44

Dinuka McKenzie - M5 West Widening - application number 10_0052

From: "Peter Mills" <pwmills@tpg.com.au>
To: <plan_comment@planning.nsw.gov.au>
Date: 6/1/2011 5:08 PM
Subject: M5 West Widening - application number 10_0052
Attachments: M5 West Widening - PPR Response.pdf; CBD Rail Relief in Presentation Format.pdf

My response to the Preferred Project Report, and a companion document on trunk public transport plans for Sydney, are attached.

Peter Mills
5 Berilda Ave
Warrawee
NSW 2074

02 9144 4692

M5 West Widening – Response to Preferred Project Report

1 Introduction

It could be inferred from the initial Environmental Assessment of the M5 West widening that the year 2010 levels of peak period traffic congestion on the M5 West Motorway will return by about 2020, with the consequent 'improvement period' being a little less than 10 years for the eastbound AM Peak and a little more than 10 years for the westbound PM peak.

The Preferred Project Report proposes an extension, by line marking, of the widening eastwards from Fairford Road to King Georges Road, and demonstrates both a shift and a modest overall improvement in eastbound AM Peak congestion through the application of a micro simulation model that is said to be more accurate than the previous strategic model under congested conditions. However the PPR does not draw attention to two significant adverse outcomes shown by the new model:

- Eastbound AM peak congestion is now expected to return to 2010 levels by 2016, for both the overall motorway and for most sections. This represents an improvement period of only six years; and
- Eastbound speed on the last 4 km between Fairford Road and King Georges Road will then be reduced to a 13 km/h crawl.

These more alarming outcomes illustrate just how temporary the congestion improvements will be, and reinforces the need for different transport policy settings to be adopted for Sydney to have a more sustainable, prosperous and liveable future.

2 Travel Time Data

2.1 EA Strategic

The travel time data presented in the EA as a result of a strategic simulation model between Camden Valley Way and King Georges Road have been extracted from Tables 8.8 to 8.11 for the peak directions and reproduced below.

Scenario	Eastbound AM Peak	Westbound PM Peak
2016 Base	21.8	27.0
2016 Project	18.3	20.0
2026 Base	31.6	36.6
2026 Project	24.5	27.2

For the eastbound AM peak, the travel time of 24.5 minutes with the project in 2026 is worse than the travel time of 21.8 minutes without the project (base) in 2016, while for the westbound PM peak, the 2016 and 2026 figures are similar.

An estimate back to a year 2010 reference point can be made from these figures and allowing for some upwards curvature of travel time increases by year. The inference is that the improvement period will be a little less than 10 years for the eastbound AM peak and a little more than 10 years for the westbound PM peak, with the average being about 10 years (2020).

2.2 PPR Micro Eastbound AM

The travel time data presented in the PPR as a result of a micro simulation for each section of the M5 West from Raby Rd to King Georges Rd in the eastbound AM peak have been extracted from Table 3-3 and reproduced below. An additional row has been included to total separately the times between Camden Valley Way and King Georges Rd to aid comparisons with the strategic model, and an additional column has been included to show the differences between the preferred project (with the KGR extension) and the 2010 base. All times are shown in a min:sec format with the additional data in red.

Eastbound AM Peak	**2010 Base**	**2016 BAU**	**2016 Project**	**2016 Project +KGR**	**Project +KGR -Base**
Raby Road and Brooks Road	04:15	04:10	03:40	03:30	-00:45
do and Camden Valley Way	03:00	07:10	03:50	03:50	+00:50
do and Hume Highway	03:45	10:15	02:50	03:05	-00:40
do and Moorebank Avenue	00:52	01:05	01:04	01:08	+00:16
do and M5 Toll Plaza	02:55	02:55	05:45	03:25	+00:30
do and Henry Lawson Drive	01:45	01:45	03:50	01:45	-
do and The River Road	03:45	05:10	08:30	03:40	-00:05
do and Fairford Road	02:35	03:25	04:50	03:20	+00:45
do and Belmore Road	03:40	04:10	03:55	05:45	+02:05
do and King Georges Road	08:20	08:15	08:30	13:00	+04:40
Total (Ruby Rd to KGR)	**34:52**	**48:20**	**46:44**	**42:28**	**+07:36**
Total (CVW to KGR)	**27:37**	**37:00**	**39:14**	**35:08**	**+07:31**

Including the extension from Fairford Road to King Georges Road makes a 10 minute improvement to travel times between Moorebank Avenue and Fairford Road, offset by a loss of six minutes between Fairford Road and King Georges Road, to give an overall improvement of about four minutes in 2016.

The interpretation is that the extension allows traffic to proceed more rapidly towards the eastern end of the M5 West and so helps to keep the intermediate junctions clear, but then joins a slow moving queue heading towards King Georges Road. However, while showing that the extension is a better solution than before, the PPR does not draw attention to two notable problems; firstly that eastbound AM peak congestion returns to 2010 levels by 2016 for both the overall motorway and for most sections (irrespective of the extension), and secondly that traffic on the last 4 km between Fairford Road and King Georges Road will be slowed to a 13 km/h crawl.

The first problem can be described as the widening project having a six year improvement period, after which congestion becomes worse than it was in the base year of 2010 without the widening. Although there would be an ongoing improvement when comparing congestion with and without the widening, this must be offset by the need for progressively more widening work in future years to sustain performance. The second problem can be seen as being solvable by expanding the M5 East. However, a queue would then arise at some point further along where capacity is constrained, so this problem is moved rather than solved, and there would only be a slight delay before the first problem (a return to 2010 congestion levels along the overall M5 West) reappears. Together, these problems illustrate the need to pursue more sustainable land use and transport policy objectives to manage urban road congestion.

2.3 PPR Micro Westbound PM

Similarly, the micro simulation travel times for each section of the M5 West in the westbound PM peak have been extracted from Table 3-6 and reproduced.

