

INQUIRY INTO CROSS CITY TUNNEL

Organisation:

Name: Mr Peter Mills

Telephone:

Date Received: 16/01/2006

Theme:

Summary

crosscitytunnel - Cross City Tunnel Submission

From: "Peter Mills" <>
To: <crosscitytunnel@parliament.nsw.gov.au>
Date: 16/01/2006 2:22:37 pm
Subject: Cross City Tunnel Submission

The Director
Joint Select Committee on the Cross City Tunnel
Parliament House
Sydney

I am a retired telecommunications engineer and an interested observer of the transport scene. My submission to the Joint Select Committee is concerned with the criterion of "no cost to the government" being placed above all others in this, and other motorway projects. I am not requesting confidentiality for this submission.

It is clear that the Cross City Tunnel is both considerably more expensive, and less effective in its primary objective of reducing road congestion in the CBD, than a simple publicly funded tunnel could have been. This less than ideal transport outcome (the larger project scope and the use disincentive from the toll) is, in significant part, due to putting the "no cost to the government" criterion ahead of all others.

The Cross City Tunnel is not an isolated incident. It is the last in a line of urban tollway projects that have, in various ways, sacrificed good transport outcomes to the "no cost to the government" criterion. The committee should be aware of this bigger picture if useful recommendations are to be made.

The way forward is to abandon the primacy of the "no cost to the government" criterion as a step towards ensuring that good transport outcomes can be achieved in the future.

There are four Word Document attachments forming part of this submission as follows:

Tollways and Good Transport Outcomes: This explains in some more detail the adverse relationship between tollway implementation and good transport outcomes.

Cross City Tunnel Letter: This is a letter to Ministers Scully and Refshauge expressing concern about the impact of toll funding on this project.

CCT Response: This is the text of the letter in reply to the above. A hard copy of the original can be provided if required.

Rail Plan: For completeness, this is my submission to the Metropolitan Strategy. It is a rail plan based on the Christie Report but with significant modifications to suit a multi-centred (City of Cities) environment that would help steer Sydney towards a more sustainable and balanced transport outcome. It is difficult to envisage much of such a plan being realised while the primacy of "no cost to the government" remains.

Peter Mills

Tollways and Good Transport Outcomes

1 Introduction

While the objective of “no cost to the Government” is admirable in isolation, it has compromised good transport outcomes when applied to tollways. The Cross City Tunnel is the most recent example of a number of Sydney tollway that have, to varying degrees, put financial viability ahead of the broader community interest.

2 Good Transport Outcomes

It is first necessary to discuss what is meant by good transport outcomes, and a broad definition would be to meet the community’s access needs at the best possible social economic and environmental cost.

The recently released Planning document, *City of Cities: A plan for Sydney’s Future*, provides more detail. It recognises that transport systems have significant impacts on our ability to achieve a sustainable balance between our social, environmental and economic objectives. It goes on to state that many of the social, resource and environmental impacts of transport can be managed through a greater emphasis on sustainable transport to meet travel needs – walking, cycling and public transport. It notes that greater use of these modes also contributes to broader Metropolitan Strategy goals of creating vibrant liveable community.

Of course there are realistic limits to reducing urban car trips by replacement with walking, cycling and public transport, or by reducing the need for such trips in the first place, and there is also a need to provide for the movement of commercial and service vehicles. Accordingly, there will remain a need to accommodate road-based transport within urban areas and to ameliorate its adverse impacts. As noted in *City of Cities*, the emphasis needs to be on getting the balance right, but past trends have been in the opposite direction to this stated policy of improving sustainability.

City of Cities notes that demand for road travel is growing faster than population growth. Vehicle kilometres travelled (VKT) has increased faster than population growth. In the last 20 years, Sydney’s population grew by 21%, the number of car trips by 41% and the number of cars by 58%. Meanwhile, public transport patronage growth over the same period has been less than population growth, resulting in a continuing loss of market share for trains, buses and ferries.

3 Tollway Impact

There are clearly benefits from establishing a limited-access road network, including clearing local streets of through traffic and providing it with more free-running conditions. However, care should be taken to ensure that these benefits are not lost to the adverse impacts of additional traffic, due to a modal shift from public transport to cars and/or induced travel, if sustainable outcomes are to be achieved. Tollways conflict with the need for such care; the problem is that tolls act as a disincentive to some (this is also an equity issue) who would otherwise use the new road, so the new road needs to be more attractive than it otherwise would have been. Project length and travel speed are the two main parameters used by tollway providers to increase user attractiveness.

It's easy to see how project length would help, with longer sections of new road being inherently more attractive to users. For example, the most urgent need for the M2 was for a bypass of Epping village and Carlingford Road, but such a short stretch would have not been viable as a tollway. Travel times are also important, as it is well recognised that elasticities with respect to travel time are higher than for monetary amounts. This was first noted by the UK Standing Advisory Committee on Trunk Road Assessment in its report on induced traffic, and is confirmed by the following table extracted from "Saving Oil in a Hurry" a draft paper by the IEA. The long-term elasticities (including -1.04 for commuting travel time, which means all travel time savings are ultimately offset by new travel) include the impact of land use changes.

