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## **AN OVERVIEW OF THE CITY WEST CYCLE-LINK**

Revision 3.2

Prepared by: EcoTransit Sydney

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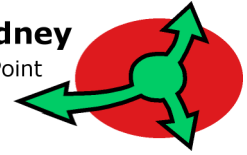
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## **An Overview of the City West Cycle-Link**

### **Summary**

This document presents a proposal for the *City West Cycle-Link*, a new cycling facility that would:

1. Provide an at-grade cycleway adjacent to the rail formation through the Lilyfield rail cutting from Charles St in the west to Catherine St in the east;
2. Integrate with the Leichhardt North light rail stop (adjacent to James St), increasing the flow of people in the vicinity of the stop, and thereby enhancing the sense of safety of light rail commuters;
3. Shorten the journey time for cyclists commuting along the primary cycling route between the Inner West and the City of Sydney, and bypassing the climb up Lilyfield Road between the Hawthorne Canal and James Street;
4. Connect with and extend the cycling route proposed as part of the GreenWay project;
5. Provide an improved, grade-separated alternative to the regional cycling route along Lilyfield Road by creating a comparatively flat and direct connection to the Anzac Bridge cycleway at White Bay via the the Rozelle rail lands.

The estimated cost of the facility, based on professional engineering advice, is less than \$5 million.

EcoTransit Sydney notes that aspects of its implementation relating to the use of Lilyfield rail cutting would require close coordination with the project works associated with the extension of the light rail service to Dulwich Hill.

Due to the potential for service disruption, it would be impractical to undertake construction of the cycleway within the Lilyfield rail cutting once the power, cabling and signalling infrastructure required for light rail services have been installed and/or light rail services commenced. Consequently, the two projects would need to be closely coordinated to ensure that all related construction works were completed by the time light rail services begin operating.

## Introduction

At the present time, cyclists from the Inner West who are riding towards the Anzac Bridge and the City of Sydney typically follow a route through Five Dock and Haberfield that leads them onto Lilyfield Road at the Hawthorne Canal. At this point they are faced with a short, but steep climb up to James Street. This climb is often seen as daunting and unappealing by less experienced cyclists.

Cyclists using the new cycleway route associated with the GreenWay component of the Dulwich Hill light rail extension will face a similar situation. The GreenWay cycleway, which will provide a grade-separated route for cyclists travelling to and from the City of Sydney from the Marrickville, Ashfield and Leichhardt local government areas connects to the Lilyfield Road regional route at the same location.

For cyclists heading towards the Anzac Bridge, there isn't an alternative route of similar convenience and directness to Lilyfield Road. Immediately to the south is the City West Link Road and the Rozelle Rail Freight Line. It should be noted that the six (plus turning and associated slip lanes) of the City West Link Road present a barrier for cyclists and pedestrians attempting to cross it. Beyond these barriers, the route towards the Anzac Bridge becomes slower, hillier and more circuitous than the alignment along Lilyfield Road, which essentially runs parallel to the City West Link Road.

The 3.3km Lilyfield Road portion of the Inner West regional cycling route, whose elevation profile is shown in Illustration 1, is not without its problems for cyclists.

