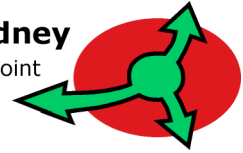


EcoTransit Sydney

PO Box 630 Milsons Point
NSW 1565
ecotransit.org.au



**A SUBMISSION ON THE COOKS RIVER TO IRON COVE GREENWAY
DRAFT MASTER PLAN AND COORDINATION STRATEGY**

Prepared by: EcoTransit Sydney

Date: May 26, 2009

Authorised by the Executive Committee of EcoTransit Sydney

The submission (including covering letters) consists of:
15 pages

Please contact the delegated contact for EcoTransit Sydney if all the components of the submission outlined above have not been received.

Contact person for this submission:

John Bignucolo

02 9713 6993

john.bignucolo@gmail.com

Contact details for EcoTransit Sydney, Inc.:

PO Box 630

Milsons Point

NSW 1565

See our website at: www.ecotransit.org.au

EcoTransit Sydney

PO Box 630 Milsons Point
NSW 1565
ecotransit.org.au



Ms Kim Anson
General Manager
Marrickville Council
PO Box 14
Petersham NSW Australia 2049

May 26, 2009

Dear Ms Anson,

Please accept this submission from EcoTransit Sydney on the *Draft Master Plan and Coordination Strategy for the Cooks River to Iron Cove GreenWay*, Reference: 366-01.

EcoTransit Sydney is a long standing community-based, not for profit organisation dedicated to the promotion of sustainable development principles, focussing particularly on the adoption of active transport and public transport solutions.

We welcome and support much of the intent behind the plan and believe that the addition of well planned and well integrated pedestrian, cycling and public transport facilities, particularly light rail, will greatly improve the amenity and liveability of the communities through which the GreenWay passes. That said, our submission does raise several areas of concern which we believe need to be addressed as part of the Councils' consideration of the draft Master Plan.

Yours sincerely,

John Bignucolo
Secretary
EcoTransit Sydney Inc.

1. Executive summary

EcoTransit Sydney finds itself largely in agreement with the aims and outcomes outlined in the *Draft Master Plan and Coordination Strategy* for the *Cooks River to Iron Cove GreenWay*, hereafter referred to as the *MasterPlan*. However, there are areas of difference, and matters of concern upon which EcoTransit Sydney wishes to comment.

The basis of our concerns relates to the extent to which it is feasible or desirable to impair the ability of the Rozelle rail freight line to serve as a public transport corridor for light rail. The *MasterPlan* envisions a low frequency, low capacity and low utility service for which a single track is deemed sufficient.

EcoTransit Sydney is of the view that it is *vital*, in terms of public transport service levels and community benefit, that the present twin track configuration is maintained, especially when the maintenance of such a configuration does not have to be at the expense of cyclists and pedestrians.

The concerns may be summarised in the following terms:

1. The *MasterPlan* proposes the conversion of a valuable piece of urban rail transport infrastructure into one whose configuration would render it unsuitable as a useful and viable light rail corridor. This would limit its ability to service a much broader cross-section of the community than the cyclists and pedestrians on whom the *MasterPlan* appears focussed. It would also impair the potential network benefits that a more capable light rail service would offer in terms of trip substitutions and when connecting to other public transport modes, particularly the heavy rail network at Dulwich Hill and Lewisham.
2. Leichhardt, Ashfield and Marrickville councils have all passed resolutions in support of the proposals by EcoTransit Sydney for an integrated expansion of active transport routes and the light rail service, based on the extension of the light rail service from Lilyfield to Dulwich Hill along the freight line, and also to White Bay and East Balmain via the Rozelle rail lands and Bays Precinct. For comparatively little cost, time and effort, these proposals would offer an improved public transport service that would benefit thousands of households.
3. EcoTransit Sydney believes that the positive outcomes for cyclists and pedestrians sought by the *MasterPlan* can be achieved without impairing the Rozelle freight line's capacity to serve as a practical light rail corridor linking Dulwich Hill with Lilyfield and the existing light rail service to Central. Indeed, the intent and requirement to simultaneously develop active transport and light rail facilities in the Rozelle rail lands and Bays precinct would serve to mutually reinforce each mode's justification, particularly in the face of competing demands from other state agencies, such as the RTA.
4. Given the attractive potential for an extended light rail service to Dulwich Hill and East Balmain to serve as an important commuter route to the city and as an interconnection between the Main Western and Bankstown heavy rail lines, the corridor's greatest utility lies in having the double track retained intact. Specifically:
 - i. The opportunity of employing an existing, electrified, double track railway with no other traffic that passes through a built-up area where existing public transport has reached or exceeded capacity is too good to miss. Instead of freight, light rail would move people – quietly, quickly, conveniently and frequently.
 - ii. The maintenance of the double configuration is essential for the light rail service to be