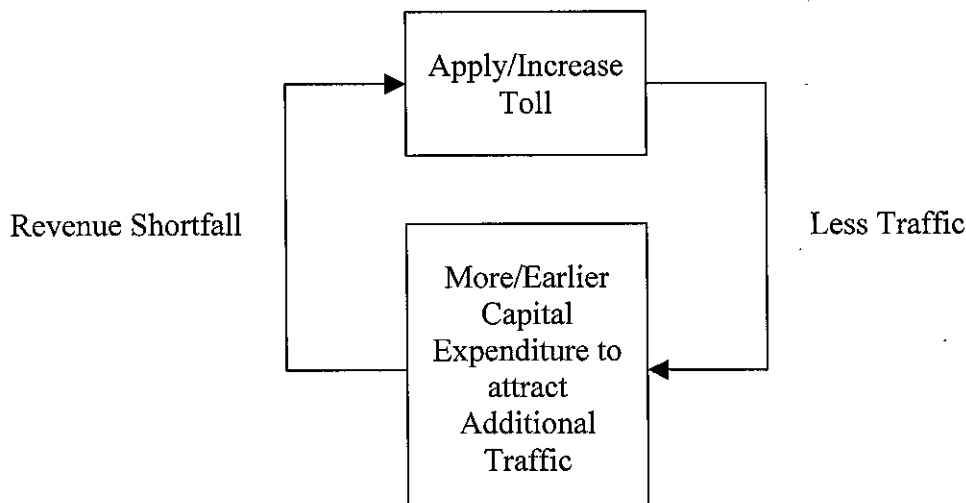
TRACE, 1999, The Elasticity Handbook: Elasticities for prototypical contexts (deliverable 5), Costs of private road travel and their effects on demand, including short and longer term elasticities, contract no. RO-97-SC.2035, Prepared for the European Commission Directorate-General for Transport.

Table 2-3: Key Results from TRACE Project

Trip purpose	VKT with respect to		VKT with respect to parking charge				
	fuel price	travel time	average	distances 0-5 km	distances 5-30 km	distances 30-100 km	distances over 100 km
<i>Short term:</i>							
Commuting	-0.15	-0.48	-0.02	-0.10	-0.02	-0.01	-0.01
Business	-0.02	-0.05	0	0	0	0	0
Education	-0.06	-0.05	-0.01	-0.12	-0.02	0	-0.00
Other	-0.22	-0.19	-0.08	-0.30	-0.06	-0.01	-0.02
Total	-0.15	-0.28	-0.03	-0.18	-0.03	-0.01	0
<i>Long term:</i>							
Commuting	-0.25	-1.04	-0.04	-0.13	-0.06	-0.02	0
Business	-0.22	-0.15	-0.03	-0.02	-0.02	-0.03	-0.03
Education	-0.38	-0.84	-0.03	-0.17	-0.06	-0.01	0
Other	-0.47	-0.86	-0.16	-0.36	-0.18	-0.05	-0.00
Total	-0.31	-0.80	-0.07	-0.22	-0.10	-0.03	-0.02

VKT: vehicle kilometres travelled.

In short, an urban tollway is likely to be more expensive than an equivalent necessary non-tolled road project due to the need for additional engineering work to offset the disincentive of paying the toll. This can be illustrated in the following diagram, with the iteration around the loop repeated until a financially viable outcome is achieved. There is also a tendency for capital expenditure to be drawn forward. Conversely, a non-tolled road can be both cheaper and slower to achieve the same level of benefits.



Of course, the RTA may argue that Sydney's motorways were planned first, and toll funding merely used to bring forward their realisation. However, the funding problem can also indicate a desire for excessive expenditure, which is consistent with the position espoused in the above discussion.

4 Sydney Tollways

Sydney's first tollway (after the Sydney Harbour Bridge) was the May's Hill "missing link" section of the M4, however the toll booths were not placed on this section but at more revenue advantageous point east of Parramatta where some widening had been provided as part of the contract. Next was the M5 West, with its "free" M5 East extension, and then the M2 and the Eastern Distributor.

The M4 and M5 were both advantaged by favourable tolling arrangements (location for the M4 and a free extension for the M5), the politically motivated cash back scheme and the ability to mine patronage from a parallel rail route. This is both present patronage (documented) and potential future patronage (more difficult to demonstrate, but western line growth is reportedly flat according to RailCorp). These Tollways have been financially successful, enabling the operating companies to increase borrowings (gearing) from the cash flow to bring forward the payment of dividends to shareholders.

The M2 was less successful initially, and struggled to meet early forecasts, as it did not have the special advantages bestowed on the M4 and M5. However the operators were astute enough to recognise that a Hills railway was a future possibility and insisted on contractual protection for its revenue stream under such an eventuality. The Eastern Distributor has presumably benefited from linking the M5 with the harbour crossings, but be one factor hampering the Airport Rail Link. The Lane Cove Tunnel and the M7 should mutually support and benefit the M2.

5 The Cross City Tunnel

The previous sections of this document have shown how tollways in Sydney have been as much about increasing traffic to make a profit as they have been about relieving congestion and achieving fuel savings. As such they have moved Sydney away from the sustainable balance sought by the Department of Planning. The Cross City Tunnel is yet another step, and rather an extreme one, in this retrograde direction.

The initial, and obvious, requirement was for an east west road tunnel under the city to relieve congestion on CBD streets. However such a project, being both very short and lacking any of the advantages bestowed on other tollways, was not financially viable. The project went through various stages of expansion, progressively adding length, providing additional traffic routes and increasing the operating speed to attract more traffic. It is understood that the Government still provided some assistance with the longitudinal airshaft that was required as a result of the unsatisfactory M5 East tunnel experience. Additionally, following on from the Eastern Distributor, the contract required existing routes to be narrowed or closed in anticipation of (or to help ensure) a financial outcome.

It remains a significantly imperfect project. Clearly:

- Less traffic has been, or will be, taken off CBD streets than would have been the case with a non-tolled solution.
- Some potential users in East Sydney have been excluded due to the progressive lengthening.
- There is a need for substantial traffic growth to achieve profitability.
- It is several times more expensive than the initial requirement.

6 Lessons

The Cross City Tunnel is a more extreme example of a problem associated with all tollways in Sydney, and this is the need for a financially viable level of traffic to be generated ahead of the broader community interest, which is best served by a sustainable transport balance.

The “no cost to the taxpayer” requirement has been substantially responsible for this problem, as the tolls lead to an expansionary circle of increasing traffic and expenditure. This is because both higher and earlier capital expenditure on faster and/or longer projects is required to attract enough traffic to offset the toll disincentive for the same level of benefits that could have been achieved with a non-tolled solution. It is likely that the parlous state of the rail system, with its recently introduced slower running times, has provided an additional boost to the tollway operators.