Westbound PM Peak	**2010 Base**	**2016 BAU**	**2016 Project**	**2016 Project +KGR**
Raby Road and Brooks Rd	05:25	03:15	03:30	03:20
do and Camden Valley Way	02:45	02:50	02:50	02:50
do and Hume Highway	04:20	05:10	03:00	02:55
do and Moorebank Avenue	01:14	03:05	02:20	02:20
do and M5 Toll Plaza	02:20	04:10	03:35	04:15
do and Henry Lawson Drive	01:13	01:17	01:10	01:09
do and The River Road	03:05	03:10	02:25	02:20
do and Fairford Road	02:30	02:30	00:49	00:49
do and Belmore Road	02:40	02:40	00:34	00:34
do and King Georges Road	04:30	05:30	01:14	01:14
Total (Ruby Rd to KGR)	**30:02**	**33:37**	**21:27**	**21:46**
Total (CVW to KGR)	**21:52**	**27:32**	**15:07**	**15:36**

Comparing the above table with the EA strategic model for the M5 West between Camden Valley Way and King Georges Road shows good agreement for 2016 BAU (27.0 minutes vs. 27:32) but there is a substantial variation for 2016 Project (20.5 minutes vs. 15:07) that is not explained. However, westbound considerations did not figure strongly in the need for the extension, and in fact the micro simulation shows absolutely no need for the westbound extension in 2016. It is also possible to infer that the westbound widening could be cut back to a point further west before a significant impact was noticed, but more modelling work would be needed to confirm this.

3 Land Use and Transport Policy Objectives

The previous section highlighted the need for more sustainable land use and transport policy objectives, and in fact there has been some movement in that direction with the Sydney Metropolitan Strategy. This calls for a poly-centric structure to help bring jobs closer to home and reduce the impact of the Sydney CBD being offset, while making the whole of Sydney easier to serve by public transport. A future public transport topology was outlined in Figure A2 of the Metropolitan Plan for Sydney 2036, in the form of a city of cities trunk network supplemented by a grid network in inner areas. This topology would functionally replicate the radial commuter rail accessibility of the Sydney CBD for other major centres, and would provide two-dimensional all-day coverage in inner areas, through a mixture of heavy rail and (one or more) lighter trunk modes. This network topology is similar to, and perhaps has been influenced by, public transport network proposals made by this author in previous submissions (and a companion document to this Response). However, the slow pace of implementation that is envisaged suggests that the shaping power of high performance trunk public transport to support the future city-of-cities structure, with particular emphasis on Parramatta initially, is under-appreciated.

The Metropolitan Transport Plan covers only 10 years, and accommodates a backlog of past announcements that carry a considerable baggage of community expectations. Accordingly, the Plan is overly focused on improvements towards the Sydney CBD. For the PPR to argue that the M5 West widening is consistent with the Metropolitan Transport Plan is therefore really circular, particularly where the future strategy clearly deviates from past practice. In addition, priorities may be set to change under the new plan now being prepared.

More recently, the Major Cities Unit of Infrastructure Australia has released Our Cities, Our Future. This National Urban Policy "sets a vision for our cities to deliver future prosperity and wellbeing for our communities and reinforces the Council of Australian Governments' (COAG) national objective to ensure Australian cities are globally competitive, productive, sustainable, liveable, socially inclusive and well placed to meet future challenges and growth".

Better public transport and spatial changes to help limit travel demand, reduce dependence on private vehicles and improve transport options, feature prominently in the Policy, echoing many of the themes reflected in the Metropolitan Plan for Sydney 2036. However it also requires state governments to prepare long term infrastructure plans that are consistent with the policy vision as a condition of commonwealth funding. As such, transport considerations should turn out to be more forward looking than the current Metropolitan Transport Plan.

4 Observations

Situations like the one outlined above for the M5 West widening, of a past expectation yet to be fulfilled being inconsistent with a future strategic direction, seem to confront governments regularly. Short term political pressures often dictate going with the former, however this effectively puts the more appropriate strategy even further into the future. With our prosperity highly dependent on energy, and the growing possibility of an emerging clean energy scarcity from a supply and/or emissions perspective, more weight needs to be given to long term considerations. As economists would say, the future needs to be discounted less if resources are not infinite. Another test here is what will out grandchildren think of decisions made today?

As well as calling for non-car transport modes to be prioritised, the National Urban Policy notes that "smart infrastructure, pricing and travel demand mechanisms can further serve to improve the effectiveness of transport networks". Pricing is the stand-out issue for the M5, with a toll on theM5 East and removal of private vehicle cash-back on the M5 West needing to be addressed sooner rather than later.

5 Conclusion

A six year improvement period for eastbound AM peak traffic from the M5 West widening, and some of the westbound widening appearing to be unnecessary, doesn't look like value for money, even if there is to be no direct cost to the government. Far better to not proceed and signal a genuine commitment to help free Sydney from the Ponzi-like treadmill of more car use generating expectations to fund more road capacity to induce even more car use, and instead to pursue more sustainable land use and transport policies.

INTRODUCTION

This presentation format document suggests, through a process of (hopefully transparent) logic, that the heavy rail CBD Relief Line on a Sussex St alignment should not proceed.

A more universally useful alternative for expanding CBD rail capacity is proposed, along with both the consequent implications and possibilities for the whole rail network.

SYNOPSIS

Land use and transport integration can be understood as a dialogue between a desired Land Use Strategy and the availability of Transport Resources.

This is similar to a two-way relationship between a Business Case and Technical Specifications, with transport Operations and Engineering groups being the intermediaries.

LAND USE STRATEGY

The Metropolitan Strategy is aiming for a city of cities, with jobs closer to home. Specific goals include:

- Western subregion employment keeping pace with labour force growth
- Increasing the number of people who live within 30 minutes by public transport of a City, Major or specialised Centre

The most recent Household Travel Survey indicates that commuting represents about 25% of distance and time travelled, but only 16% of trips. The average (each way) commute trip is now 34 minutes, and the total travel time per person is 81 minutes.

The Strategy and Survey suggest an appreciation of the existence of diseconomies of scale, and accordingly the above goals, with their implied reduction in commuting distance and time per capita, appear laudable for improving liveability and sustainability.

TRANSPORT RESOURCES

There is spare capacity within parts of the existing CityRail network outside the CBD.