viable, particularly from the point of view of a service operator. Reducing the existing railway to single track with turnouts for passing services would compromise reliability, restrict capacity and sharply increase maintenance costs for a light rail service to Dulwich Hill.

- iii. Conversion of the length of Lilyfield cutting to single track represents an insurmountable obstacle to efficient light rail operation and an alternative to its proposed use by the GreenWay as a cycling route would be required.
5. EcoTransit Sydney believes that alternative approaches are available that preserve the configuration for light rail while still catering for the needs of cyclists and pedestrians at pinch points along the route, with particular reference to the overhead bridges south of Lewisham. In particular, the use of prefabricated 3.6 x 3.6m culvert which comes in 2.4m sections deserves investigation. These can be installed via a cut-and-cover method or a "jacking through" method, and appear to offer an extremely cost-effective solution.
 6. It appears that many of the design proposals in the *MasterPlan* for cycling and pedestrian routes have assumed that RailCorp, the responsible entity for the corridor, will:
 - i. agree to the alienation / excision of one of the rail lines in the corridor,
 - ii. agree to pedestrians and cyclists being allowed in the rail reservation.

It is premature to propose measures, such as removing or covering track, that have not yet been approved by RailCorp.
 7. EcoTransit has proposed that an Enquiry by Design (EBD) be undertaken to explore and resolve the broader land use, planning, and detailed design issues arising from extending the light rail service to Dulwich Hill. Part of the EBD's brief would be to ensure that active transport users were properly accommodated while also addressing other outcomes, such as habitat maintenance and restoration discussed in the *MasterPlan*. The outcome of the EBD would be a detailed physical plan for the corridor.
 8. In our view, the EBD process is superior to the open ended feasibility and strategic use study, of indeterminate duration and scope, proposed in the *MasterPlan*. Among the advantages of the EBD process would be:
 - i. The focussed nature of its deliberations. After a period of detailed preparation – which can encompass several weeks, depending on the complexity of the project – undertaken by the consultants leading the EBD, the community, local and state government stakeholders, and state government agencies would be brought together for a (typically) week-long detailed planning session whose outcome would be a concrete physical plan for the corridor.
 - ii. Its methodology – which identifies and engages with the responsible entities – identifies, collates and disseminates critical information from the relevant state government agencies; commissions, where necessary additional studies from independent consultants; and obtains input and feedback from the local community. This preparatory work ensures that the participants in the detailed planning and design session are informed by a comprehensive and shared technical knowledge base, and an understanding of community concerns.

2. Introduction

This document is a submission from EcoTransit Sydney, Inc. prepared in response to a request for comment on the *Draft Master Plan and Coordination Strategy for the Cooks River to Iron Cove GreenWay*, Reference: 366-01, hereafter referred to as the *MasterPlan*, released in December 2008.

Within the identified GreenWay area, the *MasterPlan* promotes a particular vision for how the corridor centred on the Rozelle rail freight line and associated rail yards, which run from Rozelle Bay to Dulwich Hill, should be reshaped and reused. That vision is based on GreenWay's objectives and principles, as outlined on p. 2 of the *MasterPlan*. This corridor is critical as it serves as the de-facto backbone – or *spine*, p. 7 – of the entire GreenWay.

EcoTransit Sydney is concerned that the self-identified GreenWay stakeholders are pursuing the adoption of policies and agendas that, while often embodying good outcomes for locally adjacent communities, will have quite negative – and no doubt unintended – consequences for other outcomes, such improved public transport, which depend upon broader analysis and consideration of wider community interests, but which yield greater absolute concrete benefits.

