

A PUBLIC TRANSPORT PLAN FOR SYDNEY The sustainable option.

Introduction

This submission acknowledges there is insufficient public funds available to build a new rail transport network to significantly reduce the current congestion on our road system. However there is capacity in the existing road infrastructure to provide space for light rail and metro lines. Heavy rail infrastructure is the long term solution but will not be commenced in the foreseeable future unless the infrastructure funding is directed away from road infrastructure projects such as WestConnex.

Historical records indicate early public transport planners were heading in the right direction but were de-railed by the invention of the private motor car

Our early transport planning for Sydney could not have envisioned the city being home to six million people by 2030. However, John Bradfield's 1915 design for a public transport system recognised the solution was in constructing rail networks. Circumstances conspired to prevent this vision from being realised because of the mass production of affordable private motor vehicles. Therefore, from the 1950's onward, we constructed large metropolitan transport corridors for the exclusive use of motor vehicles. These transport corridors did not include provision for public transport unlike Bradfield's original design for the Sydney Harbour Bridge.

The existing urban motorway transport corridors provide an opportunity for reducing congestion they can be used for multi-use transport systems. The light rail in North Perth is an example of this strategy. Sydney has several metropolitan motorways which could be altered to carry light rail. The Warringah motorway/ M2 is the most suitable for this alternative approach to mixed use transport corridors. We can also reduce congestion on our arterial roads if light rail shares some of the lanes presently used by motor vehicles

A new underground metro system is required to achieve a major reduction in the numbers travelling in motor vehicles. Two cities in our region, Singapore and Shanghai, have successfully built metro systems in the last 15 years. The Sydney metro does not have to be on the scale of Shanghai but could be similar in size to Singapore. An effective metro system concentrates on inner metropolitan journeys, with short distances between stations and high frequency services, similar to the Paris metro. The previously proposed metro line between Malabar with West Ryde through St James and Wynyard city stations should be the first line constructed in a new inner urban metro system. Similarly, in the longer term, the northern and south-eastern beach suburbs require metro systems which connect to the existing heavy rail lines closest to their areas.

The strategy for heavy rail would involve the upgrading of the north-south and east-west heavy rail network mainlines. Firstly by increasing the passenger capacity of the trains and the enlarging of the interchange stations. Secondly by increasing the service frequency and extending connections to other main lines. These two proposals would be similar to both the RER regional services in Paris, which complement the metro system, and the Crossrail project in London. Crossrail will have two hundred metre long trains which carry 1500 passengers in peak hour. The stations will be 240metres long. Outer urban areas, east and west of London, will be connected by a 118km network of new and upgraded rail lines and stations.

Crossrail is an example of how long-term planning for cross-city heavy rail transport can be achieved if public investment is directed into public transport infrastructure projects. Despite enormous obstacles the project is being realised because of the long term benefit to the City of London's transport system and the regeneration of inner suburban areas along its route. We should be encouraged by this example and increase our attempts to realise a similar long-term solution for Sydney.

If people use public transport instead of private motor vehicles it will help to reduce the environmental impact of road transport. Communities based primarily on walking, cycling and public transport, particularly for short local trips, are healthier sustainable environments.

1 INFRASTRUCTURE DEVELOPMENT stage 1 Redevelopment of existing resources

1.1 Rail lines and light rail on existing roadways

Inner urban motorways have not been the solution to reducing road traffic congestion because the traffic volume always grew to take up the enlarged road space. The New York transport authorities realised this too late but have not built an inner urban motorway since 1968. The solution adopted in Perth is an example of how a traditionally car dependent city successfully used a more innovative approach to reduce traffic congestion. It used the metropolitan motorway corridors for rail transport. Sydney has traditionally sought a solution which gave priority to uninterrupted car journeys on inner metropolitan motorways such as Warringah, M1, M2, M4, M5 and M7. Fortunately a change in transport planning strategy has resulted in light rail lines being constructed or extended on old rail lines to Dulwich Hill, the city centre and to the eastern suburbs. The next strategy move is to save infrastructure funding on new metro and light rail corridors by adapting existing roads for rail transport.

(i) The Perth model

High-capacity automated urban metro systems have five times the passenger capacity of a four-lane freeway. While they're not as advanced as metros in many other countries, the Joondalup and Mandurah lines stretching north and south of Perth's central business district have more than three times the capacity of the three-lane Mitchell and Kwinana freeways, which run parallel.

