



SUBMISSION

TO

LANE COVE TUNNE PROJECT EIS

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Although this response was prepared by Carolyn New for and on behalf of Bicycle NSW, there must be acknowledgements to the other Bicycle NSW members who contributed to the Cycling, Pedestrian and Public Transport Focus Groups and in various ways to this response:

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Submission Overview

Bicycle NSW welcomes many of the proposals associated with the Lane Cove Tunnel projects as documented in the EIS document. While we fail to appreciate the necessity to build yet another road, it is very pleasing to see the State Government and the RTA fulfilling their obligations to *'incorporate dedicated bike lanes and cycleways whenever a new road is being built or upgraded'* as per *Action for Transport* by providing very significant associated improvements in public transport and non motorised transport.

The bike facilities proposed are quite significant and we appreciate the effort that has gone into ensuring continuity along the corridor, by allocating the space required and by consideration of innovative features that make for a high quality facility and attempted separation from pedestrians in higher usage areas. It is pleasing too to see a recommendation to complete the Gore Hill section early to ensure good continuity of cycle access during the freeway widening phase.

Who will use this Facility?

We do though have significant concerns particularly with the underlying premises on which the proponents have based the proposed cycle facilities. With respect to the potential users of this cycle route, we believe this is first and foremost a commuter cycle route with some sections also providing excellent local access and a backbone into which local cycle routes feed for commuter and utility journeys. This is in no way a recreational cycle route.

We appreciate that the RTA builds cycle routes to assist a modal transport shift to the bicycle and they require that any facility they build must be of a type and quality that will encourage new bicycle users to cycle for transport, even if those features will not be desirable to the cyclist who is already commuting. The section of the cycle route alongside the Gore Hill Freeway should attract many brand new cyclists who will discover how much easier it is to cycle than drive between Lane Cove and Naremburn or Artarmon. On the other hand we do not believe that the section of this cycle route along Epping Road between Delhi Road and Munro Streets can be made initially attractive to such cyclists. It is simply too hilly and the trip generators are too far apart.

The Delhi / Munro section though, will be very attractive to the developing cyclist who has already discovered the usefulness of the bicycle for local journeys and is beginning to increase their fitness, skills and experience. They will be prepared to extend themselves to the commute across the Lane Cove River on a continuous, direct, no delay and safe cycle route whereas they would never consider commuting on the usual busy roads. These cyclists will contribute significantly to a modal shift as their growing commitment to commuter cycling is far more likely to be extensive and on-going.

What is a Safe Facility?

The second premise with which we take issue relates to the question of 'what makes a safe cycle facility' and the underlying belief that it can only be safe off-road. We are quite convinced that a cycle facility can not only be made safe on road but that depending

of the prevailing conditions it can often be safer than off road. On-road facilities can be made safe by the lowering of speed limits, provision of good wide cyclelanes and, especially for the vulnerable cyclist a significant barrier such as a New Jersey barrier, interspersed with openings where traffic can cross to access driveways and side streets and buses can load and disembark their passengers.

One of the areas of danger in off-road facilities, especially two-way facilities, arises from conflict with cars in unexpected situations such as backing out of driveways and turning into cross streets where the motorist does not often appreciate the speed of a cyclist and fails to recognise a potential occupant of the space they are about to take, especially when that cyclist is coming from the 'wrong' direction. These dangers are eased, if not avoided, when on road where the cyclist is far more predictable as he/she travels in the same direction as other traffic, is far more visible and is recognisably travelling in a lane of traffic.

Another condition which increases the danger for two-way off-road facilities is the presence of long hills where most downhill cyclists can easily achieve speeds of 40kph and more. These speeds are quite realistic and any attempt to continually slow a cyclist down in such a situation would be to heavily discriminate against the potential benefits of the bicycle as transport and drive most onto the road. Not only will uphill cyclists be travelling much slower, but there will be a wide variety of speeds both up and downhill depending on the cyclists' fitness, experience and inclination. With closing speeds of 60kpm common, crashes would be quite nasty. Conflict between opposite direction cyclists is simply a non issue where single bike lanes are provided on the road.

What Transport Mode takes Priority?

Although *Action for Transport* recognises the importance in reducing car dependency as essential to improve air quality and the need to take initiatives to improve public transport and provide for and encourage non motorised forms of transport, we fear that the RTA and the proponent have not taken on board as seriously as needs be, the changes in priorities and thinking that are necessary to effect significant change. We fear that the removal of the objective '*to manage and contain trend for traffic growth in the corridor*' signals the reluctance to take actions that would truly contain motorised private transport growth.

The proposal attempts to cater for public and non motorised transport but not at the expense of private motorised traffic flow. Wherever traffic flow modelling and analysis indicates there could be some congestion, extra lanes including many dedicated turn lanes, are provided for the private motorised transport mode, rather than looking at ways to shift the model split away from that mode. By way of example, an extra lane of traffic is proposed between Sam Johnson Way and the River to cater for possible congestion of traffic exiting the Lane Cove Industrial Area, encouraging growth in motor vehicle usage. A better approach would be to work with Lane Cove Tunnel and State Government Agencies to develop and commence implementation of a Travel Plan which encourages and assists employees to take up more sustainable transport options, including the option to work from home. There is a long lead time for the rearrangement of Epping Road,

plenty of time to set in train effective measures that can change the way people travel to work.

The inability to accept any proposal that does not cater to current and expected motorised traffic demand has resulted in a proposal to widen Epping Road in many sections. It proposes resumption of private land, encroachment into bushland and removal of street trees, which could have significant repercussions in terms of community acceptance. It is quite ironical and unfortunate that this proposal to downgrade Epping Road could have this outcome. The proponent must be prepared to stand firm on good quality public transport and non motorised facilities, even if it means compromising and doing without any extra lanes catering for private transport.

Commuter Facility

Regardless of the overall proposal for cycle facilities, this corridor will be used by commuter cyclist and the proposal should suggest ways to enhance their safety and reduce impacts on other road users, in particularly public transport. In particular, existing commuter facilities that already exist such as along the Gore Hill Freeway, must be retained, anything less is quite iniquitous. The EIS recommends that those who are not satisfied with the off-road facility can use the propose Bus Lanes. While this is not a desirable option there are many improvements that could enhance that use of the Bus Lane, if no alternative is available.

Sharing the Pathway

While we appreciate the attempt made to separate bicycle and pedestrian usage of the shared path, compliance will be very poor if that separation is only indicated by a line. Rather than separating by type of user, separation of a single facility should be by direction of travel. This split would allow maximum separation for up and downhill travelling cyclists. A better alternative to the shared pathway is true dedicated and separate facilities.

General Pathway Characteristics

At all times the pathway, whether shared or dedicated cycleway, should be continuous, smooth surfaced, with gentle curvatures and gradients, good sight lines, no obstacles and no obstructive, overhanging vegetation.

Road / Cycle Facility Intersections

Special treatments are required at all road intersections with the cycle facility, whether it be shared path or cycleway. This applies to both signalised and unsignalised intersections. Those treatments must ensure continuity of travel, priority for cyclists, minimisation of delay and elimination of conflict between cyclists and pedestrians. These treatments will need to be highly visible and able to be recognised as a cyclist priority crossing facility. The EIS proposes some good facilities and the report from Jamieson Foley takes these much further. We totally support the suggestions they make and have indicated our preferences where several options are offered. Many of the suggested facilities are quite new initiatives which are dependent on confirmation, clarification and standardisation by the RTA and in some cases on new legislation. We look forward to

contributing further to the development of these initiatives and request a speedy resolution that caters to the overall requirements.

Pedestrian / Cycle Crossings

Although there may be dedicated cycleway facilities there is always the potential that pedestrian and cycle traffic must cross such as where there are Bus Stops and where pedestrians need to cross to the other side of the road. In both cases it is critical to minimise the extent of crossovers and we feel that at any one Bus Stop or road crossing this be reduced to a single crossing. Once again the Jamieson Foley report has made some good suggestions and we have detailed our preferences. These suggested treatments once again are quite new initiatives which are dependent on confirmation, clarification and standardisation by the RTA and in some cases on new legislation. We also look forward to contributing further to the development of these initiatives and request a speedy resolution that caters to the overall requirements.

Implementation

While we appreciate that much of the Epping Road rearrangement cannot be completed until the tunnel is complete and open, this is not necessarily the case in every section of the cycle route. We welcome the recommendation that the Gore Hill Freeway section be completed early to provide a route clear of the works for the duration of the project and urge this to be so. We further recommend that sections not dependent on the rearrangement such as those to the west of the Lane Cove River, be built at earliest time possible.

Route Extensions/Connections

We urge the implementation of certain extensions to the proposed Wicks Road to Parks Road cycle route. A continuous, direct transition between the M2 and Lane Cove Tunnel facilities, underpassing Epping Road, is essential for equity reasons alone. It is most sensible to provide shared pathway facilities on Mowbray Road at the same time as the road realignment and we request that those facilities extend to the top of the hill and connect into Avian Crescent to provide continuity to local bicycle routes. Consideration should be given to maintain and contain the Pacific Highway south of Longueville Road and provide for bicycle along this important commuter route linking to St Leonards and Crows Nest. Existing cycle facilities on the Warringah Freeway must not be compromised by proposed works. We also support the concept to continue facilities for pedestrians and cyclists along the Warringah Freeway easement to the Harbour Bridge. There is excellent potential for a quality commuter route in that region and look forward to co-operating and contributing to its development.

Local Issues

A cycling project of such magnitude and vision is bound to meet opposition in some quarters and raise local issues. We request to be appraised of any genuine, serious concerns that may be raised and to be involved in any on-going resolution that may be necessary. This project is of much importance and it is essential that where compromises must be made, the most appropriate compromise is made after consultation with all the relevant stakeholders.

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1 Introduction

Bicycle NSW welcomes the opportunity to comment on the Lane Cove Tunnel EIS. We genuinely appreciate the outcome in terms of cycle facilities and the ability to provide input to that through the community consultation phase. Accordingly we have highlighted some of the more positive features the EIS offers in Chapter 2.

Despite that appreciation we do still have some very major concerns with the overall project and the basic premises underlying the cycle facilities which are detailed in Chapter 3.

Chapter 4 provides a more detailed identification of bicycle issues that need to be resolved if the proponent goes ahead with an off-road cycle facility. Note, there are some very complex issues with respect to these pathways and many are inter-relating and it is simply not possible to describe every scenario, so we have not made any such attempt. We also don't believe it is our role to provide any detailed engineering specifications or similar to those set out in the Jamieson Foley reports. We have made comments and attempted to provide our overall user requirements.

Chapter 5 discusses some of the issues that arise during the building process.

Finally Chapter 6 gives our detailed section by section assessment of the route, highlighting specific issues and other opportunities.

Thank you for the opportunity to comment on this EIS. We look forward to contributing further on the project. For further information please contact:

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2 Positive Features of the Project

There are a large number of very positive features exhibited in the Lane Cove Tunnel EIS proposal that we see as extremely important to the successful implementation and use of this Cycle route.

2.1 Continuity Along Entire Route

A particularly pleasing feature of the proposal is the continuity of the cycleway along the entire route of the road project and its connectivity into other regional and local bicycle routes.

It is particularly pleasing to see the grade separated crossing of the Pacific Highway eliminating a number of delaying and frustrating signalised crossings.

2.2 Dedicated Cycleways

It is highly commendable to see the proposal to separate pedestrian and cyclist facility at least in areas of higher pedestrian density. Kerb separation, retaining the cycleway at a height more compatible with the road should be reasonably effective in maintaining the separation.