At its heart, the *MasterPlan* proposes the conversion of a very valuable piece of urban rail transport infrastructure into one whose configuration would render it unsuitable as a useful and viable light rail corridor. This has serious implications in public transport and land use planning terms for the broader Inner West, limiting as it does the corridor's ability to service a much broader cross-section of the community than the cyclists and pedestrians on whom the *MasterPlan* appears focussed. It would also impair the potential network benefits that a more capable light rail service would offer in terms of substantial trip substitutions and in connecting to other public transport modes, particularly the heavy rail network at Dulwich Hill and Lewisham.

The intended land use outcomes and priorities underlying the GreenWay are clearly indicated by the performance targets enumerated on p. 27 of the *MasterPlan*. While there is a reference to a light rail extension in item 3.6 of the Strategy and Action Plan on p. 25, the associated performance targets don't include one for additional sustainable, that is light rail, transport capacity in the corridor. Transport-related targets are limited to, and prioritised toward active transport modes – cycling and walking. Yet, by the *MasterPlan's* own analysis of the Inner West transport context on p. 4, there is a substantial and growing need for additional public and sustainable transport capacity.

The extent to which the government bodies identified as stakeholders in the process – local council and state authorities – have been formally involved and consulted in the development of the proposals detailed in the *MasterPlan* is also unclear to EcoTransit Sydney. For example, an obvious constraint on the *MasterPlan's* proposals is whether or not RailCorp, a crucial stakeholder, has determined how it intends the Rozelle rail freight corridor will be used in the future. It appears that many of the fundamental design proposals in the *MasterPlan* for cycling and pedestrian routes have assumed that RailCorp, the responsible entity for the corridor, will:

- agree to the alienation / excision of one of the rail lines in the corridor,
- agree to pedestrians and cyclists being allowed in the rail reservation.

However, as noted on p. 9, the preferred treatment, based on the removal or covering of a track, is just an option and has not been approved by RailCorp.

The measures outlined in the *MasterPlan* do not represent a considered formal planning and implementation consensus among the state and local government entities responsible for the

corridor, but a piece of well-prepared, and in many respects highly commendable, advocacy on the part of a committed community group.

EcoTransit Sydney is firmly of the view that the concerns listed below are deserving of consideration in determining how the GreenWay project is to be assessed and progressed.

3. Rozelle Freight Rail Corridor and public transport

The Rozelle freight rail line has existed as a transport corridor for a century and its planning controls and zoning reflect that purpose. Changing demographics and land use have meant that it also represents an opportunity for a significant addition to public transport capacity and local amenity in the Inner West for very little cost, and all that flows from that in terms of personal mobility, access to sustainable transport for all members of the community, alleviating road congestion and addressing climate change.

EcoTransit Sydney is of the view that a broader transport and community vision is required for the corridor than it being seen, as it is in the *MasterPlan*, as primarily a low capacity, active transport thoroughfare. While active transport is a mode that EcoTransit Sydney is keen to be accommodated and encouraged, the future use of:

- an existing, electrified, double track railway with no other traffic,
- that passes through a built-up area where existing public transport has reached or exceeded capacity,
- and which can be very quickly and cheaply used for an extension of a high quality light rail service,

strongly suggests that broader considerations need to be brought to bear in assessing the corridor than those identified in the *MasterPlan*.

As noted in [ETS1], despite poor operational performance in the eight months leading up to May 2008

public transport patronage had risen by 5.1 percent across the CityRail network – an additional 10 million trips. Patronage at Inner West rail stations was an astonishing 8.5 per cent higher than for the same period in the previous year. Bankstown line patronage increased by 10.5 percent.

Some bus routes in the Inner West have shown increases above 15 percent.

The roads used for many bus routes in the Inner West are saturated, with congestion negatively impacting on-time running and passenger amenity.