Single deck (metro) rail has potential (with articulation being needed where use of legacy curved platforms is envisaged):

- Lower tunnelling costs
- Easier to align and grade
- Faster for closely spaced stops (dwell time and acceleration)
- Higher capacity (where seating does not need to be maximised)
- On-train energy recovery
- Manning benefits
- Subsequent segregation

Intermediate trunk mode (light metro) has potential:

- Lower costs and impacts
- Able to use dedicated road space between major intersections
- Borrow from overseas experience (particularly US and Germany)
- Widespread applicability would lead to economies of scale

PAST PRACTICE

Traditional transport agency planning practice has been to project a continuation of past demand growth into the future. Influences include:

- Agencies competition for funding
- Diseconomies of scale (in large cities) being overlooked

Additional capacity accommodates projection, and "confirms" agency position.

Both RTA and CityRail have tended towards this "predict and provide" approach.

Funding of any claim for a tunnelling premium needs to be treated with caution to avoid efficiency loss through:

- Overly centralised development
- Road rather than rail
- Double deck trains rather than metro
- Public transport in tunnel rather than using surface opportunities

PREVIOUS CBD RELIEF PROPOSAL 1

Metropolitan Rail Expansion Program comprising the NWRL, a new Chatswood to Redfern link, possible additional tracks to Wolli Creek and the SWRL. Note that the SWRL is under construction

- Relieves cross-harbour and Town Hall interchange congestion (Pitt St alignment with a station at Martin Place)
- Limited relief from the west, with the NWRL being slower to the CBD and with no new pathways on the present fast route via Strathfield
- High initial cost
- Possible length, depth and sustained grade concerns for double deck trains in tunnel under the harbour
- High capacity for outer suburban commutes from the north west and south west looks to be in excess of needs, and could undermine the metropolitan strategy
- Spare capacity could be used instead to boost middle distance services, including Warringah, but double deck trains are less suited to expanding this task

PREVIOUS CBD RELIEF PROPOSAL 2

CBD Metro as a completely segregated entity with various extension options.

- Would introduce metro technology with its better suitability to serving middle distance suburbs
- Provides an in-principle better match with the Metropolitan Strategy
- High costs to extend to the north west or the west so as to relieve CityRail
- Perverse relationship with CityRail under such relief, whereby metro is capturing growth in outer suburban commuting while middle distance services remain double deck
- Capacity in the CBD limited by desire for no branching, but capacity would be excessive for the nominated corridors without the high volume transfers from CityRail being assumed
- Limited impact on cross-harbour and Town Hall interchange congestion from the Rozelle route

CURRENT CBD RELIEF PROPOSAL

This uses an alignment under Sussex St.

- Unlocks spare capacity west of Eveleigh to support some additional train pathways under Western Express
- Affordable within the 10 year funding window
- May not be able to be fully utilised, implying that other CBD relief could be needed, or needed earlier
- All trips would exceed the present 34 minute average, and therefore work against approaching the implied 30 minute goal
- Support for longer trains to further increase long distance commutes looks to be in excess of needs, and could undermine the metropolitan strategy
- Limited impact, if any, on cross-harbour and Town Hall interchange congestion

SUMMARY

Each of the three proposals has specific benefits, but none provides them all.

Each has capacity issues that impact on effectiveness and value for money.

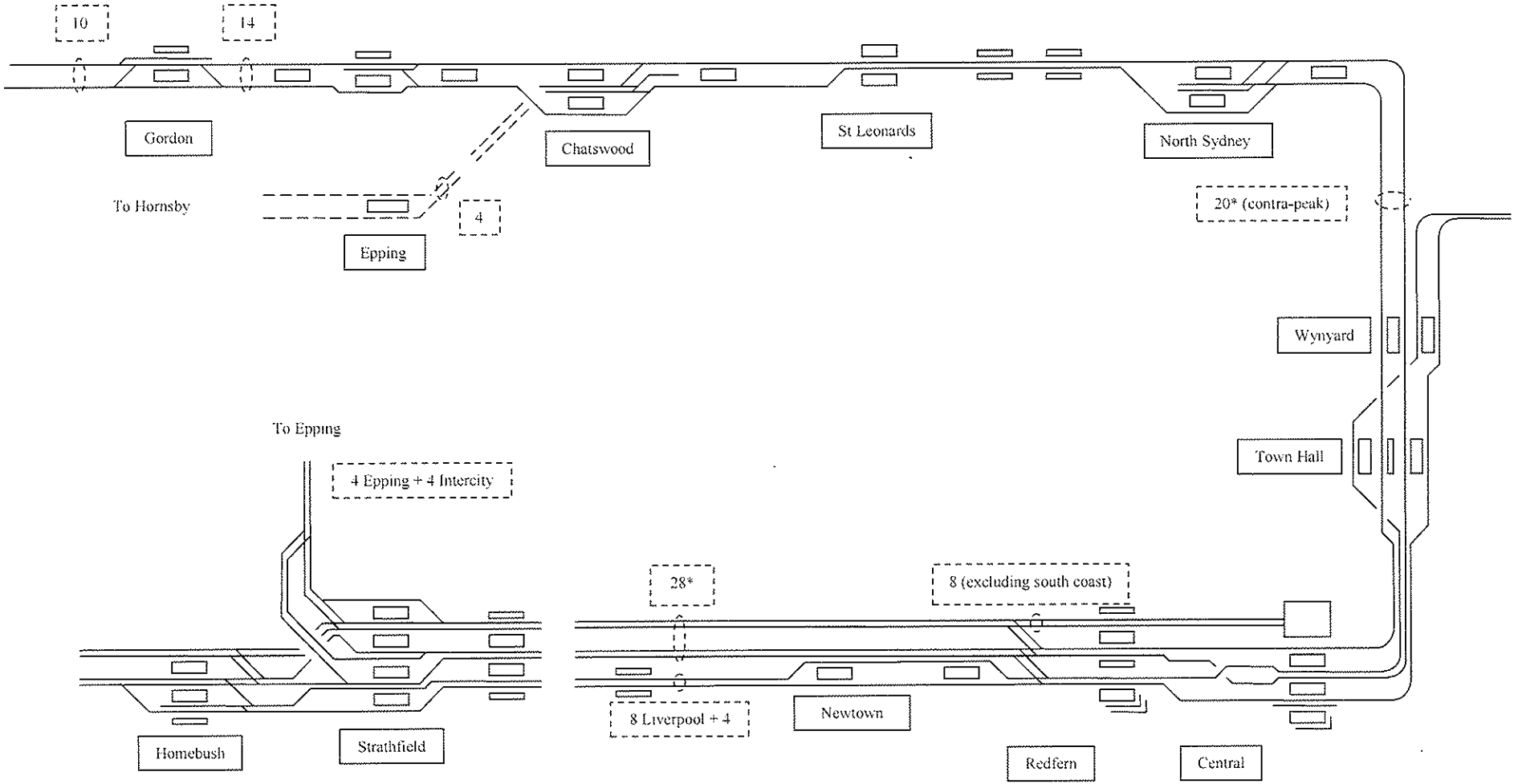
It is unrealistic to expect funding for more than one CBD Relief rail project, even within a 30 year planning window.