2.3 Width of Shared Pathways

Good width for shared facilities is always important to attempt to reduce conflict between pedestrians and cyclists. Of significant concern has always been the spectre of a shared pathway on the long hills of Epping Road, contending with two way pedestrian and cyclist traffic in a section where there will be high variation in cyclist speeds and in closing speeds. The incorporation of 4.0 wide shared paths will ease some of the safety concerns.

2.4 Continuous Bus Lanes

We strongly support the fairly continuous bus lanes along Epping Road as they are critical to increasing the efficiency of bus travel along the corridor and hence provide a much more attractive public transport mode of transport. It is very important that this be kept at *bus lane* level and not downgraded to any *transit lane* level.

2.5 Reasonable Assessment of Current Cycling Conditions

It was particularly welcome to see in the assessment of current cycling conditions as documented in Working Paper 5 (Bicycles, Public Transport, Pedestrians) the recognition that the lack of cyclists is due to the deterrent nature of present facilities and the examination of bicycle hazards, rather than any suggestion that there is a lack of demand.

2.6 Early Construction of Gore Hill Freeway Cycleway

It is noted with pleasure that the contractor would be required to maintain safe pedestrian and bicycle access as part of the contractor's Traffic Management Plan. It was most particularly welcome to also note that in the options considered for provision for cyclists (as documented in *Working Paper 2 – Concept Design*) the preference is to construct the Gore Hill Freeway shared cycleway as the first stage of Gore Hill Freeway works.

2.7 Potential Showcase Regional Cycle Facility

The specifications proposed for this cycleway and special facilities being considered have the potential, if built to specification, for a showcase regional cycle facility which will encourage significant cycle use.

2.8 Raised Sustainable Transport Priority

The authors of the EIS are to be particularly congratulated on the importance being given to the sustainable transport modes along Epping Road. The provision of continuous bus lanes and continuous pedestrian and cycle facilities over the demands for car parking is a very welcome initiative that is long overdue.

3 Concerns re the Overall Project

3.1 Appropriateness and Safety of Overall Proposed Cycle Facility

We are quite concerned at some of the apparent underlying premises of the proposed cycle facility in particular with respect to the potential users of the facility and in the context of providing a safe facility.

3.1.1 Who are the Potential Users of this Cycle Facility

Within the original EIS focus groups particular reference was initially made to the potential users being *recreational cyclists*. The reality, of course, is that it is unlikely that most of this route has any large role as a recreational cycle route although it would be expected to provide access for the keen cyclist to the recreational facilities accessible at some distance from this route, a type of recreational usage more similar to the commuter and utility journey.

While the EIS itself does not make such reference to the *recreational cyclist* there is still its reference to the *commuter cyclist* who chooses not to use the off road cycle paths and will be able to use the bus lanes along both sides of Epping Road. We also understand that the motivation in providing facilities to cyclists for this project, as for all RTA projects, is not primarily for the benefit of existing cyclists for transport but so as to encourage a modal transport shift to the bicycle ie providing a welcoming cycle environment for the more inexperienced and vulnerable cyclist who will feel it is safe use their bicycle for transport.

This proposed cycle facility is a regional route which is a major part of a traverse of the major CBD crescent covering the City, North Sydney, St Leonards, Chatswood and North Ryde. This route will provide a major commuter link between two major employment, educational and residential areas, separated by the Lane Cove River divide with its relatively few crossings. Just as this is a critical public transport and motor vehicle link, this is primarily a cyclist commuter and utility link.

As highlighted in the EIS this route is currently very under-utilised by cyclists because of its extremely unfriendly and unsafe nature to all cyclists. Consequently there is huge potential for a significant modal shift to bicycle usage in this corridor provided an efficient and safe cycle facility is provided. The need in this corridor is for a cycle facility that will encourage usage by all levels of cyclists for commuter and utility purposes.

It should also be recognised that there is already a commuter cyclist facility along the Gore Hill Freeway. While it is narrow and does not have suitable connectivity to Longueville/Epping Road, it is still nevertheless much used. This facility is proposed to be removed by the widening of the Gore Hill Freeway. While the replacement will open up access for pedestrians and vulnerable cyclists, the proposed shared nature of this facility will not be suitable for the existing commuter cyclist along this corridor. It is

quite iniquitous to remove the direct commuter link and not provide an alternative dedicated facility.

It is generally acknowledged that shared facilities particularly where they run along residential roads with numerous intersections are not efficient cycle facilities and the frequent obstacles and stopping at intersections simply frustrate any reasonably fit and skilled cyclist who wishes to commute anything more than a short journey. There are frequent trip generators in the section of this route between Naremburn and Lane Cove such that short journeys of less than 3 kilometres would be common as they would also be common in the closer environs to Lane Cove Shopping Centre. A shared facility would be adequate, though not preferable, to cater to trips of that distance. Journeys that reach further west and travel on the hills on either side of the Lane Cove River between North Ryde and Lane Cove would be far more likely to be distances of 5 kilometres and more. These journeys are more appropriate using an on-road bike lane, or dedicated cycleway.

The section along Epping Road from Munroe Street to Wicks Street is reasonably challenging for a brand-new cyclist by virtue of the geography of the land. It is far more likely that this route will be attempted by the cyclist who has already discovered the usefulness of the bicycles for local journeys and is developing their fitness, skills and experience. These cyclists are vital in their contribution to a modal shift as their growing commitment to commuter cycling is far more likely to be extensive and on-going. This cyclist would more likely prefer a safe on-road environment than a shared footpath.

While the option given to *'use the bus lane'* may suit some, probably the much more experienced cyclists who is already cycle commuting on other major roads, there would be many others not prepared to *'dice with the buses'* who would also find the delays of the shared path a disincentive to commuting any significant length journey. This link must cater to the needs of commuter and utility cyclists with a wide range of fitness, skills and confidence. The developing cyclist who will contribute so valuably to modal shift, will generally not be prepared to take the bus lane option.

We acknowledge that a significant attempt has been made in the EIS to address the issues that have already been raised with respect to efficiency in the use of the shared pathway and of that we are much appreciative. Further sections of this document will discuss these issues and proposed solutions in greater detail, but we must first state that the best way to respond to those issues is by providing a cycle facility which is more aligned with the road traffic than it is with pedestrians. A facility which is separated from pedestrian use, separated by direction of travel, flows in the same direction as the traffic lanes, moves through the intersections in the same timing phases as the traffic, is readily visible to the traffic lanes and in which the cyclist can behave very much in the way that a motorist would expect traffic to behave and hence is very predictable.

3.1.2 What is a Safe Cycle Facility?

There appears to be a misapprehension that a shared pedestrian facility is by definition somehow safer than any on-road facility. Our view is that mixing usage of a cycle facility with pedestrians usage is not appropriate and nowhere near as safe as providing a separate cycle facility. The most usable and safest facility for all cyclists (vulnerable and experienced) is two, separate one-way cycle only facilities each in the same direction as the road traffic lanes. The width of the facility must of course meet Austroad 14 standards according to the speed of road traffic.

- The cycle facility needs to be very distinctly separated from the pedestrian facility. That separation needs to be by grade, such as can be achieved by dropping the cycle facility to the same level as the car lane. That separation ideally is also spatial with plantings etc in an area of separation from pedestrians. A single built facility with a white line marker is no effective separation.
- To cater to all cyclists the facility should be separated from vehicle traffic lanes by a significant barrier such as the New Jersey barrier, interspersed with openings where traffic can cross to access driveways and side streets. This barrier should not be so significant such that it restricts or eliminates vision between motorists and the cyclists.

No section of the proposed cycle facility meets this ideal, although we recognise that a significant attempt has been made to otherwise address the concerns we have regarding mixing pedestrians and cyclists and that proposals in certain sections do go a long way towards meeting this objective.

Mixing pedestrians with cyclists is no safer than mixing cyclists with cars due to the speed differential between pedestrians and cyclists. In particular the section of this route that follows Epping Road is a hilly terrain with long gradients where the speed differential will be quite high, not only between pedestrians and cyclists but also between cyclists travelling in opposite directions. Closing speeds of up to 60kph would be easy to achieve, not appropriate for a shared pathway. A one directional cycleway facility would be far safer.

Two-way cycleways are also undesirable when cyclists must interface with vehicle traffic at an intersection or at driveways. Motorists have an expectation of direction of travel consistent with their own traffic lanes. While pedestrians come from all directions, they do so slowly whereas a cyclist will arrive at speed. Motorists generally grossly underestimate the speed of cyclists and combined with their expectation of direction of travel, we have a great concern for cyclist safety, particularly the opposite directional cyclist, when a motorist crosses over the cycleway.

The only place where two-way dedicated cycleways can be considered adequate is where the terrain is relatively flat and there are no intersections with cross traffic and roads or driveways. These areas are more commonly found alongside motorways.

3.2 Undesirability of Extra Motor Vehicle Capacity

3.2.1 Not Another Road For Private Motorised Transport

We can only express our deep concern at the transfer of financial and other resources for transport, whether private or government, to the building of another road and providing extra capacity for private motor vehicles. These transport resources are desperately needed for the provision of public transport and facilities for sustainable transport such as cycling. The building of new roads always results in significant 'induced traffic'. The EIS (*Working Paper 4 – Traffic and Transport Appendix E*) appears to be highly dismissive of the realities of 'induced traffic' particularly with regard to potential mode shift effects. Certainly it may be unlikely there will be large transfer from existing bus mode to car mode along the same corridor, but what consideration has been given to the transfer from the more circuitous train mode to car mode by those who have seen the traffic congestion of Epping Rd simply not worth considering by bus or car. The building of the M2 had an enormous impact on the number of car journeys along this corridor and to suggest that improving the travel time on the same corridor will have negligible impact on use of this corridor is quite naïve. The tunnel will most certainly encourage potential users of this transport corridor to take up the private motorised option in preference to more sustainable modes. It is quite disturbing that this new road will be built and in use several years prior to the availability of the Parramatta Chatswood Rail Link in the same corridor. Habits are easily built and difficult to change.

While it may be true that the constraints of parking in the Sydney CBD will operate to lower increasing demand, there are many other trip destinations where those constraints are not so strong. For example destinations to the south of the Sydney CBD which do have a adequate train service but which simply cannot compete in terms of convenience with the car when the current congestion is almost eliminated.

Of particular concern is the provision of a greater capacity in motor vehicle (general and transit) travel lanes in the tunnel and along a reconfigured Epping Road than that already provided. While we are appreciative that the reconfiguration will minimise the increase in capacity, the overall tunnel proposal still will result in extra travel lanes and hence greater capacity. In particular, there will be significant increase in the capacity provided to the west bound morning peak and to a less degree the east bound evening. This can only serve to encourage more commuting car journeys from the City and eastern board residential areas to the growing employment area in Macquarie Park where parking is freely available.

Despite the benefits of improved cycling and public transport facilities and the bus lanes proposed in conjunction with the tunnel, **we do not recommend that scarce transport resources be spent to support private motorised transport modes.** The only sustainable answer is to reconfigure Epping Road now with a dedicated bus lane and a dedicated cyclelane. This should result in one lane for general traffic use and generally none dedicated especially for turning movements, totally inadequate for level of commuter use we are now experiencing but perfectly adequate once traffic has been

reduced to essential journeys only. While there may be concern that traffic would simply overflow to alternative roads, they simply could not handle the current level of traffic and motorists would be forced to reconsider their transport options. While these measures may appear radical and politically unpalatable, they, combined with a massive injection of funding and resources for bus transit along the corridor are the only way to effect a significant turnaround in modal switch to public and non motorised transport.