The Rozelle freight line and the Rozelle rail lands offer an opportunity to add badly needed, additional grade-separated public transport capacity to the Inner West community, for a fraction of cost when compared with, for example, the Rozelle-CBD Metro. Given the reality of a congested road network in the Inner West, the extent of the need for additional grade-separated public transport capacity is illustrated by a July 28, 2008 report in the Sydney Morning Herald [SMH2008b]. The article reported on figures from the Transport Data Centre showing that public transport usage had already reached 2016 target levels.

Therefore we note with some concern the references to “rail trails” on p. 9 of the *MasterPlan*. A “rail trail” is what one has left over when rail track has been removed altogether from a corridor. The option presented in the *MasterPlan* in which one rail track is covered over is, for all practical

purposes, little different. It is very difficult to restore the original track function once a track has been removed or the space used for other purposes, and monies spent on alternate infrastructure and facilities.

Given the high cost associated with retrofitting a rail line to an area from which it has been removed, or adding a new rail line to a developed area, as evidenced by the extremely expensive Rozelle-CBD Metro¹, we would hope that the *MasterPlan* would promote a scheme whereby the full potential capacity of light rail is preserved in parallel with bicycle and pedestrian facilities.

4. Light rail and public transport demand

One of the primary motivations of the *MasterPlan* is a desire to encourage active transport within the GreenWay corridor. EcoTransit Sydney is entirely supportive of this aim, but has noted that the *MasterPlan* doesn't offer the same level of justification, analysis, or equivalent support for light rail.

This is illustrated in the modest service extension proposed as part of a possible staging process outlined on p. 12. At best, it treats it as an afterthought even though as a transport mode it is second only to heavy rail in capacity, is more suitable for the physically constrained – such as the elderly – than walking or cycling, and is able to cater for those residents wishing to commute to work and to connect with other elements of the transport network.

Equally of note is the fact that extending light rail along the Rozelle freight line is consistent with the line's existing zoning status as a rail-based transport corridor. Instead of freight, light rail would move people – quietly, quickly, conveniently and frequently.

In recognition of the opportunity presented by the cessation of freight rail operations, Leichhardt, Ashfield and Marrickville councils have all passed resolutions in support of extending the light rail service along the Rozelle freight line. The resolutions support the proposals by EcoTransit Sydney for an integrated expansion of active transport routes and the light rail service, based on the extension of the light rail service from Lilyfield to Dulwich Hill along the freight line, and also to White Bay and East Balmain via the Rozelle rail lands and Bays Precinct. For comparatively little cost, time and effort, these proposals would offer an improved public transport service that would benefit thousands of households within the route's catchment as well as users of the wider Sydney public transport network.

While patronage projection studies have not been publicly released by the Ministry of Transport, an indication of the latent demand for light rail along the Rozelle freight line corridor is provided in a May 20, 2008 article by Linton Besser in the Sydney Morning Herald [SMH2008a]. The article refers to a detailed study undertaken by Sinclair Knight Merz, which looked at the effects of extending the light rail service as far as the Allied Mills site at Summer Hill:

A feasibility study commissioned by the Ministry of Transport, seen by the *Herald*, nominates a preferred route that would transport commuters from Lilyfield to near the corner of Norton Street and Parramatta Road in just eight minutes.

The 1999 study coincided with comprehensive patronage mapping of the Summer Hill extension, but almost 10 years later, the Government is yet to act on the proposal.

A report by Sinclair Knight Merz found the western loop, which is proposed to terminate at the Allied Mills flour mill at Summer Hill, would be heavily used.

¹ Estimated at \$5,800 million, and counting.

With more than 3 million passengers on the network between Central and Lilyfield already, the report estimated the Summer Hill extension would generate an extra 1 million passengers a year. This would include 64,000 new passengers who would otherwise not use public transport. "[It] will generate an estimated \$1.7 million a year of additional revenue," the Sinclair Knight Merz report says.

Since the Sinclair Knight Merz study was undertaken, the area south of the Allied Mills site has continued to undergo extensive residential development, with medium to higher density dwellings being constructed along the route of the freight line down to Dulwich Hill. Based on these additional residential developments, and the substantial increase in petrol prices since 1999, it is reasonable to infer that available passenger numbers can only have increased within the catchment of the freight line.

