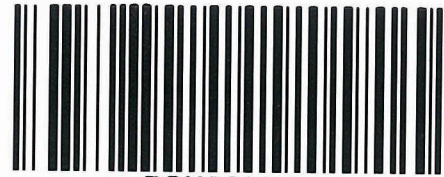


11 Wyralla Avenue
Epping NSW 2121
May 10, 2012

Major Projects Assessment
Department of Planning and Infrastructure
GPO Box 39
Sydney NSW 2001



PCU033626

Re: Northwest Rail Environmental Impact Statement
Application Number SS1-5100

Name of Application: NINETY FIVE THESES OF CONTENTION ON THE EXHIBITED
PLAN FOR THE NORTH WEST RAIL LINK.

I strongly object to the Environmental Impact Statement of the proposed NorthWest Rail.
My specific objections are outlined in some detail in the document NINETY FIVE THESES
OF CONTENTION ON THE EXHIBITED PLAN FOR THE NORTH WEST RAIL LINK.

Briefly the environmental impact grounds for my objection are:

- * the plan has not adequately considered alternative routes
- * that any rail project that aims to service the hills district must serve the major transport node of Baulkham Hills
- * without inclusion of Baulkham Hills a main rationale of the project, that is the reduction of bus journeys and subsequent congestion will not eventuate
- * this proposed link ignores transport links with Parramatta which are essential for any sort of long term planning for the western Sydney Metropolitan Area
- * it also effectively blocks any future development of the Epping-Parramatta rail link that would provide direct access from the western Metropolitan Area to the Macquarie Park / Chatswood business areas
- * there is no detailed planning disclosed of how this line will be functionally connected to the rest of the CityRail network
- * the completely unviable rail crossing under the harbour remains as fanciful lines on planning maps, much like the "deus ex machina" of greek drama
- * if this is not resolved at this stage of the planning process, then all this project will do is swap chronic peak road congestion for chronic peak rail congestion and capacity constraints
- * the connection between this rail infrastructure building and landuse planning is completely unstated and unplanned
- * there is very little co-ordination between state and federal planning and infrastructure bodies on this project

Until these very important environmental questions are seriously addressed then the North West Rail project should not be allowed to progress on the grounds that it would adversely affect the future planning and development of the whole metropolitan area.



Yours Faithfully

(John Joseph)

Political Donations Disclosure Statement to Minister or the Director-General

If you are required under section 147(3) of the Environmental Planning and Assessment Act 1979 to disclose any political donations (see Page 1 for details), please fill in this form and sign below.

Disclosure statement details				
Name of person making this disclosure JOHN JOSEPH		Planning application reference (e.g. DA number, planning application title or reference, property address or other description) SS1-5100 NORTHWEST RAIL ENVIRONMENTAL IMPACT STATEMENT		
Your interest in the planning application (circle relevant option below)				
You are the APPLICANT YES / NO OR You are a PERSON MAKING A SUBMISSION IN RELATION TO AN APPLICATION YES / NO				
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Please list all reportable political donations—additional space is provided overleaf if required. NIL DONATIONS				
By signing below, I/we hereby declare that all information contained within this statement is accurate at the time of signing.				
Signature(s) and Date <div style="display: flex; align-items: center;"> <div style="border-bottom: 1px solid black; width: 800px;"></div> </div>				
Name(s) <div style="display: flex; align-items: center;"> <div style="border-bottom: 1px solid black; width: 100px; margin-right: 10px;"></div> <div style="border-bottom: 1px solid black; width: 700px;"></div> </div>				

NINETY FIVE THESES OF CONTENTION ON THE EXHIBITED PLAN FOR THE NORTH WEST RAIL LINK.