3.2.2 No Net Increase in Private Transport Motorised Capacity

If and when the Lane Cove Tunnel is built we recommend that the capacity for private motor vehicle traffic is retained at current levels such that the combined capacity of the tunnel and Epping Road is not increased. While modelling may have shown that additional lanes are necessary on Epping Road to allow for what is perceived to be adequate traffic performance, minimal levels of delay and reduction in queuing, these are all representative of outdated traffic oriented thinking rather than providing a more broadly based assessment of transport needs and solutions.

Ensuring the smooth flow of traffic should not be the prime directive. Priority should be the provision of convenient, efficient, integrated, accessible, timely and highly usable sustainable transport modes. These are best implemented as public transport modes integrated and complemented with highly meshed routes used by non-motorised modes.

Decisions may need to be taken that advantage public transport and non motorised modes even at the expense of the smooth flow of private motorised traffic.

3.2.3 Two Lanes are More than Enough

Of significant concern is the decision to provide for three lanes of traffic for many kilometres as the preferred tunnel option. It is extremely worrying that the EIS authors feel it is necessary to even contemplate a possible expansion of the tunnel to a full three lanes. They have clearly indicated that this is only feasible if there is a corresponding widening of the Gore Hill and Warringah Freeways and to the Harbour crossing. To suggest that such a road project could be even remotely possible in the future is to totally ignore the repercussions of continuing to subsidise private motorised traffic and to fully encourage a mode of transport that is both environmentally damaging and quite unsustainable.

We feel that all the arguments put forward to justify an extra general vehicle lane for such a long section of the Lane Cove Tunnel are once again arguments supported by outdated thinking that seeks to justify redirection of financial and other resources to private motorised transport away from critically important sustainable modes. Public transport and non-motorised modes of transport have for many decades lacked priority and been completely inadequately resourced. It is quite inappropriate to provide for three lanes of traffic in the tunnel when quite clearly two lanes are more than sufficient.

Quite clearly, adjustments to the project to provide for the third lane of traffic has resulted in an significant increase in costs. That money would be far better put to use in providing for sustainable transport modes.

3.3 Changes in the Original Objectives

We are concerned that the objectives have changed significantly since the original overview report of the Lane Cove Tunnel Project. While we acknowledge that these have been made more specific we are worried that some of the original intentions have been lost. For example the original objective to *'manage and contain trend for traffic growth in the corridor'*

The EIS states that the Lane Cove Tunnel has a very small effect on total VKT, rising by 0.13 per cent relative to the base case in both 2006 and 2016. As previously indicated we have strong reservations as to reality of this 'small effect'. Regardless of how small this increase is, it is most definitely a move in the wrong direction and indicates that the original objective to contain the trend for traffic growth has been abandoned which is to be deeply regretted.

3.4 Second General Traffic Lane west of Sam Johnson Way

While the Epping Road configuration has generally been specified as one bus lane and one general traffic lane, the section between Sam Johnson Way and the Lane Cove River the EIS has made provision for an additional traffic lane for those travelling west. This is cited as being necessary to avoid congestion arising from westbound traffic from the Lane Cove industrial estate.

We question the wisdom of this recommendation as it can only encourage an increase in motor vehicle traffic accessing the Industrial Area. Rather than catering to this increase, a better option would be to work to improve access to public transport and bicycle modes of transport. Public transport to this area is very poor and from the west directly into the Industrial Area, non existent. During the long lead time until reconfiguration of Epping Rd there should be plenty of opportunity to work with Lane Cove Council and State Government Agencies to develop and commence implementation of a Travel Plan for the Lane Cove Industrial Area to encourage a more sustainable model split . This would be entirely compatible with the aims and objective of the proposed Integrating Land Use and Transport package recently proposed by PlanningNSW.

Elimination of this second general traffic lane is extremely important as this additional lane would necessitate intrusion into the existing bushland alongside Epping Rd. It is extremely unfortunate if supposedly downsizing Epping Road resulted in the need to widen and encroach on bushland . The cycle facility along Epping Rd is essential as it provides a facility that does not currently exist that will enable the cycling as a sustainable transport mode to function in what is currently a cycling hostile environment. The second general traffic lane is not essential and will merely induce further traffic.

3.5 Additional Lane west of Lane Cove River

The proposal calls for an additional westbound lane on Epping Road west of the Lane Cove River. This is cited as being necessary to avoid congestion at the western exit of the Lane Cove Tunnel. This is clearly evidence that the EIS proponents expect an increase in vehicle capacity and use along this corridor once the tunnel is completed, an increase that should be contained rather than encouraged by the provision of an extra lane west of the river.

Effective containment would be not to build the tunnel at all or to build it with a fully restricted set of lanes and to correctly reconfigure Epping Road to a maximum of one private motorised vehicle travel lane.

The inclusion of this extra general traffic lane is highly undesirable on environmental grounds as it would necessitate intrusion into the existing bushland alongside Epping Rd. There is plenty of room within the existing sound walls to provide a cycle facility but not for this extra vehicle lane.

3.6 Additional General Traffic Lane between Longueville and Centennial Roads

The proposal also calls for an additional general traffic lane between Longueville and Centennial Road, supposedly to cater to the bulk of traffic which is attempting to access the left hand turn into Centennial Rd and thereby access areas such as Gladesville to the west.

While it is agree that traffic from the City and lower north shore areas accessing the Gladesville region cannot use the tunnel, we cannot agree that a whole general lane is necessary on Epping Rd to cater for this. If we are going to contain traffic on Epping Road, then that containment must also include traffic that only utilises this short section to Centennial Road. To cater to this usage will only serve to encourage the continued increase in private motorised transport in that corridor, at the expense of more sustainable transport modes.

It is unfortunate that this proposal to supposedly downsize Epping Road will result in the need to widen the road, encroach into the azalea embankment and remove street trees. While we appreciate that the proposal does include new sympathetic landscaping design, it is a significant change to the character of this high profile area of Lane Cove that may not be acceptable to the by local residents. Removal of this second general traffic lane should obliterate the necessity for any such change to the landscape.

The cycle facility along Epping Rd is essential as it provides a facility that does not currently exist that will enable the cycling as a sustainable transport mode to function in what is currently a cycling hostile environment. The second general traffic lane is not essential and will merely induce further traffic.

3.7 Intersection Splaying

The EIS generally provides for two lanes within 150metres of each intersection to eliminate predicted queuing through the intersection. While this may be highly desirable at the major intersections from a traffic management perspective, we question the wisdom once again in encouraging free flow of through traffic . One of the original objectives of this project was to *'manage and contain trend for traffic growth in the corridor'*. Providing for turn lanes at Epping Road intersections can hardly be considered *'containing traffic growth'* . Reconsidering these additional lanes at all minor intersection should eliminate the need for two general traffic lanes in each direction between Tantallon Road and Centennial Avenue.

3.8 Lack of Direct Connectivity to M2

The Lane Cove Tunnel project will provide for excellent connectivity/continuity for private motorised and public transport modes from the M2. It is highly regrettable that the proponents of the EIS have not considered it essential to provide for similar connectivity/continuity for the non- motorised transport mode.

Under this proposal a cyclist travelling east along the M2 shoulder must exit at Delhi Street, cross at the lights and then access the shared pathway and return west on a corresponding route.

Bicycle NSW has always proposed that the eastward bound cyclist should be able to continue along the M2 shoulder after Delhi Rd, and then underpass Epping Road to re-emerge on quality bike lane on the western side of Epping Rd. The westward bound cyclist would have a corresponding journey from a lane on the east side of Epping Rd, underpassing Epping Road to re-emerge on the eastern shoulder of the M2. Anything less would be inequitable and a signal that the RTA is not serious about encouraging sustainable transport.

3.9 Lack of Direct Connectivity to Artarmon Urban Area and Railway Station

The building of the Gore Hill Freeway in 1992 cut the Pacific Highway off from its direct links to Broughton St and hence to Artarmon Station and the larger urban area. What is only a minor inconvenience for the motor car has created a major detour for cyclists and pedestrians in unpleasant, noisy and dangerous conditions. This is a significant deterrent to Lane Cove residents in accessing their closest railway station and in all other forms of local non motorised trips between Lane Cove and Artarmon.

The situation is now exacerbated by the growth in higher density residential accommodation along the highway and the surrounding areas. This growing residential area is encouraged to use the unsustainable motor car by their proximity to expressway

condition motorways while there remains a strong disincentive to walk and cycle to their local railway station.

While the proposed Gore Hill Cycleway will provide a much better facility for trips on the south of the Freeway, this goes nowhere near enough to reinstating the previously existing access by pedestrians and cyclists. to Artarmon Station and the Artarmon Urban Area.

We are disappointed that the EIS does not include any proposal to provide a pedestrian and cyclist link from the Pacific Highway Interchange direct to Broughton St and urge the EIS proponents to reassess their proposal to ensure this accessibility is reinstated. We feel quite sure that the engineers would welcome the challenge to design a facility that overpasses and/or underpasses the several on and off ramps to the highway.

3.10 Lack of Connectivity North and South of the Gore Hill Freeway

The building of the Gore Hill Freeway in 1992 cut a swathe through Artarmon separating the Artarmon Urban Area and Railway Station to the north from the Artarmon Industrial Area to the south. While there are several points where it is possible for pedestrians and cyclists to cross the freeway they are of varying standards and much too far apart. In particular there is no available crossing of the Gore Hill Freeway between the Pacific Highway and Reserve Road a distance of approximately 1 kilometre.

The need for a crossing between these two roads is quite apparent by the presence of a well worn track across the central median of the freeway in the vicinity of McLachlan Avenue and Milner Road, evidence of high pedestrian usage despite the barrier fence and extremely dangerous environment. Frequent repairing of the barrier fence and at least one fatality has not deterred this activity.

Pedestrian access to the Reserve Road crossing itself is very poor with delays crossing the freeway exit and entrance ramps and insufficient storage space on the footpath while waiting through these delays. It is a very unfriendly pedestrian and cyclist environment.

We recommend that the proponents of the EIS review this proposal and include a pedestrian and cycle bridge over the Gore Hill Freeway in the vicinity of and providing access to McLachlan Avenue and Milner Road.

In addition we recommend that the proponents of the EIS review the Reserve Road interchange to provide safer, more pleasant and efficient cyclist and pedestrian access across the freeway in this vicinity.

3.11 Lack of Public Transport Access to Artarmon Industrial Area

While the EIS proposes excellent bus facilities along Epping Road, this is not as evident along the Gore Hill Freeway where buses must share with other users of the transit lane. Of particular concern is the lack of any bus stops, especially in close proximity to the

Artarmon Industrial Area. This area is very poorly serviced by public transport, much eased if buses could drop off and pick up along the freeway and quick access provided from north of the freeway to the Industrial Area.

4 General Bicycle Issues

4.1 Commuter Facility

4.1.1 Preference for Separate Bike Lanes

As documented in the previous section, Bicycle NSW preference is for separate bike lanes with a significant barrier be provided to cater to all cyclists.

If an off-road facility continues to be the preferred option for beginner, child and other vulnerable cyclists we recommend that separate bike lanes, one on each side of the road, built to Austroad 14 standards for the corresponding speed limits are provided for the more experienced commuter cyclists.

These bike lanes are required from the shoulder of the M2, with an underpass of Epping Road to the shoulder of the Epping Road and connecting to and along the Gore Hill Freeway.

