

# Residential Green Travel Plan

14-18 Boondah  
Road, Warriewood



Prepared for Meriton  
Apartments Pty Ltd  
July 2012

# Document Information

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## Appendices

### **Appendix A Travel information pack example**

# 1 Introduction

Cardno have been engaged by Meriton Apartments Pty Ltd to prepare a Green Travel Plan for the new residential development at 14-18 Boondah Road, Warriewood. The Meriton development presents an opportunity to contribute to the sustainable growth of Sydney through the provision of new housing within the established suburb of Warriewood located on Sydney's Northern Beaches.

The concept plan and Stage 1 Project Application prepared by Architectus Group on behalf of Meriton Apartments Pty Ltd was approved by the Planning and Assessment Commission (PAC) with conditions in January 2011.

The approved concept plan comprises:

- > 16 residential buildings containing 600 units;
- > Child care centre;
- > Two retail tenancies; and
- > Gymnasium and swimming pool for use by private residents.

The Stage 1 project application approval included:

- > Demolition of existing structures and vegetation.
- > Construction of earth works and flood mitigation works.
- > Construction of internal access road and connection with McPherson Street and Boondah Road and private road network.
- > 313 units situated across 7 residential buildings with basement car parking.
- > Landscaping and construction of public pedestrian cycle way through the site.

This Green Travel Plan has been prepared in relation to approved concept plan and Stage 1 application approval and supports a modification application to reduce the approved number of car parking spaces required at the site.

The key sustainable outcomes of the development as stipulated by the approved concept plan prepared by Architectus are outlined below.

- *Increased residential dwelling supply in an established suburb within the Sydney Metropolitan Region, providing an infill development opportunity, to make efficient use of land.*
- *Encourage the use of walking, cycling and public transport in providing housing within walking distance to local bus routes and enhancing the local pedestrian and cycling networks.*
- *Provide for a mix of residential apartments, including studio 1, 2 and 3 bedroom units. This will increase the variety of housing choices in the area, which are predominantly detached dwellings.*
- *The development will provide for more affordable housing options within Pittwater LGA.*
- *The provision of new housing in an accessible area, well serviced by a bus network, education and health infrastructure and a range of other social infrastructure.*
- *Provide new cycling and pedestrian paths to enhance and provide linkages to existing cycle and pedestrian infrastructure for the use of the broader community within Warriewood Valley.*
- *Increase the use of local amenities and infrastructure improving their overall viability and local significance.*
- *Landscape design of parks with passive and active recreational facilities such as BBQ areas, grassed open space, swimming pool and gymnasium.*

Cardno have prepared this plan in conjunction with the following documentation prepared on behalf of Meriton in relation to the approved concept plan and Stage 1 works.

- > Environmental Assessment Proposed Concept Plan and Stage 1 Project, prepared by Architectus Group dated March 2010;
- > Traffic Impact Assessment and Transport Management and Accessibility Plan prepared by Halcrow dated February 2010; and
- > Assessment of Traffic and Assess Implications prepared by Transport and Traffic Planning Associates dated February 2010.

## **1.1 Purpose of Green Travel Plan**

In-line with NSW State government initiatives all development should be accessible and well-connected with:

- > facilities that promote safe walking and cycling;
- > good public transport facilities; and
- > local shops and service.

Residential development should also encourage and support a shift in travel mode share away from private vehicles to more sustainable modes, including public transport, walking and cycling.

## **1.2 Content**

The Green Travel Plan considers the site context, approved development, existing and planned transport facilities, local demographics and travel behaviour and desired transport improvements.

The strategies developed as part of the Green Travel Plan seek to reduce car usage in-line with transport and travel initiatives established through the NSW State Plan 2010 and the Metropolitan Plan for Sydney 2010.

## 2 Vision, Goals and Objectives

### 2.1 Vision and targets

#### NSW State Plan 2010

The NSW State Plan 2010 stipulates mode share targets for the Sydney Metropolitan Region by 2016 for public transport, walking and cycling and self containment.

#### Public Transport Targets

*"Increase the share of commute trips made by public transport:  
To and from Sydney CBD during peak hours to 80% by 2016."*

*"Increase the proportion of total journeys to work by public transport in the Sydney  
Metropolitan Region to 28% by 2016."*

#### Walking and Cycling Targets

*"Increase the mode share of bicycle trips made in the Greater Sydney region, at a local  
and district level, to 5% by 2016."*

#### Self-contained Targets

*"28% of trips to work will be taken by public transport by 2016."*

#### Metropolitan Transport Plan 2010

The *Metropolitan Transport Plan - Connecting the City of Cities 2010* outlines a vision for Sydney's future of transport network. The Plan formalises the following journey to work public transport mode share target:

*"28% of trips to work will be taken by public transport by 2016."*

#### NSW Bike Plan

The *NSW State Plan 2010* sets ambitious targets for widespread bike use to 2016. The Plan states that the NSW Government will encourage safer cycling and increased levels of cycling, to:

*"Increase the share of short trips by Bike in Greater Sydney for all travel purposes to five  
per cent by 2016 ."*

*"Double the use of cycling to get to work, across all of NSW, between 2006 and 2016."*

2.2 Goals

Sustainable transport targets set by the NSW State Government can be achieved at the site through the implementation of green travel strategies, which promote the use of active and public transport modes to residents (and visitors) travelling to and from the site.

The primary goal of the green travel plan is to reduce car usage and achieve a high mode share for active and public transport as outlined in Diagram 1.

Diagram 2.1 – Green Travel Plan Goals



## 2.3 Objectives

To achieve the vision and goals proposed under this Green Travel Strategy the following objectives should be considered to support to promote sustainable travel modes and a reduced vehicle usage.

It is recognised that the concept plan for the Meriton development has already provided pedestrian and cyclist access (and end of trip storage areas) for community use and has therefore already satisfied many of the objectives proposed under this Green Travel Plan.



### WALKING

Make walking the easiest form of transport to undertake.

- Provide a connected network of cycle paths/footpaths of sufficient width, grade, illumination and surface conditions to promote safe access to destinations.
- Ensure the permeability of the neighborhood by providing pedestrian and cycle connections through the site via laneways and shortcuts designed appropriately and in accordance with Crime Prevention Through Environmental Design (CPTED) principles.
- Ensure the internal road network balances connectivity with amenity, creating equal priority for all road users.



### CYCLING

Implement cycling supportive elements which cover the entire journey, including post-journey support.

- Provide high quality cycle facilities.
- Provide facilities for all users.
- Provide high quality end of trip facilities.
- Make sure cycle routes are safe, pleasant, legible and are connected.
- Make cycling hassle-free and easy.
- Make cycling a spontaneous act.





## PUBLIC TRANSPORT

Seek public transport improvements critical to the success of Meriton Development. Find ways to make better use of the existing facilities and services.

- Provide interim and short term improvements to bus capacity and route integration.
- Advocate for increases in bus capacity to key destinations, and new services.
- Advocate for prioritised planning and commitment to new forms of public transport in Warriewood.
- Encouraging public transport use for those trips that are not catered for by walking or cycling.



## PRIVATE MOTOR VEHICLES

Make private motor vehicle travel possible for those who need to use it, but not preferable for all who could use it.

- Minimise private vehicle use car for all users.
- Limit availability of off-street car parking spaces
- Create a legible network of streets, with specific purpose and design.
- Encourage high occupancy trips where private motor vehicles are used.
- Encourage and facilitate the promotion of car pool schemes



## PARKING

Ensure provisions of parking spaces do not encourage and facilitate additional vehicle usage.

- Examine innovative approaches and ideas in the provision of parking, including car share schemes, smart parking technology, etc
- Limit availability of off-street car parking spaces

## 3 Site Context and Built Form

### 3.1 Site location and Existing Uses

The site is legally described as Lot 20 in DP 1080979 and is known as 14-18 Boondah Road, Warriewood Valley. The site is known as Buffer Area 3 in the Warriewood Valley.

The site is irregular in shape and has a total site area of 8.116 ha and slopes gently towards Warriewood Wetlands. The site has been modified over past years and the majority of the original vegetation has been removed or disturbed from agricultural production (market gardens, nurseries), a large poplar plantation, grazing, and assorted outbuildings.

Currently the majority of the land is cleared and used for residential purposes associated with agriculture in a broad acre subdivision pattern.