North Perth Light rail on motorway corridor and in inner city Perth



(ii) Sydney Harbour Bridge and Epping Road

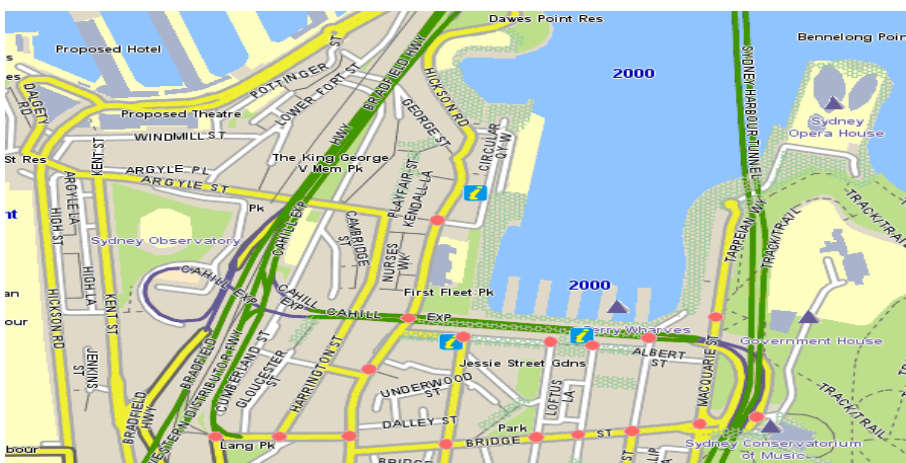
The two original eastern Harbour Bridge rail transport lanes could again be used for a light rail transport line between Epping station and the Sydney City Centre. The service would reduce the projected passenger congestion problem at Chatswood interchange station where the new Northwest rail passengers transfer onto the North Shore rail line to connect to the city centre. The service from the Harbour Bridge would use two lanes of the Warringah Expressway and connect to Epping Road at Lane Cove and terminate at the Epping station.

The City Centre destinations would be York Street, terminating at Wynyard Station, and on the Cahill Expressway above Circular Quay station. Preferably it could also be extended from the Cahill Expressway via the M1 eastern distributor tunnel to Anzac Parade connecting to the proposed Randwick light rail line.

The north bound road traffic lanes of the Cahill Expressway above Circular Quay could be converted to a segregated bicycle and pedestrian corridor. The cyclists could access the Harbour Bridge western side bike lane to reach North Sydney.



Harbour Bridge original eastern tram lanes



Cahill Expressway

(iii) Major arterial roads

Victoria Road - William Street – New South Head Road

Victoria Road city-bound traffic congestion will be reduced in the long-term if the proposed metro line from Malabar to West Ryde is built. But to significantly reduce the vehicle numbers on Victoria Road, in the short-term, will require a light rail service. To improve the transport strategy for east-west city centre traffic this service could continue through the city to Watson’s Bay along New South Head Road rather than terminating at Circular Quay.

Parramatta Road - George Street – Walsh Bay - Barangaroo – Sussex Street – Hay Street

Light rail from Parramatta along Parramatta Road to the city centre should be integrated with the city centre light rail service. Instead of again terminating at Central or Circular Quay the proposed service can continue via George Street to Hickson Road and return to Parramatta Road via Sussex Street at the Hay Street intersection.

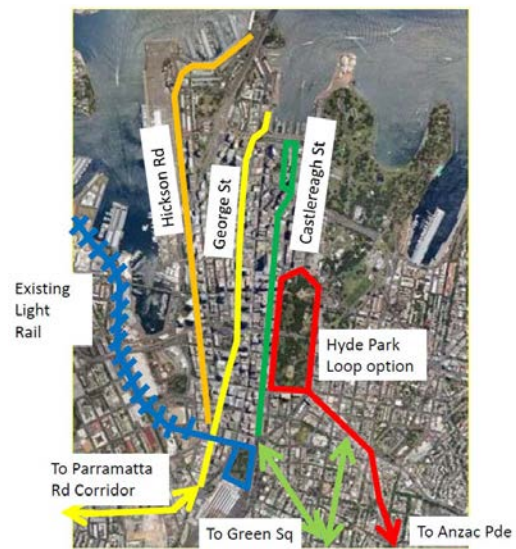
(iv) Future light rail routes in high density areas and the city centre

In 2011 a transport forum paper suggested further potential light rail routes - three inner city routes to the city centre via Parramatta Road, Oxford Street and Surry Hills (Crown Street or Devonshire Street) and four north south routes within the city centre via Elizabeth Street, Castlereagh Street, George Street and Sussex Street - Hickson Road. The three Inner city routes, via Parramatta Road, Oxford Street and Crown Street all follow former tramway routes.