What's needed is a proposal that:

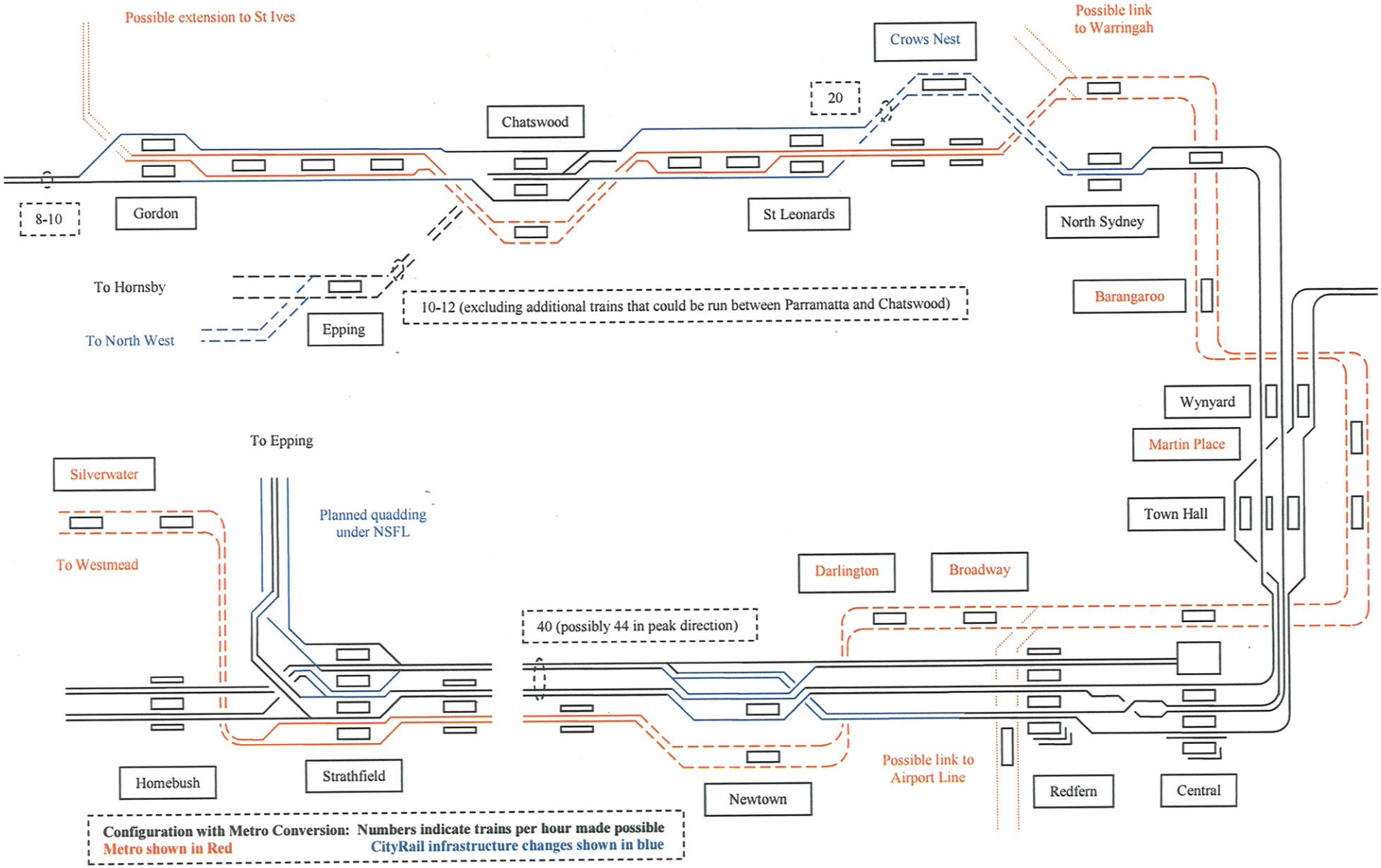
- Provides several benefits effectively, and in balance to support the Metropolitan Strategy without undue excess
- Can be staged to be reasonably affordable within the 10 year funding window

One such proposal is illustrated (before and after) on the next two pages:

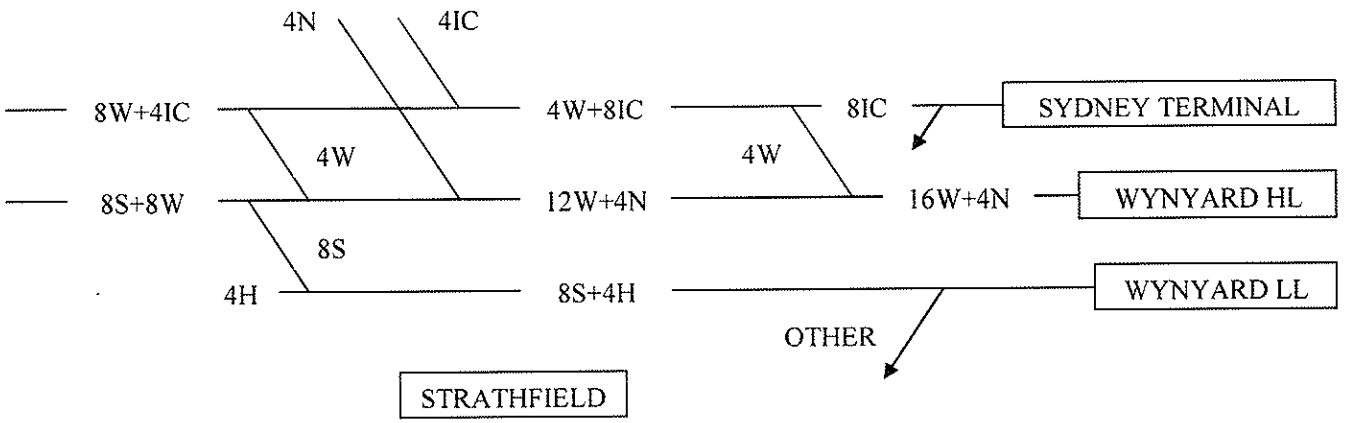
- Metro profile route along the Pitt St corridor, but not to Rozelle
- Extend to the west and north as required, partly by CityRail conversion to single deck operation, to improve all stops services and free-up some existing double deck capacity for more, and faster, long distance commutes