In principle, there is nothing wrong with either road tolls or limited access roads in urban areas. Such roads are needed, along with improved public transport and rail freight facilities, and road user charges, such as tolls, are a legitimate means of raising revenue in compensation for external costs imposed by road use on the community. The objection comes from linking tolls and limited access roads together, as this effectively privatises one part of the transport system and unbalances the whole.

The “no cost to the taxpayer” requirement needs to be discarded, but road user charges should be imposed to fund sustainable transport outcomes across all modes. In this way, the Government can recover total control over transport policy issues, rather than sacrificing one part of it to profit-motivated sectional interests and neglecting the remainder, as is currently the case.

17 December 2002

The Honourable Carl Scully
Minister for Roads and Minister for Transport
Parliament House
Sydney

The Honourable Andrew Refshauge
Minister for Planning
Parliament House
Sydney

Dear Sirs

Cross City Tunnel Excess

The scope of the Cross City Tunnel has been expanded a number of times since the original concept was proposed in 1990. It is my view that this continued expansion has resulted in such excess that the project no longer offers the best value to the Community of New South Wales.

As described in the attached document, this excess, which is primarily in the areas of cost, ventilation task and induced traffic impact, has resulted from the RTA's pursuit of toll funding as the overarching objective and a selective approach to other possibilities.

A key issue is that of the propriety of using the relatively more available nature of toll funding to greatly expand the scope of the project, rather than to just bring it forward.

My conclusion is that it would be in the community's interest for the RTA to heed its own well-known warning sign (GO BACK- WRONG WAY) and revert to a solution based on the original and more minimalist concept for a Cross City Tunnel and recommend an appropriate funding arrangement for this realisation.

Yours faithfully

Peter Mills

Cross City Tunnel Excess

1 Introduction

The scope of the Cross City Tunnel has grown considerably since the original concept was announced in 1990 for a fairly minimalist east west road tunnel under the CBD and Hyde Park. The first Environmental Impact Statement extended the tunnel most of the way under William Street and provided some limited connectivity with the Eastern Distributor. The Supplementary EIS extended the tunnel further towards Rushcutters Bay and provided a higher operating speed and additional interconnectivity with the Eastern Distributor. Lastly, but not necessarily finally, the Preferred Activity Report now enhances the ventilation arrangements.

The above changes have resulted in excessive cost, ventilation task and induced traffic impact as discussed below.

2 Excess

The cost for the original concept was \$119 million in 1990 dollars, which would be still less than \$200 million in today's currency. By contrast, the reported current cost for the project is \$640 million with some remaining uncertainty over the cost of the enhanced ventilation arrangements.

The ventilation task has increased in a complex manner along with the greater length, additional height change and higher operating speed. With increasing community concern over the health risks from such ventilation, constructing more than is necessary (for the original minimalist concept) is an affront to this concern.

The length and operating speed of the original concept were such as to limit the amount of induced traffic to a degree mostly, but not universally, viewed as acceptable when compared with the promised surface improvements. The induced traffic impact will be greater for the extended tunnel due to the greater savings in generalised travel costs (mainly time savings) from its increased length, capture and operating speed. Of course, induced traffic is also convenient for toll funding, but more induced traffic is clearly incompatible with Action for Air which requires, inter alia, a shift from private cars to public transport and reduced travel.

Overall, it is not possible to make a logical physical connection between the need for enhanced tram and pedestrian movements in the CBD and an excessive easterly extension of the Cross City Tunnel almost to Rushcutters Bay. As discussed below, this excess has resulted from the RTA's pursuit of toll funding as the overarching objective and a selective approach to other possibilities.

3 Toll Funding

It was envisaged that the original concept for the Cross City Tunnel would be funded through a mix of parking provision and development levies, however the market around 1990 was judged unable to support such funding. In the apparent absence of other funding sources, despite the extolled benefits of the Tunnel, the project was declared to be financially unviable and lapsed.

The project was revived with the first EIS, which proposed a longer tunnel extending under most of William Street. The primary purpose of extending the Tunnel appears to have been to achieve toll funding; the logic behind this being that the timesavings, and hence the attractiveness to contested motorists, would be greater. Surprisingly, as only revealed subsequently in the Supplementary EIS, there was a \$40 million shortfall from achieving 100% toll funding.

At this point it would have been logical to review the scope of the project, its funding arrangements and other possibilities. However it seems that toll funding was then the ONLY consideration in proceeding to the Supplementary EIS.

The Supplementary EIS extended the Tunnel further to the east, provided west to northbound connectivity and raised the operating speed to further enhance the attractiveness to toll payers. It can only be presumed that toll funding has been achieved this time.

Irrespective of the degree of toll funding achieved, the impact in the CBD of a toll funded solution will remain less than could have been achieved with the original (non-tolled) minimalist concept.

4 Other Possibilities

While the RTA has presented arguments against some alternative possibilities to a Cross City Tunnel, it has been selective in not addressing other possibilities with respect to just the eastern extensions.

4.1 Public Transport

Bus priority measures and rail extensions would make a noticeable difference along William Street while still being plausibly insufficient to obviate the value of a tunnel under the CBD. Since the issue of the first and Supplementary EIS, further possible public transport enhancements with likely relevance to William Street have been publicised. The first of these, from the Long Term Strategic Plan for Rail (Christie Report), is the River Metro Line, while the second is for more sophisticated timetable derived bus priority measures as just announced last weekend.

4.2 Road Construction

If necessary, a stand alone grade separated right hand turn from William Street westbound to Palmer Street northbound could be constructed to improve surface traffic flow on William Street for far less money than needed to extend the whole Cross City Tunnel.

4.3 Orbital Access

Many cities share the experience of constructing an orbital road network only to have it congested for many hours each day. In Sydney, there is a particular problem with the orbital route in that the eastern part passes close to the CBD, leading to the M2

and M5 being used excessively for radial journeys when the use of public transport would be more appropriate.