1. The State/Federal political planning impasse whereby the North West and the Parramatta to Epping rail links are seen as separate, competing, and in the short-term mutually exclusive: is illogical and untenable.
2. Both will need to be constructed by 2025 to fulfill a Metropolitan Strategy that aims to link the growing population in Sydney's west, to existing and emerging centres of job growth and global economic activity.
3. Closing a three kilometre gap between Carlingford and Epping to provide inter-regional links, is low hanging fruit and a no-brainer in any transport masterplan. Though it is acknowledged that the Parramatta rail link will also require new tunnels and track between Parramatta and Camellia, and track duplication and station construction along the existing right of way.
4. It is also a no-brainer to utilize the offer of federal funding already on the table, and the in-principle commitment to a linking of the wider western Sydney region to the Macquarie-Chatswood business areas. Sharing a section of this line with the North West rail link offers a ready federal investment at the start of the project. An examination of a schematic map of the Sydney rail network reveals that the completion of both, would even out the Metropolitan North-South imbalance in rail network coverage.
5. Given that both lines will eventually be built: there are economies of scale and many rational synergies in combining the construction of these lines which will both head west from Epping station.
6. To do otherwise would result in one of those projects crowding out the other, by making it either physically impossible or prohibitively expensive.
7. This potential logistical nightmare at Epping is made worse by the failure of the North West rail link planners to even acknowledge, let alone plan for, the inevitable federally-funded main north freight corridor. A project that will eventually require the quadruplication of rail lines between Epping and the Hawkesbury River.
8. Another inevitable federal infrastructure project that will likely impact on this Main North rail corridor within a forty to fifty year time frame is the development of a 24 hour airport for the wider Sydney Metropolitan Area. Urban expansion and the land-rent mechanism will make Peats Ridge / Somersby the only affordable and viable site for this facility. The rail link to that site would have to share the Main North line as far as Wondabyne.
9. Yet another contingency that must be considered in that time frame, is either the development of higher speed rail to Newcastle and the Hunter region. Or a very complicated timetabling of increased frequencies, with limited stop express services supplemented by co-ordinated slower all-stops services.
10. This dictates a KISS approach (Keep It Simple Stupid) in planning the integration of both the North West and the Parramatta lines at Epping station. A shared line running west from Epping is the obvious choice. As is the Chatswood-Epping line feeding through

an entirely underground deviation to both the North West and the Parramatta lines.

11. Therefore interruption of, and integration with the Main North line should be kept to a minimum. This would also dictate that with the exception of a few peak hour services; the Hornsby-Epping suburban services should revert back to the Main North line via Strathfield, after the North West line is built.

12. It is disappointing that although the Project Overview exhibition and reports have announced a wide set of objectives to be achieved by the rail link: the study unfortunately appears to be a very one-dimensional engineering study. Such aims: as to maximize the economic multiplier benefits of the North West rail link in promoting increased employment, business activity, higher density residential development, and coping with the endemic problems of traffic congestion in Sydney: should all have been more front and centre in formulating the project.

13. At this point the need for the North West rail link to go via Cherrybrook needs to be seriously questioned. Cherrybrook is a very large suburb with a low population density. It offers very little potential for generating significant rail patronage or new nodal development.

14. The Franklin Road station site is clearly sub-optimal, being poorly connected to the wider suburb, difficult to reach, with problematic vehicle access and having a very small "walking distance" catchment. Even calling that station Cherrybrook is a misnomer, as the site is on the very periphery of that suburb.

15. Similarly that station site could not be labelled as West Pennant Hills; as it is effectively cut-off from the West Pennant Hills Valley. While the depth of tunnel necessary, prohibits a station being constructed at the much more viable and logical location of Thompsons Corner.

16. As currently planned, the Cherrybrook station site is the highest point on the NorthWest rail link. It is the hump that necessitates steep gradients, and has very little potential to stimulate further urban economic development or increased population densities. In short it is all cost, with very little benefit.

17. A much better public transport strategy for the Cherrybrook / West Pennant Hills area would be to develop and modify the M60 Metrobus service to connect with rail to the city at Castle Hill and Pennant Hills.

18. Private motorists from that area and Dural could be equally served by a parking station at Pennant Hills station.

19. If an elementary perception and spatial-mental image study had been conducted planners would have realized what an off-centre and awkward location the Cherrybrook station site is. It is a "build it; and they will come" belief of the most naive type.

20. Indeed the location of the Cherrybrook station is a classic example of relict planning and locational inertia. In that, it came into being as a desire to drive rail into the Castle Hill /Kellyville area, using the least kilometres of newly constructed tunnel and track. The original plan was to branch off the Main North line several hundred metres south of Beecroft station.

