

## INTRODUCTION TO THE BICYCLE NETWORK

The Bicycle Network leverages the skills and experience of state rider-based organisations to advance bike riding nationally. Established in 2008 as an incorporated entity, the Bicycle Network has over 40,000 members nationally, and operates as a self-funded, not-for-profit organisation, with an annual turnover of over \$10 million employing over 50 staff.

The rider-based Bicycle Network's purpose is: **More People Cycling More Often**. To this end, activities are focused across four areas:

- Facilitating development of bike riding infrastructure;
- Increasing rider numbers through social marketing, including the creation of Ride2Work and Ride2School programs – both are now national programs
- Developing and promoting policy and legislative frameworks to support bike riding; and
- Program evaluation and data collection to build the evidence base to support these activities.

Over the last 15 years, the Bicycle Network has achieved considerable success for members and the broader community through working constructively with Governments across these areas. Major achievements in regard to infrastructure include:

### **Infrastructure Investments:**

- 1993 - St Kilda Road lanes
- 1995 - Yarra Gardiners Bridge \$3 m
- 2001 - Colour in bike lanes
- 2002 - Murray to Mountains Rail Trail \$2m
- 2005 - Bay Trail link in Brighton \$3m
- 2006 - Federation Trail \$14m
- 2006 - Census shows 44 per cent jump in journey to work in Melbourne
- 2007 - Swanston Street separated lanes
- 2008 - Rumble edge bike lanes (profiled or acoustic line marking)
- 2009 - Mansfield to Seymour rail trail \$14.5m
- 2010 - Albert Street kerbside lanes

### **Published research:**

- *Strengthening Bicycle Lane Lines (2008)*
- *Green lights for bikes (2010)*
- *Nine ways to find space for bicycle facilities on roads (1999)*. This was adopted by the Victorian State Government and published as *Cycle Notes 9 Creating on road space for cyclists*

### **15 years working with:**

- Successive Victorian Roads Minsters and VicRoads on developing the Principal Bicycle Network,
- Parks Victoria on development of what is now the Metropolitan Trail Network
- Local governments across Australia to develop transport and recreation facilities

This practical experience combined with the insights derived from regular interaction with members enables the Bicycle Network to assist Governments with pragmatic and effective initiatives that achieve key policy objectives.

## **STRATEGIC CONTEXT- CYCLING POLICIES**

### ***NSW State Plan***

The NSW State Plan has set a target to increase the modal share of bicycle trips made in the Greater Sydney region, at a local and district level, to five per cent by 2016.

The NSW State Plan Annual Performance Report 2010 notes that there has been a 25 per cent growth in commuter bicycle trips across the Anzac Bridge cycleway.<sup>1</sup>

### ***Metropolitan Transport Plan***

The Metropolitan Transport Plan (MTP) notes that more than five million trips up to 10 kilometres from home are made by each day by car in Sydney. These could be converted to active transport thereby reducing traffic, congestion, pollution and to improve road safety.<sup>2</sup>

The MTP allocates \$158 million over 10 years to complete the highest priority missing links in the Sydney Strategic Cycleway Network. These are discussed in more detail in the NSW Bike Plan.

The MTP also identified that walking and cycling connections along the inner west light rail line.

### ***NSW Bike Plan***

The NSW Bike Plan identifies the 13 major missing links. One of these missing links is the Dulwich Hill – Lilyfield route. This route will link with the existing cycleway and provide direct access to the CBD for commuters from the inner west of Sydney.

### ***Sydney Metropolitan Strategy (City of Cities: A Plan for Sydney's Future)***

The Metropolitan Strategy is a broad framework to promote and manage growth in Sydney. It is a strategic document that outlines a vision for Sydney over the next 25 years; the challenges to be faced, and proposed directions to address these challenges. Sitting underneath the Metropolitan Strategy are regional strategies and subregional strategies, which provide more detailed planning.

The role of cycling is recognised in the Metropolitan Strategy through Action D3:

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

- D3.1 Improve local and regional walking and cycling networks
- D3.2 Implement a metropolitan parking policy
- D3.3 Implement TravelSmart voluntary travel behaviour change programs

IW D3.1.1 in the Inner West Draft Sub Regional Strategy provides for investigation of options to improve pedestrian and cycleway linkages across the subregion.