While using the M2 for radial journeys is understandable before completion of the North West Rail Link, the impact of completing the Western Orbital and a connection to the Newcastle Expressway will make such use less desirable in the future. Accordingly, the day can be envisaged when orbital use may be given preference over radial use, possibly by limiting access at key points near the CBD. Such a limitation would have implications for the value of extending the Cross City Tunnel to interconnect with the Eastern Distributor.

5 Propriety

A key issue here is the appropriate use of the community's resources. Undoubtedly, due to the voluntary nature of toll payments, this funding source can be considered somewhat more readily available than, say, taxpayer funding.

For some other road projects, toll funding has been used as a "bring forward" mechanism to achieve an earlier implementation. An unfortunate side effect of this unbalanced "car friendly" approach to transport policy has been a serious decline in the modal share for public transport.

In the case of the Cross City Tunnel, the relative ease of obtaining toll funding is being proposed to vastly expand the scope and cost of the project, rather than just to bring it forward. The propriety of spending significantly more money on a piece of public infrastructure simply because the funding mechanism is more readily available is highly questionable.

6 Conclusion

The RTA has planned the Cross City Tunnel using toll funding as the overarching objective, rather than also considering a number of alternative funding and construction possibilities. This has led to excess primarily in the areas of cost, ventilation task and induced traffic impact, and a question of propriety.

Accordingly, the RTA should heed its own well-known warning sign (GO BACK-WRONG WAY) and consider these alternatives, which are based on the original and more minimalist concept for a Cross City Tunnel and which have the potential to offer better value to the NSW Community.

7 Previous Correspondence

For the record, the attached submission covering much of the above was forwarded to the RTA in response to the Supplementary EIS, but there is no evidence that the important matter of excess has been or is being considered.

Submission to the Supplementary EIS for the Cross City Tunnel project

Introduction

The pursuit of a toll-funded realisation of the Cross City Tunnel has resulted in a project that is excessive in scope, and less than maximally effective in function, when compared with the transport task envisaged. The latest proposal, as described in the Supplementary EIS, builds further on this excess while having some significant design problems.

It is now time to take stock of this increasingly pointless excess and address the real transport task instead. This submission concludes that it is preferable to revert to the original minimalist concept for a cross-city tunnel and to consider what, if any, non-toll funding sources are available for its implementation.

Original Concept

The original concept for the cross-city tunnel was fairly minimalist. The idea was to remove much of the east-west traffic from city streets, and thereby free up space to improve pedestrian and public transport movements. Its length and operating speed would limit the amount of induced traffic to a degree mostly, but not universally, viewed as acceptable when compared with the promised surface improvements.

Such a concept had no funding priority from state road accounts, and accordingly alternatives were considered. One suggestion was to provide connections to parking stations, some of them new, from the tunnel and levy these stations. Presumably, it was recognised that this would be inadequate and/or inconsistent with Government transport policies and this suggestion did not survive. Toll funding was then pursued.

Toll Funding

The essence of toll funding is to attract enough paying vehicle movements to cover the cost. The original minimalist concept could not achieve this, as the generalised travel cost savings (mostly travel time) would not be very large. Accordingly, a longer route was proposed by means of an easterly extension to run under most of William St and to link with the Eastern Distributor.

In terms of the primary task of freeing up space in city streets, a toll-funded realisation will be less effective than the original concept as some users will elect to avoid the new facility. Indeed, the first EIS has a section to show the non-toll alternatives that would be available for east-west, and for east to north, movements to allow for this election.

While some surface improvements to William St will be achieved by the extension, these improvements also will be limited by the availability of a non-toll alternative and are hardly a state transport priority. Local improvements could be achieved by instead providing better bus priority measures and a grade separated right hand turn from William St for east-to-northside traffic.

A further disadvantage of a longer route is that more ventilation capacity and a taller exhaust stack are required to keep conditions inside the tunnel within acceptable limits. With increasing community concern over the health risks from these stacks, constructing more than is necessary (for the original minimalist concept) is an affront to this concern.

Finally, there is the surprise disadvantage that 100% toll funding has not been achieved. The Supplementary EIS reveals that a \$40 million contribution would have still been required by the Cross City Tunnel Consortium for it to proceed with the proposal documented in the first EIS.

Supplementary EIS

It can be inferred from the issuing of a Supplementary EIS that the RTA is unable, or unwilling, to make the required \$40 million contribution. The new proposals are designed to obviate the need for this contribution by further increasing the amount of traffic carried.

The main means of increasing the traffic is by "the proposed removal of access to the Domain Tunnel and the Sydney Harbour crossings via the Cahill Expressway from all roads other than the Cross City Tunnel and Eastern Distributor", which means there would no longer be a non-toll alternative for traffic from east to north except via the CBD. It can be inferred that other contributions will come from the longer route and higher operating speed, which are predicted to reduce the leakage to non-toll alternatives, and the admitted (in the Supplementary EIS) increase in the modal shift from public transport to car.

Design Problems

The Supplementary EIS argues that the blocking of non-toll alternatives for east to north traffic will lead to further surface improvements on William St, however this claim rings hollow without there being a corresponding provision for (the necessarily non-tolled) north to east traffic which would similarly lead to surface improvements. Additionally, local traffic travelling north would need to travel further, thus negating some of the benefit claimed. It is clear that toll revenue, rather than any surface improvement, being the prime objective has led to this design problem.

Another problem is that an even larger exhaust stack is required to cover the increased traffic, length and speed of the Cross City Tunnel proposed in the Supplementary EIS, resulting in a further affront to community concerns. Additional emergency measures will also be required to keep conditions inside the tunnel within acceptable limits at all times.

Observations and Conclusions

A minimalist, and non-tolled, cross city tunnel would be more effective in removing traffic from city streets than either of the larger toll-funded projects described in the first and Supplementary EISs, and a less confronting exhaust stack would be required.

Some surface improvements to William St would be achieved by either of the larger toll-funded projects, but these improvements would be limited by the nature of the proposals and are hardly a priority issue when compared with many other parts of Sydney. Also, as described previously, there are more localised measures that can be adopted to achieve such improvements.

