



'FIXING' THE TRAINS IN SYDNEY: 1855 REVISITED

If you believe the spin, 2012 was the year that defined a clear new vision for rail in New South Wales and 2013 is the year this vision is first being realised.

The highlights in 2012, the story goes, were the release in September 2012 of a draft *Long-Term Transport Master Plan* prepared by the government's new "integrated" transport agency, Transport for NSW, followed by public consultations on this plan, the release in October 2012 of a parallel *State Infrastructure Strategy* prepared by the government's infrastructure advice agency, Infrastructure NSW, and the finalisation of a comprehensive *Transport Master Plan* in December 2012, along with the announcements of clear government decisions on the competing aspects of the Transport for NSW and Infrastructure NSW proposals.

All very rational, with lots of meaningful opportunities for public inputs, and now at last we have a clear vision for NSW railways for the future—or at least the next 20 years, a period now officially called "the long term" by the state's increasingly myopic media, politicians and planners.

Pity it's not true.

In practice, the decisions grandly announced in 2012, and subsequent decisions that have been much more quietly trickled out in 2013, have had almost nothing to do with the grandstanding of "master plans", "strategies" and "public

consultation". Instead, they have represented the culmination of an exceptionally ugly railway planning brawl within the state government's transport and financial bureaucracies that dates back to 2005 and earlier, characterised in 2012 and 2013 by a series of *ad hoc* and secretive decisions that will have long-lasting adverse consequences.

Among railway buffs and historians 1855 is remembered as the year previously agreed plans for a single railway gauge throughout the Australian colonies fell victim to the whims of a new chief engineer for a private railway line between Sydney and Parramatta, who persuaded the authorities at that time that his "expertise" should prevail.

But now 2012 and 2013 are likely to be remembered in exactly the same way, as the years an ambitious and increasingly secretive NSW Transport Minister, Gladys Berejiklian, mistakenly and blindly placed her faith in "experts" from only one side of the debates and, in doing so, destroyed the future cohesion, interoperability, integrity, reliability, capacity and efficiency of Sydney's rail network—ironically by (among other things) first permitting and then mindlessly encouraging them to change the "loading gauge" (minimum tunnel sizes, etc) of key cannibalised and excised sections of the existing and future Sydney rail network so as to forever exclude their use by *Sydney Trains'* or other rail operators' double deck services.

And the really alarming aspect of this is that, despite increasing public disquiet about her actions, she still seems not to realise quite what she's done.

WHAT MIGHT HAVE BEEN

To understand what has gone on and what the implications are, it is necessary first to backtrack to 2005.

In June that year, the NSW government, in one of its last major decisions before premier Bob Carr was ousted by his Labor Party "mates", announced it would build three new passenger rail lines in Sydney: a South West Rail Link from Glenfield to Leppington (by 2012) and a North West Rail Link from Epping to Rouse Hill (by 2017), serving the city's rapidly developing southwest and northwest residential "growth centres", and, most critically, a new "Harbour Rail Link" between St Leonards and Redfern, doubling rail capacity across the harbour and adding a new underground line through the CBD (by 2017) (*Figure 1*). These new lines were to be supported by additional tracks on existing lines between Chatswood and St Leonards and between Redfern and Campbelltown.

This scheme, developed after more than a decade of studies of options by a RailCorp planning group headed by its