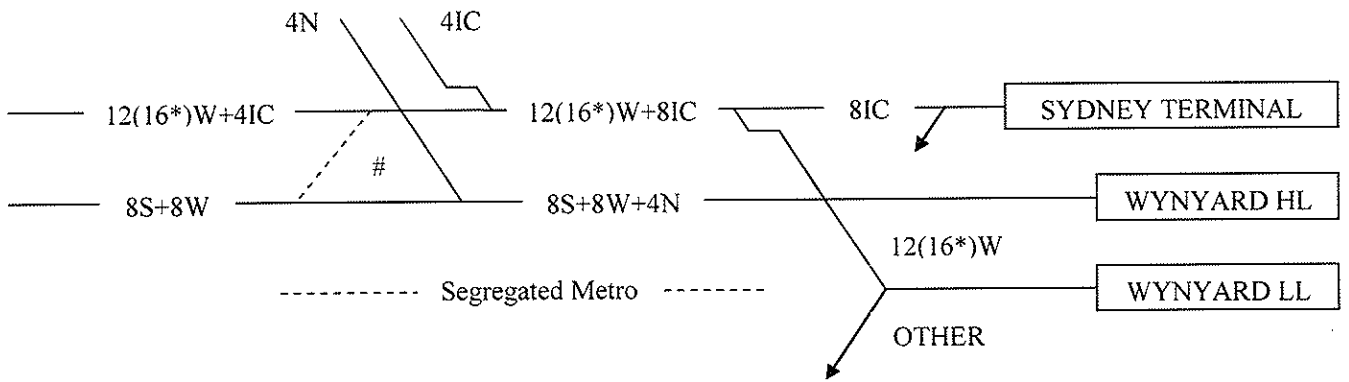


Existing Configuration: Numbers indicate trains per hour in the peak direction under the 2009 timetable (* includes two unused train paths)


Possible extension to St Ives
Crows Nest
Possible link to Warringah
20
Chatswood
8-10
Gordon
St Leonards
North Sydney
To Hornsby
To North West
Epping
10-12 (excluding additional trains that could be run between Parramatta and Chatswood)
Barangaroo
Wynyard
Martin Place
To Epping
Silverwater
Planned quadding under NSFL
Town Hall
To Westmead
Darlington
Broadway
40 (possibly 44 in peak direction)
Homebush
Strathfield
Newtown
Possible link to Airport Line
Redfern
Central
Configuration with Metro Conversion: Numbers indicate trains per hour made possible
Metro shown in Red
CityRail infrastructure changes shown in blue

BEFORE AND AFTER CAPACITY DETAIL (PEAK)
(Figures are in trains per hour)





* With bifurcation at each end of the section of Main Line between Strathfield and Newtown

Off-peak cross over to clear freight paths to the west

STAGING

Staging is a key part of keeping the new proposal affordable, and the single deck trains could be made compatible with CityRail operation initially, with segregation and automation a longer term possibility, so as to reduce the amount of new construction in the early stages.

The first stage would provide a metro service between Barangaroo and Strathfield. Project sequencing issues for this stage are outlined on the next page.

Subsequent stages would be extensions to Westmead (via Olympic Park) in the west, and under the harbour to St Leonards, and later Gordon or St Ives, in the north.

Better alignment and grading capabilities would enable the new metro route to absorb the Waverton and Wollstonecraft service, leaving a new more direct route through Crows Nest to be built for longer distance double deck services.

A separate depot near Silverwater would then allow full operational segregation from CityRail to be achieved.

SEQUENCING OF FIRST STAGE

TBM launch from Barangaroo towards Newtown, with subsequent re-launch to the north.

Single track dive access from Local Line west of Newtown for tunnel fit-out.

Close the Local Line to complete two-track dive and open a metro shuttle from Barangaroo to Ashfield with cross platform interchange to truncated Liverpool services.

Slew the Suburban Line southwards through Newtown Station, and also slew the Down Main to allow construction of the Main Line to City Circle junction.

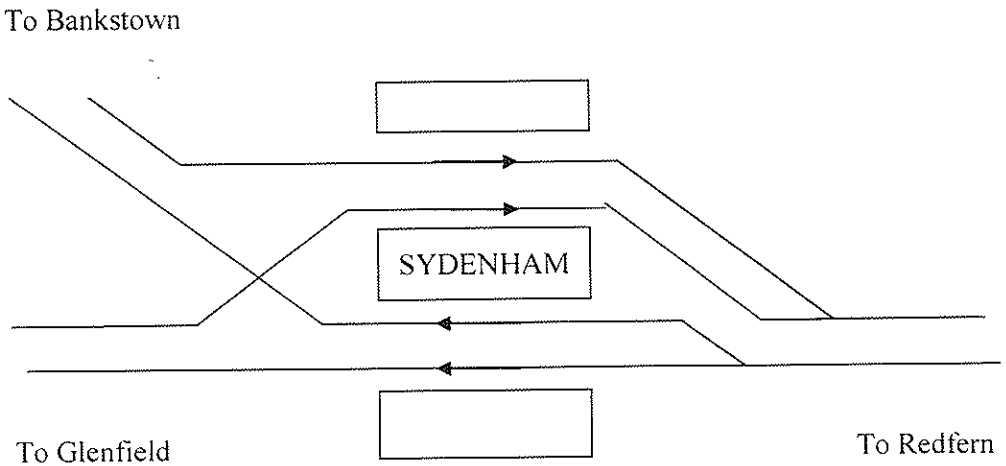
Reconfigure Strathfield to maximise Main Line capacity by providing a "right turn" lane from the Down Main; a technique particularly suited to double deck operation due to extended dwell times.