The inner city & eastern suburbs has higher population growth rates than the Sydney average and these New routes would provide additional public transport capacity to serve a number of important urban renewal developments. Light rail will improve the overall street environment of the streets of the city centre which are currently affected by noise and air pollution impacts from bus operations. These proposals combined with the newly constructed Eastern Suburbs light rail will also reduce the need for future bus traffic from these routes.



Inner suburbs routes



City centre north - south routes

Population density and light rail



1.2 Upgrading rail stations

(i) Town Hall and Wynyard stations

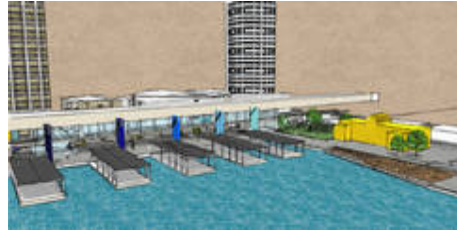
Town Hall and Wynyard are already overcrowded and their platforms too narrow for increased passenger numbers. Their long term role should be as transfer stations for a metro system rather than heavy rail stations. The city centre needs a new main station other than central, to handle heavy rail transfers.

(ii) Martin Place station

Martin Place station can be expanded and connected to St James station to reduce the number of trains passing through Wynyard and Town Hall. This will involve Martin Place being connected by a tunnel from the Harbour Bridge-Wynyard rail line to take the trains coming from the North Shore line through North Sydney station. Significantly St James station is part of the long-term proposal for the Malabar-West Ryde metro route.

(iii) Circular Quay station

In considering how to improve the interchange between buses, ferries and trains at Circular Quay it is worth reflecting on some of the ideas which came out of a design study of Circular Quay in 2009, by the NSW Dept of the Attorney General and Justice, in partnership with the University of Technology Sydney. Even though the study was aimed at improving security under the Designing out crime (DOC) system it contains a solution which improved the stations accessibility. The Master Plan created a more spacious, open and clear thoroughfare by extending the square along Alfred St and moving the rail entrances to either end of the terminal. The ferry wharfs were pushed out over the water, creating more open space for pedestrians.



Relocating the entrance/ exit to Circular Quay Railway Station to either end of the building as well as removing the restaurants further enhances the openness and ease of flow. This proposal creates two new entrance/exit locations directly connected to the bus interchange, allowing smooth transfer of daily commuters between the two modes of transport .Loftus and Young Streets were restructured into cul-de-sacs, terminating midway down the existing street.



(iv) Central station

The Circular Quay thoroughfare model is significant when approaching the upgrading of Central station to improve the transfers between, buses, light rail and heavy rail.

Southern Cross station in Melbourne replaced and enlarged the original Spencer Street station (Central is its Sydney equivalent) with an important new city structure which included retail spaces and improved interchange for regional and suburban trains, trams and buses. It also provides an express bus terminal to the Melbourne airport. The major design difference between the old station and Southern Cross was its improved relationship with Spencer Street and the adjoining Docklands.

Central could be improved by altering its connection to Pitt and George Streets and the UTS and ABC precincts



Southern Cross Rail station in Spencer Street Melbourne

(v) Parramatta station

The previously proposed connection between Parramatta and Epping stations should be reviewed because a large interchange station is required closer to the demographic centre of the metropolitan area. Parramatta is the logical location for a transfer station to re-direct the passengers travelling east but not wishing to pass through the Sydney city centre.