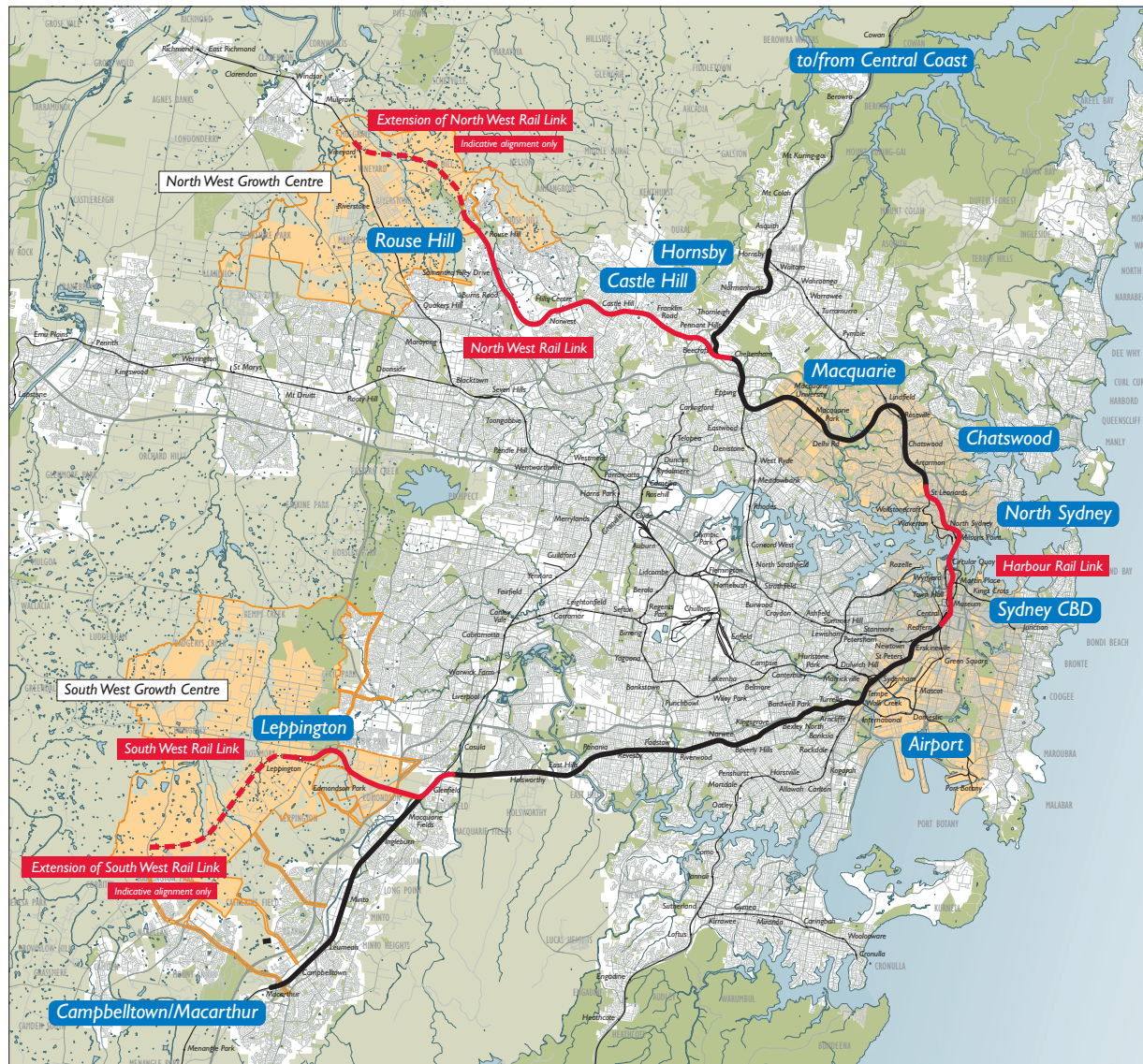


Figure 1. The 2005 “metropolitan rail expansion program” (“MREP”) concept for a new CityRail/Sydney Trains sector to provide substantial capacity relief and serve new residential development centres.

then General Manager Network Development, Dick Day, was later imaginatively dubbed the “Metropolitan Rail Expansion Program” or “MREP”. It was intended to cater for

more frequent, faster and longer (ten-carriage) double deck trains, including long-distance expresses, on a new, separate operational “sector” of the CityRail network—the suburban

components of which have since been rebadged as the *Sydney Trains* network—between Macarthur, Campbelltown and Leppington in the southwest and Hornsby and Rouse Hill in the north and northwest, via the Airport, CBD, North Sydney, St Leonards, Chatswood, Macquarie Park, Macquarie University and Norwest employment and education centres.