4.1.2 Problems with Using the Bus Lane

The EIS proposes that commuter cyclists who were not satisfied with the off road facility would be able to use the proposed Bus Lane. In general this is not a desirable option for a number of reasons

- If there is any potential to delay motorised traffic it is entirely inappropriate that the delay be created in the bus lane which is supporting sustainable transport
- While bicycles can maintain a speed comparable to buses on the downhill section this is not the case uphill. Significant delays would be experienced by buses travelling behind a bicycle climbing uphill
- Buses are wide and heavy vehicles which do not travel well with small bicycles
- There can be difficulties with the attitudes of some, not all, bus drivers when they need to share their lane with cyclists

If no other on-road facility is provided than a Bus Lane, there is no doubt it will be used by many commuter cyclists. It would be best therefore to anticipate this and provide supplementary and complementary facilities to improve conditions for both buses and cyclists.

4.1.3 Supplementary/Complementary Facilities with a Bus Lane

4.1.3.1 Priority for Bike Lane in Up-hill Terrain

If it is impossible to provide a Bike Lane on both sides of the road and all sections of the road we recommend that priority be given to building a bike lane for the up hill sections where the speed differential between cyclists and buses are at their highest. While this lane should to Austroad 14 standard, a minimum width is required that will enable a cyclist and bus to travel side by side without endangering the cyclist.

This is especially important for eastward travelling cyclists who will have no other option than to continue climbing the hill when they realise how high their speed differential is to other traffic in the bus lane. As they will be physically located on the opposite side of Epping Road to the shared pathway, they will have next to no opportunity to access it from their lane, after they take the initial decision to cycle along Epping Road.

4.1.3.2 Ramp Access to Shared Path from Bus Lane

Westward travelling cyclists within the Bus Lane will be in close proximity to the shared pathway and a cyclist in that lane may decide that due to their speed or other circumstances it is more opportune to travel on the shared pathway. This decision is more likely to be made on the uphill sections of road.

To provide for smooth and speedy access to the shared path we recommend that there be frequent ramp access on uphill sections. In these sections there should be frequent and wide and shallow graded kerb ramps, say 2.5m wide every 30m or so, to facilitate a cyclist who is slowing down to quickly and safely convert to the shared path. This should be provided on every uphill section where the share path is separated by a kerb.

Correspondingly, the separation median between bus lane and separated cycleway should have gaps on the uphill sections at about the same intervals for the same reasons.

4.2 Shared Path Characteristics

4.2.1 White Line Pedestrian/Cyclist Separation

It is proposed that the 4 metre wide shared path be separated by a white line into 2.8metres for cyclists and 1.2 for pedestrians. We think compliance to this form of separation by pedestrians and cyclists will be poor and it would better to have the widest possible path for both pedestrians and cyclists. This would be a path split into 2 metre sections.

The 2.0m/2.0m split will allow maximum separation for uphill and downhill travelling cyclists instead of leaving the first 1.2m to pedestrians. We estimate average closing speeds on the longer hills to be in excess of 60km/hr. (10km/hr and 50km/hr downhill). Given that the one path will need to cater to these two directions of travel with their widely varying speeds, a width of metres is essential to provide some level of safety.

A possible exception to this rule could be around busier bus stops and pedestrian road crossings where there may be a need to attempt to separate the pedestrian and cyclist areas.

4.2.2 Other Shared Pathway Markings

The 2.0m/2.0m split shared path and any other width shared path should be painted with logos for both pedestrians and cyclists and an arrow to indicate direction.

4.3 Dedicated Cycleway Characteristic

The key defining characteristic of the dedicated cycleway, as opposed to a shared path, is how it is separated from any footpath facilities. To be effective it must have at least one but preferably a combination of the following characteristics:

- be at a different level to the surrounding ground edged with a rounded kerb
- physically in a different location to the footpath, not easily accessible from surrounding land
- some form of barrier, which could be as simple low vegetation

In constrained space along a roadway with parallel footpath facilities is most likely would be separated by a kerb, with a step down from footpath facilities. If there is space, a buffer zone of low non obtrusive vegetation should separate the footpath from the cycleway.

Where the cycleway deviates from the road and passes through a park, this same different level separation from the surrounding land should persist. It should also be edged by a barrier, such as low, non obtrusive vegetation that will discourage children and other users from running and walking across and on the cycleway.

4.4 Cycle Facility Road Crossings

While a cycle facility, either part of a shared pathway system or dedicated cycleway, is off-road, there is no guarantee that any cyclist using the facility will avoid conflict with the road system. Particularly in the Epping Rd section the cycle facility will be crossed by several road intersections, some signalised, others not, some major roads, others only minor.

Whereas a bike in a bike lane travels as any other road user with all the corresponding rights and regulations as to priority in crossings, this is not the case for a cyclists on a shared pathway or cycleway. On most existing shared pathways today the cyclist who approaches a road crossing is at very low priority indeed and in many situations is called upon legally to dismount their bike. This is quite inappropriate, a significant disincentive for any reasonably skilled cyclist and an invitation for almost total non compliance. Obviously a far better scenario is required and appears to be considered for this cycleway if it is to be useful for cycle commuting and utility.

The consequences of building a shared or even dedicated two way-cycle facility, as opposed to bike lanes, is that the facility needs to be especially well designed at all intersections to ensure

- Continuity of cycle travel at all intersections along the shared pathway or dedicated cycleway
- Priority for cyclist at all intersection
- Minimisation of delay at all intersections
- Elimination of conflict between cycle and pedestrian crossing
- Highly visible recognition to motorists of the crossing facility and cycling priorities with the consequential increase in safety

The EIS makes some very good suggestions for road crossings such as Signal Loop Detectors at all signalised crossing which are intended to minimise cyclists' travel times and we welcome these initiatives. We also appreciate that some proposed treatments are subject to amendments to legislation and that it is therefore difficult for the EIS as yet to specify exactly what treatments are proposed at intersections. Consultants, Jamieson Foley Traffic and Transport were engaged by the EIS proponents to review the bicycle facilities and recommend improvements and we totally support the suggestions made in that document.

The EIS, the Jamieson Foley report and this response all make suggestions that go beyond any other cycle facility built in NSW and clearly depend on a standard facility to be endorsed and commissioned by the RTA not just for this project. Some elements are also dependent on amendments to legislation. It is critical that there be no delay in respect of these.

In the remainder of this section we review the EIS proposals and make further recommendations with respect to the different types of intersections. It is not the role of this response to provide detailed specifications of the intersection nor to provide a review of the detailed engineering, that is properly the role of the proponent and their associates.

4.4.1 Priority road crossings – signalised

The EIS states that at signalised intersections there will be 'a separate, marked, flush cyclists' crossing and signal phase with detector loops and push buttons to minimise travel times and conflicts with vehicles and pedestrians.'

Expanding on this we would expect this to mean that at signalised crossings:

- Pedestrians and cyclists will have separate crossing facilities
- The cyclist facility will be marked to identify it as such. The Jamieson Foley report recommends green paint and elephant feet with which we concur
- The cycle facility will be flush with the dedicated cycleway or shared path as appropriate. The Jamieson Foley report recommends a raised threshold for the vehicle crossing. As a general principle we support that as a measure to slow traffic at intersections and warn cars to be aware of pedestrians and cyclists crossing. We also note that there may be conflicts between retaining the facility flush with the cycleway, raised thresholds and other engineering requirements at these intersections.

The primary requirement must be that if not possible to be flush there be smooth

gentle transition between any intersection crossing and the shared or cycleway facility itself .

- Installation of cycle detector loops and cycle specific push buttons at all signalised crossings. We support the Jamieson Foley report's recommended specifications for traffic signal detection
- Implicit in the installation of this special facility is that the cyclist will be legally entitled to ride on the cycle crossing

We also support the Jamieson Foley report in its following recommendations with respect to signalised intersections:

- Straight riding line for bicycles, without kinks and deviations
- Removing slip lanes to create safe crossing, though we see no reason to except Sam Johnson Way
- Signal phasing that allows for calling on demand

4.4.2 Priority road crossings – unsignalised

The EIS states that at non-signalised intersections there will be 'cycleway pavement raised across intersections, advance signage for motorists travelling parallel and beside the cycleway indicating cyclists on adjacent cycleway. Motorists on side road crossing cycleway held at stop sign before cycleway'

Expanding on this we would expect this to mean that at non-signalised crossings:

- Pedestrians and cyclists will have separate crossing facilities
- The cyclist facility will be marked to identify it as such. The Jamieson Foley report recommends green paint and elephant feet with which we concur
- The cycle facility will be flush with the dedicated cycleway or shared path as appropriate. The Jamieson Foley report recommends a raised threshold for the vehicle crossing. As a general principle we support that as a measure to slow traffic at intersections and warn cars to be aware of pedestrians and cyclists crossing. We also note that there may be conflicts between retaining the facility flush with the cycleway, raised thresholds and other engineering requirements at these intersections.

The primary requirement must be that if not possible to be flush there be smooth gentle transition between any intersection crossing and the shared or cycleway facility itself .

- Advance signage for motorists travelling parallel and beside the cycleway indicating cyclists on adjacent cycleway. Signage must not obstruct the shared path or dedicated cycleway
- Implicit in the installation of this special facility is that the cyclist will be legally entitled to ride on the cycle crossing
- Stop sign on side road to hold motorists before cycleway to eliminate queuing through the cycleway. Consideration should also be given to this treatment to avoid queuing through any associated pedestrians crossing.

We also support the Jamieson Foley report in its recommendations with respect to un-signalised intersections that there be a straight riding line for bicycles, without kinks and deviations.

4.4.3 Slip lanes

Slip lanes are a dangerous hazard at any intersection as cars can and do approach slip lanes at high speed and it may be difficult to ensure safety. We see removal of slip lanes as an important safety measure as the traffic can be controlled effectively.

If slip lanes must remain at an intersection we strongly suggest they be controlled by traffic lights which are not with the normal light phasing but controlled by a manual crossing button only. This would operate such that as soon as a pedestrian or cyclist pressed the button the light would go amber and red, thus providing a safe crossing environment.

4.4.4 Single / Island Crossing

Wherever possible the design of the road crossing should be in one phase, the cyclist crossing directly from one side of the road to the other and continuing their journey smoothly without delay. This should be quite practical given the speed with which a cyclist can travel unimpeded, relative to the time taken for a pedestrian to cross the same facility.

If for any reason it is necessary to stage a cyclist crossing with provision of an island crossing, much consideration must be given to the amount of storage spaces required on that island to cater to all types of bicycles such as tandems, bikes with trailers, recumbents etc.

4.5 Pedestrians crossing the cycle facility

When the pedestrian and cycle facilities are separated as in the case of a dedicated cycleway or by a white line on a shared facility (which we do not recommend), there will be situations where the two facilities will need to cross. These are possible points of conflict which need to be managed well to ensure safety and also to ensure smooth continuity. The need for crossing arises principally at bus stops and where there are pedestrian crossing of the road facility, in this case crossings of Epping Road itself.

4.5.1 Reduction in Cycleway / Pedestrian Crossings

The need for cycleway/ pedestrian crossing must be reduced to the minimum possible. The current design, shows weaving of the two facilities with a significant number of crossings many of which could be eliminated. Under the proposed design, the shared pathway is separated into pedestrian / cycle sections. As we responded earlier, we do not recommend separation where it is only signified by a white line. Consequently there should be a reduced need for crossings of the facility where there is no separation. Of

course some treatment should be implemented to encourage pedestrian deviating across the pathway in just a single position.