Equity problems have also been introduced in the Supplementary EIS by extending the tunnel eastwards and blocking non-toll alternatives for east to north journeys. Firstly, there has been no blocking for any other group of users and secondly there is no matching facility for north to east traffic to benefit from the extension. This latter (and necessarily non-tolled) group must continue to use surface streets, which is also contrary to the stated objective of improving surface conditions in William St.

For this project, there is an increasing mismatch between the excessive construction now required and the original transport improvements sought. This mismatch is due to the pursuit of toll-funding above all other considerations. It is now time to take stock of these excesses, and consider what is truly required and valued by the community.

Accordingly, this submission recommends a reversion to the original minimalist cross city tunnel and the consideration of how, if at all, it can be funded. Playing fast and loose with toll funding, as a means of circumventing proper community based transport planning, is simply not acceptable.

CCT Response (Letter Reference M03/90) dated 20 Feb 2003 on Ministry Letterhead

Re-keyed from hard copy original 14 Jan 2006

Dear Mr Mills

I refer to your letter to the Hon Carl Scully MP, Minister for Roads, regarding the Cross City Tunnel (CCT). The Minister has asked me to reply on his behalf.

The primary and secondary objectives developed for the CCT proposal, to satisfy the environmental, planning and transport needs of Central Sydney included:

- improving ease of access and reliability of travel within Central Sydney;
- improving the reliability and efficiency of travel between areas east and west of Central Sydney; and
- achieving acceptable economic and financial outcomes.

Changes to the original concept, which was modified in response to concerns raised by the community, included extending the tunnel east to the Kings Cross Tunnel, the introduction of links with the Eastern Distributor and the introduction of tunnel access to the harbour crossings via Riley Street and Sir John Young Crescent.

An extended tunnel was considered more effective in meeting the objectives of the Cross City Tunnel. Together with the significantly reduced traffic impacts during construction, this was the primary purpose for the extending the tunnel, not toll funding.

A comprehensive traffic study prepared for the Roads and Traffic Authority (RTA) Representations report, which was forwarded to PlanningNSW for assessment and approval, concluded that the forecast net mode shift (i.e. a shift from private cars to public transport [sic]) is insignificant. Induced traffic is also forecast to be small. Changed traffic patterns would be due to a redistribution of existing traffic.

The modified Cross City Tunnel proposal was approved by the Minister for Planning on 12 December 2002. In addition to a package of public transport initiatives included in the Conditions of Approval set by the Planning Minister, the CCT project includes:

- the introduction of daytime transit lanes along William Street to facilitate public transport throughout the inner east area;
- bus lanes in Park Street; and
- the relocation of inbound and outbound bus services from the western suburbs to the Druit Street viaduct. This would allow inbound passengers to alight in the town Hall/QVB area.

Since a key objective of the Cross City Tunnel is to provide an alternative underground route for east-west traffic currently using surface CBD streets, the operation of a Sydney orbital network is not expected to affect the patronage or performance of the Cross City Tunnel.

Your suggestion for a stand alone grade separated right hand turn from William Street to Palmer Street would not deliver the level of benefits expected of the Cross City Tunnel. These benefits include improved air quality both in the CBD and regionally, less traffic on most surface streets near the tunnel and improved safety for motorists and pedestrians.

I trust that the above information has served to clarify the situation.

Yours sincerely

TONY STEWART MP
Parliamentary Secretary for Roads

A Long-Term Rail Network Plan for Sydney

1 Introduction

This document presents a long-term rail network plan (Network Plan) for Sydney that considers both track layouts and service arrangements. The purpose of its preparation was to road test a number of previously suggested ideas, and some other new possibilities, in the environment of a total network. Being heavily and unashamedly influenced by the Christie (Long Term Strategic Plan for Rail) Report, the points of difference from that Report that have emerged during the preparation of this document have also been noted. A network map is provided at the end of this Plan.

The underlying thrust of the Network Plan is to optimise the speed, frequency, reliability and coverage of the rail network in order to attract and accommodate a significant increase in patronage and market share as the population of Sydney grows. The support for regional centres is also intended to help contain travel distances.

2 Some Fundamentals

The basis requirement of each potential customer is to travel from his origin to his destination when he desires, rapidly, reliability, conveniently (covering a range of issues) and at an acceptable price. In practice, many customers embark on more complex journeys, seeking “outside” access at intermediate locations and/or a circular completion.

Private cars or taxis potentially best match the above requirements, but can be limited in their ability to do so by vehicle availability, congestion, parking availability and cost. Public transport, except for the taxi service, does not seek to match the travel requirements of every individual directly but applies the properties of aggregation and networking in striving to provide a competitive alternative. Concentrated centres of activity and corridor development are helpful in achieving such aggregation.

Public transport operators meet the totality of individual customer’s requirements, which is a two-dimensional demand array, through the provision of a number of interconnected links that form a network. Each link is usually one-dimensional from point to point, although circular services can also be provided. The reasons for such operational simplicity are to achieve the required aggregation and to ease the task of management. Customers’ individual requirements are met by using one or more of the interconnected links to complete a journey. In general, interconnection in a complex network is better facilitated by service frequency than by coordination.

A network of individual rail links alone cannot meet the totality of the above requirements, due to the relatively high volume usage required by rail for an acceptable level of economic performance to be achieved. Walking, cycling, bus and light rail are means of supplementing rail to improve and to “mesh out” public transport into a full two-dimensional coverage. Although the running of individual rail and bus services can and should be separated, the customer should be presented with an integrated whole network with respect to information, fares and interchange. In this regard there may be merit in interposing a retail service layer between the customer and the (wholesale) rail provider, as this may be more easily integrated with other modes than the task of operating trains.

3 Key Features

3.1 Metro Conversion

Rail services in inner areas have deteriorated in recent years along with population shifts due to the need to provide more pathways for outer suburban services, and the conversion to an all double deck fleet with its extended dwell times, within the constraints of limited track capacity. The construction of a Chatswood-CBD-Eveleigh link to create additional capacity and a new operating sector provides, inter alia, an opportunity to reverse this deterioration.

