sydney's south and Canberra. The resident population was 76,726 in 1996, with an increase of 35,000 predicted over the next 20 years. The geography of the city, with several distinct communities and large distances between settlements, can make mobility, particularly for special needs groups, difficult.

Public transport is an issue of concern for many residents, particularly timetable issues, fare structure, comfort and convenience.

Priorities

As far as pedestrians facilities are concerned, the report gives priority to those streets and roads with no existing facilities, that are likely to be used by the very young or the elderly, that are leading to/from pedestrian generators/attractors, and have a speed limit greater than 50kph. Secondary priority is given to existing facilities, but which are in need of upgrading.

Pedestrian movement generators and attractors, such as education institutions, community facilities, sporting fields and playgrounds, retail precincts and public transport facilities, are identified, with potential routes and improvements to existing pedestrian facilities suggested. Intra-area connectors and laneways connecting neighbourhoods are seen as necessary for improving pedestrian access, but there are safety and locational concerns with many existing pathways.

Recommendations

Recommendations of the PNDR include:

- 1) An audit of the footpath network be conducted.
- 2) That pedestrian routes coincide with bicycle routes wherever possible, to reduce costs.
- 3) Utilising information received from the NSW Government Safe Routes to School program to assist with prioritisation of footpath construction.
- 4) Coordinate with the Bus and Coach Association for the construction of a number of specific bus stops with appropriate paths and facilities.
- 5) Adopt Australian Standards for design and upgrade of pedestrian facilities.
- 6) Use road maintenance programs to implement priority pedestrian facility improvements.
- 7) Produce a series of Access and Mobility Maps for pedestrians.

- 8) Ensure that any future crossing of the river include facilities for pedestrians.
- 9) Conduct a PAMP for the remainder of the towns and villages in the Shoalhaven.

3.2 Shoalhaven Parks Draft Walking Tracks Strategy

Walking tracks provide great opportunities for recreation and tourism in the Shoalhaven. The Shoalhaven Parks Draft Walking Tracks Strategy (2000) is document proposed a strategy for the management of walking tracks, as opposed to generic pedestrian facilities as found in many built up areas. The strategy proposed a number of objectives with associated actions, responsibilities, timing and assessment. The objectives of the strategy are as follows:

Planning

- 1) To develop the walking track network throughout the Shoalhaven to improve the range of walks available – with a focus to be on short loop routes in urban areas.
- 2) To build and maintain a comprehensive and reliable database of Shoalhaven's walking tracks.
- 3) To ensure effective integration of planning for walking tracks within Council's functions and with other stakeholder organisations.
- 4) To develop a walking track classification system to facilitate management and promotion of the walking track network.
- 5) To maintain and where possible increase the financial resources allocated to walking track planning, maintenance and promotion.
- 6) To design and construct walking tracks in the Shoalhaven in accordance with established guidelines and standards.

Maintenance

- 1) To maintain the walking track network to ensure the safety of all users.
- 2) To maintain the walking track network to ensure the protection of the environment.

Risk Management

- 1) To manage the risks associated with the use and maintenance of walking tracks.

Promotion

- 1) To improve the promotion of walking tracks to residents and visitors.

Interpretation

- 1) To develop an interpretation strategy to promote awareness, appreciation and conservation of the natural environment.
- 2) To provide and maintain directional signage on tracks.

A number of actions are associated with each area and objective, and are summarised here:

- ☐ Review the community needs and expectations
- ☐ Develop a priority list of walking tracks to be extended or developed
- ☐ Develop links between existing tracks to create longer tracks
- ☐ Review the exiting walking tracks database and maps

- ❑ Ensure policy coordination between walking track planning and other Council areas
- ❑ Identify and grade all walking tracks for difficulty, length and features
- ❑ Identify budget allocations and future funding sources
- ❑ Investigate and develop standards for provision of tracks
- ❑ Prepare a walking track maintenance program
- ❑ Review existing literature and replace/update where necessary
- ❑ Develop an interpretation strategy
- ❑ Review and upgrade signage where necessary

3.3 CityPlan

CityPlan (2000) is produced by Shoalhaven City Council and is the umbrella document for all strategic plans in the Shoalhaven. Plans are grouped under broad headings of environment, economy, community and council.

Pedestrian issues are not explicitly mentioned in this report, but they could be incorporated under public safety issues, with the aim of ensuring that town centres and other public areas are planned and development is designed to improve public safety, and the continuation of the “Road Safety Officer Program”.

3.4 Shoalhaven Integrated Transport Strategy

The Shoalhaven Integrated Transport Strategy (2000) is a very similar document to the PNDR, although it has a wider scope to include all modes of travel, and was produced at the same time.

The undertaking of the Shoalhaven PAMP is strongly supported in the Shoalhaven Integrated Transport Strategy, for reasons elaborated on in previously mentioned documents. The Integrated Transport Strategy also deals with the issue of skateways, acknowledging them as legitimate forms of transport, and advocating their incorporation into the existing and proposed cycleways and pedestrian paths.

Safety for transport users is noted as a major issue in the strategy, and pedestrian safety is a high priority in this regard.

As an appendix, the strategy includes a Code of Conduct for Skaters, adapted from a set of guidelines from Melbourne City Council. It is written in ‘plain’ language, and is simple in its format. There are three simple rules, and notes about using commonsense and the how the law affects skaters.

3.5 Bay and Basin Traffic Study

The Bay and Basin Traffic Study (2000) study undertaken by consultants ERM concentrated on traffic management in 8 key locations. Pedestrian safety issues were considered separately to each case study.

16 pedestrian accidents had been reported in the study area since 1991, with two locations identified as concerns. One site had poor visibility and problems with excessive speed, while the other had other pedestrian hazards, but the accidents had occurred prior to traffic and speed limit changes being implemented.

Recommendations for review of the situations at these sites were made at the conclusion of the report.

3.6 Safe Routes To School

A Safe Routes to School (2000) study was undertaken, and documents produced for 10 primary schools in the Shoalhaven Area. The schools included in the study are:

- ❑ Illaroo Rd, Nowra
- ❑ Jervis Bay Christian Community
- ❑ Milton
- ❑ Nowra East
- ❑ Sanctuary Point
- ❑ Shoalhaven Anglican, Milton
- ❑ St Georges Basin
- ❑ St Michaels Primary
- ❑ Ulladulla
- ❑ Vincentia

For each school a committee was formed, comprising parents, staff, local council officers and RTA representatives. Surveys of parents and staff were conducted, covering various road and pedestrian safety issues, particularly where they related to each school situation. Observational studies were also conducted outside the schools by committee members, observing the behaviour of children, parents/carers and other members of the community, in particular motorists, in the local area. Meetings of the committee discussed these and other issues, as well as specific local concerns eg: particular intersections.

The committee proposed “Action Plan Priority Issues”, and developed the appropriate methodology to address those issues. These included child pedestrian behaviour, driver and passenger behaviour, parent role model behaviour and bicycle behaviour. For each issue an Action Plan was developed, specifying the issue, objectives, target audience and expected outcomes. Actions to be undertaken included education and publicity campaigns for safety issues, and continued observation and assessment of behaviour relating to safety. Detailed reports of the results of the observational studies are included in each report.

Of significant concern in several cases was the quality of pedestrian facilities around the school, with lack of paved footpaths, footpaths clear of obstruction and/or other hazards and safe crossing points. The recommendations for improved pedestrian infrastructure have been included in the full list of infrastructure recommendations contained in Section 8.2. A listing of the main issues of interest to this PAMP are listed below:

Illaroo Road Public School, Nowra

- ❑ Drivers do not generally obey the 40km/h ‘school zone’ on Illaroo Road;
- ❑ Intersection of Illaroo Road & McMahon Road – crossings required instead of current refuges in the splitter islands;
- ❑ Footpath required on at least one side of Castle Glen;
- ❑ Speed of drivers on Philip Drive is excessive for the conditions; and

- ❑ Lack of clear priority at the junction of Philip Drive and Castle Glen creates confusion in the minds of drivers and makes it more difficult for pedestrians to cross Philip Drive.

Vincentia Public School

- ❑ Drivers do not generally obey the 40km/h 'school zone' on The Wool Road, suggest that quick changes in speed limits from 80km/h to 60km/h to 40km/h and back to 60km/h reduce drivers inclination to obey the lower speed limit; and
- ❑ Suggest a crossing of The Wool Road at Beach Street is required.

Ulladulla Public School

- ❑ Do not want any access from the proposed Ulladulla Bypass onto Green Street due to the number of schools, churches, community facilities on this street.

St Michael's Primary School, Nowra

- ❑ Concerned about the potential traffic generation from the proposed new Woolworths Supermarket opposite the school in Osborne Street.

St Georges Basin Public School

- ❑ Want footpaths in Tallyan Road extended to connect to the footpath in front of the shops;
- ❑ Want a footpath outside the back gate to the School in Reserve Road; and
- ❑ Concerned about drivers being uncertain of their movements at the intersection of Tallyan Point Road & Collingwood Street.

Shoalhaven Anglican School, Milton

- ❑ Want the intersection of Pacific Highway and Croobyar Road signalised with pedestrian phases (on RTA programme of works).

Jervis Bay Christian Community School

- ❑ Speeds too high on St Georges Avenue, want 40km/h zone installed;
- ❑ Would like footpaths on Elizabeth Drive;
- ❑ Concerned about pedestrian safety crossing The Wool Road at Beach Road; and
- ❑ Concerned about pedestrian safety crossing Burton Street.

Nowra East Public School

- ❑ Concerned about safety of pedestrians crossing Kalandar Road given the high traffic volumes, want traffic signals with pedestrian phases installed at the intersection of Kalandar Road and Wallace Street (on RTA programme of works);
- ❑ Concerned about pedestrian safety at the Jervis Street & Journal Street roundabout;
- ❑ Concerned about speeding in general around the school and south of Kalandar Road; and
- ❑ Concerned about pedestrian behaviour at the Wallace Street and St Anne Street roundabout (children using the centre island to stand on).

Milton Public School

- ❑ Want crossing in front of the school on Thomas Street;
- ❑ Lack of footpath on Matron Porter Drive;
- ❑ Concern about safety of children crossing the Highway; and

- ❑ Concern about children crossing at the intersection of Green Street & Village Drive, Ulladulla.

Sanctuary Point Public School

- ❑ Want a footpath at the back of the school on Idlewild Avenue from the school to Kingsford Smith Crescent;
- ❑ Concerned with drivers not obeying the 40km/h 'school zone' on Paradise Beach Road or 50km/h local street speed zone on surrounding roads; and
- ❑ Refuges not understood on Paradise Beach Road.

3.7 Shoalhaven Youth Services Strategic Plan 2000/1 – 2005/6

The aim of the Shoalhaven Youth Services Strategic Plan 2000/1 – 2005/6 (2000) is to provide a 5-year strategic direction for participating Shoalhaven agencies who provide a service to young people (aged 12-24 years) and to involve young people in the delivery of services to meet their needs.

There are a number of recommendations in the Strategy that are relevant to the development of the Shoalhaven PAMP:

- ❑ Prepare PAMPS to ensure that the needs of young people (eg skaters and people with a disability) are met.
- ❑ Ensure budgets for future road infrastructure includes bike paths, walkways, and bus stop improvements where relevant and practical.
- ❑ Continue to implement Shoalhaven Bicycle Strategy.
- ❑ Produce a tourism strategy that caters for people without a car to visit and enjoy the Shoalhaven.

3.8 Shoalhaven Community Plan 2000 – 2001

This report first identifies sections of the population which it must address, namely children, young people, women, older people, people with disabilities, people from culturally and linguistically diverse backgrounds and Aboriginal people.

Pedestrian issues are raised in association with older people and people with disabilities. The Shoalhaven PAMP and the Integrated Transport Plan are mentioned as important projects, and are included under transport-related objectives for meeting the needs of most of the target groups.

3.9 Community Survey 1999

In preparation for the Shoalhaven 'CityPlan', the council conducted a comprehensive survey of residents, seeking views on a whole range of issues relating to living and working in the Shoalhaven area.

Poor transport was the most common dislike according to residents. This includes pedestrian, motor, and public transport issues. Approximately 67% of residents were satisfied with traffic and pedestrian safety facilities, with 40.8% satisfied with footpaths. A much higher percentage of non-resident land-owners expressed satisfaction with these facilities.

Satisfaction with footpaths was lowest in the St Georges Basin area (21.9%), and highest in Nowra/Bomaderry (52.2%). Better lighting was expressed as a way of improving public safety, but not necessarily in relation to pedestrian issues. Transport was a major issue for the majority of survey respondents.

3.10 Shoalhaven Road Safety Strategic Plan

The Shoalhaven Road Safety Strategic Plan (1998) was written to address issues of road user safety in the Shoalhaven Region. The report identifies pedestrians as vulnerable road users, along with cyclists. The report notes a number of key statistics relating to pedestrian accidents within the Shoalhaven, including:

- ❑ Road accidents resulting in pedestrian injury occur at a rate of around 21 per year
- ❑ People aged 15-30 are over-represented as victims of pedestrian accidents
- ❑ 73% of accidents in the 10 years to 1995 represented pedestrians struck while attempting to cross a road
- ❑ 16% were pedestrians walking or standing on the road.
- ❑ 9% were pedestrians stuck on the footpath or median strip.

Improvements in pedestrian safety are complementary to improvements in the safety of car users, especially in urban areas. Initiatives such as 50kph speed limits and traffic calming devices are of great benefit to car drivers and pedestrians.

The Plan identified a number of strategies and actions to complement national and state campaigns, as summarised here:

- ❑ Increasing community awareness and responsibility for road safety
- ❑ Planning for transport and land use
- ❑ Behavioural aspects of improving personal road safety, including
 - Speed control to suit the conditions
 - Eliminating drink-driving and drink-walking
 - Protecting vulnerable road users – including pedestrians
 - Strengthening formal road safety education of young road users
- ❑ Continuing road safety planning that is coordinated and responsive

3.11 Shoalhaven Bicycle Strategy

The Shoalhaven Bicycle Strategy (1997) was an update of the 1993 Shoalhaven Cycleway Strategy, and provides general information on planning for cyclists as well as identifying priorities for cycleway provision in the five years up to 2002, based on a network of cycleways.

Pedestrian issues are not expressly dealt with, although it is acknowledged that in some instances it is advantageous for pedestrians and cyclists to share facilities. Cyclists face many similar hazards to pedestrians, including conflicts with cars (where no cycle path is present) and problems with path design.

Cycle facilities can take several forms, including on-road paths (separated from traffic by line markings, which may also be used for car parking) or off-road paths (shared with pedestrians, or if pedestrian demand is not high, as an exclusive bike path).

The report identifies generators and attractors of cycle traffic that are similar to those for pedestrian movements, and include schools, shopping centres and recreation facilities.

3.12 Policies for Planning and Development: Shoalhaven Beyond 1990

There is no specific policy on pedestrian issues, although there is a policy on social awareness. This draws attention to the potential needs of the community when developing planning policies and strategies. A policy does exist to establish provisions for cyclists.

3.13 Various Tourist Pamphlets

- ❑ Bomaderry Creek Walking Track – provides a map, direction and points of interest for a 5.5km bushwalk that is part of a network developed by the Crown Lands Service throughout NSW.
- ❑ National Parks – walking tracks indicated on guide maps.
- ❑ Shoalhaven Bushwalks – a collation of brochures/information guides for 27 popular bush walks in the Shoalhaven produced by the Shoalhaven Tourism Board.

3.14 Visit Shoalhaven – Everything You Need to Know

This tourist brochure promotes routes for tourists to drive, with cars promoted (through the absence of other modes) as the best way to get around the city.

4. Community Consultation

Consultation with the community is an important aspect of the PAMP process and in this study the consultation has taken place in two stages. Initial consultation has taken place at the beginning of the study to enable existing issues and problems to be identified. This has included:

- ❑ Questionnaires to a number of local community groups
- ❑ Discussions with key local stakeholders including council officers
- ❑ Discussions with a number of more general stakeholders, including the Department of Ageing and Disability, The Guide Dog Association of NSW and the Australian Quadriplegic Association.

The second stage involved putting draft PAMP material on display and inviting public comment for incorporation into the final PAMP.

4.1 Stakeholder Questionnaires

As an initial step in the consultation process for the Shoalhaven PAMP a questionnaire was designed and sent to a selection of relevant local community groups. The questionnaire was accompanied by a cover letter giving background information on the project and introducing the study team. The mail-out was designed to achieve the following:

- ❑ inform community groups about the project and give some brief background information;
- ❑ make contact with the appropriate person in each community group;
- ❑ establish whether or not the group/individual would be willing to participate further in the consultation process and collate contact details;
- ❑ gather information on existing walking initiatives within the study area;
- ❑ better understand the issues and problems faced by pedestrians in the study area; and
- ❑ identify specific locations where pedestrian facilities may be improved.

The mail-out was sent to the following community groups within the study area:

- ❑ Shoalhaven People for Access
- ❑ Disability Assistance For Shoalhaven Inc
- ❑ CRS Australia
- ❑ The Multiple Sclerosis Society
- ❑ Post Polio Support Group
- ❑ Budawang School for Specific Purposes
- ❑ Havanlee School
- ❑ Shoalhaven Community Transport Service Inc
- ❑ Shoalhaven District Senior Citizens Association Incorporated
- ❑ St Georges Basin Health and Community Transport Service Inc
- ❑ St Georges Basin Senior Citizens Club Inc
- ❑ Shoalhaven Community Transport Service – Southern Shoalhaven
- ❑ Shoalhaven City Council
- ❑ Nowra Chamber of Commerce
- ❑ St Georges Basin & Environs Community Forum Inc

- ☐ Milton/Ulladulla Chamber of Tourism and Business
- ☐ Bomaderry Chamber of Commerce
- ☐ Sanctuary Point Chamber of Commerce
- ☐ St Georges Basin & District Chamber of Commerce & Industry
- ☐ Bay and Basin Community Resources Inc
- ☐ East Nowra Neighbourhood Centre
- ☐ Shoalhaven Neighbourhood Centre Incorporated
- ☐ Noahs Ark Centre

A copy of the questionnaire and cover letter is included in **Appendix A**.

Responses

27 responses were received, 13 of these from community groups and 14 from individuals attending a group meeting. 12 of the respondents have indicated that they would like to participate further in the consultation process and provided their contact details.

8 of the respondents indicated that the group they represent undertake initiatives to encourage or facilitate walking for the people that they represent, including the following activities:

- ☐ Shoalhaven Access Advisory Committee
- ☐ Women Out Walking Program
- ☐ Seniors Week activities including a press release
- ☐ Surveys of pedestrian facilities
- ☐ Distribution of fliers
- ☐ Production of a directory of walking facilities
- ☐ Transport for the elderly and disabled for shopping and leisure trips
- ☐ Bushwalks for seniors
- ☐ Travel training for students
- ☐ Exercise and leisure for students

The questionnaire asked where within the City people from the different groups walked. The responses were as follows:

- ☐ All across the region (2)
- ☐ Central Nowra (3)
- ☐ East Nowra
- ☐ North Nowra
- ☐ Ulladulla and Princes Highway
- ☐ Bay and Basin (2)

When asked which issues most discouraged people from walking the majority of people mentioned the lack of footpaths in the area (19 responses), the other most common issues were:

- ☐ Lack of footpaths (19)
- ☐ Lack of crossing points (10)
- ☐ Personal safety (10)
- ☐ Risk of traffic accident (9)
- ☐ Cyclists on footpaths (7)

- ❑ Poor street lighting (7)

In addition to these prompted answers the following unprompted issues were also raised:

- ❑ Skateboards/scooters on footpaths (8)
- ❑ Uneven footpath surfaces/potholes in footpaths (3)
- ❑ Debris on footpath (including rubbish, vomit and animal droppings) (2)
- ❑ Poor disability/wheelchair access (1)
- ❑ Dogs (1)
- ❑ 2 high schools and 5 community organisations in one street with poor pedestrian access. (1)
- ❑ Danger to mothers and children in strollers (1)

The final two questions were more open ended and asked people to identify locations with specific problems and possible new pedestrian facilities. The following provides a summary of the responses received (the numbers in brackets indicates the number of respondents that raised the issue):

- ❑ Damaged footpaths is a problem, especially tree root damage (2)
- ❑ Skateboarders and scooters on footpaths are a real problem (4)
- ❑ Build a skate park (2)
- ❑ There is a general lack of footpaths in Shoalhaven (4)
- ❑ Poor quality / no footpaths in residential areas
- ❑ All intersections need pram ramps – some wheelchair users are currently forced to make long detours.
- ❑ Poor lighting (2)
- ❑ There are limited pedestrian facilities, particularly in newer areas.
- ❑ Car parking in footpath areas is a problem.
- ❑ Nature strips are an uneven surface that are difficult to walk on.
- ❑ Many joggers and walkers are out at dusk when visibility is poor due to poor lighting.
- ❑ Strollers and disabled people have no access to services and facilities.
- ❑ There is chaos on the streets before and after school.
- ❑ Trees over footpaths need to be trimmed so that people can walk underneath
- ❑ Wider, better maintained footpaths are needed that cater for the needs of wheelchairs (3)
- ❑ Walking routes for regular use should be signposted and advertised.
- ❑ Education and encouragement programs are needed (2)
- ❑ Signposts could be moved closer to the kerb so that they could be used by people with weaker legs to help them up and down kerbs.
- ❑ Safe crossing areas are need for children.
- ❑ Footpaths are needed at the following locations:
 - Hillcrest Avenue / Old Southern Road (speeding traffic also);
 - Beinda Street, near TAFE;
 - Access between the station/shops and TAFE;
 - Junctions Court;
 - Nowra Lane (from Junction St to Worrigee St);
 - Haigh Ave;
 - Lawrence Ave;

- Worrigee St;
 - Kinghorne St;
 - Berry St;
 - Worrigee St;
 - Princes Highway from river to at least Moss St;
 - Paradise Beach Road;
 - Links Ave;
 - Sanctuary Point;
 - Riverview Road;
 - Ferry Lane;
 - Lyrebird Drive;
 - Moss Street;
 - Boree St, Ulladulla;
 - Page Avenue (disabled students at school);
 - Kerry Street;
 - Park Drive;
 - Callala Bay Road, by pre-school;
 - Illaroo Road, North Nowra, west of the water tower;
 - Elizabeth Drive, Vincentia;
 - Walkway and lighting needed along the river (on the bridge); and
 - Walking and bike path at South Nowra – to connect to Kinghorne St and Albatross Rd.
- ❑ Pedestrian crossings are needed:
- outside Standish Medical Centre;
 - over Princes Highway on the south side of the bridge;
 - intersection of Princes Highway and Marion Porter Drive, Milton; and
 - between Nowra and Nowra Fair/Moss St/Ex-Serviceman's Club (Junction St).
- ❑ The footpaths within Nowra and Bomaderry CBDs include a lot of hazards for wheelchairs;
- ❑ Footpath through White Sands Park, Huskisson needs to be repaired;
- ❑ The Highway in South Nowra has a speed limit of 80km/h with no footpaths or crossing points;
- ❑ Poor lighting in Marriott Park;
- ❑ Cars parked on both sides of Paradise Beach Road (next to shopping Centre) – poor visibility for pedestrians and motorists;
- ❑ There is confusion over crossings and refuges particularly in central Nowra;
- ❑ Need to improve safety for people outside the Huskisson Hotel on Friday and Saturday nights; and
- ❑ Kerbs and guttering, footpaths and cycleways are needed at Sanctuary Point, St Georges Basin and Basin View.

4.2 Discussions with key stakeholders

Discussions have been undertaken with key local stakeholders, including a number of council officers, in order to identify existing issues and problems and explore current initiatives designed to promote or encourage walking. The following Council Officers were consulted during this process:

- ❑ Gordon Clark – Senior Strategic Planner, SCC

- ❑ Melissa Boxall – Community Worker (Aged and Disabled), SCC
- ❑ Karyn Apperley – Youth Development Officer, SCC
- ❑ Ken Murray – Planning Policy Manager, SCC
- ❑ Leah D’Souza, Leisure and Recreation Officer, SCC

A summary of the issues raised during these discussions is included here, summarised by topic area.

General Transport

- ❑ Existing public transport services are minimal and therefore walking and cycling are often the only transport options for people without access to a car – and these need to be considered as ‘legitimate’ modes of travel.
- ❑ The concept of a park and ride scheme was an outcome of the community consultation for the Integrated Transport Strategy. The idea was to have a regular public transport service along the Highway ‘spine’ that people could access either on foot, cycle or car – recognising that most settlements are spread along this spine.
- ❑ The Integrated Transport Strategy will be progressed through the newly appointed Transport Development Officer for the Illawarra and Shoalhaven areas.
- ❑ Council is currently considering how to address the new Australian Road Rules that allow children and accompanying adults to legally cycle on footpaths.
- ❑ Access to and within Nowra shopping centre is difficult without a car.

Scooters/Skateboarders

- ❑ Scooters/skateboards are an important mode of travel for young people. Melbourne CC has developed a code of conduct for scooters/skateboards that may provide a useful basis for a similar code for Shoalhaven.
- ❑ There is a demand for safe storage for scooters/skateboards/cycles at key destinations – possibly some form of locker.
- ❑ Scooters, skateboards and cycles form a very important mode of travel for young people in the study area, particularly given the large distances between activity centres.
- ❑ The proposed new skate facility to the east of Nowra Fair will be difficult to access for people. The Highway forms a barrier to access from the CBD – access is provided across the Jane Street bridge but footpaths are narrow and will not accommodate skateboards. It is feared that many visitors to the new facility will take a chance and cross the Highway.

Pedestrians

- ❑ There are a number of issues relating to walking to work:
 - there is currently traffic congestion in the Nowra/Bomaderry area, especially close to the bridge at peak periods.
 - many people drive to work in Nowra from within a 1km radius,
 - need to consider promoting walk to work initiatives – could include Healthy Cities Shoalhaven.
 - trip end facilities (such as showers/changing rooms/lockers) are currently poor.
 - a couple of years ago one of the bridges across the river was closed for maintenance for around 4/5 months, considerably reducing the traffic capacity of the bridge and resulting in increased traffic congestion. During

this time there was a modal shift from cars to walking for the journey to work as the time benefits of the car trip were eroded.

- ❑ Many pedestrian facilities are not continuous and do not serve the places that people want to visit.
- ❑ There is a general perception that pedestrian facilities are poor. Although this is true in many places there are a number of examples of good pedestrian planning and facilities.
- ❑ The bridge between Nowra CBD and Nowra Fair is inconvenient, with little activity (retail/community type uses) between the CBD and the bridge to attract pedestrians.
- ❑ Existing and new pedestrian paths and facilities need to be promoted with local people as well as visitors/tourists. Many local people are currently not aware of some of the newer facilities that have been constructed.
- ❑ The following continuous traffic movements cause safety and amenity concerns for pedestrians:
 - left turn off Highway into Illaroo Road, North Nowra
 - left turn from Bridge Road to the Highway, Nowra
- ❑ There are no continuous footpaths around the PCYC in East Nowra.
- ❑ Many young people use the rail station at Bomaderry and then walk into Nowra – continuous pedestrian facilities need to be provided on this route.
- ❑ The pedestrian facilities provided at the proposed leisure/retail centre between Vincentia and Sanctuary Point will need to be carefully planned and designed.
- ❑ Pedestrian planning is not a current priority for Council given the car dominated nature of the travel system and the focus on cycleways. Cycleways are seen as a higher priority than footpaths as they will improve accessibility for a larger number of people and pedestrian numbers tend to be small.
- ❑ There are a number of off-street bushtracks that could be integrated with the PAMP.

Shared pedestrian/bicycle facilities

- ❑ The shared pedestrian/cycle path between Huskisson and Sanctuary Point Shopping Centre is very popular and the following points were made:
 - the path is a high use path that is 2.5m wide
 - prior to construction there was a perceived fear for safety on the path – this is not supported by actual reported accidents/incidents
 - there is a need for education of all users – possibly a ‘share the path’ campaign – Council has erected signage in this regard.
 - there is very high community support for the facility
 - the path is often used by large groups
- ❑ The off-street shared pedestrian/cycle path between Huskisson and Vincentia is very good with plenty of width for wheelchairs, although there are a few issues that need addressing:
 - There is a very steep section of the path close to Church Street that is difficult to negotiate for cyclists, wheelchairs and some pedestrians
 - Access from the track to the retail centre at the Vincentia Roundabout is poor
 - There is a perception that conflicts between users is an issue although Council has no evidence of actual conflicts
 - The track could be extended further south to allow easy access to Orion Beach

- ❑ Shared pedestrian and cycle paths provide a useful facility, but require further education for users (especially to reduce the perception of elderly people that these paths are not safe) and more signposting.
- ❑ Milton/Mollymook/Ulladulla need to be linked by footpaths/cycleways – including access to the TAFE and skate facilities.

Cycling

- ❑ Council is currently progressing the implementation of the Bicycle Strategy and has committed reasonable funding to the implementation of the Strategy in recent years. New cycle paths have generally seen a very high usage. The Bicycle Strategy priorities will be reviewed again in 2002.
- ❑ The majority of new bicycle facilities are shared paths. The current volumes for either mode do not justify segregated paths.
- ❑ There are currently no cycling facilities within central Nowra – cycle routes in this area will be on-road when implemented.

Specific Accessibility Issues

- ❑ The St Georges/Sanctuary Point area is currently experiencing a high growth in its elderly population. There are a number of community transport schemes running in the area, but in general local facilities and pedestrian access to them is poor.
- ❑ There are a couple of locations within the area that provide very good facilities for day visits for elderly or disabled people, including Greenfields Beach and the river beach at Nowra. These locations need to be accessed by car but, once there, pedestrian facilities (including accessible walking tracks) as well as toilets and car parking access are very good.
- ❑ East Nowra is a housing commission area with generally low socio-economic groups and low car ownership – it may be helpful to target improved pedestrian facilities at this area.
- ❑ Buses provide a convenient mode of travel for most youngsters to get to school but services out of school travel times are poor.
- ❑ Young people will often walk relatively long distances to access facilities/see friends etc as they have no other means of transport and like to retain their independence.

Funding

- ❑ The current Section 94 Plan does not include provision for walking or cycling facilities to be funded through developer contributions.
- ❑ Funding for the implementation of the Bicycle Strategy is available through the RTA on an annual basis. However the RTA is not currently matching Council funds (as indicated in the BikePlan 2010 document) and the uncertainty of RTA funding makes implementation plans for the strategy difficult.
- ❑ The implementation of transport strategies is often difficult due to the inconsistent funding from the RTA – allocations are varied and are often provided at the last minute.
- ❑ The use of Section 94 contributions to fund pedestrian improvements is complicated and requires council to fund improvements and then claim back through the Section 94 process. This means of funding for pedestrian improvements is therefore not used by Shoalhaven Council.

Planning/land use

- ❑ The sub-division code for new residential developments concentrates on engineering issues. Council needs to ensure that appropriate pedestrian and cycling facilities are including in all new developments. However, as an example, there have been no pedestrian or cycle facilities provided for access to the new site for the University of Wollongong - it was deemed to be cost prohibitive to the development.
- ❑ Council needs to strengthen links between the provision of new developments and transport strategies – including the possibility of using Section 94 funding.
- ❑ Future development will take place as either infill development within existing commercial/retail areas or a part of new residential subdivisions.
- ❑ For new subdivisions:
 - sealed roads, water and sewerage have been the priority facilities and more recently cycle paths have been included in some developments; and
 - facilities tend to be located based on the availability of land rather than accessibility principles – which often makes developments difficult to serve with pedestrian, cycle and public transport networks.
- ❑ There is a new leisure/retail centre planned at the crossroads between Vincentia and Sanctuary Point. The DA requires a pedestrian connection to the development to link to the High School at the other side of the road. Most of the pedestrian planning has been completed already and has taken into account a number of local environmental issues. It is expected that the development will be constructed with 2/3 years.
- ❑ The new residential developments in East Nowra will include a cycleway spine. If required, the Development Department should specify pedestrian needs in these new areas. In many cases, due to the narrower roads specified in new residential areas and the possibility of being struck by a moving vehicle on a driveway, it is safer for pedestrians to walk on the road.
- ❑ New urban release areas around Nowra and Bomaderry will include integrated pedestrian and cycle networks from the start of the planning process.
- ❑ The focus on future planning work will be on managing travel demand by getting people (especially the disabled and elderly) living closer to local facilities.

In addition to these discussions with Council Officers, a number of other key stakeholders have been contacted directly as follows:

- ❑ Healthy Cities Shoalhaven
- ❑ Department of Housing

The following paragraphs provide a summary of these discussions.

Healthy Cities Shoalhaven

The Healthy Cities Shoalhaven program is a global World Health Organisation initiative designed to strengthen communities through promoting health and well being.

Through this program projects are run which promote general health initiatives and seek funding for appropriate projects. Healthy Cities Shoalhaven are currently involved with two projects that are of relevance to this PAMP:

- ❑ **Walking track at North Head Ulladulla** – Healthy Cities Shoalhaven is currently working with an Aboriginal Group to develop a 2km accessible walking track in northern Ulladulla that will include a number of relief carvings telling the history of the area from an aboriginal perspective. The track is now complete and will be promoted as soon as Council completes the disabled parking spaces on Dolphin Street that will allow easy access.

The track is wide but does not meet Australian Standards due to the incline on a couple of sections. There is the possibility that the track could be extended in future through a nearby park to Ulladulla CBD.

- ❑ **Southern Shoalhaven Walking Track** – This track joins together a number of existing walking tracks and is being promoted to able-bodied local people and tourists.

In addition to these two specific tracks Healthy Cities Shoalhaven would like to see a whole network of tracks that are accessible to disabled people. A joint application (between the Healthy Cities Initiative and Council) to the Department of Aged and Disability for an audit of existing off-street tracks in order to develop a program of works to upgrade tracks to accessible standards was unsuccessful. Healthy Cities Shoalhaven would still like to see this project go ahead in order that priorities could be set and funding opportunities identified.

It was also mentioned that there are a number of pedestrian rights of way between houses in the Mollymook area that have been designed to allow easy pedestrian access to the beach without having to make a long detour. Many of these paths are not obvious and need to be signposted and promoted in order to increase their usage, particularly among the many elderly residents in the area. This is a further project that Healthy Cities Shoalhaven would like to progress as part of the Healthy Cities program.

Department of Housing (DoH)

The East Nowra area contains a number of laneways that were an integral part of the original layout of this residential area, allowing greater permeability of the site on foot than would otherwise be achieved through the street system (that includes a number of cul-de-sacs). However in recent years the laneways have become the focus of anti-social behaviour in the area, leading to safety, security and amenity issues for local residents.

Discussions were held with staff at the DoH regarding this issue and they provided some useful background information and details of the further work that they had undertaken.

Given these safety and security concerns, the local community has requested that the laneways be closed. The majority of housing within the area is Department of Housing accommodation and therefore they have been responsible for the majority of discussions with the community to date. The DoH has conducted further consultation and surveys with the community regarding these closures with widespread support for the closures from the community, and only one resident that would like one of the laneways to remain open.

In response to these requests, and in light of the further consultation and surveys, the Department of Housing has recently notified Council of its intention to close the majority of the laneways. It is intended that the land released from the closed laneways will be distributed between the adjacent properties and therefore increase the size of their property.

In addition to this the DoH is implementing a Community Renewal Strategy within the East Nowra area, that seeks to reduce anti-social behaviour, improve safety, security and amenity for residents and enhance the local community spirit.

In respect of the development of the Pedestrian Access and Mobility Plan, there are a number of issues that need to be addressed.

The laneways provide useful pedestrian links between residences and streets within the East Nowra area that improves the pedestrian permeability of the area. However the incidences of anti-social behaviour occurring in these locations is causing loss of amenity as well as safety and security issues for local residents. Given the overwhelming community support for the closure of the laneways, it appears that these issues currently outweigh the access benefits from keeping the laneways open.

It is therefore proposed that the laneways are closed in line with the current Department of Housing plans. It is hoped that the current Community Development Strategy will reduce the incidences of anti-social behaviour within the area.

4.3 State and National Organisations

A number of state and national organisations have previously been contacted with regard to general issues relating to pedestrian movement. These discussions provide useful background information for the Shoalhaven PAMP and give more detailed information on the needs of particular user groups. A summary of the discussions with the following groups is provided here.

- ❑ The Guide Dog Association of NSW
- ❑ The Ageing and Disability Department
- ❑ The Australian Quadriplegic Association

The Guide Dog Association of NSW

The Guide Dog Association is associated with enhancing the independence of visually impaired people through the provision of orientation and mobility services. Through this work, they have developed an understanding of the needs and restrictions placed on a visually impaired person as they travel around.

Data from the Guide Dog Association reveals that there are around 100,000 people across NSW who are either visually impaired or blind. It is important to note, however, that blindness and visual impairment occurs more frequently in the over 60 age group.

It is important to consider the needs of this sector of the community when designing a pedestrian plan as the needs of this sector of the community may differ from those of the general pedestrian population. Therefore, to develop and implement a successful

and effective PAMP, consideration of the needs and demands of visually impaired pedestrians was included during the site audits and when specifying new facilities.

The major areas identified by the Guide Dog Association included:

- ❑ Consistency throughout the design and implementation process;
- ❑ Some delineation on all surfaces;
- ❑ Tactile markers at critical warning points eg. Steps and roads, particularly in areas of frequent pedestrian activity;
- ❑ Audio cues on all signalised crossings;
- ❑ The alignment of kerb ramps so they direct the user in the line of travel, rather than into the intersection;
- ❑ Improvements in major areas of public transport interchange; and
- ❑ The regular inspection of footpaths to ensure irregularities in the level of the footpaths are quickly rectified.

Generally, shared zones (either pedestrian/cycles or pedestrian/vehicles) were not considered an acceptable treatment due to the potential for vehicular/pedestrian conflict. Raised thresholds are able to provide a type of guidance measure across roads.

As many visually impaired people rely on public transport as their major means of mobility, it is important to ensure that all facilities associated with access to public transport stops and interchanges are improved and maintained to a standard that permits safe and efficient travel. In other areas it was considered important to improve access to shops, hospitals and community facilities such as swimming pools and libraries.