Another indication of the extent of latent demand for better public transport has been the response to the May 2008 [ETS1] and September 2008 [ETS2] issues of EcoTransit News. These newsletters included a letter addressed to the Premier of NSW supporting the extension of the light rail service to Dulwich Hill and East Balmain. We asked that respondents send the letter to EcoTransit Sydney, where they were collated and forwarded onto the Premier of NSW and the Federal Minister for Transport. In response, over 3,500 letters were received from residents. The majority of respondents were from the Marrickville, Ashfield and Leichhardt council areas, but letters were also received from residents in adjoining council areas, such as Canterbury and the City of Sydney. This is a very high response rate in relation to the number of newsletters printed.

5. The benefits of maintaining a twin track configuration

Underlying the proposals contained in the *MasterPlan*, as embodied by the diagram on p. 10, is an assumption that a single track would be sufficient for the needs of a comparatively low capacity and low frequency light rail service.

EcoTransit Sydney would suggest that from the point of view of an operator of a light rail service, the availability of double track is an extremely important matter, and something it would deem *essential* to the commercial viability and optimal operation of its services. For example, the existing light rail service uses a double track configuration.

There are operational benefits in having two tracks available, particularly in terms of turn-around and service frequency, while flexibility and fault tolerance are maximised. For example, the Maryland Transit Administration described the benefits of double track in these terms when it upgraded from single to double track [MTA]:

At the time that the Maryland Transit Administration (MTA) constructed the Central Light Rail Line serving the Baltimore metropolitan area, funds were not available to make the entire 29-mile system double-tracked. Twelve miles of the system were single track only, which over the years has resulted in operations, capacity and maintenance problems. JMT, in joint venture, designed the double tracking for two of the eight single track segments, between the Linthicum and Cromwell stations. The addition of a second track gives MTA much greater flexibility in scheduling and greatly reduce safety concerns throughout the Central Light Rail Line system.

As noted in [WikiLR], light rail vehicles travelling on double tracks have a high carrying capacity

while using comparatively little space, particularly when compared to an equivalent road. EcoTransit Sydney urges that serious consideration be given to the potential broad community benefits arising from retaining the existing double rail tracks for use by a light rail service. The opportunity for such a significant improvement in public transport capacity offered by an extension of light rail services for the Inner West [ETS3, p. 5] should not be lightly discarded.

With regard to the northern end of the GreenWay, the land use model being proposed for new housing developments in the Bays Precinct and Rozelle Goods Yards is likely to follow the principles of Transit Oriented Development. In this model, higher residential densities are integrated with effective public transport services in order to minimise car dependence while maximising mobility and flexibility.

The Transit Oriented Development literature, for example [Ditt2004], has analysed the way in which the characteristics of light rail, particularly its capacity, frequency, low cost and comparatively light urban footprint, have shown it to be an ideal transport mode for this urban form. While being mindful and supportive of the advantages and benefits of an extensive and well integrated network of active transport routes, the ability of light rail to cater for all groups within the community, particularly the elderly and less mobile, suggests that greater consideration be given to its adoption in place of the very expensive and ill-considered Metro proposals. It is worthwhile to note that the Gold Coast Rapid Transit mode choice inquiry concluded [TA2009, p. 132]:

Experience from other cities has shown that there are benefits of integrating a rapid transit system at grade on ground level rather than underground, and that an on ground system provides a more pleasant journey. It is easier to find, to access and to understand and makes connections to other forms of transport more straightforward.

While arguing for the critical importance of maintaining the dual track configuration wherever possible, EcoTransit Sydney believes there is adequate space within the existing freight rail corridor for additional off-road cycling and walking routes to be provided.

6. Using Enquiry by Design

EcoTransit Sydney has proposed that an Enquiry by Design (EBD) be undertaken to explore and resolve the broader land use, planning, and detailed design issues arising from extending the light rail service to Dulwich Hill. Part of the EBD's brief would be to ensure that active transport users were properly accommodated while also addressing other outcomes, such as habitat maintenance and restoration discussed in the *MasterPlan*. The outcome of the EBD would be a detailed physical plan for the corridor.