21. However this plan was thwarted by a combination of rampant NIMBYISM; a primary school being in its direct path; a realization that a station at Thompsons Corner was physically impossible if that route was chosen; and the enormity of the logistical problems that would disrupt the operation of the Main North line.

22. When the decision was made to junction the North West line at Epping, an attitude of well the work has been done, kept Cherybrook as the metaphorical first port of call. Even though the rail planners were now fully aware of what a sub-optimal and problematic site it was. While the reality was that the work supposedly done was very elementary and represented only the initial stages of project planning. Unfortunately the political decision this year to rush ahead with geological and engineering studies as a sign of work started, and to keep faith with the electorate appears to have set this route in concrete. Just as in earlier colonial times NSW and Victoria ended up with different rail guages, essentially because ONE broad guage locomotive had already been ordered by ONE Irish engineer.

23. The Cherrybrook station will generate very few multiplier benefits, and will always be a fiscal drag as far as revenue and patronage. It will always be just a consolation stop on the most direct, but steepest and noisiest route from Epping to Castle Hill.

24. If the thinking of the project planners and government is to steadfastly hold the line at all costs; and keep to the route exactly as planned. Then there may be many benefits in eliminating the station at Cherrybrook entirely and opting for a science fiction inspired "Castle Hill Worm-hole". A non-stop direct tunnel from Epping to Castle Hills.

25. If for reasons best known to themselves, the planners and government are determined that the Cherrybrook station remain unchanged, then serious consideration should be given to a route that follows the ridge under Pennant Hills Road to Thompsons Corner, where a station might now be possible, because of the gentler gradient. Note that the Clyde-Carlingford line was originally planned to follow that route, with the intention of capturing the fruit freight traffic from the Dural area.

26. A site such as Thompsons Corner is particularly attractive for a train station site because it has an established retail centre, it is on a major road and bus route junction, and it has interesting views.

27. In all surveys of desirable characteristics valued by real estate purchasers, views always feature in the top five, and very often in the top three. Therefore ridge top suburbs such as Carlingford, Castle Hill, Thompsons Corner / West Pennant Hills; when served by a train station have a huge potential for highly marketable high density apartment development.

28. Though sadly, over restrictive and poor planning often means that this potential is not often realized. A classic case in point is the unit development along the upper North Shore line. Despite all the potential for taking advantage of those views: the average apartment there has an outlook that is far from panoramic. Indeed the typical view is much closer to that afforded by a bunker in Bankstown.

29. It is a central tenet of this submission that both the North West and the Parramatta rail links should share a common route to approximately under the intersection of Ray and Midson Roads in West Epping.

30. At that point there should be a junction.
31. Even better, a triangle junction that would allow future loop line running with maximum flexibility and multi-directional capacity.
32. Now junctions have a very poor image among CityRail planners. For well over a decade the prevailing mantra has been Rail Clearways and untangling lines. All well and good! That policy has a number of advantages! But it is also rooted in a political overreaction to breakdowns in points and signaling equipment at junctions: such as Turrella. It also ignores more basic railway operational changes: such as monitoring and more regular maintenance, cyclically replacing key components such as point motors before they are likely to fail, improving response times, and unit replacement of critical equipment. Which will all increase the reliability of the function of the humble junction.
33. Having this junction well away from Epping increases the number of signal block sections that controllers have to work with, and decreases potential congestion and delays to other lines near that station. From that junction a line should run southwest to complete the missing link of the Parramatta to Epping line at the old Carlingford station.
34. Though it would be best to shift the station at Carlingford to adjacent to the Carlingford Court shopping centre.
35. A considered and co-ordinated plan to integrate these two lines would dispel a growing perception that although the North West rail link has been years in the planning: that it is now being rushed into existence with a haste that has the potential to propagate a new set of problems.
36. At this point project planning must acknowledge that any northwest rail route that does not consider connections with Parramatta and Baulkham Hills is sub-optimal at the outset. Choosing a route for the North West rail link that runs through Baulkham Hills to Castle Hill has many advantages over the proposed Cherrybrook-Castle Hill link.
37. In particular because of the need for the line to interface with bus services which are, and will remain, the dominant public transport mode for the low density population of Sydney's north west.
38. The reduction of the capacity challenged and congested bus traffic between the Hills District and the City, is a key part of the explicit rationale for the North West rail link.
39. A study of the colour-coded bus congestion in George, York and Clarence Streets, reveals that the yellow Hillsbus vehicles are literally the straw that is breaking the city's back.
40. However an implicit problem with this is the question; "What happens to those services after the line is opened?" Also what will be the political and planning response to operators who still wish to maintain high frequency city services in direct competition with that line?
41. So an explicit rationale for that project and the route chosen; should also be to lessen the shock or impact that the opening of the rail line would have on bus operators. Choosing a rail route that would interface with the maximum number, and patronage flows of local bus services, is an essential strategy. To maximize both the rail passenger catchments, and the bus patronage on local and regional feeder services.