The Ageing and Disability Department

A representative of the Ageing and Disability Department was also able to provide comment on those facilities that are of most benefit to visually impaired people. Issues raised included:

- ❑ The need for accessible parking at transport interchanges to enable the integration of all forms of transport (for example at Bomaderry Rail Station to allow easy access to rail services);
- ❑ The need for marked and assisted crossings;
- ❑ The requirement that kerb ramps are placed within the crossing area. This is imperative as guide dogs are trained to locate the kerb ramp as the appropriate area to cross and cannot reasonably or safely do so if the ramp is outside the crossing area;
- ❑ The need for kerb ramps to be properly aligned - these are important way finding devices and incorrect placement of them can cause behaviour that is not expected thus creating hazards;
- ❑ Where raised thresholds are used as a crossing device, it is important to differentiate between the road and the pedestrian area. Some thresholds are treated with the same pavement surface as the pedestrian area thus creating the false impression of pedestrian priority. It is important that adequate colour contrast is used here.
- ❑ Signage and way finding mechanisms with universal symbols are important.

A representative from the Ageing and Disability Department was contacted and consulted regarding specific needs of people with mobility impairments. These issues are also applicable in addressing the needs of elderly. The particular issues addressed in this meeting included:

- ❑ Placement of tactile surface indicators on pram ramps or sloping surfaces can be a hazard for people with mobility difficulties. They can make the surface slippery and difficult to negotiate. It is better to have these set back from the sloping area.
- ❑ Accessible parking at major transport locations is important. This may include the provision of private parking spaces or an accessible area where taxis can pick up and drop off.
- ❑ Accessible paths must be subject to continuous maintenance or their function and usefulness decreases.
- ❑ A width change along a path needs to have adequate warning.
- ❑ Paving surfaces must be easy to traverse and provide a smooth ride. Bevelled paver edges are difficult to negotiate as are pavers that do not finish flush with the kerb.
- ❑ Crossfalls in many areas are too great for easy access, particularly for wheelchairs.

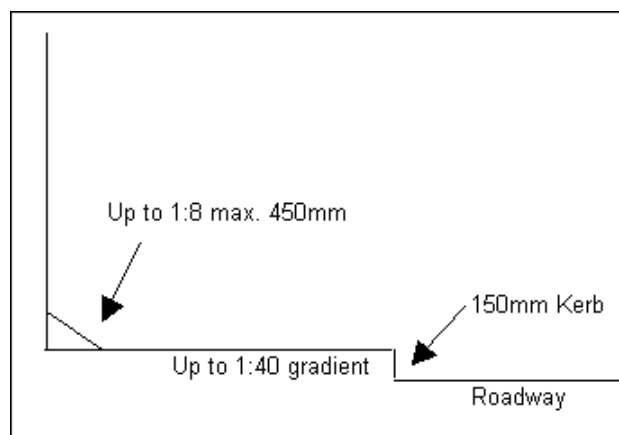
The Australian Quadriplegic Association

Several representatives from the Australian Quadriplegic Association were contacted and consulted regarding specific needs of people using wheelchairs. Some of the issues raised are also applicable in addressing the needs of elderly. The particular issues addressed in this meeting included:

- ❑ Importance of kerb ramps complying to standards at every crossing point;
- ❑ Kerb ramps to appear on both sides of streets;
- ❑ The need for on street accessible parking spaces;
- ❑ The need for caution when placing tactile surface indicators - these can become slippery in the wet, thus placement on sloping surfaces can prove dangerous and should be avoided where possible;
- ❑ Paving bricks not to have a polished finish - these are extremely dangerous with wet weather;
- ❑ The need for channels in all traffic islands.
- ❑ The need for pedestrian buttons to be within reach of a person in a wheelchair. This includes vertical reach and reasonable proximity to the kerb ramp or traffic island channel so that access is available safely and easily.
- ❑ Specified preferred standards for :-
 - kerb 1:10 (standard 1:8)
 - level tractions wide 1m
- ❑ Where raised pedestrian (wombat) crossings are used, it is important to ensure that the kerb ramps on either side are acceptable for wheelchair use. Incorrect slope on these ramps can mean that wheelchairs get stuck in the 'dip'. Suggested treatments include making sure that both slopes comply with the standard and implementing a flat section at the bottom or keeping the surface of the crossing level with the pedestrian pavement;
- ❑ Standard size for wheelchairs is A90 wheelchair footprint;
- ❑ Overbridges are very difficult to use - suggestion of putting lift on both sides;
- ❑ Tree roots create a problem - planting controls should be implemented to ensure that roots do not interrupt the smoothness of the path; and

- ❑ When upgrading or building new areas the opportunity to eliminate kerbs of 50-60mm at the entrances to on-street businesses by installing threshold ramps should be considered (See **Figure 4.1**);

■ **Figure 4.1 Diagrammatic Representation of Threshold Ramps**



4.4 Public Display & Comment

The draft PAMP material including the suggested pedestrian routes, the results of the initial stakeholder consultation and analysis of existing conditions was put on display at various locations around the Shoalhaven area. The public were invited to view this material and provide comments using a questionnaire. A copy of this questionnaire is provided in **Appendix A**.

The PAMP material was on display from the 27th June, 2001 to the 25th July, 2001 during normal business hours at the following locations:

- ❑ City Administrative Centre, Bridge Road, Nowra
open 9:00am til 5:00pm, Monday – Friday;
- ❑ Nowra Library, Berry Street, Nowra
- ❑ Sanctuary Point Library, Paradise Beach Road, Sanctuary Point
(during opening hours)
- ❑ Ulladulla Visitor Centre, Princes Highway, Ulladulla

Responses

In total 26 people provided written responses to the draft PAMP material. The responses came from people living in several areas of Shoalhaven City Council area, including (the numbers in brackets indicates the number of respondents from the area):

- ❑ Nowra (5)
- ❑ Sanctuary Point (5)
- ❑ Bomaderry (2)
- ❑ North Nowra (2)
- ❑ East Nowra (2)
- ❑ St Georges Basin (2)
- ❑ Basin View (2)

- ☐ Milton (1)
- ☐ Other (3)

The majority (80%) indicated that they would make more journeys by walking if pedestrian facilities were improved along the suggested pedestrian routes.

Respondents were asked to list their main modes of transport around the Shoalhaven area. The car was listed as the main mode of transport. However, perhaps due to the nature of the survey, walking was also frequently mentioned:

- ☐ Walking (14)
- ☐ Car (20)
- ☐ Bicycle (4)
- ☐ Bus (1)
- ☐ Skateboard (0)
- ☐ Wheelchair (1)

When asked which issues most discouraged people from walking the majority of people mentioned the lack of crossing points and lack of footpaths in the area. The other most common issues were (the numbers in brackets indicates the number of respondents that raised the issue):

- ☐ Lack of footpaths (12)
- ☐ Lack of crossing points (11)
- ☐ Cyclists on footpaths (8)
- ☐ Personal safety (8)
- ☐ Poor street lighting (7)
- ☐ Footpaths don't go where the respondent wants to go (7)
- ☐ Risk of traffic accident (4)
- ☐ Other (9)

In addition to these prompted answers the following unprompted issues were also raised:

- ☐ Skateboards/rollerblades/cyclists/motorised cyclists on footpaths (6)
- ☐ Dogs (2)
- ☐ Improved drainage (kerb & guttering) to avoid having to walk in the mud (2)
- ☐ Condition of pedestrian crossing markings (1)
- ☐ Danger to mothers and children in strollers (1)

When asked what measures would be most likely to increase the amount of walking that is done, the following responses were made:

- ☐ More concrete footpaths in residential areas (13)
- ☐ Better crossing points (9)
- ☐ More recreational paths (8)
- ☐ More street lights (7)
- ☐ More information signs (e.g. time and distance of walks) (5)
- ☐ More places to walk (4)

Four respondents indicated that they were unlikely to walk more than they currently do.

The final question were more open ended and asked people to provide any comments on pedestrian issues. The following provides a summary of the responses received:

- ❑ There was frequent support for the recent improvements to shared paths, especially the path from Vincentia to Huskisson (4)
- ❑ Many respondents suggested extending this path to other areas such as Errowal Bay, Hyams Beach, St Georges Basin, Basin View, Tomerong and further south along the shoreline.
- ❑ Pedestrian access across the Princes Highway to the Nowra Fair shopping centre was mentioned as being poor.
- ❑ Bicycles, skateboarders and scooters on footpaths were mentioned. However, other respondents said they would like to see more shared paths. The proposed 'Code of Conduct' was mentioned as a possible means of minimising conflicts between pedestrians and other shared path users.
- ❑ Pedestrian access across the Princes Highway in general is seen as a problem. It was suggested that the pedestrian crossing on the northern side of the signalised intersection of the Princes Highway and Plunkett Street should be duplicated on the southern side of this intersection. Pedestrian crossing south of Kalandar Street is too far apart. It does not serve school children wanting to cross to the nearby schools in East Nowra.
- ❑ Footpaths were suggested in Shoalhaven Heads and Basin View (although these areas are outside the scope of this study), on the southern side of Plunkett Street between the Princes Highway and Kinghorne Street and on Osborne Street, Nowra between Worrigea Street and Plunkett Street. The condition of the paving on Graham Street from North Street to the Council Administration Building was criticised for being uneven.
- ❑ The pedestrian path from Bomaderry Station to Nowra CBD could be improved to be made more seamless.

Additional community input on pedestrian issues was also reviewed as part of this study. One letter expressed concern about the safety of pedestrians using the pedestrian facilities at the roundabout at the intersection of Kinghorne Street & Worrigea Street.

This location was one of the locations observed. The results of the pedestrian count at this location is presented in Section 5.1. Elderly residents were observed to have difficulties using the existing facilities at this location.

The various private bus and coach companies were contacted to determine if they were planning any new bus stops, or if there were any issues with people getting to their existing stops. Most of the companies contacted operate hail & ride services which mean that the bus will stop at any point along a fixed route to pick up or set down passengers. This means that the requirements for footpaths are less because passengers do not have to walk to a fixed bus stop. Ulladulla Bus Lines mentioned that they stop on both sides of the Princes Highway near Pittman Avenue which currently has no footpaths.

5. Pedestrian Demands

The current level and pattern of demand for pedestrian movement has been examined through a number of sources, including:

- ❑ counts of pedestrian movements at selected locations;
- ❑ observations of pedestrian movements at key locations;
- ❑ discussions with Council officers and other key stakeholders;
- ❑ comments from the wider community; and
- ❑ information taken from previous study reports.

This section presents the results of the pedestrian counts undertaken for this PAMP and then considers some of the other major pedestrian movements identified through the stakeholder discussions and previous study reports.

5.1 Results of Pedestrian Surveys

A number of pedestrian counts were undertaken within the study area in order to establish the level of pedestrian activity at a number of locations at different times of the day.

The timing and location of the counts were selected for a number of reasons:

- ❑ gain a better understanding of the numbers of people moving within the town centre areas during peak times (either business peaks or the tourist season)
- ❑ observe where people cross in relation to formal crossing points in particular locations
- ❑ examine the number of people crossing and the issues faced by pedestrians crossing the Princes Highway that runs through many of the commercial centres

The following pedestrian counts have been undertaken:

Location	Date	Time
Owen Street, Huskisson	Saturday 30 December 2000	12:00 – 13:00
Vincentia Roundabout, Vincentia	Saturday 30 December 2000	11:00 – 12:00
Princes Highway, Milton	Saturday 30 December 2000	13:00 – 14:00
Princes Highway, Ulladulla	Saturday 30 December 2000	13:00 – 14:00
Princes Highway/Wason St, Ulladulla	Saturday 30 December 2000	13:00 – 14:00
Worrigee/Kinghorne Streets, Nowra	Thursday 8 March 2001	13:00 – 14:00
Bridge over Shoalhaven River	Friday 9 March 2001	08:00 – 09:00

Each count was undertaken for a period of one hour, selected to best represent the busiest time of day at each location. The total number of pedestrians was counted passing the nominated point in 15 minute time periods, in order to establish whether the flow of pedestrians is evenly spread throughout the time period or whether peaks of pedestrian movement occur. However, it is recognised that the counts only represent one hour of a single day and wide variations in pedestrian volumes can occur due to weather, special events, daily variations etc. This will be taken into account when analysing the data and using it to determine pedestrian demands.

The results of the pedestrian counts for each site are given below.

Huskisson

Date: Saturday 30th December, 2000

Time: 12:00 – 13:00

Weather: Overcast

Location: Owen Street, around the intersection with Currumbene Street

■ **Table 5-1 Pedestrian Count at Owen Street, Huskisson**

Time		To Wharf (northbound)	From Wharf (southbound)	Total
From	To			
12:00	12:15	231	190	421
12:15	12:30	240	173	413
12:30	12:45	276	234	510
12:45	13:00	210	246	456
Total		957	843	1,800

Notes:

- ❑ There are currently no formal pedestrian crossing points along this section of road
- ❑ Approximately 80% of pedestrians crossed to the west of Currumbene Street
- ❑ There was a high proportion of big groups (4+) crossing together.

Vincentia

Date: Saturday 30th December, 2000

Time: 11:00 – 12:00

Weather: Overcast

Location: Roundabout at intersection of The Wool Road, Elizabeth Street and Burton Street, Vincentia

■ **Table 5-2 Pedestrian Count at Vincentia Roundabout**

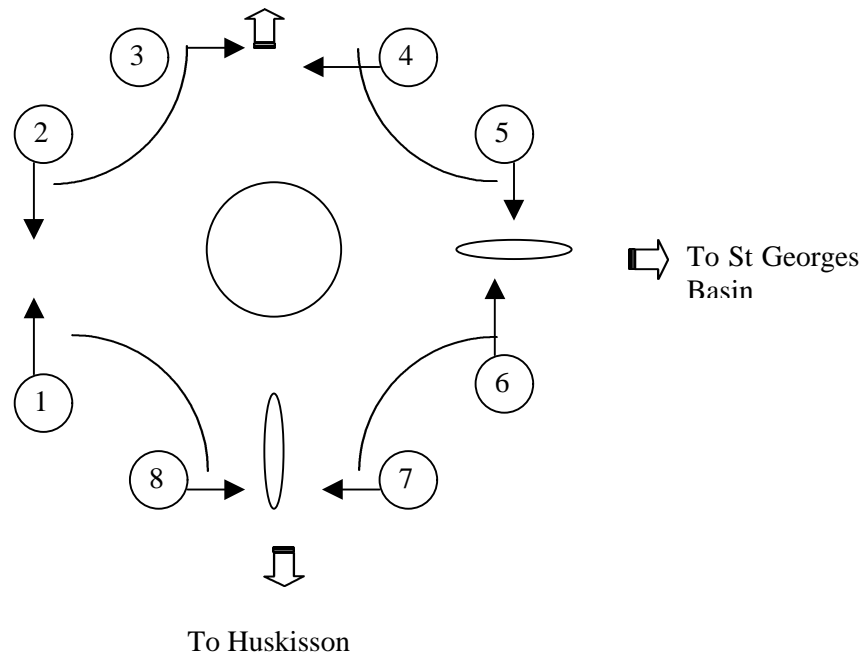
Time		East Approach		South Approach		West Approach		North Approach		Total
		Elizabeth St		Burton St		The Wool St		Elizabeth St		
From	To	1	2	3	4	5	6	7	8	
11:00	11:15	1	3	0	1	21	20	13	16	75
11:15	11:30	2	0	2	0	19	15	8	14	60
11:30	11:45	2	4	0	0	19	22	13	9	69
11:45	12:00	4	2	0	0	15	16	7	8	52
Total		9	9	2	1	74	73	41	47	256

See **Figure 5-1** for movement numbers

Notes:

- ❑ Main pedestrian flow is west across the Elizabeth Street to the north and then across The Wool Road to the shopping centre and return
- ❑ There is also a significant pedestrian flow along the footpath on the western side of Elizabeth Street towards Huskisson
- ❑ Very high percentage of kids and bikes crossing as route forms part of a designated bike route
- ❑ Very high proportion of prams/strollers
- ❑ Pedestrians typically crossed in a group of 4 to 5 people. This may be a factor of holidays with family groups accessing the shops
- ❑ Also a number of people cross further up The Wool Road at the carpark entrance
- ❑ Pedestrians crossing The Wool Road generally use the steep grass slope route to the shops

■ Figure 5-1 Vincentia Roundabout



Milton

Date: Saturday 30th December, 2000

Time: 13:00 – 14:00

Weather: Overcast

Location: Princes Highway, Milton

■ Table 5-3 Pedestrian Count across Princes Highway, Milton

Time		Princes Hwy North Crossing (Town Hall)		Princes Hwy North (Wason/ Thomas St)		Princes Hwy (Marked Crossing)		Princes Hwy South (Wason/Church St)		Total	
From	To	People	Prams	People	Prams	People	Prams	People	Prams	People	Prams
13:00	13:15	11	0	16	1	107	1	35	0	169	2
13:15	13:30	8	0	15	0	75	0	69	0	167	0
13:30	13:45	4	1	8	0	104	1	68	0	184	2
13:45	14:00	7	0	11	1	82	1	55	0	155	2
Total		30	1	50	2	368	3	227	0	675	6

Notes:

- ❑ Heavy traffic on Princes Highway resulted in large delays into Milton from both directions
- ❑ Just over half the people crossing used the marked pedestrian crossing point
- ❑ Around 30% of pedestrians crossed between Wason Street and Church Street

Ulladulla

Date: Saturday 30th December, 2000

Time: 13:00 – 14:00

Weather: Overcast

Location: Princes Highway between Green Street and Wason Street
Intersection of Princes Highway and Wason Street

■ **Table 5-4 Pedestrian Count at Princes Highway, Ulladulla**

Time		North Crossing (South of Green St)		North Crossing (midblock)		Princes Highway South (Wason/ Deering Sts)		Total	
From	To	People	Prams	People	Prams	People	Prams	People	Prams
13:00	13:15	33	0	75	0	58	0	166	0
13:15	13:30	55	0	84	0	135	0	274	0
13:30	13:45	101	0	80	1	134	1	315	2
13:45	14:00	72	0	88	1	143	2	303	3
Total		261	0	327	2	470	3	1058	5

■ **Table 5-5 Pedestrian Count at intersection of Princes Highway and Wason Street, Ulladulla**

Time		North Approach (Prince Highway)		East Approach (Wason Street)		South Approach (Princes Highway)		Total	
From	To	People	Prams	People	Prams	People	Prams	People	Prams
13:00	13:15	229	0	110	0	203	7	542	7
13:15	13:30	195	0	93	4	121	5	409	9
13:30	13:45	20	0	82	0	156	5	258	5
13:45	14:00	125	0	85	0	119	4	329	4
Total		569	0	370	4	599	21	1538	25

Notes:

- ❑ Overcast weather seemed to drive people from the beach into town.
- ❑ Observation was that the period surveyed was much busier than normal.
- ❑ Heavy traffic on Princes Highway, resulting in large delays into Ulladulla from both directions
- ❑ Very heavy pedestrian flows were experienced during the survey across the Princes Highway – around 2,200 people were counted during the lunchtime period, although these high numbers could be a result of the poor weather

Nowra

Date: Thursday 8 March, 2001

Time: 13:00 – 14:00

Weather: Sunny

Location: Roundabout at junction of Worrigee Street and Kinghorne Street, Nowra

■ **Table 5-6 Pedestrian Count at junction of Worrigee and Kinghorne Streets, Nowra**

Time		East Approach Worrigee Street		South Approach Kinghorne Street		West Approach Worrigee Street		North Approach Kinghorne Street		Total
From	To	SB	NB	WB	EB	NB	SB	EB	WB	
13:00	13:15	2	14	1	2	4	5	0	1	29
13:15	13:30	8	6	0	0	5	20	1	8	48
13:30	13:45	7	7	0	2	7	6	9	5	43
13:45	14:00	7	6	4	2	11	11	0	3	44
Total		24	33	5	6	27	42	10	17	164

Notes:

- Main pedestrian flow is along Kinghorne Street
- The elderly often appear unsure of when it is safe to cross. They wait for a gap and then hurry across the road, even if there are no cars.
- There were a large number of groups crossing together.

Date: Friday 9 March, 2001

Time: 08:00 – 09:00

Weather: Sunny

Location: Bridge over Shoalhaven River

■ **Table 5-7 Pedestrian Count at Bridge over Shoalhaven River, Nowra**

Time		Southbound		Northbound		Total
From	To	Western bridge	Eastern bridge	Western bridge	Eastern bridge	
08:00	08:15	4	2	1	3	10
08:15	08:30	4	4	2	1	11
08:30	08:45	4	2	0	2	8
08:45	09:00	2	2	1	0	5
Total		14	10	4	6	34

Notes:

- The bridge on eastern side vibrates when large vehicles pass by, making walking across the bridge and uncomfortable experience.
- The majority of people crossing bridge were schoolchildren.
- A similar number of cyclists were observed crossing the bridge, many of them school children.

Summary

The pedestrian counts completed for this PAMP were designed to show peak pedestrian volumes at key locations within the study area. However, in some cases the number of pedestrians observed at these locations, particularly in the tourist destinations of Huskisson, Ulladulla and Milton, were very high even for a peak tourist period. This is partly due to the time of the surveys (on a Saturday lunchtime during peak Christmas holiday season) but the overcast weather could also have encouraged people to visit the town centres rather than visiting the beach, accounting for the unusually high pedestrian flows.

5.2 Observations and Discussions

A number of key pedestrian routes have been identified during the study process including during the discussions with Council officers and stakeholders and in previous study reports. This section will identify a number of areas and routes that are either currently popular or have the potential to be well used in future if appropriate facilities were provided. The detailed development of the pedestrian network will be discussed in **Chapter 6**.

Pedestrian activity is generally concentrated around key activity centres (or pedestrian attractors), including shopping centres, recreation facilities, community centres, hospitals, child and aged car facilities, education establishments (schools, TAFEs and Universities) and public transport facilities. Routes between these activity centres and from and between the surrounding residential areas are also important pedestrian movement lines and need to be included in the development of the pedestrian network.

Routes also need to consider the needs of different pedestrians including:

- ❑ the elderly or people with mobility difficulties who require high quality pedestrian facilities, but who generally only walk short distances;
- ❑ people walking with small children and or strollers;
- ❑ children not accompanied by adults who need simple facilities that ensure sight lines between them and drivers are clear and unobstructed; and
- ❑ young adults who may not have access to a car, and are prepared to walk long distances to maintain their independence (this has been mentioned as a particular issue in this study area given the large distances between activity centres and residential areas and the lack of public transport services outside of school pick up and drop off times).

Main pedestrian concentrations

The main areas of pedestrian concentration and continuous pedestrian movement within the study area are close to shopping centres in the following locations:

- ❑ Nowra CBD
- ❑ North Nowra Shopping Centre
- ❑ Meroo Street, Bomaderry close to the rail station and shops
- ❑ Nowra Fair
- ❑ East Nowra Shopping Centre, Kalandar Street
- ❑ Owen Street, Huskisson
- ❑ Vincentia Shopping Centre, Burton Street, Vincentia

- ❑ Paradise Beach Road close to the shopping centre and country club, Sanctuary Point
- ❑ Island Point Road Shopping Centre, St Georges Basin
- ❑ Princes Highway, Milton
- ❑ Princes Highway/Boree Street, Ulladulla

There are also a number of locations where there are ‘peaks’ in pedestrian activity at certain times of the day – for example close to schools, TAFEs and sporting facilities. Pedestrian movement needs to be provided at these locations in order to cope with these peaks in activity, especially close to schools where the high volume of pedestrians, including a high proportion of children, are particularly susceptible to road safety concerns.

Pedestrian Access Routes

The Shoalhaven Pedestrian Needs and Demands Working Paper identified a number of feeder routes to shopping centres (based on anecdotal evidence) as follows:

- ❑ North Nowra – Illaroo Road from Hockeys Lane to North Nowra Shops
- ❑ Nowra – Princes Highway from the Shoalhaven River Bridge to Moss Street
- ❑ Bomaderry – Bunberra Street from Princes Highway to Meroo Street
- ❑ Bomaderry – Bolong Road from Meroo Street to Princes Highway
- ❑ East/South Nowra – Princes Highway from McKay Street to Browns Road
- ❑ St Georges Basin – Island Point Road from the community centre in Meriton Street to the shopping centre
- ❑ Sanctuary Point – Loralyn Street from the community centre to the Sanctuary Point Shops

In addition to these routes consideration needs to be given to pedestrian routes to and between other activity centres including:

- ❑ CBD areas to access the workplace;
- ❑ schools, particularly primary schools where pupils are more likely to live within walking distance;
- ❑ recreation facilities, including sports centres, beaches and cinemas;
- ❑ community centres, including aged care facilities;
- ❑ hospitals and other health care facilities; and
- ❑ transport facilities such as bus stops, rail stations and car parks.

During the study process to date a number of pedestrian routes have been identified that are either already well used by certain groups of the community or have the potential for higher use if higher quality, more convenient facilities were to be provided. These routes include:

- ❑ **Access between North Nowra and Nowra CBD for walk trips to work.** Much of the engineering works has been completed along this route, however it is not well used at present and this may be improved through more ‘persuasive’ education/encouragement campaigns, perhaps stressing the health benefits of walking to work each day.
- ❑ **Nowra and North Nowra to Bomaderry Station.** Bomaderry Station provides the only rail link within the study area and provides a vital public transport

service to Berry, Kiama and Wollongong to the north for both trips to work and also for other trips, especially for people who do not have access to a car (including young adults). The station is within a reasonable walking distance of many residential areas and, although there are some pedestrian facilities on some routes, these facilities tend to be provided on an ad hoc basis rather than forming a continuous network.

- ❑ **East Nowra Laneways.** East Nowra is a residential area of Department of Housing dwellings with a generally low car ownership. The street pattern of the area is based on two spine roads (Clipper Road and McKay Street) linked by a number of crescents and cul-de-sacs with interconnecting pathways between dwellings to allow greater pedestrian permeability within the area. On plan the layout of streets and pathways looks as though it would work well, however in practice the pathways have attracted a number of undesirable characters and associated behaviour, resulting in many local people asking for the pathways to be closed off for personal security reasons.
- ❑ The recently developed **University of Wollongong site in West Nowra** has attracted a number of visitors to walk to the site, along Yalwal Road. However there are currently no pedestrian facilities along this road and therefore pedestrian safety and amenity are compromised as pedestrians have to share road space with vehicles.
- ❑ The **new shared pedestrian/cycle path between Huskisson and Vincentia** has been very well received and used by the local community and visitors. However we have received comments from the community that they would like to see the route extended to allow access to beaches further south, such as Orion, Barfleur, Nelson and Blenheim Beaches.
- ❑ There are a number of young people that are prepared to walk long distances in order to maintain their independence, in particular around the urban areas of **Milton, Mollymook and Ulladulla**. At present walking between these towns is difficult given the lack of pedestrians facilities, however the needs of young people that are prepared to walk relatively long distances need to be considered, perhaps alongside longer routes associated with the Bicycle Strategy.
- ❑ There are a number of **new and proposed off-street walking/bush tracks** in the study area, some of which will be accessible for wheelchairs and other people with mobility difficulties. It is important that these tracks are both integrated into the local pedestrian networks and promoted to local people to ensure that full use is made of these facilities by visitors and local residents alike.
- ❑ There is a **new retail and leisure development** planned at the intersection of The Wool Road and Jervis Bay Road between Vincentia and Sanctuary Point. The development will be close to the existing pedestrian/cycle path that links Huskisson with Sanctuary Point. However it will be necessary to ensure that appropriate pedestrian connections are provided between the new development and the existing path, and that the existing path is well able to cope with the predicted increase in pedestrian numbers once the new development is opened.

6. Pedestrian Network

The tasks undertaken to date have provided a good understanding of walking issues, both generally and locally within the study area. This chapter builds on this information and identifies an initial pedestrian network for the study area.

The existing pedestrian facilities on the network are described, with examples of good and poor practice noted. Gaps in the provision of pedestrian facilities are identified.

6.1 Pedestrian Network

The pedestrian network needs to link pedestrian origins and destinations with a clear, connected and continuous network of high quality pedestrian facilities. The previous sections have identified a number of key trip origins and destinations and some popular walking routes between these locations.

In addition to these routes, the Shoalhaven Bicycle Strategy 1997 set out a network of cycle routes designed to connect facilities with high quality cycle facilities. The Bicycle Strategy also recognised that, due to the relatively low numbers of either pedestrians or cyclists on many of these routes, and in order to maximise the use of limited resources and land take, it would be preferable to provide shared pedestrian/cycle facilities where possible.

Obviously this is not possible or desirable in all locations, for example in CBD areas or busy shopping streets where there are high concentrations of pedestrians that are 'browsing' rather than walking 'purposefully' and on the longer routes between urban centres where cycle paths are provided in the shoulders of the Highway. However, given the nature of the study area with dispersed development, relatively low numbers of either pedestrians or cyclists and the use of skateboards and scooters by young people as a mode of travel, it is appropriate in many locations to provide shared facilities.

The planning and design of shared facilities is a very important factor in their success and will need to be carefully considered when specifying facilities. These facilities need to be designed to Austroads standards with accompanying education and enforcement campaigns to ensure that people are aware of the rules and etiquette for using the path and people's fears are alleviated.

In order to maintain consistency and to ensure that a connected and continuous network is developed, the existing bicycle network has been used as the starting point for developing the strategic pedestrian network.

The pedestrian network has then been specified in order to provide strategic links between key trip origins and destinations, rather than link every house in the study area with every other street. Given the current level of provision of pedestrian facilities and, in particular, the lack of facilities in the majority of residential streets, it is felt that this is an appropriate approach in order to provide an achievable implementation plan for pedestrian facilities within the current budget levels. That is not to say that the new facilities proposed as part of this study will be the only ones on Council's work program – there will be additional pedestrian facilities required to

alleviate specific individual pedestrian issues (particularly in relation to safety) that will also be included in the overall work program.

Once this PAMP is completed and the implementation plan well under way, it would be appropriate to revise this PAMP and proposed pedestrian network to take account of any new developments and extend the network further into residential areas if desired.

The steps in developing the pedestrian network have therefore been as follows:

- 1) Identify existing and proposed shared cycle/pedestrian facilities in the bicycle network.
- 2) Identify gaps in this network for pedestrians and connect with appropriate pedestrian link.
- 3) Identify additional activity centres and inter-suburban routes to be included in the pedestrian network and connect to the network with appropriate links.
- 4) Consider comments collected during the study so far regarding popular routes and links and ensure they are included in the network.
- 5) Undertake a final check to ensure that the specified network provides a connected and continuous series of routes linking key trip origins and destinations.

The proposed strategic pedestrian network is shown in **Figures 6.1 – 6.9** for each of the urban areas within the study area. These figures show the proposed pedestrian routes rather than any existing or proposed pedestrian facilities. It is intended that footpaths would eventually be provided along all sections of this network, however the detail of these facilities, including which side of the road the footpath would be on, will be considered at a later stage.

6.2 Existing pedestrian facilities

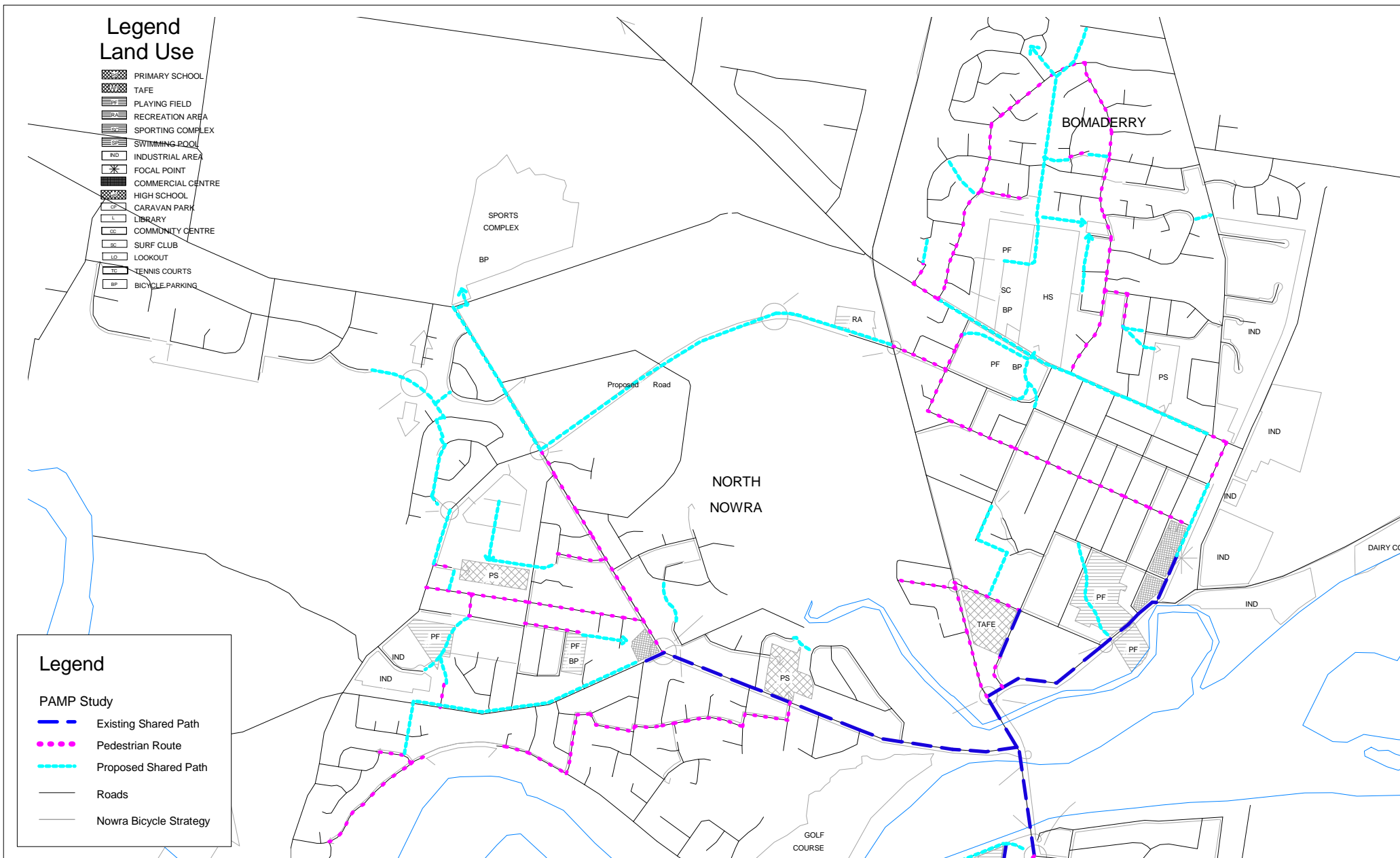
Information on the existing pedestrian facilities and the pedestrian environment on the proposed pedestrian network within the study area has been collected from a number of sources. Data sources include:

- ❑ A foot survey undertaken around the major streets of each urban area;
- ❑ Shoalhaven Pedestrian Needs and Demands Working Paper;
- ❑ Shoalhaven Bicycle Strategy.

A foot survey was undertaken within the study area in order to identify existing pedestrian facilities and assist in identifying major pedestrian routes. The survey concentrated on the main areas of pedestrian concentration and the proposed pedestrian network.