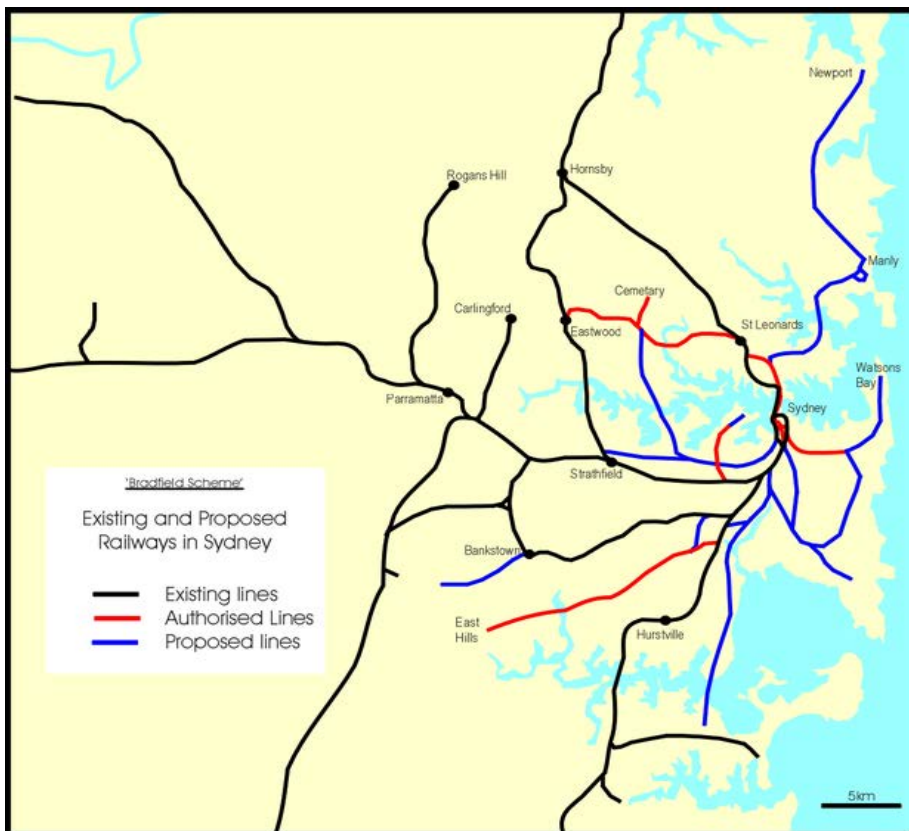
2 INFRASTRUCTURE DEVELOPMENT Stage 2 New rail networks

2.1 Metro lines

(i) Historical background - Northern and southern beaches passenger rail Bradfield 1915

Bradfield's overall concept plan in 1915 called for the construction of a network of underground city railway lines in association with the construction of the Sydney Harbour Bridge and a new rail terminal at Central. A larger network of lines was proposed for the western, eastern and southern suburbs (see map) however most of these lines remained concepts only and have never been constructed. The Depression and later World War II, along with the growth of the motor car, which led to the passenger numbers in Bradfield's plans being grossly overestimated, all prevented the full realisation of the Bradfield scheme. Parts of the city underground were constructed and exist as the present day City Circle, with small sections built for the additional proposed city lines such as additional platforms at Wynyard and St James stations which have never been used for heavy rail transport. The underground city loop was constructed originally as a stub line to St James, and the line through Town Hall and Wynyard to the Harbour Bridge. It was not until 1955 that the loop was completed by the construction of Circular Quay station. A line to the eastern suburbs was eventually built, but along a different alignment to that envisaged by Bradfield, who correctly proposed a line along Oxford Street.

Bradfield recognised the restrictions of the Sydney topography. Peninsulas dominate the landscape between the Hawkesbury and Cronulla. Circular light rail systems are more suitable in the seaside suburbs north and south of the harbour. Heavy rail should service the north-south axis between Hornsby and Sutherland and the east-west axis between Bondi Junction and Parramatta.