The second harbour crossing component of MREP, increasing the number of twin-track railway lines through the CBD from three to four, was estimated as being capable of boosting the capacity of CityRail/Sydney Trains lines through the CBD by almost 30% and, by permitting much more efficient use of the capacity of these and other lines, almost doubling the total patronage capacity of Sydney’s CityRail/Sydney Trains system.

In addition, patronage modelling suggested the North West Rail Link component would, on average, attract about 215 passengers from the Hills district off each peak period train on the western line from Parramatta, thereby permitting greatly improved services to the CBD for western Sydney commuters. The additional and faster services from Campbelltown and Chatswood to the CBD, along corridors that already have some of the most dramatically overcrowded trains in Sydney, would similarly have provided vital capacity relief.

In essence, the MREP concept was designed to provide a large, step-change increase in the capacity of the CityRail double deck rail network sufficient for the next couple of decades, just like the step-change capacity and operational improvements made possible by the opening of the Eastern Suburbs Railway in 1979.

After that, it was considered most likely that future rail expansions in Sydney would focus on entirely separate new lines, operating independently of the CityRail/Sydney Trains network and quite possibly using single-deck trains to permit more steeply climbing routes, as had been advocated in the highly regarded 2001 *Long-Term Strategic Plan for Rail* prepared by the then NSW Co-ordinator General of Rail, Ron Christie (“the Christie report”) (Figure 2).

THE PUSH FOR ‘METROS NOW’

MREP was no sooner announced than the critics within the government took the offensive, with the active encouragement of the NSW Treasury, which was openly horrified by the scale of the Carr government’s deathbed commitments to public transport improvements.

Within the transport bureaucracies this opposition was led by advocates of the conversion of significant sections of the *CityRail* network to “metro-style” single-deck train services, with far fewer seats and more doors, usually in tandem with an express or implied privatisation of these services, and by advocates of entirely new and independent “metro” lines in Sydney as a supposed *alternative* to a second harbour crossing, rather than subsequently as previously envisaged by (for example) the “Christie report”.

The motives of the individuals involved have not always been clear. Some were openly driven by antipathies to RailCorp (which was frankly often its own worst enemy) and/or the railway unions, and saw the dismantling of RailCorp’s empire as an objective in itself—a goal now at least partly achieved under the O’Farrell government. But at the time most seem to have been more narrowly interested in “playing with new train sets” (this is, of course, not necessarily the same thing as providing better customer service!) and in doing so were keen, or at least willing, to jump the gun by introducing “metro-style” trains without first maximising the potential, through MREP or similar concepts, of the public’s huge sunk investment in the existing *CityRail/Sydney Trains* double deck network.

In any event, the infighting, largely but not wholly hidden from public view, was by all accounts long and bitter. To this day many of the personalities involved scarcely talk to each other.

But it gradually became clear, by 2007 and 2008, that the “single deck train” advocates had gained the ascendancy. Although the planning approval application and *Environmental Impact Statement (EIS)* for the North West Rail Link had been based on the MREP concept of integration with a second harbour crossing and frequent services by large



Figure 2. 2005 concepts, based on the 2001 Long-Term Strategic Plan for Rail (“the Christie report”), for additional new lines, operating independently of the *CityRail/Sydney Trains* network and quite possibly using single deck trains to reduce tunnel construction costs (the savings would be less today) and permit more steeply climbing routes, as the logical next stages of development, but only after MREP or an equivalent had been fully implemented, thereby fully utilising the inherent untapped spare capacity of the *CityRail/Sydney Trains* system and maximising the benefits of the huge sunk investment in this system.

double-deck trains, the Iemma government was persuaded behind the scenes to convert it to the “first stage” of a completely independent single-deck “North West Metro” line (Figure 3), with a revised alignment and fewer stations, and the initial (2008) planning approval for the North West Rail Link was granted on this basis, without any

opportunities for further public inputs. The second stage, abandoned shortly thereafter, was to have been an entirely new metro line from Epping to the CBD via Drummoyne and Rozelle— a concept bypassing all the key Macquarie and lower North Shore employment areas and involving not one additional harbour crossing but four!