With respect to the position of the dedicated cycleway, we recommend that this should travel alongside the road facility and the kerb median at all times with one exception, where it deviates through Turrumbarra Park. We do not feel that that weaving the pedestrian and cycle facility to and fro the road verge as shown on the diagrams in the best design.

In sections of the shared pathway where pedestrian are likely cut across or mingle, such as at bus stops and pedestrian crossing of the road facility, the design will need to depict a separation of the pedestrian walk and storage and the cycle facility.

In areas where pedestrian usage is likely to be low or medium we would also recommend that the cycle facility continue along the road verge with pedestrian storage to the rear. It is most likely that in the Longueville Road section the volume of pedestrians and frequency of crossing will so high that this may no longer be feasible. So in the section alone we feel that it would be better to position the shared through / cycle facility to be positioned to the rear.

4.5.2 Issues at Bus stops

Bus stops are one important issue that needs to be addressed with respect to pedestrian / cycle conflict. There are often bus shelters, pedestrians congregate and need to access and load onto or disembark from the bus which will be parked either in a bus bay or in the bus lane.

The degree to which conflicts will occur will vary considerably along the route as the usage demand and type of usage (load or disembark) also itself varies. It is our understanding that apart from the Longueville Road section, usage is fairly low and there is not expected to be a high demand for pedestrian storage on this western side. There will be more drop offs than pick ups who will disperse quickly. The Longueville Road section on the other hand, will be highly used. Different solutions would be needed for these different demands.

4.5.2.1 Dedicated Cycleway

Generally we recommend that the dedicated cycleway continue adjacent to the road and kerb with any pedestrian through facility to the rear of the cycleway so there is no weaving of through cycle and pedestrian traffic. A single pedestrian crossing should be marked across the cycleway in the manner that is depicted in the Jamieson Foley report as *Exhibit 6, Bus Stop Design Alternative 2*. Cyclists would give way to pedestrians crossing in the marked area in the same way as a motorist gives way to pedestrians in a road pedestrian crossing.

Exhibit 6 depicts the bus shelter and waiting zone to the rear with a bus boarding zone to the front. *Exhibit 4* shows the entire bus shelter, waiting and boarding area at the road way. Either scenario would probably be satisfactory, although *Exhibit 6* probably provides more flexibility for increasing a minimal pedestrian storage area, whereas *Exhibit 4* probably provides more distinguishable features for the bus driver to position the bus for loading/unloading. In either case the bus loading area should be at a higher level than the cycleway.

We believe this should work well in conjunction with the dedicated cycleway with its grade separation which requires the pedestrian to step down to cross and then step up onto the boarding zone. Pedestrians should immediately appreciate the similarity of this facility to a road facility which is crossed directly and quickly and in which you do not usually congregate. The single crossing very clearly demarks the area where pedestrians are allowed cross the cycleway. No doubt, in an urgent situation pedestrians will be tempted to jay walk across the cycleway to the bus in the same way as they would jay walk across the road but that would not be normal usage.

Exhibits 4 and *5* both feature dual crossings of the cycleway which not only increases the amount of potential conflict and possible delay to the cyclist but also sends a far less distinct message to the pedestrian which will encourage a more dispersed crossing. We do not recommend dual crossings. *Exhibit 4*, is obviously designed to cater for restricted widths and does require through pedestrians to cross the cycleway twice. We approved of this scenario only when such restrictions apply and in relatively low pedestrian volumes. It is better to provide a continuous delineated cycle facility with the two crossings in those circumstances.

4.5.2.2 Shared Facility

A shared facility is more problematic as it is more difficult to distinguish between pedestrian and cyclists zones. It is even more problematic in the Longueville Road section which is depicted as a shared facility. As stated earlier we do not recommend that a shared facility be marked into separate pedestrian and cyclist areas by a white line, it must be at least grade separated, with a rounded kerb.

Generally speaking we recommend a similar facility to the dedicated cycleway, but recognise that it will be far more difficult to obtain compliance on the part of the pedestrians. In these areas, provided sufficient room is available, the shared pathway should be properly separated into cycle and pedestrian facilities, separated by a kerb in the same manner as a dedicated cycleway. This separation should be provided for a reasonable lead distance to the bus stop. Of course, it would be far preferable if the facility was correctly separated for the entire length of Epping Road.

Where there is insufficient room to provide a dedicated facility consideration should be given to providing a lowered through shared facility around these bus stops to emphasis the through nature of the facility and the need to cut across only at the marked crossing. Such a facility could also be best for the Longueville Road section, only in this case

located behind the bus shelters and storage areas. Lowering the through shared pathway should clearly indicate to waiting pedestrians that the through section is not an appropriate place to gather.

4.5.2.3 Bus Shelter

Careful consideration should be given to the design of any bus shelters provided along this route. The role of those currently popular as a advertising medium has resulted in a design that maximises their ability to obstruct the footpath while minimising the protection they provide in sheltering a pedestrian. A far more compact and practical design is needed here and on other shared footpaths and restricted areas to minimise obstructiveness.

Placement of bus shelter and signage associated with the bus stop must not be located any within the dedicated cycleway or within the through area of a shared facility.

4.5.3 Issues at Road Crossings

The other major cause of pedestrian / cycle conflict on separated facilities arise from the need to cross the road running parallel to the facility at a signalised pedestrian crossing. The crossing at Tantallon Road is especially mentioned in the Jamieson Foley report as there is no corresponding road crossing on the cycleway side. Nevertheless a similar scenario applies at Cox's Lane and at Mowbray Road and our recommendation remains the same at those crossings.

Our recommendation is that the dedicated cyclelane should be treated very much as part of the road from the point of view of the pedestrian. The storage area for pedestrians waiting to cross the road and the detector push button should all be positioned on the footpath facility. On the pedestrian green walk phase the pedestrian walks across the cycleway, across the median area and continues on across the road. Likewise the pedestrian crossing from the other side of the road, continue from the road crossing, across the cycleway directly to the footpath.

During the pedestrian green walk phase, a cycle red stop phase will hold back the cyclist on the cycleway. The cycle red stop phase will operate in conjunction with the motorist red stop phase and the signal for the cyclelane should remain green until it is triggered, along with the road signal, by a pedestrian needing to cross the road . These signals would be physically located off the cycleway, ie on the median or the edge of the footpath. As the cycleway is proposed to be two-way, signals would be required in both directions.

There will be some issue with respect to the pedestrian expectations of direction of traffic due to the two-way nature of the cycleway that will require warning signs. It of course would be far better if the cycleway were separated in direction and located on each side of the road carriage. That way there would be no conflict in pedestrian expectations when crossing the road.

The raised median between the cycleway and the roadway should be lowered at this point to provide better continuity for pedestrians and to enable the cyclist who needs to leave the facility at this point to also access the crossing.

To complete this facility, the pedestrian crossings across Epping Road should all be cycle legal with separate cycle and pedestrian facilities in the same way as are proposed the crossings along Epping Road. In this way good connections can be made from this route to destinations throughout the region.

4.6 Possible Obstacles on Shared Pathways

Based on our experience with recent cycleways such as the Liverpool to Parramatta Rail Trail we are aware that what may be initially envisaged as a showcase cycleway has been ruined by the presence of a multitude of impingements such as road signs, lighting poles, letter boxes, trees, bus shelters etc. These create obstacles on the pathway which can be dangerous, both due to accidents created when a cyclist runs into that obstacle or runs off the cycleway which has veered to avoid the obstacle. While these accidents would be more prevalent at night but between two users of the pathway who are attempting to avoid the obstacle. Not only are they dangerous, but if they remain in abundance they can delay cyclists who wisely reduce their speed to manoeuvre around them and the squeeze points they create.

It is quite regrettable that what may have on paper appeared to be a useful and quality cycle facility is totally destroyed by very obstacles that have simply been ignored or deviated around by the cycleway builders. Such a key facility as the Lane Cove Tunnel cycleway should not be ruined in this way. We note reference in the EIS to the removal of trees in certain section but what about other obstacles. Right now there are some very significant obstacles adjacent to Epping Road, enormous road directional signs, large information signs, smaller parking/road signs, major roadway lighting structures and so on. The positioning of all these potential obstacles needs to be very carefully considered in relation to the positioning of the cycleway or shared path and where they will obstruct the facility, they must be moved.

The difficulty in relocating these signs would simply not be an issue if the far left lane was simply converted to a bike lane, as no-one would ever consider allowing such obstacles in a road traffic lane.

4.7 Lighting

An additional feature of a quality cycleway is adequate lighting to ensure sufficient vision and personal safety of the pathway users. This is particularly important in sections that deviate from the major roadways and its associated lighting. Such lighting of course should always be appropriate to its setting and not intrude on any neighbouring residences

4.8 Vegetation

While vegetation and other tree planting is a desirable urban feature that improves the amenity of an area, care must also be taken to ensure such plantings do not impinge on the cycleway in any way.

Choice of planting is critical, with the requirement for tree types that grow up not out, with branches that then obstruct the cycleway. At no times should sight lines of cyclists, pedestrians or motorists be affected by the plantings chosen.

While Maintenance to cover this situation, the reality from previous projects is that maintenance does not happen, or not nearly frequently enough so the useful width gradually becomes less and less. Correct choice and positioning of planting is the only way to ensure they will not obstruct.

5 Implementation Issues

5.1 Maintaining Access

The bicycle is a road user and many cyclists use the existing facility along the Gore Hill Freeway with its numerous exit points and even some to Longueville and Epping Roads. It is vital that during the building phase of this project all existing cycle and pedestrian access is maintained as noted in the EIS.

5.2 Gore Hill Cycleway Construction

The EIS states that the preferred option is to construct the Gore Hill Freeway shared cycleway as the first stage of the Gore Hill Freeway works so as to provide a route that is *'clear of the works for the duration of the project and removing cyclists from any further staging considerations'*

We totally support this recommendation as an excellent way to provide continuity of access while advancing the benefits of this project for pedestrians and cyclists needing to make short trips connecting Naremburn, Artarmon, Artarmon Industrial Area and Lane Cove. Site Compound H also appears to obstruct access from Park Rd and the existing route along Olympia and Grandview Streets to the existing cycleway through Bicentennial Park, highlighting the importance of building this section early.

The existing bicycle lane is along the entire length of the Gore Hill Freeway and connects under the Pacific Highway to Longueville Road, Lane Cove. While this connection to Longueville Road is not very pleasant for cyclists, it is accessible and used frequently by fit and experienced cyclists and even more in quieter times of the week.

The eastern connection of the new Gore Hill Cycleway needs to be directly from the Park St exit of the cycleway and we need to be assured that this connection will remain accessible during construction. We are though primarily concerned as to the connection point in the west. We feel it is unlikely that the underpass of the Pacific Highway will be in place or accessible at that early stage in the project due to tunnel works disruption and need to know exactly how the Gore Hill Cycleway will connect to Longueville Road and the Pacific Highway. Despite repeated questioning we have been unable to gain any answer to our question in that regard.

We have also experienced some confusion in some of the detail of the construction staging which needs clarification.

For example, it is unclear as to whether the section of the Gore Hill Freeway between Park Rd and Willoughby Shops will be available to cyclists during construction. Comments in the Concept Design Report that *'Cyclists would then be directed from the cycleway at the Park Road viaduct to Willoughby Road, rejoining the Gore Hill Freeway at the Willoughby Road southbound merge. Northbound cyclists would exit to Willoughby*

Road from the Gore Hill Freeway and follow the above route in reverse are suggestive that this will be the case. Confirmation of the eastern route during construction is needed plus assurance that this bicycle lane will definitely be available once construction of the widening project is completed.