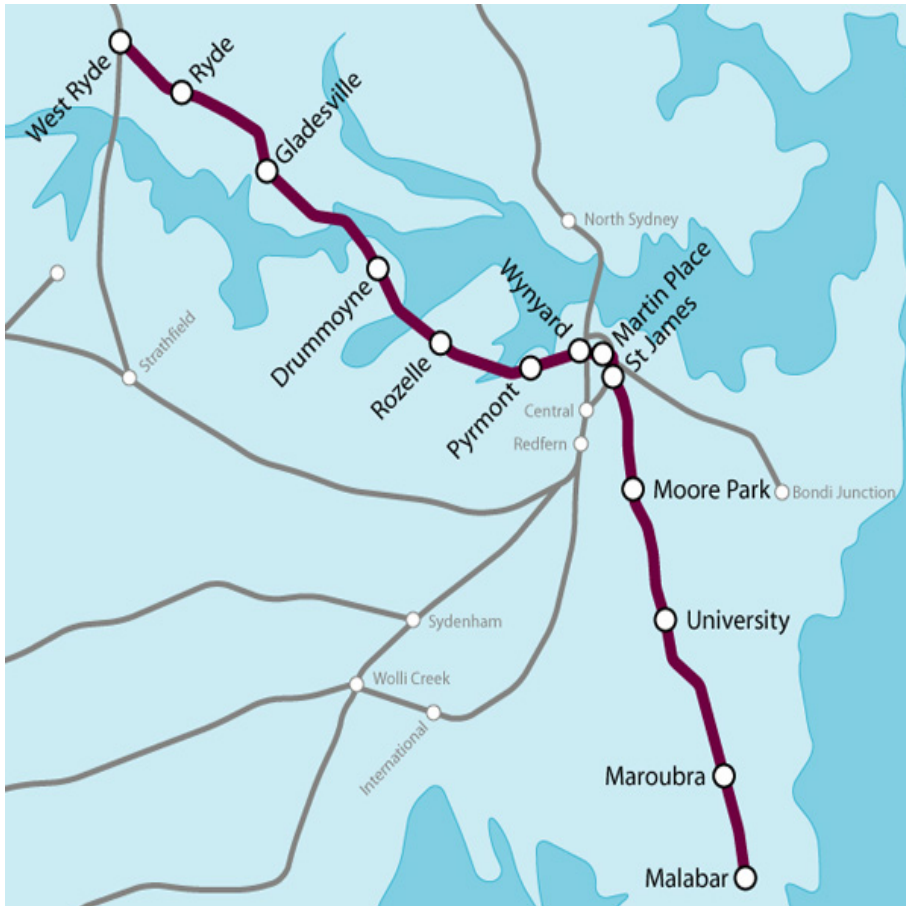


Bradfield's proposed underground rail network 1915

(ii) Malabar to West Ryde

In 2007 a transport planning scheme suggested an underground rail network from Malabar to West Ryde. The increased population densities in these inner western and south eastern suburbs would support a public transport solution for reducing the traffic congestion on Victoria Road and Anzac Parade.