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<sup>1</sup> NSW State Plan Annual Performance Report 2010 (NSW Government) p 5

<sup>2</sup> Metropolitan Transport Plan (NSW Government) p 16

## GROWTH IN COMMUTER CYCLING – SYDNEY’S INNER WEST

In Sydney and nationally, the bicycle’s share of transport journeys is increasing. In particular, there has been a substantial increase in cycling commuting in the inner city suburbs across the major capital cities.

As shown in Table 1, between 2001 and 2006, the Inner Western Sydney Statistical Sub-Division (IWSSD)<sup>3</sup> and the Inner Sydney Statistical Sub-Division<sup>4</sup> experienced the highest overall increase in cycle trips and journey to work trips by bicycle.<sup>5</sup>

**Table 1: 2001 and 2006 – Cycle Trips Mode Share by Statistical Sub-Division**

| Change between 2001 & 2006      | Inner Sydney SD | Eastern Suburbs SD | Lower Northern Suburbs SD | Inner Western Sydney SD |
|---------------------------------|-----------------|--------------------|---------------------------|-------------------------|
| Change in Cycle Trips           | 28.0%           | 18.4%              | 27.6%                     | 45.9%                   |
| Change in Journey to Work Trips | 8.9%            | -1.8%              | 1.3%                      | 9.4%                    |

Source AECOM Report – Inner Sydney Regional Bicycle Network: Demand Assessment and Economic Appraisal

Analysis by the Bicycle Network shows that increases in inner urban commuter cycle trips are driven by changing inner suburb demographics, employment growth in the CBD and population growth. Further, sustained increases in trips can be achieved through targeted investments in expanded and improved bicycle routes that provide an increasingly competitive alternative to rising road and public transport congestion.

AECOM has estimated that the benefit-cost ratio (BCR) arising from the development of cycling infrastructure for the following inner-west origin/destinations are<sup>6</sup>:

- Marrickville – Sydney CBD – 21.29
- Leichhardt – Sydney CBD – 13.24
- Ashfield – Sydney CBD – 4.65

## INFRASTRUCTURE REQUIREMENTS TO PROMOTE COMMUTER CYCLING

The most significant barrier to increased commuter cycling numbers is poorly planned and designed infrastructure. While recreational riders enjoy scenic paths along waterways or rail trails, commuter riders require infrastructure – ideally separated from traffic - that directly links key destinations (employment centres, public transport etc). In the context of cycling infrastructure the term “separated” may refer to a range of

<sup>3</sup> Inner Western Sydney Statistical District incorporates the Local Government Areas of Ashfield, Burwood, Canada Bay and Strathfield.

<sup>4</sup> Inner Sydney Statistical Sub-Division incorporates the Local Government Areas of Leichhardt, Marrickville, Sydney and Botany

<sup>5</sup> AECOM (2010) Inner Sydney Regional Bicycle Network: Demand Assessment and Economic Appraisal p 24

<sup>6</sup> Ibid p 82

measures from the simple (a single white line painted on the road to identify a bike lane) through to more sophisticated measures such as fully separated Copenhagen-style bike lanes.

Research shows that key infrastructure issues for transport riders include:

- Gaps in bike riding networks and disconnects between off-road and on-road bike riding paths
- Difficulty accessing key employment destinations due to indirect routes or land uses that do not encourage bike riding
- On-road routes – inadequate separation of bike riders and vehicles as well as the design of roundabouts and railway crossings
- Off road paths – inadequate separation of bike riders and other off-road path users, or paths too narrow for the number of users
- Path design problems – lighting, width, steepness, blind corners and sharp turns

Arising from this, there are three core criteria which should guide planning and investment in infrastructure:

**Access to key destinations** – the route goes somewhere useful and connects to key destinations (CBD, employment centres, public transport nodes)

**Connection** – the route connects to other destination based routes (eg: is part of a planned network)

**Delineation/Separation** – the route is marked or separated so that intrusion by motor vehicles is reduced or eliminated.

## COMPATABILITY OF CYCLING INFRASTRUCTURE AND LIGHT RAIL IN THE INNER WEST CORRIDOR

In assessing the compatibility of cycling infrastructure and the light rail, GHD has only reviewed the options proposed by the GreenWay Project. The Bicycle Network acknowledges that the proposed GreenWay intends to serve a range of functions of which transport is only one. Consistent with its mandate, the Bicycle Network will restrict its comments to the transport aspects and do not explicitly take account of the GreenWay's other aims ie: environmental and community objectives.