### Lilyfield Road Elevation Profile

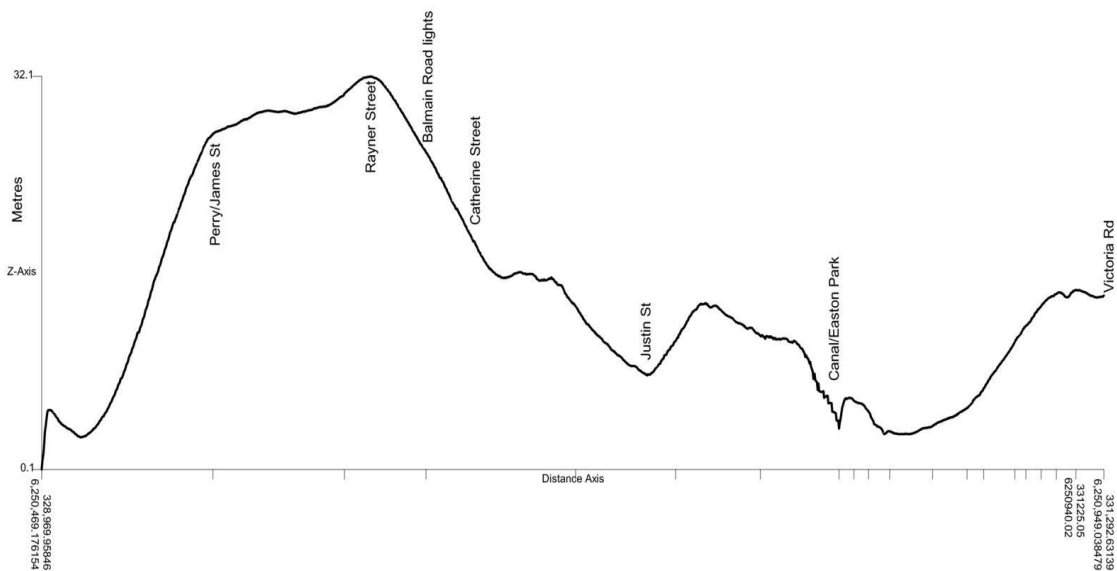


Image courtesy of Leichhardt Council

*Illustration 1: Lilyfield Road Elevation Profile - 3.3km*

These problems include:

- The route is hilly and indirect, especially in comparison with the flat profile of the

immediately adjacent former Rozelle rail yards;

- The ongoing risk of being “doored” along most sections of Lilyfield Road where the marked cycle-lane is directly adjacent to parked cars
- The requirement to cross Victoria Road at White Bay via a narrow pedestrian overpass.

To improve connectivity and amenity for all cyclists, but especially for those cyclists commuting to and from the Inner West to Pyrmont, the CBD and beyond, EcoTransit Sydney proposes a facility whose elements, consisting of a short tunnel (shown in orange) and a cycleway (shown in red), are shown in Illustration 2.



*Illustration 2: City West Cycle Link - direct, quick and connected*

A brief summary of the benefits of the facility for cyclists is outlined below. The facility would:

1. Provide an at-grade cycleway through the Lilyfield rail cutting, adjacent to the rail formation, from Charles St in the west to Catherine St in the east, that would pass under the City West Link Road;
2. Integrate with the Leichhardt North light rail stop (adjacent to James St), increasing the flow of people in the vicinity of the stop, and thereby enhancing the sense of safety of light rail commuters;
3. Retain the twin track rail formation for light rail services, thereby maximising operational flexibility and service capacity;
4. Allow cyclists to bypass the climb up Lilyfield Rd between Hawthorne Canal and James St;
5. Connect with and extend the cycling route proposed as part of the GreenWay;
6. Provide a high quality, grade-separated alternative to Lilyfield Rd by creating a comparatively flat and direct connection to the Anzac Bridge cycleway at White Bay via the Lilyfield rail cutting and the Rozelle rail lands. This cycleway would pass under Victoria Rd and provide connections to local streets.

7. Reduce travel times for Inner West cyclists commuting to and from the City of Sydney via the Anzac Bridge cycleway.
8. Increase cycling usage by encouraging cyclists who are not comfortable riding on the road to use a properly grade separated facility.

The estimated cost of the proposal, based on professional engineering advice, is less than \$5 million.

## **Section 1 – Utilising the Lilyfield rail cutting**

Cyclists from the Inner West who are riding towards the Anzac Bridge and the City of Sydney typically follow a route through Five Dock and Haberfield that leads them onto Lilyfield Road at the Hawthorne Canal. At this point they are faced with a short, but steep climb up to James Street. This climb is often seen as daunting and unappealing by less experienced cyclists.