42. The North West rail project, where possible, should give those bus services rail traffic generating nodes at two or more points on their routes. This will serve to balance out their patronage and ease directional capacity constraints, particularly at peak times. Hills district services are often impossibly crowded in one direction during the peak hour commutes, then carrying little more than fresh air in the other way. Some local and regional services also display a similar pattern.

43. The importance of Baulkham Hills as a junction for Seven Hills Road, Windsor Road and Old Northern Road bus services, means that it should have been seriously considered as a North West rail link station.

44. True, driving the rail link through Baulkham Hills would mean additional cost in the extra track and tunnel distance. It would also marginally increase journey times to the city.

45. Though this could be partially balanced by the reduced gradients, with consequent reductions in noise and operating costs.

46. Rail travel times can effectively be lowered as population and rail patronage increases; by scheduling limited stop express trains during the peak periods. Or, as is done on the Fremantle line in Perth, train services alternate as express / all stops for one half of the route.

47. In any case, the rail journey time is only a part of the total door to door travel time for most commuters. Modeling will show that a more centralised route through centres of population will lower the average door to door travel times.

48. However this marginal increase in timetabled rail travel time, and construction cost, would be balanced by the much greater utility of a route that goes through the heart of the Hills District. Thus generating much greater local and intra-regional rail patronage. Not only that, it would functionally connect the major urban centres in the North West. This would entail much greater economic multiplier benefits in promoting regional economic development.

49. Nevertheless, it will involve additional costs. However, such is the cost of construction of station infrastructure, that all the North West rail link station locations should all be chosen on their potential to become major urban nodes and support increased development.

50. The North West rail link planning team could readily see the alternative to this, by examining Denistone station on the Main North line as a case study. Denistone station was constructed as an after-thought in 1937. It was then, and remains today, a quiet suburban backwater. Even in the less car dependent 1950's its patronage was very low. Indeed, I remember as a small preschool child early in that decade, of thinking that it was called "Whatthe&@%arewestoppingherefor?" Perhaps named after a village in Wales! Because that was what people would say, when the train stopped; and no one appeared to get on and off. Worryingly, patronage there appears even less today. The North West rail link cannot afford to have any Denistone stations!

51. Rail by its very nature is a high cost, high capacity transport mode. It needs to serve the very heart of population concentrations, not skirt around the peripheries.

52. Nor can suburbs with stations be allowed to remain as sleepy suburban backwaters for all time. It could be argued that short of the futile quest to find three wise men and a virgin; that mass transit access is one of the the scarcest resources in large metropolitan areas. Though the problem is, that the car dependent majority of the public, at present doesn't really value it.

53. Rail transport has a very high ability to bring forth landuse changes. Particularly in promoting higher residential and business development. Though this is not always welcome. In fact the community is very ambivalent about this. Resulting in mixed signals being sent to planners and politicians alike.

54. This brings us to another dilemma in planning and politics: the difference between what people say, and what they really mean. At the simplest and most superficial, micro level, you have individuals fudging transport questionnaires. Praising measures to improve public transport: because they feel it would free up the roads for their own car commute. Perceiving the public transport improvement as essentially being for other people. Perhaps as a back up, if the car is not available for some reason. This is a position widely held in the North West of Sydney; and this has many implications for passenger projections and project planning for the North West rail link.