Also the Construction Sequence documentation does not appear quite compatible with the Construction Program which has construction of the Gore Hill Cycleway as completed before Eastern End Works. Does this mean a temporary facility in some places will be built first. For example, Stage 2 includes *'Construct permanent GHF westbound transit lane and cycleway roadworks including retaining works'* Stage 5 includes *'construct permanent works for cycleway adjacent to east facing Pacific Highway entry ramp'*

If stage 2 is the early start, will the existing cyclelane facility continue to be accessible while the westbound transit lane and cycleway is being built? If not, what other facility will be provided?

5.3 Mowbray West Cycle facilities

The cyclelanes provided along a short section of Mowbray Road West will remove an unpleasant cycle 'blackspot' in the Willoughby City Council area. This narrow and steep section of road is a deterrent to useful cycling routes. This section will provide far more direct access to Chatswood for the experienced commuter cyclist and a link to a local backroads bike route in Willoughby Council area.

It is essential that this cycle facility, built to link to Avian Cr is provided at the same time as the Mowbray Road West realignment.

5.4 Wicks Road to River section

Unlike section further east, the section of Epping Road from Wicks Road to the Lane Cove River does not appear to have any dependency on tunnel completion.

We strongly recommend that given the current complete lack of a cycle facility between the Lane Cove River and Pittwater Road, construction of that link commence much earlier in the project rather than after the tunnel is completed and Epping Road is being rearranged.

6 Route Section Details

In this following section, comments and relevant issues are raised with respect to each section of the route.

6.1 Wicks Road To Tennis World

The section is documented in the EIS Bicycles, Public Transport, Pedestrians Working Paper as proposed to be

- off road 4 metre wide shared bicycle/pedestrian path
- cross the slip lane at Wicks Road via separate cycle pathway.
- Signal loop detectors for westbound cyclists at Wicks Road

6.1.1 Pathway Proposal Assessment

General Facility

This is a residential area with numerous driveway crossings and a great many signs installed all over the existing nature strip. The combination of nature strip and existing footpath is probably sufficiently wide to create a 4 metre shared pathway, but there will not be much leftover and it will visually appear all concrete. While the pedestrian usage may not be high, neither will it be low due to the residential nature of the area. This is not an ideal section for a shared pathway and would be far better implemented as a dedicated cyclelane, best still as separate lanes on each side of Epping Road.

If built as a shared pathway many poles will need to be relocated or cycling along this section will be a game of dodgems and it could not be considered as serious effort at a cycleway.

What measures are being taken to reduce dangerous conflict with the frequent driveway crossings in this section. All residents in this area will need to be aware of the potential dangers, the fact that cyclist travel at speed and that they will be coming from either direction. A dedicated cycleway in this section will assist in providing a demarcation from footpath to quasi road conditions despite the two-way nature of the cycleway.

Our recommendation is that this section would be far better as a dedicated cycleway (preferably one-way, one each side of the road). This probably requires widening the total pedestrian/cycle facility which can only be achieved by narrowing the road.

- In the section west of Ryrie Street there are three through lanes (one splitting into a slip lane) and two right hand turn lanes. The later in particular appears excessive given that Wicks Road only accesses a Waste Transfer Station and the quiet end of Waterloo Road. We suggest this be reduced to one right hand turn lane and allocate the extra space to provide for a dedicated cycle facility.
- To the east of Ryrie Street there is a widen vegetated median. It should be possible to trim an area from this median to provide any extra space necessary for a dedicated cycle facility.

Access West / Slip Lane

Wicks Road marks the most westerly point of this cycle route. Obviously it has to end somewhere, but this is not a logical end point from trip generator point of view and consideration must be given as to how cyclists will proceed from here. It is our understanding that the regional route continues across Wicks Road and then across Epping Road following the west side of Wicks Road. Consequently a more complete crossing of Wicks Road is required.

The proposal only shows a crossing of the slip lane, whereas a single crossing from east to west is required. The slip lane needs to be controlled via signals to ensure safety.

Ryrie Street Bus Stop

As a shared pathway there should be no need to weave the cycle and pedestrian routes around this bus stop. Given the residential nature of this area with people stepping out of their gates as well as car exiting driveways, in the section any through cycle or pedestrian traffic should be at closer to the road and as far as possible from the residences. It would be far preferable to separate the pedestrian and cycle with a kerb and keep it next to the road carriage. Collection of potential bus passengers should not be large and should be located closest to the houses with a pedestrian crossing of the cycle facility.

6.2 Tennis World to Pittwater Road

The section is documented in the EIS Bicycles, Public Transport, Pedestrians Working Paper as proposed to be

- off road 4 metre wide shared bicycle/pedestrian path
- Cyclists cross Epping Road at Delhi Road using pedestrian phasing
- cross Pittwater Road via separate cycle pathway with signal loop detectors

6.2.1 Pathway Proposal Assessment

General Facility

While there is some housing close to Pittwater Road this is primarily adjacent to parkland and open space areas. Except for those residences and a driveway out of the Tennis World complex there is very little potential for conflict with cars crossing the cycleway. There is currently a walking track along this section which passes high above the road alongside Tennis World but it appears this will entirely rebuilt / configured with a new retaining wall. There should be sufficient room to cater for separate cycle and pedestrian facilities along most of this section.

Our recommendation is that alongside Tennis World and Blenheim Park should be separate cycle and pedestrian facilities using the land available with some resumption of unused land if necessary.

The section alongside the residences near Pittwater Road could be somewhat problematic. There are some very major road signs in the middle of the existing track and

there will be constrictions in space outside the residences. This section may need to remain shared pathway unless a lane can be trimmed off Epping Road by reconfiguration. It would also be worth examining Blenheim Park to see whether a satisfactory route could be devised behind the residences.

Delhi Road Crossing and Bus Stop

The crossing of Epping Road at Delhi Road should be a separate cycle facility to ensure continuity of cycle access from this cycle route to the M2 and other local links

There should be no need to weave the cycle facility around the pedestrian facility in this section. We can see no reason this why this could not be separate cycleway, continuing along the kerb with a single pedestrian crossing to access the road crossing and the bus stop.

Pittwater Road Bus Stop

Once again weaving of the cycle facility around the pedestrian facility is not desirable in this area. This would be low volume bus usage and holding areas should be kept to the rear with a pedestrian crossing.

Pittwater Road Crossing

The crossing of Pittwater Road should be a direct continuation of the cycleway on each side of the intersection. How that will eventually be placed depends on the final design, but the preference is for this cycleway to be dedicated and to the kerbside.

6.3 Pittwater Road to Lane Cove River

The section is documented in the EIS Bicycles, Public Transport, Pedestrians Working Paper as proposed to be an off road 4 metre wide shared bicycle/pedestrian path.

6.3.1 Pathway Proposal Assessment

In this section of the route the road is currently enclosed within the sound walls with plenty of room for a cycle facility within the walls. Unfortunately the EIS proposes to increase the number of lanes on Epping Road in the location. This is quite unnecessary and simply encourages more car use.

The EIS therefore proposes to move back the sound walls into the surrounding bushland to include this extra lane. Of course it is the pedestrian / cycleway that will be physically located in what is currently bushland, but it will have been made necessary by demanding an extra lane.

Our recommendation is eliminate the extra lane and keep the facility within the existing sound walls.

6.4 Mowbray Road West Intersection

The section is documented in the EIS Bicycles, Public Transport, Pedestrians Working Paper as proposed to be

- off road 4 metre wide shared bicycle/pedestrian path
- Cyclists cross Epping Road at Mowbray West Rd using pedestrian phasing
- To access the west side of Mowbray West and its associated cycleway requires a pedestrian phased crossing of Mowbray Road and then a crossing of the slip lane
- cross private road opposite Mowbray Road via signalised cyclist crossing treatment with signal loop detectors.

6.4.1 Pathway Proposal Assessment

Crossing to Mowbray Road West

The crossing of Mowbray Road West, particularly to access the western side cycleway is quite convoluted and will result in lengthy delays. The eastward travelling cyclist will have to cross at three signalised crossings and one unsignalised to reach the western side shared path. It will simply add weight to the commuter cyclist's decision to use the road and bus lane and be a major delay to other cyclists. Direct access from the private road would be a far better option and since signals are already been proposed at this intersection why not provide a **cycle phasing directly across the intersection** past the island and to the shared pathway system. Similarly cyclist should be able to cycle directly across the intersection (not walk on the pedestrian crossing) directly to the shared pathway. Dropped kerb access to each shared pathway is essential.

Mowbray Road Facility

The EIS indicates that the lower section of Mowbray Rd will have a 3 metre shared path /cycleway on both sides although the plans do not indicate how far the shared pathway extends. It is imperative that this **shared pathway extends as far as Avian Cr** to link in with the local Willoughby Council network. This provides a very necessary safe facility to replace the existing narrow steep road and has the double benefits of linking into the Willoughby network (via Avian Cr) as well as elimination of a 'blackhole' unsafe area for the more experienced commuter cyclist who will use Mowbray Road for a direct access to Chatswood.

6.5 Shell Service Centre

The section is documented in the EIS Bicycles, Public Transport, Pedestrians Working Paper as proposed to be

- off road 4 metre wide shared bicycle/pedestrian path
- Cyclists cross entrance and exit to existing Shell Service Station using standard unsignalised cyclist crossing treatment. There is a similar crossing for access to the Industrial shown on the diagram
- U-turn bay to entrance separate from pathway

6.5.1 Pathway Proposal Assessment

This section of the shared pathway is along a long drawn out hill and would be far safer implemented as separate bicycle lanes on each side of the road. If a shared pathway, all 4

metres of width will be required to adequately separate cyclists travelling in each direction.

Additionally this section has three roads cutting across the pathway .. one entrance only, one exit only and one that appears to be entry and exit all of which could if not treated appropriately create a very dangerous situation when mixing with high speed downhill cyclists as well as other path users.

Entry to the Shell Service Centre appears to be primarily via the U Turn Bay which provides an opportunity to slow down traffic. Special traffic management treatments and very clear signage are needed here to ensure speed is slowed and that traffic entering the Centre gives way to cyclists (and pedestrians) on the pathway. Essentially the motorist will have to be forced to stop before proceeding through the intersection with the pathway.

There is also the possibility that motorists will attempt to access the Service Centre via the end of the U-Turn loop unless treatments are in place to ensure this is not possible.

This is still going to be a hazardous situation as motorists are likely to at full speed when entering the U-turn bay and consideration should be given to eliminating the conflict by providing a grade separated crossing at this point.

Note that this is not nearly as hazardous for a cyclist in a proper bike lane as they are far more visible and obvious as a road user to the motorist. The motorist also does not have to keep a separate eye out for cyclists coming in the opposite direction. By eliminating the second unnecessary general traffic lane, separate bike lanes could be easily provided on each side of the road.

Motorist using the **Exit from the Shell Service Centre** should not be travelling at such speed, but the cyclist will. Treatments also need to be in place to ensure that the motorist stops and has very good long distance visibility in both directions along the pathway before. Motorists need to be very aware that they are crossing a form of roadway and not just a path. Consideration should also be given in this situation to a grade separated crossing of road and pathway.

With respect to the **Entry for the Industrial Area**, this adds just one more point of conflict, without any run in area to slow motorists down when entering from Epping Road. Strong consideration should be given to eliminating the entry and providing access for that area only via the Shell Service Centre entry/exits. It is just far too hazardous to add one more entry of this type.

The Bus Bay at the Shell Service Centre is probably low usage and quite likely does not need any special treatment. It may be advisable though to provide warning signs to both pedestrians and cyclists regarding pedestrians crossing the pathway to the bus stop and the presence of high speed cyclists on the pathway.