As a starting point the Bicycle Network considers that, consistent with good transport planning practice, the proposed cycleway in the light rail study area should be considered in the context of the broader Sydney cycleway network. In the absence of a high quality link to the CBD, the cycle route proposed in the *Draft Report* is essentially limited to local cycling traffic and will fail to capture the significant economic benefits identified in the AECOM study referred to earlier in this submission. Further it appears to run counter to the policy directions set out in the Government's *Bike Plan*, which provide for high quality links between centres.

Secondly, while the Bicycle Network is conscious of the need to ensure that light rail operations are not unnecessarily compromised by cycling infrastructure, it is essential that in developing a preferred alignment for the light rail a multi-modal perspective is adopted. Given the increasing density of development in the inner west area and the lack of available corridors it is critical that this rare opportunity delivers an integrated response to the transport challenges facing these suburbs. The assumption of the dual

track operation for the entire length of the route undermines the transport potential of this corridor.

The remainder of the submission outlines options for the co-location of a cycleway and light rail along the proposed route. These options have been informed by the cycling infrastructure criteria identified above (destination, connection and separation) to ensure that the infrastructure is fit for purpose and taps into the significant latent cycling demand that exists in these suburbs, while delivering the mass transit outcomes sought through the light rail project.

### 1. ANZAC BRIDGE – HAWTHORNE CANAL

The Bicycle Network believes that there must be a direct, high quality route to funnel riders from the Rozelle Goods line cycleway and the Iron Cove cycleway to the Anzac Bridge and Sydney’s CBD. The majority of the transport trips will be to the CBD however shorter trips will occur to access destinations along the route (schools etc).

While primarily a commuter transport route, weekend recreational use will also be high if the route is separated from motor vehicles for its entire length.

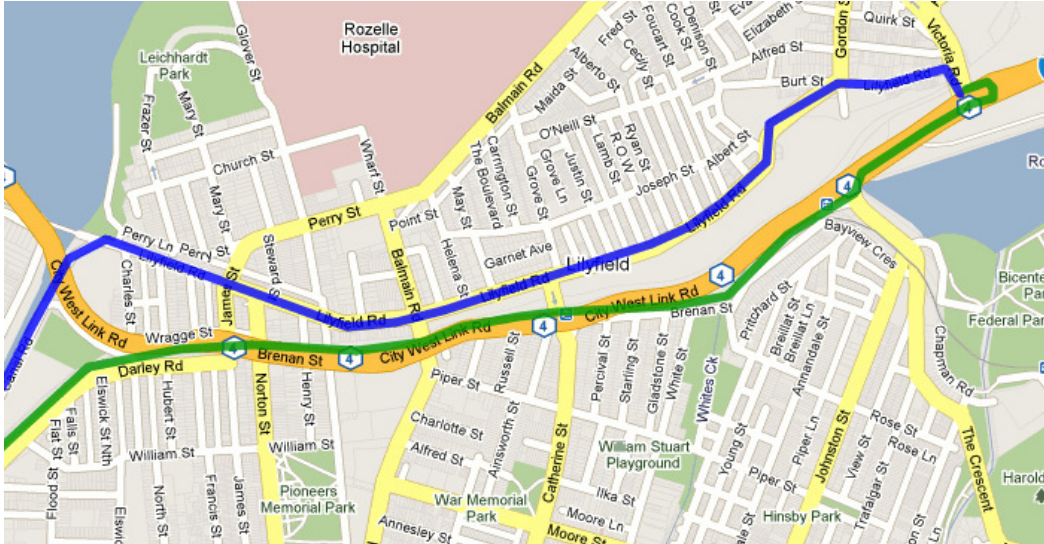
Currently, over 600 riders use the Anzac Bridge between 7-9am, indicative of the very strong demand for bike riding into the CBD from the inner west. These riders currently have to contend with on-road bike lanes and discontinuous facilities. Drawing on experience in other capital cities, high quality separated bike routes which are fed from multiple inner city cycleways can yield significant numbers of riders. For example, almost 1,500 riders use the Main Yarra Trail to access Melbourne’s CBD each morning.