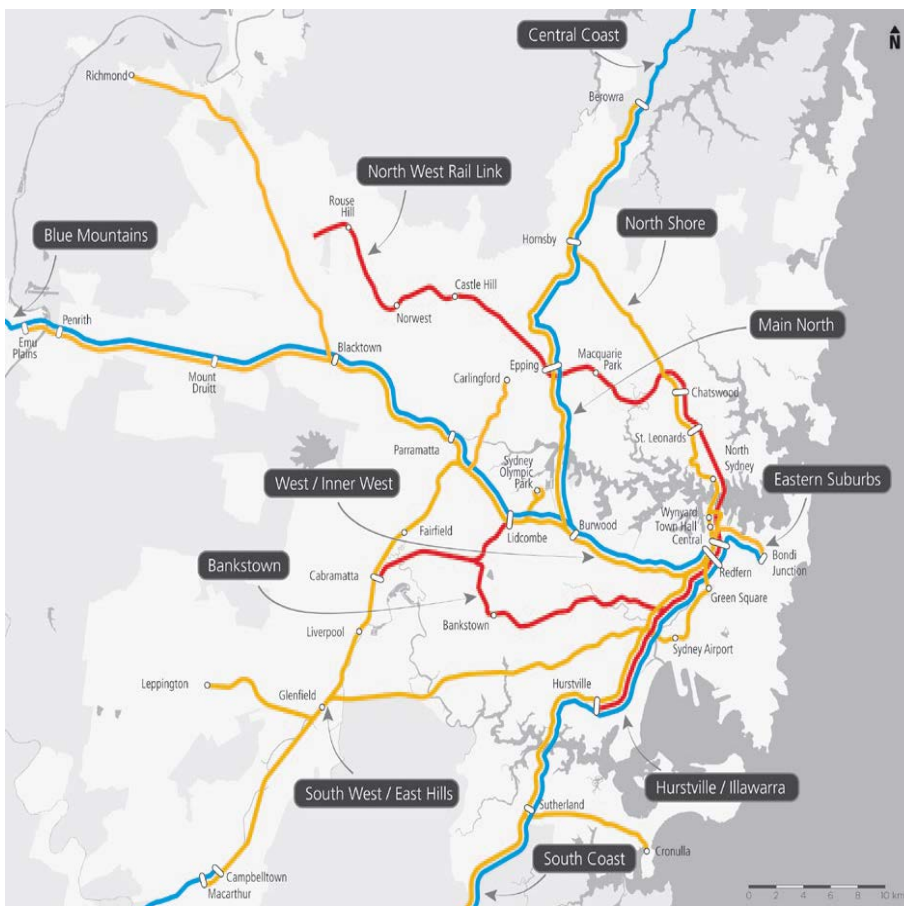
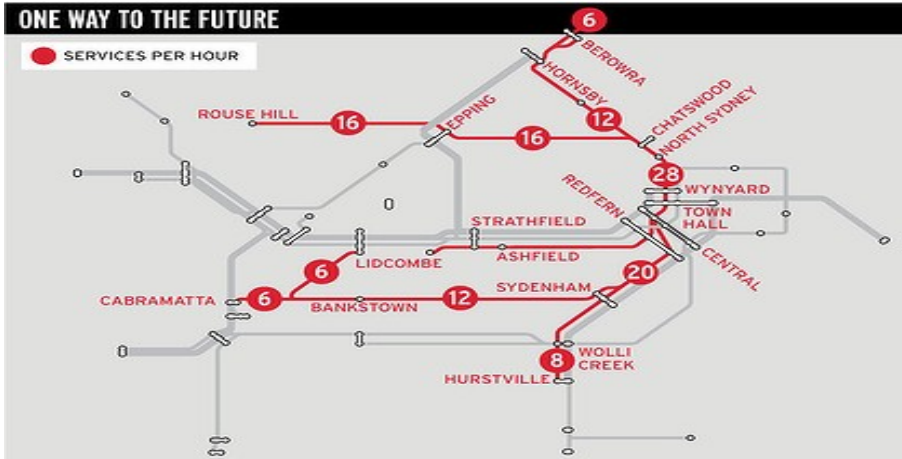
The proposed line was in a tunnel, starting at West Ryde station on the Northern Line and travelling beneath Victoria Road through Ryde, Gladesville, Drummoyne, Rozelle and Pyrmont . The line passed through existing city stations at Wynyard, Martin Place and St James, before heading south beneath Anzac Parade to Moore Park, the University of New South Wales in Kensington, Maroubra Junction and Malabar. The line should now also include at station at Barangaroo South, between Wynyard and Pyrmont.



Malabar to West Ryde light rail proposal

2.2 Sydney's Rail Future strategy network documents June 2012

The "Three Tier Railway plan on page 11 of the publication "Sydney's Rail Future" June 2012 is the government's preferred strategy and apart from minor amendments should be programme for the foreseeable future.



Rapid Transit Network (Single Deck)

Suburban Network (Double Deck)

InterCity (Double Deck) and Regional Diesel

2.3 The five stages of Sydney's rail future

(i) Operational efficiencies

- Timetable overhaul to introduce standardised and regular 'clockface' stopping patterns, more express services
- Significantly improved dwell management, with better management of door closure
- Platform de-cluttering to allow clear passenger entrance and exit
- Better incident recovery management through improved operational processes.

(ii) Network efficiencies

- Completion of South West Rail Link, station upgrades and Rail Clearways projects
- Introduction of even simpler timetables across the network
- Introduction of Automatic Train Operations
- Transition to dedicated fleet types for some lines
- Track infrastructure enhancement
- Platform re-design.

(iii) New Rapid Transit System

- Rapid transit trains are used to offer a comfortable, frequent, fast and high capacity link to busy inner areas
- Completion of the North West Rail Link and procurement of rolling stock for the new rapid transit single deck train system initially operating between the North West and Chatswood, with a cross-platform interchange to suburban services for those customers travelling to the CBD
- There will be a train from Chatswood to the CBD every three minutes in peak periods
- In line with the North West Rail link, upgrade of the Epping to Chatswood Rail Link to a high capacity rapid transit system.

(iv) Second Harbour Crossing

- Completion of a new tunnel under the Harbour and a new Sydney CBD line, allowing services from the North West Rail Link to extend directly to the Sydney CBD
- The second Harbour Crossing will create the largest increase in capacity to the Sydney rail network for 80 years
- Untangling the CBD enables major capacity increases on the Western line.