6.6 Sam Johnson Way

The section is documented in the EIS Bicycles, Public Transport, Pedestrians Working Paper as proposed to be

- off road 4 metre wide shared bicycle/pedestrian path
- Cyclists cross Sam Johnson Way via own marked pathway standard signalised cyclists crossing treatment with signal loop detector

6.6.1 Pathway Proposal Assessment

This section of the shared pathway is along a long drawn out hill and would be far safer implemented as separate bicycle lanes on each side of the road. If a shared pathway, all 4 metres of width will be required to adequately separate cyclists travelling in each direction.

The weaving of pedestrian and cyclist should be eliminated from this section as it is shared pathway. Cyclist crossing of Sam Johnson Way should be kept close into the intersection and the slip lane controlled by traffic signals

The Bus Stop at Sam Johnson Way could be expected to have significant usage and care is required at this point to separate through cyclist traffic from the bus users. As most of the bus users are more likely to be accessing the bus stop via the footpath on Sam Johnson Way this is probably one situation where it is best for the through cycle/pedestrian lane to run behind the bus stop storage and loading area as shown on the diagram. The weaving west of the stop, though should not be required in a shared facility.

This section of road would involve some widening into the bushland on the northern side. This has been necessitated by the extra general traffic lane proposed west of Sam Johnson Way. Removal of this lane should eliminate the need for this encroachment.

6.7 Sam Johnson Way to Moore Street

The section is documented in the EIS Bicycles, Public Transport, Pedestrians Working Paper as proposed to be

- off road 4 metre wide shared bicycle/pedestrian path
- Cyclists cross Moore Street via standard unsignalised cyclist crossing treatment
- Cyclists access Johnson Street on the northern side of Epping Road via existing pedestrian overpass

6.7.1 Pathway Proposal Assessment

This section of the shared pathway is along a long drawn out hill and would be far safer implemented as separate bicycle lanes on each side of the road. If a shared pathway, all 4 metres of width will be required to adequately separate cyclists travelling in each direction.

Moore Street drops rapidly from Epping Road and any cyclist (or pedestrian) crossing as indicated on the diagram will be out of sight to traffic turning from Epping Road into Moore Street. The cycle crossing needs to be high into the intersection so they are immediately obvious to motorists prior to turning into Moore Street. Large signs will also be required to warn motorists of priority cyclist crossing.

The weaving of pedestrian and cyclist should be eliminated from this section as it is shared pathway. The Bus Stop at Moore St is unlikely to have high volumes of bus users, although they are likely to come from several direction, from the pedestrian overpass, from Moore St as well as from the residential area to the north of Moore St. Through cycle and pedestrian traffic should be kept away from the base of the overbridge ramp spill area to avoid conflict in that area.

6.8 Moore Street to Munro Street

The section is documented in the EIS Bicycles, Public Transport, Pedestrians Working Paper as proposed to be

- Dedicated 3 metre Bicycle Path (except for 25 metres of shared pathway)
- Cyclists cross Munroe Street via standard unsignalised cyclist crossing treatment
- Cyclists access Johnson Street on the northern side of Epping Road via existing pedestrian overpass

6.8.1 Pathway Proposal Assessment

This section of Epping Road is residential and it is very welcoming to finally see a dedicated cycle facility. Apart from the obvious benefits in avoiding conflict with pedestrians, this places the cyclist further away from the houses and more distinguishable as part of the road system to motorists exiting the driveways.

The weaving of the cycleway to the rear of the bus stop and crossing of Munro Street and its conversion of shared path should not be necessary. The cycleway should continue across this area in the same way as to the east and west. Any bus shelter and storage area should be to the rear of the area, with a pedestrian crossing of the cycleway used only to load to the bus with cyclists. The continuity of the dedicated cycleway should be much less confusing for pedestrians and cyclists alike.

Similarly at the crossing to Tantallon Road the waiting area and pedestrian detector button should be to the rear of the dedicated cycleway with a crossing of the cycleway with the pedestrian green walk signal.

6.9 Munroe Street to Centennial Ave

The section is documented in the EIS Bicycles, Public Transport, Pedestrians Working Paper as proposed to be

- Dedicated 3 metre Bicycle Path (except for 2x25 metres of shared pathway)
- Cyclists cross Centennial Ave via standard signalised cyclist crossing treatment with signal loop detector

- Cyclists cross slip lane on western side of Centennial Ave via own unmarked pathway
- Cyclists cross Epping Road to access northern side of Centennial Ave via pedestrian phase of existing traffic signals

6.9.1 Pathway Proposal Assessment

This section of Epping Road is also residential and it is again very welcoming to see a dedicated cycle facility. In addition to reducing the conflict with pedestrians, this places the cyclist further away from the houses and more distinguishable as part of the road system to motorists exiting the driveways.

In this section the cycleway deviates from the footpath to pass through Turrumbarra Park which appears to be an excellent option. We appreciate the need to align the cycleway to avoid mature native trees and also expect that within those constraints the best gradients for the cycleway would be sought.

As the cycleway passes through a park with playing facilities, consideration must also be given to avoid conflict with children playing. It is absolutely essential that the cycleway continue at a different level to the surrounding lane, with borders and that there be signage to warn parents, older children and other park users of this cycleway by cyclists travelling at reasonable speed. As indicated in the diagrams, the cycleway obviously needs to be crossed by a footpath linking to the footpath system in this park. A single marked crossing should be marked in a position with good sightlines for both cyclists and pedestrians.

The Centennial Road intersection is a major intersection and obviously a difficult intersection to treat well. Given that the diverted cycleway through Turrumbarra Park positions the cycleway on the far side of the intersection of the pedestrian, it is probably not unreasonable to continue the cycle facility in that way.

6.10 Centennial Road to Cox's Lane

The section is documented in the EIS Bicycles, Public Transport, Pedestrians Working Paper as proposed to be

- Combination of dedicated 3 metre Bicycle Path and shared pathway
- Cyclists cross Cox's Lane via unsignalised cyclist crossing treatment
- Cyclists cross Epping Road to access Coxs Lane via proposed pedestrian crossing

6.10.1 Pathway Proposal Assessment

On the eastern side of Centennial Road the cycleway converts to a shared pathway for a significant period including behind the proposed bus stop. Pedestrian volumes can be expected to be significant but moderate in this region, both for through traffic and congregating at the bus stop. If sufficient land cannot be found to separate the through pedestrian and cycle traffic it will most likely need to be shared in this region. We do

though question why the shared section is shown on the diagram for a significant distance to the east of the bus stop. This appears unnecessary.

At Cox's Lane, the diagram shows the cycleway weaving to the rear of the road alignment and becoming a shared path, with pedestrian crossings of that facility. It would be far less confusing for both pedestrians and cyclists and far less conflict to continue the cycleway directly along the kerb alignment, with a simple pedestrian crossing at the proposed crossing of Epping Road.

6.11 Cox's Lane to Longueville Road

The section is documented in the EIS Bicycles, Public Transport, Pedestrians Working Paper as proposed to be

- Combination of dedicated 3 metre Bicycle Path and shared pathway
- Cyclists cross slip lanes on eastern and western side of Longueville Road via standard signalised crossing treatment
- Cyclists cross Longueville Road via standard signalised crossing treatment
- Signals triggered by loop detectors

6.11.1 Pathway Proposal Assessment

It is to be hoped that the three section crossing of Longueville Road will be phased as a single crossing, in the same way as the motorist can cross the intersection. Otherwise cyclists will experience significant delays.

We think that the facility would be better positioned alongside the bus lane rather than weaving the pedestrian and cycle facilities. In that way it should only be necessary for pedestrians to cross the cycle crossing, if they need to cross Epping Road.

The crossing of Epping Road into Parklands Ave links into the Lane Cove Bicycle Plan and also be supported by a standard signalised crossing facility.

6.12 Longueville Road to Phoenix Street

The section is documented in the EIS Bicycles, Public Transport, Pedestrians Working Paper as proposed to be

- 4 Metre wide shared pathway
- Cyclists cross Phoenix Street via unsignalised cyclist crossing treatment

6.12.1 Pathway Proposal Assessment

This short section will almost certainly be high pedestrian traffic volume, but it is not a holding area for the bus stop and pedestrians are only likely to gather to wait for the crossing of Longueville Road. Under the proposed position of the crossing facility for

Longueville Road, this is an issue which can be well addressed by relocating much further into the intersection (as suggested in the previous section 6.11.1). In that circumstance we suggest a separate dedicated cycleway in this section.

6.13 Phoenix Street to Kimberley Avenue

The section is documented in the EIS Bicycles, Public Transport, Pedestrians Working Paper as proposed to be

- 4 Metre wide shared pathway
- Cyclists cross Kimberley Avenue via unsignalised cyclist crossing treatment

6.13.1 Pathway Proposal Assessment

This area will be very problematic due to the high pedestrian traffic and need for large holding areas for pedestrians waiting for buses. We agree with the positioning of the shared pathway behind the bus shelters and holding area in this area. There needs to be very clear demarcation of the through route from the holding areas, otherwise there will be general spill over into through areas. A kerb drop down is probably the only way to assist in that. Clear signs should also emphasise the direction of travel. Even though the pathway is shared, it should be very clearly through pedestrian and cycle traffic only.

The diagram does not show clearly the positioning of the cyclist crossing of Kimberley Avenue, although a pedestrian facility is shown. A position that correlates with either end of the shared facility would be excellent.

A pedestrian crossing of the shared pathway close to Kimberley Avenue is a little peculiar and seems to suggest that the section near Kimberley Avenue is dedicated cycleway, although it is not depicted as such.. This would be useful to ensure separation at the road crossing, although continual discontinuities are very confusing and not really desirable.

6.14 Kimberley Avenue to Pacific Highway

The section is documented in the EIS Bicycles, Public Transport, Pedestrians Working Paper as proposed to be a shared pathway varying in width between 2.5 metres and 4 metres.

6.14.1 Pathway Proposal Assessment

The width of this section of pathway is physically constrained, so although it would be preferable to separate the cycle and pedestrian facility due to the reasonably high pedestrian traffic this does not appear to be possible without constraining the traffic lanes. Given the major interchange of traffic in this area, this is most likely difficult, though it would excellent if the proponent were to give that some consideration.

6.15 Pacific Highway Underpass and Connections to Cycleway

From this section on there is no corresponding section documentation in the EIS Bicycles, Public Transport, Pedestrians Working Paper. But from other sections of the EIS and Working Papers our understanding is that there is

- 4 metres wide shared pathway underneath the Pacific Highway providing continuing of the Epping/Longueville Road and Gore Hill Shared Pathways
- shared pathway access from the Longueville Road Shared Pathway to the Pacific Highway
- shared pathway access from the Gore Hill Shared Pathway to the Pacific Highway

6.15.1 Pathway Proposal Assessment

Providing continuous access under the Highway is excellent as is access from both of the shared pathways to the Pacific Highway.

Diagrams of the Gore Hill Freeway side access show a very tight turn as the pathway turns back on itself. This is not desirable and if a direct straight ramp access is not possible, a more open scissor rampway is preferable, resulting in a manoeuvrable turning circle. Austroad 14 sets recommended minimal radius for horizontal curvature and states generally a minimum radius of 30 metres is preferred. While some compromise may be required due to constraints, a radius as close as possible to that should be designed.