### Cycleway infrastructure requirements

| Infrastructure Criteria | Requirements to meet criteria  |
|-------------------------|--|
| <b>Destination</b>      | This section is primarily focused on delivering riders to Sydney’s CBD - the destination that attracts the most transport trips. This demands a high quality cycleway capable of carrying high numbers of riders as directly as possible.  |
| <b>Connection</b>       | This section of cycleway must connect to the Rozelle Goods line Cycleway, the Iron Cove Cycleway in the west and the Anzac bridge Cycleway in the east. These connections are critical in realizing the significant transport benefits   |
| <b>Separation</b>       | The congested inner city environment and high potential rider numbers means that it is preferable that this section of cycleway be separated from motor vehicle traffic for its entire length. A small section of on road bike lanes would severely restrict the numbers of potential riders. Separation must be equivalent to that provided by the City of Sydney’s cycleway network (on road separated bike lanes) or better (completely off road cycleway.) |

## Cycleway Route Options

**Map 1 Anzac Bridge to Blackmore Park route options**



Source: Google Maps

Preferred option: Option 1 - Green line

### OPTION 1 ADJACENT TO LIGHT RAIL (Green Line – Map 1)

#### Description

From east to west:

- The route links to Anzac Bridge by joining the existing cycleway on the south side of City Link West Rd at The Crescent.
- It then runs west between the existing light rail tracks and Railway Pde / Brennan St. The route then runs adjacent to the existing single track light rail service under City Link West road to Lilyfield station.
- Heading west from Lilyfield station the route runs adjacent to the currently disused rail tracks until the easement narrows towards Balmain Road.
- At this point it is necessary to remove one of the disused train tracks to facilitate the cycleway under Balmain Road and through the tunnel under City Link West Road, which would require the light rail to run on a single track for a distance of approximately 900 metres.
- To the west of the City Link West Rd tunnel a cycleway can run adjacent to the dual track light rail service.

#### Comment

This option is the best option for an inner west cycleway as it provides the most direct route to the CBD with the most separation from motor vehicle traffic. It provides effective links to an inner west cycleway along the disused Rozelle Goods line and Iron Cove cycleway. It also provides access to the Anzac Bridge to residents in Annandale

and the North and eastern areas of Leichhardt, which cannot be provided by an alternative link on Lilyfield Road (Option 2).

It is recognised that the key issue with this option is the single track running of the light rail. However, the Bicycle Network is of the view that the significant benefits arising from a continuous cycleway to the CBD should be considered as part of this Study's analysis.

While this approach requires single track running for a limited distance the impact on the light rail operations can be mitigated through use of signalling technology that prioritises peak direction vehicles. This type of single track operation is used widely in existing heavy rail networks.

## **OPTION 2 LILYFIELD ROAD (Blue Line – Map 1)**

### **Description**

From east to west:

- This route runs the entire length of Lilyfield Road.
- In the east it connects to the pedestrian overpass over Victoria Road that provides the link to the Anzac Bridge Cycleway.
- From this point in the east through to the western end of Lilyfield Road at Hawthorne Canal, it is proposed that an on-road separated cycleway (similar to those currently being constructed in the City of Sydney) replace the existing road bike lanes on Lilyfield Road.

The future configuration would see these lanes replaced by a two way cycleway on one side of the road. These are the type of lanes currently being constructed by the City of Sydney as part of its cycleway program.

### **Comment**

Option 2 is less appealing than Option 1 as it is less direct for the major of potential users (ie: those coming along the cycleway on the disused Rozelle Goods line). Further, it does not provide the same degree of separation from motor vehicles as it contains many at grade intersections with cross roads and property entrances that will deter some riders from using the route.

Another key issue is that there are difficult issues to be addressed in order to find space in the road easement. The removal of the existing bike lanes does not provide enough room for the cycleway. There are two options to overcome this:

- remove parking on one side of Lilyfield Road; or
- widen the road easement by moving the kerb outwards.

The widening of the road pavement would require tree removal and moving of electrical poles.

## **2. DISUSED ROZELLE GOODS LINE – LILYFIELD TO LEWISHAM**

This section of cycleway will enable residents of the inner west to reach the Anzac bridge and the City of Sydney's cycleway network. Suburbs such as Haberfield, Ashfield, Summer Hill and Lewisham will be able to reach the CBD via this section of

the cycleway. Shorter trips by bike riders and pedestrians will be taken to Lewisham railway station and schools such as Kegworth Public School.

This high density residential area that is less than 5km from the CBD will deliver many of thousands of bike trips as is experienced on similar routes in other capital cities. For example, the Footscray Road Trail in Melbourne has almost 900 trips from 7-9am while almost 300 riders per day cross the Causeway to access Perth's (much smaller) CBD.