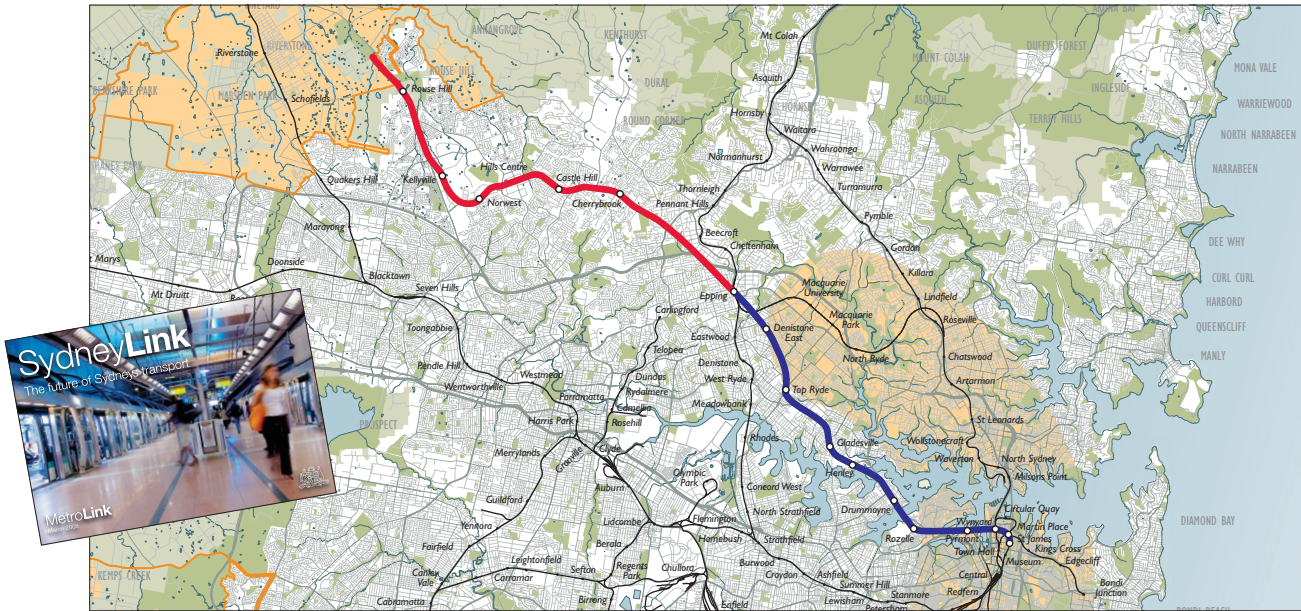


Figure 3. The short-lived “North West Metro” concept sold to a gullible lemma government in 2008 as an alternative to MREP, replacing one harbour crossing with four, omitting three previously proposed NWRL stations and supported by unbelievable train travel time claims that conveniently omitted all station dwell times from the calculations. The original (2008) planning approval for the North West Rail Link, granted without any public consultations concerning the abandonment of the integrated MREP concept that had been set out in the 2007 North West Rail Link Environmental Impact Statement, was an approval for “Stage 1” of this scheme, from Rouse Hill to Epping, shown in red on this map. Despite the rapid abandonment of this scheme, this approval has since formed the basis for all subsequent “modified” planning approvals for the North West Rail Link. Even though all of these approval “modifications” have responded to proposals for fundamentally different rail services, the 2008 decision to omit two stations between Cherrybrook and Epping has never been reconsidered.