6.16 Gore Hill Shared Pathway to North Shore Railway

There is no corresponding section documentation in the EIS Bicycles, Public Transport, Pedestrians Working Paper for the Gore Hill shared pathway, but from other sections of the EIS and Working Papers our understanding is that a 4 metre wide shared pathway is proposed parallel to and along the length of the Gore Hill Freeway from the Pacific Highway until the North Shore Railway line.

6.16.1 Pathway Proposal Assessment

Shared Path/ Cycleway / Bikelanes?

This proposed quality shared facility will be excellent for pedestrians, children and other vulnerable cyclists especially for local trips. This will make accessible by non-motorised means many destinations that have been previously quite difficult, convoluted and/or unpleasant to reach without a motor car. The terrain is generally flat, proposed width excellent and there are no intersecting driveways. Pedestrian usage is anticipated to be low. This facility is very welcome for its contribution to encouraging sustainable transport at the simplest level.

None the less we feel consideration should be given to provide either separated cycle facilities or separate bike lanes for commuter cyclist. Although pedestrian usage is

anticipated to be low this will not necessarily be the case. Usage could easily increase once appreciation of the access possible becomes more widely known.

Commuter cyclists are already catered for on the freeway shoulder but this proposal is taking away that facility. For such a commuter cyclist, the shared facility, particularly as it grows more popular with local pedestrians, this will not be adequate. It is quite inequitable for the widening of the freeway corridor to actually take a facility it already provides to the sustainable transport mode.

The best scenario, would be bike lanes on each shoulder and a shared pedestrian/cycleway for more vulnerable cyclists. While bike lanes should be to the Austroad 14 standard appropriate to the speed of traffic, a minimum 1.5 metre lane on each side would be preferable to none.

If facilities can only be provided on one side of the Freeway, consideration should be given to separating the cycle and pedestrian facilities. As indicated previously, a white line is not adequate separation and no attempt should be made to separate in that fashion. Separation needs to be by kerb, which means a minimum of 3 metre width and a form a low-key barrier separation such as low, trimmed, unobstructive vegetation.

Access to Artarmon Industrial Area

The EIS proposal shows access from the shared pathway the Artarmon Industrial Area via Reserve Road and Hampton Road. These are important links which are also extendable to many trip destinations both north and south of the freeway. They are though, on their own, not adequate access to the Artarmon Industrial Area.

The existing Gore Hill Freeway bikelane, in addition to those links, also provides access to Waltham/Dickson Streets and to Hotham Parade. These are very important access points as they vastly increase the area of the Artarmon Industrial Area that is more immediately accessible from the cycleway.

The access proposed at Reserve Road is on the eastern side of that intersection, so there is no access proposed to that part of the Industrial Area to the west of Reserve Road.

Existing access points to the west of Reserve Road must be maintained. The Artarmon Industrial Area is an extremely unfriendly bicycle and pedestrian area during working hours and we consider these access points critically important.

6.17 Gore Hill Cycleway - Railway Line to Chelmsford Avenue

This continues as a 4 metre shared pathway. From the North Shore Railway line underpass, the cycleway is shown as deviating away and then back along the wall at the commencement of the viaduct.

6.17.1 Pathway Proposal Assessment

This is an existing facility which needs some upgrading under this project. The deviation is currently required to move around the sound walls which jut out at a right angle in this position. As the path under the railway line is proposed to be moved close to the bridge retaining walls there would appear to be no necessity for any such deviation.

The existing facility crosses the cul de sac at the end of Francis Road and along a short section of Chelmsford Ave (cut off from the remainder by the original Gore Hill Freeway works). This section needs a smoother transition across the roads and treatments to ensure safety from cars that need to access houses in Chelmsford Ave or that could attempt to turn around at the bottom of Francis Road.

The existing facility then follows the along the sound walls of the freeway. Although the space is constrained by residences, it is wide with significant vegetation.

Where the freeway viaduct open this facility meets the major local cycling route to Chatswood via Artarmon Reserve. This will be a major cycle intersection and needs appropriate signage to assist safety. Depending on the route chosen for the next section of the cycle route, consideration should be given to raising the cycleway in this area, cantilevered to the sound wall and above the local route. Ground level access of course will still be required to ensure access from the Gore Hill cycleway to the cross cycle route.

6.18 Gore Hill Cycleway - Chelmsford Avenue To Park Road

This section of the cycle route is proposed to deviates from the freeway as it now travels high above along a viaduct. It is shown as a 4 metre shared pathway that crosses a storm water channel on a well directed bridge to follow along the northern bank of that channel until it reaches the open area under the viaduct close to Park St. At this point it once again crosses the storm water channel and joins into the local bicycle route through Bicentennial Park. Commuter cyclists can also join the Gore Hill Freeway bikelane at this point, after climbing back up to that height again on the paths under the viaduct. The drainage channel is at the bottom of the fill area for the viaduct.

6.18.1 Pathway Proposal Assessment

Flooding

The gradients along the pathway will be good but we are concerned that it appears no studies have been done of the possible impact of flooding on the cycleway. While it is to be expected that there will be some flooding along the pathway, we had expected that such analyses would be performed to determine the frequency and height of flooding and the extent to which 'flash' flooding could endanger path users. Many cycleways are constructed in flood prone areas and while the occasional low level flooding can be compatible, there is a limit to which this is acceptable on an important regional route such as this.

Local Residents Concerned

This storm channel does back onto a number of residences, but usually that should not be a major concern as they are located on the opposite side of the channel and provision should always be made for screening open views if necessary. Concern though has been expressed by those residences in particular to their perceived loss of privacy and to the loss of vegetation required to build the pathway. That concern has been exacerbated due to the width of the path, visions of bright lights shining into their houses and that fact that a rough 'greenway' track had recently been made along the higher area of the fill area.

Consequently, local cycling enthusiasts and advocates walked the route and an alternative higher route to see the options and verify for themselves their suitability.

Their findings with regard to the proposed route were as follows:

Privacy – For the major extent of the pathway there is no real impact on the privacy of residents that could not be addressed by some discrete planting along their border with the channel. Many residences already had back fences and nothing could be seen at this low level. Those without fences usually already had plantings that effectively screened most of their yards. The exception though was at the western of the pathway, where there has been a development of medium density housing which backs directly onto and very close to the drainage channel. This housing has been built with balconies facing directly in the direction of the pathway. The group's opinion was that the pathway could be considered intrusive to these particular residences only and this should be taken into consideration when choosing the recommended location for the path.

Vegetation – In the main the vegetation where it could be reasonably be expected the pathway would be built was not very mature, some exotics and quite a few natives but many of a short life span used to initiate the revegetation but usually replaced in the longer term. There were a number of exceptions such as the delightful mature banksia tree which we felt should be retained and could be with compromises on width and deviations of the pathway. But once again towards the west section of the proposed pathway there was a large grove of well grown native trees which the group felt it was undesirable to disturb, if at all possible.

Alternative Route Along Sound Walls

Consequently the general feeling of that group was that the higher route, directly alongside the sound walls of the freeway, should be seriously examined to see whether it could be made an acceptable alternative. It was also felt that if so, an attempt should also be made to deviate from the existing 'greenway' which is now located along the higher section of fill.

For the western section of this route directly along the sound walls, there is very little vegetation at all that can be disturbed and absolutely no way that any of the residences below are visible. The 'greenway' also can be quite separated from the pathway allowing for separated pedestrian and wheeled facilities.

In the middle section the fill area narrows and pathway and greenway coincide. There is some visibility to open backyards at this point but it is a longer distance aspect and already accessible to walkers of the greenway. This section also dips down. Our recommendation is that this area could be further filled, widened and remodelled during the Freeway widening project to give more privacy to the residences and more opportunity for separation of walkers and wheeled transport.

The last section is very open and still very little vegetated. There remains an excellent opportunity here to provide a pathway and separate 'greenway' track which does not intrude visually on any residences.

The major issue with this route are the gradients involved in accessing this cycleway from each end. If there is no remodelling of the existing approaches and/or climb in each case, the gradients will be excessive, in particular on the Park St end. While cyclists can climb these gradients for short sections, they can be a deterrent to beginner cyclists and it would be a particular issue for people in wheelchairs who we understand require a gradient of 1:7. Steep hills are also a safety issue when sharing the pathway with pedestrians, as speeds can quickly rise on the down hills. If this route is chosen special work will be required to reduce the gradients.

The Park St end appears the steeper climb, but also offers the greatest potential for improvement. There is a significant face to the hill as it opens up under the viaduct, providing an opportunity for snaking of the pathway along the incline. The widening of the expressway in this area must also mean that there will already be major earth movements. This should be an excellent opportunity to relocate much of this fill area to allow for a much longer but far more gradual descent. We feel quite sure the engineers will be able to provide an excellent gradient pathway on the Park St end.

The Chelmsford St end, while not as steep is much more narrow and so more problematic to improve but there are still good possibilities.

For example the proposal calls for a bridge to cross the channel to the freeway side. If the climb were to be initiated at this bridge with an elevated design a far more gentler climb could be achieved.

Another possibility would be to run the pathway cantilevered against the sound walls of the freeway commencing as far back as the railway line. The extra benefit of this solution would be to avoid conflict at the pathway intersection at Artarmon Reserve. This type of clip-on facility could also be used to connect directly to the bike lanes of the Gore Hill Freeway.

6.19 Warringah Freeway

Cycle lanes are provided along the Warringah Freeway and are used by commuter cyclists, although conditions are not pleasant particularly for the west bound traveller. It

is critical that this access continue and not be downgraded in any way by the proposed works, in particular at the Falcon Street ramps. Regional routes already planned will not adequately cater to those cyclists and it is quite inequitable to remove their facility.

Consideration should be given to improving this facility wherever possible to provide a safer environment that is more accessible to more cyclists. While it would be wonderful to have grade separation at freeway entrances and exits, even little improvements such as a better angled crossing, smoothing crossings, grab rails at crossing and widening shoulders can all assist.

6.20 Falcon St Steps

Access to the Warringah Expressway at Falcon Street for cyclist travelling west is by a flight of stairs, hardly appropriate. Given that the Lane Cove Tunnel project is proposed to enhance travel west from Falcon Street for the motorist with ramps that are not considered safe for use by cyclist, we feel cyclist access should be similarly enhanced by replacing the stairs with ramps.

6.21 Pacific Highway

The EIS predicts a reduction in the volumes of traffic on the Pacific Highway with the provision of the Lane Cove Tunnel. Just as traffic along Epping Road is to be contained and the corridor rearranged to give priority to public transport and non motorised transport, so should the Pacific Highway south of Longueville Road.

Speed limits should be lowed and the road better configured to give priority to buses, cyclists and walkers in everyway. This includes the provision of more frequent crossings of the road for pedestrians and cyclists. While it may not be possible to provide a bus lane and a bicycle lane on both sides of the road for the entire length of the road, priority for both should be improved along the length of the road.

The Pacific Highway is an ideal bicycle route as it follows the ridge with the best natural grades in the region and links the proposed Lane Cove Tunnel cycle route with commercial centres such as St Leonards, Crows Nest and North Sydney, regular trip destinations for commuter cyclists along this route. This route should be upgraded with bike lanes so commuter cyclists can safely travel the length of this road. Footpaths should be widened and upgraded to provide a more encouraging place for pedestrians and vulnerable cyclists.

6.22 The Lane Cove to Harbour Pathway

We totally support the concept of continuing a pedestrian and cycle facility from Naremburn south to the Harbour Bridge utilising RTA land on the easement of the Warringah Freeway as proposed by Bill Orme and associates. We have also seen great potential in this available land and would very much want to be involved in developing the design of a combination of shared and dedicated facilities along this corridor.