(v) Southern sector conversion

- Extension of the new single deck service to Bankstown and Hurstville
- Continue major timetable changes to the existing suburban services to continue major capacity increases to the South West and Western Sydney
- Better express services introduced due to separation from rapid transit.

2.4 Suggested amendments to Sydney's rail future plan June 2012

The New rapid transit system is the most important initiative and should be amended to include:-

- (i) The Malabar to West Ryde metro line
- (ii) A new line connecting Parramatta and Epping stations.
- (iii) The southern section conversion
- (iv) Pulse time-tables for low density outer suburban services

All of these should be completed ahead of the second harbour crossing because they would benefit all of the metropolitan area not just the frequency of the city centre service. The transport congestion in the areas west of the city centre is more important. The light rail strategies detailed in section one of this submission should delay the timing for the construction of the second harbour rail tunnel.

3 THE LONG TERM PLAN Stage three

3.1 Funding

The State and Federal Government Employees Superannuation Funds should be a source of funds for investment in major infrastructure. The state government could pay 5% interest to the super funds. Re-current annual funding amounts from government budgets will determine the rate of construction over the next 20 years.

3.2 Sydney City Council

The Long Term Transport Master Plan should be an integral part of the Ministry for Planning strategy for Sydney 2021. The City of Sydney Council should have more involvement with the light rail services planned for the inner suburbs. The state government should concentrate on the upgrading of the rail network in the Sydney metropolitan area and the regional services

3.3 Car dependency

“Transportation technologies have always determined urban form,” says urban economist Edward Glaeser. This means when considering investments in transport systems in coming years, thinking about more than the financial costs and benefits. It means debating what type of cities we want and how different transport choices will shape them in different ways. The challenge is to take Australian cities back to the future, to an era when the private car was less dominant than it is today. Part of the solution is to use existing public transport systems more efficiently by organising networks better and upgrading existing services.

As transport planner Edward Dotson told a Victorian parliamentary committee in 2009, it should be possible to “progressively raise the maximum practical, reliable capacity” of existing rail lines to a target frequency of “no less than twenty-four trains an hour” (or one train every 2.5 minutes). Infrastructure NSW points out that today’s CityRail express service from Newcastle to Sydney is slower than the pre-war “Newcastle Flyer” steam train, suggesting significant room for improvement.

In peak periods Sydney’s trains carry far fewer passengers than many railways overseas – partly because they use two-door, double-decker carriages, which transport between 50 and 150 per cent fewer passengers per hour than three-door single-decker carriages. The three tier plan should overcome this problem and retain the double-decker carriages for the suburban and regional lines.

Such problems are not simple to fix, but they do not generally require billions of dollars.

3.4 Rectification through innovation

(i) Transport corridor redevelopment - Warringah Freeway airspace

On the northern side of the harbour Cammeray-Neutral Bay-Kirribilli have been physically cut-off from North Sydney by the Warringah Freeway corridor northern approach to the bridge and cross-harbour tunnel. A large amount of residential and commercial property, half a golf course, and a cemetery were resumed by the government to build this freeway. These communities could be reconnected by building over the motorway and providing land for multi-use structures and landscaped open space above the corridor. The revenue from selling this airspace to private developers for high density redevelopment could then be used to fund light and heavy rail infrastructure. The Building Better Cities Federal Labor government initiatives in the early 1990’s demonstrated how government master planning can encourage private investment. Milsons Point railway station to Military Road would be the area for further study.



Warringah Freeway looking north, over the inner western carriageway.



Warringah Freeway looking south at its widest point - 16 lanes

- (ii) Replacing metropolitan freeways with walkable streets

Western distributor from the Harbour Bridge to Ultimo-Pyrmont

The **Western distributor** road system from the Harbour Bridge to Ultimo-Pyrmont disconnected the city from Darling Harbour and bisected Ultimo-Pyrmont. A long term planning strategy should examine its removal. Sussex, Kent, Clarence and York Streets could carry traffic as two way thoroughfares. Motor vehicles from the northern side of the Harbour Bridge heading south and east would remain in the cross harbour tunnel. The west bound traffic would use Sussex Street, William Henry Drive, Harris Street and Broadway to Parramatta Road. Anzac Bridge traffic would ideally connect to the cross city tunnel via an extended cross harbour tunnel. The cross city tunnel would be extended under Darling Harbour to Bank Street at a point where the Anzac Bridge descends to ground level near the fish market. All the elevated sections of the western distributor can then be removed. Harris and Wattle Streets are converted to two way thoroughfares.