For cyclists riding east on Darley Road towards James St and intending to cross over to Lilyfield Road, the intersection with the City West Link Road presents several problems:

1. There is insufficient available road space for a separation of cars and bicycles to be maintained.
2. The gradient increases sharply, leading to conflict with motorists as cyclists slow down.
3. There is little time for crossing six lanes of traffic, plus a slip lane, to reach James St.
4. James St itself climbs steeply as it approaches Lilyfield Road.

These problems combine to make the City West Link Road a difficult and inconvenient crossing point for cyclists. To address these deficiencies EcoTransit Sydney proposes that a short in-tunnel cycleway be built through the Lilyfield rail cutting adjacent to the rail formation. An indicative route for the cycleway is shown in Illustration 3.





## City West Cycle Link

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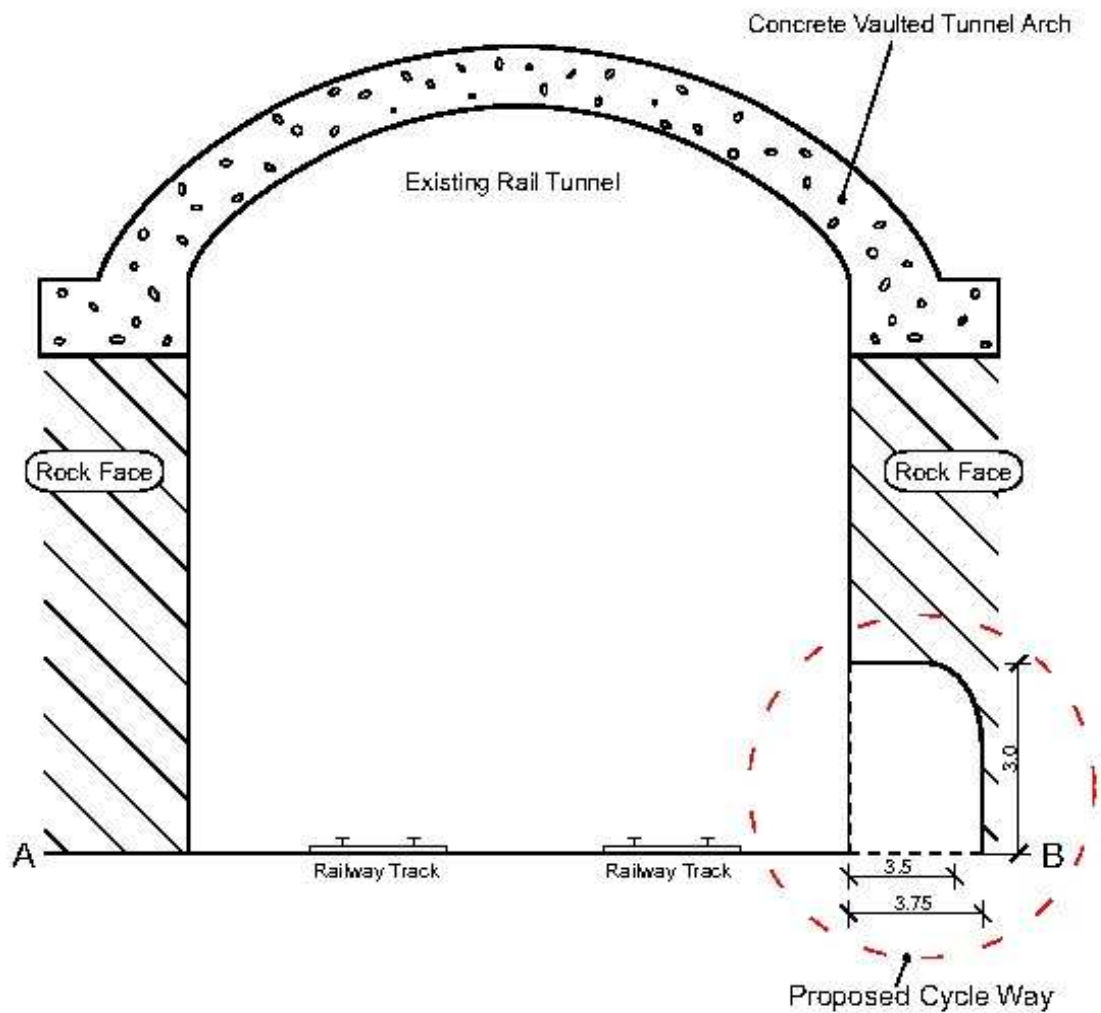
*Illustration 3: City West Cycle-Link – indicative Lilyfield Rail Cutting cycleway alignment*