The current uses of the land include nurseries and horse stables as well as residential dwellings. Areas of remnant vegetation are evident along natural watercourses and within and adjacent to the Warriewood wetlands.

**Map 3.1 Site Location**



**Source: Environmental Assessment prepared by Architectus.**



### 3.2 Surrounding Uses

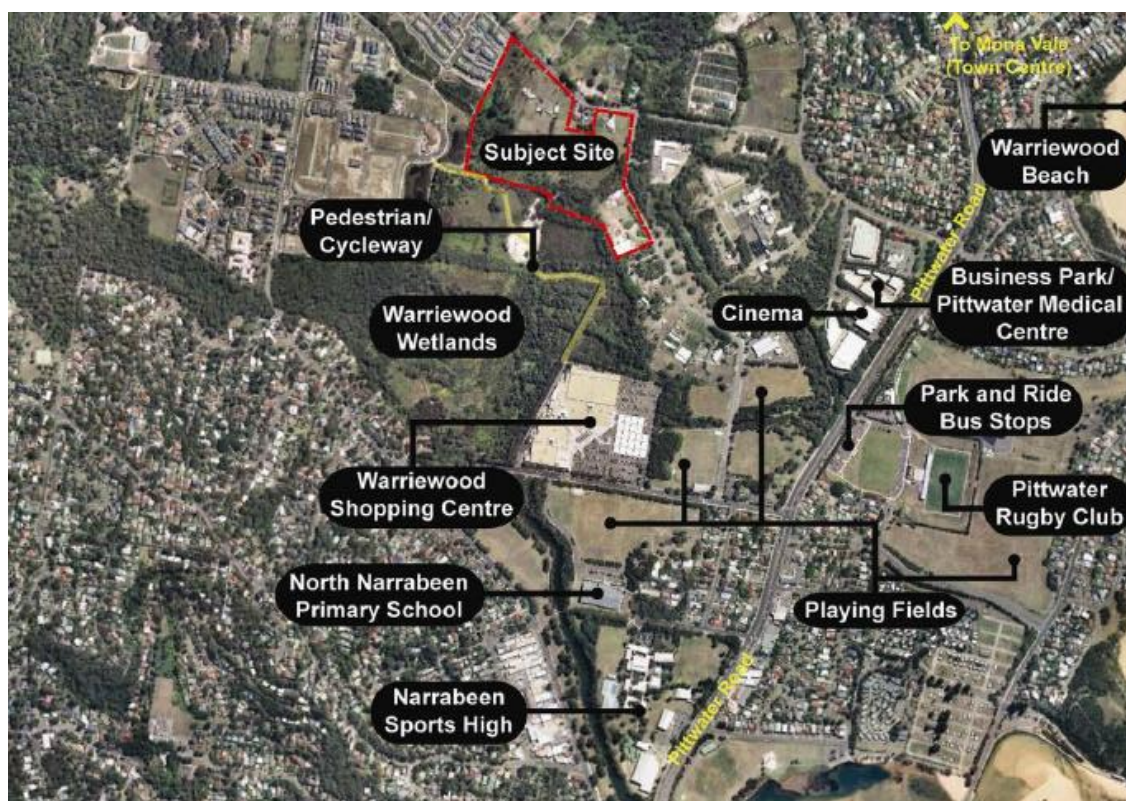
The site location context map (**Figure 3.2**) shows the site and immediate surrounding area, which comprise the following land uses:

- > The residential development sites of (Sectors 11 and 12) to the west;
- > The Warriewood wetlands and (Sector 15) to the south; Warriewood Brook, Seniors living Development within Buffer Area 2 to the north and The Sydney Water Sewage Treatment Plant, to the east.
- > Surrounding areas are being redeveloped for residential housing and seniors housing, predominately two and three storeys in nature in the form of detached dwellings, terraced housing and residential flat buildings.

The site adjoins Warriewood wetlands, which covers approximately 260 Ha and is in close proximity to Warriewood Shopping Centre as well as recreational facilities such as playing fields, Boondah Reserve, Jacksons Reserve, Progress Park, North Narrabeen Reserve, a golf driving range is situated on Pittwater Road, an indoor sports centre at Narrabeen Sports High. Warriewood Beach, Narrabeen Lakes and North Narrabeen Beach are all within close proximity. A public high school (Narrabeen Sports High) and primary school (North Narrabeen Primary School) are both situated on Namona Street, North Narrabeen, approximately 1.5kms away. Marta Maria Catholic School is also situated within 1.5kms away on Forest Road, Warriewood. The subject site adjoins the Warriewood Wetlands, a high quality visual and landscape element containing a boardwalk that links the site and surrounding residential development areas within Warriewood Valley with Warriewood Shopping Centre.

Fern Creek runs along the south western boundary of the site and provides a valuable source of public open space. Two heritage items is situated within the near vicinity of the site, a 'federation cottage' at 21 McPherson Street, Warriewood to the west of the site and a 'memorial bus shelter', which is situated on McPherson Street, opposite flower power. Warriewood Valley is ideally situated to utilise and build upon the existing services and facilities within Pittwater. The development provides an opportunity to meet this demand; with 600 dwellings that will help Pittwater LGA meet its dwelling targets as stipulated in the Metropolitan Strategy.

**Map 3.2 Site Location Context Map**



**Source: Environmental Assessment prepared by Architectus.**

## 4 Existing Transport Environment

### 4.1 Introduction

This section provides a description of existing transport infrastructure and services. It also provides an overview of the planned transport connections incorporated into the development to ensure residents are provided with easy access to sustainable transport options available within the area.

The proposed development provides an opportunity to improve sustainable transport options within

### 4.2 Walking and Cycling

In 2005 Pittwater Council prepared a *Walks and Rides Strategy Masterplan* a strategy to provide appropriate footpaths and cycle ways throughout the LGA to link neighbourhoods and activity centres, as well as providing connections with recreational land uses in and around the Pittwater LGA. The outcome of the masterplan was a detailed works program which identified what was required to provide an adequate pedestrian network.

Council's program identified that within the vicinity of the proposed development the following works should be undertaken:

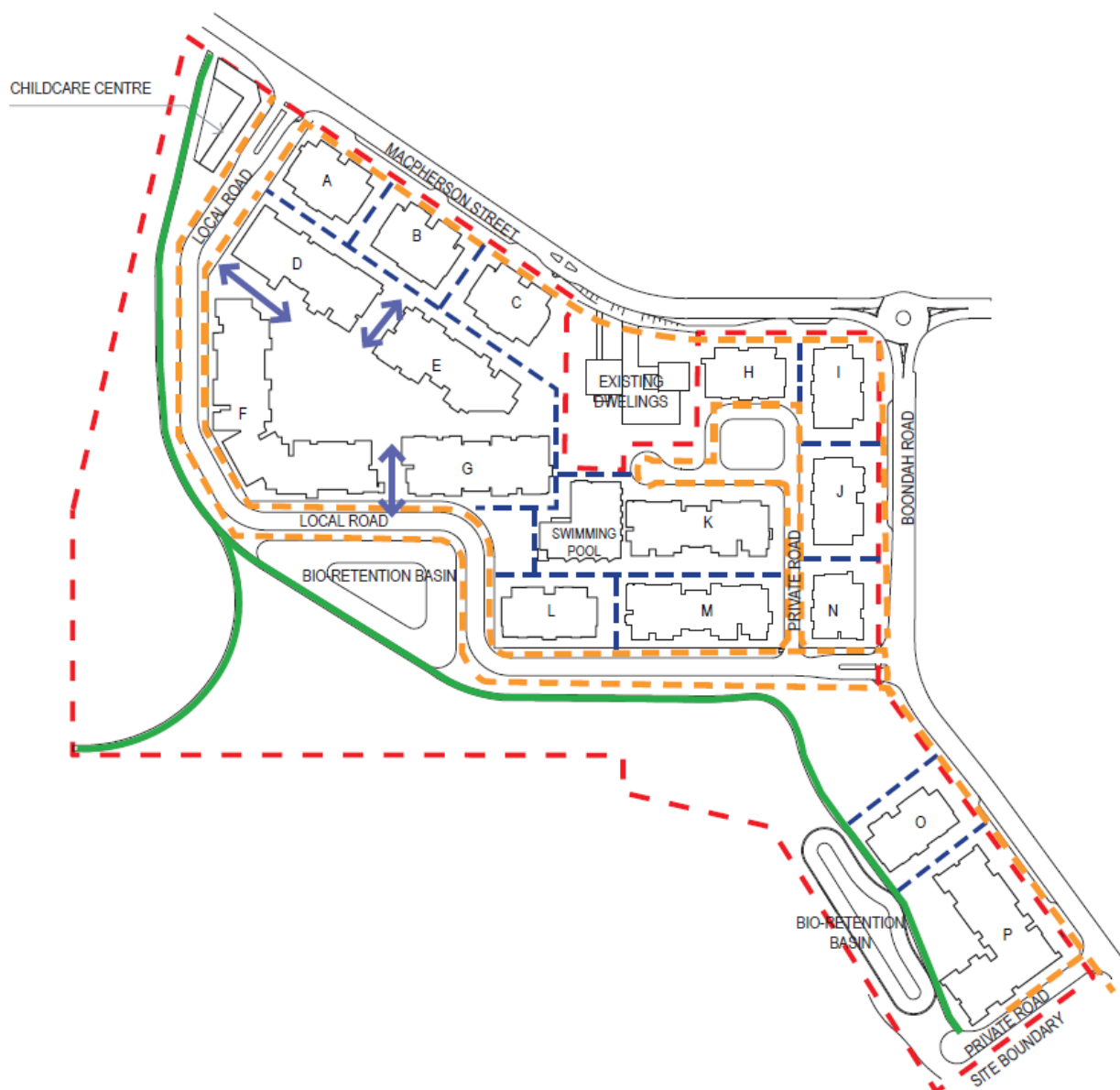
- > The existing shared path along McPherson Street near the proposed development be extended to Mona Vale Road to the north and Warriewood Road to the east.
- > A shared path is provided along Boondah Road south to Jacksons Road.