One of the most ardent public advocates of this change was RailCorp’s new General Manager Network Development, Rodd Staples, an engineer and former RailCorp consultant who later went on to distinguish himself by inventing and then heading the Labor government’s attempts to build a “CBD metro” line from Rozelle to Central, itself abandoned early in 2010 after the burning of almost \$500 million of public funds. Mr Staples has been rewarded for these efforts by the current government by being placed in charge of the North West Rail Link project, for which he has now helped dream up multiple further changes during 2012 and 2013, many of them openly and very publicly advocated by him

prior to their adoption by the government, as described below.

As already indicated, the 2008 planning approval for the North West Rail Link was granted only for the first stage of the abandoned “North West Metro” line, typically without any public consultations about the change.

But it is this narrowly based planning approval for a fundamentally different project which has since been progressively modified, under a “transitional” continuation of the notorious “Part 3A” planning law provisions that were heavily criticised by the O’Farrell government’s ministers

when they were in opposition, which allow multiple changes without prior public consultations and which largely exclude the public from challenging the decisions in court.

And as we shall see, many of the changes made in 2012 and 2013 under this regime will not only affect the North West Rail Link but will quietly cripple the development of better publicly operated rail services throughout Sydney in the future.

Following the abandonment of the 2007–08 “North West Metro” concept the focus for the “single deck train” advocates switched to a combination of Rodd Staples’ “CBD metro” concept, the route for which would have sterilised all the potential underground corridors for any future new north–south heavy rail lines under the CBD, and the conversion and potential privatisation of a variety of cherry-picked sections of the existing double deck *CityRail/Sydney Trains* network, again ostensibly in order to “avoid” or “indefinitely defer” the need for a second rail harbour crossing.

Paradoxically, most of these conversion concepts, necessitating complex and difficult rebuildings of several major junctions, were costed at more than the MREP scheme. They would also have involved far greater disruptions to rail services during their construction and would have produced vastly inferior increases in rail capacity.

Further, in comparing them with MREP some of the advocates resorted to some serious tilting of the playing field by simply *assuming*, in their computer modelling of future patronage, that under “modified” MREP options trains would be much slower and less frequent but that single deck services would be significantly faster and more frequent, with 28 to 30 trains per hour “obviously” being achievable even through the highly congested Central, Town Hall and Wynyard stations in the CBD. (Unlike most patronage forecasting models, the computer model they used did not iteratively adjust public transport travel times in response to congestion, but simply treated the input travel time assumptions as fixed and achievable. It was also, very conveniently, a model that tended to be grossly sensitive to very minor changes to the input travel times.) To the true believers these untested, “move on, there’s nothing to look at here” matters

were but minor details, and certainly not anything warranting any public disclosure.

(How do I know this? Because one of the principal advocates of cannibalising the CityRail network to establish lines dedicated to single-deck services asked me late in 2009 to prepare a RailCorp report to Les Wielinga, the Director-General of Transport NSW, as it then was, omitting any disclosures that this is what the comparative modelling by his “team” had done, even though he freely acknowledged not only the fudges involved but the fact that the findings of the modelling were misleading as a result. Just to be clear, the person who did this was not Rodd Staples, but also just to be clear, the person involved was subsequently elevated to a key role in “managing” rail transport strategies for Transport for NSW. It is on “experts” and ethicists such as these that Les Wielinga and the Transport Minister, Gladys Berejiklian, have relied.)

In October 2011, in what appears most likely to have been a kite-flying exercise in preparation for the release of the draft *Long-Term Transport Master Plan*, there were selective leaks to the media of a “Paris-style train plan” submission by Transport NSW (as it then was) to the NSW cabinet.