The first section of the City West Cycle-Link utilises the Lilyfield rail cutting without affecting the existing twin track rail formation that will be used by the light rail service. This section of the Cycle-Link would:

1. Provide a separated, in-tunnel cycleway running along the northern side of the Lilyfield Rail Cutting, and passing under the City West Link Road, from Charles St in the west to Catherine St in the east;
2. Utilise the northern side of the rail cutting and by undercutting into the rock face provide a cycleway 3.5m wide by 3.0 high and 650m in length;
3. Be separated from the rail formation by fencing, thereby ensuring the safety and security of cyclists and light rail passengers alike;
4. Retain the twin track rail formation for light rail services, thereby maximising operational flexibility and service capacity;
5. Closely integrate with the Leichhardt North light rail stop (adjacent to James St);
6. Allow cyclists to bypass the climb up Lilyfield Road between Hawthorne Canal and James Street;
7. Connect with the cycling route proposed as part of the GreenWay component of the Duwlich Hill light rail extension project;
8. Directly connect with the proposed grade-separated cycleway through the comparatively flat Rozelle rail lands, as described in this document.

Indicative cross sections for the western and eastern ends of the cycleway tunnel along the northern side of the Lilyfield rail cutting are shown in Illustration 4 and Illustration 5 respectively.

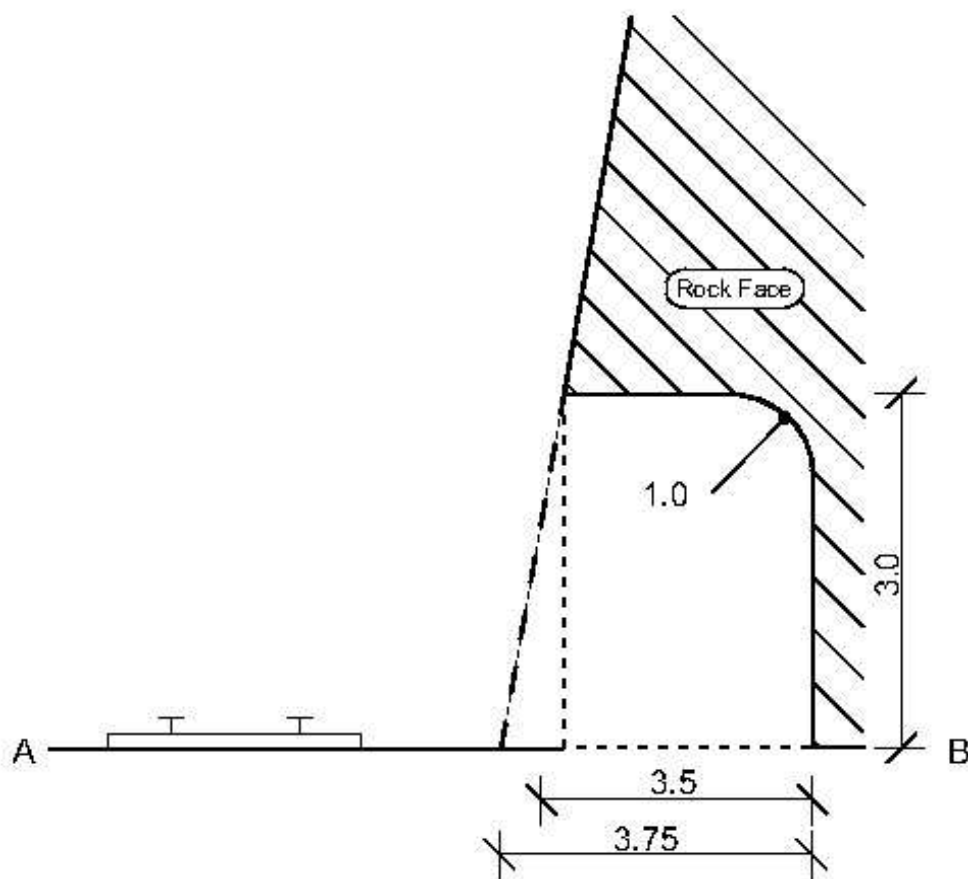
## Cross Section Proposed City West Cycle Link