The planned extension of the pedestrian and cycling network will connect the Meriton development to the surrounding recreational and retail land uses, reducing the demand for car trips and improving the active and sustainable transport connections in the area.

The Meriton development also provides a through-site link for cyclists and pedestrians to utilise. This link will strengthen the existing cycle network and increase connectivity between the site and surrounding uses. Internal paths include upgrades of footpaths along McPherson Street and Boondah Street.

The approved pedestrian and cycle routes within the site are shown on Map 4.1. Existing cycle routes within Pittwater LGA are shown on Map 4.2

Map 4.1 Approved Pedestrian and Cycle Routes



#### PEDESTRIAN FOOTPATH AND CYCLEWAY NETWORK

- — — Primary Pedestrian Footpath
- — — Secondary Pedestrian Footpath
- — — Pedestrian Footpath / Cycleway
- ↔ Pedestrian Private Access to Common Open Space

Source: Architectus Group

### 4.3 Public Transport

Warriewood is currently serviced by Sydney buses and Forest Coach lines bus services. Only Sydney Buses routes operate within the Warriewood valley itself, with Forest Coach Lines operating the following two services along Mona Vale Road being route 196 between Gordon and Mona Vale and Route 197 between Macquarie University and Moa Vale, via Gordon

Sydney Buses operates three routes within the Warriewood Valley:

- > Route 185 which operates along Pittwater Road, Jacksons Road, Garden Street, Macpherson Street (east), Warriewood Road, Foley Street, Mona Vale Road, Samuel Street, Parkland Road, and Waratah Street to Mona Vale.
- > Route L85 which operates along Pittwater Road, Jacksons Road, Garden Street, Macpherson Street (east), Warriewood Road, Foley Street, Mona Vale Road, Samuel Street, Parkland Road, and Waratah Street to Mona Vale. This operates with limited stops between Wynyard and Mona Vale.
- > Route 182 which operates along Pittwater Road, Jacksons Road, Garden Street, Macpherson Street (west), Mona Vale Road, Pittwater Road and Park Street to Mona Vale. Route 182 operates between Narrabeen and Mona Vale, via Elanora Heights and North Narrabeen.

Table 4.1 presents key service information for existing bus routes nearby the subject site. It specifies for each route number the route path, location of the closest bus stop to the site, service frequency and service frequency categories.

**Table 4.1 Local Bus Service Information**

Route and bus service	AM peak (0700 – 0900)			PM peak (1600 – 1800)			Off peak (0900 – 1600)		
	Weekday	Sat	Sun	Weekday	Sat	Sun	Weekday	Sat	Sun
182 Mona Vale to Narrabeen	1	1	-	3	1	-	7	3	-
182 Narrabeen to Mona Vale	4	-	-	2	1	-	7	4	-
L85 / 185 Mona Vale to City	5	4	1	4	4	2	14	14	7
L85 / 185 City to Mona Vale	3	2	2	4	4	2	14	14	7

**Source: Sydney Bus Information 2011**

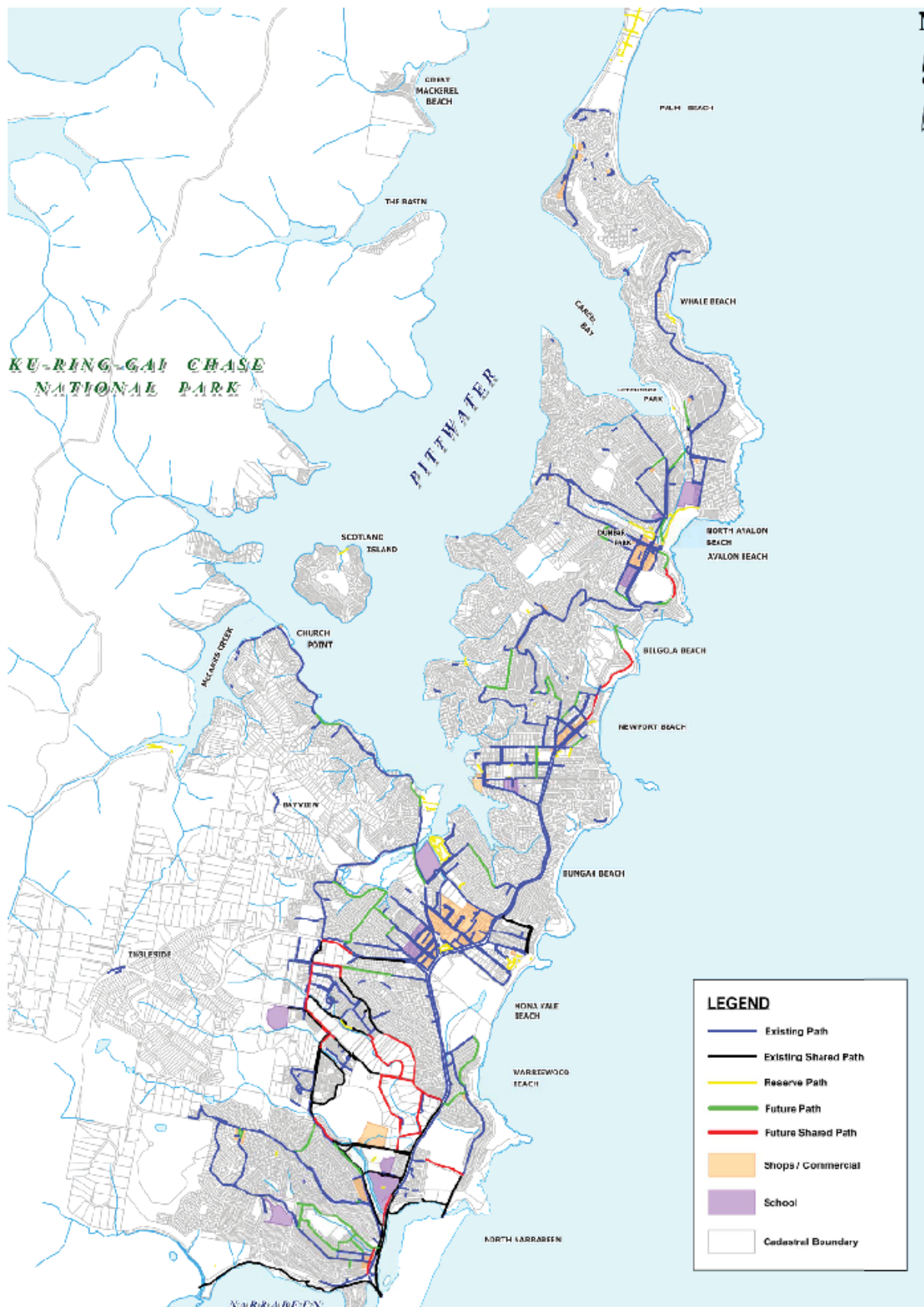
In addition, numerous Sydney Buses routes operate through Mona Vale along Pittwater Road and Barrenjoey Road, including:

- > Route 187/L87/E87 Sydney CBD – Newport
- > Route 188/L88/E89 Sydney CBD – Avalon
- > E88 Sydney CBD – Careel Head Road
- > Route 190/L90 Sydney CBD – Palm Beach
- > Route L60 Dee Why – Mona Vale
- > Route 155 and 156 and E86 Manly – Mc Carrs Creek
- > Route 184/L84/E84 Sydney CBD – Mona Vale

Sydney Buses has indicated that service levels can be reviewed once the Meriton development has been completed given addition housing offered by the development offers the opportunity to provide a higher level of bus services in Warriewood. In addition, significant bus service and bus transit laneway improvements within Pittwater LGA are proposed by the NSW State Government under the Metropolitan Plan for Sydney 2036.



### Map 4.1 Existing Cycle Routes



**Source: Pittwater Walks and Roads Strategy Masterplan Review March 2012**

#### 4.4 Local Road Network

**Pittwater Road:** is State road and major route on the northern beaches which runs from Manly in the south to Mona Vale in the north, passing through a number of centres including Brookvale, Dee Why, Collaroy and Narrabeen. It varies in size from four to six lanes, and has a speed limit ranging from 60 to 70km/h.

**Mona Vale Road:** is a State road that runs from Mona Vale, at the intersection of Pittwater Road and Barrenjoey Road to the Pacific Highway at Pymble, passing the northern boundary of the study area to Ingleside, Terry Hills and St Ives.

**Barrenjoey Road:** a State road and arterial route connecting the Warringah-Pittwater peninsular from Manly.

**Powderworks Road:** a Regional Road and major collector road route connecting Mona Vale Road and Pittwater Road.

**Macpherson Street, Ponderosa Parade, Bonndah Road and Warriewood Road:** collector road routes connecting Mona Vale Road and Pittwater Road.

Traffic controls which exist on the road system serving the site comprise:

- > A large roundabout at the Mona Vale Road and Ponderosa;
- > The traffic signals at the intersection of:
  - Mona Vale Road and Pittwater Road;
  - Pittwater Road and Warriewood;
  - Pittwater Road and Jacksons Road; and
  - Pittwater Road and Garden Street.
- > Round-a-bout on the Macpherson Street at the access road intersection opposite the site;
- > The 'light traffic' restriction on Warriewood Road and the central section of MacPherson Street;
- > The 50km/h speed limit on the local roads including Macpherson Street and Boondah Road;
- > The proposed roundabout at the Macpherson Street and Garden Street intersection.

#### 4.5 Parking

In addition to car parking spaces provided on the site as part of the development off-street parking will also be available for residents and visitors. On street parking in this locality is currently unrestricted.

The *Assessment of Traffic and Access Implications* report prepared by Transport and Traffic Planning Associates submitted with the concept plan, supports the number of car parking spaces proposed at the site to accommodate the approved development and notes that limiting on-site car parking is a typical mechanism to promote public transport, walking and cycling.

#### 4.6 Desired Transport Infrastructure and Service Improvements

The NSW State Plan guides outcomes in priority areas such as integrated transport and land use planning until 2016 to achieve the following targets: Increase the number of jobs close to home; Improve housing affordability; Improve public transport system; Provide reliable public transport; Improve road safety; Increase walking and cycling; and Improve the road network.

The Metropolitan Plan for Sydney 2036 realises these targets and provides a framework for sustainable growth and development across Sydney.

The key directions for the Pittwater LGA are provided under the draft North East Subregional Strategy are:

- > Implement the Strategic Bus Corridors to provide better links to Major Centres, hospitals, education facilities and other facilities within and outside the region.
- > Improve the key transport corridors to, from and within the subregion.
- > Ensure good access to the planned new hospital at Frenchs Forest.
- > Improve internal transport circulation, including walking and cycling networks.

To achieve these directions the draft North East Subregional Strategy proposes the following improvements within the region:



## Improve Transport between Sydney's Centres

### Extend the Rail and Bus Networks to Connect Centres

- > The Ministry of Transport to coordinate the implementation of the North West – Harbour – South West Rail Link.
- > The Ministry of Transport, together with bus operators and local Council's to implement the integrated network of Strategic Bus Corridors progressively from 2006, with improved bus priority on all corridors.
- > The RTA, together with the Ministry of Transport and local Councils, to implement bus priority progressively to target a 25km/h average bus speed on each of these corridors. The Government is committed to fast tracking priority bus networks.
- > RTA, together with the Public Transport Ticketing Corporation, to implement electronic bus priority.
- > The Ministry of Transport, together with bus operators, to implement the new integrated bus service networks for networks for the new contract regions, including improved east-west bus services on the Strategic Bus Corridors to Chatswood and Macquarie Park.

### Extend Transport Networks to Serve Growth

- > The RTA to:
  - Continue to coordinate road upgrades in existing urban areas, including bus priority measures to enhance bus services;
  - Widen Mona Vale Road at Ingleside;
  - Improve pinch points on Pittwater Road, Mona Vale to Balgowlah; and
  - Improve pinch points on Warringah Road and Boundary Street, Allambie to Chatswood.
- > The State Government to investigate measures to deliver increased public transport capacity cost effective, and protect corridors for higher capacity modes in the North East Subregion.

**Connect Regions and Economic Gateways within the Greater Metropolitan Region:** including the Hunter, Illawarra, Blue Mountains and Central Coast, and the economic gateways of Sydney Airport and Port Botany.

## Improve the Existing Transport System

**Complete Major Transport Infrastructure Project Underway:** that will provide benefit to the region such as Chatswood Transport Interchange.

### Improve the Integration of Public Transport

- > The Ministry of Transport, together with transport operators, to improve the integration of bus and ferry services.
- > The Public Transport Ticketing Corporation, together with the Ministry of Transport to introduce integrated ticketing.
- > Improve transport information system and 13500 Transport Info Line.
- > State and Local Government to improve existing interchanges, bus stops and wharfs including the upgrade of Manly Ferry Wharf and wharves in Pittwater.
- > Complete the replacement of the ageing articulated bus fleet and provide additional buses to cater for new growth targets.

### Improve Operational Management of Existing Transport Networks

- > The RTA to continue to manage traffic on Sydney's major road network: including Pittwater Road, Mona Vale Road and Warringah Road.
- > State and Local Government to develop and implement coordinated packages of road safety, traffic, intersection, lane capacity, maintenance, and public transport service improvements for major corridors such as Pittwater Road and Warringah Road.
- > Sydney Ferries to undertake periodical reviews of the ferry and Jetcat services at Manly Warf to ensure services meet needs of users.
- > The Ministry of Transport to continue to examine options to improve taxi services.
- > The State Transit Authority to redevelop Brookvale bus stop.

## **Influence Travel Choices to Encourage More Sustainable Travel**

### **Improve Local and Regional Walking and Cycling Networks**

- > RTA and local Councils to continue to upgrade walking and cycling facilities.
- > Align local walking and cycle networks with public transport routes.
- > Improve foreshore access for pedestrians.

### **Implement a Metropolitan Parking Policy**

- > Local government to implement a parking policy that will guide the supply and management of parking support the use of sustainable transport modes.

### **Implement Travel Smart Voluntary Travel Behaviour Change Programs**

- > Implement the Travel Smart Centres program to provide transport information and schools program.

In addition these directions under the draft North East Subregional Strategy, the NSW State Government has announced the following transport improvements within the north east region:

- > Widen Mona Vale Road to four lanes between Mona Vale and Terrey Hills.
- > System upgrade of the Spit Bridge: improve the longevity and reliability of the operating system that open and closes the bridge.
- > Spit Bridge widening/redevelopment options to reduce travel times including: new six lane bridge over Spit, tunnel under Military Road and priority bus lanes.