A further, more detailed study is currently being undertaken for Council by Access Australia that will include a detailed audit of pedestrian facilities around Council owned car parks in retail centres. Therefore, the PAMP audit concentrated on routes to these centres rather than facilities within the centres themselves. Facilities identified include:

- ❑ Footbridges
- ❑ Off-street pedestrian paths
- ❑ Pedestrian refuge islands

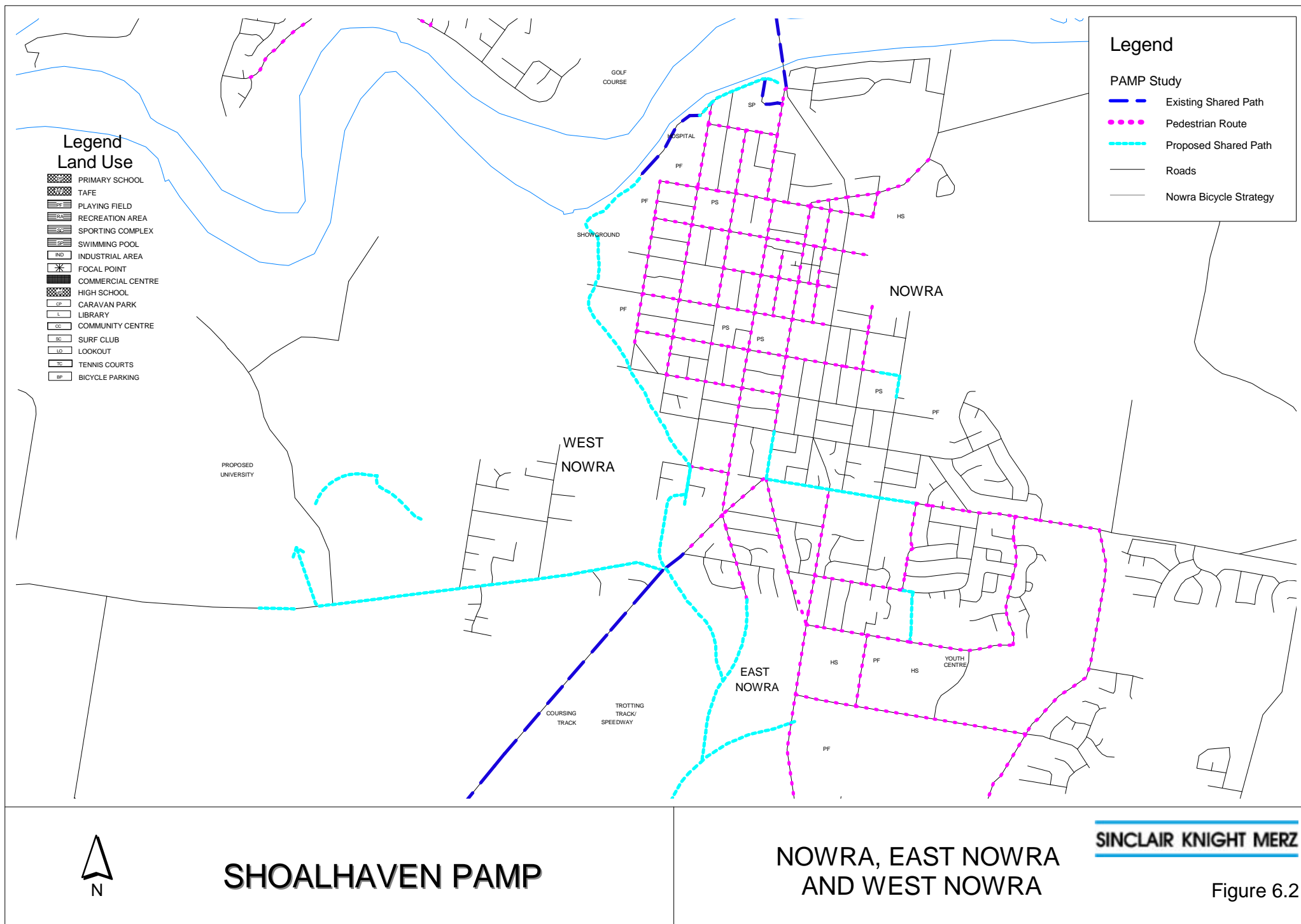


SHOALHAVEN PAMP

BOMADERRY AND
NORTH NOWRA

SINCLAIR KNIGHT MERZ

Figure 6.1



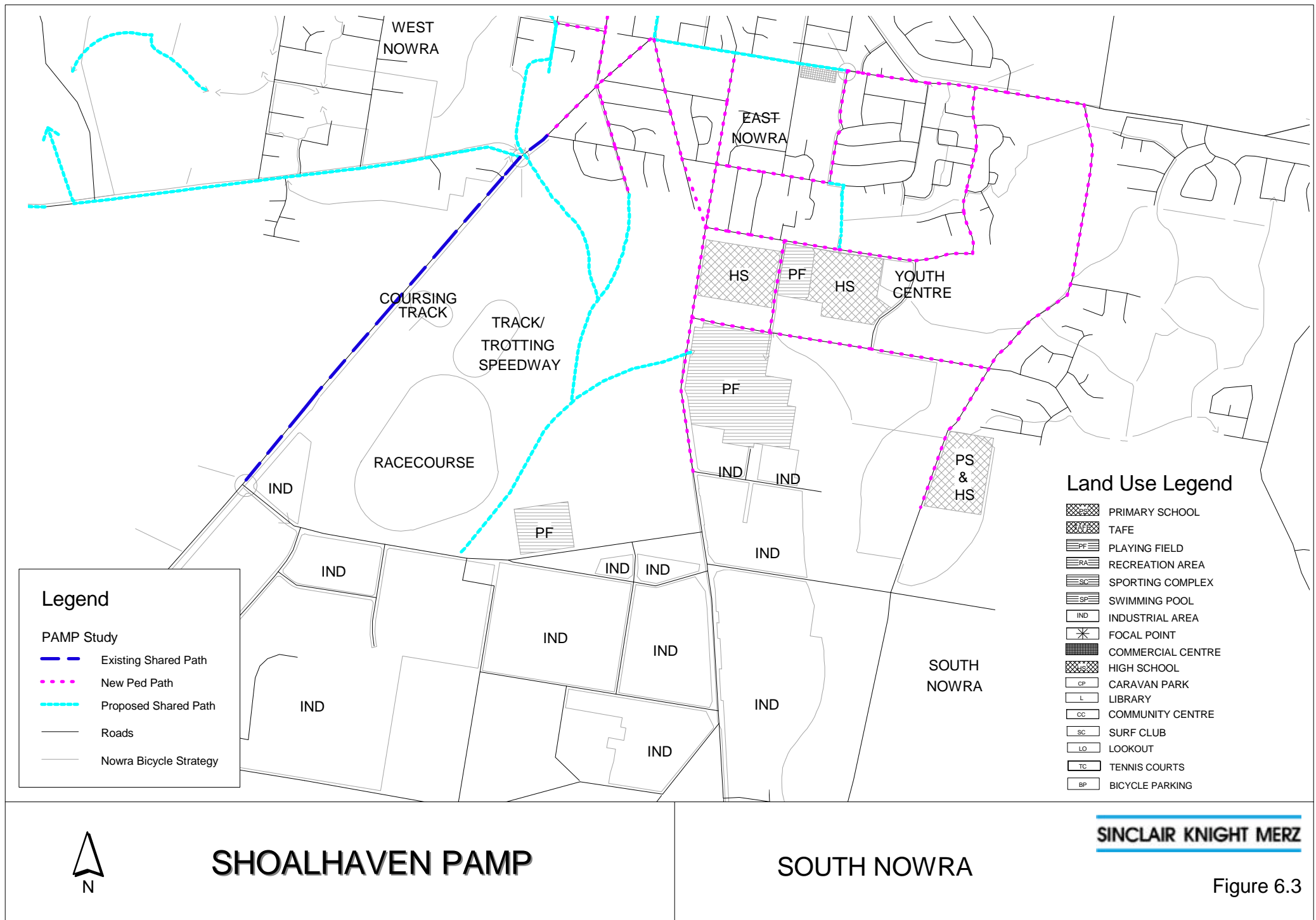
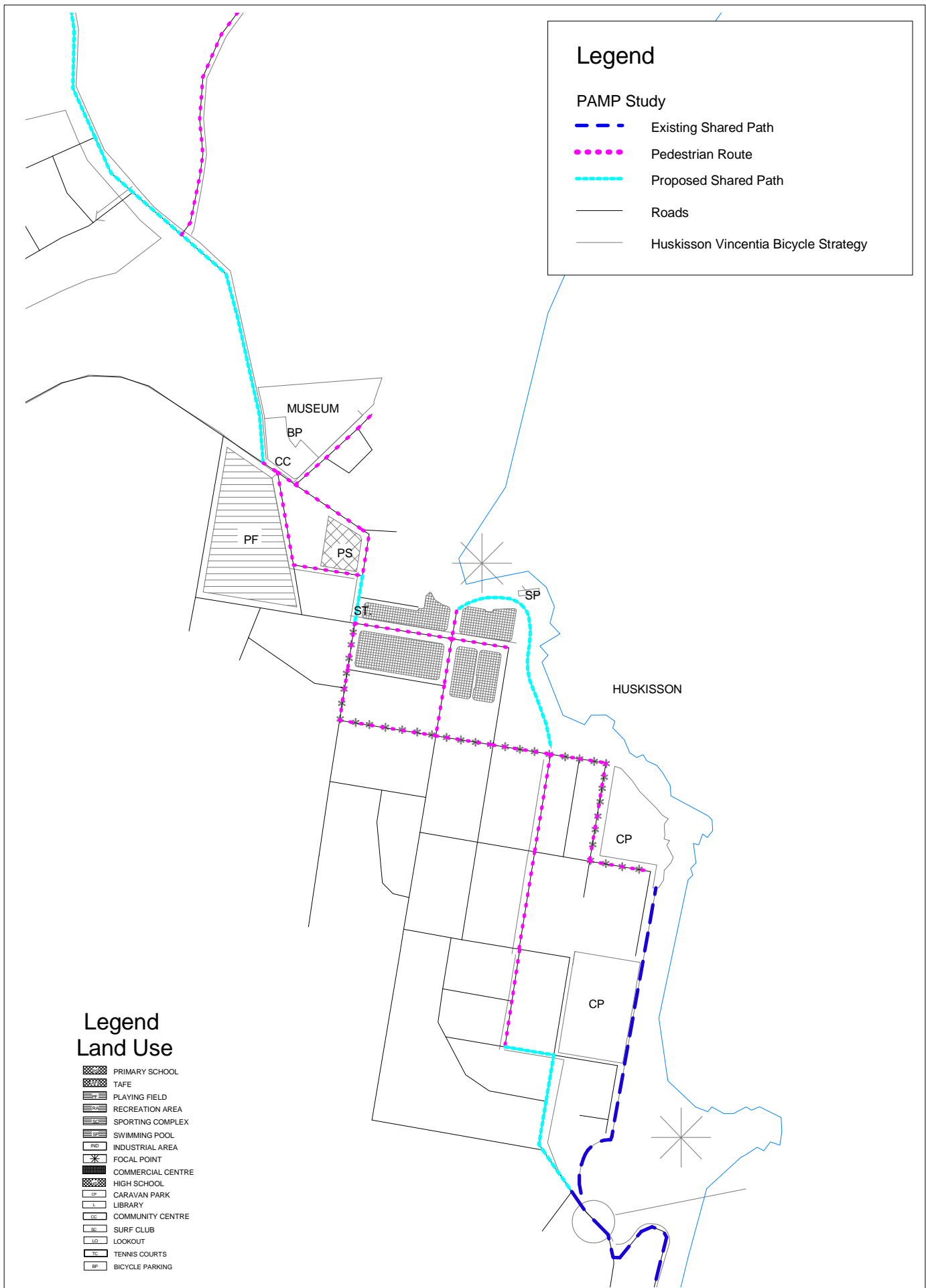


Figure 6.3



SHOALHAVEN PAMP

HUSKISSON

SINCLAIR KNIGHT MERZ

Figure 6.4






Legend

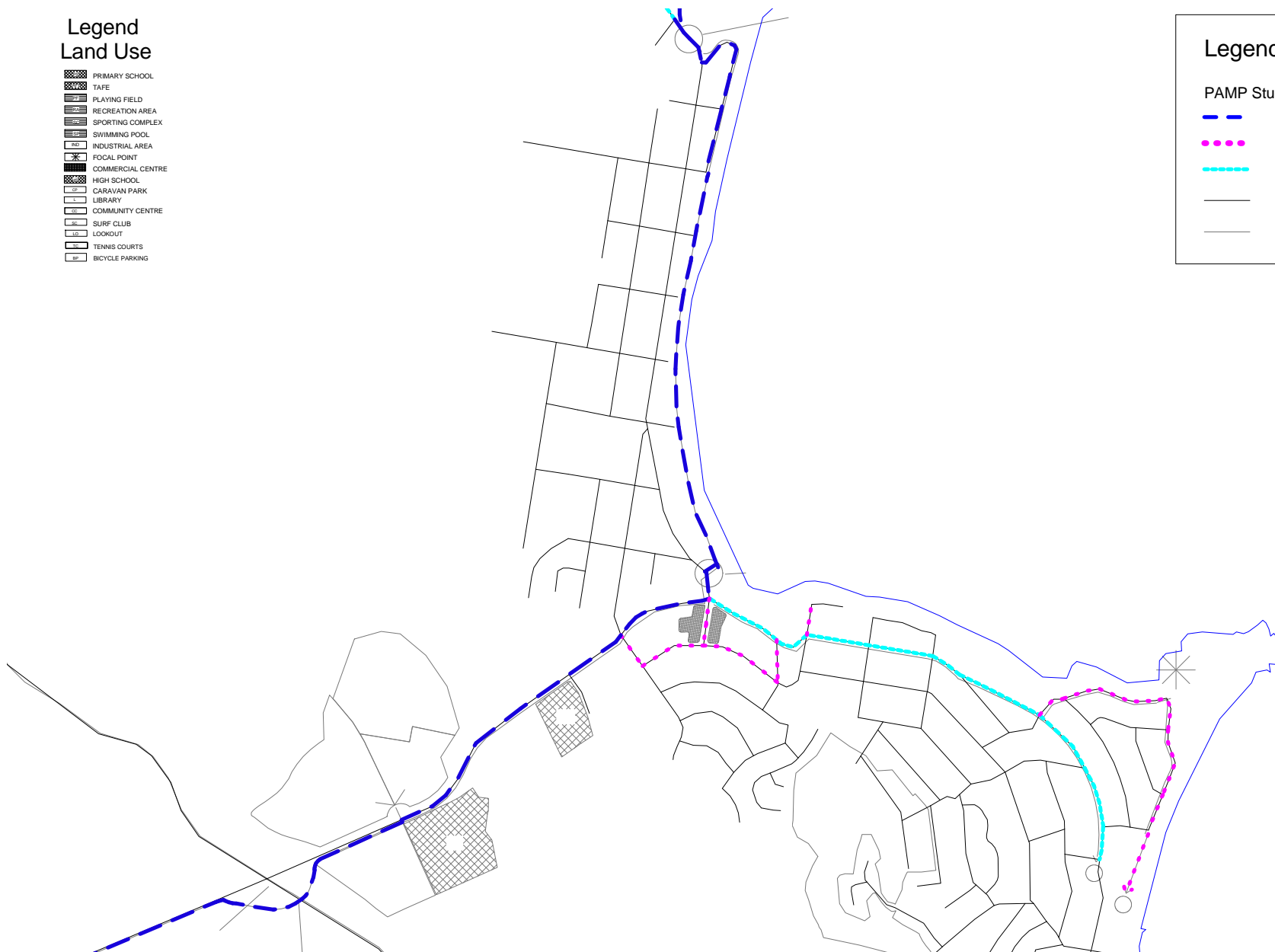
Land Use

-  PRIMARY SCHOOL
-  TAFE
-  PLAYING FIELD
-  RECREATION AREA
-  SPORTING COMPLEX
-  SWIMMING POOL
-  INDUSTRIAL AREA
-  FOCAL POINT
-  COMMERCIAL CENTRE
-  HIGH SCHOOL
-  CARAVAN PARK
-  LIBRARY
-  COMMUNITY CENTRE
-  SURF CLUB
-  LOOKOUT
-  TENNIS COURTS
-  BICYCLE PARKING

Legend

PAMP Study

-  Existing Shared Path
-  Pedestrian Route
-  Proposed Shared Path
-  Roads
-  Huskisson Vincentia Bicycle Strategy



SHOALHAVEN PAMP

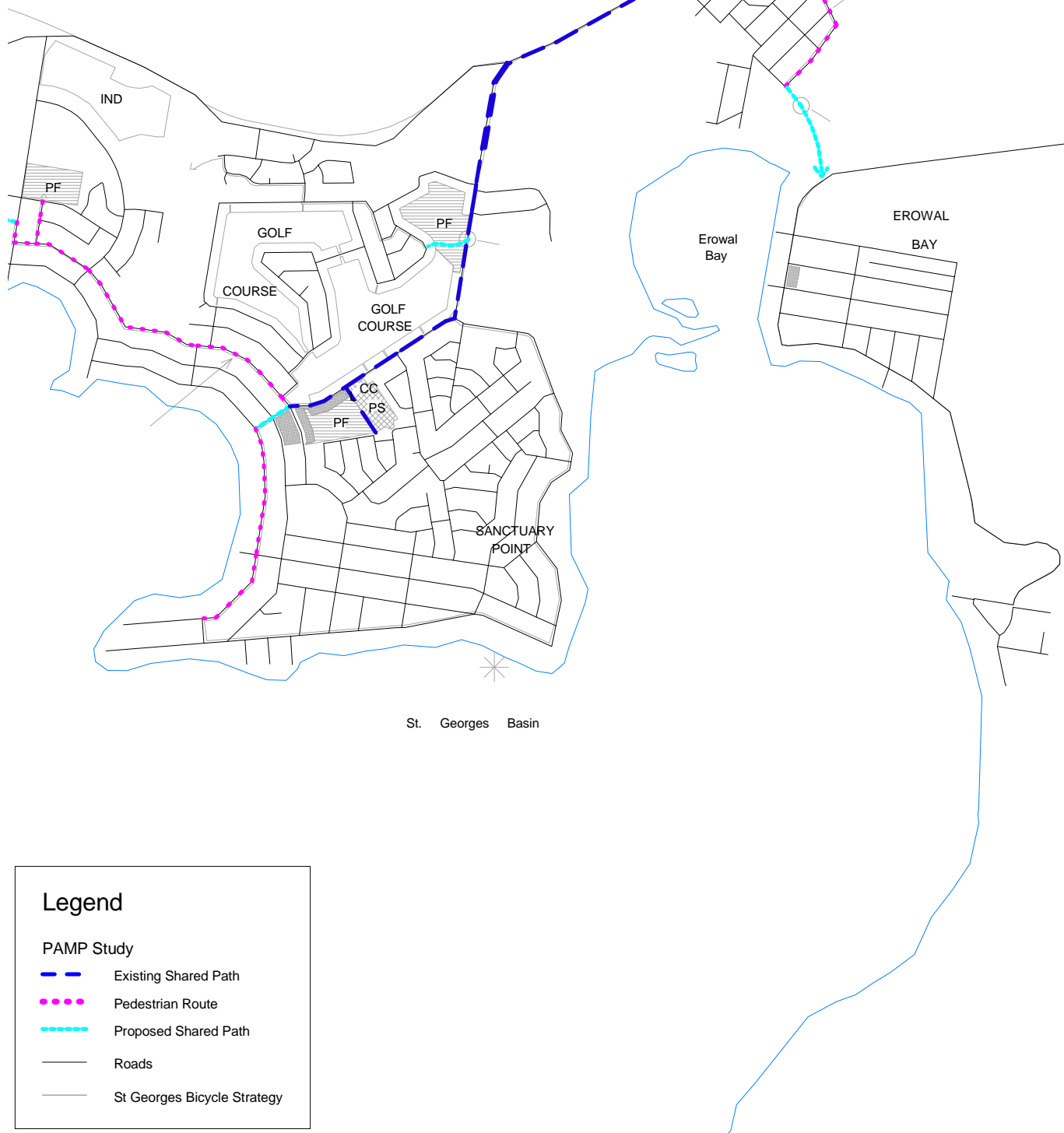
VINCENTIA

SINCLAIR KNIGHT MERZ

Figure 6.5






Legend Land Use

-  PRIMARY SCHOOL
-  TAFE
-  PLAYING FIELD
-  RECREATION AREA
-  SPORTING COMPLEX
-  SWIMMING POOL
-  INDUSTRIAL AREA
-  FOCAL POINT
-  COMMERCIAL CENTRE
-  HIGH SCHOOL
-  CARAVAN PARK
-  LIBRARY
-  COMMUNITY CENTRE
-  SURF CLUB
-  LOOKOUT
-  TENNIS COURTS
-  BICYCLE PARKING



Legend

PAMP Study

-  Existing Shared Path
-  Pedestrian Route
-  Proposed Shared Path
-  Roads
-  St Georges Bicycle Strategy



SHOALHAVEN PAMP

SANCTUARY POINT AND
EROWAL BAY AREA

SINCLAIR KNIGHT MERZ






Figure 6.6

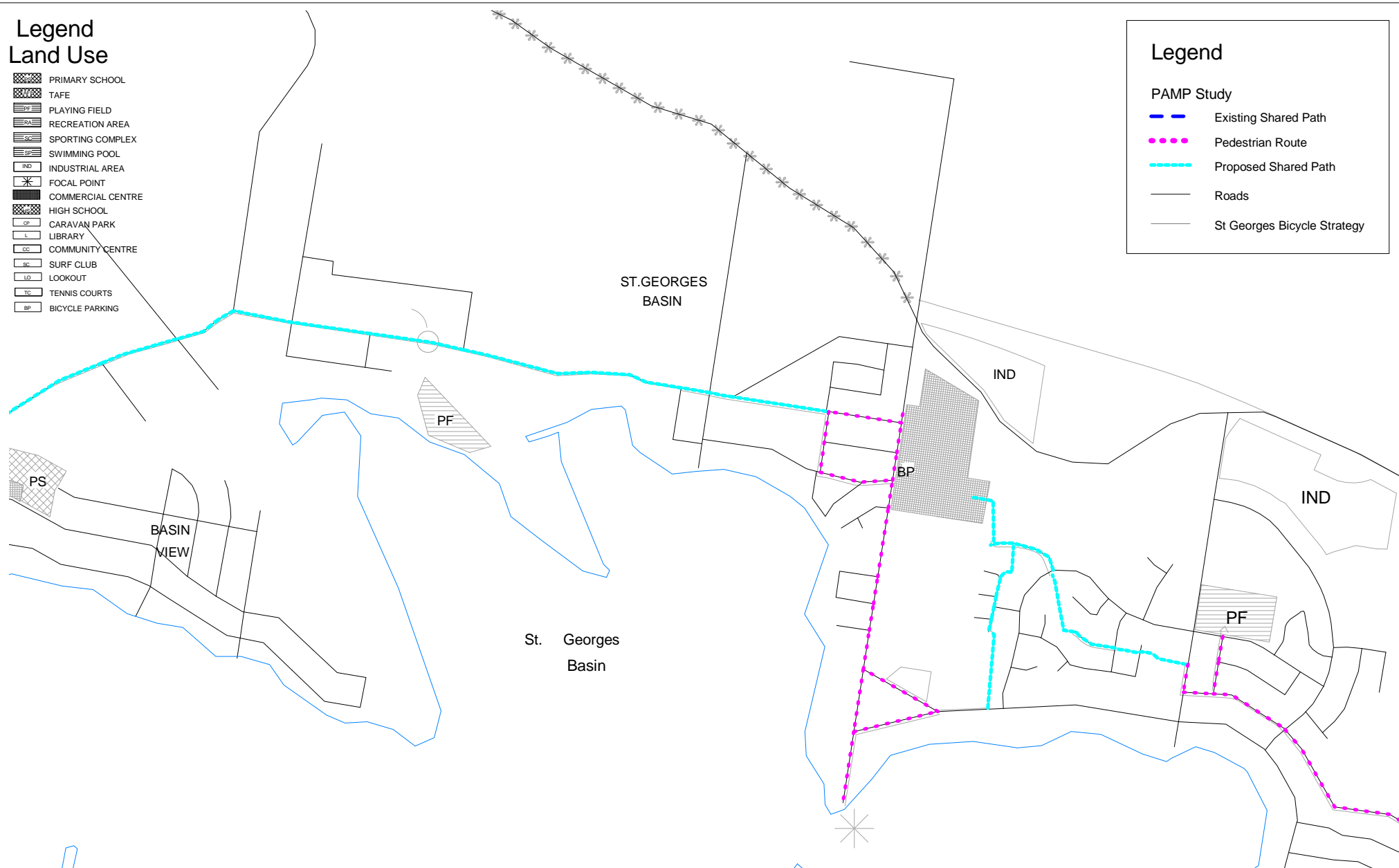
Legend Land Use

-  PRIMARY SCHOOL
-  TAFE
-  PLAYING FIELD
-  RECREATION AREA
-  SPORTING COMPLEX
-  SWIMMING POOL
-  INDUSTRIAL AREA
-  FOCAL POINT
-  COMMERCIAL CENTRE
-  HIGH SCHOOL
-  CARAVAN PARK
-  LIBRARY
-  COMMUNITY CENTRE
-  SURF CLUB
-  LOOKOUT
-  TENNIS COURTS
-  BICYCLE PARKING

Legend

PAMP Study

-  Existing Shared Path
-  Pedestrian Route
-  Proposed Shared Path
-  Roads
-  St Georges Bicycle Strategy

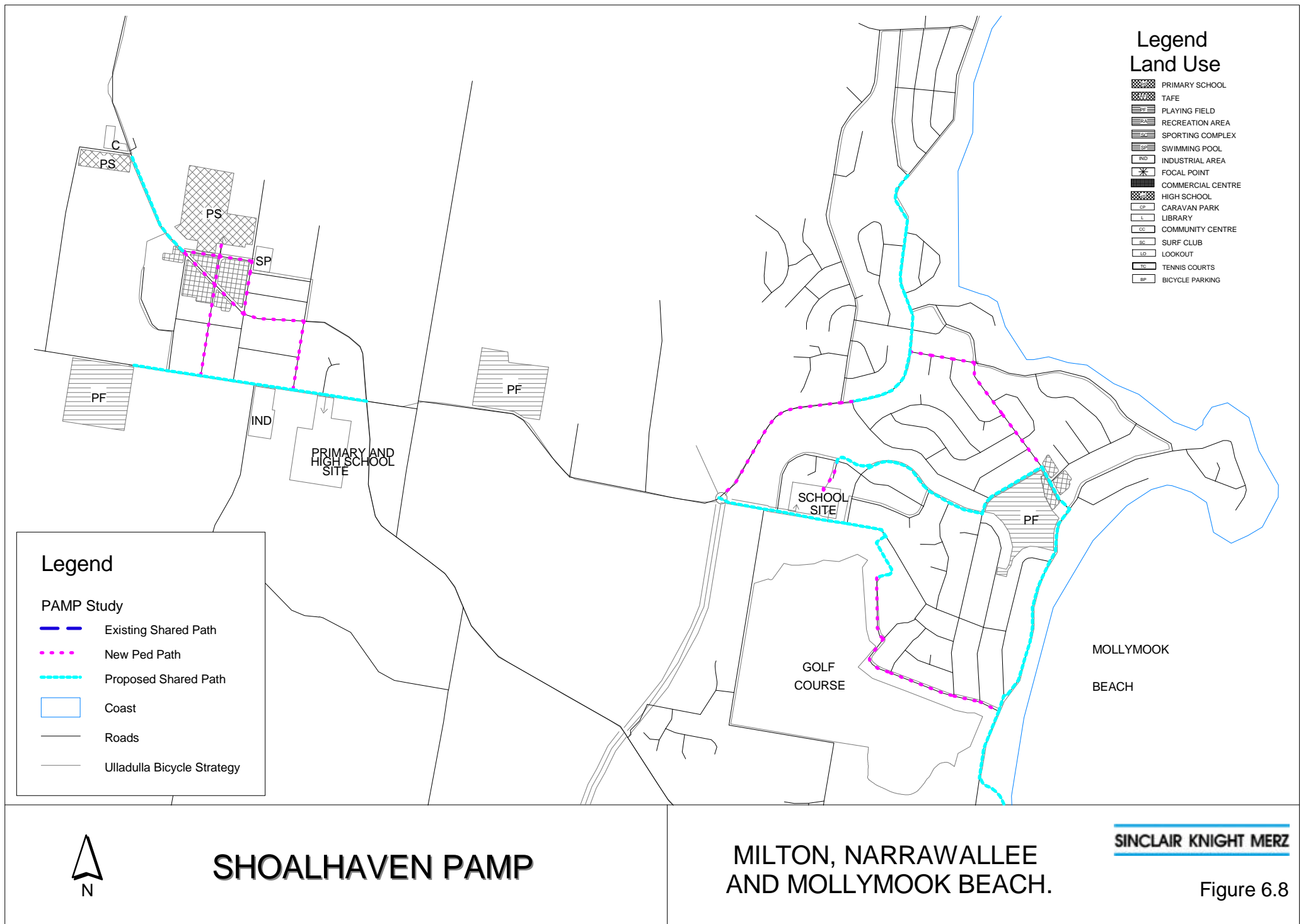


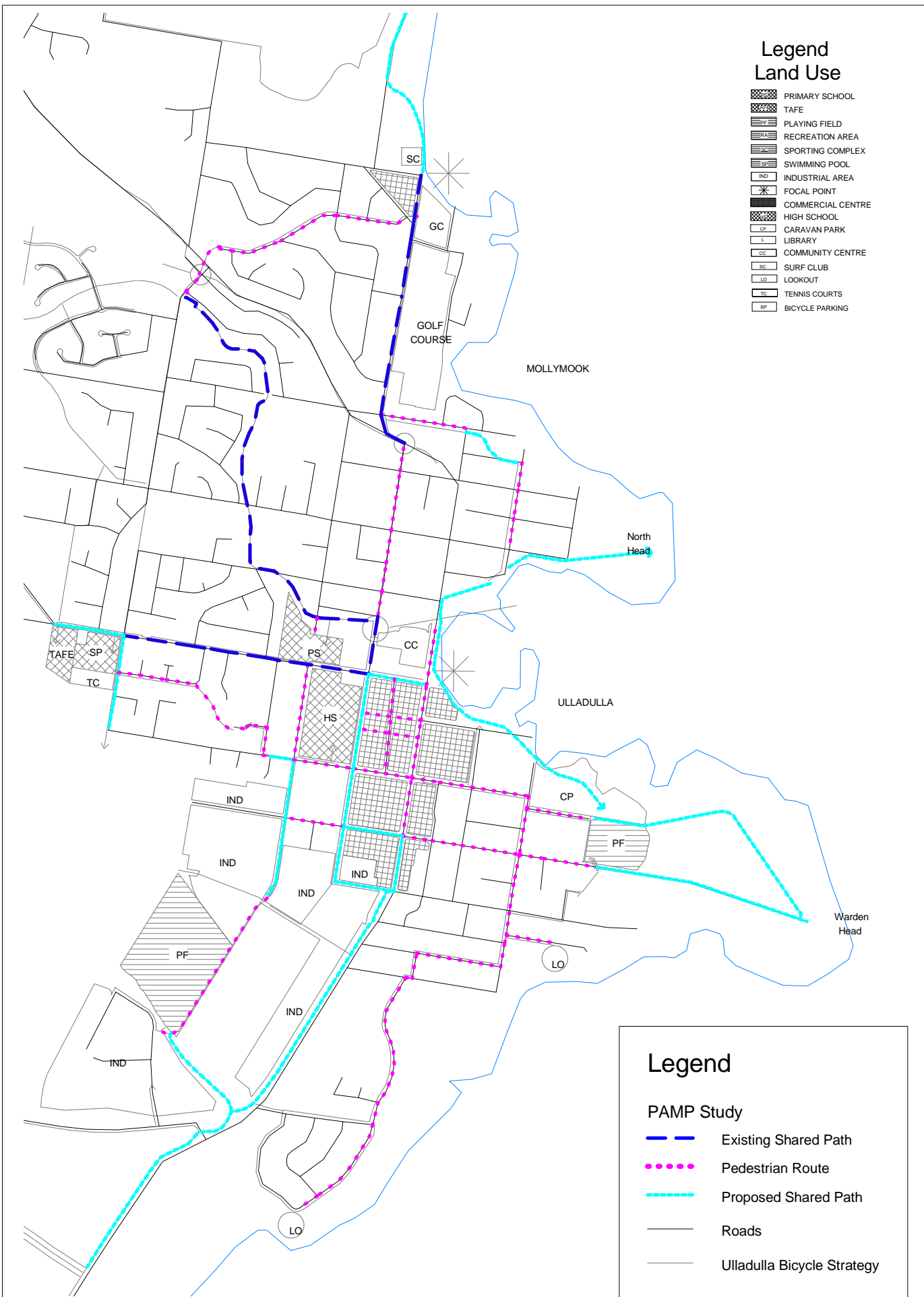
SHOALHAVEN PAMP

**BASIN VIEW AND
ST GEORGES BASIN**

SINCLAIR KNIGHT MERZ

Figure 6.7





- ❑ Kerb ramps
- ❑ Roundabouts with pedestrian facilities incorporated
- ❑ School crossings
- ❑ Traffic signal crossings
- ❑ Marked pedestrian (zebra) crossings

The results of this survey have been plotted on maps of the study area, shown in **Figures 6.10 – 6.18**. The foot survey highlighted a number of issues in relation to pedestrian planning within each urban area, including barriers to pedestrian movement, specific locations of concern and more general examples of good and poor practice. These locations include places where pedestrian safety is compromised or areas where pedestrian movement is not provided for. These issues are discussed here – photographs of these items are found in **Appendix B**.

General

- ❑ In general pedestrian facilities within CBD / shopping areas are good, however some improvements are required, in particular to ensure consistent and continuous facilities.
- ❑ Pedestrian facilities within residential areas are either very poor or non-existent. Most residential streets do not have footpaths and where they are provided they are generally not linked with other pedestrian facilities or do not join origins and destinations. Most residential streets are very wide and could incorporate a footpath, but the current situation only serves to encourage high vehicle speeds and increase fears for pedestrian safety.
- ❑ The Princes Highway is a dominant feature within the study area and provides a substantial barrier to pedestrian movement, resulting in the separation of communities and facilities located on either side. The difficulties for pedestrians caused by the Highway become most apparent in those urban areas where the main activity centre runs along the Highway (such as Milton and Ulladulla) or in Nowra where the Highway runs between two popular shopping areas. (**Photograph 1** presents a typical view of the Highway)
- ❑ There are a number of examples of good pedestrian facilities, with continuous and well maintained facilities including footpaths, pram ramps, refuges and well marked shared facilities. (**Photographs 2, 3 and 4**)

Bomaderry

- ❑ The main shopping centre and the rail station are located on Meroo Street on the eastern side of Bomaderry. Pedestrian access from the station to the shopping area is via a marked pedestrian crossing across the car park and then build-outs (with vehicle priority) are provided to assist with crossing Meroo Street. (**Photograph 5**)
- ❑ There is a small retail centre on Lyndhurst Drive. There are good pedestrian facilities within and immediately adjacent to the centre, however these do not link to other facilities. (**Photograph 6**)
- ❑ There are a number of activities on Cambewarra Road that are likely to attract a large proportion of young visitors – 2 schools, swimming centre and Oval. There are some pedestrian facilities provided along this street (including a new signalised pedestrian crossing outside the High School) however the road is generally straight and wide with few crossing points.
- ❑ The majority of the Bomaderry urban area and activities are located to the east of the Highway. However, there are a couple of residential streets (Turley/Lynburn

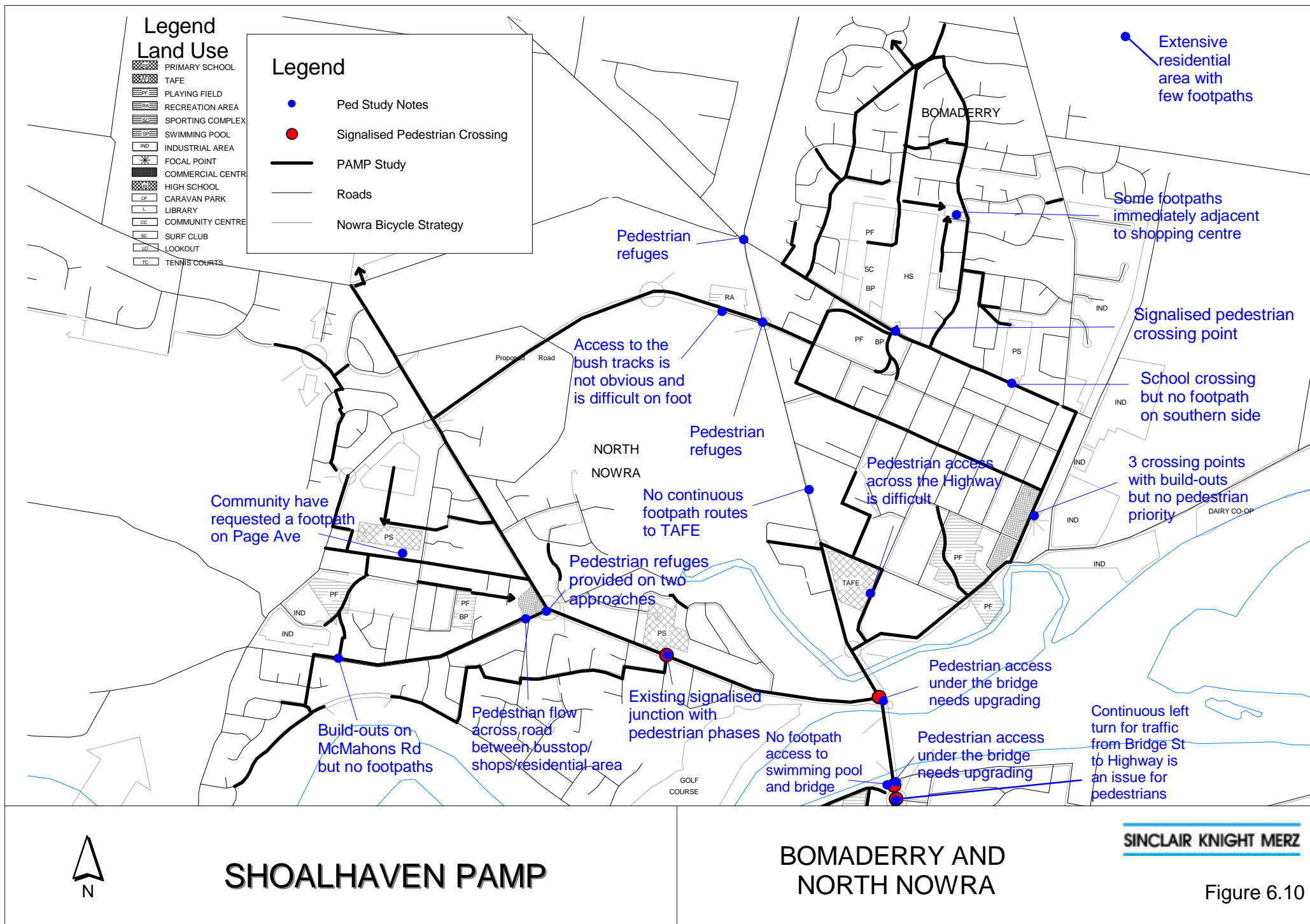
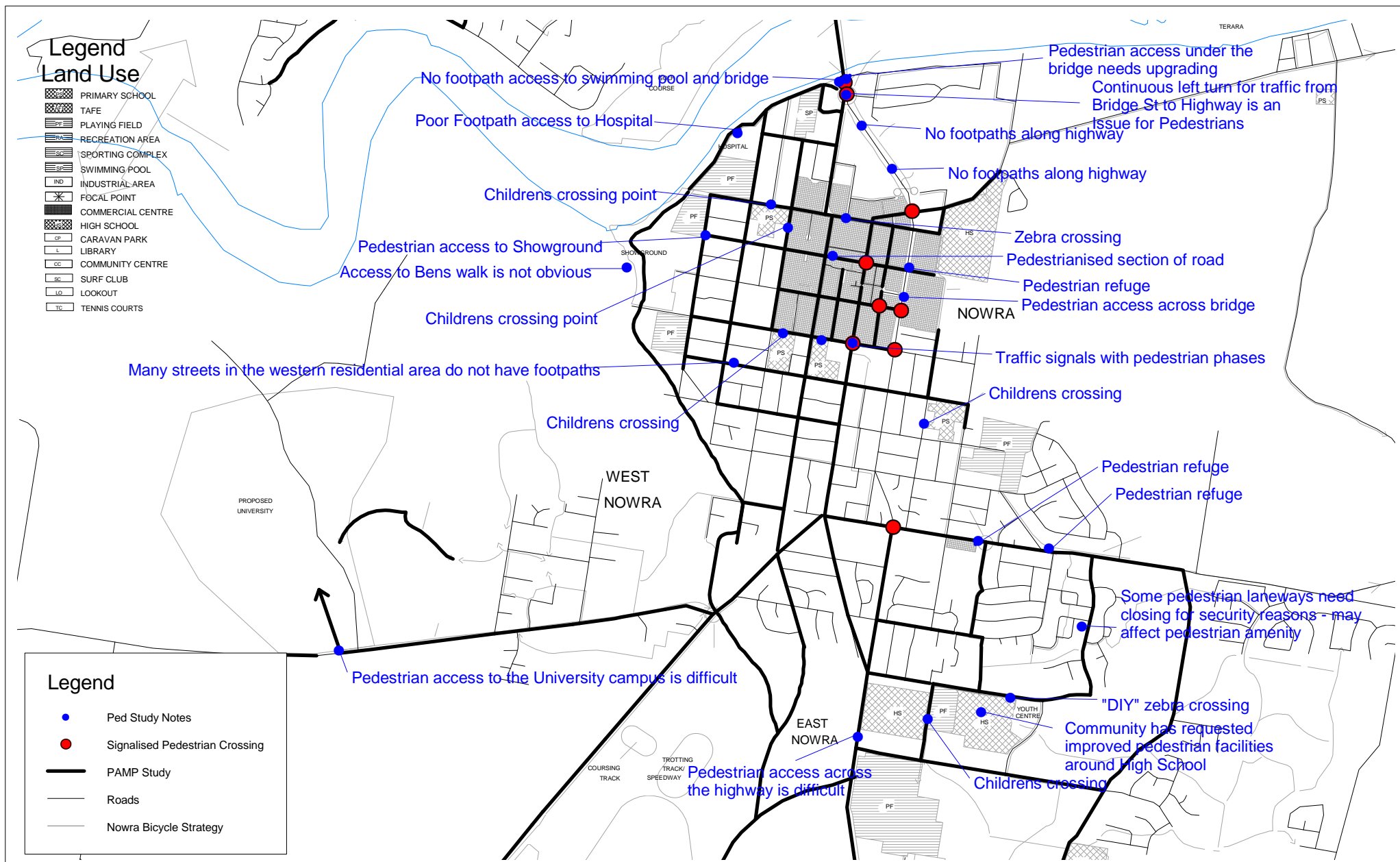