Metro conversion of inner area services should allow more frequent, fast and reliable performance to be offered from single deck trains. The better performance will, in turn, allow more feeder and cross-linking bus arrangements to be established to help reduce the present problem of bus clutter, such as in the CBD. More motorised axles, more doors and an articulated design to match legacy platforms will be needed for these trains. A dual height pantograph design would need to be considered for these trains also to operate on new metro lines or extensions with lower profile tunnels.

3.2 Orientation

The CityRail network has an historic orientation towards the CBD. While the Network Plan continues, and augments, this historic orientation, this is less pronounced than in the Christie Report. Further, with the expansion of major centres, such as Parramatta, Liverpool and Olympic Park, as well as a number of smaller regional centres, the opportunity has been taken to propose cross regional services that support these centres while minimising the additional rail build required.

3.3 Warringah

There has been considerable discussion of the relative benefits of North Sydney or Chatswood as being the better branching point for a new railway to serve the Warringah peninsula. St Leonards and the former freeway corridor have also received some consideration. Such rail options are relevant in considering viable alternatives to the local urging for a long road tunnel to bypass Military Road.

The Network Plan recognises that there is merit in providing two links to maximise the overall benefit, and has adopted a configuration in which these two links intersect at Brookvale.

3.4 Castlereagh

The Christie Report adoption of the Castlereagh Freeway corridor for new rail capacity has not been pursued in the Network Plan due to the lack of any known information to support such an adoption.

However the development of both Marsden Park and the former ADI site, and the possible release of the Airservices Australia transmitter site between them, has led to an alternative proposal in the Network Plan for this region. This proposal is to divert the planned North West Rail Link at Box Hill to serve Riverstone and these new areas before joining the Western Line at the University of Western Sydney for Penrith.

3.5 Sectorisation

The push towards sectorisation associated with the current “clearways” program has been pursued with the Network Plan, particularly with respect to CBD oriented services. As such, this aspect is probably more strongly addressed than in the Christie Report, which predates the sectorisation announcement.

4 Network Overview

The Network Plan is built up from nine basic lines with multiple branches, comprising a mix of Suburban, Link and Metro Lines. These are designated S1-S3, L1-L3 and M1-M3. M1 is formed from a conversion of existing inner area services while M2 and M3 are similar to the River and Central Lines proposed in the Christie Report. The needs of InterCity services are also considered.

A description of each of the nine lines follows, with the order of presentation influenced by their relationship to the key features described above.

5 Metro Line 1 (M1)

Metro operation is envisaged for the City Circle and the four inner area lines that connect to it to form Metro Line 1. These are the lines to Homebush, Bankstown, Revesby via International and Hurstville. There are then choices to be made about metro operation beyond Homebush and Bankstown.

The Liverpool via Granville service, and ongoing access to Campbelltown or Bringelly, is long haul and well loaded and therefore merits double deck suburban operation. Accordingly, these services need to be reallocated to another line east of Homebush, with Suburban Line 3 (the present North Shore and Suburban Lines) being the most obvious choice. This leads to the present Local Line being a stub terminal, and simplified track arrangements being provided to provide direct connections between Suburban and South, and Main and West, at Homebush. This decision also impacts on the service allocations to other lines as developed below.

The Bankstown Line extensions to Liverpool and Lidcombe are not heavily loaded and need to be accessed from Bankstown. Accordingly, metro operation has been adopted for these lines, but with the Lidcombe branch ultimately becoming part of Link Line 2. Occupancy of the busy Cabramatta to Liverpool segment has been avoided by diverting the former Liverpool via Bankstown service at Villawood, and extending it to serve Fairfield and Bonnyrigg. Some synergy with the western freight bypass may be possible with this diversion. The new station at Fairfield supports the development of a proposed regional centre at this location and provides one-change access to both Liverpool and Parramatta. The planned “clearways” turn-back at Liverpool will not be required for M1, but could be useful for Suburban Line 3.

Metro operation could also be provided south of Hurstville if separate tracks are provided to Mortdale or Oatley. It is assumed that the Hurstville operation will share tracks with freight during off peak periods, with a resort to Suburban Line 1 if problems arise. Ideally, there would be parallel running south of Wolli Creek to support this possibility, or a direct Enfield to Illawarra freight link to avoid sharing all together.

The City Circle has a Town Hall and a St James side, and two of the metro services would be allocated to each. The Revesby via International service has access only to the St James side, while the Homebush service would logically access the Town Hall side. This leaves one side each for Bankstown and Hurstville services which, however, need to share a common track between Sydenham and Redfern. There are implications for the junction arrangements between Sydenham and Wolli Creek, which are covered in a separate document.

Earlier operation of metro style trains, ahead of the provision of a dedicated metro sector, may be warranted for services to Homebush and Revesby. The benefits would be a better combination of local and through trains for the Homebush route and more convenience for Airport customers on the Revesby route. Mixed operation of metro and suburban double deck trains would be required to Homebush and around the City Circle for this to be achieved.

6 Suburban Line 1 (S1)

Suburban double deck operation is envisaged to continue on the Eastern Suburbs and Illawarra Lines, which, due to the establishment of M1, would exclude the all stations to Hurstville/Mortdale services. With Metro Line 2 following closely the Christie Report's River Line, a limited extension of the Eastern Suburbs Line just to Bondi has been shown. Without M2, an extension to UNSW and possibly beyond may be more appropriate, but then this would only be with suburban double deck trains.

Services are split three ways to serve Cronulla, Waterfall and Wollongong, with the latter presumed to experience strong growth if the Waterfall to Thirroul segment is improved. A limited InterCity service to the south coast is also possible from Sydney Terminal, using Suburban Line 2 (Campbelltown express) to Sydenham before diverting to S1. Because Hurstville local services have been diverted to M1 in the Network Plan, south coast InterCity services joining S1 south of Sydenham will reduce the usable track capacity north of Sydenham to Bondi.