## 5 Demographic and Travel Behaviour

This section presents existing trends and community profile information for Warriewood suburb and Pittwater LGA, with a particular focus on mode of travel, by what means of transport people travel for their daily activities including trips to work. Investigations have also been undertaken into dwelling types and car ownership per dwelling type.

### 5.1 Demographic Profile

Table 5.1 presents a summary of key statistics for Warriewood and Pittwater LGA.

**Table 5.1 – Key Statistic Table**

	Warriewood Suburb		Pittwater LGA	
	Number	%	Number	%
<b>Key Statistics</b>				
Total Population	6,146	100.0	57,155	100.0
<b>Age Structure</b>				
0 to 14 years	1,459	23.7	11,430	20.0
15 to 29 years	813	13.2	8,483	14.9
30 to 59 years	2,674	43.6	23,724	41.5
60 years and over	1,198	19.5	13,516	23.6
Median Age	38	-	42	-
Total Persons	6,146	100.0	57,155	100.0
<b>Families</b>				
Couple without child(ren)	512	30.3	5,783	36.7
Couple with child(ren)	928	54.8	7,956	50.5
One parent family	238	14.1	1,888	12.0
Total families	1,678	100.0	15,627	100.0
<b>Dwelling Structure</b>				
Separate house	1,223	61.9	14,632	74.0
Medium Density	637	32.3	2,167	11.0
High Density	102	5.2	2,825	14.0
Other	10	0.5	143	0.1
Total Dwellings	1,972	100.0	19,767	100.0

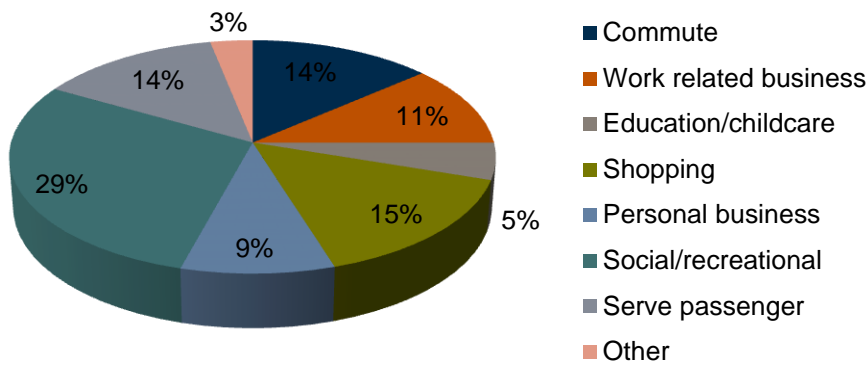
**Source: Australian Bureau of Statistics, 2011 Census Data**

- > The current population of Warriewood represents 10.7% of total population of Pittwater LGA.
- > Almost three quarters (71.3%) of the population were born in Australia.
- > Over a quarter (37.5%) of the population of Warriewood currently live in medium to high density housing.
- > Over half of family households include couple with children.

### 5.2 Trip Purpose

Trip purpose data was obtained for Pittwater LGA from the 2007 Household Travel Survey (HTS). The proportional split of all trips by purpose within the LGA is illustrated through Figure 5.2.

Figure 5.2 Trip Purposes, Pittwater LGA 2007/08



Based on this data, the most trips undertaken by people within Pittwater LGA are for social or recreational a purpose, which represents 29% of all trips. Trips undertaken for education or childcare, shopping and commuting also represent a significant proportion of all trips. Work related business trips only represents 11% of all trips undertaken in the LGA

### 5.3 Mode of Travel

Mode of Travel data was obtained for Pittwater LGA from the 2007 HTS. Details of the proportional split of all trips by mode of travel in Pittwater are shown in table 5.2. Analysis revealed that the most common mode of travel made by residents of Pittwater LGA were 'Vehicle driver' (49%), 'Vehicle passenger' (20%), and 'Walk Only' (18%).

Table 5.2 Trip Purposes, Pittwater LGA 2007/08

Mode of travel (trips)	% of Total Trips
Vehicle driver	49%
Vehicle passenger	20%
Train	1%
Bus	4%
Walk only	18%
Other modes	8%

Source: NSW 2007 Household Travel Survey

## 5.4 Car ownership

It is important that car ownership data is considered in relation to dwelling types when preparing a Green Travel Plan for a multi-unit residential development to ensure car ownership figures reflect those residents that live in units only. Based on dwelling structure data provided under table 5.1, 37.5% of Warriewood residents live in either medium or high density residential buildings.

The percentage of cars per occupied dwelling type is shown in table 5.3. This data has been sourced from Meriton based on 2006 ASB data.

Results show that 69% of households in detached houses have two or more cars compared to 33.3% for units. Further, these figures show that over half of residents living in units only own one car.

**Table 5.3 – Percentage of Cars Per Occupied Dwelling Type 2006.**

Car numbers	0 cars	1 car	2 cars	3+ cars
Detached house	4.0%	26.6%	49.2%	20.1%
Units	15.5%	51.1%	28.7%	4.6%

**Source: ABS Census data 2006**

## 5.5 Employment Locations of Pittwater Residents

Data showing the location of where Pittwater LGA residents are employed is based on 2006 Australian Census Data as shown in Table 5.3.

Based on this data, it is acknowledged that nearly 40% of Pittwater residents also work within the LGA. This result correlates with the 'purpose of trip results' which shows business related and commuter trips are being relatively low compared with social or recreation trips.

**Table 5.4 – Employment Location of Pittwater Residents – Top 10 LGA's**







Rank	LGA	Number	%
1	Pittwater	10,614	38.9
2	Warringah	4,737	17.4
3	Sydney	2,616	9.6
4	North Sydney	1,000	3.7
5	Willoughby	915	3.4
6	Ryde	637	2.3
7	Manly	629	2.3
8	Ku-ring-gai	519	1.9
9	Hornsby	280	1.0
10	Botany Bay	277	1.0









**Source: ABS Census data 2006**








## 6 Green Travel Strategies

The key objective of developing a Green Travel Plan is to provide a range of strategies that guide the use of sustainable travel options to residents, visitors and staff of the Meriton development.

Strategies developed as part of this Plan aim to discourage private vehicle usage and promote a mode share shift to sustainable travel options available within the locality. Strategies have been specifically tailored in context to Pittwater LGA having regard to existing and planned active and public transport routes within the locality.

Mode	Strategy	Rational/Benefit
	Provide high pedestrian permeability by ensuring high quality pedestrian footpaths.	A permeable pedestrian network would minimise walking distances and improve pedestrian comfort.  Footpaths should also be DDA compliant, catering for all user groups.
 	Provide adequate lighting along pedestrian/cycle routes to promote passive surveillance at night time.	Ensure active travel is an attractive mode choice by ensuring safety along pedestrian and cycle routes to local bus stops, shops and other destinations.
 	Ensure those bus stops that are most likely to be utilised by residents include: shelter, timetable information, lighting and seating.	Providing comfort and information at bus stops will promote and encourage residents to use public transport.
	Install way finding signage within and around the site to assist in the legibility/permeability for pedestrians and cyclists trying to locate surrounding destinations, such as bus stops and shops.	Way finding is an essential measure which assists in promoting legibility/permeability. These measures will assist pedestrians and cyclists in locating bus stops, and path connections.

		
	New cycle pathways need to connect to the existing cycle network along McPherson Street, connecting with the wider network of off-road paths.	Will promote usage and user satisfaction.
	Provide high quality bike parking for residents and visitors.	Provision of bike parking in a free, secure and convenient location will help to promote cycling.
  	<p>Provide Travel Information Guideline Pack to all residents. The package should provide maps showing pedestrian and cycle connections, bus stops and routes and bus timetables.</p> <p>Cycle storage information should also be provided.</p>	The Travel Information Pack will ensure all residents are aware of active and public transport modes and how they can utilise all modes effectively and safely.
 	Lobby and encourage the relevant Government authorities to improve sustainable transport in the area, including increasing bus services within the area and filling gaps in the existing pedestrian/cycle network.	Ensure that active and public transport services to the site are maximised and take into consideration new housing and population growth.