55. At the collective or macro level, there are more profound implications for landuse planning. In that people demand infrastructure improvements, in particular for transport and health. The media acts as a megaphone for those demands. However, in our car dependent individualistic society, most people actually regard such improvements almost as some sort of "psychic income". Something that they perceive as being in some way of benefit to them: such as; increased real estate values, convenience, residential amenity, and security. They may feel that they might one day use these infrastructure improvements, and that these are a comfort to them. However they are generally unwilling to pay the full costs entailed in the provision of that infrastructure. Likewise, the media is equally ambivalent: concurrently continuing demands for immediate infrastructure improvements: and castigating governments for budget deficits and accumulated debt.

56. One cost that people are reluctant to bear is change, specifically the increases in population density around stations and major employment centres. There is a fundamental inconsistency here; in that people demand changes through infrastructure improvements. But are vehemently opposed to the changes in landuse that such changes inevitably bring. Again the media acts as a megaphone for such opposition and outraged protest. Planners and politicians then feel that they are part of a surreal universe. In which the laws of "damned if you do, damned if you don't", are as constant as the laws of gravity. Not surprisingly this promotes a tendency not to do anything. It is much safer that way. The electorate is soothed; and the horses aren't frightened.

57. The irony is that change is the only constant in the complex interaction of transport infrastructure and urban landuse. Though the rate of change is not constant over time. A gap exists between perception and reality. It is neither rational nor logical to demand very expensive transport infrastructure for your suburb; but then expect that suburb to remain a quiet low density haven with a supposed quaint heritage "village character". This is exactly the planning controversy that is currently raging in Epping.

58. This is also a recognition that construction and operating costs are not the only costs entailed in building the North West rail link. There are a whole range of opportunity costs. As there are a whole range of economic multipliers and social benefits that must be

considered in any analysis of those costs. It is undeniable that any deviation from a straight line tunnel from Epping to Castle Hill will involve additional construction costs. However it is also demonstrable that it will also confer so many more benefits, through co-ordinated landuse changes.

59. Even more confusing, and ultimately more costly for the community: is what was allowed to happen with the Epping to Chatswood rail line. The project was delivered purely as an engineering and rail operation exercise. It was divorced from any direct landuse planning decisions. With the result that for years after the line's completion, the landuse within a few hundred metres of the stations, will still be fought over in the Land and Environment Court, council chambers, and the court of public opinion. Creating an unsatisfactory landscape of controversy, confusion, cost, and compromise. There is a need for state planning decision makers to be wholly on board at the conceptual start of the North West rail link journey. Not being left stranded at the station.

60. Routing the North West rail link from Carlingford to Baulkham Hills will afford the opportunity for a station near the North Rocks shopping centre. With the potential to develop a high density town centre there, and increased density along North Rocks Road. This is a rational development and a natural fit to the projected growth of employment in the Parramatta CBD.

61. Such a station and higher density would also support the three local and regional bus services which pass that centre. This ensures a high degree of connectivity and public transport capacity in this and surrounding suburbs.

62. North Rocks, Baulkham Hills and Castle Hill all have established housing, generally 40 to 50 years old, on larger blocks. The populations around the town centres are skewed towards older residents. Many of whom would be willing to downsize their housing in their retirement years. Their attitude to higher density landuse is less NIMBY (Not In My BackYard); and more NAPPING (Not At Present, Perhaps In Next Generation). In other words there is likely to be a greater community acceptance of higher density apartment construction that would inevitably follow rail station construction.

63. A high bridge crossing of Darling Mills Creek would be necessary between North Rocks and Baulkham Hills.

64. The tunnel from Baulkham Hills to Castle Hill would generally be under the ridge following the Old North Road. Although there is the potential for a station, approximately half way, at Excelsior Avenue. Though the area is well served by buses, and it would be best if no station was built between Baulkham Hills and Castle Hills.

65. Castle Hill station would still be able to be built next to Castle Towers, though the orientation would be different to what is currently planned.