*Illustration 4: City West Cycle Link tunnel - western entrance indicative cross section*



## Cross Section Proposed City West Cycle Link



*Illustration 5: City West Cycle Link tunnel - Eastern entrance indicative cross section*

When viewed from the perspective of a cyclist proceeding towards the ANZAC Bridge, the entry point to the cycleway would be via Charles St. This would apply whether a cyclist was coming from Five Dock, Haberfield, the GreenWay cycleway or along Darley Road, as shown in Illustration 6.



*Illustration 6: Accessing the western portal of the City West Cycle-Link*

The in-tunnel portion of the cycleway would begin at the western entrance to the Lilyfield rail tunnel<sup>1</sup> as shown in Illustration 7. James St can be seen passing over the tunnel and the City West Link Road is to the immediate left of the noise barriers. The highest point of the batter, over which James St rises, is to the immediate right of the rail line.

<sup>1</sup> Photo by Matthew Spong. <http://www.panoramio.com/photo/33358153>





*Illustration 7: Western entrance of the Lilyfield rail tunnel formed by the City West Link Road*

**The proposed use of the Lilyfield rail cutting and its proximity to the rail line means that it cannot be considered in isolation from the NSW Government's recent approval<sup>2</sup> for the extension of the light rail service to Dulwich Hill.**

**Due to the potential for service disruption, it would be impractical to undertake construction of the cycleway tunnel once the power, cabling and signalling infrastructure required for light rail services have been installed and light rail services commenced. Consequently, the two projects would need to be closely coordinated to ensure that all related construction works were completed by the time light rail services begin operating.**

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<sup>2</sup> As set out in the Metropolitan Transport Plan <http://www.nsw.gov.au/metropolitantransportplan>

## Derbyshire Road to Catherine Street

The eastern portal of the tunnel formed by the City West Road is located adjacent to Derbyshire Road. From this point onwards to a point midway between Balmain Rd and Catherine St the cycleway would continue within the cutting. As with the 350m in-tunnel section, the 3.5m wide by 3.0m high cycleway would be continued in an undercut along the northern side of the rail cutting and chainlink fencing would be used to ensure that the cycleway and the rail formation remained physically separated.

Once clear of the cutting, the cycleway would be continued and pass under the road overpass at Catherine St, as shown in Illustration 8. This latter section would be adjacent and immediately to the north of the rail tracks used by the light rail service at the Lilyfield stop. A connection from the cycleway to the light rail stop would be provided. From there, cyclists would have an uninterrupted, essentially flat run all the way to the Anzac Bridge via the Rozelle rail freight lands.