		
	Issue all residents with free public transport tickets, pre-loaded with credit as part of their Welcome Travel Information Pack upon settlement.	Encourage and promote public transport use.
	Consider a free shuttle bus service to nearby retail centres.	Provides an incentive to use sustainable transport in daily trips with minimal expense to the user.
 	Limit off-street car parking to manage private vehicle demand and encourage travel by active and public transport modes.	Providing an abundant amount of off-street car parking encourages vehicle usage. Limiting car parking spaces on site will ensure residents utilise alternative modes of transport.
	Develop a carpooling program guided by a formal framework in which participants can sign up for carpooling support, news and special event information.	Carpooling can be an effective way to reduce private vehicle usage. Careful planning and commitment to ongoing organisational support will be required.
	Engage a car share scheme to allow residents vehicle access when they need to without the high upfront costs of car ownership and parking. Car share spaces should be provided in accordance with an appropriate rate advised by a car share feasibility study for the precinct. This will determine the appropriate number of car share spaces to be provided.	Car share schemes can reduce private vehicle usage, particularly for short discretionary journeys. Prevalence of a car share scheme in a local neighbourhood may, over time, encourage residents to reconsider the need for a private vehicle.



## 7 Guidelines for Travel Information Packages

An information package must be prepared for distribution to residents or employees as part of the Green Travel Plan, and should be tailored accordingly. The information package should be made available in hardcopy format and PDF format for distribution, preferably through a web based platform.

The Travel Guide Package will comprise the following elements:

**A map which clearly identifies:**

- > Pedestrian pathways including estimated time taken from the site to reach public transport (bus stops) locations by foot.
- > Illustrative network of bus routes and cycle paths.
- > Availability of facilities for cyclists including secure bike parking.

**An information section with:**

- > Directions to the site (public transport and walking).
- > Key bus routes information.
- > Access arrangements for people with disabilities.
- > Bicycle storage facilities.
- > An environmental message which highlights the benefits of sustainable transport
- > Further information including phone numbers and web addresses for public transport and taxi service provides.
- > Pricing structures for public transport.
- > Promotional messages which highlight the benefits of sustainable transport for the environment, road network congestion, costs, health and social well being.
- > Distribute maps of cycling routes with resident information packs.
- > Information on bicycle shops and repairs in the local area.

**Appendix A** provides a sample of a typical travel information pack.



# APPENDIX A

Travel information  
pack example







BROOKS REACH COMMUNITY

# Transport Access Guide.



PREPARED FOR STOCKLAND  
PREPARED BY CARDNO



# Welcome

**Brooks Reach** is an exciting new community, west of Dapto, which is the very first part of a whole new precinct, that will bring new focus and energy to the Dapto area.

From the start, we want to get things right and ensure our community is happy, healthy and accessible. Part of that commitment is making sure all members of the community are provided with the best possible opportunities, tools, information and support regarding transport options.

Therefore, we have established and implemented a number of initiatives which will make moving around a little easier...

THIS BOOKLET HAS BEEN DEVELOPED FOR BROOKS REACH TO INFORM, EDUCATE AND SUPPORT RESIDENTS TO HELP MAKE USING SUSTAINABLE TRANSPORT AN EASIER CHOICE.

The information in this guide will help you make decisions about how to get around the community or destinations located nearby whether it be by:

- Walking
- Cycling
- Public transport
- Car.

## Nearby attractions

In the area surrounding Brooks Reach there are a range of destinations in easy walking or cycling distance.

Within 2km's of Brooks Reach there are retail and educational facilities in Horsley.

Dapto is the nearest medium-sized town, located approximately 3km east of the site, including Dapto Town Centre with retail, employment, education and leisure facilities.

The proposed Bong Bong Road Commercial Centre west, will be 200m walking distance of the community.



“BROOKS BEACH STRIVES TO DELIVER A HEALTHY, HAPPY AND ACCESSIBLE COMMUNITY WHERE TRAVEL CHOICE AND SUSTAINABLE TRAVEL OPTIONS ARE PRESENT, PROMOTED AND POPULAR.”





# Walking & cycling

## Pedestrian Facilities

High quality pedestrian environments are to be provided within Brooks Reach. With attractive car free routes available to access the future Bong Bong Commercial Centre, taking the kids for a stroll to the shops or meeting friends for a coffee will be an enjoyable and relaxing experience.

## Cycle Routes

Within Brooks Reach a number of cycleways have been identified, connecting future destinations such as Bong Bong Commercial Centre.

Cycling facilities are in place along the western end of Bong Bong Road and proposed cycle routes will connect Brooks Reach north to Horsley and east along the coast line, from Kanahooka through to Wollongong.

The *City of Wollongong Bicycle Plan 2006-2011* identifies proposed bicycle paths for the whole of the local government area and shown on the opposite page.

## Did you know?

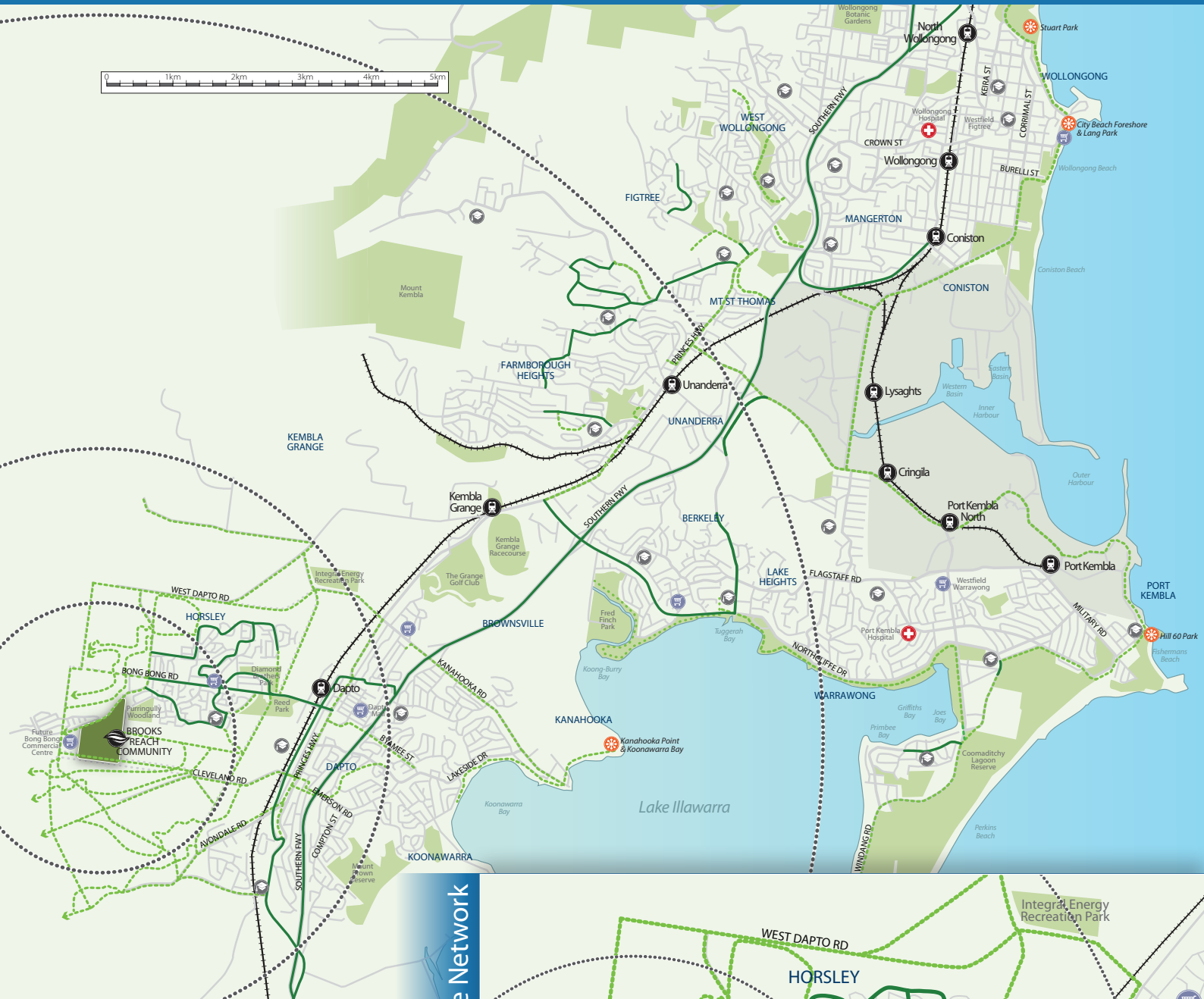
The Brooks Reach development will include several areas of welcoming green space, locations where families, friends and neighbours can meet to socialise or be active together. The local Brooks Reach park will have seating areas, water fountains and bike racks, so it'll be the perfect cycling destination or space to teach the kids to ride safely.