Establish new Western Express services on the Main Line to the City Circle and run Liverpool services on the Suburban Line and over the Bridge

LATER EXTENSIONS

Later extensions to Brookvale and Revesby, the latter by converting the present Airport Line and building a link to it from Waterloo via Redfern, would be possible through branching points just past North Sydney and Central, as shown.

Sydenham may also need to be reconfigured to maximise Illawarra Local capacity to the CBD (e.g. 12 Glenfield + 8 Bankstown) by providing a "right turn" lane. Although maximising capacity will slow express services by 2-3 minutes, they will still be faster to the CBD than using the Airport route.



OTHER CBD METRO POSSIBILITIES

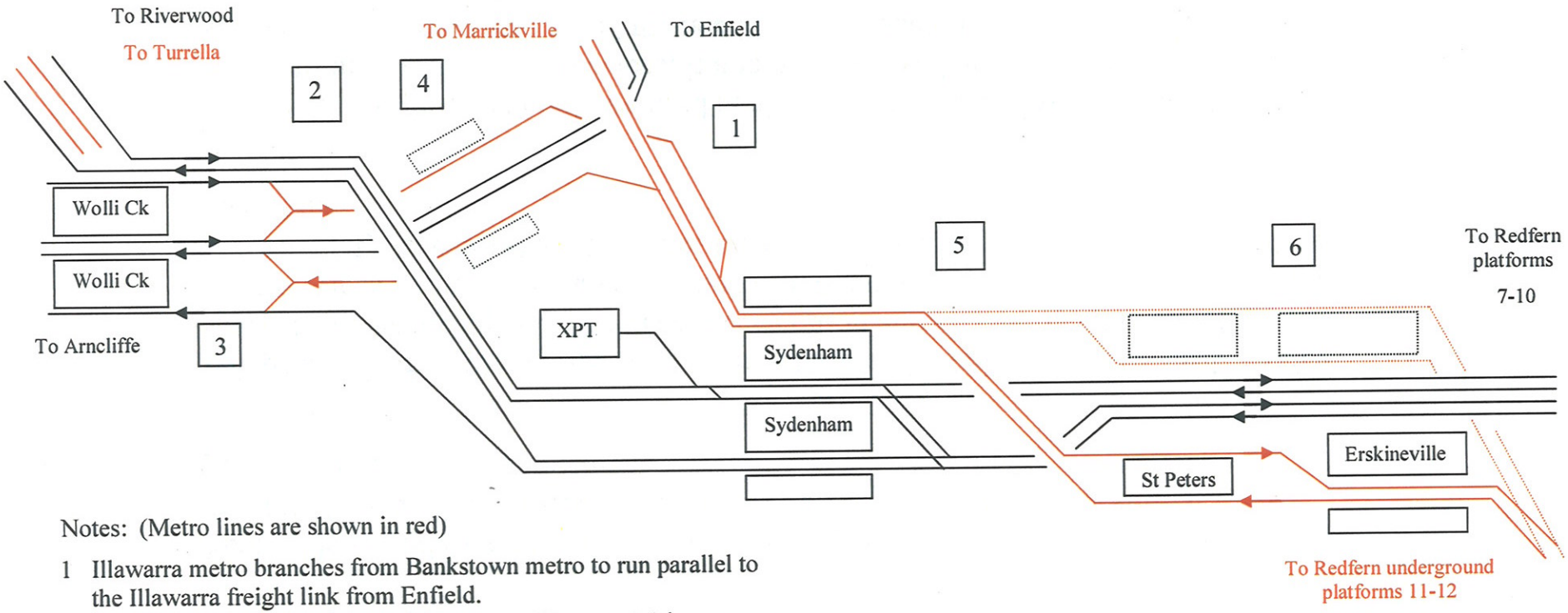
The ESR, Bankstown and Short Illawarra can all be converted to single deck metro style operation to allow these middle distance services to be faster and more frequent in support of urban consolidation.

An additional track pair would be provided between Erskineville and Wolli Creek as shown, to provide the necessary linkage. This would absorb the Sydenham "right turn" lane described previously.

Parallel running on the Illawarra route to Hurstville (see later page), and extended to Oatley, with Mortdale becoming a depot for single deck trains.

Bankstown Line services may need to be truncated short of Liverpool, either at Cabramatta, or via a short underground diversion to Fairfield to allow for a future extension to Prairiewood.

The City Circle would then serve Western, Campbelltown and Illawarra Express services, with Inter City services on all routes using Sydney Terminal and/or the City Circle in a symmetrical manner. Illawarra Dive access to the new Campbelltown Express line would be needed to support Inter city services on this route.



Notes: (Metro lines are shown in red)

1 Illawarra metro branches from Bankstown metro to run parallel to the Illawarra freight link from Enfield.
2 The Glenfield express lines and the new up Illawarra Main pass over the freight link and the Illawarra metro. Metro connects with both Illawarra Main (off peak) and Illawarra Local (peak with freight curfew).
3 Six tracks across Cooks River, parallel running towards Hurstville.
4 Possible site for a new Tempe station.
5 Metro flyover north of Sydenham.
6 Alternative metro works between Sydenham and Erskineville.