Media reports at the time stated that this submission called for the conversion of multiple major CityRail lines to single-deck “metro-style” trains, necessitating (conveniently unmentioned) reconstructions of complex junctions and exclusions, for safety reasons, of double deck trains and freight trains from these lines (*Figure 4*). And who was to provide “independent advice” on whether single-deck metros rather than double-deck suburban trains might really be the way to go? Why, MTR from Hong Kong and Melbourne, it seems, notwithstanding its long history of seeking a role in the introduction of such services in Sydney. (And sure enough, MTR has now been accepted as a member of one of the two shortlisted consortia now bidding to operate privatised North West Rail Link single-deck rail services; no conflict, nothing to see here, move along please.)

The submission apparently also advocated a very old concept that has rattled around for decades: a “city relief line” for services from the west, under the western side of the CBD

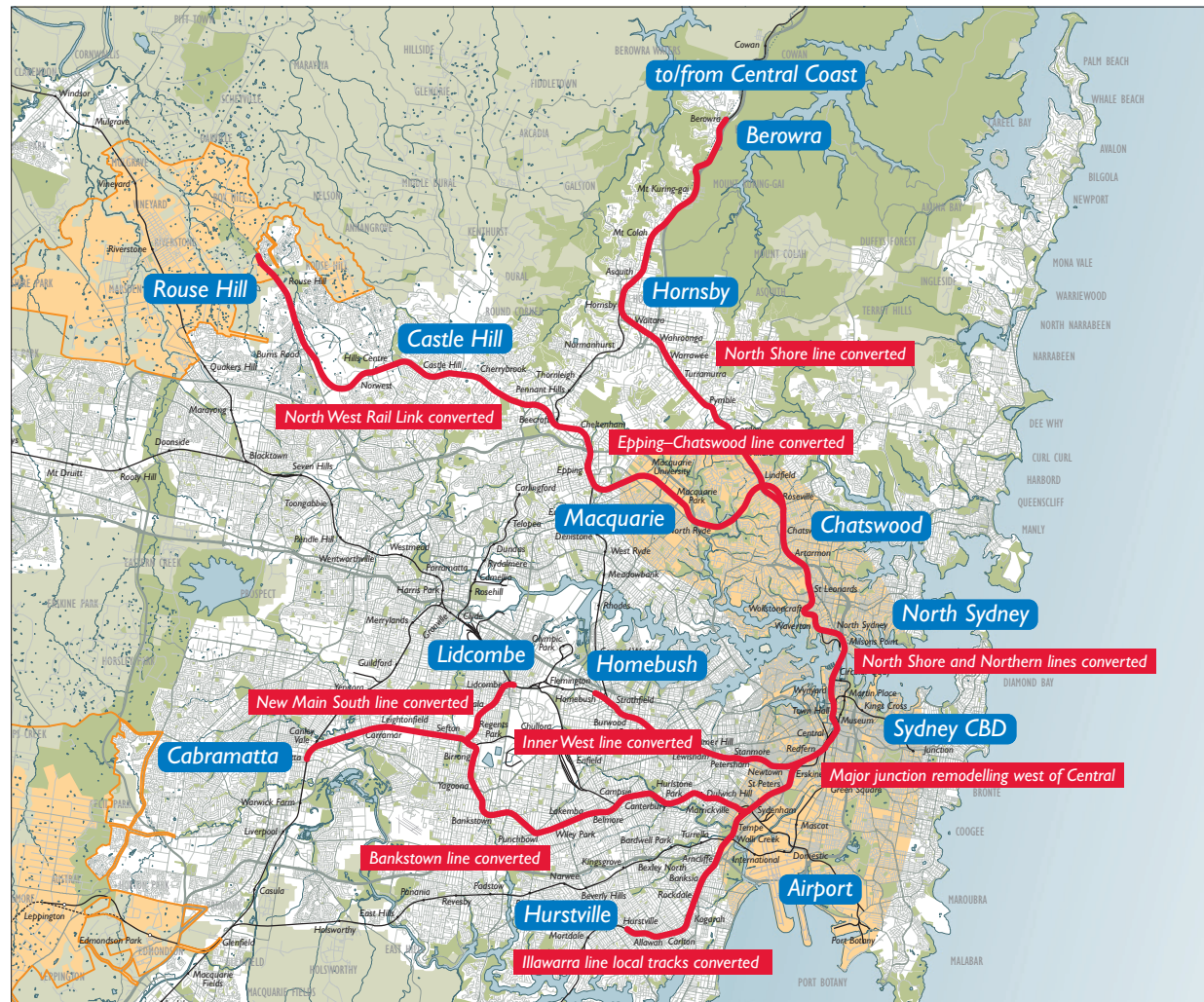


Figure 4. Transport NSW’s leaked October 2011 plans for switching major CityRail/Sydney Trains lines to single-deck “metro-style” trains, all without a second harbour crossing.

from Redfern to Wynyard, occupying one of the route options for a future new harbour crossing. And which consultancy did RailCorp and Transport for NSW ask to assist them in deciding the routes for new railways in the CBD, including this concept so close to Barangaroo? Why, another disinterested player, Lend Lease, of course.

According to inside sources, this concept continued to be favoured within Transport for NSW until May 2012, as its “railway engineering and planning specialist” consultants—including accountants Ernst & Young, possibly with the help of some rapid on-the-job retraining—prepared the draft *Master Plan* for cabinet approval and public release.



Figure 5: The new privatised “rapid transit” single-deck train network, comprising the new North West Rail Link, the recently completed Epping-Chatswood link and “in the long term” a second harbour crossing, two Illawarra line tracks, the Bankstown line and the New Main South line, announced by the NSW government in *Sydney’s Rail Future* in June 2012 and subsequently regurgitated—without any further details or argumentation, notwithstanding previous promises—in the draft *Transport Master Plan* of September 2012 and the final *Transport Master Plan* of December 2012.