*Illustration 8: Continuing the cycleway along the cutting from Derbyshire Rd to the light rail stop at Catherine St*

The depth of the rail cutting in vicinity of the Balmain Rd overpass is shown<sup>3</sup> in Illustration 9. It gives a sense of the gain in height that cyclists presently negotiate when commuting along Lilyfield Rd. The northern side of the cutting, into which the cycleway will be undercut and fenced off, appears on the right hand side of the photograph.

<sup>3</sup> Photo by Matthew Spong. <http://www.panoramio.com/photo/33358185>





*Illustration 9: Balmain Road Overpass - looking west*

As noted previously, the feasibility of using the rail cutting for a cycleway is closely related to the NSW Government's extension of light rail services beyond Lilyfield to Dulwich Hill. Once the light service begins operating<sup>4</sup>, the risk of service disruption, coupled with the short time windows in which construction could occur would make it impractical to attempt construction of the cycleway as suggested.

**Therefore, in order for the cycleway to be built, engineering works associated with the two projects must be coordinated, so that construction of the cycleway and remediation of the rail track, wiring and signalling occur at the same time. As a consequence, while construction of the cycleway east of the cutting towards White Bay would not need to have been completed, or even started by the time light rail services begin operating beyond Lilyfield, all construction works related to the section of the cycleway through the length of the rail cutting will need to have been completed.**

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<sup>4</sup> Light rail services are scheduled to commence in Q1 2012.



## Section 2 - Connecting to the Anzac Bridge

As indicated previously, cyclists heading toward the Anzac Bridge via the City West Cycle-Link would exit the Lilyfield rail cutting and then use the flat Rozelle rail lands. The intention is to provide a high quality, grade-separated cycleway, in effect a European-style *veloway*, connecting directly to the Anzac Bridge cycleway. The cycleway would pass under Victoria Road at White Bay.

The cost estimate for this portion of the cycleway assumes a facility 3.0m wide and up to 2km in length.

This alignment has numerous benefits from the point of view of commuting cyclists heading to and from the Anzac Bridge and the City of Sydney. These benefits include:

1. Providing a faster, shorter, more direct route to the Anzac Bridge;
2. Avoiding the hilly terrain along Lilyfield Road;
3. Being completely grade separated from traffic;
4. Eliminating the risk of being “doored” along narrower sections of Lilyfield Road where the marked cycle-lane is directly adjacent to parked cars;
5. Bypassing the narrow shared cycling/pedestrian overpass at the intersection of Lilyfield and Victoria roads, passing instead under Victoria Road;
6. Connecting directly to the Anzac Bridge Cycleway at White Bay;
7. Reducing trip times for commuting cyclists.

All of these benefits are in keeping with the aims of the NSW Bike Plan<sup>5</sup> and would assist in helping to achieve the plan's aims of filling in the gaps in Sydney's cycleway network and of achieving a 5% cycling modal split by 2016. An ideal outcome of building the City West Cycle-Link would be the cycling analogue of *induced traffic*.

The Inner West, in particular, has seen a steady increase in commuting cyclists, and many of them are using the Anzac Bridge cycleway, which has seen a steady growth in numbers since 2003, as outlined on p. 5. of “Better Transport and Liveable Cities<sup>6</sup>” in the NSW State Plan's 2010 performance report<sup>7</sup>.

The flat terrain through the Rozelle rail lands would also permit a separation of cyclists from pedestrians, enhancing the facility's safety and the amenity for all concerned. The available space provides an opportunity to follow best practice and provide wide, separate paths for cyclists and pedestrians, in a similar manner to sections of the Bay Run around Iron Cove.

Please note that in the discussion below, the suggested alignment of the cycleway is merely indicative. Detailed design will identify the optimal location of the cycleway as well the provision of facilities to connect to adjacent localities and other segments of the cycling network.