Figure 6.10

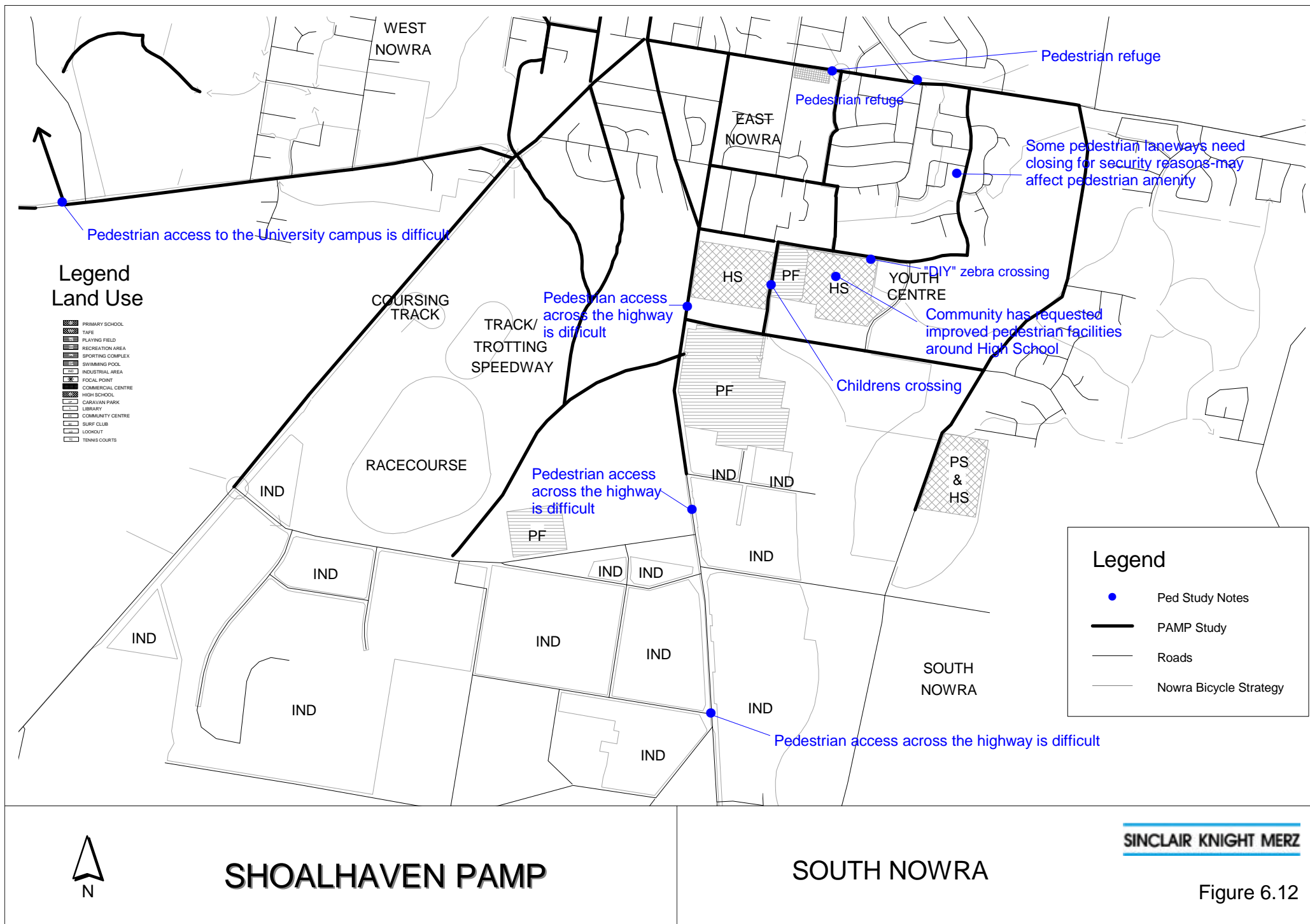


SHOALHAVEN PAMP

NOWRA, EAST NOWRA
AND WEST NOWRA

SINCLAIR KNIGHT MERZ

Figure 6.11



Legend

- Ped Study Notes
- PAMP Study
- Roads
- Huskisson Vincentia Bicycle Strategy

Legend Land Use

- PRIMARY SCHOOL
- TAFE
- PLAYING FIELD
- RECREATION AREA
- SPORTING COMPLEX
- SWIMMING POOL
- INDUSTRIAL AREA
- FOCAL POINT
- COMMERCIAL CENTRE
- HIGH SCHOOL
- CARAVAN PARK
- LIBRARY
- COMMUNITY CENTRE
- SURF CLUB
- LOOKOUT
- TENNIS COURTS

No pedestrian crossing points on Owen St

Good pedestrian facilities on southern side of Owen St

Residential areas do not generally have footpaths



SHOALHAVEN PAMP

HUSKISSON

SINCLAIR KNIGHT MERZ

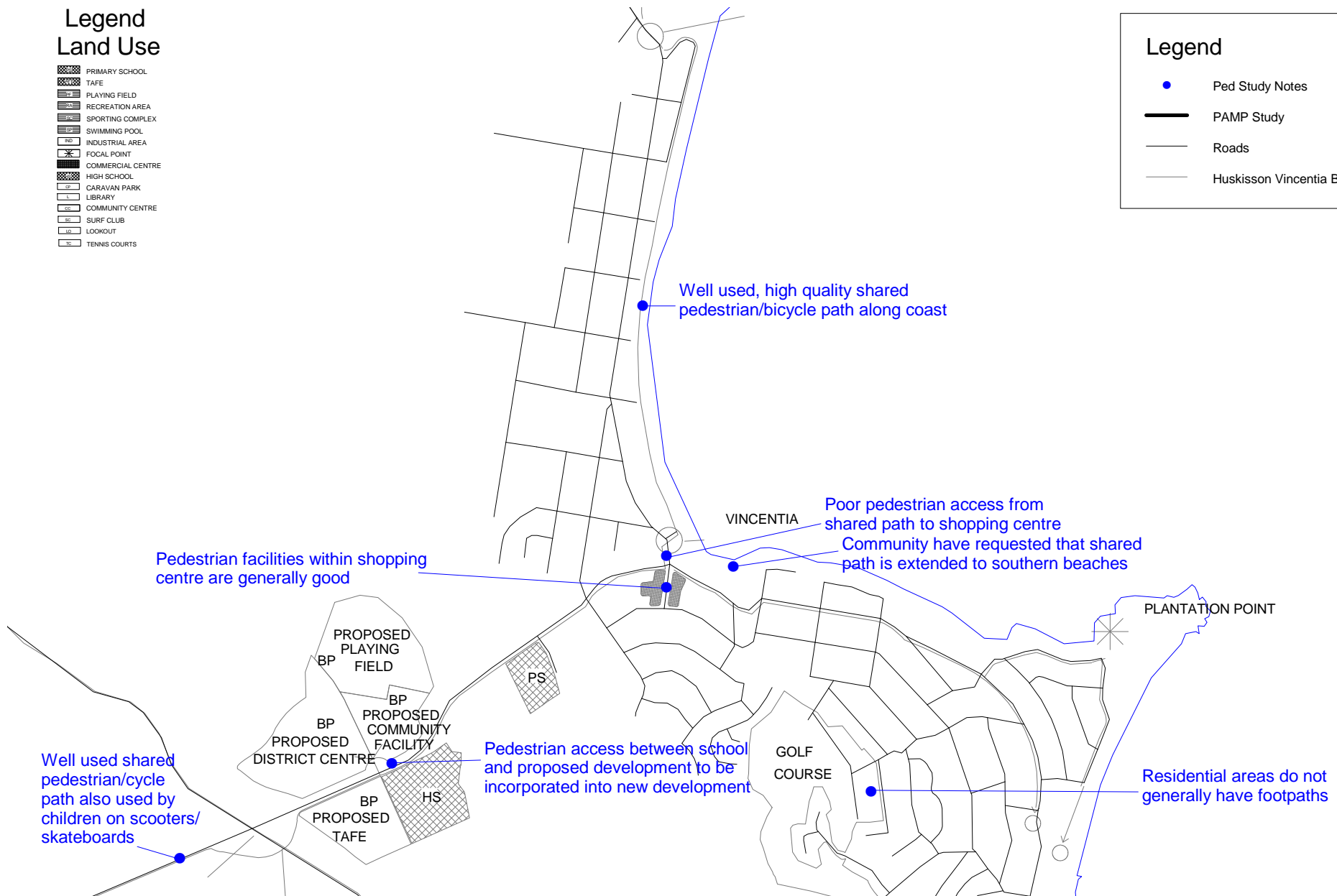
Figure 6.13

Legend Land Use

	PRIMARY SCHOOL
	TAFE
	PLAYING FIELD
	RECREATION AREA
	SPORTING COMPLEX
	SWIMMING POOL
	INDUSTRIAL AREA
	FOCAL POINT
	COMMERCIAL CENTRE
	HIGH SCHOOL
	CARAVAN PARK
	LIBRARY
	COMMUNITY CENTRE
	SURF CLUB
	LOOKOUT
	TENNIS COURTS

Legend

	Ped Study Notes
	PAMP Study
	Roads
	Huskisson Vincentia Bicycle Strategy



SHOALHAVEN PAMP

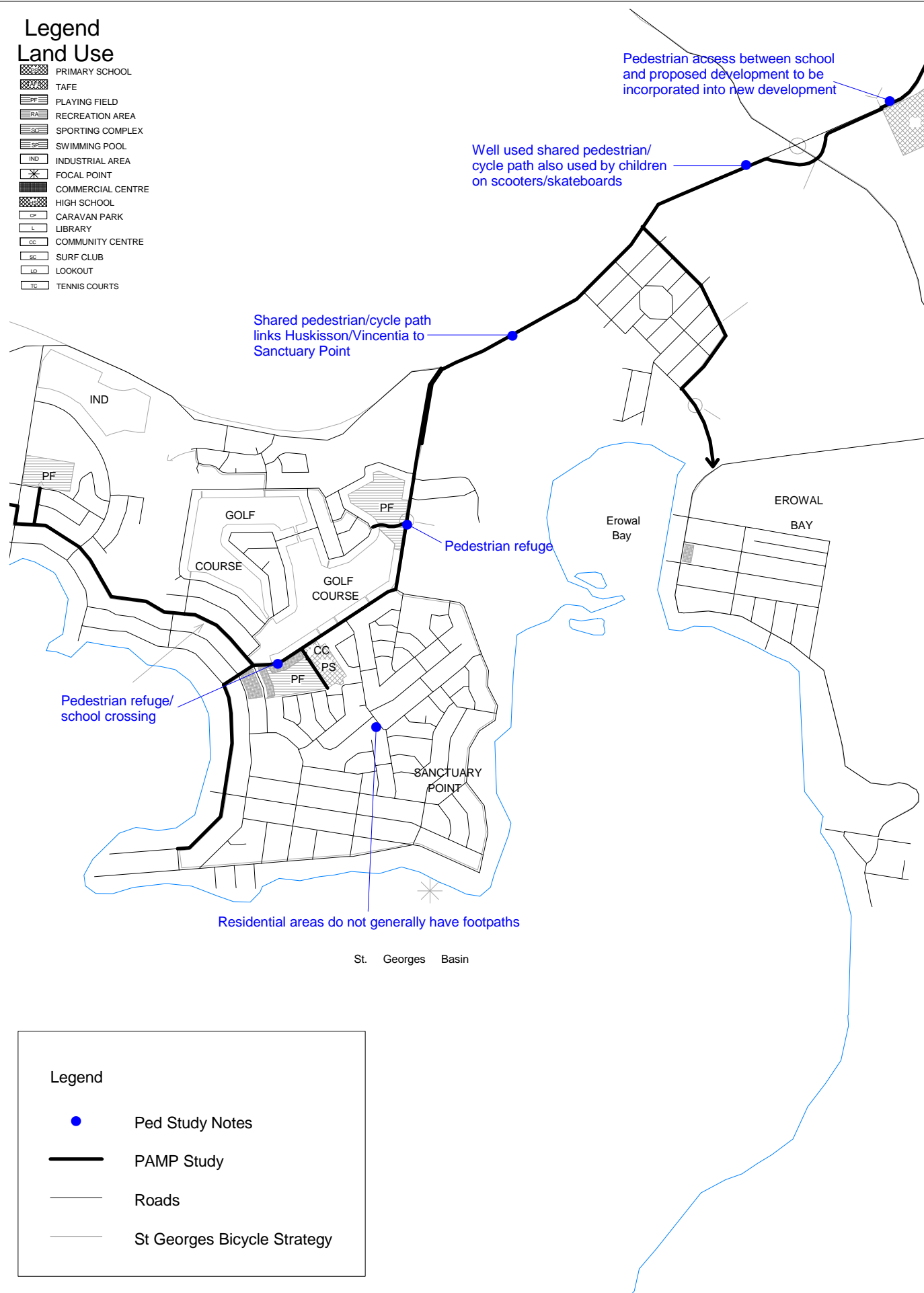
VINCENTIA

SINCLAIR KNIGHT MERZ

Figure 6.14

Legend Land Use

	PRIMARY SCHOOL
	TAFE
	PLAYING FIELD
	RECREATION AREA
	SPORTING COMPLEX
	SWIMMING POOL
	INDUSTRIAL AREA
	FOCAL POINT
	COMMERCIAL CENTRE
	HIGH SCHOOL
	CARAVAN PARK
	LIBRARY
	COMMUNITY CENTRE
	SURF CLUB
	LOOKOUT
	TENNIS COURTS



Legend

- Ped Study Notes
- PAMP Study
- Roads
- St Georges Bicycle Strategy

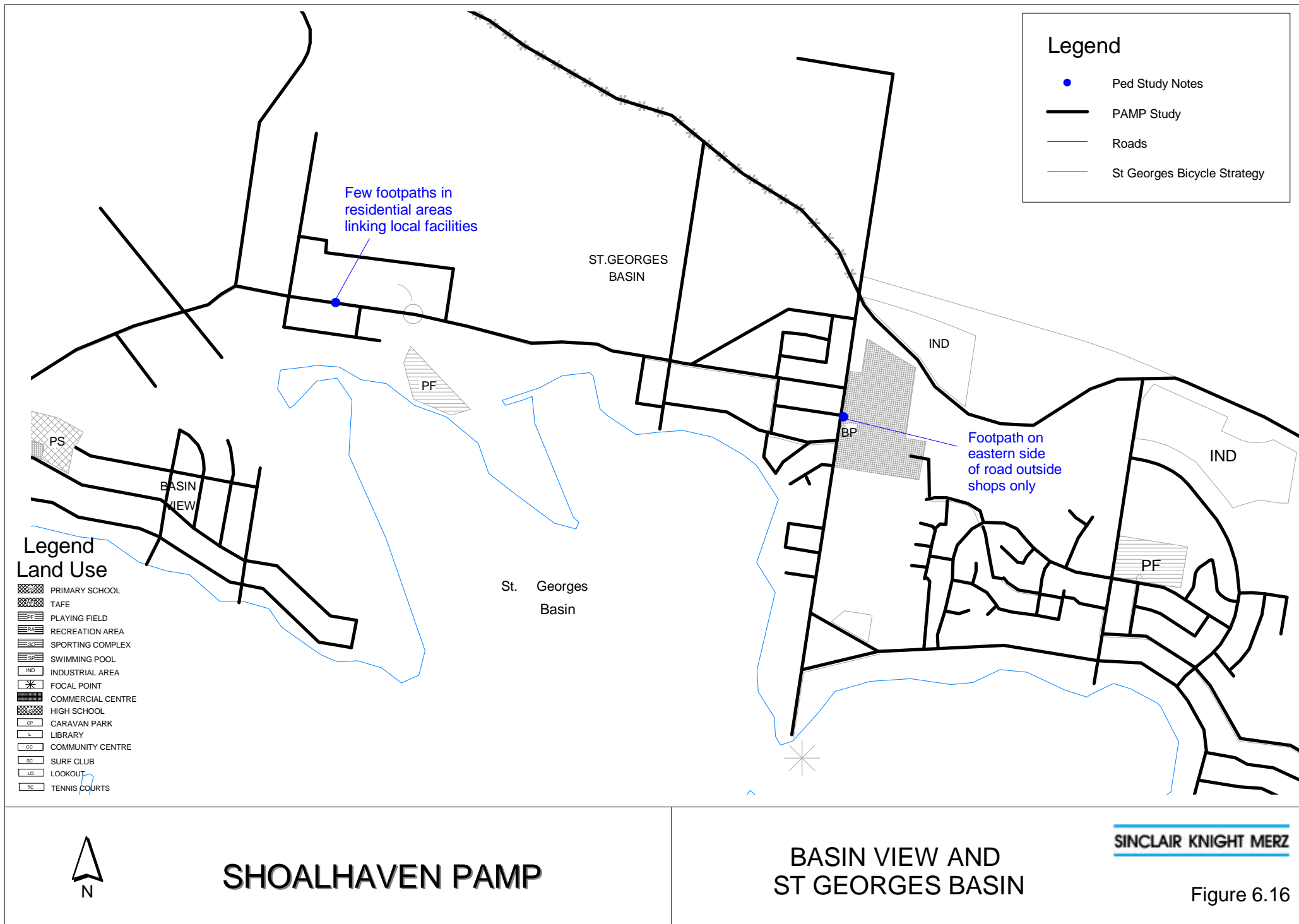


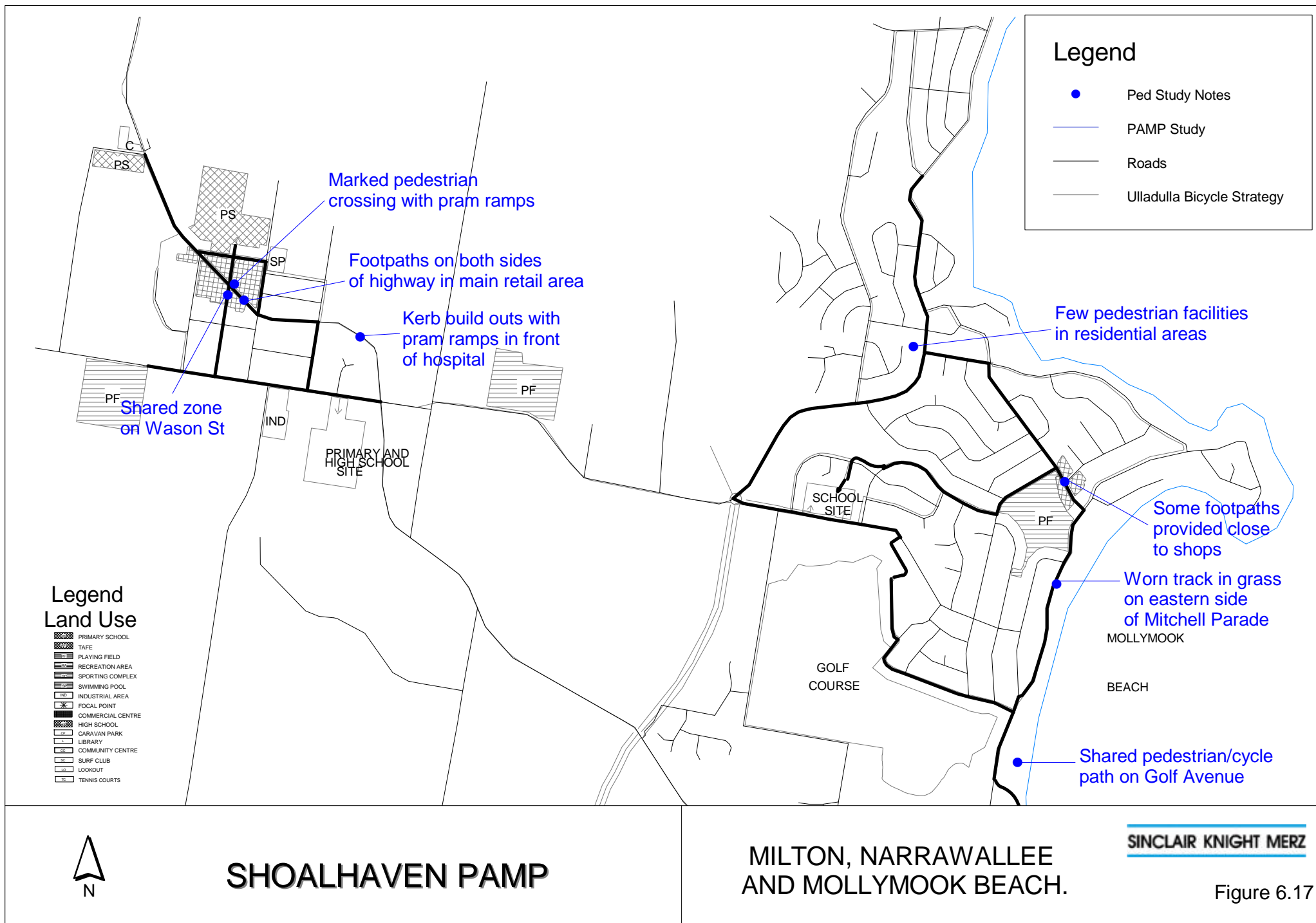
SHOALHAVEN PAMP

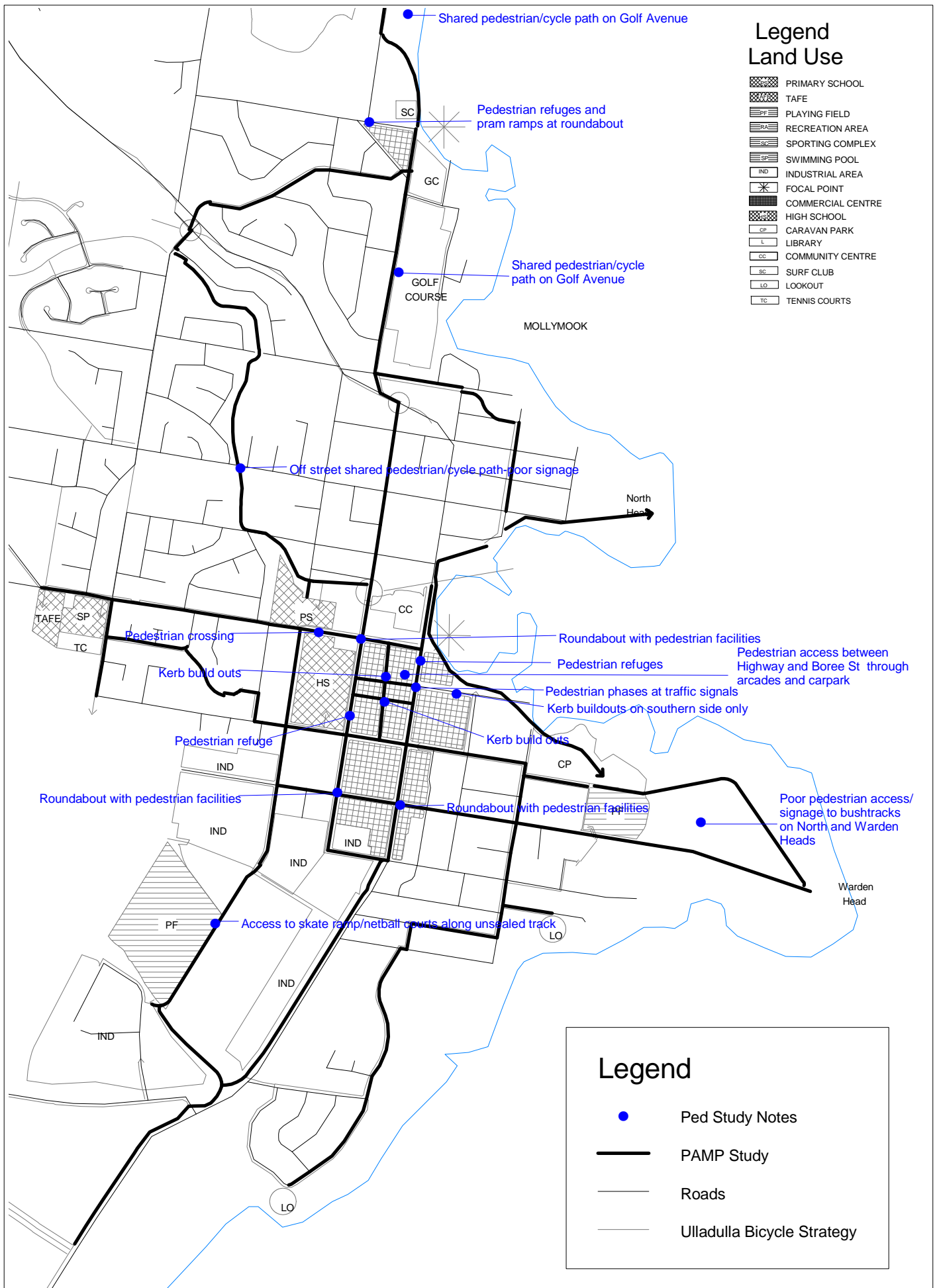
SANCTUARY POINT AND
EROWAL BAY AREA

SINCLAIR KNIGHT MERZ

Figure 6.15







SHOALHAVEN PAMP

ULLADULLA AND
MOLLYMOOK AREA

SINCLAIR KNIGHT MERZ

Figure 6.18

Avenues) and activity centres (ten pin bowling, tennis club, walking track, Camellia Garden) to the west and the difficult pedestrian access across the Highway provides a barrier to walking to and from these locations.

North Nowra

- ❑ There is a shared pedestrian/cycle path along the southern side of Illaroo Road from the Highway to the shopping centre at the intersection with McMahons and Jamieson Roads. Pedestrian refuges are provided to assist pedestrians crossing the roundabout.
- ❑ There is a signalised intersection with pedestrian phases outside the Public School on Illaroo Road at the intersection with Crest Avenue.
- ❑ The majority of the residential streets in North Nowra do not have footpaths.

Nowra

- ❑ Pedestrian facilities within the main CBD area are generally good with wide pavements, pram ramps and crossing facilities. However there are a couple of issues that need addressing:
 - Junction Street is the main shopping street and has generally good pedestrian facilities, however the street landscape includes a number of items of street furniture that reduce the available footpath width and could obstruct pedestrian movement, especially during periods of high pedestrian concentration. **(Photograph 7)**
 - There are no mid-block priority pedestrian crossing points on Junction Street. There is a set of build-outs on this section of road with level access across the road, but observations noted that some pedestrians and drivers were unsure who had priority at this location. **(Photograph 8)**
- ❑ The Highway presents a major barrier to pedestrian movement between the activity centres located on either side, in particular to the Tourist Information Centre, High School, Nowra Fair and Nowra East residential area from the west of the Highway. There are a number of pedestrian crossing points provided, however the speed of traffic on the Highway, detours involved, road width and concern for safety all act as significant deterrents to pedestrian movement between the two 'sides' of Nowra and can lead to people crossing at unsuitable locations.

One crossing point that is of particular concern is the pedestrian refuge that provides access across the Highway to the rear of the RSL Club at the end of Junction Street. The road width and vehicle speeds make crossing here very difficult, especially for the elderly, children or people with mobility difficulties. **(Photograph 9)**

- ❑ Pedestrian access between Nowra and North Nowra and Bomaderry is via shared pedestrian/cycle paths on either side of the Highway bridges. This access is generally good, however there are a number of observations made during the site visits as follows:
 - There is no pedestrian access along the Highway to the south of the bridge – access to the CBD area has to be made via Bridge Street or along the verge of the Highway. **(Photograph 10)**
 - Pedestrian access underneath the Highway is provided for at both the northern and southern ends of the bridge. However the access at the northern end was closed to pedestrians during the site visit (March 2001) and

the access at the southern end is not signposted, lit and is poorly maintained. **(Photographs 11 and 12)**

- A number of people (mainly children) were observed walking/cycling south across the western bridge footpath and then turning immediately right down the grassed bank to access the footpath underneath the bridge in order to cross the Highway. **(Photograph 13)**
 - There is no sealed footpath between the access under the bridge on the southern side and Scenic Drive and the swimming pool. **(Photograph 14)**
- ❑ There are a number of residential streets that are not provided with footpaths.
 - ❑ Ben's Walk is a bush track that runs along the river. However it does not appear to be well signposted or promoted within the local community and pedestrian access to the track is not obvious.
 - ❑ There is no footpath or cycle path to the access to the University of Wollongong Shoalhaven Campus on Yalwal Road. Pedestrians currently have to walk along the bush verge of Yalwal Road – current speed limit 100km/h.
 - ❑ There are no footpaths and no pedestrian crossing points across the Highway in South Nowra. There are a number of activities based along the Highway in this area including fast food restaurants, parklands and large retail units. A number of pedestrians were observed trying to cross the Highway in South Nowra.

Huskisson

- ❑ Owen Street is the main shopping street and has pavements on both sides. However the southern side of the street has much higher quality and newer pedestrian facilities – with attractive paving, 3 access ramps and street furniture. The footpath on this southern side is raised above street level and there are ample opportunities to access the street via steps and ramps. **(Photograph 15)**
- ❑ There is no pedestrian crossing point on Owen Street – even though there is retail activity on both sides of the street and there are a large number of pedestrians that cross along this section. Kerb build outs are provided at two locations on the southern side of the street. However there are no associated crossing facilities and no corresponding build out on the northern side – that creates a hazard as people have to step into the road between cars (especially dangerous for children and when high sided vehicles are parked) and makes access difficult for people with mobility difficulties.
- ❑ Footpaths and pram ramps are provided to access the parkland to the eastern side of Hawke Street.
- ❑ Residential areas within Huskisson, including Hawke Street, Keppel Street, Burrill Street and Elizabeth Street do not have footpaths.
- ❑ There is an established and popular shared pedestrian/cycle track that runs between Huskisson and Vincentia along the coast (parallel to Elizabeth Street). It is used by both local residents and visitors and provides an accessible path for people of all walking abilities.

Vincentia

- ❑ The off-street pedestrian/cycle path continues to Vincentia across the roundabout and along The Wool Road to the Primary and High Schools. Pram ramps and refuges are provided for access around the roundabout.

- ❑ Access from the pedestrian/cycle path to the shopping centre on Burton Street is poor. There is no formal pedestrian access from The Wool Road – the pram ramp at the roundabout leads to a steep grassed embankment.
- ❑ Access to and from the bus stop is also very poor with no pedestrian paths provided.
- ❑ Adequate pedestrian facilities are provided within the shopping centre and around Burton Street, although some ramps have a steep grade and lips at the change of grade point.
- ❑ Excellent Street has only short sections of footpath.
- ❑ Residential streets within Vincentia are generally not provided with footpaths.

Sanctuary Point

- ❑ The shared pedestrian/cycle path continues from Huskisson and Vincentia along the southern side of The Wool Road to Sanctuary Point.
- ❑ The shopping centre is located on Paradise Beach Road – there are two pedestrian crossing points provided (both refuges):
 - At the eastern end of the shopping centre outside the Oval
 - Between the shopping centre and the Country Club (marked as a school crossing) (**Photograph 16**)
- ❑ The majority of residential streets do not have footpaths.

St Georges Basin

- ❑ There are footpaths provided outside the shops on Island Point Road, but no footpaths on the roads leading to the shopping centre. (**Photograph 17**)
- ❑ Island Point Road is a long straight wide road that does not discourage fast driving.
- ❑ There are no footpaths to the Community Centre or to the Uniting Church.

Milton

- ❑ The main shopping street of Milton is on the Highway. There is one marked pedestrian crossing point across the Highway, close to Wason Street. Pram ramps are provided on both sides of the crossing. (**Photograph 18**)
- ❑ The road width is relatively narrow through the centre, with parallel parking along both sides of the road and footpaths on both sides in the main shopping area. (**Photograph 19**)
- ❑ Footpaths are provided along both sides of the Highway from Thomas Street to Gordon Street, plus on the east side from Gordon Street to the retirement village and on the west side from Thomas Street to the petrol station.
- ❑ There is a kerb build-out with no pram ramp on the Highway in front of town hall library / theatre on the west side and courthouse on the east side.
- ❑ There is a ‘shared zone’ paved area on Wason Street, with bollards marking edge of vehicle pavement, but no speed restrictions (50km/h sign is further south along Wason Street). A footpath continues along Wason Street to Charles Street on the western side.
- ❑ The majority of residential streets do not have footpaths – just wide road width with grassed verge.
- ❑ There is a kerb build-out with pram ramp on Princes Highway in front of hospital.
- ❑ Footpath on Thomas Street (north-side past school, south-side to Wason Street)
- ❑ Footpath on both sides of Wason Street from Thomas Street to south of Princes Highway.

Ulladulla

- ❑ The main activity is centred around the Princes Highway, Boree Street and Wason Street between Green Street and South Street.
- ❑ The pedestrian facilities on the Highway are good with attractive paving, pedestrian crossing points and landscaping.
- ❑ Pedestrian crossing points across the Highway are provided at:
 - the traffic signals at the Highway/Wason Street intersection (**Photograph 20**)
 - pedestrian refuges and build-outs at two locations – south of Green Street intersection and mid-block between Green Street and Wason Street (**Photograph 21**).
- ❑ People do use these formal crossing points, however as pedestrians do not have priority at any of them and as activity is spread along this section of road, people tend to cross at will along between Green Street and South Street.
- ❑ Pedestrian activity spreads between the Highway and Boree Street through a number of retail arcades and a car park to the Coles complex on Boree Street. However the existing facilities do not provide continuous path for pedestrians, especially through the car park. Two sets of build outs are provided across Boree Street for access to the Coles complex, however no priority crossing point is provided. (**Photograph 22**)
- ❑ A shared pedestrian/cycle path runs along Millards Creek from St Vincent Street to Timbs Street (**Photograph 23**), however it is not well signposted or promoted and is not easily accessible from the main activity on the Highway (it does not continue along the creek to meet the Highway).
- ❑ Further off-street walking tracks are provided on Warden Head (access from Deering Street) and Ulladulla Head (access from Dolphin Street). Pedestrian access to these walks is poor with no footpaths or signage from the nearby residential areas or activity centres.
- ❑ The majority of residential streets within Ulladulla do not have footpaths.
- ❑ Access for pedestrians and skaters to the sports centre and skateboard ramp at the end of Camden Street is poor. The final stretch of road is unsealed, making access for pedestrians and skaters difficult.

Mollymook

- ❑ Mollymook is predominantly residential streets with few footpaths.
- ❑ There is quite a lot of activity along Mitchell Parade – with pedestrians/surfers crossing to get to the beach and a worn walking track along the eastern side of the road.
- ❑ There are limited footpaths:
 - Close to Tallwood Avenue shopping centre
 - Eastern side of Golf Avenue to Princes Highway (shared with cyclists)
 - Along embankment on western side of Mitchell Parade, north of Donlan Road (south end)
 - Southern side of Ocean Street from Mitchell Parade to Shepherd Street

7. Pedestrian Facilities and Design Principles

7.1 Introduction

Issues raised during the PAMP process, particularly by special user groups, highlight the inadequacy of many standards and the inconsistent and unacceptable way in which many of these are implemented. It is our intention, through the development of the PAMP, to ensure that the standards are adhered to and improved to reflect the needs of many groups.

This section provides a summary of the pedestrian facilities available for use and presents a series of recommendations for Council to use when specifying and designing pedestrian facilities. A review of the current design standards is provided in **Appendix C**.

7.2 Pedestrian crossing facilities

It is useful first of all to provide a brief summary of the main facilities available to improve pedestrian amenity, safety and access when crossing roads.

Crossing a road is a potentially dangerous activity for a pedestrian, more so if the pedestrian is using a wheelchair or stroller, is accompanied by small children, is carrying heavy bags, is aged or mobility impaired. Crossing devices therefore need to be designed with all these people in mind, without giving pedestrians an illusory sense of safety.

Crossings facilities may be either formal (eg as part of a signalised traffic crossing) or informal (eg pedestrian refuges) depending on the nature of the road and the level of pedestrian demand. However signalised crossings are generally preferred by people with disabilities as they provide a greater guarantee of right of way for pedestrians and also provide the opportunity for audible and tactile cues when it is safe to cross.

Pram ramps (drop kerbs)

A pram ramp provides a smooth change in level between the footpath and the road surface. It allows pedestrians to gain access to the road, with minimum impediment and is essential in areas where people in wheelchairs, those with mobility impairment and those using strollers need to be catered for.

It is important that pram ramps are aligned with the direction of travel to guide people directly across the road and not out into the middle of an intersection.

Pedestrian refuges

Pedestrian refuges are most appropriate where it is difficult for the pedestrian to cross the road in one stage. Their installation would generally be at sites where a pedestrian safety problem exists but a marked footcrossing would not be suitable because of excessive vehicle speeds, limited sight distances, and insufficient pedestrian / vehicle volumes to warrant a pedestrian crossing. They are particularly suited to locations where pedestrian movements across a carriageway are spread over a length of heavily

trafficked road, such as in shopping areas. A refuge enables the pedestrian to pause safely in the middle of the road and cross one direction of traffic at a time.

Refuges need to be wide enough in order to provide adequate separation from traffic flows, particularly where traffic speeds are high. Appropriate barriers and fencing may be installed to protect pedestrians from vehicular traffic, provided it does not hide the pedestrians from the view of drivers. Pedestrian refuges are not suitable for locations with high pedestrian crossing volumes given the limited waiting space available within the refuge area. Refuge islands should only be provided where there is sufficient roadwidth to accommodate the island, generally 5.7 metres or greater on each side of the island for a four lane road.