But then a most inconvenient piece of research scuttled one of the concept’s fundamental but previously untested assumptions, that with “metro-style” trains up to 28 to 30 trains per hour could use the most congested existing CBD stations, compared to the 20 (and potentially 24) trains per hour limit with existing *CityRail/Sydney Trains* double deck rolling stock. In short, this research found that well no, actually, they couldn’t.

This left rail advocates within the government with no option but to suddenly switch to supporting a previously “off limits” second harbour crossing and new high-capacity stations within the CBD. This last-minute backflip must have placed them in a perilous position, especially as the advocates of greater spending on motorways rather than public transport, including Infrastructure NSW supremos Nick Greiner and Paul Broad, were actively ramping up their efforts to kill off any form of the North West Rail Link project.

It seems a decision was made that things simply couldn’t wait for the grinding process of finalising the draft *Transport Master Plan*, and a pre-emptive strike was required, notwithstanding all the fine promises made about public consultation.

So on 20 June 2012, without any prior formal public disclosures of the options being considered, let alone any consideration of public comments, the Sydney rail aspects of the as-yet-unpublished draft *Transport Master Plan* were suddenly gazumped by the publication of a glossy PR brochure called *Sydney’s Rail Future*, which advised that the government had already decided that there would be a radical carve-up of Sydney’s rail network in order to, as Transport Minister Gladys Berejiklian informatively put it, “fix the trains”, “fix the trains” and “fix the trains”.

This brochure featured pretty pictures, large type, a few pages of fluffy text and some quite extraordinary claims, but no real detail, let alone argumentation. This was excused by the politicians at the time on the grounds that it was merely a preliminary document and would be explained and supported in much more detail in the *Transport Master Plan*. But in practice the 24-page *Sydney’s Rail Future* has become the sole Sydney passenger heavy rail network element of the

368-page draft *Master Plan*, released in September 2012, and the 420-page final *Master Plan*, released in December 2012, both of which have merely regurgitated its brief and singularly uninformative and misleading PR text.