In our view, the EBD process is superior to the open ended feasibility and strategic use study, of indeterminate duration and scope, proposed in the *MasterPlan*. Among the advantages of the process would be:

- i. The focussed nature of its deliberations. After a period of detailed preparation – which can encompass several weeks, depending on the complexity of the project – undertaken by the consultants leading the EBD, the community, local and state government stakeholders, and state government agencies would be brought together for a (typically) week-long detailed planning session whose outcome would be a concrete physical plan for the corridor.
- ii. Its methodology – which identifies and engages with the responsible entities – identifies,

collates and disseminates critical information from the relevant state government agencies; commissions, where necessary additional studies from independent consultants; and obtains input and feedback from the local community. This preparatory work ensures that the participants in the detailed planning and design session are informed by a comprehensive and shared technical knowledge base, and an understanding of community concerns.

One factor that would become clear under an EBD is the comparative speed and ease with which the light rail service could be extended to Dulwich Hill, and how quickly it could be initiated². By way of comparison, the extension of the light rail from Wentworth Park to Lilyfield in year 2000 took 9 months to complete, and gives an indication of how quickly enhanced public transport services would become available to communities along the Rozelle freight line route.

By contrast, while the *MasterPlan's* feasibility and strategic use study may eventually come to the same conclusion, it is likely to take quite some time as it ponders the application of the decision-making criteria to the issues outlined on p. 12. It is also unclear as to who would initiate the study, who would undertake the study, to whom they would report, and whether the responsible entities, such as state authorities, would agree to participate under the terms and conditions outlined in the *MasterPlan*, and who would have carriage for implementing the study's recommendations.

The intended land use outcomes and priorities underlying the GreenWay are clearly indicated by the performance targets enumerated on p. 27 of the *MasterPlan*. While there is a reference to a light rail extension from Lilyfield in item 3.6 of the Strategy and Action Plan on p. 25, the associated performance targets don't include one for additional sustainable, that is light rail, transport capacity in the corridor.

Transport-related targets are limited, and prioritised to active transport modes – cycling and walking. Yet, by the *MasterPlan's* own analysis of the Inner West transport context on p. 4, there is a substantial and growing need for additional public transport capacity, with the Rozelle freight line and Rozelle freight yard lands through to the Anzac Bridge and White Bay representing the sole remaining cost-effective, grade-separated corridor available.

We note also that item 3.6, while referring to a light rail extension beyond Lilyfield, does not nominate an end point. Also, unlike many other substantial initiatives and actions detailed in the Strategy and Action Plan on pp. 23-26, there is no firm completion date for an extension of the light rail service to Dulwich Hill. The item is tied to item 3.3, an investigation of:

options for an off-road grade-separated cycling priority pathway from the GreenWay to the Anzac Bridge within or immediately parallel to the Rozelle freight rail corridor.

While it is reasonable to consider the cycleway and light rail together, the timing and staging proposed:

in conjunction with planning or feasibility studies for light rail 2009-2010

fails to incorporate sufficiently concrete targets. It would be disappointing to reach the end of 2010 with nothing more concrete than a feasibility study.

In fact, the linking of items 3.3 and 3.6 serves to conflate two discrete light rail extensions that should be considered separately. The first extension is from Lilyfield to Dulwich Hill. This presents no real technical or planning difficulties. The available patronage catchment and passenger profile is well understood – both in terms of numbers and demand. The track itself has been maintained to a reasonable standard in recent years, even as freight traffic diminished, and would require little refurbishment in order to be returned to the required operational standard.

² The topical appellation “shovel ready” seems to have been coined with the light rail extension in mind.

The second extension from – in all probability – the existing Rozelle Bay light rail stop, through the Rozelle rail lands to Anzac Bridge, White Bay and Cameron Cove can be staged separately from the first extension. As indicated below, this extension is ideal for combining with a grade-separated cycling and pedestrian facility, and demonstrates the extent of the available synergies between light rail, cycling and walking.

7. Progressing light rail and active transport in the Greenway

As we have emphasised in our discussions with government and in our newsletters [ETS1, ETS2, ETS3], we believe that an EBD process [EbD, ESD, WAPC2003] offers the best means of ensuring a detailed physical plan is developed which includes provision for a high-quality cycling route along the Rozelle freight line corridor. There is every reason to believe that a similar EBD process could also be successfully undertaken for the Bays Precinct and Rozelle rail lands. As example of what is possible, and feasible, in a *greenfield* development opportunity such as the Bays Precinct and Rozelle rail lands is shown in Illustration 1.