Kerb extensions (Build outs)

This consists of a local widening of the footpath into the carriageway by using a width of the adjacent shoulder or kerbside parking lane. They may be used at minor intersections or at mid-block locations. The most appropriate locations for this type of treatment are on collector roads, local streets and in strip shopping zones. This facility is most effective when used in conjunction with a road hump or slow point.

Marked pedestrian crossings (zebra)

Traffic regulations require motorists to give way to pedestrians at zebra crossings and therefore the zebra crossing gives pedestrians greater control of their movement. However, the installation of pedestrian crossings may not necessarily improve safety at all locations and they are generally unsuitable where pedestrian-vehicle conflict is small because both motorists and pedestrians tend to become less cautious.

It is possible to combine the zebra crossing road markings with a road hump in order to overcome some of the problems associated with traditional zebra crossings. This arrangement helps to reinforce the pedestrian priority and encourages motorists to slow down.

The safe operation of zebra crossings depends on drivers having good visibility of pedestrians and therefore good sight lines and street lighting are critical. Provision of zebra crossings should be considered at arterial road roundabouts with high pedestrian usage.

A marked footcrossing must not be installed where the 85th percentile speed exceeds 75 kph or the sight distance is less than 200 metres for 85th percentile speeds of 70 kph (160m for 60 kph, 120 m for 50 kph and 80m for 40 kph). A marked footcrossing is warranted where pedestrian flow / hour (P) is greater than or equal to 30, vehicular flow / hour (V) is greater than or equal to 300 and $P \times V$ is greater than or equal to 60,000. In special circumstances, the $P \times V$ requirement can be relaxed to 45,000.

If the site is used predominantly by school children, the above requirement is relaxed to allow for $P \geq 30$ and $V \geq 200$ for the one hour periods immediately prior to and after school hours.

Pedestrian operated signals

These may be the best solutions at mid block locations where pedestrian crossing activity is concentrated along a short section of road, carrying high traffic volumes.

However, the cost of implementation of this device usually limits its use to arterial roads.

When specifying pedestrian operated signals, attention needs to be given to the time settings to ensure that the walk (green) and clearance (flashing red) phases are suitable for the majority of likely users and that the waiting time for pedestrians is limited.

A Pelican Crossing is a more sophisticated form of signal crossing that allows a more flexible time sharing between motorists and pedestrians.

A traffic signal controlled mid-block footcrossings are usually warranted where pedestrian flow / hour (P) is greater than or equal to 230 and vehicular flow / hour (V) is greater than or equal to 1,000 for four one hour periods in a day plus $P \geq 175$ and $V \geq 600$ for eight one hour periods. If the site is used predominantly by school children, the above requirement is relaxed to allow for $P \geq 50$ and $V \geq 600$ for the one hour periods immediately prior to and after school hours.

Provision for pedestrians at signalised intersections

Pedestrian crossing facilities may be incorporated into signalised intersections in order to facilitate pedestrian crossing at junctions. Pedestrian crosswalk lines should be aligned to minimise pedestrian crossing distances and should be close to desire lines.

Signal phasing should be designed in accordance with both traffic and pedestrian demand at each intersection and, where necessary, full pedestrian phases may be incorporated.

These facilities can provide useful crossing facilities for pedestrians, however they are often not located on pedestrian desire lines, cause delays to pedestrians and can result in lengthy detours across the junction.

Pedestrian Grade Separation

Pedestrian grade separation provides the highest degree of protection for pedestrians from motor traffic and trains. However given the high capital cost of construction coupled with the major disruption necessary during the construction period, grade separated facilities are rarely provided, except on freeways and rail lines.

A pedestrian grade separated crossing is usually warranted where pedestrian flow / hour (P) is greater than 200, vehicular flow / hour (V) is greater than 750, $P \times V$ is greater than or equal to 180,000 and the proportion of pedestrians under 12 years of age or over 60 years of age is greater than 50%. Variations on this requirement exist for different circumstances. A cost benefit analysis is also required to justify the construction of grade separated facilities.

There are a number of issues that need to be considered as follows:

- ❑ the necessary changes in level can provide difficulties for elderly or disabled people;
- ❑ grade separated facilities are often located away from pedestrian desire lines;
- ❑ the additional physical effort required to use the facility may cause people to avoid using it; and

- ❑ underpasses are unpopular due to the reduced personal security, the cost of lighting and vandalism.

Children's Crossings

Children's crossings usually provided near primary or infants schools and operating just prior to and immediately after school hours. A children's crossing must not be installed where the 85th percentile speed exceeds 65 kph or there is insufficient visibility of the crossing or pedestrians using the crossing for approaching drivers. A children's crossing may be installed where the crossing is located on a local or lightly trafficked road, vehicular flow is greater than 50 for the one hour periods immediately prior to and after school hours.

7.3 Recommendations for standards

Standards from a number of sources have been reviewed for the major pedestrian facilities and summarised in **Appendix C**, giving an understanding of the current design principles available. In general we recommend that Shoalhaven City Council adopt the principles set out in the applicable standards document as described in **Appendix C** (including AUSTROADS Part 13, Australian Model Code for Residential Development and NSW RTA Guidelines). However the following paragraphs provide a summary of our recommendations.

7.3.1 Pram ramps

All the standards for pram ramps have been examined. The following conclusions can be drawn from our analysis:

- ❑ The use of contrasting colours on pram ramps is important to give visually impaired people some warning of the approaching hazard. Yellow is usually recommended.
- ❑ The placement of the pram ramps within the crossing area is very important, particularly as a direction finding mechanism for visually impaired people. AUSTROADS discusses the need for the ramps to be placed in line with the direction of travel.

■ Figure 7.1: Preferred Pram Ramp Location

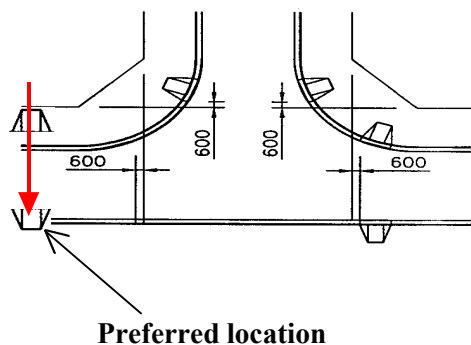


Figure 7.1 shows the most desirable location for ramps, providing for a direct path of travel across the intersection, perpendicular to traffic movements, and allowing a visually impaired user to be directed the right way. All other ramps indicated on the figure will direct pedestrians into the centre of the intersection and potentially into a dangerous situation. It is recommended that Council adopt this standard for pram ramp placement.

- ❑ As specified in AUSTROADS, and as discussed with special interest groups, the desirable slope for a pram ramp is 1 in 10.
- ❑ It is important that Council maintains up to date practice in regard to tactile surface markers. These markers can become slippery and dangerous in the wet. This is particularly apparent on sloping surfaces such as pram ramps.
- ❑ Gradients of pram-ramps should be designed so that there is not a dip at the end (which can collect water). The end of the pram-ramp should be flush with the surface of the road.

7.3.2 Pedestrian crossings

Our recommendations for the design and installation for pedestrian crossings are as follows:

Pedestrian refuges

- ❑ Minimum width of 2.0m
- ❑ Minimum overall length of 10.0m
- ❑ Floodlighting of the facility should be provided
- ❑ A continuous median should be considered where a number of closely spaced refuges are warranted
- ❑ The appropriate signage should be provided
- ❑ Pram ramps should be provided at each location where a kerb has to be negotiated
- ❑ On wide roads the installation of kerb extensions in conjunction with the refuge should be considered
- ❑ The refuge should be made of a noticeably different material or colour than the surrounding road surface
- ❑ Sightlines should be maximised – therefore care should be taken when placing street furniture (in particular signage)
- ❑ A holding rail should be provided within the refuge
- ❑ The surface of the refuge should be flush with the surface of the road

Marked pedestrian crossings (zebra crossing)

- ❑ Zebra crossings should be provided in conjunction with a raised threshold in order to provide the appropriate colour contrasts and make the priorities clear.
- ❑ Floodlighting should be provided
- ❑ The appropriate signage should be provided
- ❑ Sightlines should be maximised – therefore care should be taken when placing street furniture (in particular signage)
- ❑ The appropriate RTA numerical warrants for the provision of marked foot crossings will need to be met before installation

- ❑ The provision of zebra crossings should be considered at arterial roundabouts with high pedestrian usage.
- ❑ The pavement marking detail is provided in AS 1742.10.

Pedestrian operated signals

- ❑ Audio tactile facilities should be implemented on all pedestrian signal crossings - this will ensure that these facilities are available for use by visually impaired people and may also assist other users in crossing the road.
- ❑ The time settings should be designed to provide for the majority of users at that location.
- ❑ Delays to pedestrians should be limited – long delays may cause pedestrians to cross before the allocated walk time.
- ❑ Vehicle detection should be installed to improve efficiency.
- ❑ Maybe installed with footpath extensions to reduce the width (and therefore time) required to cross by pedestrians.

Provision for pedestrians at signalised intersections

- ❑ Audio tactile facilities should be implemented on all pedestrian signal crossings - this will ensure that these facilities are available for use by visually impaired people and may also assist other users in crossing the road.
- ❑ Pedestrian crosswalk lines should be aligned to minimise pedestrian crossing distances and should be close to pedestrian desire lines.
- ❑ Crosswalk lines should be marked as close as possible to the corner of the intersection to ensure safety.
- ❑ Separate signal displays for pedestrians should be installed.
- ❑ The time settings should be designed to provide for the majority of users at that location.
- ❑ Cycle times should be set according to the priorities of the road – in areas of high pedestrian concentration cycle times should be set to minimise delay to pedestrians.

7.3.3 Footpaths

Recommendations for the provision of footpaths within the Shoalhaven PAMP Study Area are as follows:

- ❑ Minimum pavement width should be 1.2m, except in areas of high pedestrian concentration where the minimum should be 2.4m.
- ❑ All roads within the study area should be provided with a footpath at least on one side of the road.
- ❑ The absolute minimum vertical clearance, over the full width of the footpath, should be 2.0m (preferred 2.4m).
- ❑ Footpaths should be kept clear of obstructions including trees, signposts, traffic signals, light poles, parking meters, rubbish bins, seats, telephone booths, advertising signs, vending machines and business 'furniture'.
- ❑ The provision of manhole covers and gratings in footpaths should be avoided where possible and preferably located in areas of low pedestrian traffic.
- ❑ Kerb ramps should be provided at all locations where a kerb has to be negotiated.
- ❑ Changes in level should be avoided where possible.
- ❑ Hard surfaces such as concrete and asphalt should be used where possible. Pavers and bricks can be used but should not be glazed as they can be slippery when wet. Loose surface materials should be avoided.

- ❑ Tactile surface indicators should be provided in accordance with AS1428.4 (note that this standard is currently undergoing revision and is likely to be reissued as AS/NZ1428.4).

7.3.4 Shared Paths

The minimum widths for footpaths should be reviewed where the path provides a shared facility with cyclists. This should be a minimum of 2.0m – details are provided in AUSTROADS Guide to Traffic Engineering Practice: Bicycles Part 14.

AUSTROADS acknowledges that shared pedestrian and cycling facilities are becoming more common. It distinguishes between:

- ❑ Shared footways – path on which pedestrians and cyclists mix, although cyclists must give way to pedestrians; and
- ❑ Segregated Footways – pedestrian and bicycle traffic is separated by a marked longitudinal line or other marking.

The document notes that conflicts between pedestrians and cyclists can occur and therefore it is important to ensure that the design of such facilities minimises the frequency and consequences of conflict. It states that shared facilities are appropriate where bicycle speeds and cycle and pedestrian volumes are expected to be low. However shared footways should not be used in high pedestrian activity areas such as shopping centres.

Similarly, segregating users can create problems where the number of pedestrians or cyclists is high in both directions. This will result in frequent passing which will erode the benefit of segregating the different types of users. Consideration of separate facilities should be given in such situations.

It should also be noted that the New South Wales Road Rules allow cyclists to ride on footpaths as long as they are:

- ❑ under 12 years of age or
- ❑ an adult riding with a child under 12 years of age or
- ❑ under 18 years old and riding with an adult who is responsible for a child rider.

Solutions to minimise the potential for conflict between pedestrians and cyclists are to provide good sight distance around bends and over crests. Other solutions include the modification of the users of these paths. A 'Code of Conduct' for cyclists and skateboarders was included in the Shoalhaven Integrated Transport Strategy.

7.3.5 Further recommendations

There are a number of further general recommendations that can be made in relation to the provision of pedestrian facilities as noted here:

Roundabouts

Pedestrians often find crossing roads at roundabouts difficult due to the speed and multiple paths of approaching vehicles. There are a number of measures that can be taken to improve the safety and amenity of pedestrians at roundabouts including:

- ❑ Wide splitter islands should always be provided – with provision for waiting pedestrians and pram ramps from the kerbs.
- ❑ The surface of cut-aways in the splitter islands should be flush with the surface of the road
- ❑ Zebra crossings could be provided on the legs of roundabouts – located as close as practical to the direct route of pedestrian movement but a minimum of 12m from the exit of the roundabout.
- ❑ In cases where high volumes of vehicles and pedestrians are present – traffic signals (with an appropriate pedestrian priority) could be provided.
- ❑ Sight distances, for both pedestrians and motorists (including children), should be maximised – particularly in relation to parked vehicles and the location of signs and vegetation.
- ❑ Vehicle speeds should be reduced on the approach to roundabouts – using adequate deflection on the approaches.
- ❑ Good street lighting should be provided.

Drainage

Careful consideration needs to be given to the drainage around pedestrian facilities and areas. Surface grading should be designed to avoid having low points and therefore accumulation of water where pedestrian movement occurs.

Placement of trees, landscaping and street furniture

The placement of any objects on footpaths should be carefully considered in relation to the hazard these objects can provide to visually impaired people or obstruction to general pedestrian movement. This includes trees, planter boxes, traffic signs, telephone booths, seating or displays erected by local businesses.

Trees and landscaping should be subject to regular maintenance to ensure that they do not become overgrown or hazardous to pedestrian movement – including growth overhead and root damage to pavement surfaces.

Lighting

A detailed review of lighting facilities within the study area was outside the scope of this study. Therefore the following paragraphs provide general guidelines for the provision and specification of lighting in pedestrian areas.

Lighting is essential for pedestrians in order that they can be made aware of hazards such as uneven surfaces or street furniture as well as enhancing personal security. Particular attention needs to be given to the needs of elderly or people with impaired vision who require above average levels of illumination.

Critical areas for illumination are steps, ramps, footpaths and pedestrian crossing facilities. Care must be taken to light areas of pedestrian movement as well as the traffic movement (ie footpaths must be illuminated as well as the roadspace). Higher levels of lighting may also be desirable outside hotels, nightclubs and other drinking establishments. In the majority of cases natural daylight will be sufficient during daylight hours and artificial lighting will only need to be provided during hours of darkness.

The requirement for shade and lighting in pedestrian areas can provide conflicts. For example where trees are used to provide shade these may block or hinder lighting provided in the area. The location of trees and lighting poles therefore needs to be carefully considered.

Individual recommendations for reviews of lighting are made in Section 8.2.

8. Recommended Improvements and Actions

8.1 Introduction

This section sets out the recommended improvements to pedestrian facilities within the urban areas of Shoalhaven City Council, as well as a number of non-infrastructure measures that could be implemented in order to make walking more attractive and increase the number of trips made on foot.

A number of general objectives and other more specific problems have been identified during the initial stages of this study that have been addressed in these recommendations. The pedestrian network proposed as part of this study is a strategic network to increase the amount of walking in the urban areas in general. It will not necessarily include all the footpaths and pedestrian facilities in the Shoalhaven City Council Schedule of Works.

8.2 Infrastructure improvements

The existing pedestrian facilities within the Shoalhaven PAMP (Stage 1) study area have been noted and, where necessary, upgraded facilities have been proposed. These are described in the following sections. The locations of the proposed treatments have been shown in **Figures 8.1 to 8.9**.

8.2.1 Footpaths

A review of existing footpaths within the study area has been undertaken using information supplied by Council and supplemented by the pedestrian facilities audit undertaken at the start of this project. This review has highlighted those locations where footpath facilities could be provided or improved, such as:

- ❑ Streets with no footpath – generally the older residential areas
- ❑ Streets with a footpath on only one side of the road
- ❑ Inconsistent provision of footpaths – no continuous path of travel available for pedestrians
- ❑ Locations where the community has noted a need for a footpath












The proposed program of footpath works has focussed on providing a continuous, consistent and safe path of travel throughout the pedestrian network.

Based on the above information and the results of the community consultation, a schedule of footpath works required to implement the PAMP has been developed. This schedule is included as **Appendix D**.











This list includes footpaths along streets as well as a number of off-street footpaths that provide useful links between the street system. In general a side of the street has been suggested for the new footpath. The nominated side will need confirming when the footpath is approved for construction. It is assumed that all footpaths recommended in this section would automatically include pram ramps of the correct specification.

Legend


















Priority Points

-  Street Lights
-  Crossing Upgrade - High Priority
-  Crossing Upgrade - Medium Priority
-  Crossing Upgrade - Low Priority
-  Crossing Upgrade - Already in Council /RTA Programme
-  Other Upgrade - High Priority
-  Other Upgrade - Medium Priority
-  Signs - High Priority
-  Signs - Medium Priority
-  Signs - Low Priority
-  Speed Zone Change

Shared Paths

-  Existing Shared Path
-  Proposed Shared Path
- Priority**
-  Footpath Upgrade Already in Council Programme
-  PAMP High Priority Footpath Upgrade
-  PAMP Low Priority Footpath Upgrade
-  PAMP Medium Priority Footpath Upgrade
-  Existing Footpaths
-  River
-  Roads
-  Nowra Bicycle Strategy

Legend Land Use

-  PRIMARY SCHOOL
-  TAFE
-  PLAYING FIELD
-  RECREATION AREA
-  SPORTING COMPLEX
-  SWIMMING POOL
-  INDUSTRIAL AREA
-  FOCAL POINT
-  COMMERCIAL CENTRE
-  HIGH SCHOOL
-  CARAVAN PARK
-  LIBRARY
-  COMMUNITY CENTRE
-  SURF CLUB
-  LOOKOUT
-  TENNIS COURTS
-  BICYCLE PARKING



SHOALHAVEN PAMP

Location of Proposed
Pedestrian Facility Upgrades

BOMADERRY AND NORTH NOWRA

SINCLAIR KNIGHT MERZ

Figure 8.1

Legend

Priority Points

- Street Lights
- Crossing Upgrade - High Priority
- Crossing Upgrade - Medium Priority
- Crossing Upgrade - Low Priority
- Crossing Upgrade - Already in Council /RTA Programme
- Other Upgrade - High Priority
- Other Upgrade - Medium Priority
- Signs - High Priority
- Signs - Medium Priority
- Signs - Low Priority
- Speed Zone Change

Shared Paths

- Existing Shared Path
- Proposed Shared Path
- Priority**
- Footpath Upgrade Already in Council Programme
- PAMP High Priority Footpath Upgrade
- PAMP Low Priority Footpath Upgrade
- PAMP Medium Priority Footpath Upgrade
- Existing Footpaths
- River
- Roads
- Nowra Bicycle Strategy

Legend

- ### Land Use
- PRIMARY SCHOOL
 - TAFE
 - PLAYING FIELD
 - RECREATION AREA
 - SPORTING COMPLEX
 - SWIMMING POOL
 - INDUSTRIAL AREA
 - FOCAL POINT
 - COMMERCIAL CENTRE
 - HIGH SCHOOL
 - CARAVAN PARK
 - LIBRARY
 - COMMUNITY CENTRE
 - SURF CLUB
 - LOOKOUT
 - TENNIS COURTS
 - BICYCLE PARKING



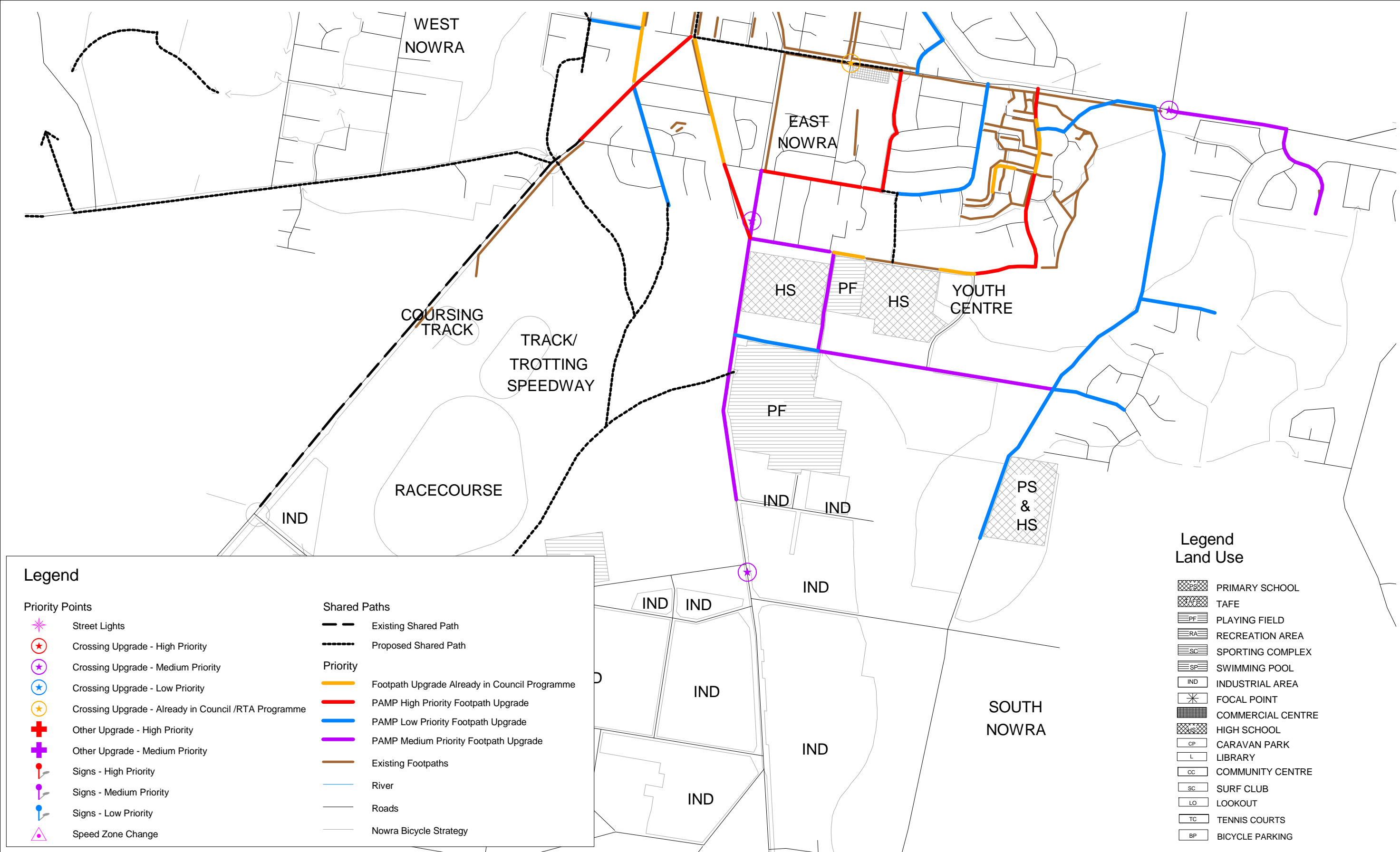
SHOALHAVEN PAMP

Location of Proposed
Pedestrian Facility Upgrades

NOWRA, EAST NOWRA AND WEST NOWRA

SINCLAIR KNIGHT MERZ

Figure 8.2



SHOALHAVEN PAMP

Location of Proposed
Pedestrian Facility Upgrades

SOUTH NOWRA

SINCLAIR KNIGHT MERZ

Figure 8.3

Legend

Land Use

	PRIMARY SCHOOL
	TAFE
	PLAYING FIELD
	RECREATION AREA
	SPORTING COMPLEX
	SWIMMING POOL
	INDUSTRIAL AREA
	FOCAL POINT
	COMMERCIAL CENTRE
	HIGH SCHOOL
	CARAVAN PARK
	LIBRARY
	COMMUNITY CENTRE
	SURF CLUB
	LOOKOUT
	TENNIS COURTS
	BICYCLE PARKING

Legend

Priority Points

	Street Lights
	Crossing Upgrade - High Priority
	Crossing Upgrade - Medium Priority
	Crossing Upgrade - Low Priority
	Crossing Upgrade - Already in Council / RTA Programme
	Other Upgrade - High Priority
	Other Upgrade - Medium Priority
	Signs - High Priority
	Signs - Medium Priority
	Signs - Low Priority
	Speed Zone Change

Shared Paths

	Existing Shared Path
	Proposed Shared Path
Priority	
	Footpath Upgrade Already in Council Programme
	PAMP High Priority Footpath Upgrade
	PAMP Low Priority Footpath Upgrade
	PAMP Medium Priority Footpath Upgrade
	Existing Footpaths
	Coast
	Roads
	Huskisson Vincentia Bicycle Strategy

VINCENTIA

PLANTATION POINT

GOLF COURSE

PROPOSED
PLAYING
FIELD
BP
BP
PROPOSED
DISTRICT CENTRE
BP
PROPOSED
COMMUNITY
FACILITY
BP
PROPOSED
TAFE
HS

PS

SHOALHAVEN PAMP

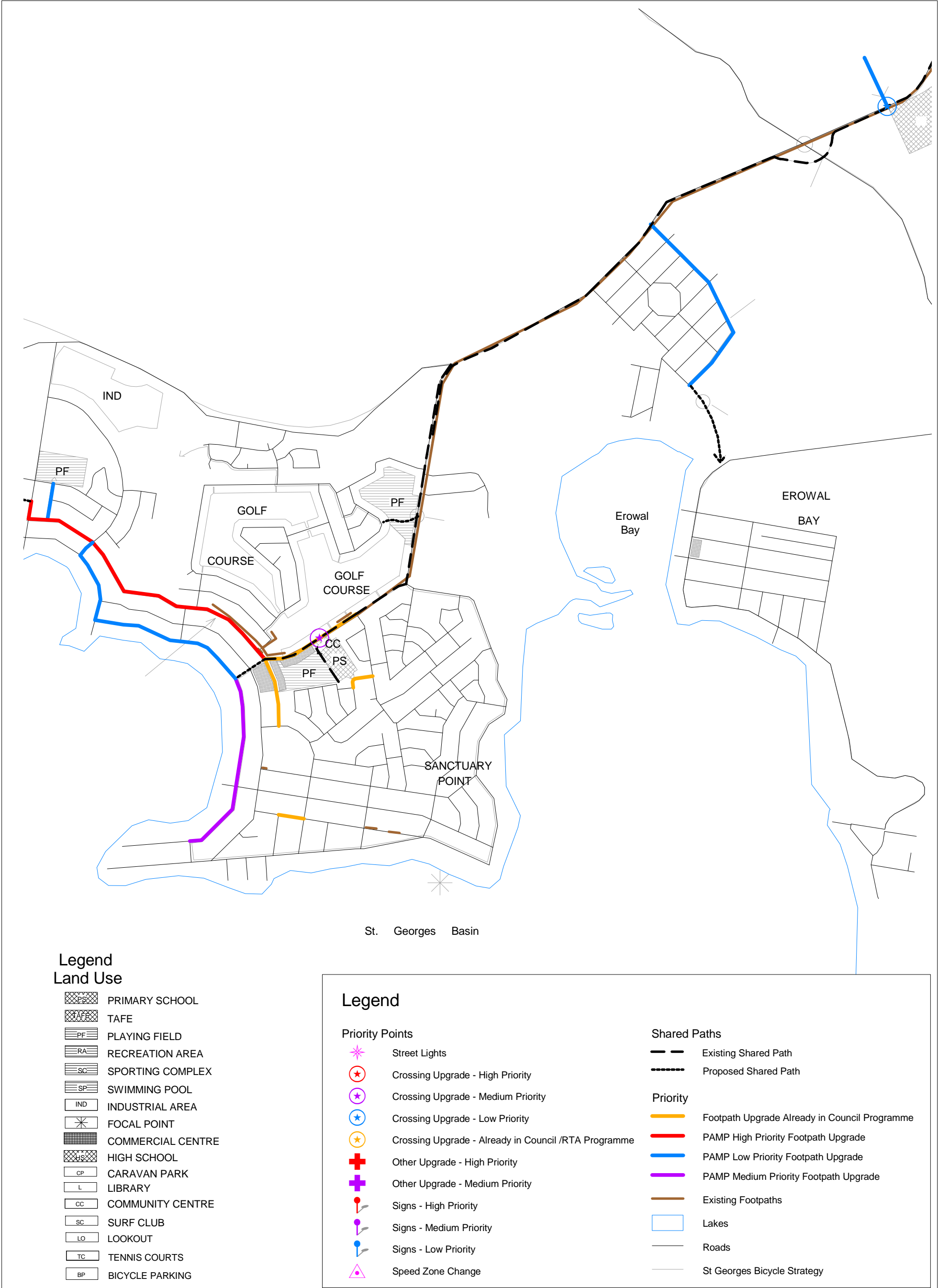
Location of Proposed
Pedestrian Facility Upgrades

SINCLAIR KNIGHT MERZ

VINCENTIA

Figure 8.5





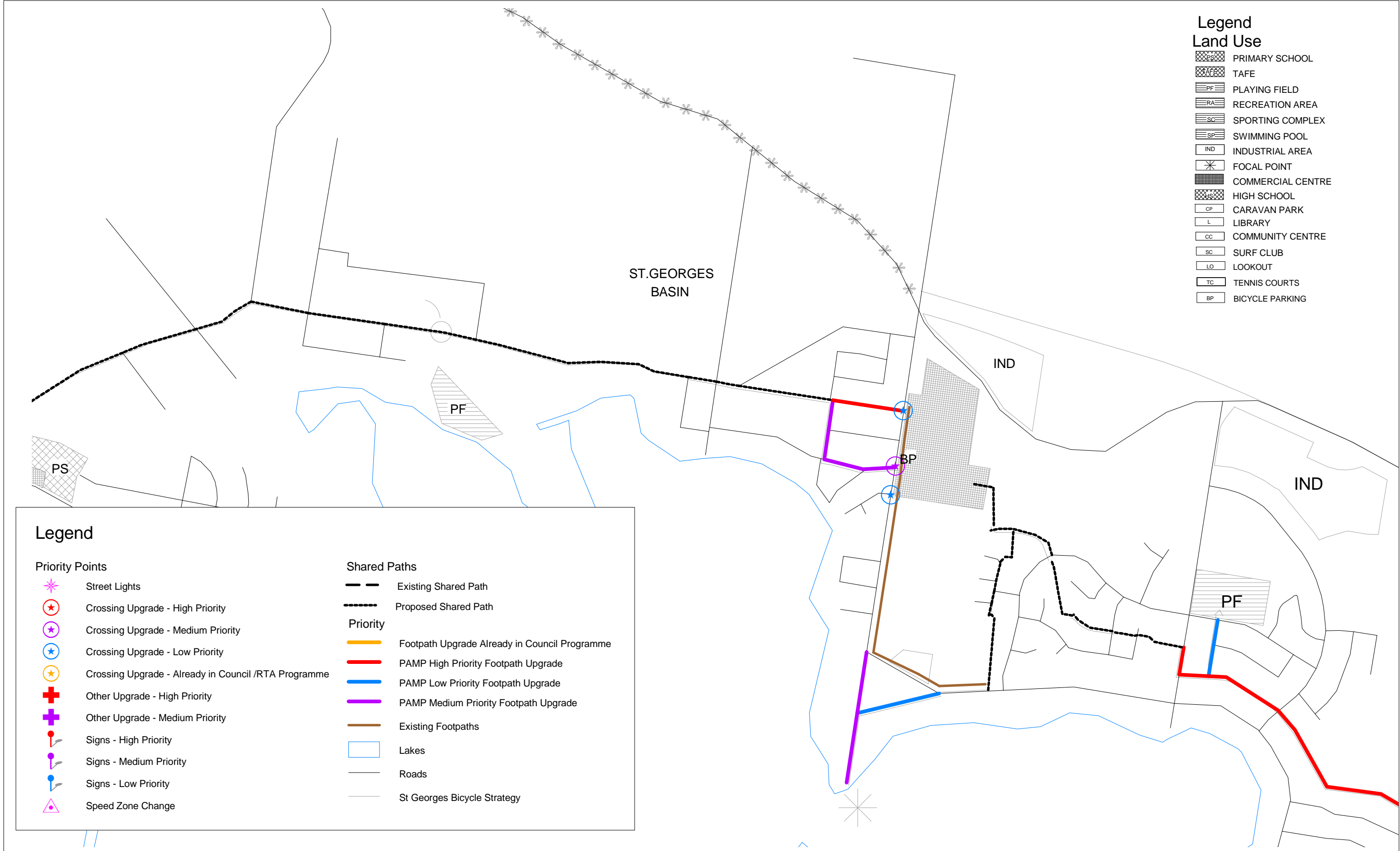
SHOALHAVEN PAMP

Location of Proposed
Pedestrian Facility Upgrades

SANCTUARY POINT AND EROWAL BAY AREA

SINCLAIR KNIGHT MERZ

Figure 8.6

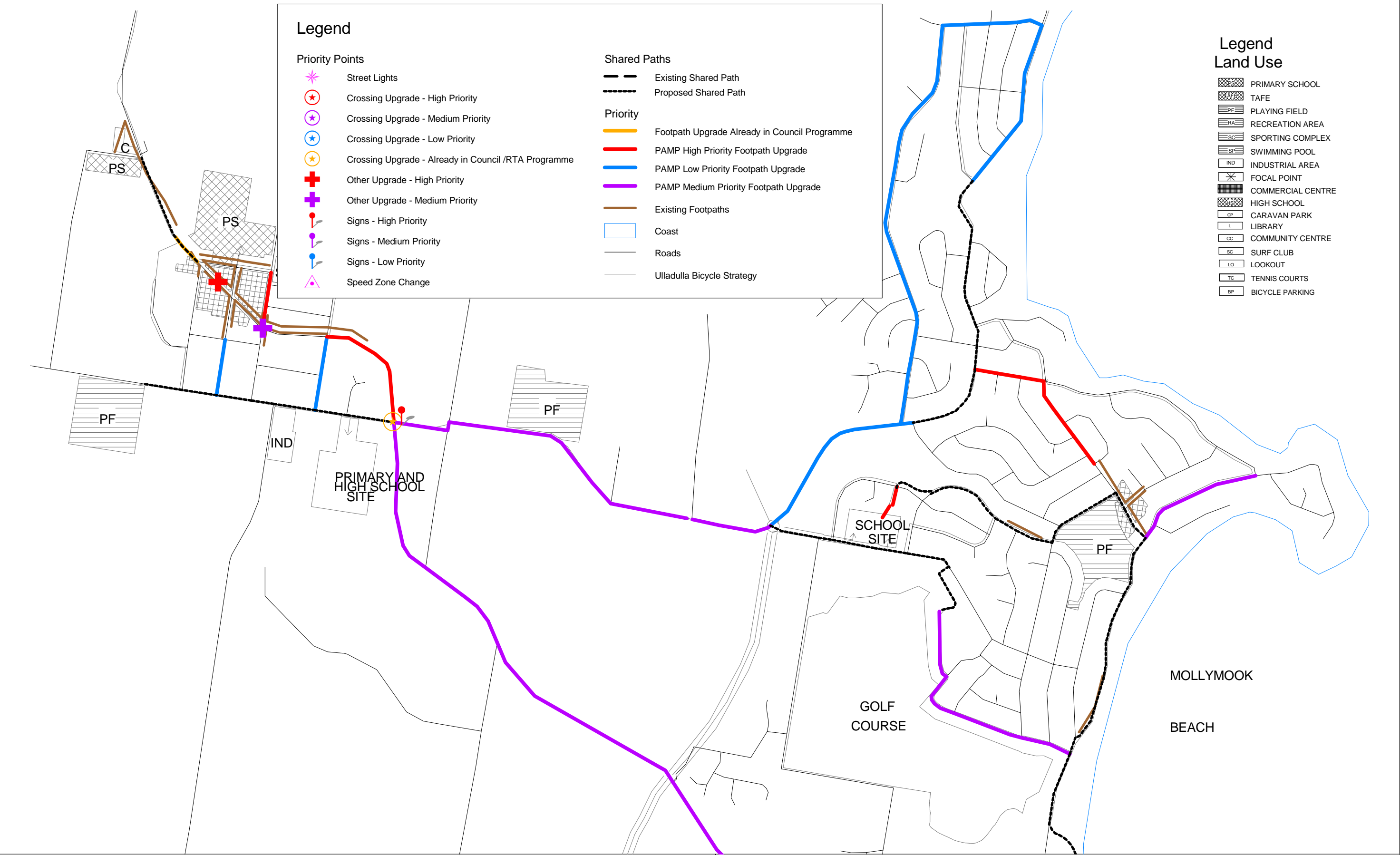


SHOALHAVEN PAMP
Location of Proposed
Pedestrian Facility Upgrades

**BASIN VIEW AND
ST GEORGES BASIN**

SINCLAIR KNIGHT MERZ

Figure 8.7



- Legend**
Land Use
- PRIMARY SCHOOL
 - TAFE
 - PLAYING FIELD
 - RECREATION AREA
 - SPORTING COMPLEX
 - SWIMMING POOL
 - INDUSTRIAL AREA
 - FOCAL POINT
 - COMMERCIAL CENTRE
 - HIGH SCHOOL
 - CARAVAN PARK
 - LIBRARY
 - COMMUNITY CENTRE
 - SURF CLUB
 - LOOKOUT
 - TENNIS COURTS
 - BICYCLE PARKING

Legend

Priority Points

- Street Lights
- Crossing Upgrade - High Priority
- Crossing Upgrade - Medium Priority
- Crossing Upgrade - Low Priority
- Crossing Upgrade - Already in Council /RTA Programme
- Other Upgrade - High Priority
- Other Upgrade - Medium Priority
- Signs - High Priority
- Signs - Medium Priority
- Signs - Low Priority
- Speed Zone Change

Shared Paths

- Existing Shared Path
- Proposed Shared Path
- Priority**
- Footpath Upgrade Already in Council Programme
- PAMP High Priority Footpath Upgrade
- PAMP Low Priority Footpath Upgrade
- PAMP Medium Priority Footpath Upgrade
- Existing Footpaths
- Coast
- Roads
- Ulladulla Bicycle Strategy

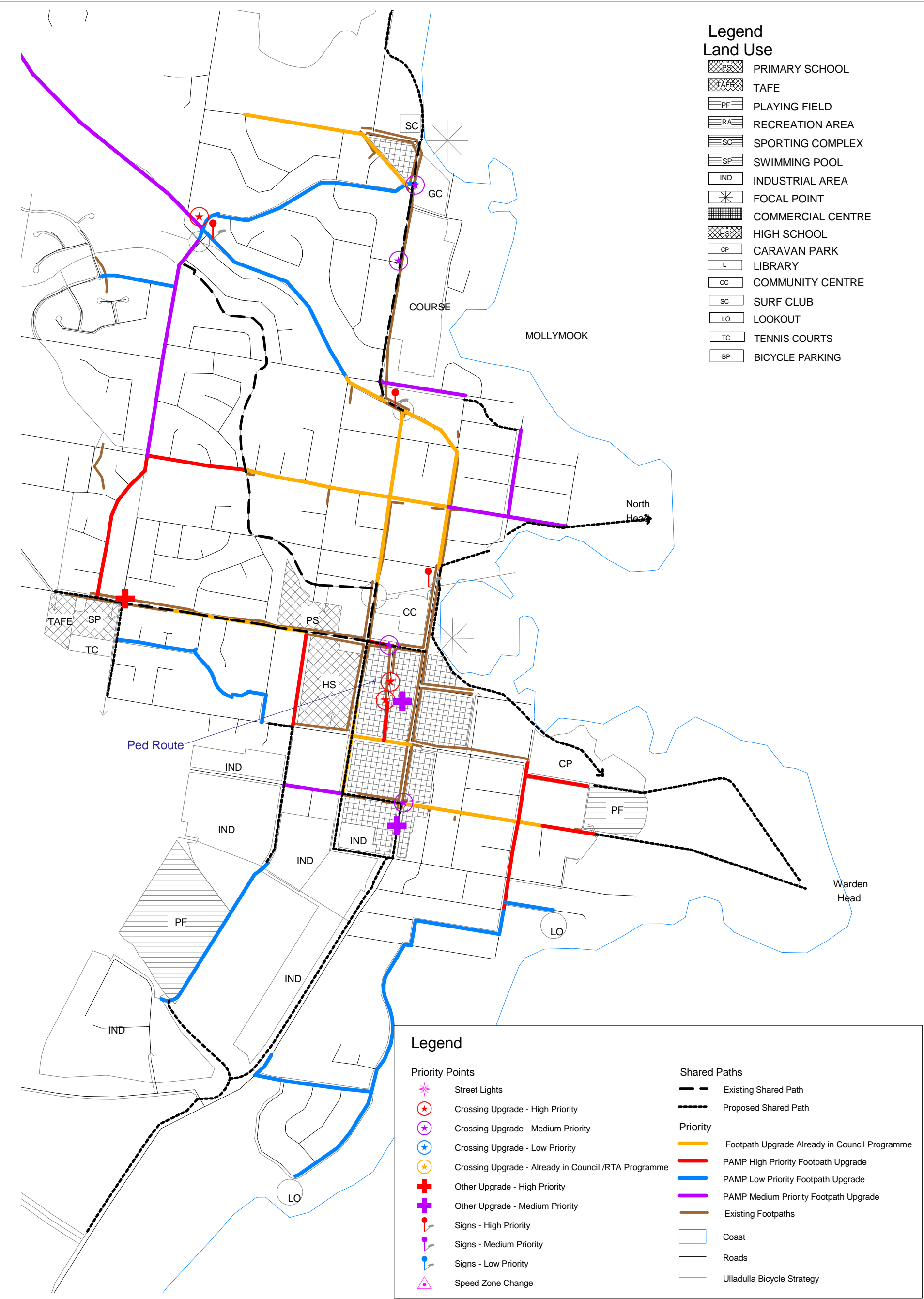
SHOALHAVEN PAMP

Location of Proposed
Pedestrian Facility Upgrades

MILTON, NARRAWALLEE
AND MOLLYMOOK BEACH.