Some capacity augmentation north and south of Sutherland may be necessary to accommodate the mix of express, stopping and freight services.

7 Suburban Line 2 (S2)

It is convenient to allocate the label Suburban Line 2 to the services connecting to the southern end of the proposed Chatswood-CBD-Eveleigh link, so that Suburban Line 3 carries on from the existing Sector 3. Because the Liverpool via Granville service has, as a consequence of the M1 metro conversion, been allocated to Suburban Line 3, other services must be displaced from this line and transferred to S2.

There is logic in choosing to allocate the Blacktown to Penrith segment to S2, and providing access from the new CBD link at Redfern to the Main Line near Newtown to do this. The outcome is quite neat, with S2 then carrying both Campbelltown and Penrith express services, and the four InterCity services to Newcastle, Blue Mountains, Southern Highlands and (up to the S1 connection) South Coast. The new CBD link can be fully utilised with this arrangement, as Inter City services to the southern highlands and the south coast will then be able to occupy pathways left available by the Penrith express services branching at Redfern.

The Main Line to Homebush, the express tracks to Blacktown and all four tracks from Blacktown towards Penrith would thus be allocated to S2. Some augmentation of the Revesby to Campbelltown segment of S2 may be necessary to separate adequately fast and stopping services. The Network Plan shows Bringelly services to be fully allocated to Suburban Line 3 and to run via Liverpool, but some leakage to S2 at Glenfield may become necessary due to constraints on Suburban Line 3.

The cross-harbour segment of S2 could use either the two eastern Bridge lanes or a new tunnel. Both have been shown, as alternatives, on the network map. For the former, new road capacity, such as an eastern ring route from Mosman to Woollahra, may need to be provided in order to help free up the required Bridge capacity.

As noted above, there are benefits from establishing two rail links into Warringah, with one being from North Sydney. A key issue is the choice between S2 and Suburban Line 3 to support this connection. S2 has been selected due to the common construction work around Crows Nest and the provision for Link Line 1 capacity that results, compared with the attraction of extending trains otherwise terminating at North Sydney on Suburban Line 3. S2 then connects exclusively to the Chatswood to Epping link north of Crows Nest, avoiding any service mixing with Suburban Line 3. This Warringah branch of S2 would serve Brookvale and points further north.

Some capacity augmentation north of Epping may be needed to accommodate the mix of express, stopping and freight services serving Hornsby and the Central Coast. The North West Rail Link is included in S2, and an alternative route for this link, through Mobbs Hill on the deferred Parramatta Rail Link route and an electricity easement to also serve West Rocks Road before reaching Franklin Road, is also shown on the network map. This alternative may help support the case for Link Line 1. After Box Hill, as already mentioned, S2 diverts to serve Riverstone, Marsden Park and the ADI site before joining the Western Line at the University of Western Sydney for Penrith.

Thus the Penrith services through both Blacktown and Castle Hill will be allocated to S2. Some capacity augmentation between St Marys and Penrith may be needed due to this combined operation.

8 Suburban Line 3 (S3)

Suburban Line 3 is made up from the existing North Shore Line, Harbour Bridge crossing and the Suburban Line to Homebush. From there, S3 is allocated the southern tracks to Granville, the tracks to Glenfield and Bringelly, and the slow tracks to Blacktown (Richmond branch platforms) and the Richmond Line. Additional platforms at Newtown, probably to the west of the King Street overbridge, are shown in the Network Plan to facilitate interchange with Metro Line 3. The Strathfield to Epping service is also included as a third branch of S3. There could be some leakage of Richmond trains onto S2 at Riverstone due to S3 capacity constraints.

North of the Harbour, there is need for an all stations to Gordon service and a key stations to Gordon and all to Berowra service. Therefore, as at present, there will be a service imbalance north and south of the CBD and some trains, at least in peak periods, will start and finish at North Sydney. If S2 crosses the Harbour by tunnel, this arrangement can continue. Otherwise, new turn-back facilities, including a third platform, would need to be established at Waverton.

If, as suggested in the Christie Report, additional capacity to the Central Coast is required, then the North Sydney terminators could be extended to serve this. The Network Plan shows additional tracks from Roseville to Gordon from where a tunnel route to the north can be launched with a portal just south of Pymble. The route of this tunnel would also allow a stub terminal station serving the St Ives town centre to be established, and for the Gordon terminators to be extended to serve it.

Alternate stopping at Waverton and Wollstonecraft could be introduced at the same time to minimise delays, and/or the St Ives to Epping service may be a candidate for metro conversion provided mixed metro and suburban double deck operation is considered acceptable.

9 Link Line 3 (L3)

The concept of Link Line 3 is to provide both Parramatta and Liverpool with direct or one-change access from all of the western rail routes, while minimising new construction in recognition of the limited patronage available. It replaces the core piece of the Cumberland Line, but diverges from it at either end. To the south, L3 takes the proposed Y junction from Casula to Georges River, and from Narwee dives south to a dedicated stub terminal station at Hurstville. There may be some synergy between this proposal and the construction of a direct Enfield to Illawarra freight link. To the north, L3 dives from Toongabbie to Hills Centre and then shares S2 track to Castle Hill station and a turn-back (a separate terminating platform should not be required). This route has been chosen because of its acceptable grade and a minimum of new construction.

Link Line 3 services would probably only stop at key stations in accordance with the concept of providing fast trains between centres that has been espoused by the Warren Centre. Suburban double deck trains would be the preferred choice for L3, considering the route sharing with S2 and S3 services, but the use of metro style trains would reduce the tunnelling costs into Hurstville and Hills Centre.

10 Metro Line 2 (M2)

Metro Line 2 has been taken directly from the River Line of the Christie Report as it clearly provides much that is useful. A pair of spur routes from Kingsford to Little Bay in the east, and from Pyrmont to Five Dock in the west, have been added. These will provide coverage to otherwise neglected areas and increase the service frequency through the CBD.