Illustration 1: Light Rail and Shared Path in France

EcoTransit Sydney believes that the maintenance of existing double rail track and the provision of new cycling facilities are complementary to each other, and reinforce the planning and budgetary arguments in favour of retaining and allocating space for safe and compact transport modes represented by light rail, walking and cycling.

This is very much the case in the Bays Precinct and Rozelle rail lands. For example, [ETS3, p. 5]

includes a proposal to use the still extant double track in the Bays Precinct and Rozelle rail lands for a light rail extension from the current Rozelle Bay stop to Cameron Cove, with stops at the White Bay Power station, White Bay, Birrung and Cameron Cove.

Combining this extension with the bicycle path proposals, such as the route under Victoria Road linking with the Anzac Bridge, in a coordinated and mutually reinforcing manner would broaden the extent of the community benefit and allow for funding, planning and design decisions to be made that take into account the needs of each transport mode. An example of an indicative land use result based on these principles is shown in Illustration 2.



Illustration 2: Light Rail and Separated Paths in France

The converse is also true. Attempting to pursue the proposals in an uncoordinated manner runs the risk that one or the other is deemed too expensive, has insufficient benefit to justify proceeding, or is precluded due to potential land use conflicts and policy requirements of state agencies. If Council does not take the initiative with a coordinated proposal enjoying broad community support it leaves the field open for inappropriate ad-hoc development. It also risks outcomes driven by other state agencies, particularly the RTA, taking precedence. Outcomes that would favour motorway and road development at the expense of sustainable transport and local communities.

8. Dealing with pinch points

It has been noted that pinch points along the route, particularly with reference to the overhead road bridges south of Lewisham, serve as a motivation for the configuration favoured in the *MasterPlan* of dedicating one track to cyclists and pedestrians and one track to light rail.

In considering a functionally equivalent alternative to this layout, EcoTransit Sydney sought information from a representative of Rocla, a Sydney-based preformed concrete products manufacturer, for a product that would enable cyclists and pedestrians to be safely routed around these pinch points, thereby ensuring the continuity of their shared path, while maintaining the dual rail track. As it turns out, an applicable product is available: prefabricated 3.6 x 3.6m culvert which comes in 2.4m sections.

As a rough guide, installation of these culverts at each overhead bridge would take between 4 days and a week. There are two ways to do this: cut-and-cover or "jacking through". With cut-and-cover, the road is closed and the culvert installed. Alternately, installation can be done by closing half of the road at a time. As three of the roads are lightly trafficked and easy alternative routes exist, the option of complete closure exists.

"Jacking through" is a process of pushing the culvert through by tunnelling ahead of it half a metre at a time and then pushing the culvert into that section. Obviously, more sections of culvert are added at the rear as the job progresses. This avoids the necessity to close off some services, shore up the sides of the cut or to close the road. We were advised that (subject to further technical assessment of matters such as the nature of the fill used for bridge ramps) an approximate cost would be \$10,000 per metre³ for materials and construction, meaning that pinch points at the five road bridges along the route could be remediated for less than \$2 million.

A graphic of how such a configuration could appear was prepared for [ETS3, p. 4] and is shown in Illustration 3. To quote from the caption in [ETS3, p. 4], the illustration shows "the proposed Waratah tram stop at Davis Street, looking south, with a tram heading towards Dulwich Hill station. Cyclists and walkers enjoy a wide pathway with frequent rail crossing points and easy street access. The tram stop features abundant bicycle parking. Bush restoration has created a north-south migration route for native birds, mammals and reptiles."

3 EcoTransit Sydney was also advised that this represented the basic retail price, and did not take into account volume discounts or the results of a competitive bidding process undertaken in response to a formal tender document.



Illustration 3: Proposed Waratah Tram Stop at Davis Street

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- [ETS2] EcoTransit News, September 2008, www.ecotransit.org.au/ets/dulwich_hill_light_rail_greenway
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