SINCLAIR KNIGHT MERZ

Figure 8.8



SHOALHAVEN PAMP

Location of Proposed
Pedestrian Facility Upgrades

ULLADULLA AND MOLLYMOOK AREA

SINCLAIR KNIGHT MERZ

Figure 8.9

8.2.2 Pedestrian crossing facilities

A number of potential new pedestrian facilities within the urban areas of Shoalhaven City Council have been identified as part of this PAMP. Each site will require further consideration to determine whether the warrants for suggested crossing facilities are met. These have been included for a number of reasons including:

- ❑ Reduce the likelihood of a pedestrian accident;
- ❑ Reduce the severance effects of major Highways;
- ❑ Improve access between residential suburbs;
- ❑ Provide a crossing on a pedestrian desire line; and
- ❑ Improve access to bus stops.

The installation or modification of pedestrian phases at existing signalised intersections has been recommended at several intersections. This will improve the pedestrian amenity and safety at these locations by ensuring pedestrians get right-of-way every traffic signal cycle. This has been recommended at the following intersections:

- ❑ Kalandar Road & Wallace Street, East Nowra
- ❑ Princes Highway & Croobyar Road, Milton
- ❑ Princes Highway & Moss Street, Nowra
- ❑ Kinghorne Street & Worrigee Street, Nowra

The list of crossings recommended has been prepared in response to several identified needs from the pedestrian route assessment and community consultation. The list contains a mixture of improvements to existing crossings and the installation of new crossings.

The existing kerb-build-outs on Junction Street sometimes creates confusion between pedestrians and drivers as to who has the right-of-way at the crossing. It is proposed that the installation of a marked zebra crossing would remove the confusion. This may provide some disruption to vehicles travelling on Junction Street which may result on some through traffic using alternative routes. A similar treatment is proposed at two locations on Boree Street in Ulladulla.

The gaps in the median pedestrian fence on the Princes Highway south of Moss Street and north of Junction Street are currently well used by pedestrians. Their use has been identified as a potential safety hazard given the high traffic volumes, relatively high speeds and the six-lanes of traffic which must be crossed in two stages. It is recommended that the gaps be closed to force pedestrians to use the signalised pedestrian crossings at the Intersections of the Princes Highway with Moss Street and Worrigee Street. This will reduce the amount of pedestrian accessibility across the Highway. However, given the five pedestrians hit at these locations in the past five years and the proximity of signalised crossings the safety issue was seen to outweigh the accessibility issue.

Another crossing of the Highway at Junction Street was considered. Due to the potential to further disrupt the Highway traffic, the cost and the proximity of the nearby crossings it was seen as not justified. The re-opening or construction of the additional crossing may be reconsidered should the Nowra Bypass be constructed.

The Owen Street Huskisson Streetscape Scheme will address the issue of pedestrian access along and across Owen Street. The results of this study were not available at the time of preparation of this PAMP. The following recommendations have been made regarding pedestrian facilities on Owen Street. They may need reviewing for inclusion on the Owen Street Streetscape Scheme.

The recommendations include the mirroring of kerb build-outs and installation of raised zebra crossings in line with the existing build-outs in 2 locations in line with streetscape plan:

- 1) between Sydney Street and Currambene Street
- 2) close to Currambene Street

An interim solution could be implemented along with the carriageway resurfacing by the construction build-outs on northern side of Owen Street opposite existing build-out points on southern side. This will require the removal of some parking spaces to ensure sightlines and safety. Depending on timescale the installation of marked pedestrian crossings at these 2 crossing points may also be warranted.

The zebra crossing across The Wool Road, west of Beach Road, Vincentia has been raised several times during the community consultation. Its introduction would also assist in modifying driver behaviour in the area by reinforcing the change of speed limit and that the area is an urban area not a rural one where higher speeds are acceptable.

The schedule of proposed crossing facilities is included in **Appendix D**. Concept sketches of generic pedestrian facilities have been prepared and are included in **Appendix E**.

The schedule includes recommendations for the most appropriate type of facility for each location. Reference should also be made to both the RTA and AUSTROADS design guidelines and warrants for further information on the detail for each type of facility.

8.2.3 Other Infrastructure

The schedule of other proposed facilities is included in **Appendix D**.

Signposting

A detailed audit of pedestrian signs was outside the scope of this study. Signposting within the study area should be improved to provide:

- ☐ a clear name on every street
- ☐ a network of signposts directing pedestrians to key activities

Signposts to recreational walks and shared paths have been recommended to promote their use, particularly among local residents. Signposts have been recommended for the major roads such as the Princes Highway and/or major local roads.

Lighting

A review of the street and footpath lighting has been recommended at several places. The reviews have been recommended for a two main reasons including: improvements

to personal safety; and improvements to pedestrian safety by increasing their visibility at night to drivers.

Pram Ramps

The installation of pram ramps have been recommended for existing locations where they are not present. It is assumed that all footpaths recommended in Section 8.2.1 would automatically include pram ramps of the correct specification.

Speed Zone Changes

Concerns have been expressed during the community consultation and in the Safe Routes to School program about the potential dangers to pedestrians of excessive vehicle speed for the surrounding conditions. Changes to the speed zones have been recommended for further consideration at four locations. These will require further assessment and consultation to determine whether they meet the required warrants and match the broader communities views.

Intersection Controls

The installation of Give-Way signs have been recommended at three intersections. These recommendations have been made in response to observed confusion about right-of-way from drivers which affects the pedestrian's ability to judge when is an appropriate time to cross.

8.2.4 Prioritisation of Measures

Footpaths have been prioritised based on Council's current formula for ranking requests for new footpaths. Each footpath proposed is assessed and given a ranking under five topics. The topics are:

- 1) Use by the Elderly (3 = high, 1 = low);
- 2) Combined Use, i.e. total number of pedestrians (3 = high, 1 = low);
- 3) Traffic Density (3 = high, 1 = low);
- 4) Safety Issues, (3 = safety risk eg cannot walk on grass path & blind corner; 1 = low risk; adequate off road); and
- 5) Special Factors = score high if along side school, hall, etc (3 = high, 1 = low, 0 = irrelevant)

The formula gives different topics different weightings in calculating a final score. The formula is:

$\text{Score} = 2 * (\text{Elderly}) + 4 * (\text{Combined Use}) + 3 * (\text{Traffic Density}) + 5 * (\text{Safety Issues}) + 1 * (\text{Special Factors})$
--

This formula and weighting system has been used to score each of the recommended locations for footpaths in **Appendix D**.

The concept of assigning rankings based on several criteria is considered to be an appropriate means of prioritising footpath projects. However, when using this formula for this project it was found that some projects which were seen as important for providing for children or increasing the connectivity for the entire network did not score as highly as those which were seen to moderately help some of the other factors such as road safety. It was therefore recommended that two additional criteria be added to the formula, namely:

- 6) Use by the Young (3 = high, 1 = low); and
- 7) Network Connectivity (3 = great improvement, 1 = little improvement).

The revised formula proposed is:

$$\text{Score} = 2 * (\text{Elderly}) + 4 * (\text{Combined Use}) + 3 * (\text{Traffic Density}) + 5 * (\text{Safety Issues}) + 1 * (\text{Special Factors}) + 2 * (\text{Young}) + 3 * (\text{Connectivity})$$

This revised formula was considered by Council. Council has decided to retain the original formula. The original formula and weighting system have been used to score each of the recommended locations for footpaths in **Appendix D**.

For this study a second ranking has been given based on an overall judgement of the merits of each location. The schedule of infrastructure works set out in **Appendix D**, allocates a priority (High, Medium and Low) to the proposed improvements. These priority allocations have been made based on the several factors including:

- ❑ Increasing pedestrian network connectivity;
- ❑ Proximity to major pedestrian attractor or generator; and
- ❑ Use by special group in the community such as children (e.g. near schools) or senior citizens.

8.3 Non-infrastructure measures

In addition to the infrastructure improvements discussed above there are also a number of non-infrastructure measures that can be taken to improve the pedestrian environment and encourage more people to make trips on foot.

8.3.1 Community campaigns

Community campaigns can play a key role in encouraging more people to walk and educating them of the benefits and safety aspects of walking. Council already undertakes a number of local campaigns designed to increase walking trips and improve the safety of those on foot. In order to maximise the benefit of such initiatives there needs to be close coordination between such initiatives and the progression of infrastructure improvements as part of the PAMP.

Examples of community campaigns include:

- ❑ **Road safety awareness** – directed at those most vulnerable including children and elderly people and including practical assistance and advice with regard to particular situations.
- ❑ **Safer routes to school** – working with children and their parents to encourage more trips to school on foot. Campaigns can be run in conjunction with teaching staff as a school project – getting children to identify the problems of driving to school, identifying the benefits of walking and setting out a plan to encourage more trips on foot – close involvement of students, parents and staff will help to identify ownership of the project. The RTA is currently evaluating a Safe Routes to School Scheme for schools in the Shoalhaven area.

- ❑ **Health education** – It is well understood that walking is beneficial to overall health and can improve cardio-vascular fitness. Walking is also an efficient alternative to the car for short journeys, thus reducing air pollution and improving local air quality. It is one of the easiest and most accessible forms of exercise that can be enjoyed by the majority of the community and therefore promotion of the PAMP to the local community should be enhanced by linking it to Council led health initiatives. Walking groups and maps of walking routes should be linked to the PAMP process through the pedestrian co-ordinator within Council.
- ❑ **Wider campaigns** – Council could consider participating in more general campaigns organised by other organisations in order to encourage trips on foot. This could include the ‘Walk to Work’ Day run by The Pedestrian Council of Australia.
- ❑ **Driver awareness/education** – the lack of understanding of pedestrian rights and needs by many vehicle drivers can inhibit pedestrian movement and provide a disincentive to walking. Drivers need to be better educated and made aware of pedestrians especially when turning into a side road, when driving across the footpath to access a driveway, at zebra crossings or in areas where there are large numbers of pedestrians (particularly children or elderly people).
- ❑ **Enforcement** – illegal manoeuvres and parking by vehicle drivers can cause problems for pedestrians. This can include parking on the pavement, double parking, using the indicators at roundabouts and speeding. Council Officers have been enforcing city centre parking restrictions.

8.3.2 Positive pedestrian planning

For a number of years transport planning has concentrated on providing an acceptable level of service to a wide range of users, but with particular emphasis on motor vehicles and public transport. Other modes of transport, such as walking and cycling, have not been given the same level of consideration.

Recent environmental concerns have highlighted the need to reduce motorised travel and return to a more sustainable integrated land use and transport system that reduces the need to travel and provides for local trips on foot and bicycle. There is potential to transfer some of the existing short car trips to walking as well as inducing new walking trips. The planning system needs to be refocussed to provide ‘Positive Pedestrian Planning’ to deliver the facilities that pedestrians need and therefore encourage more trips on foot.

There are a number of other actions which would assist the ‘positive pedestrian planning’ process and support the effectiveness of this PAMP, including:

- ❑ Planning for pedestrians as part of the Development Control process – for example assessing the pedestrian accessibility of new developments (especially large developments) in addition to the standard traffic based assessment.
- ❑ Expand on the current specified road hierarchy to include a formal hierarchy for travel within specified areas – this would allow modes of travel to be linked to different road types according to Council and community needs. Facilities within these areas could then be specified and implemented accordingly. For example

within the CBD area and on local streets pedestrian movement may be given a higher priority in order to provide appropriate facilities for their needs.

- ❑ Give pedestrians a higher priority when designing and implementing all new transport infrastructure. This should include considering pedestrian wait times and movements at signal controlled junctions, pedestrian access to new bus stops and the impact on pedestrian movement of the installation of new street furniture.
- ❑ Appoint a 'Pedestrian Champion' within Council – this could be allocated to an existing Council Officer. This person would lead the implementation of the PAMP and coordinate all pedestrian activities within Council as well as being the main point of contact with external bodies on pedestrian related issues. This coordination of activities should assist with the effective implementation of the PAMP and the efficient use of Council resources.
- ❑ The nominated 'pedestrian champion' could monitor budget allocations within Council in order to ensure that the allocated budget is appropriate for current and future pedestrian planning.

8.3.3 Specific Programs

Two public awareness programs are recommended for by this PAMP based on the number of responses received during the community and stakeholder consultation.

Bicycle, Skateboard, Roller Blade & Scooter Code of Conduct'

The introduction of shared pedestrian and cycle facilities has generally been received well by the community, as can be gathered from the number of positive comments received during the consultation for this PAMP. Their use is likely to increase with the proposed number of shared facilities recommended in this study and in the Shoalhaven Bicycle Strategy (1997).

A number of concerns have been received regarding the potential for conflict between pedestrians and bicycles, skateboards, etc given the difference in their speed of travel. This concern has mainly been raised by senior citizens who are generally less mobile and less able to get out of the way of a potential collision.

A 'Code of Conduct' for Skaters was included as an appendix in the Shoalhaven Integrated Transport Strategy (2000). It is recommended that this Code be expanded to cover bicycles, roller blades and scooters and then formally presented to the community and distributed to the relevant community organisations such as schools, sporting clubs and youth centres.

School Speed Zone

In the Safe Routes to School Program speed surveys were taken in a number of 40km/h School Speed Zones. The results indicated that, in general, the reduced speed limit was not obeyed.

The main locations where drivers were measured to not obey the 40km/h School Speed Limit were:

- ❑ Illaroo Road;
- ❑ Paradise Beach Road; and

□ The Wool Road.

Speed was also listed as a concern on many other roads which do not have 40km/h School Speed Zones installed. Given the wide area that this issue covers, it is recommended that a general awareness campaign of driver responsibilities be undertaken. This could involve advertisements in the local newspapers.

It is also suggested that Council work with the NSW Police Department and the RTA to promote the understanding among drivers of how & when to obey the 40km/h speed limit. This could involve the distribution of a brochure to new drivers when they sit their driving exam and the display of posters at the motor registry.

9. Funding

9.1 Funding opportunities

For the PAMP to be successful in achieving its stated objectives it is important that future funding sources are identified in order that the proposed schemes can be implemented in a reasonable timeframe. There are a number of opportunities for future funding that Council could consider including:

- ❑ Section 94 contributions – these may be used for upgrading of footpaths, installation of pram ramps or crossing facilities in any new developing areas.
- ❑ Direct Developer contribution – Council may wish to consider taking the opportunity to modify their Development Control Plans to reflect the need for improved pedestrian facilities within the area. This may include the requirement to provide adequate formed footpaths and crossing facilities in the local area of any new development, particularly those of medium density or greater. This may be particularly appropriate in developments aimed at the elderly or children.
- ❑ Council budgets – existing Council budgets could be used to improve pedestrian facilities where appropriate. This could include provision and maintenance of footpaths, street lighting and street signs.
- ❑ Specific government grants or contributions. The RTA is actively promoting this program and may make additional funding available for identified measure. It is expected that the RTA will eventually stipulate that Councils must complete a PAMP before future pedestrian funding is made available.

9.2 Cost of Works

The cost of the recommended works has been estimated and is also included in **Appendix D**. The costs have been estimated using unit rates also included in **Appendix D**. These cost rates are GST exclusive and do not include an allowance for items such as project management, design or contingencies. These costs have been included to provide an estimate of the cost of the recommended works. These costs may change when detailed designs are prepared for each project.

The costs have been aggregated into high, medium and low priority. The totals for each are indicated in **Table 9-1**.

■ **Table 9-1 Cost of Proposed Works**

Type	High	Medium	Low	Total
Crossings*	\$ 591,280	\$ 930,312	\$ 302,000	\$ 1,823,592
Footpaths	\$ 2,922,624	\$ 3,530,583	\$ 2,937,139	\$ 9,390,346
Other	\$ 72,825	\$ 36,537	\$ 300	\$ 109,662
Total	\$ 3,586,729	\$ 4,497,432	\$ 3,239,439	\$ 11,323,600

* includes \$473,191 for projects already included in RTA or Council programs

The funds are potentially available through the identified funding means listed above. Shoalhaven City Council have advised that \$100,000 per annum has been allocated from Council's capital works budget and resident's contributions to the provision of new footpaths. A special allocation of \$150,000 is planned for the 2003/04 financial year. Funding from RTA grants is estimated at \$20,000 per annum. It is likely that the money from these grants will be directed to funding of crossings, other treatments

and possibly to footpaths along roads over which the RTA has control, such as the Princes Highway.

Assuming that the program of funding for these works extends over 15 years, the available money from funding sources is given in **Table 9-2**.

■ **Table 9-2 Funding available under current arrangements**

Funding source	Total available funds
Projects already in RTA or Council Programs	\$ 473,191 ¹
Government grants	\$ 300,000 ²
Capital works program	\$1,530,000 ³
Total available funding	\$ 2,303,191

1. Projects include the traffic signals at Princes Hwy/Croobyar Road (Milton), Kalandar Street/Wallace Street (East Nowra) and Stage 2 of the Owen Street Scheme (Huskisson)
2. Based on average grants of \$20,000 per annum over 15 years
3. Based on average capital works program funding on \$100,000 per annum over 15 years

The table shows that, based on current funding allocations, additional funding of approximately \$9,020,409 will be required to complete the project. This funding gap may be partially bridged by the following funding sources:

- ❑ Approximately \$1.5 million is associated with shared paths. Funding may be available under RTA or Council cycle fund programs;
- ❑ Funding for the 'Other' works such as streetlights and signs may be available through other RTA or Council cycle works budgets; and
- ❑ Funding for intersection upgrades such as that for the intersection of Kinghorne Street & Worrigee Street and other traffic measures such as adjustments to speed may be available from other RTA or Council budgets.

Funding from Section 94 levies may be possible where the need for a facility can be linked to a particular development. This may also be a source of funding in the future for pedestrian provisions for new residential subdivisions or large developments similar to the University in Nowra. This will require amendment to the Section 94 Contributions Plan to ensure that money collected for Community Facilities and Services may be used to construct both cycle paths and footpaths.

9.3 Implementation

This PAMP study is one of the first stages in the process of improving pedestrian planning and as such marks the start of an ongoing process. The PAMP can be adapted and updated to reflect the changing needs of pedestrians in the Shoalhaven area and take into account any major land use or transport infrastructure developments.

A strict timetable for the implementation of works has not been developed, rather the continuing upgrading will be linked to the availability of funding sources.

Implementation of the facilities and other measures identified in this document must also be closely linked with related initiatives across all Council departments including health, road safety, maintenance and planning programs. This should ensure that all initiatives are implemented in a coordinated and complementary manner and lead to an effective program of measures that will make a real difference to pedestrian amenity. Effective communication between Council Departments is therefore a key to ensuring the successful implementation of the PAMP.

Appendix A Community Consultation Material

Sinclair Knight Merz Pty Limited

ACN 001 024 095

ABN 37 001 024 095

100 Christie Street

PO Box 164

St Leonards NSW

Australia 1590

Telephone: +61 2 9928 2100

Facsimile: +61 2 9928 2500

Shoalhaven City Council
City Administration Centre
Bridge Road
NOWRA NSW 2541

7 June, 2001
Let02ar.Doc
IN09038

Attention: Chairman, Road Safety Group

Dear Chairman

Shoalhaven Pedestrian Access and Mobility Plan (PAMP)

We are currently working with Shoalhaven City Council to prepare a Pedestrian Access and Mobility Plan (PAMP) for parts of the Shoalhaven area. The study area includes the Nowra Bomaderry urban area, the Bay and Basin area including Huskisson, Vincentia, St Georges Basin and Sanctuary Point, and the Milton Ulladulla urban area.

The primary objective of the Plan is to increase the opportunities for walking within the study area, by facilitating improvements in the level of pedestrian access and priority, improving pedestrian links to other transport modes and ensuring a consistent approach to pedestrian planning. This will be achieved through the development of a Plan of Works that sets out future pedestrian facilities and schemes and will enable Council to implement these through their program of works.

The Plan will identify a network of pedestrian routes throughout the study area designed to link centres of pedestrian activity (such as residential areas, shops, community facilities, rail stations and commercial areas). The current pedestrian facilities on each route will be examined and, where necessary, appropriate improvements will be suggested.

To ensure that the PAMP is successful it must be acceptable to key stakeholders and the community. Community consultation is therefore an important stage in the development of the plan. The consultation will be undertaken in two stages – the first of these will gather comments from key stakeholders and the second will invite comments from the wider community.

As a representative of one of the key stakeholders with an interest in pedestrian issues in the Shoalhaven area, we would like your input to this project. As a first stage we would like your comments on existing pedestrian conditions within the study area. I have attached a questionnaire that you may use to record your comments.

We are also keen to have further discussions with a number of stakeholders in order to investigate some key issues in greater detail. If you would like to participate in these discussions please complete the appropriate section of the questionnaire and include your name and contact details.

Shoalhaven Pedestrian Access and Mobility Plan
9 July, 2001

I would appreciate it if you could return your completed questionnaires to me by Friday 12 January 2001. Completed questionnaires can be returned to me by post to Sinclair Knight Merz, PO Box 164, St Leonards NSW 1590 or fax to 9928 2512.

If you have any further questions about the PAMP process or would like any further information please contact either myself on 9928 2383 or Tom van Drempt on 9928 2350, or by email on aread@skm.com.au.

I look forward to hearing from you.

Yours faithfully

Anna Read
Project Manager

Phone: 02 9928 2383
Fax: 02 9928 2512
E-mail: aread@skm.com.au
enc.

Shoalhaven City Council

Shoalhaven Pedestrian Access and Mobility Plan (PAMP)

We are currently gathering comments on existing pedestrian facilities within the Shoalhaven area. We welcome your comments and appreciate any input that you may have to ensure that the outcome of this study is appropriate for the needs of pedestrians in the Shoalhaven area. Please fill in the form below and add any additional comments as required.

1. Name _____
2. Representing _____
3. Would you like to be involved in further discussions about this project? Yes ☐ No ☐
4. Contact Details _____
5. Does your organisation undertake any activities that encourage or help people to walk in the Shoalhaven area? Yes ☐ No ☐

If so, please describe them and include any further material (flyers, adverts etc) as required.

6. In which areas do you or the people you represent usually walk?

7. Which issues do you (or the people you represent) find most discouraging when walking? (Please tick a maximum of 2)

Cyclists riding on footpaths	<input type="checkbox"/>	Lack of crossing points	<input type="checkbox"/>
Lack of footpaths	<input type="checkbox"/>	Personal safety	<input type="checkbox"/>
Street lighting	<input type="checkbox"/>	Risk of traffic accident	<input type="checkbox"/>
Other (please specify) _____			<input type="checkbox"/>

8. Are there any specific problems with pedestrian facilities in the Shoalhaven area that you would like to tell us about (including locations with poor street lighting or where it is difficult to cross the road)?

9. Are there any improvements that you would like to see for pedestrians within the Shoalhaven area? These could be specific improvements (such as a footpath that is needed) or other schemes such as education or encouragement campaigns.

Please return this form to Anna Read by post to Sinclair Knight Merz, PO Box 164, St Leonards, NSW 1590 or by fax to 9928 2512 by 26/01/01. Thank you for your time.

Sinclair Knight Merz Pty Limited

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Shoalhaven City Council
City Administration Centre
Bridge Road
NOWRA NSW 2541

12 July 2001
Let07_PAMP_Display.Doc
IN09038

Attention:

Chairman, Road Safety Group

Dear Sir / Madam,

Shoalhaven Pedestrian Access and Mobility Plan Display

We are currently working with Shoalhaven City Council to prepare a Pedestrian Access and Mobility Plan (PAMP) for parts of the Shoalhaven area on behalf of Shoalhaven City Council. We contacted you in December 2000 to seek your input on pedestrian issues in your area. We have now completed the draft Pedestrian Access and Mobility Plan Stage 1 and would like to inform you that the plan for pedestrian access has been placed on display at several locations around Shoalhaven area (see details on Page 3).

We invite you to submit comments made as a response to this exhibition as part of the second phase of the community consultation for the development of the PAMP. These comments will be collated and incorporated into the final plan presented to Council. Council will then decide whether to adopt the proposed network. Questionnaires will be available at each of the exhibition sites and should be placed in the boxes provided. Alternatively, written comments may be lodged in writing to the undersigned before 5pm on Monday 30th July 2001.

Please find enclosed a sample questionnaire, a brief summary of the results of the work undertaken so far on the PAMP, as well as copies of figures showing the proposed PAMP pedestrian routes for each of the areas covered by this study. Please read this material and feel free to make any comments on this material to either Kate McDonald from Shoalhaven City Council on 4429 3305 or myself on 9928 2350.

I look forward to receiving your comments on the draft PAMP and proposed pedestrian routes.

Yours faithfully

Tom van Drempt
Traffic Engineer

Shoalhaven Pedestrian Access and Mobility Plan Stage 1 Summary of Working Papers 1 & 2

The Shoalhaven Pedestrian Access and Mobility Plan (PAMP) Stage 1 is designed to improve the pedestrian environment and encourage more walking by identifying existing issues and proposing solutions across a number of areas including engineering, education, enforcement and encouragement. The resulting plan will complement the existing Shoalhaven Bicycle Strategy and provide a network of pedestrian and shared routes throughout the study area.

Study Area

The study area for Stage 1 includes the urban areas of Nowra Bomaderry, the Bay and Basin area (including Huskisson, Vincentia, St Georges Basin and Sanctuary Point) and the Milton Ulladulla area. The remaining areas of Shoalhaven City will be addressed in the future stages of the study.

This Study

To date a number of tasks in the process have been completed as follows:

- ❑ Review of other relevant Shoalhaven City Council strategies;
- ❑ Examine existing pedestrian conditions and facilities;
- ❑ Initial consultation to gather information from local community groups on specific issues; and
- ❑ Identification of pedestrian routes and a connected pedestrian network (see attached maps).

The next stage of the study will focus on identifying a schedule of works for new pedestrian facilities and other measures that will assist in encouraging walking. From the information provided in this PAMP strategy, Shoalhaven City Council will be developing a method for prioritising all footpath works within the Shoalhaven area, including those not included in the study area.

Pedestrian Issues from Community Consultation

There have been a number of relevant issues raised during the study process so far as summarised here:

- ❑ Existing public transport services are minimal and therefore walking and cycling provide an important mode of travel for people without access to a car.
- ❑ Scooters and skateboards are an important and well used mode of travel for young people.
- ❑ In general pedestrian facilities within the CBD / shopping areas are good – however some improvements are required to ensure consistent and continuous facilities.
- ❑ Many existing pedestrian facilities are not continuous or do not link the places that people want to visit.
- ❑ There are a number of examples of positive pedestrian planning including high quality, well maintained facilities including footpaths, crossing facilities and shared bicycle/pedestrian paths.
- ❑ The Princes Highway currently presents a huge barrier to pedestrian movement within the study area.
- ❑ The majority of residential streets are not currently provided with footpaths.
- ❑ There are large influxes of tourists in the peak holiday seasons that significantly increase the population of the study area and cause a high variability in demand for pedestrian facilities.
- ❑ The existing needs and demands of the resident community need to be met to ensure that people have access to their local facilities and surrounding suburbs.
- ❑ Population estimates show that there will be a large increase in the permanent population of the study area over the next 15 years. Pedestrian facilities need to be provided to accommodate this increase, and in particular facilities should be incorporated in all new residential developments from the outset.

Proposed Pedestrian Network

The proposed strategic pedestrian network is shown in **Figures 6.1 – 6.9** (taken from the full Working Paper 1 & 2 document also on display with the PAMP material) for each of the urban areas within the study area. It is intended that footpaths would eventually be provided along all sections of this network.

The pedestrian network has then been specified in order to link pedestrian origins and destinations with a clear, connected and continuous network of high quality pedestrian facilities, rather than link every house in the study area with every other street. Given the current level of provision of pedestrian facilities and, in particular, the lack of facilities in the majority of residential streets, it is felt that this is an appropriate approach in order to provide an achievable implementation plan for pedestrian facilities within the current budget levels.

That is not to say that the new facilities proposed as part of this study will be the only ones on Council's work program – there will be additional pedestrian facilities required to alleviate specific individual pedestrian issues (particularly in relation to safety) that will also be included in the overall work program.

The Shoalhaven Bicycle Strategy 1997 proposed that shared pedestrian/cycle facilities could be used where possible due to the relatively low numbers of pedestrians and cyclists. The suggested shared pedestrian/cycle routes have been taken into account in preparing the proposed pedestrian network.

Once this PAMP is completed and the implementation plan well under way, it would be appropriate to revise this PAMP and proposed pedestrian network to take account of any new developments and extend the network further into residential areas if desired.

The full display will be on public exhibition until 25th July 2001 at the following locations during normal business hours:

- ❑ City Administrative Centre, Bridge Road, Nowra
open 9:00am til 5:00pm, Monday – Friday;
- ❑ Nowra Library, Berry Street, Nowra
- ❑ Sanctuary Point Library, Paradise Beach Road, Sanctuary Point
(during opening hours)
- ❑ Ulladulla Visitor Centre, Princes Highway, Ulladulla

Shoalhaven Pedestrian Access and Mobility Plan (Stage 1- Nowra Bomaderry, Bay & Basin, Milton Ulladulla)

We welcome your comments and appreciate any input that you may have that will ensure these proposals are appropriate for the needs of pedestrians in the Shoalhaven area.

1. **Gender** M F

2. **Age** Under 18 19-24 25-49 50-64 Over 65

3. **Home Township** _____

4. **If pedestrian facilities were improved along the routes shown on the display maps would you be more willing to make trips on foot?**

Yes

No

Unsure

5. **What is your main means of transport around the Shoalhaven area at present?**

Walking

Car

Bicycle

Bus

Skateboard

Other (please specify) _____

6. **Which issues do you find most discouraging when walking?** (Please tick a maximum of 2)

Cyclists riding on footpaths

Lack of crossing points

Lack of footpaths

Personal safety

Street lighting

Risk of traffic accident

Footpaths don't go where I want to go

No pleasant surroundings

Other (please specify).....

7. **Which measure would be most likely to increase the amount of walking you do?**

More Street Lights

More concrete footpaths in residential areas

Better Crossing Points

More recreational paths

More information signs (eg. time and distance of walks)

More places to walk

Other _____

I would be unlikely to walk more than I do now

8. **If you have any further comments on the proposed pedestrian network or other pedestrian issues, please add your comments in the space below or on the back of this form.**

Please place the completed form in the box provided or post to Traffic Section, Shoalhaven City Council, PO Box 42, NOWRA 2541. Thank you for your time.

Appendix B Photographs

Appendix B Photographs

■ Photograph 1 – Princes Highway, between Milton & Ulladulla



■ Photograph 2 – Intersection of Princes Highway and Deering Street, Ulladulla



■ Photograph 3 – Intersection of St Vincent Street & Green Street, Ulladulla



■ Photograph 4 – Intersection of Princes Highway & Bridge Road, Nowra



- **Photograph 5 – Kerb Build-outs on Meroo Street, Bomaderry, outside Rail Station**



- **Photograph 6 – Paved Path outside Shops, Lyndhurst Drive, Bomaderry**



■ Photograph 7 – Junction Street, Nowra



■ Photograph 8 – Kerb Build-out, Junction Street, Nowra



- **Photograph 9 – Break in Pedestrian Fence at rear of RSL Club, Princes Highway, Nowra**



- **Photograph 10 – End of Footpath, Princes Highway, Nowra**



■ Photograph 11 – Pedestrian path under Princes Highway Bridge, Nowra



■ Photograph 12 – Pedestrian path under Princes Highway Bridge, Nowra



■ Photograph 13 – Footpath on approach to Princes Highway Bridge, Nowra



■ Photograph 14 – View Towards Swimming Pool, Scenic Drive, Nowra



■ Photograph 15 – One-sided Kerb Build-out, Owen Street, Huskisson



■ Photograph 16 – Pedestrian Refuge, Paradise Beach Road, Sanctuary Point



■ Photograph 17 – Island Point Road, St Georges Basin



■ Photograph 18 – Marked Pedestrian Crossing, Princes Highway, Milton



■ Photograph 19 – Princes Highway, Milton



■ Photograph 20 – Intersection of Princes Highway & Wason Street, Ulladulla



■ Photograph 21 – Pedestrian Refuge, Princes Highway, Ulladulla



■ Photograph 22 – Kerb Build-outs, Boree Street, Ulladulla



■ **Photograph 23 – Shared Pedestrian/Cycle Path, Millards Creek, Ulladulla**



Appendix C Review of Current Design Standards

This section provides a review of the main documents that guide the provision and design of pedestrian facilities, including footpaths and crossing facilities. The review will be used to provide a series of recommendations for use by Shoalhaven City Council when planning and designing future pedestrian facilities.

AUSTROADS Guide to Traffic Engineering Practice: Part 13 Pedestrians

The AUSTROADS Guide to Traffic Engineering Practice: Part 13 Pedestrians has been reviewed and those issues of relevance to the Shoalhaven PAMP study area have been summarised here.

Walkways and footpaths

AUSTROADS sets out a number of general principles for the provision of footpaths as follows:

- ❑ All roads should have some type of walking facility out of the vehicle path.
- ❑ Footpath warrants based solely on pedestrian volume are not practical, partly because individuals tend to walk where there are footpaths and footpaths tend to be built where people walk.
- ❑ The need for footpaths should be related to the functional classification of streets.
- ❑ The appropriate dimensions of a footpath are dependant on location, purpose and anticipated volume or demand on the facility.

AUSTROADS specifies the general minimum width of a footpath to be 1.2m with an absolute minimum of 0.9m. In designing for people with disabilities, it specifies 1.0m - 1.8m width and a width of 1.8m for wheelchairs to pass. However in locations with high pedestrian volumes, or at locations where pedestrians gather (such as school entrances or crossings) footpath widths of 2.4m or higher may be appropriate according to demand.

AUSTROADS highlights the need for flat surfaces. Surfaces should not deviate more than 5mm from a 500mm long straight edge laid anywhere on the surface. Concrete and asphalt are generally recommended, particularly on gradients where polished pavers and bricks can become slippery in the wet.

Further issues raised in relation to the specification of walkways and footpaths include:

- ❑ Height dimensions required for clearance above the human body;
- ❑ Items, such as street furniture, that may obstruct the free path of travel;
- ❑ Crossfall required to provide drainage;
- ❑ Driveways that cross footpaths;
- ❑ Covers and gratings in the footpath that may impede pedestrian movement; and
- ❑ Setback distance from the roadway – in order to maximise pedestrian amenity.