11 Metro Line 3 (M3)

The southern part of Metro Line 3 from Newtown is as proposed for the Central Line in the Christie Report. However there are several differences to the north of Newtown. A Chatswood to Brookvale link is retained as part of M3, but this has been extended from the interchange with S2 at Brookvale to Manly. As S2 provides a CBD oriented service from Warringah, M3 can continue beyond Chatswood with a complementary role to link other inner areas. Accordingly, the Network Plan has M3 continuing further west through Lane Cove and Hunters Hill to share with M2 the Drummoyne to Rozelle sub-harbour route. Between Rozelle and Newtown, M3 serves Glebe, with interchange to the Five Dock spur, and Sydney University.

Overall, M3 provides a Warringah to Cronulla service through an inner western ring with interchange to all other CBD oriented lines, rather than serving the CBD directly as envisioned for the Central Line in the Christie Report.

12 Link Line 1 (L1)

Link Line 1 provides a service between Parramatta and Crows Nest via Epping and Chatswood. It shares a Parramatta stub with M2, absorbs a duplicated Carlingford Line, shares capacity with S2 between Epping and St Leonards that is available due to S2 having a branch to Warringah, and has a dedicated stub platform at Crows Nest. L1 could also share with S2 the Mobbs Hill to Epping segment if this, rather than the Main Northern Line, is used as an alternative take-off point for the North West Rail Link. Otherwise, this tunnel segment would be solely for L1 services and a less expensive low profile tunnel for metro style trains could then be considered.

The line is not likely to be heavily patronised, and the originally envisaged concept of connecting through Parramatta as a main route to the west conflicts both with sectorisation goals and the poor alignment of the Carlingford Line. However, the cross regional linkages that L1 provides are enticing, the site limitations at Epping preclude the use of other modes for interconnection with S2 and S3 services, and there is only a limited amount of new construction required. It is likely that short trains would be sufficient for the L1 service, and, although suburban double deck trains would be suitable, metro style trains would be necessary if low profile construction were used for the Mobbs Hill, and Parramatta stub, tunnel segments.

13 Link Line 2 (L2)

The concept for Link Line 2 is similar to that for L3, and that is to provide key centres with direct or one-change access from all of the western rail routes. For L2, the key centres are Olympic Park and Bankstown. As with L1 and L3, some shared operation with other lines is envisaged where capacity is available to contain establishment costs.

The first step in establishing L2 would be for the M1 Lidcombe branch service to absorb the Olympic Park shuttle, and also serve Pippita, by providing a through underpass link at Lidcombe. This underpass may have other benefits, such as reducing conflicts or providing an emergency routing, for some CountryLink services. The completion of L2 would involve separating the Bankstown to Olympic Park service from the rest of M1, and extending this service at either end to serve Hurstville and Epping.

The southern extension would require a dive east of Bankstown to serve Roselands, join L3 south of Beverly Hills and share the L3 stub terminal at Hurstville. An interchange station would be established at Beverly Hills. Some synergy with an Enfield to Illawarra freight link may also be possible with these works.

The northern extension would require a dive between Olympic Park and Rhodes to allow L1 services to reach the S3 terminus at Epping. An additional southbound platform, or possibly two new platforms, would be required for L2 services at Olympic Park to accommodate the simultaneous provision of L2 services and S2 based event services from Sydney Terminal and Blacktown.

Metro style trains would be provided on L2, probably short trains normally but built up during event loads, and accordingly most tunnelling work could be of low profile construction. L2 services should enable a significant reduction of the event bus task to Olympic Park to be achieved.

14 Network Summary

A brief summary of the individual branches for each of the nine lines that comprise the Network Plan is presented in the following table. A network map is presented on the next page.

Line	Between:	And:
M1	<ul style="list-style-type: none"> ▪ Homebush ▪ Bonnyrigg via Bankstown 	<ul style="list-style-type: none"> ▪ Revesby via International ▪ Oatley
M2	<ul style="list-style-type: none"> ▪ Parramatta via West Ryde ▪ Five Dock 	<ul style="list-style-type: none"> ▪ Little Bay ▪ Sydenham via Kingsford
M3	<ul style="list-style-type: none"> ▪ Manly via Chatswood 	<ul style="list-style-type: none"> ▪ Cronulla via International
S1	<ul style="list-style-type: none"> ▪ Bondi 	<ul style="list-style-type: none"> ▪ Cronulla via Hurstville ▪ Waterfall ▪ Wollongong
S2	<ul style="list-style-type: none"> ▪ Penrith via Castle Hill ▪ Hornsby/Wyong via Epping ▪ Mona Vale 	<ul style="list-style-type: none"> ▪ Penrith/Springwood via Parramatta ▪ Campbelltown via Sydenham
S3	<ul style="list-style-type: none"> ▪ Berowra via Gordon ▪ St Ives ▪ North Sydney/New Central Coast via Gordon 	<ul style="list-style-type: none"> ▪ Richmond via Blacktown ▪ Epping via Strathfield ▪ Bringelly via Granville
L1	<ul style="list-style-type: none"> ▪ Parramatta via Epping 	<ul style="list-style-type: none"> ▪ Crows Nest via Chatswood
L2	<ul style="list-style-type: none"> ▪ Epping via Olympic Park 	<ul style="list-style-type: none"> ▪ Hurstville via Bankstown
L3	<ul style="list-style-type: none"> ▪ Castle Hill via Parramatta 	<ul style="list-style-type: none"> ▪ Hurstville via Revesby

The S3 makeup is potentially the most complex. One service plan of five elements out from Strathfield could be: all Blacktown; all Epping; key Liverpool all Bringelly; key Blacktown all Richmond; and key Granville all Liverpool, which perpetuates the long (up to 15 minutes) waiting time problem for some users at crowded Town Hall. More frequent services (using only three elements) to reduce this waiting time would probably require some peak period leakage into S2 from Bringelly at Glenfield and/or from Richmond at Riverstone to provide enough total capacity on these routes.