## > Surrounding Cycle Network



### Key

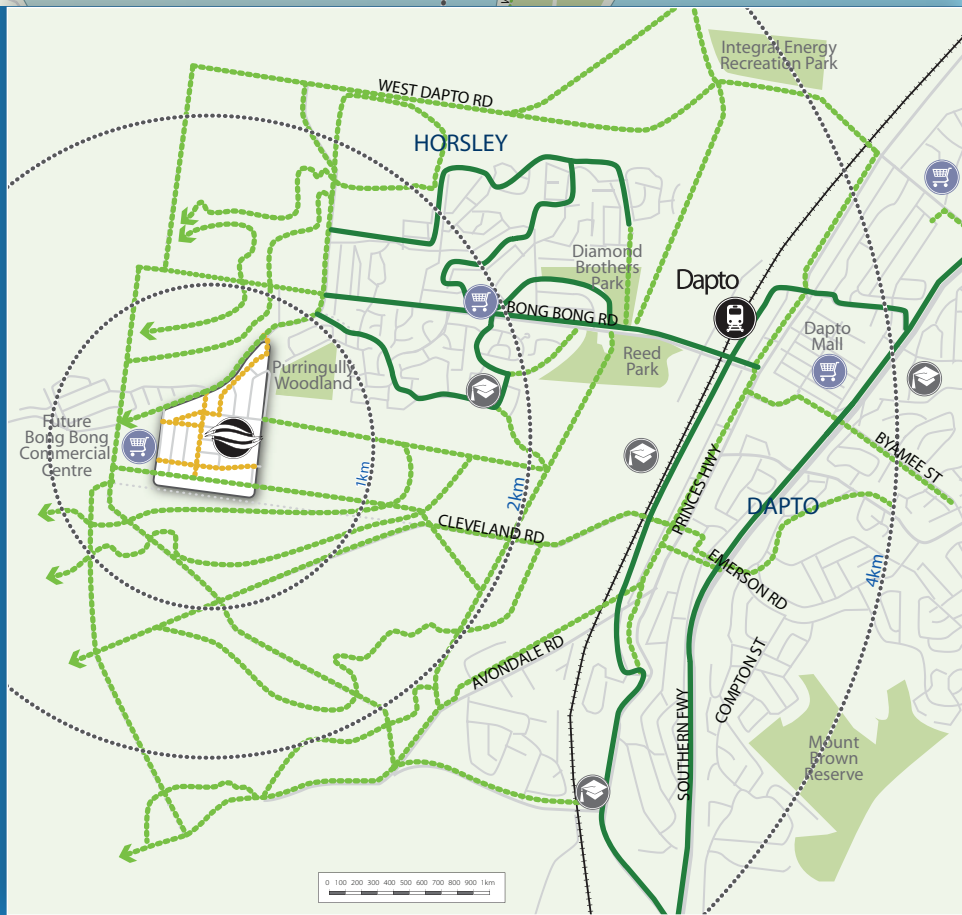
- Site location
- Existing road network
- Proposed new road
- Retail
- Schools
- Key attractors
- Rail
- 1km radius = 15min walk
- 2km radius = 30 min walk
- 4km radius = 12 min cycle

### Cycleways

- Existing routes
- Proposed routes
- Internal ped/cyc connections

Note: This map is indicative only and not to scale.

## > Internal Cycle Network





# Public transport

## Existing train services

The centre of the site is located approximately 3.5 kilometres west of the nearest rail station, Dapto.

The rail station is served by the South Coast rail line. Weekday train services generally run as follows, though the services are not consistently staggered:

## Services to Wollongong

- **AM Peak** services depart Dapto rail station on average every 30 minutes (between 5am-8am)
- **Off Peak** services depart Dapto rail station on average every 60 minutes
- **PM Peak** services depart Dapto rail station on average every 30 minutes (between 4pm-8pm)

## Services to Dapto

- **PM Peak** services arrive at Dapto rail station on average every 30 minutes (between 3:30pm-7:30pm)
- **All other times** services arrive at Dapto rail station on average every 60 minutes.

The rail service operates seven days a week, with reduced services on weekends.

Services operate until approximately midnight.

A return trip to Wollongong from Dapto Train Station costs \$8.00 or \$5.40 off peak. Advance purchase tickets are also available (weekly, fortnightly, monthly, quarterly and annually) at a discounted rate.

Dapto station operates a 'kiss and ride' and a commuter car park is available close by.



### Did you know?

To avoid traffic you could park at Dapto rail station and catch a train to work - even better, car pool with a neighbour!

## > Surrounding Public Transport Network



### Key

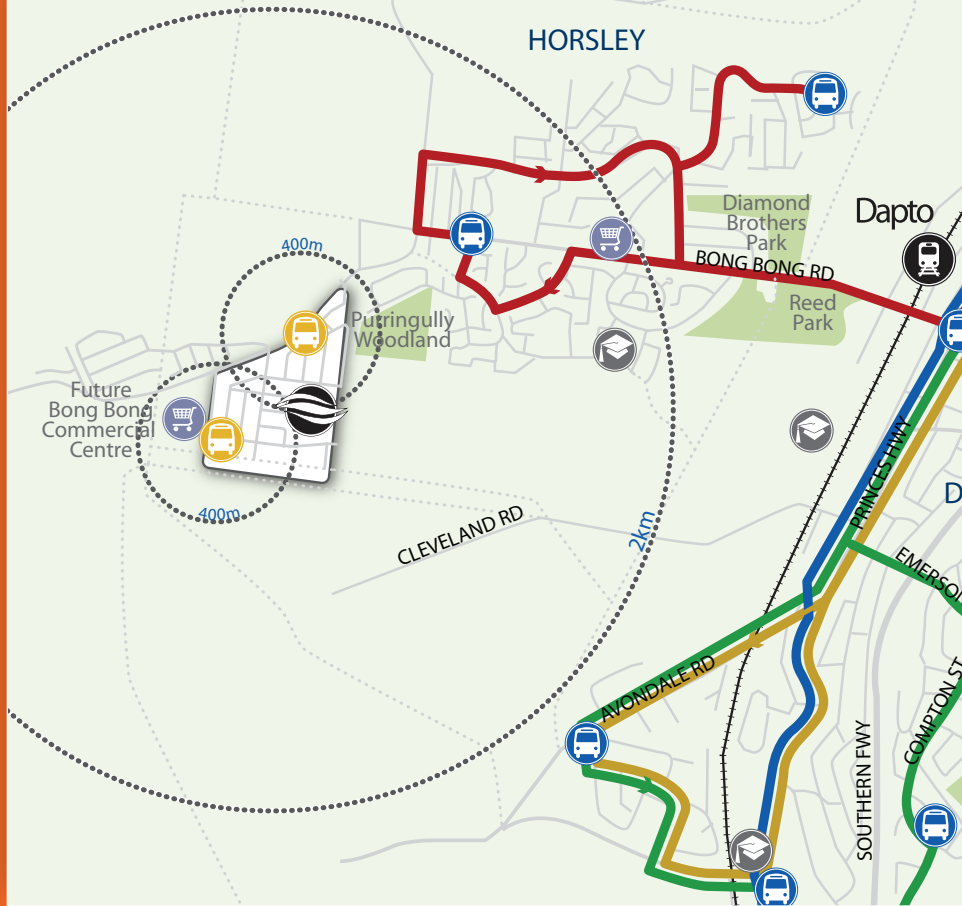
- Site location
- Existing road network
- Proposed new road
- Retail
- Schools
- Key attractors
- Rail
- 2km radius = 30 min walk
- 4km radius = 12 min cycle
- 10km radius = 30 min cycle

### Bus Routes

- Route 31
- Route 33
- Route 43
- Route 37, 57
- Bus stops
- Proposed bus stops

Note: This map is indicative only and not to scale.