Pram ramps

AUSTROADS states the importance of having the pram ramps aligned in the direction of travel. This is to guide visually impaired pedestrians directly across the road and

not into the direction of travel of vehicles. Additionally, it highlights the importance of these ramps to provide access between different pavement levels for people in wheelchairs and those with a mobility impairment.

It is important to note that a minimum footway width of 1.2m is specified above the top of the ramp to ensure that the ramp does not inconvenience users. AUSTROADS specifies a preferred gradient of 1:10, with an absolute maximum of 1:8. It is also important to avoid the construction of a lip at the drainage channel or line of kerb to allow the free movement of wheelchairs.

Crossing facilities

AUSTROADS provides a number of general guidelines to take into consideration when designing crossing facilities, including:

- ❑ Crossings need to be readily identifiable by motorists and all groups of pedestrians; and
- ❑ Crossings should be designed so that all pedestrians can cross comfortably and safely.

AUSTROADS states that generally a crossing should be provided when at least one of the following conditions exist:

- ❑ where pedestrians cross at numerous locations along a short section of road and a formal crossing point would serve to channel pedestrian crossing activity to a single point;
- ❑ where there is substantial conflict between motorist and pedestrian movements;
- ❑ where the best location for pedestrians to cross may be unclear due to geometric or traffic operational conditions;
- ❑ as recommended as part of a 'safe school routes' scheme.

The document makes recommendations for the implementation of crossing facilities for particular situations. These are described in **Table C.9.3**.

■ **Table C.9.3: Recommended Crossing Facilities**

	Primary Arterial	Secondary/ Sub Arterial	Collector/ Local Crossing Road	Local Street
Pedestrian Operated Signals	A	A	C	C
Pelican	B	A	C	C
Pedestrian Operated School Signals	A	A	B	B
Pedestrian Crossing (Zebra)	C	B	B	B
Children's Crossing	C	B	A	A
Pedestrian Refuge	B	B	A	A
Footpath extension (build out)	C	B	A	A
Road narrowings, indented parking, kerb extension, line marking	C	C	A	A

A - Most likely to be appropriate

B - May be appropriate

C - Inappropriate Treatment

Adapted from *AUSTROADS Guide to Traffic Engineering Practice: Part 13 Pedestrians*

The numerical warrants for the use of pedestrian crossings are given in AS1742.10.

AUSTROADS also discusses a number of further design considerations to take into account when specifying and designing pedestrian crossing facilities. These are:

- ❑ Crossing width – to ensure pedestrians can pass on the crossing
- ❑ Crossing length – should be minimised and be at right angles to the road
- ❑ Desire line – the crossing facility should be placed on or as close as practicable to the desire line.
- ❑ Surface treatment – needs to be easily detectable, stable and slip resistant
- ❑ Sight distances – should be a clear view between approaching pedestrians and vehicles
- ❑ Stop line location – in order to prevent the encroachment of vehicles onto the pedestrian crossing area
- ❑ Turning vehicles – crosswalk lines need to be close to the intersection so that crossing pedestrians can be easily seen by motorists
- ❑ Access to roadway crossings – pram ramps should be provided at all crossing points
- ❑ Orientation – access to crossing points should not require abrupt changes in direction
- ❑ Tactile paving – should be used at access points to crossings in order to assist people with impaired vision
- ❑ Midblock crossings – additional warning to motorists may be required in order to notify them of the presence of pedestrians crossing the road

Australian Model Code for Residential Development

The Australian Model Code for Residential Development (AMCORD) includes guidelines that should be used when planning for new residential developments. However, they are also applicable to existing residential areas and are therefore relevant to the development of this pedestrian plan.

Walkways and footpaths

AMCORD's design principle for the implementation of footpaths is largely based on the function of the road and takes into account the volume of traffic that uses the road. Recommendations in AMCORD include:

- ❑ In access streets carrying higher traffic volumes (in excess of 300vpd), a footpath should be provided on one side of the road.
- ❑ On collector streets, where traffic speeds and volumes are higher, a footpath should be provided on both sides of the street. However, in some circumstances (for example where one side of the street is generally used), a footpath can be omitted.

AMCORD also makes recommendations regarding the location and design of footpaths in an urban area. These include:

- ❑ A footpath adjacent to the kerb is not as convenient as one that is located closer to the front of the property line. This separates pedestrians from parked or moving vehicles, enables the planting of trees between the footpath and the kerb (thus encouraging a canopy effect over the street) and avoids the possibility of motorists parking on the footpath where rollover kerbs are provided. (The personal security issues with this layout need to be carefully considered.)

- ❑ In access lanes and places of low volume access, it is often possible to provide for pedestrians on the street pavement. However this is likely to restrict pedestrian access for people with disabilities. Therefore the likely needs of an existing or future population must be assessed to determine whether a footpath should be provided.

Crossing roads

AMCORD states that controlled access points should be provided with the use of pedestrian refuges, slow points, thresholds or other devices where there is a need to cross a road with a volume greater than 3000vpd.

NSW Roads and Traffic Authority

The Roads and Traffic Authority (RTA) provides standards and warrants for different types of crossings. Numerical warrants give parameters for both pedestrian and vehicle numbers that must be satisfied before a particular type of crossing can be installed. The standards describe the circumstances under which particular types of crossings should be selected. The following paragraphs give an indication of the warrants required for the installation of pedestrian facilities. They should not be read in isolation, rather, they should be considered with RTA numerical warrants for pedestrian crossings and other RTA and Australian Standards.

Marked foot crossings (zebra crossings)

The RTA provides detailed information for the provision of marked foot crossings that include vehicle speed, sight distances and number of traffic lanes to be crossed.

In the event of a site being considered unsuitable provision of a marked foot crossing, alternatives may be considered as described in **Table C.9.4**.

■ **Table C.9.4: Alternative Crossing Solutions (RTA)**

Problem	Alternative
High Speed	Signal controlled crossing, pedestrian refuge island or pedestrian grade separation
Limited sight distance	Relocation of crossing, pedestrian refuge island or pedestrian grade separation
More than four lanes of traffic	Provision of a median island desirably at least 2 metres wide, signal controlled crossing or pedestrian grade separation

RTA documents also provide detailed warrants for the provision of marked foot crossings based on average hourly pedestrian and vehicle flows at the location.

In special circumstances, or if the crossing is used predominantly by children or people with a mobility difficulty, then these thresholds can be reduced.

Mid-block pedestrian signals

The RTA also provides warrants for the installation of mid-block signal controlled pedestrian crossings. These are based on the pedestrian and vehicular flow per hour over either four or eight hour periods.

Intersection crossings

For intersection crossings controlled by traffic signals, a marked foot crossing is generally warranted where a pedestrian movement exceeds 60 persons per hour for

two separate hours. The RTA also recommends that where a signalised crossing is regularly used by a number of visually impaired persons, consideration should be given to the use of audio tactile push buttons.

Pedestrian refuge islands

RTA guidance states that pedestrian refuge islands are generally suited to situations where a pedestrian safety problem exists but where a marked foot crossing would not be suitable because of excessive vehicle approach speeds, limited driver sight distances or insufficient vehicle volume for a formalised pedestrian crossing.

Further reference should be made to the RTA's warrants for pedestrians for additional details on these facilities.

Appendix D Proposed Pedestrian Infrastructure Improvements

Shoalhaven Pedestrian Access and Mobility Plan
Schedule of Engineering Works - Pedestrian Crossing Points (Listed from highest priority to lowest priority)

05-Mar-02

Location	Road No.	Village	Region	Treatment	Priority	Issues	Cost Estimate
Intersection of Kalandar Road & Wallace Street		East Nowra	C	Install traffic signals with pedestrian phases	RTA, High	- Improved safety - Improve access between suburbs - Improve safety of children walking to school	\$200,000
Intersection of Princes Highway & Croobyar Road		Milton	S	Install traffic signals with pedestrian phases	RTA, High	- Improve safety for people/children crossing Highway - Connect proposed shared paths	\$250,000
Intersection of Moss Street & Princes Highway		Nowra	C	Provide pedestrian crossings on all approaches to intersection	High	- Improve pedestrian safety (5 admitted injury accidents in the last 5 years where a pedestrian has been hit crossing or running across the Highway) - Impact on right-turn from Moss Street	\$10,000
Princes Highway		Nowra	C	Block gap in pedestrian fence south of Moss Street	High	- Improve pedestrian safety (2 admitted injury accidents (children 12, 13) in the last 5 years where a pedestrian has been hit crossing the Highway to get to Brereton Street) - Is on pedestrian desire line to get to southern area of high school, may require signs to direct pedestrian to signalised crossing at nearby Moss Street intersection	\$390
Princes Highway		Nowra	C	Block gap in pedestrian fence north of Junction Street	High	- Improve pedestrian safety - Is on pedestrian desire line to get to Nowra Fair, may require pedestrian fences on either side of the Highway to direct pedestrians to the signals at Worrigea and Moss Streets	\$390
Princes Highway		South Nowra	C	Install pedestrian refuge south of Flinders Road	High	- Remove isolation of park on western side - Connect commercial premises on western and eastern sides of highway - Introducing something for vehicles to drive into, requires warning signs, chevrons and lighting	\$60,000
The Wool Road		Vincentia	B	Provide pedestrian refuge with cut-away at roundabout at intersection with Elizabeth Drive	High	- Provide connected route between shared footpath and shops	\$10,000
Intersection of Princes Highway and Village Drive		Ulladulla	S	Provide pedestrian refuge between Illett Street and Village Drive	High	- Improve safety for people/children crossing Highway - Connect proposed shared paths	\$60,000
Boree Street		Ulladulla	S	Survey pedestrian volumes at both kerb build-outs, consider zebra crossings if warrants met	High	- Relatively low traffic volumes - Impede traffic flow	\$500
Bolong Road		Bomaderry	N	Upgrade pedestrian refuge east of Meroo Road to make route from Station to Nowra CBD more seamless	Medium	- Connect residents local road to shops - Connect shops to bus stop - Close proximity to existing refuge at roundabout	\$45,000
McMahons Road		North Nowra	N	Install pedestrian refuge and pram ramps east of Hansons Road	Medium	- Connect residents local road to shops - Connect shops to bus stop - Close proximity to existing refuge at roundabout	\$32,000
Junction Street		Nowra	C	Install zebra crossing at location of current crossing point in main shopping strip	Medium	- Reduce pedestrian delay - Reduce confusion over who has right-of-way - Could impede flow of cars along Junction Street - Require adequate signage and possible trimming of vegetation in planter boxes on either side	\$346
Shoalhaven Street		Nowra	C	Install kerb-buildout with pram ramps opposite entrance to hospital	Medium	- Facility to be confirmed after SKM have seen the new access plans for the hospital site - No continuous pedestrian access route into hospital - High likelihood that people with mobility impairment and elderly will want to walk to the hospital	\$12,800
Princes Highway		Nowra	C	Install pedestrian refuge south of Kinghorne Street	Medium	- Connect residential, school and sports area on eastern side of Highway to main route into town centre on west - Improve safety (one accident in last five years of pedestrian crossing Highway) - Not ideal treatment from pedestrian perspective as still requires pedestrians to cross busy highway without priority, but provides improved safety for existing movements	\$60,000
Bridge Road		Nowra	C	Install pedestrian refuge on Bridge Road, north of Keft Avenue	Medium	- Improve pedestrian safety (2 admitted injury accidents during the past 5 years)	\$30,000
Old Southern Road		Worrigea	C	Install pedestrian refuge at intersection with Kalandar Road	Medium	- Provide connection to new residential areas	\$45,000
Owen Street		Huskisson	B	Mirror kerb build-outs and install a raised zebra crossings in line with the existing build-outs in 2 locations in line with streetscape plan: 1. between Sydney Street and Currumbene Street 2. close to Currumbene Street Interim solution could be implemented along with the carriageway resurfacing by: 1. Construct build-outs on northern side of Owen Street opposite existing build-out points on southern side 2. Will need to remove some parking spaces to ensure sightlines and safety 3. Depending on timescale – install marked pedestrian crossings at these 2 crossing points.	Medium	- Provide place for pedestrians to cross to. - Give pedestrians priority over cars - Improve safety by reducing pedestrians stepping from between parked cars - Remove parking spaces. - However, pedestrians do not cross at one spot (wander across wherever).	\$23,191
Owen Street/Sydney Street		Huskisson	B	Incorporate pedestrian refuges into the design of the proposed roundabout on all approaches	Medium	- Provide pedestrian crossing points across new roundabout - Improve pedestrian access across main through route	\$10,000

Shoalhaven Pedestrian Access and Mobility Plan
Schedule of Engineering Works - Pedestrian Crossing Points (Listed from highest priority to lowest priority)

05-Mar-02

Location	Road No.	Village	Region	Treatment	Priority	Issues	Cost Estimate
Hawke Street/Bowen Street		Huskisson	B	Incorporate pedestrian refuges into the design of the proposed roundabout on all approaches	Medium	- Provide pedestrian crossing points across new roundabout - Improve pedestrian access across main through route	\$10,000
The Wool Road		Vincentia	B	Provide pedestrian refuge on western side of intersection with Beach Road	Medium	- Provide refuge to address existing safety concern for nearby schools and church, survey pedestrians at appropriate period after construction, consider marked zebra crossing is warrants met	\$60,000
Paradise Beach Road		Sanctuary Point	B	Add school crossing in front of school	Medium	- Cater for pedestrian movements on desire line for school children - Close proximity (approximately 200m) to existing refuge east of Kerry Street	\$15,000
Island Point Road		St Georges Basin	B	Install pedestrian refuge crossing point in the proposed median close to St Georges Road	Medium	- Improve pedestrian access and safety along this main through traffic route - Improve pedestrian facilities around shopping centre	\$2,500
Golf Avenue		Mollymook	S	Provide pedestrian refuge (suggested location near intersections with Shackleton Street and Shepherd St)	Medium	- Provide crossing point across long street with footpath on one side and high surrounding landuse activity - Safety & visibility treatment on long straight road	\$90,000
Green Street		Ulladulla	S	Install pedestrian refuge on eastern side of intersection with Boree Street	Medium	- Improve pedestrian safety at this relatively busy mid-block location - Provide connection between Visitors Centre and Boree Street shopping area and footpath	\$45,000
Princes Highway between Wason Street & Deering Street		Ulladulla	S	Install another pedestrian crossing point similar to those north of Wason Street where the cars have right-of-way over pedestrians	Medium	- Reduce haphazard crossing of relatively large numbers of pedestrians across busy road - Pedestrians cross at several locations - Embankment south of South Street excludes this location	\$449,475
Intersection of Kinghorne Street & Worrigea Street		Nowra	C	Install traffic signals with pedestrian phases	Low	- Improved safety for pedestrians (especially the elderly)	\$180,000
Intersection of Jervis Street & Journal Street		East Nowra	C	Install splitter islands with cut-aways at roundabout	Low	- Improved safety of children crossing - Provide facility for children to be taught how to use	\$16,000
Intersection of Wallace Street & St Anne Street		East Nowra	C	Install splitter islands with cut-aways at roundabout	Low	- Improved pedestrian safety - Provide facility for children to be taught how to use	\$16,000
Elizabeth Drive		Vincentia	B	Provide pedestrian refuges on all approaches to the proposed roundabouts at the intersections with Albion Street and Berry Street	Low	- Improve pedestrian access across this main through route - Improve access between residential area and the coastal footpath	\$10,000
The Wool Road		Vincentia	B	Provide appropriate crossing facility to link existing High School with the new retail/leisure development	Low	- Ensure safety of crossing pedestrians, especially children - Need to ensure that the proposed facility is capable of accommodating large crowds of pedestrians – especially at school opening and closing times	\$60,000
East Sanctuary Point residential area		Sanctuary Point	B	Include pedestrian refuges on all approaches to proposed roundabouts in East Sanctuary Point residential area	Low	- Improve pedestrian access and safety within residential area	\$10,000
Island Point Road		St Georges Basin	B	Install pedestrian refuges on all approaches to the proposed roundabouts on Tasman Street and Collett Place	Low	- Improve pedestrian access and safety along this main through traffic route - Improve pedestrian facilities around shopping centre	\$10,000

Notes:

1. Costs exclude GST.
2. Costs are indicative only. They do not include cost items such as project management, survey or design, etc.
3. Costs do not include contingencies.
4. Costs may change during the detailed design stage.

\$1,823,592

Location	Village	Region	From	To	Priority	In Council Strategy for Provision of New Footpaths	Side	Issues	LENGTH	WIDTH	AREA	ELDERLY USE	COMBINED USE	TRAFFIC DENSITY	SAFETY ISSUES	SPECIAL FACTORS	SCORE	COST (\$)
Green Street	Ulladulla	S	St Vincent Street	Boree Street	High		Northern	- Gap in footpath on northern side - Connects existing footpaths	103	1.2	123	3	3	2	2	2	36	\$8,610
Walton Way	Currarong	C	Currarong Pde	Bottle Shop	High		Left		50	1.2	60	2	3	2	2	2	34	\$4,200
Boree Street	Ulladulla	S	South Street	Coles Supermarket	High		Western	- No footpath on either side - Help pedestrians with shopping up steep grade	147	1.2	177	2	3	2	2	2	34	\$12,371
Lyndhurst Drive	Bomaderry	N	Carisbrook Close	Yeoville Drive	High	Yes	Western	- Provide Access to Shopping Centre	50	1.2	60	2	2	3	2	2	33	\$4,200
George Calney Place	Vincentia	B	The Wool Road	School	High	Yes	Left	- Provide access to school	150	1.2	180	1	3	2	2	3	33	\$12,600
Ildewild Avenue	Sanctuary Point	B	Kingsford Smith Crescent	School	High	Yes	Northern	- No footpath on either side - Provide access to Public School	50	1.2	60	1	3	2	2	3	33	\$4,200
Cambewarra Road	Bomaderry	N	Jasmine Drive	Princes Highway	High		Northern	- Provides access to Schools and Pool - Connects two proposed footpaths - Existing track worn in grass on northern side of Cambewarra Road	210	1.2	252	1	3	2	2	2	32	\$17,670
Princes Highway	Bomaderry	N	Narang Road	Cambewarra Road	High		Western	- Currently no footpath on either side of Highway - Provides access to Motels, Service Station - Safety concerns about pedestrians currently walking in parking lane of Highway	397	2.5	992	1	1	3	3	2	32	\$69,440
Clipper Road	East Nowra	C	Park Road	Abergeldie Street	High		Eastern	- No footpath on eastern side - Provide alternative to laneways	196	1.2	236	1	3	2	2	2	32	\$16,498
Clipper Road	East Nowra	C	Kalandar Street	Ninevah Close	High		Eastern	- No footpath on eastern side - Provide alternative to laneways	132	1.2	159	1	3	2	2	2	32	\$11,124
Judith Drive	North Nowra	N	McMahons Road	School	High		Western	- No footpath on either side - Provide access to Public School	636	1.2	763	1	2	1	3	3	31	\$53,414
Princes Highway	Ulladulla	S	St Vincent Street	Millards Creek Bridge	High	Yes	Right	- No footpath on either side - Connects two existing footpaths	717	1.2	860	1	2	3	2	2	31	\$60,228
Princes Highway	Bomaderry	N	Mattes Way	Narang Road	High	Yes	Western	- Currently no footpath on either side of Highway - Provides access to Restaurants, Service Station and houses - Safety concerns about pedestrians currently walking in parking lane of Highway	1219	1.2	1463	1	2	3	2	1	30	\$102,396
Brereton Street	Nowra	C	Moss Street	bend	High	Yes	Eastern	- Provide access from Bus Stop into School	139	1	139	1	1	2	3	3	30	\$9,730
Princes Highway	Milton	S	Gordon Street	Croobyar Street	High		Southern	- No footpath on southern side - Connect to planned shared paths - Connect to proposed traffic signals	523	1.2	628	3	2	3	1	2	30	\$43,940
Bannister Head Road	Mollymook	S	Matron Porter Drive	Tallwood Avenue	High		Northern	- No footpath on either side - Provide access to Shops - Connect two planned shared paths	287	1.2	344	2	2	2	2	2	30	\$24,091
Tallwood Avenue	Mollymook	S	Parkview Parade	Bannister Head Road	High		Eastern	- No footpath on either side - Provide access to Shops - Connect two planned shared paths	405	1.2	486	2	2	2	2	2	30	\$34,012
O'Connell Lane	Nowra	C	Worrigee Street	Junction Street	High	Yes	Left	- Provide access to Shops	137	2.6	356	1	1	2	3	2	29	\$24,934
The Wool Road	Vincentia	B	Elizabeth Street	St George Avenue	High		Southern	- Provide footpath access to bus stop	360	1.2	432	1	2	2	2	3	29	\$30,244
Kerry Street	Sanctuary Point	B	Paradise Beach Road	Clifton Street	High	Yes	Left	- No footpath on either side - Provide access to Shops	199	1.2	239	1	2	2	2	3	29	\$16,716
Green Street	Ulladulla	S	Camden Street	Warden Street	High	Yes	Left	- Gap in footpath on southern side - Provide access to schools, TAFE and sports centre	610	1.2	732	2	3	2	1	2	29	\$51,240
Illaroo Road	North Nowra	N	Philip Drive	Halcot Avenue	High	Yes	Northern	- No footpath on northern side - Provide access to public school and churches	703	1.2	844	1	2	2	2	2	28	\$59,052
SCOTT ST	SHOALHAVEN HDS	N	SCOTT ST	SHOALHAVEN HEADS ROAD	High				115	1.2	138	2	2	1	2	3	28	\$9,660
Albatross Road	Nowra	C	McLean Street	Kalandar Street	High		Southern	- No footpath on either side - Provide access to University, Greyhound Course, Paceway and Racecourse - Connect two existing footpaths	642	2.5	1606	1	2	2	2	2	28	\$112,425
Kinghorne Street	Nowra	C	McKay Street	Princes Highway	High		Eastern	- Connect two planned pedestrian routes	329	2.5	823	1	2	2	2	2	28	\$57,592
Moss Street	Nowra	C	Princes Highway	Wandanlga Crescent	High	Yes	Left	- Provide access to High School	529	1.2	635	1	3	2	1	3	28	\$44,436
Nowra Lane	Nowra	C	Worrigee Street	Junction Street	High	Yes	Right		125	2.6	325	1	2	2	2	2	28	\$22,750
EMMETT ST	CALLALA BAY	B	LACKERSTEEN ST	Australia Ave	High				225	1.2	270	1	2	2	2	2	28	\$18,900
EMMETT ST	CALLALA BAY	B	AUSTRALIA AVE	STOTT CRES	High				726	1.2	871	1	2	2	2	2	28	\$60,984
Tomerong Street	Huskisson	B	Sydney Street	Woollamia Road	High		Southern	- No footpath on southern side - Provide access to school and connect planned pedestrian route	230	1.2	276	1	2	2	2	2	28	\$19,319
Paradise Beach Road	Sanctuary Point	B	Kingsford Smith Crescent	Kerry Street	High	Yes	Right	- No footpath on northern side - Provide access to Shops and Schools	33	1.2	40	2	2	3	1	2	28	\$2,772
Nielson Rd	Sussex Inlet	S	River Rd Nth	Jacobs Drive	High		Right		101	1.2	121	1	2	2	2	2	28	\$8,484
Princes Highway	Milton	S	Retirement Village	Croobyar Street	High		Northern	- No footpath on northern side - Connect to planned shared paths - Connect to proposed traffic signals	373	1.2	448	2	2	3	1	2	28	\$31,332
Camden Street	Ulladulla	S	South Street	Green Street	High		Eastern	- No footpath on either side - Provide access to Schools - Connect two planned shared paths	374	1.2	449	1	2	2	2	2	28	\$31,416
St Vincent Street	Ulladulla	S	e of Narrawalee Street	North Street	High	Yes	Left	- No footpath on either side - Connects two existing footpaths	150	1.5	225	1	2	2	2	2	28	\$15,750
Bunberra Street	Bomaderry	N	Barwon Street	Brinwarr Street	High		Southern	- No footpath on either side, culvert forces pedestrians onto road - Connect to planned footpath east of Brinwarr Street and shops - Access to Railway Station	321	1.2	386	1	2	2	2	1	27	\$26,986
Cambewarra Road	Bomaderry	N	Jasmine Drive	Princes Highway	High		Southern	- Provides access to Schools - Caters for existing pedestrian movement - Reduce incidence of Children walking/riding on road	210	1.2	252	1	3	2	1	2	27	\$17,670

Location	Village	Region	From	To	Priority	In Council Strategy for Provision of New Footpaths	Side	Issues	LENGTH	WIDTH	AREA	ELDERLY USE	COMBINED USE	TRAFFIC DENSITY	SAFETY ISSUES	SPECIAL FACTORS	SCORE	COST (\$)
PRINCE EDWARD AVE	CULBURRA	C	GREENBANK GR	GLENHOLME WAY	High		Right		932	2.5	2330	1	2	2	2	1	27	\$163,100
Park Road	East Nowra	C	Moresby Street	Holloway Drive	High	Yes	Right	- Provide access to schools	51	1.2	61	1	3	2	1	2	27	\$4,284
South Street	Ulladulla	S	Princes Highway	St Vincent Street	High	Yes	Right	- No footpath on either side - Connects two existing footpaths	224	1.2	269	1	2	2	2	1	27	\$18,816
St Vincent Street	Ulladulla	S	40km/h Signs	South Street	High	Yes	Right	- No footpath on either side - Connects two existing footpaths	239	2	478	1	2	2	2	1	27	\$33,460
Brinwarr Street	Bomaderry	N	Keppel Street	s of Bunberra Street	High	Yes	Northern	- No footpath on either side - Provide continuous pedestrian path through Residential area - Access to TAFE	50	2.5	125	1	1	1	3	2	26	\$8,750
Princes Highway	Nowra	C	Moss Street	Bridge Road	High		Western	- Provides access to Shops - Connects two existing footpaths - Existing track worn in grass	742	1.5	1113	1	2	3	1	2	26	\$77,895
Princes Highway	Nowra	C	Plunkett Street	Douglas Street	High	Yes	Right	- No footpath on western side - Provide access to Shops - Extend existing footpath	209	1.5	314	1	2	3	1	2	26	\$21,945
McKay Street	East Nowra	C	Princes Highway	Queenborough Street	High		Northern	- No footpath on either side - Provide access to High School and shops	505	1.2	606	1	2	1	2	3	26	\$42,392
Park Road	East Nowra	C	Clipper Road	Holloway Drive	High		Southern	- No footpath on either side - Provide access to High School and Playing fields	261	1.2	314	1	2	1	2	3	26	\$21,961
Queenborough Street	East Nowra	C	McKay Street	Stuart Street	High		Western	- No footpath on either side - Provide access to High School and shops	259	1.2	311	1	2	1	2	3	26	\$21,787
Church Street	Milton	S	Thomas Street	Princes Highway	High		Western	- No footpath on either side - Provide access to Public School	236	1.2	283	1	2	1	2	3	26	\$19,785
Robin Place	Mollymook	S	Oxley Crescent	end	High		Western	- No footpath on either side - Provide access to School - Connect to planned shared path	134	1.2	161	1	2	1	2	3	26	\$11,252
Princes Highway	Ulladulla	S	Buchan Street	Golf Avenue	High	Yes	Left	- No footpath on either side - Connects two existing footpaths	246	1.2	295	1	1	3	2	1	26	\$20,664
West Bunberra Street	Bomaderry	N	Bunberra Street	Princes Highway	High		Southern	- No footpath on either side - Provide access to Anglican School	166	1.2	199	1	2	1	2	2	25	\$13,910
Douglas Street	Nowra	C	Wallace Street	Shoalhaven Street	High		Northern	- No footpath on either side - Provide access to three public schools, park & motel	1124	1.2	1348	2	2	2	1	2	25	\$94,374
Stuart Street	East Nowra	C	Kalandar Street	Queenborough Street	High		Western	- No footpath on either side - Provide access to High School and shops	268	1.2	322	1	2	1	2	2	25	\$22,551
Kerry Street	St Georges Basin East	B	Wool Lane	e of Jean Street	High		Northern	- No footpath on either side - Connects existing and planned footpaths	1671	1.2	2005	2	2	2	1	2	25	\$140,339
Princes Highway	Ulladulla	S	St Vincent Street	North Street	High	Yes	Left	- No footpath on either side - Connects two existing footpaths	284	1.2	341	1	2	3	1	1	25	\$23,856
Journal Street	Nowra	C	Plunkett Street	Nowra Fair	High	Yes		- Provide access to School, Shopping Centre	40	1.2	48	2	2	1	1	3	23	\$3,360
Worrigee Street	Nowra	C	Burr Avenue	Anderson Street	High	Yes	Left		97	1.2	116	1	2	2	1	2	23	\$8,148
Supply Street	East Nowra	C	Allowrie Crescent	Allowrie Crescent	High	Yes	Left	- Extend existing footpath, continue pedestrian route	191	1.2	229	1	2	2	1	2	23	\$16,044
Paradise Beach Road	Sanctuary Point	B	Kingsford Smith Crescent	Kerry Street	High	Yes	Right	- No footpath on northern side - Provide access to Shops and Schools	288	1.2	346	1	2	2	1	2	23	\$24,192
Tasman Road	St Georges Basin	B	Terry Street	Island Point Road	High		Southern	- No footpath on either side - Connects existing and planned footpaths	264	1.2	317	1	2	2	1	2	23	\$22,185
Deering Street	Ulladulla	S	Thadalee Place	Playing field	High		Northern	- No footpath on either side - Connect planned footpath to planned recreational shared path	210	1.2	251	1	2	2	1	2	23	\$17,601
Village Drive	Ulladulla	S	Green Street	North Street	High		Northern	- No footpath on either side - Connect growing residential area to schools and centre of Ulladulla	602	1.2	723	1	2	2	1	2	23	\$50,594
Kinghorne Street	Nowra	C	Kalandar Street	McKay Street	High	Yes	Right	- Extend existing footpath, continue pedestrian route	278	2.5	695	1	2	2	1	1	22	\$48,650
Nowra Fair	Nowra	C	Nowra Fair	Journal Street	High	Yes		- Provide access to School, Shopping Centre	430	2.2	946	1	1	1	2	3	22	\$66,220
Clipper Road	East Nowra	C	Ninevah Close	Abergeldie Street	High	Yes	Eastern	- No footpath on eastern side - Provide access to schools and shops - Pedestrian access into Residential area	165	1.2	198	1	2	2	1	1	22	\$13,860
Elizabeth Drive	Vincentia	B	Ilfracombe Avenue	Ada Street	High	Yes	Left	- No footpath on either side - Provide access to Shops and Schools	2284	1.2	2741	1	2	2	1	1	22	\$191,856
Did-Dell Street	Ulladulla	S	Rennys Beach Close	South Street	High		Western	- No footpath on either side - Extend recreational walk	582	1.2	698	1	2	2	1	1	22	\$48,893
New Street	Ulladulla	S	Did-Dell Street	end	High		Northern	- No footpath on either side - Connect existing footpath to planned recreational shared path	245	1.2	294	1	2	2	1	1	22	\$20,552
St Vincent Street	Ulladulla	S	Princes Highway	Millards Creek Bridge	High	Yes	Right	- No footpath on either side - Connects two existing footpaths	667	2	1334	1	2	2	1	1	22	\$93,380
Bunberra Street	Bomaderry	N	Tarawal Street	Dalwah Street	High	Yes	Southern	- No footpath on either side - Access to Railway Station and shops	644	1.2	773	2	1	2	1	2	21	\$54,096
Page Avenue	North Nowra	N	Harvey Place	Judith Drive	High	Yes	Northern	- No footpath on either side - Provide access to Public School - Pedestrian access through Residential area	286	1.2	343	1	1	1	2	2	21	\$24,024
Page Avenue	North Nowra	N	Harvey Place	Illaroo Road	High		Northern	- No footpath on either side - Provide access to Public School - Pedestrian access through Residential area	101	1.2	122	1	1	1	2	2	21	\$8,522
Graham Street	Nowra	C	North Street	Council Building	High	Yes	Left		67	1.2	80	1	1	1	2	2	21	\$5,628
Haigh Avenue	Nowra	C	Worrigee Street	Plunkett Street	High	Yes	Left	-Provide access to Businesses	64	1.2	77	1	2	1	1	2	20	\$5,376
Duncan Street	Huskysson	B	Jervis Street	Bowen Street	High		Eastern	- No footpath on either side - Connects two planned shared paths	696	1.2	835	1	2	1	1	2	20	\$58,466
Sydney Street	Huskysson	B	Tomerong Street	Watt Street	High	Yes	Right	- Provide access to schools	86	1.2	103	1	1	2	1	3	20	\$7,224

Location	Village	Region	From	To	Priority	In Council Strategy for Provision of New Footpaths	Side	Issues	LENGTH	WIDTH	AREA	ELDERLY USE	COMBINED USE	TRAFFIC DENSITY	SAFETY ISSUES	SPECIAL FACTORS	SCORE	COST (\$)
Deering Street	Ulladulla	S	Princes Highway	Thadalee Place	High	Yes	Left	- No footpath on either side - Provide access to playing fields and headland	658	1.2	790	1	2	1	1	2	20	\$55,272
North Street	Ulladulla	S	Stanton Drive	Village Drive	High		Southern	- No footpath on either side - Connect growing residential area to schools and centre of Ulladulla	385	1.2	462	1	2	1	1	2	20	\$32,367
North Street	Ulladulla	S	Princes Highway	Jindelara Road	High	Yes	Left		721	1.8	1298	1	1	1	2	1	20	\$90,846
Wool Lane	St Georges Basin East	B	Kerry Street	Proposed Shared Path	High		Western	- No footpath on either side - Connects existing and planned footpaths	102	2.5	254	1	2	1	1	1	19	\$17,811
St Vincent Street	Ulladulla	S	Princes Highway	Kioloa Street	High	Yes	Left	- No footpath on either side - Connects two existing footpaths	297	1.2	356	1	1	2	1	1	18	\$24,948
Greenwell Point Road	Worrigee	C	Rayleigh Drive	Old Southern Road	Medium		Southern	- No footpath on either side - Provide access to new Residential area	494	1.2	593	1	2	3	2	1	30	\$41,512
Scenic Drive	Nowra	C	Swimming Pool	Hospital Entrance	Medium		Southern	- No footpath on either side - Provide access to Hospital	249	1.2	299	2	2	1	2	3	28	\$20,911
Jasmine Drive	Bomaderry	N	Cambewarra Road	Lyndhurst Drive	Medium		Eastern	- Currently no footpaths on either side of the road - Provides access to schools, recreation area, shops and bus stops - Could serve as a pedestrian route for the north Bomaderry area	1259	1.2	1511	1	2	2	2	1	27	\$105,738
Lyndhurst Drive	Bomaderry	N	Jasmine Drive	Yeoville Drive	Medium		Western	- Currently no footpaths on either side of the road - Provides access to schools, recreation area, shops and bus stops - Could serve as a pedestrian route for the north Bomaderry area	682	1.2	819	1	2	2	2	1	27	\$57,317
Lyndhurst Drive	Bomaderry	N	Cambewarra Road	Carisbrook Close	Medium		Western	- Currently no footpaths on either side of the road - Provides access to schools, recreation area, shops and bus stops - Could serve as a pedestrian route for the north Bomaderry area	642	1.2	770	1	2	2	2	1	27	\$53,897
The Wool Road	Basin View	B	John Street	Tallyan Point Road	Medium		Southern	- No footpath on either side - Provide access to Retirement Village and Shops	306	1.2	367	3	1	2	2	1	27	\$25,704
Jervis Street	East Nowra	C	Wallace Street	Pedestrian Crossing	Medium		Southern	- Provide connection between crossing and footpath on Wallace Street	30	1.2	36	1	2	1	2	3	26	\$2,520
Princes Highway	Milton/Ulladulla	S	Croobyar Street	Village Drive	Medium		Off-road	- No footpath on either side - Link all three towns - Shared path similar to Huskisson to Vincentia path - Create recreational activity - Increase accessibility/mobility for young people	3790	2.5	9474	1	1	3	2	1	26	\$663,187
PRINCES HWY (NORTH)	BERRY	N	CITY BOUNDARY	ALBANY ST TO GEORGE ST	Medium		Right		163	1.2	196	1	2	3	1	1	25	\$13,692
BRINAWARR STREET	BOMADERRY	N	CAMBEWARRA ROAD	NEAR TARAWARA STREET	Medium		Left		50	2.5	125	1	1	1	3	1	25	\$8,750
Goolagong Street	North Nowra	N	Page Avenue	bend	Medium		Western	- No footpath on either side - Provide access to Public School and Playing Field	104	1.2	125	1	2	1	2	2	25	\$8,756
Nellore Place	North Nowra	N	Pitt Street	end	Medium		Northern	- No footpath on either side - Provide access to Public School - Connect two planned shared paths	82	1.2	98	1	2	1	2	2	25	\$6,871
MCINTOSH	SHOALHAVEN HEADS	N	MATTHEWS STREET	SWIMMING POOL	Medium		Left		408	1.2	490	2	2	2	1	2	25	\$34,272
John Purcell Way	East Nowra	C	Park Road	Hillcrest Avenue	Medium		Western	- No footpath on either side - Provide access to High School and Playing fields	422	1.2	506	1	1	2	2	3	25	\$35,440
Currambene Street	Huskisson	B	Owen Street	Keppel Street	Medium	Yes	Left	- No footpath on either side - Provide access to Shops - Extend existing footpath	681	1.2	817	2	2	2	1	2	25	\$57,204
JACOBS DR	SUSSEX INLET	S	WUNDA AVE	NIELSON RD	Medium		Left		214	1.2	257	2	2	2	1	2	25	\$17,976
Mitchell Parade	Mollymook	S	Tallwood Avenue	Bannister Head Road	Medium		Northern	- No footpath on either side - Help pedestrians up steep grade	483	1.2	579	1	2	1	2	2	25	\$40,538
Shepherd Street	Mollymook	S	Wallace Street	Ingold Street	Medium	Yes	Right	- Connect existing footpaths	139	1.2	167	2	2	2	1	2	25	\$11,676
Hillcrest Avenue	East Nowra	C	John Purcell Way	Old Southern Road	Medium		Northern	- No footpath on either side - Provide access to High School and Playing fields	1008	1.2	1210	1	1	2	2	2	24	\$84,692
LACKERSTEEN ST	CALLALA BAY	B	SYDNEY AVE	SYDNEY AVE TO EMMETT ST	Medium				336	1.2	403	1	1	2	2	2	24	\$28,224
MURRAMARANG ROAD	BAWLEY POINT	S	SHEARWATER CRES	LURNEA Ave	Medium	Yes	Left		1021	1.2	1225	1	1	2	2	2	24	\$85,764
Hansons Road	North Nowra	N	Dr Campbell's Surgery	McMahons Road	Medium	Yes	Eastern	- No footpath on either side - Provide access to Surgery for Patients	163	1.2	196	2	1	1	2	2	23	\$13,692
SCOTT ST	Shoalhaven Heads	N	STAPLES ST	Woolstencraft St	Medium		Right		63	1.2	76	1	2	2	1	2	23	\$5,292
Shoalhaven Street	Nowra	C	Douglas Street	Junction Street	Medium		Eastern	- No footpath on either side - Provide access to Playing fields and Showground	665	1.2	798	1	2	2	1	2	23	\$55,891
Shoalhaven Street (Con.)	Nowra	C	Scenic Drive	Hyam Street	Medium		Eastern	- No footpath on either side - Provide access to Playing fields and Showground	665	1.2	798	2	2	1	1	3	23	\$55,891
Dent Street	Huskisson	B	Tomerong Street	end	Medium		Western	- No footpath on either side - Provide access to two senior citizen facilities	246	1.2	295	3	2	1	1	1	23	\$20,638
Tallyan Point Road	Basin View	B	The Wool Road	Mathie Street	Medium		Southern	- No footpath on either side - Provide access to Public School - Connect to existing footpath	926	1.2	1111	1	2	2	1	2	23	\$77,784
Deering Street	Ulladulla	S	Camden Street	St Vincent Street	Medium		Southern	- No footpath on either side - Connect two planned shared paths	229	1.2	275	1	2	2	1	2	23	\$19,250
PRINCES HWY (NORTH)	BERRY	N	CITY BOUNDARY	BRIDGE TO ALBERT ST	Medium		Left		262	1.4	367	1	1	3	1	2	22	\$25,676
Lawrence Avenue	Nowra	C	Plunkett Street	Worrigee Street	Medium		Western	-Provide access to shops	223	1.2	268	2	2	1	1	2	22	\$18,766
Lawrence Avenue	Nowra	C	Plunkett Street	Worrigee Street	Medium		Eastern	-Provide access to shops	223	1.2	268	2	2	1	1	2	22	\$18,766
Princes Highway (Con.)	East Nowra	C	Browns Rd	McKay Street	Medium		Eastern	- No footpath on either side - Provide access to High School and Playing fields	996	1.2	1195	1	1	3	1	2	22	\$83,647
Hawke Street	Huskisson	B	Bowen Street	Nowra Street	Medium	Yes	Right	- No footpath on either side	69	1.2	83	1	2	2	1	1	22	\$5,796