### Section 2.1 – Catherine Street to Gordon Street

The section of the City West Cycle-Link from Catherine Street, adjacent to the light rail stop, to the

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

6 “Better transport and liveable cities” available at [http://www.nsw.gov.au/sites/default/files/uploads/common/State-Plan-Performance-Report-2010\\_Better-Transport-%26-Cities.pdf](http://www.nsw.gov.au/sites/default/files/uploads/common/State-Plan-Performance-Report-2010_Better-Transport-%26-Cities.pdf)

7 NSW State Plan <http://www.nsw.gov.au/stateplan>

vicinity of Gordon St is shown in Illustration 10. An at-grade link from the cycleway to Gordon St is shown, allowing access to Lilyfield Road. Other connections to Lilyfield Road and local streets to the north of the cycleway would also be beneficial.

Also shown is a second at-grade link from the Anzac cycleway, passing under Victoria Road and connecting directly to Gordon St. This would enable cyclists heading towards Lilyfield and Rozelle to bypass the pedestrian overpass at the corner of Lilyfield and Victoria Roads.



*Illustration 10: Cycleway from Catherine St to Gordon St and Victoria Rd*

Providing connections to the south is more problematic due to the difficult requirement of traversing the City West Link Road. One option would be to combine the cycleway with the proposal<sup>8</sup> for an extension of the light rail service to East Balmain, from – in all likelihood the current Rozelle Bay stop – to Cameron Cove, with stops at the White Bay Power station, White Bay, Birrung and Cameron Cove<sup>9</sup>. This extension would use the decommissioned, but still extant, rail lines through the area.

The extension would require an over-bridge to take the light rail line over the City West Link Road and connect to the Rozelle rail line(s). The over-bridge could be built with a shared cycling and walking path, in a similar manner to the cycleway bridge over James Ruse Drive, adjacent to the M4 Viaduct, that was built as part of the Duck River Cycleway.

<sup>8</sup> As outlined in [http://ecotransit.org.au/ets/files/ETNews\\_0509\\_web.pdf](http://ecotransit.org.au/ets/files/ETNews_0509_web.pdf)

<sup>9</sup> The list of stops is merely indicative. The precise location and number of stops would depend on the particulars of the development(s) undertaken in the precinct.



The alignment of the cycleway shown within the Rozelle rail lands is merely indicative and its final alignment would depend on associated land use planning decisions. These include the Bays Precinct planning process being undertaken by local councils and the Sydney Harbour Foreshore Authority.

It should also be noted that there is sufficient space in the corridor to accommodate cyclists and pedestrians by providing separated paths, in a similar manner to the Bay Run. It should be noted that the flat terrain and higher cycling speeds this implies, militates toward the provision of separate paths wherever possible for cyclists and pedestrians in this section of the Cycle-Link.

## Section 2.2 – Gordon Street to the Anzac Bridge Cycleway

The final section of the City West Cycle-Link would pass under Victoria Road and connect to the Anzac Bridge Cycleway, and is shown in Illustration 11. From there, cyclists could continue their journey over the Anzac Bridge to Pyrmont. Alternately, they could use the adjacent Victoria Road overpass to head towards Glebe via the Crescent or Bicentennial Park.



*Illustration 11: Cycleway passing under Victoria Road and connecting to the Anzac Bridge cycleway*

It should be noted that the marked path in Illustration 11 is purely indicative and not a suggested engineering treatment<sup>10</sup>. The actual location and design of the junction would seek to ensure that:

1. The safety of cyclists and pedestrians was not compromised by merging traffic.
2. Cyclists were able to maintain their speed when going uphill in both directions along the

<sup>10</sup> As depicted it shows an impractical and unsafe obtuse connection to the Anzac Bridge path at a point at which cyclists are travelling at high speed.

cycleway.

3. Delays for cyclists seeking to enter or exit the City West Cycle-Link would be minimised.

With these points in mind, the treatment may require a large triangular junction, small roundabout or very wide "slip" paths to give adequate sight lines, allow pedestrians to feel safe, and not considerably inconvenience cyclists who are still going to and from Victoria Rd and the Anzac Bridge at high speed.