### Cycleway Infrastructure Requirements

| Infrastructure Criteria | Requirements to meet criteria   |
|-------------------------|---|
| <b>Destination</b>      | Must link to existing cycle ways at Iron Cove and the proposed connection to the Anzac Bridge (discussed above). Without the latter of these connections the cycleway will only provide local transport and recreational opportunities. A link to the Anzac bridge will provide greatest commuter cycling benefits.   |
| <b>Connection</b>       | Assuming the link to the Anzac Bridge is completed, this section of cycleway is primarily focused on connecting riders to Sydney's CBD - the destination that attracts the most transport trips. This demands a high quality cycleway capable of carrying high numbers of riders as directly as possible.   |
| <b>Separation</b>       | The congested inner city environment and high potential rider numbers means that this section of cycleway must be separated from motor vehicle traffic for its entire length. A small section of on-road bike lanes would significantly restrict the numbers of potential riders. Separation should be equivalent to that provided by the City of Sydney's cycleway network (on-road separated bike lanes) or better (off-road cycleway.) |

### Cycleway Route Options

#### OPTION 1 WITHIN THE ROZELLE FREIGHT RAIL CORRIDOR FORMATION – SINGLE TRACK OPERATION

##### Description

- The cycleway would be built within the freight track area, thus requiring single track light rail operations.

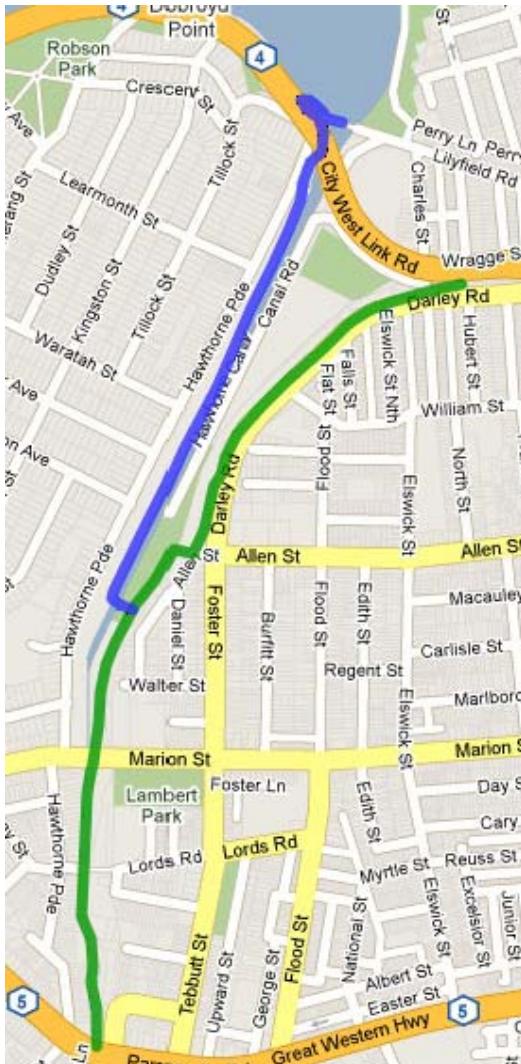
##### Comment

This option is optimal for bike riders in terms of function; however it requires single track running. This could be avoided through construction of a cycleway adjacent to the dual track light rail for the entire length of this section (Option 2 below).

## OPTION 2 ADJACENT TO THE FREIGHT RAIL CORRIDOR FORMATION - DUAL TRACK LIGHT RAIL

### Map2 Lilyfield – Lewisham route options

Source: Google Maps



Preferred option: Option 2 a (Green line)

### Description

The design of the northern end of this section of cycleway will depend on the route chosen for the Hawthorne Canal to Anzac Bridge link.

### OPTION 2A (GREEN LINE)

- If Option 1 (Green Line - Map 1) is adopted then the route shown as the green line in Map 2 is required.
- The cycleway will travel on the eastern side of the light rail tracks from the western end of the tunnel though to Allen St.
- It can either be an elevated cycleway directly adjacent to the tracks or a fully separated cycleway directly adjacent to Darley Road.
- At Allen St the cycle way will need a new underpass to cross the light rail tracks and the travel south on the western side directly adjacent to the light rail tracks.