66. No matter what route is chosen, serious consideration should be given to not locating a station at the Hills Centre. True the amount of council owned land (showground and caravan park) is attractive for redevelopment. However the relocation of the showground in particular would be mired in local controversy. Moreover the Hills Centre and the council chambers would not generate that much rail patronage. Also it is isolated from the adjacent industrial area and bus services along Showground Road. Much of its catchment is part of the Fred Caterson Reserve and the Castle Hill Cemetery. There are very few potential rail passengers there! Besides a night-time walk down Gilbert Road is

quite a spooky and isolated experience, unlikely to appeal to rail commuters. As is an after dark stroll down Carrington Road.

67. A much better location for the next station from Castle Hill would be next to the intersection of Showground Road and Windsor Road. This site offers connectivity with local bus services and Kellyville; and it is adjacent to a TAFE and the industrial area. It would also be in walking distance of the northern section of the Norwest Business Park. This would also afford planners the opportunity to review the location of the problematic Norwest Station. This could now be shifted closer to Old Windsor Road to serve the western sections of the Norwest Business Park and to connect to the T-way.

69. Kellyville station should remain largely as planned near the intersection of Old Windsor, Burns and Sunnyholt Roads; because of the connectivity with the T-way and local bus services.

70. If any station is to be eliminated, it should be that at Samantha Riley Drive. Although nominally a greenfield site, it is hemmed in by special use spaces; and is already well served by a T-way station, commuter parking, and local bus services.

71. At this point specific attention should be given to a planning problem that affects the North West rail link and public transport generally in the North West / Hills District. Specifically the tight circular and cul-de-sac layouts of relatively recent estates; in order to fit the maximum number of houses per hectare, and to reduce vehicle speeds. Unfortunately this has the undesirable effect of making the walking distance up to 5 or 6 times the linear distance to main road transport. Forcing even greater car dependence on those populations.

72. It is interesting to do a geometric analysis of the planned station catchments, and to actually see what a relatively small proportion of each catchment area is really connected to those stations. Hence this submission's emphasis on maximizing connectivity between rail and bus services: and the rail plan's emphasis on providing parking.

73. Rouse Hill is such an important transport and retail node that a strong case should be made to maximize residential unit development around this centre. A density of population mass that will encourage further development. Far too often, in the compromise of local government planning, only a token amount of higher density apartment development is allowed to take place.

74. The proximity of the Rouse Hill station to the Richmond line raises the crucial question of a logical connection with that line.

75. If the answer is yes; then what route should be selected and in what time frame? This submission maintains that such a connection is inevitable and highly desirable in the short run for the regional development of the whole western Sydney region. A region that will house nearly 50% of Sydney's projected population of over 6 million in the next quarter century.

76. The rationale for this is to promote a western region network maximizing connectivity beyond Rouse Hill. Rather than the North West rail link being just an isolated Sydney-centric spur line.

77. There is no point in extending the North West rail link any further along the Windsor

Road as this is low lying and within the catchments of Riverstone and Vineyard stations.

78. The planned train stabling yard near Cudgegong Road, dictates that a courageous political planning decision be made. That is to acquire a three kilometre right of way approximately paralleling Schofields Road to join the North West rail link with the newly duplicated Richmond line south of Schofields station. . This could be above ground and an industrial zone could buffer its noise from residential areas.

79. This will enable a much larger secure stabling and maintenance facility to be constructed somewhere along this corridor: to serve the whole western metropolitan area.

80. There would be no need for a station at Cudgegong Road. Given that it is very close to the Rouse Hill Town Centre. Consideration could be given to locating another station some 1200 metres west of Cudgegong Road, or between Schofields and Quakers Hill but low-lying land may be an impediment.

81. Such a logical and ultimately inevitable connection will enable loop line running via Rouse Hill, Blacktown, Parramatta and Sydney City in both directions. It would also tick all the boxes for federal funding through Infrastructure Australia. It would be a huge increase in rail passenger capacity for the west.

82. If the inspirational example of Bradfield's foresight is followed, and provision is made for future development, with a triangle junction near Carlingford, then a regional Northwest Loop could centre on Parramatta. This might sound extravagant now; but cities of over 6 million simply do not work without very good rail connections.