ESR Metro project details; Wolli Creek-Erskineville

ILLAWARRA PARALLEL RUNNING

Parallel running between Wolli Ck and Oatley is proposed to improve services and avoid up-down conflicts, with a different allocation for peak and off-peak. One possibility is as follows:

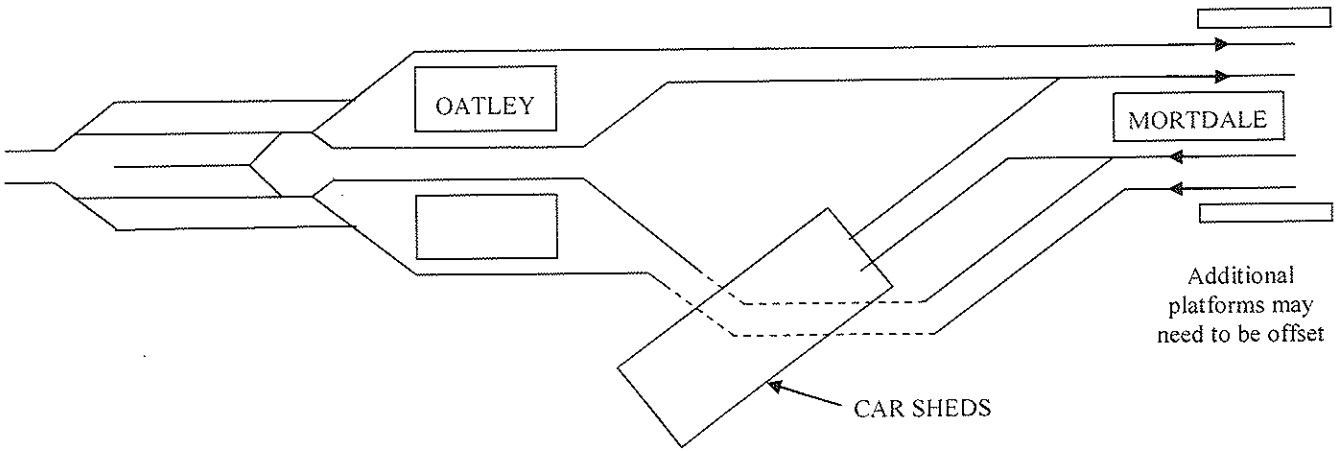
Peak: Metro style services use the inner track pair while limited stop outer suburban and InterCity double deck services use the outer track pair. This is similar to the present non-parallel arrangement.

Off-peak: Metro style services and outer suburban limited stop double deck services share the outer track pair. The faster acceleration and shorter dwell times of metro style services allow more trains in total without undue delay. The less frequent freight and InterCity services share the inner track pair; providing a faster InterCity path at these times.

The peak configuration could be used at all times, with the consequent total segregation of metro style services, if another route is developed for Illawarra freight services. This could also avoid the need for additional platforms at Penshurst and Mortdale.

KEY DIAGRAM 1

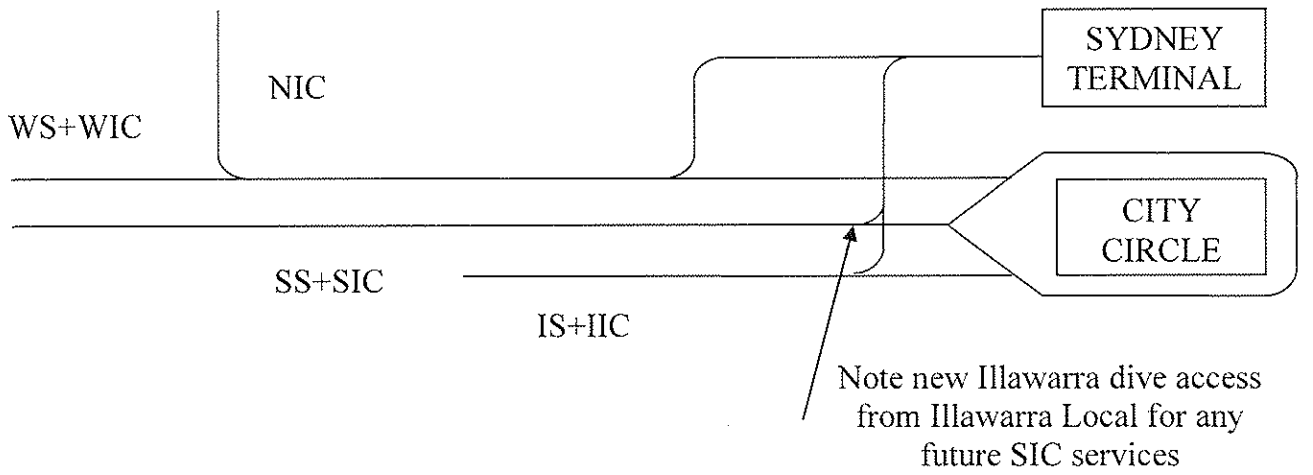
This diagram shows a configuration for Oatley that allows for both the peak and off-peak parallel running as described on the previous page, provides a turn back for metro style trains and "islands" the Mortdale (single deck) depot.



KEY DIAGRAM 2

The ESR, Bankstown and Short Illawarra conversion leaves the City Circle to serve up to 40 Western, Southern (via Riverwood) and Illawarra outer suburban services per hour in a symmetrical manner as illustrated below.

During peaks, InterCity and any suburban services in excess of 40 per hour in total would use Sydney Terminal. During off-peaks, InterCity services not exceeding 160m in length could use the City Circle.



CROSS REGIONAL SINGLE DECK POSSIBILITIES

Cross regional rail links can support the regional centres, with initial emphasis on Parramatta, by making them more accessible. Built partially upon spare CityRail capacity, they can be single deck to reduce tunnelling and other costs unless there are compelling reasons to retain double deck operation. This would also further increase the market size, and economies of scale, for single deck rolling stock.

Chatswood to Parramatta: By completing the Epping to Parramatta link as announced recently. This would also provide some relief from the west.

Castle Hill to Hurstville: From Castle Hill (connecting with a future NWRL) to Toongabbie (new route), Parramatta (existing track), Liverpool (existing track), Georges River ("Y" route and new track), Riverwood (new track) and Hurstville (new route). Priority could be for a Castle Hill to Liverpool service to give access to many centres. Extension to Hurstville would truncate the Revesby metro service to Riverwood. A future extension from Castle Hill to Dural could also be possible.

Epping to Hurstville: From Epping to Rhodes (existing track), Lidcombe via Olympic Park (new route to low level platforms at Lidcombe to also absorb the present shuttle), Bankstown (existing track to also absorb the Lidcombe branch services on the Bankstown Line) and Hurstville via Beverly Hills (new route).