### OPTION 2B (BLUE LINE)

- If the Lilyfield Road option is chosen to link the cycleway to the Anzac

Bridge then the route shown as the blue in map 2 is needed.

- The cycleway will need to be constructed adjacent to the Hawthorne Canal from the Lilyfield Road bridge south to the existing pedestrian bridge over the Canal.
- If the cycleway is to be built on the western side of the Canal the existing pedestrian bridge will need to be upgraded.

From the existing pedestrian bridge near Allen St south to Marion Rd the cycleway can be constructed directly adjacent to the dual track light rail. A cycleway bridge will be required over Marion Street. South of Marion St to Parramatta Road, the existing path adjacent to the Hawthorne Canal can be widened to create a shared path cycleway.

### 3. ROZELLE GOODS LINE – LEWISHAM TO COOKS RIVER CYCLEWAY

This section of the Rozelle Freight Corridor Cycleway will be primarily used for transport with a high proportion of local trips to public transport interchanges such as Dulwich Hill and Lewisham train stations. In addition to these local trips significant numbers of bike riders will use this route for longer distance commuting to the CBD via the Anzac Bridge or to the airport via the Cooks River Trail.

This section will also generate a very high number of recreational trips from residents of the inner west utilising the trail to ride reach the popular Cook River Cycleway.

Rider numbers for transport will be similar to cycle ways over 5 km from CBDs in other capital cities such as the St Georges Road trail in northern Melbourne with over 750 riders from 7-9am in the morning.

#### Cycleway Infrastructure Requirements

| Infrastructure Criteria | Requirements to meet criteria  |
|-------------------------|--|
| <b>Destination</b>      | This section of cycleway must connect to the Cooks River Cycleway in the South to realise the significant transport and recreation benefits.   |
| <b>Connection</b>       | This section of trail is primarily focused on delivering riders to Sydney’s CBD to the north, Sydney Airport to the south as well as local destinations such as Dulwich Hill and Lewisham train stations. This demands a high quality cycleway capable of carrying high numbers of riders as directly as possible.   |
| <b>Separation</b>       | The congested inner city environment and high potential rider numbers means that this section of cycleway must be separated from motor vehicle traffic for its entire length. A small section of on road bike lanes would severely restrict the numbers of potential transport riders and minimize to nullify the number of recreation trips. Separation must be equivalent to that provided by the City of Sydney’s cycleway network (on road separated bike lanes) or better (completely off road cycleway.) |

#### Cycleway Route Options

The options for this section of the cycleway are complicated by limited space adjacent to the freight line track corridor and the many road crossings along the route. The option as presented in the GHD report is not acceptable as it requires significant on road sections, this is not suitable for most of the general bike riding community, and especially recreation riders, as there is insufficient separation from motor vehicles.

**Map 3 Lewisham to Dulwich Hill**

Source: Google Maps



Preferred option:  
Green line sections of single track light rail adjacent to cycleway, blue line sections dual track light rail adjacent to cycleway.

**OPTION 1 CYCLEWAY ADJACENT TO DUAL TRACK LIGHT RAIL (Blue line)**

While it is technically feasible to construct a cycleway adjacent to a dual track light rail service it is likely to be prohibitively expensive. It would require long sections of elevated cycleway and five new road underpasses.

**OPTION 2 CYCLEWAY ADJACENT TO SINGLE TRACK LIGHT RAIL WITH PASSING LOOPS (Green line)**

The preferred option is for a cycleway constructed on the Rozelle freight rail corridor formation (track area) adjacent to a single track line rail service, only where there is not enough room in the easement to accommodate a

dual track service. Map 3 below shows in green the areas where a single track will be required and in blue the areas where dual track would remain. Given that this section of the light rail service will have relatively low patronage and had a marginal BCR (1.0) it is considered justified to prioritise the cycleway (BCRs - Marrickville to CBD – 21.29, Ashfield to CBD – 4.61)

It is possible that the light rail will not be initially introduced on this section of the Rozelle freight rail corridor. If this is the case the cycleway should be built as outlined in Map 3 leaving the option for future introduction of the light rail.

#### 4. DULWICH HILL - COOKS RIVER CYCLEWAY

This section of the cycleway continues south from the Rozelle freight rail corridor and joins with the Cooks River Cycleway. The Friends of the GreenWay concept design (refer below) for this section is supported by the Bicycle Network.