Location	Village	Region	From	To	Priority	In Council Strategy for Provision of New Footpaths	Side	Issues	LENGTH	WIDTH	AREA	ELDERLY USE	COMBINED USE	TRAFFIC DENSITY	SAFETY ISSUES	SPECIAL FACTORS	SCORE	COST (\$)
Links Avenue	Sanctuary Point	B	Kerry Street	Waratah Crescent	Medium	Yes	Right	- No footpath on either side - Provide access to Bowling Club	39	1.2	47	2	2	1	1	2	22	\$3,276
RIVER RD (STH)	SUSSEX INLET	S	JACOBS DV	JACOBS DV TO TWO LANE CONCRETE BRIDGE	Medium		Left		678	1.2	814	1	2	2	1	1	22	\$56,952
Matron Porter Drive	Milton/Mollymook	S	Princes Highway	Garside Road	Medium		Off-road	- No footpath on either side - Link all three towns - Shared path similar to Huskisson to Vincentia path - Create recreational activity - Increase accessibility/mobility for young people	1705	2.5	4263	1	2	2	1	1	22	\$298,382
Ocean Street	Mollymook	S	Turner Street	Davies Street	Medium	Yes	Right	- No footpath on either side - Provide access to Shops	81	1.2	97	1	2	2	1	1	22	\$6,804
Barwon Street	Bomaderry	N	Bunberra Street	Cambewarra Road	Medium		Western	- No footpath on either side - Provides access to Anglican School	451	1.2	541	1	1	1	2	2	21	\$37,866
West Birreley Street	Bomaderry	N	Barwon Street	Princes Highway	Medium		Northern	- No footpath on either side - Provides connection between Highway and Sports/School Areas - Provides connection between residential area and Narang Road Walking Trail	259	1.2	311	1	1	1	2	2	21	\$21,740
Page Avenue	North Nowra	N	Judith Drive	Pitt Street	Medium		Northern	- No footpath on either side - Provide access to Public School - Pedestrian access through Residential area	459	1.2	550	1	1	1	2	2	21	\$38,520
Park Road	East Nowra	C	Princes Highway	Moresby Street	Medium		Northern	- No footpath on either side - Provide access to High School and Playing fields	342	1.2	411	1	2	1	1	3	21	\$28,744
ALEXANDRA ST (NTH)	BERRY	N	QUEEN ST	QUEEN ST TO NORTH ST	Medium		Left		140	3.6	504	1	1	1	2	1	20	\$35,280
Brinwarr Street	Bomaderry	N	Bolong Road	Beinda Street	Medium		Northern	- No footpath on either side - Provide continuous pedestrian path through Residential area - Access to TAFE	160	1.2	192	1	1	1	2	1	20	\$13,408
Fuschia Close	Bomaderry	N	Jasmine Drive	Tennis Courts	Medium	Yes	Eastern	- No footpaths on either side of the road - Connect playing fields to Jasmine Drive	125	1.2	150	1	2	1	1	2	20	\$10,500
Osborne Street	Nowra	C	Worrigee Street	Junction Street	Medium	Yes	Right		121	1.2	145	1	2	1	1	2	20	\$10,164
Kameruka Close	East Nowra	C	North Bend	Clipper Road	Medium		Northern	- Connect Vacant Land to Clipper Road	91	1.2	109	1	2	1	1	2	20	\$7,644
Rayleigh Drive	Worrigee	C	Kalandar Street	end	Medium		Western	- No footpath on either side - Provide access to new Residential area	273	1.2	327	1	2	1	1	2	20	\$22,920
Keppel Street	Huskisson	B	Currambene Street	Burrill Street	Medium		Northern	- No footpath on either side - Connects two planned footpaths	397	1.2	476	1	2	1	1	2	20	\$33,336
Old Princes Hwy	Tomerong		South from school		Medium		Left		300	1.2	360	1	2	1	1	2	20	\$25,200
Elizabeth Drive	Vincentia	B	Tharwa Street	Sutton Street	Medium		Western	- No footpath on either side - Provide access to Recreational walk	981	1.2	1178	1	1	1	2	1	20	\$82,429
Sutton Street	Vincentia	B	Elizabeth Street	end	Medium		Western	- No footpath on either side - Provide access to Residential walk	322	1.2	387	1	1	1	2	1	20	\$27,073
Walmer Street	Sanctuary Point	B	Paradise Beach Road	Milson Street	Medium		Western	- No footpath on either side - Provide access to Residential area, recreational facilities and shops	1073	1.2	1288	1	2	1	1	2	20	\$90,138
St Georges Road	St Georges Basin	B	Terry Street	Island Point Road	Medium		Southern	- No footpath on either side - Provide access to Residential area and Shops	265	1.2	318	1	2	1	1	2	20	\$22,290
Terry Street	St Georges Basin	B	St Georges Road	Tasman Road	Medium		Eastern	- No footpath on either side - Provide access to Residential area and Shops	220	1.2	264	1	2	1	1	2	20	\$18,504
THE WOOL RD	BASIN VIEW	B	PRINCES HWY	JOHN ST TO BRIDGE	Medium		Right		2217	1.2	2660	1	1	1	2	1	20	\$186,228
Buchan Street	Ulladulla	S	Golf Avenue	Murramerang Street	Medium		Southern	- No footpath on either side - Connects existing and planned footpaths	336	1.2	403	1	2	1	1	2	20	\$28,203
Burril Street North	Ulladulla	S	North Street	Conjola Street	Medium		Western	- No footpath on either side - Connects existing and planned footpaths	340	1.2	408	1	2	1	1	2	20	\$28,582
NORTH ST (WEST)	ULLADULLA	S	PRINCES HWY	ST VINCENT ST TO CAMDEN ST	Medium		Left		233	1.8	419	1	1	1	2	1	20	\$29,358
NORTH ST (WEST)	ULLADULLA	S	PRINCES HWY	CAMDEN ST TO KALANG AVE	Medium		Left		105	1.8	189	1	1	1	2	1	20	\$13,230
NORTH ST (WEST)	ULLADULLA	S	PRINCES HWY	KALANG ST TO GEMALLA PL	Medium		Left		99	1.8	178	1	1	1	2	1	20	\$12,474
NORTH ST (WEST)	ULLADULLA	S	PRINCES HWY	ST VINCENT ST	Medium		Left		171	1.8	308	1	1	1	2	1	20	\$21,546
Artie Smith Oval Track	Bomaderry	N	Cambewarra Road	Birreley Street	Medium		Off-road	- Improve pavement and widen existing track	267	2.5	667	1	2	1	1	1	19	\$46,673
Meroo Street	Bomaderry	N	Bunberra Street	Birreley Street	Medium	Yes	Southern	- No footpath on southern side - Provide access to Railway Station	200	1.2	240	1	1	2	1	2	19	\$16,800
Castle Glen	North Nowra	N	Jamieson Road	end	Medium		Southern	- No footpath on either side - Provide access to Public School - Pedestrian access through Residential area	310	1.2	373	1	2	1	1	1	19	\$26,079
Berry Street	Nowra	C	Jervis Street	n of Rainford Road	Medium	Yes	Western	- No footpath on western side - Provide access to Public School - Pedestrian access through Residential area	657	1.2	788	1	2	1	1	1	19	\$55,188
Osborne Street	Nowra	C	Worrigee Street	Plunkett Street	Medium	Yes	Left	- Extend existing footpath, continue pedestrian route	186	1.2	223	1	2	1	1	1	19	\$15,624
Burrill Street	Huskisson	B	Keppel Street	Jervis Street	Medium		Eastern	- No footpath on either side - Provide access to Caravan Park	233	1.2	280	1	2	1	1	1	19	\$19,567
Watt Street	Huskisson	B	Park Street	Sydney Street	Medium		Northern	- No footpath on either side - Provide access to playing fields	165	1.2	198	1	2	1	1	1	19	\$13,842
Island Point Road	St Georges Basin	B	Meriton Street	end	Medium		Eastern	- No footpath on either side - Provide access to Recreational Area	486	1.2	584	1	2	1	1	1	19	\$40,860
Augusta Place	Mollymook	S	Clyde Street	end	Medium		Eastern	- No footpath on either side - Connect two planned shared paths	278	2.5	695	1	2	1	1	1	19	\$48,653

Location	Village	Region	From	To	Priority	In Council Strategy for Provision of New Footpaths	Side	Issues	LENGTH	WIDTH	AREA	ELDERLY USE	COMBINED USE	TRAFFIC DENSITY	SAFETY ISSUES	SPECIAL FACTORS	SCORE	COST (\$)
Clyde Street	Mollymook	S	Mitchell Parade	Augusta Place	Medium		Northern	- No footpath on either side - Connect two planned shared paths	734	2.5	1834	1	2	1	1	1	19	\$128,368
North Street	Ulladulla	S	Princes Highway	Dolphin Street	Medium		Southern	- No footpath on either side - Connects existing and planned footpaths	313	1.2	376	1	2	1	1	1	19	\$26,291
Village Drive	Ulladulla	S	Princes Highway	Wattle Drive	Medium		Northern	- No footpath on either side - Connect growing residential area to schools and centre of Ulladulla	243	1.2	291	1	2	1	1	1	19	\$20,388
Village Drive	Ulladulla	S	North Street	Wattle Drive	Medium		Northern	- No footpath on either side - Connect growing residential area to schools and centre of Ulladulla	663	1.2	796	1	2	1	1	1	19	\$55,729
Douglas Street	Nowra	C	Shoalhaven Street	West Street	Low		Northern	- No footpath on either side - Provide access to Playing fields and Showground	215	1.2	258	1	2	2	1	2	23	\$18,031
North Street	Nowra	C	West Street	Shoalhaven Street	Low		Southern	- No footpath on either side - Provide access to Playing fields and Showground	223	1.3	289	1	2	2	1	1	22	\$20,255
Osborne Street	Nowra	C	North Street	Hyam Street	Low		Eastern	- No footpath on either side - Provide access to Hospital and Pool	375	1.2	450	1	2	2	1	1	22	\$31,511
Plunkett Street	Nowra	C	Shoalhaven Street	West Street	Low		Southern	- No footpath on either side - Provide access to Playing fields and Showground	215	1.2	258	1	2	2	1	1	22	\$18,031
Did-Dell Street	Ulladulla	S	Powell Avenue	Rennys Beach Close	Low		Western	- No footpath on either side - Extend recreational walk	95	1.2	114	1	2	2	1	1	22	\$7,957
Princes Highway	Ulladulla	S	100m north of Pittman Avenue	Pittman Avenue	Low		Eastern	- Provide access to bus stop	100	1.2	120	1	1	3	1	2	22	\$8,400
Anson Street	Sanctuary Point	B	Kerry Street	Loralyn Avenue	Low				100	1.2	120	2	2	1	1	1	21	\$8,400
Loralyn Avenue	Sanctuary Point	B	Kerry Street	Loralyn Avenue	Low				100	1.2	120	2	2	1	1	1	21	\$8,400
Princes Highway (Con.)	Ulladulla	S	Village Drive	Buchan Street	Low			- No footpath on either side - Connect two planned footpaths	767	1.2	920	1	1	3	1	1	21	\$64,428
Lumsden Road	North Nowra	N	Judith Drive	end	Low		Southern	- No footpath on either side - Provide access to Shops and Playing Field	251	1.2	302	1	2	1	1	2	20	\$21,117
Greenwell Point Road to Clipper Road	East Nowra	C	Greenwell Point Road	Kameruka Close	Low		Off-road	- Vacant land currently used by pedestrians (track worn in grass)	429	1.2	515	1	2	1	1	2	20	\$36,060
Excellent Street	Vincentia	B	St George Street	Ada Street	Low		Northern	- No footpath on either side - Provide access to shops	550	1.2	660	1	2	1	1	2	20	\$46,206
St George Avenue	Vincentia	B	The Wool Road	Excellent Street	Low		Eastern	- No footpath on either side - Provide access to Residential area	137	1.2	164	1	2	1	1	2	20	\$11,466
Ethel Street	Sanctuary Point	B	Clifton Street	Flora Street	Low	Yes	Right		109	1.2	131	1	1	1	2	1	20	\$9,156
Lawson Way	St Georges Basin East	B	Kerry Street	Cammeray Street	Low		Eastern	- No footpath on either side - Provide access to Sport Complex	210	1.2	251	1	2	1	1	2	20	\$17,603
Wason Street	Milton	S	Croobyar Road	Charles Street	Low		Western	- No footpath on either side - Connects existing and planned footpaths	231	1.2	278	1	2	1	1	2	20	\$19,438
Leo Drive	Mollymook	S	Matron Porter Drive	Macleay Street	Low		Eastern	- No footpath on either side - Provide access for pedestrians with prams, strollers and mobility impairments	1689	1.2	2027	1	1	1	2	1	20	\$141,909
Macleay Street	Mollymook	S	Matron Porter Drive	Leo Drive	Low		Southern	- No footpath on either side - Provide access for pedestrians with prams, strollers and mobility impairments	414	1.2	497	1	1	1	2	1	20	\$34,782
Matron Porter Drive	Mollymook	S	Garside Road	Valley Drive	Low		Southern	- No footpath on either side - Connect two planned shared paths	786	1.2	943	1	1	1	2	1	20	\$66,028
Boag Street Park (Con.)	Ulladulla	S	Princes Highway	Boag Street	Low		Off-Road	- No footpath on either side - Connect residential area to beach and shops	92	1.2	111	1	2	1	1	2	20	\$7,760
Coomea Street	Bomaderry	N	Birreley Street	Cambewarra Road	Low		Southern	- No footpaths on either side - Complete gap in pedestrian network	203	1.2	244	1	2	1	1	1	19	\$17,085
MEROO ST	BOMADERRY	N	BOLONG RD	BUNBERRA ST TO BIRRILEY ST	Low		Right		109	1.2	131	1	1	2	1	2	19	\$9,156
GOLDEN HILL AVE	Shoalhaven Heads	N	SHOALHAVEN HEADS RD	TRENTHAM RD	Low		Right		176	1.2	211	1	1	2	1	2	19	\$14,784
Hyam Street	Nowra	C	Shoalhaven Street	Bridge Road	Low		Southern	- No footpath on either side - Provide access to Hospital	407	1.2	489	2	1	1	1	3	19	\$34,212
Hillcrest Avenue	East Nowra	C	Princes Highway	John Purcell Way	Low		Northern	- No footpath on either side - Provide access to High School and Playing fields	358	1.2	429	1	1	2	1	2	19	\$30,040
Sophia Road	Worrigee	C	Old Southern Road	end	Low		Northern	- No footpath on either side - Provide access to Residential area	321	1.2	385	1	2	1	1	1	19	\$26,963
Bowen Street	Huskisson	B	Sydney Street	Fegen Street	Low		Northern	- No footpath on either side - Provide access to Tourist Parks	635	1.2	762	1	2	1	1	1	19	\$53,354
Nowra Street	Huskisson	B	Fegen Street	Beach Street	Low		Northern	- No footpath on either side - Provide access to existing shared path	145	1.2	174	1	2	1	1	1	19	\$12,200
Sydney Street	Huskisson	B	Bowen Street	Owen Street	Low		Eastern	- Provide alternative access to caravan park	187	1.2	224	1	2	1	1	1	19	\$15,695
Ada Street	Vincentia	B	Elizabeth Street	Excellent Street	Low		Western	- No footpath on either side - Provide access to Residential area	155	1.2	186	1	2	1	1	1	19	\$12,992
Holden Street	Vincentia	B	Elizabeth Street	end	Low		Western	- No footpath on either side - Connects two planned shared paths	111	1.2	133	1	2	1	1	1	19	\$9,324
Loralyn Avenue	St Georges Basin	B	Island Point Road	Meriton Street	Low		Southern	- No footpath on either side - Provide access to Recreational Area	311	1.2	373	1	2	1	1	1	19	\$26,082
Boag Street	Ulladulla	S	Golf Avenue	end	Low		Southern	- No footpath on either side - Connect residential area to beach and shops	735	1.2	882	1	2	1	1	1	19	\$61,764
Wattle Street	Ulladulla	S	Village Drive	end	Low		Southern	- No footpath on either side - Connect growing residential area to schools and centre of Ulladulla	296	1.2	355	1	2	1	1	1	19	\$24,852
Shoalhaven Street	Nowra	C	Douglas Street	Jervis Street	Low		Eastern	- Connect Pedestrian Route	225	1.2	270	1	1	2	1	1	18	\$18,904
West Street	Nowra	C	North Street	Jervis Street	Low		Western	- No footpath on either side - Provide access to Playing fields and Showground	885	1.2	1062	1	1	2	1	1	18	\$74,369

Location	Village	Region	From	To	Priority	In Council Strategy for Provision of New Footpaths	Side	Issues	LENGTH	WIDTH	AREA	ELDERLY USE	COMBINED USE	TRAFFIC DENSITY	SAFETY ISSUES	SPECIAL FACTORS	SCORE	COST (\$)
Old Southern Road	Worrigee	C	Kalandar Street	School	Low		Eastern	- No footpath on either side - Provide access to High School and Residences	2078	1.2	2494	1	1	2	1	1	18	\$174,591
Burton Street (Con.)	Vincentia	B	Existing Footpath	Excellent Street	Low		Eastern	- No footpath on either side - Provide access to Shops	78	1.2	93	1	1	2	1	1	18	\$6,512
Jervis Street	Nowra	C	Shoalhaven Street	Princes Highway	Low		Northern	- No footpath on either side - Connect to existing footpath west of Highway	673	1.2	807	2	1	1	1	1	17	\$56,503
BIMBIMBIE AVE LINK TO LOCHAVEN DR	WEST CAMBEWARRA	N	BIMBIMBIE AVENUE	CUL DE SAC	Low		Right		86	1.2	103	1	1	1	1	2	16	\$7,224
RANGER GV LINK TO LOCHAVEN DR	WEST CAMBEWARRA	N	RANGER GROVE	CUL DE SAC	Low		Right		82	1.2	98	1	1	1	1	2	16	\$6,888
REBECCA GR LINK TO LINCORN CL	WEST CAMBEWARRA	N	REBECCA GROVE	CUL DE SAC	Low		Right		84	1.2	101	1	1	1	1	2	16	\$7,056
Cocos Palm Drive	Bomaderry	N	Jasmine Drive	bend	Low		Southern	- Connects Jasmine Drive to recreational area and shared path	212	1.2	254	1	1	1	1	2	16	\$17,791
Coomea Street	Bomaderry	N	Tarawa Street	w of Bunberra Street	Low	Yes	Southern	- No footpaths on either side - Complete gap in pedestrian network	95	1.2	114	1	1	1	1	2	16	\$7,980
MEROO ST	BOMADERRY	N	BOLONG RD	BUNBERRA ST TO BIRRILEY ST	Low		Right		91	1.2	109	1	1	1	1	2	16	\$7,644
Ambassador Avenue	North Nowra	N	Gleneagle Parade	Clarke Avenue	Low		Northern	- No footpath on either side - Provide access to Public School - Pedestrian access through Residential area	60	1.2	73	1	1	1	1	2	16	\$5,078
Clarke Avenue	North Nowra	N	Hansons Road	Ambassador Avenue	Low		Northern	- No footpath on either side - Provide access to Public School - Pedestrian access through Residential area	227	1.2	272	1	1	1	1	2	16	\$19,046
Coniston Close	North Nowra	N	McMahons Road	end	Low		Eastern	- No footpath on either side - Provide access to Playing Field - Connect two planned shared paths	109	1.2	131	1	1	1	1	2	16	\$9,140
Crest Avenue	North Nowra	N	Illaroo Road	Yurunga Drive	Low		Northern	- No footpath on either side - Provide access to Public School - Pedestrian access through Residential area	191	1.2	230	1	1	1	1	2	16	\$16,076
Federation Place	North Nowra	N	Jamieson Road	end	Low		Southern	- No footpath on either side - Connect to proposed Shared Path	116	1.2	140	1	1	1	1	2	16	\$9,784
Gleneagle Parade	North Nowra	N	Ambassador Avenue	Yurunga Drive	Low		Western	- No footpath on either side - Provide access to Public School - Pedestrian access through Residential area	266	1.2	319	1	1	1	1	2	16	\$22,311
Hansons Road	North Nowra	N	Dr Campbell's Surgery	Clarke Avenue	Low		Northern	- No footpath on either side - Provide access to Public School - Pedestrian access through Residential area	218	1.2	262	1	1	1	1	2	16	\$18,345
Hoskins Street	North Nowra	N	Yurunga Drive	Lucas Street	Low		Northern	- No footpath on either side - Pedestrian access through Residential area	159	1.2	191	1	1	1	1	2	16	\$13,340
Jamieson Road	North Nowra	N	Federation Place	Castle Glen	Low		Southern	- No footpath on either side - Connect to proposed Shared Path	114	1.2	137	1	1	1	1	2	16	\$9,585
Peak Avenue	North Nowra	N	Yurunga Drive	Hansons Road	Low		Northern	- No footpath on either side - Provide access to Public School - Pedestrian access through Residential area	492	1.2	591	1	1	1	1	2	16	\$41,341
Philip Drive	North Nowra	N	Illaroo Road	end	Low		Southern/ Eastern	- No footpath on either side - Connect to proposed Shared Path	472	1.2	567	1	1	1	1	2	16	\$39,690
Yurunga Drive	North Nowra	N	Crest Avenue	Peak Avenue	Low		Northern	- No footpath on either side - Provide access to Public School - Pedestrian access through Residential area	58	1.2	69	1	1	1	1	2	16	\$4,833
Yurunga Drive	North Nowra	N	Gleneagle Parade	end	Low		Northern	- No footpath on either side - Provide access to Public School - Pedestrian access through Residential area	336	1.2	403	1	1	1	1	2	16	\$28,223
Yurunga Drive	North Nowra	N	Rock Hill Road	end	Low		Northern	- No footpath on either side - Pedestrian access through Residential area	580	1.2	696	1	1	1	1	2	16	\$48,718
Bice Street	Nowra	C	Berry Street	Osborne Street	Low		Northern	- Connect two planned pedestrian routes	223	1.2	267	1	1	1	1	2	16	\$18,698
Ferry Lane	Nowra	C	Riverview Road	Terara Road	Low		Western	- No footpath on either side - Provide access to high school and riverbank	228	1.2	274	1	1	1	1	2	16	\$19,182
Hawthorn Avenue	Nowra	C	Lyrebird Drive	existing footpath	Low		Eastern	- Connect Pedestrian Route	94	1.2	113	1	1	1	1	2	16	\$7,915
Lyrebird Drive	Nowra	C	Hawthorn Avenue	Riverside Road	Low		Northern	- Connect Pedestrian Route	755	1.2	906	1	1	1	1	2	16	\$63,437
McDonald Avenue	Nowra	C	Albatross Road	end	Low		Eastern	- Connect two planned pedestrian routes	526	1.2	631	1	1	1	1	2	16	\$44,155
Pleasant Way	Nowra	C	Hawthorn Avenue	Princes Highway	Low		Southern	- Connect Pedestrian Route	150	1.2	181	1	1	1	1	2	16	\$12,636
Riverview Road	Nowra	C	Hawthorn Avenue	Ferry Lane	Low		Southern	- Connect Pedestrian Route	967	1.2	1161	1	1	1	1	2	16	\$81,244
Worrigee Street	Nowra	C	Anderson Street	West Street	Low		Southern	- Connect Pedestrian Route	319	1.2	383	1	1	1	1	2	16	\$26,796
Seccombe Street	East Nowra	C	St Anns Street	Warramunga Street	Low		Southern	- No footpath on either side - Provide access to Residential area	175	1.2	210	1	1	1	1	2	16	\$14,717
St Anns Street	East Nowra	C	Salisbury Drive	Wallace Street	Low		Southern	- No footpath on either side - Provide access to Residential area	694	1.2	833	1	1	1	1	2	16	\$58,322
Warramunga Street	East Nowra	C	Secombe Street	Kalandar Road	Low		Western	- No footpath on either side - Provide access to Residential area	189	1.2	227	1	1	1	1	2	16	\$15,857
Fegen Street	Huskisson	B	Bowen Street	Nowra Street	Low		Eastern	- No footpath on either side - Provide access to Caravan Park	234	1.2	281	1	1	1	1	2	16	\$19,673
Frank Lewis Way	Huskisson	B	Coulon Street	Woollamia Road	Low		Western	- No footpath on either side - Provide access to Recreational area	593	1.2	712	1	1	1	1	2	16	\$49,834
White Sands Park	Huskisson	B	Hawke Street	Caravan Park	Low		Off-road	- Upgrade existing path and connect to Kwake Street with Pram Ramp	252	1.2	303	1	1	1	1	2	16	\$21,198
Community Facility	Vincentia	B	The Wool Road	end	Low		Eastern	- No footpath on either side - Provide access to Residential area	309	1.2	371	1	1	1	1	2	16	\$25,976

Location	Village	Region	From	To	Priority	In Council Strategy for Provision of New Footpaths	Side	Issues	LENGTH	WIDTH	AREA	ELDERLY USE	COMBINED USE	TRAFFIC DENSITY	SAFETY ISSUES	SPECIAL FACTORS	SCORE	COST (\$)
Reserve Road	Basin View	B	School Entrance	Mathie Street	Low		Southern	- No footpath on either side - Provide access to Public School	329	1.2	395	1	1	1	1	2	16	\$27,636
Gordon Street	Milton	S	Croobyar Road	Princes Highway	Low		Western	- No footpath on either side - Provide access to Hospital and Shops	161	1.2	193	1	1	1	1	2	16	\$13,543
Camden Street	Ulladulla	S	playing fields	bend	Low		Eastern	- No footpath on either side - Connect two planned shared paths	697	1.2	836	1	1	1	1	2	16	\$58,537
Carmen Place	Ulladulla	S	Park	Rundle Street	Low		Southern	- No footpath on either side - Connect two planned shared paths	77	1.2	92	1	1	1	1	2	16	\$6,446
Coral Crescent	Ulladulla	S	Pitman Avenue	Dowling Street	Low		Western	- No footpath on either side - Extend recreational walk	89	1.2	107	1	1	1	1	2	16	\$7,467
Coral Crescent	Ulladulla	S	Pitman Avenue	Dowling Street	Low		Off-road	- No footpath on either side - Extend recreational walk	526	1.2	632	1	1	1	1	2	16	\$44,212
Morris Street	Ulladulla	S	Warden Street	bend	Low		Southern	- No footpath on either side - Connect two planned shared paths	313	1.2	376	1	1	1	1	2	16	\$26,302
Morris Street Park	Ulladulla	S	Morris Street	Carmen Place	Low		Off-road	- Connect two planned shared paths	267	2.5	667	1	1	1	1	2	16	\$46,661
Pettys Avenue	Ulladulla	S	Dowling Street	Powell Street	Low		Western	- No footpath on either side - Extend recreational walk	100	1.2	119	1	1	1	1	2	16	\$8,363
Powell Avenue	Ulladulla	S	Pettys Avenue	Did-Dell Street	Low		Northern	- No footpath on either side - Extend recreational walk	329	1.2	395	1	1	1	1	2	16	\$27,651
Rundle Street	Ulladulla	S	Carmen Place	South Street	Low		Western	- No footpath on either side - Connect two planned shared paths	109	1.2	131	1	1	1	1	2	16	\$9,148
South Pacific Crescent	Ulladulla	S	bend	Pitman Avenue (North)	Low		Western	- No footpath on either side - Extend recreational walk	452	1.2	542	1	1	1	1	2	16	\$37,959
NORTH ST	BERRY	N	WOODHILL MTN RD	ALEXANDRA ST TO ALBANY ST	Low		Left		81	1.2	97	1	1	1	1	1	15	\$6,804
Brinwarr Street	Bomaderry	N	s of Bunberra Street	Cambewarra Road	Low		Northern	- No footpath on either side - Provide continuous pedestrian path through Residential area - Access to TAFE	536	1.2	643	1	1	1	1	1	15	\$45,024
Brinwarr Street (Con.)	Bomaderry	N	s of Tarawara Street	Beinda Street	Low		Northern	- No footpath on either side - Provide continuous pedestrian path through Residential area - Access to TAFE	205	1.2	246	1	1	1	1	1	15	\$17,223
Farrelly Place	Bomaderry	N	Cambewarra Road	end	Low		Eastern	- Connects two proposed shared paths	115	1.2	138	1	1	1	1	1	15	\$9,652
Leonard Street	Bomaderry	N	Jasmine Drive	Sampson Street	Low		Southern	- Currently no footpaths on either side of street - Connects Jasmine Drive to proposed shared path - Provides access to Bomaderry Public School	103	1.2	124	1	1	1	1	1	15	\$8,673
Sampson Street	Bomaderry	N	Leonard Street	Ritchie Street	Low		Western	- Currently no footpaths on either side of street - Connects Jasmine Drive to proposed shared path - Provides access to Bomaderry Public School	156	1.2	187	1	1	1	1	1	15	\$13,093
Turley Avenue	Bomaderry	N	Lyndburn Avenue	Princes Highway	Low		Southern	- No footpath on either side - Provide connection to Residences	261	1.2	313	1	1	1	1	1	15	\$21,915
Wasdale Place	Bomaderry	N	Lyndhurst Drive	end	Low		Off-road	- Connects two proposed shared paths	89	2.5	224	1	1	1	1	1	15	\$15,658
Maybern Close	North Nowra	N	Illaroo Road	Farrar Drive	Low		Southern	- No footpath on either side - Provide access to Public School - Connect two planned shared paths	220	1.2	264	1	1	1	1	1	15	\$18,461
SCOTT ST	SHOALHAVEN HDS	N	STAPLES ST	WOOLSTENCRAFT ST TO TALLIA ST	Low		Right		80	1.2	96	1	1	1	1	1	15	\$6,720
Isa Road	Worrigee	C	Old Southern Road	end	Low		Northern	- No footpath on either side - Provide access to Residential area	318	1.2	381	1	1	1	1	1	15	\$26,678
Owen St (Con.)	Huskisson	B	Callala Street	Sydney Street	Low		Southern	- No footpath on either side - Extends existing footpath	225	1.2	270	1	1	1	1	1	15	\$18,907
Park Street	Huskisson	B	Tomerong Street	Owen Street	Low		Western	- No footpath on either side - Provide access to playing fields	340	1.2	408	1	1	1	1	1	15	\$28,581
Plantation Point Parade	Vincentia	B	Elizabeth Street	Jervis Street	Low		Northern	- No footpath on either side - Provide access to Residential area	1002	1.2	1203	1	1	1	1	1	15	\$84,184
MacGibbons Parade	Old Erowal Bay	B	The Wool Road	McGowen Street	Low		Northern	- No footpath on either side - Connects existing and planned shared paths	787	1.2	945	1	1	1	1	1	15	\$66,130
McGowen Street	Old Erowal Bay	B	MacGibbons Parade	Page Street	Low		Eastern	- No footpath on either side - Connects existing and planned shared paths	394	1.2	473	1	1	1	1	1	15	\$33,105
JACOBS DR	SUSSEX INLET	S	SUSSEX INLET DV	TWO LANE CONCRETE BRIDGE TO PLOVER CL	Low		Left		810	1.2	972	1	1	1	1	1	15	\$68,040
Pittman Avenue	Ulladulla	S	Princes Highway	South Pacific Crescent	Low		Southern	- Provide access to bus stop	456	1.2	547	1	1	1	1	1	15	\$38,311

Notes:

1. Costs exclude GST.

2. Costs are indicative only. They do not include cost items such as project management, survey or design, etc.

3. Costs do not include contingencies.

4. Costs may change during the detailed design stage.

\$9,390,346

Shoalhaven Pedestrian Access and Mobility Plan
Schedule of Engineering Works - Other Works (Listed from highest priority to lowest priority)

05-Mar-02

Location	Road No.	Village	Region	Treatment	Priority	Issues	Cost Estimate
Princes Highway		Bomaderry	N	Review street lighting Between Beinda Street and West Bunberra Street	High	- Improve night-time pedestrian safety (2 admitted injury accidents in last five years at night)	\$20,000
Bunberra Street		Bomaderry	N	Provide pram rampsIntersection of Robey Street and Bunberra Street or West Bunberra Street and Bunberra Street	High	- Improve pedestrian safety and convenience	\$2,000
Marriott Park		Nowra	C	Improve lighting of paths within park	High	- Improve pedestrian safety and convenience	\$15,000
Bridge Road		Nowra	C	Signpost way to Bens Walk	High	- Increase local knowledge of recreational activity	\$300
North Street		Nowra	C	Signpost way to Bens Walk	High	- Increase local knowledge of recreational activity	\$300
Junction Street		Nowra	C	Signpost way to Bens Walk	High	- Increase local knowledge of recreational activity	\$300
Douglas Street		Nowra	C	Signpost way to Bens Walk	High	- Increase local knowledge of recreational activity	\$300
Shoalhaven River Bridge		Nowra	C	Lighting and re-surface existing footpath, signpost access from Highway	High	- Improve pedestrian safety and convenience	\$19,600
Owen Street		Huskisson	B	Install light & pole outside Huskisson Hotel	High	- Improve pedestrian safety by improving Driver vision	\$5,000
Owen Street & Hawke Street		North Nowra	N	Install sign to walking track	High	- Increase use of recreational walk	\$150
The Wool Road/Elizabeth Drive		Vincentia	B	Provide paved ramp from pram ramp on south-western corner up to footpath from the shops	High	- Improve pedestrian access from shared footpath to shops - Eliminate having to push prams up steep grassed embankment - Gradient may require long ramp	\$6,375
Princes Highway opposite library		Milton	S	Install pram ramps at kerb build-outs	High	- Allow for people with prams & mobility impaired - May clash with pavement design	\$2,000
Intersection of Princes Highway and Croobyar Road		Milton	S	Install signs to proposed shared path	High	- Increase use of proposed shared paths between Milton, Mollymook and Ulladulla	\$600
Intersection of Princes Highway and Village Drive		Ulladulla	S	Install signs to proposed shared path	High	- Increase use of proposed shared paths between Milton, Mollymook and Ulladulla	\$300
Intersection of Princes Highway and Golf Avenue		Ulladulla	S	Install signs to proposed shared path	High	- Increase use of proposed shared paths between Milton, Mollymook and Ulladulla	\$300
Princes Highway, south of Millards Creek		Ulladulla	S	Install signs to proposed shared path	High	- Increase use of proposed shared paths between Milton, Mollymook and Ulladulla	\$300
Narang Road & Princes Highway		Bomaderry	N	Install signs to walking track, improve condition of entry to track by regrading entry to carpark to avoid drainage problems, ensure identifiable off-road footpath from Princes Highway to track entrance	Medium	- Increase use of recreational walk	\$1,797
Kinghorne Street		Nowra	C	Install pram ramps where missing	Medium	- Improve functionality of existing pedestrian facility - Improve safety	\$10,000
Wallace Street		Nowra East	C	Install guardrail on footpath across bridge	Medium	- Improved safety - Possible reduced width of footpath/bridge	\$8,400
Intersection of Princes Highway and Church Street		Milton	S	Install pram ramp on south-west corner running along Highway	Medium	- Complete ramps on each corner	\$1,000
Parking off Boree Street		Ulladulla	S	Remove/rearrange parking to provide continuous pedestrian route from Princes Highway to supermarkets across the car park	Medium	- Reduce pedestrians having to weave between parked cars - Provide continuous pedestrian route between retail areas - Loss of small number of parking spaces	\$12,640
Intersection of Princes Highway & South Street		Ulladulla	S	Provide pram ramp and footpath on north-west corner to make continuous footpath along western side	Medium	- Connect footpath	\$2,700
Illaroo Road @ Pitt Street		North Nowra	N	Install sign to walking track	Low	- Increase use of proposed recreational walk	\$300

Notes:

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3. Costs do not include contingencies.
4. Costs may change during the detailed design stage.

\$109,662

Appendix E Concept Design Sketches