4 SUMMARY

4.1 Rail

Providing new light rail, metro and heavy rail lines will ease congestion. The problem of course is the time frame and whether there is anything possible immediately which will significantly reduce road congestion. There is a possible solution but it will require a change to current attitudes about motorway construction. It will mean accepting the proposal to accelerate the light rail expansion by using the existing motorway and arterial road infrastructure.

4.2 Bus

All buses can be powered by renewable energy to reduce air pollution. Gradually reduce their number in the city centre as light and heavy rail take up the numbers. Focus on moving their present routes to the perimeter of the city centre. Use Kent Street for buses going to north shore across the bridge. The Cross Harbour road tunnel can be used for diverting some of the buses coming from the north to enter the city from the William Street exit and for their return trip to the north shore continue along William to Kent St. Buses coming from east west and south remain on present routes until rail transport significantly reduces numbers.

4.3 Road

Globally about 1.2 million people per annum die from car accidents; a further twenty million sustain injuries. In addition the damaging consequences to public health of air pollution from exhaust emissions should encourage us to re-examine the negative side affects of car dependency. This is the biggest challenge of the planning document. The aim is to restore the city centre to its original balanced function as a people friendly space not a noisy thoroughfare for motor vehicles.

4.4 Rail stations

Circular Quay Station interchange upgraded to include light rail on upper level of the Cahill Expressway. **Martin Place Station** upgraded to an interchange and connected to the circle line which can carry passengers, not headed for Wynyard and Town Hall, directly to **Central**. Wynyard and Town Hall upgraded as metro stations. **Central** redeveloped similarly to Southern Cross in Melbourne. **Parramatta** enlarged into a major interchange and transfer node

4.5 Walking

More people would walk on short trips in the city centre if the number of buses and cars were reduced on city streets. Re-connect Pyrmont and Glebe Island by re-using the existing bridge to provide pedestrian access to the future White Bay development and then Balmain-Rozelle residents could walk or cycle into the city centre. Similarly, re-connect the Domain with both the Botanic Gardens and Woolloomooloo by covering the Cahill Expressway between the State Library and William Street.

4.6 Cycling

Planning for bicycle commuting in an Australian context, must recognise two distinct groups of cyclists – the sports cyclist and the upright commuters. One is travelling up to the speed of a motor vehicle the other at about 15KPH. There is a large difference between these two groups. The slower group needs to be physically separated from motor vehicles. We should be able to create conditions which permit families to commute safely. We cannot provide this type of commuting if we don't separate the speedsters and the uprights. The family cyclists will require a full width dedicated road lane. This can be done on major arterial roads such as William Street and New South Head Road. Approximately, 42% of households in Sydney own a bike. Around 90 percent of the bicycle trips made each day in Sydney are less than 10 kilometres long, with the average distance being 3.2 kilometres. Bicycles are increasingly a mode of choice for shorter journeys which are too far to walk, but do not justify the use of our cars.

4.7 Ferries

Ferries work better when connected to other transport modes and co-ordinated with bus services. Bicycle parking at ferry wharfs is a long-term design requirement. Ferries service low density areas generally in Sydney Harbour and the Parramatta River. The Sydney ferry map shows there is an opportunity to increase the number

of wharfs either side of the Harbour Bridge. If more of the services to large employment centres, such as Parramatta, were express it would encourage people to change to accessing the city by water.

4.7 Sustainability

Renewable energy sources are fundamental to a sustainable transport system. The NSW 2021 document identifies a number of targets to help to reduce carbon emissions, including 'growing patronage on public transport by making it a more attractive choice'. This document should become the blueprint for public transport planning.

The Long term transport planning document must be based upon the simple principles of sustainability. This should not be an issue. We can build electric powered buses for short local trips and thereby reduce the importing or foreign-made buses. It requires a commitment to local manufacturing and accepting buses which initially will be inferior to those available on the international market. There is an opportunity to redeploy the skilled workers from the car industry in a new manufacturing industry based upon supplying our own public transport vehicles. Using renewable energy power sources, wherever possible, for trains and buses designed and built locally, will encourage technological research and increase employment opportunities.



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