NEW HEAVY RAIL DOUBLE DECK ROUTES

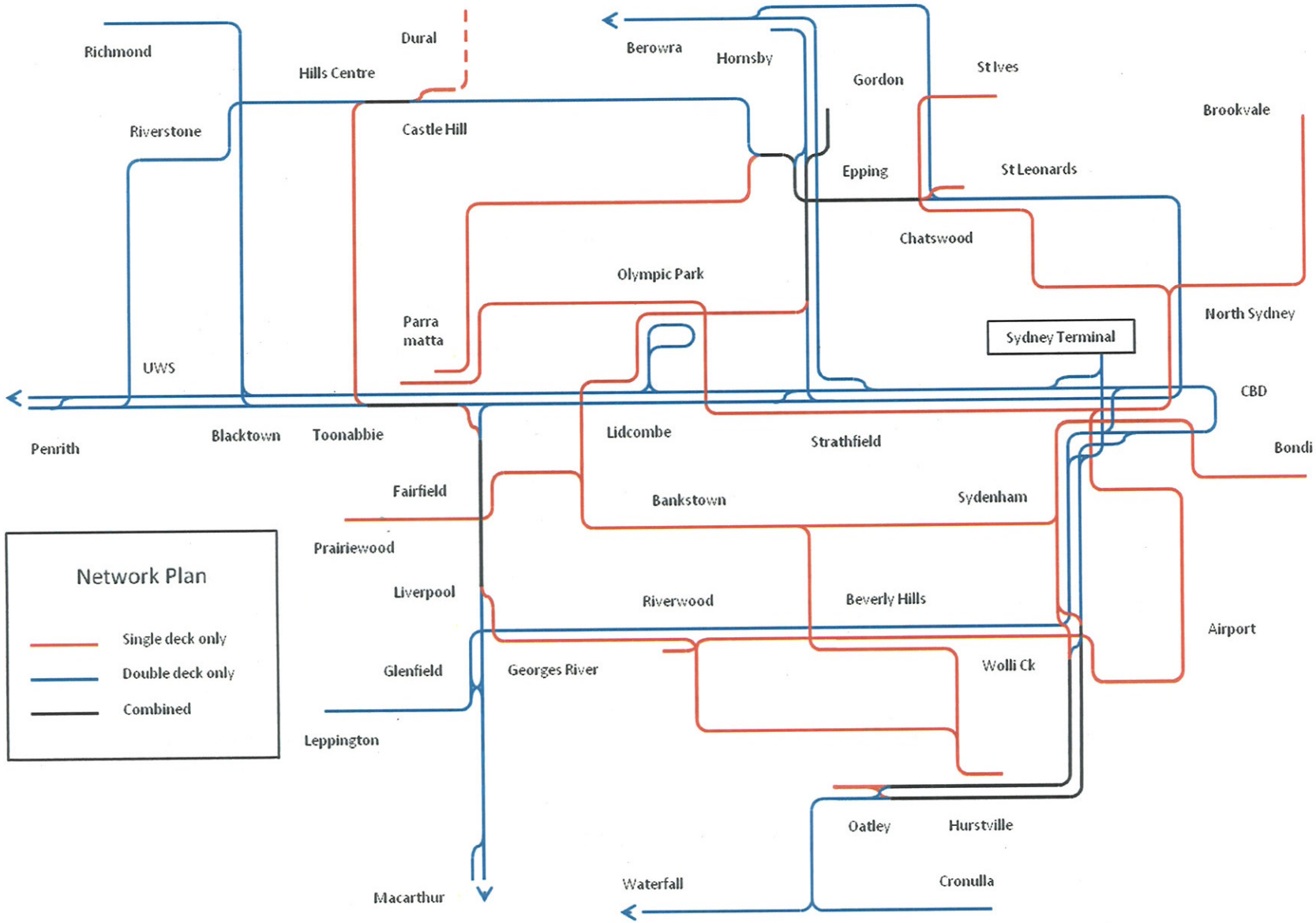
South West Rail Link built as per the current program, with services via Liverpool (full time) and Riverwood (possibly part time initially).

North West Rail Link built at some future date from Epping to Rouse Hill, with services to the Sydney CBD via Chatswood using double deck capacity south of Chatswood made available by establishing metro style services to Gordon.

Note that the provision of cross-regional services between Chatswood and Parramatta, and between Castle Hill (connecting with a future NWRL) and Liverpool, as per the previous page, could impact on the timing of the NWRL.

A future extension of the NRWL built from Rouse Hill to the Penrith regional centre, serving Riverstone and UWS.

A Network Plan track diagram showing existing routes and all the new single deck and double deck routes covered by this presentation follows on the next page.


Richmond
Dural
Hills Centre
Berowra
Hornsby
Gordon
St Ives
Brookvale
Riverstone
Castle Hill
Epping
St Leonards
Chatswood
Olympic Park
Parra
matta
North Sydney
Sydney Terminal
UWS
CBD
Penrith
Blacktown
Toonabbie
Lidcombe
Strathfield
Bondi
Fairfield
Bankstown
Sydenham
Prairiewood
Liverpool
Riverwood
Beverly Hills
Airport
Glenfield
Georges River
Wolli Ck
Leppington
Oatley
Hurstville
Waterfall
Cronulla
Macarthur
Network Plan
Single deck only
Double deck only
Combined

INTERMEDIATE TRUNK MODE POSSIBILITIES

An intermediate capacity trunk mode, described here as "light metro" to encompass light rail, automated metro or BRT, on a segregated right of way.

Benefits include lower capital and operating costs, and the ability to use road space between key intersections, while matching trunk service expectations.

Potential for wide spread applicability and consequent economies of scale:

- Off rail axis for Liverpool (for example to Milperra, Bankstown, Menai and Sutherland), Penrith, Wollongong and Newcastle.
- Ladder network on Central Coast with a costal north-south alignment with rungs to key CityRail stations (resembling the Gold Coast).
- New links to form a mesh network with heavy rail to provide two-dimensional coverage of inner areas, and to serve other radials, as illustrated on the next page.

Light Metro trunk route proposals

Notes:

Heavy lines denotes system cores
Framed stations indicate rail interchange