83. Such a strategy would allow the Sydney Metropolitan Area to increase its population in a balanced way. By a controlled mix of outer suburban greenfield development, balanced by higher density infilling within established centres served by rail mass transit.

84. Another advantage of a timely connection between Rouse Hill and the Richmond line, could be that the Rouse Hill - Norwest Business Park could be linked to the CityRail system years before a line was bored through Castle Hill.

85. In the short term this early construction would not trigger any compensation under the M2 contract. Any strategy that avoids modern lawfare in our court casinos has merit.

86. By bringing in this construction through the back door, as it were. There could be a logical strategic co-ordination between the cut and cover construction around Rouse Hill and the deep tunneling from Epping.

87. This would fit into the development of a long term infrastructure delivery strategy for New South Wales. There could be a break from the stop-go pattern of the past. Projects could be prioritized, co-ordinated, and brought seamlessly on stream. This would achieve economies of scale and lower project costs. Note that the tunnel construction contractors, were virtually begging the previous government for continuity of work as the Chatswood-Epping line was nearing completion. Having to disperse contracting teams and mothball capital equipment, drives up the cost of that and future projects.

88. The North West rail link is a very complex project. It will, and should be implemented over a number of years, using both state and federal funds. Though there is

a danger that a race to the bottom of its potentials will result, from the haste to rush through delivery of the project in order to demonstrate to the electorate that a project can actually be delivered. The cheapest and nastiest product is not an option.

89. The complexity and inherent problems of the project should be intelligently explained to the electorate and the media. To counter the unrealistic expectations that the North West rail will solve Sydney's transport problems. Or that it is the only game in town as far as transport improvement is concerned. Nor should the cost and complexity of this project distract politicians and planners from the whole range of other transport problems that beset our city. It should not become the "busy work" that encourages them to procrastinate about other transport issues. Similarly, analysis paralysis is also not an option.

91. Completion of the most basic spur line to Rouse Hill will result in three areas of acute capacity constraints between Chatswood and the city. The first being the need to quadruple the line between Chatswood and St Leonards. This is a relatively straightforward, though still costly project.

92. Next is the question of another harbour crossing for rail. For which there can be only one answer. Rail must reclaim the two eastern lanes on the Harbour Bridge. Those are former tram lines, but were engineered by Bradfield to accommodate electric trains that he knew would be necessitated by Sydney's growth. Given that the new rail crossing must service the business and transport hub of North Sydney: a deep underwater rail crossing is a physical and an economic impossibility. Even a "rack and pinion" / alpine cog railway could not go from the harbour bottom to North Sydney without a massive and expensive deviation. It is dishonest for rail planners to continue to vaguely depict another crossing under the harbour. In any case the existing cross harbour tunnel on the eastern side of the Sydney Harbour Bridge prevents a rail tunnel crossing on that side. While west of the bridge is the deepest part of the harbour. Only rubber wheeled vehicles, not "steel wheel on steel rail" could handle the gradient that such a depth entails. In any case with Sydney's population growth, another road harbour tunnel connecting the Warringah Freeway to the western side of the city and the Anzac Bridge will be necessary when the present harbour tunnel contract expires. Tolls would pay for it. Also considerable capacity on the Western Distributor would be freed up to provide express bus access to, and potential for bus stations/interchanges in the city.

93. Another North-South rail line under the city is an absolute priority, simply to accommodate additional rail traffic from the south and west. Running trains through the existing tunnels from the Harbour Bridge to Wynyard, to join this relief line is an absolute no-brainer.

94. Therefore by necessity the North West rail link will not be a self contained project that is likely to be completed in a number of few short years. It is by necessity a complicated sequence of projects. To solve the capacity constraints affecting it, will realistically take decades.

95. Finally, when all is said and done about transport in this state, more is said than done. However there are three things that should be done with the North West rail link. Firstly, west of Epping it should share track with the Parramatta rail link. Secondly, serious consideration should be given to a route through Baulkham Hills. Thirdly, it should connect to the Richmond line as a loop, not remain as an isolated spur.