## > Internal Public Transport Network







## Combining Cycling & the Train

If you are thinking of riding your bike to a local transport interchange and catching public transport the rest of the way, Dapto rail station approximately 3.5km's away, or a 10 minute cycle, mostly along existing facilities on the eastern end of Bong Bong Road.

Secure facilities for bicycle storage are provided at the rail station (approximately 20 bike lockers).

To get the latest information on the facilities available at Dapto train station go to: [http://www.cityrail.info/stations/station\\_details](http://www.cityrail.info/stations/station_details)



For tips & hints  
for riding please visit:

[www.cityriderguide.com](http://www.cityriderguide.com) or

<http://urbanbicyclist.org/sydneyriderguide.pdf>



## Existing bus services

Premier Illawarra operates the sole bus service in the Horsley area of Dapto. These buses serve local trips, and provide connections to the Dapto rail station, allowing longer distance trips. The bus routes do not directly service the proposed development area at present. However options for extending the service to the Brooks Reach Community are being pursued. Locations for future bus stops have been proposed (as shown on overleaf).

The figure overleaf presents the bus routes operating in and around Dapto and Horsley.

The closest bus route to Brooks Reach is currently the 31 service which runs to Dapto Town Centre and continues into Wollongong. The closest bus stop to Brooks Reach which is serviced by this route is approximately 1.2kms away - around a 15 minute walk (shown on map overleaf).

The table below provides a summary of service frequency at times when people are most likely to be travelling to or from Brooks Reach.

## Planning to get to a new destination by public transport?

The NSW Transport Info website makes it easy! Just visit **[www.131500.com.au](http://www.131500.com.au)** and enter your starting address and destination address, then the time you want to arrive, or the time you want to leave. Trip Planner will tell you the details of the quickest public transport services to get you there and will provide helpful maps for your trip.

## Do you have school aged children?

Contact their school to find out more about school bus services in the Brooks Reach area.

SUMMARY OF BUS SERVICES	ROUTE NO.	ROUTE	FREQUENCY GUIDE					
			DIRECTION	WEEKDAY			SAT	SUN
				PEAK	OFF-PEAK	NIGHT	DAY	DAY
31		Wollongong to Dapto via Wollongong Hospital, Figtree, Unanderra and Kanahooka	Northbound	30	60	N/A	60	120
			Southbound	30	60	N/A	60	120



# Green initiatives for driving

## Carpooling

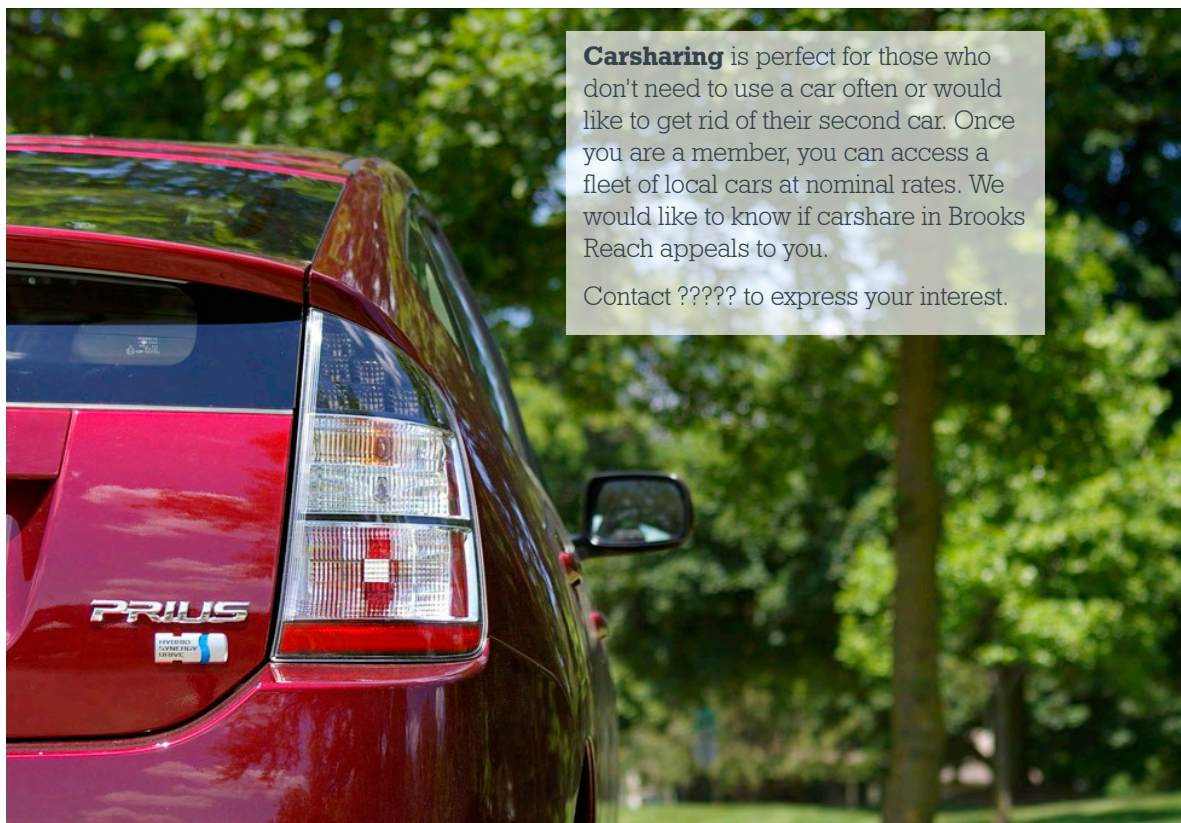
Carpooling provides an opportunity to save money and time, reduce stress and get to know your neighbours.

Carpooling means sharing your car trip - examples may include families alternating responsibility for dropping children at school, commuters travelling together to work or the train station, or neighbours taking turns to visit the local super market together.

## Green vehicles

In the market for a new car? A visit to **[www.greenvehicleguide.gov.au](http://www.greenvehicleguide.gov.au)** can help you make an informed choice about the environment impacts of your purchase as well as the annual fuel costs.

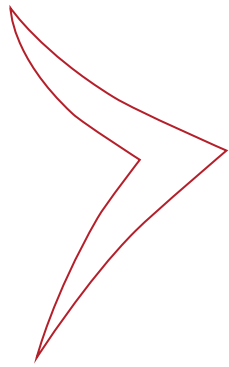
Information on safety ratings is also included, alongside information on older vehicles and tips for more fuel efficient driving.



**Carsharing** is perfect for those who don't need to use a car often or would like to get rid of their second car. Once you are a member, you can access a fleet of local cars at nominal rates. We would like to know if carshare in Brooks Reach appeals to you.

Contact ????? to express your interest.





## Future activities

Brooks Reach will be a healthy, happy and accessible community - we are planning plenty of future activities to keep the momentum going:

### Look out for your welcome pack!

Filled with plenty more information and goodies regarding your travel options including:

- Discount coupons
- Event calendar
- Timetable information

....and much more!

### Community fairs

Bringing neighbours and families together and providing opportunities to get to know each other.

### Celebrations & promotion

Brooks Reach will be the place to be for events such as Ride to Work Day or World Environment Day, with plenty of fun, family oriented activities.

### Walking school buses

To provide for the growing number of children in Brooks Reach, we will be advocating for the completion of a safe route to Horsley Primary School so a walking school bus can be introduced.



# Further information



## **CYCLING MAPS & INFORMATION**

*NSW Bike Plan:*  
<http://www.nsw.gov.au/bikeplan>

*Check out Wollongong City Council website for the local bike plan for the area:*  
[www.wollongong.nsw.gov.au](http://www.wollongong.nsw.gov.au)



## **CAR POOLING**

[www.thecarpool.com.au](http://www.thecarpool.com.au)

## **GREEN VEHICLE GUIDE**

[www.greenvehicleguide.gov.au](http://www.greenvehicleguide.gov.au)

## **CARSHARE**

[www.flexicar.com.au](http://www.flexicar.com.au)  
[www.goget.com.au](http://www.goget.com.au)  
[www.greensharecar.com.au](http://www.greensharecar.com.au)



## **PUBLIC TRANSPORT INFORMATION**

*Phone: 131 500 or website:*  
[www.131500.com.au](http://www.131500.com.au)



## **RAIL STATION INFORMATION**

*Maps and timetables:*  
<http://www.cityrail.info>