“Insulting” is the least that can be said about this approach. The rhetoric about “professionalism” and “public consultation” that flowed so freely before and after the 2011 election has been exposed as precisely that, nothing more. If there is a distinction to be made between this approach and that of the previous government, with its endless stream of public transport “strategies” and “plans” emerging as tablets handed down from the mount, it certainly eludes me.

That’s not all that was amazing about the final *Master Plan*. It quietly reported revised and generally much higher forecasts of population and employment growth than the draft *Master Plan*, still without attribution of its sources and without any express references to the masterplan for future land uses in Sydney, the *Metropolitan Strategy*. Yet it studiously ignored the possibility of any resultant increases in public transport demand—one wonders whether these were even modelled—and, quite miraculously, absolutely no amendments to the projects favoured and ignored in the draft *Master Plan* were made, apart from the quiet deletion of several public transport commitments (for example, the draft *Master Plan*’s Sydney rail system commitments to “additional services in the shoulder peak, off-peak periods and week-ends”, “modern, clean and spacious upgraded CBD stations” and “improved park and ride and bike and ride facilities” within five years had all somehow evaporated).

SYDNEY’S RAIL FUTURE

Sydney’s Rail Future and its echo, the *Transport Master Plan*, envisage a “three tier” passenger heavy rail system in Sydney, comprising timetabled double deck suburban and intercity services, broadly as now run under the *Sydney Trains* and *NSW Trains* brandings, and a new “rapid transit” tier of “fast single deck trains”, with fewer seats (from the illustrations, no more than 550 per eight-carriage train, compared with around 900 on Sydney’s current double deckers), more doors

on each carriage (three per side, rather than two) and “high” service frequencies with “no timetable required” (these frequencies are usually described as “every five minutes”—actually *less* frequent than many existing *Sydney Trains* services!—but sometimes as “up to” or even “more than” 30 trains per hour).

The new “rapid transit” single deck services are to be on dedicated, privately operated lines, as shown in *Figure 5*.

It is immediately apparent that the last-minute decision to rehabilitate the concept of a second harbour crossing, without ever having taken the original MREP concept shown in *Figure 1* seriously, led Transport for NSW to crudely “cut and paste” the second harbour crossing into its previous plans for a single-deck CityRail service network (*Figure 4*), accompanied by some cost-saving deletions from that network.

The “initial” single deck services will operate, in a yo-yo fashion with “up to” 12 trains each way per hour, only between Sydney’s northwest and Chatswood—a 37 km long route, an extraordinary distance for “metro-style” trains with limited seating of types usually used only for much shorter trips. These services will use the new, largely underground North West Rail Link between Cudgegong Road/Rouse Hill and Epping, which had previously been planned as an integrated part of the double deck *CityRail/Sydney Trains* network and repeatedly promised as such by the government, and the recently completed and publicly funded \$2.35 billion underground Epping-Chatswood rail link, which will now be gifted to the new private operator in a gesture which makes the then-controversial gifting of Melbourne’s Tullamarine Freeway to Transurban for the CityLink motorway look positively mean by comparison.

CBD-bound passengers arriving at Chatswood will have to transfer there to double deck North Shore line services. Cross-platform transfers have been promised, so if the existing four-track layout through Chatswood station is retained all of the single-deck trains will have to be turned back south of that station.

All existing and planned double deck services on the Epping-Chatswood link, including services from northern

suburbs and any from the rapidly growing Central Coast commuter residential areas, will be diverted back onto their old route via Strathfield, thereby forcing a (completely unacknowledged) reduction in services through Strathfield to and from Sydney’s western suburbs, and they will all terminate at Central, just as they did before the Epping-Chatswood link provided essential capacity relief for the west.

There is no committed timeframe in *Sydney’s Rail Future* or the *Transport Master Plan* for the completion of the North West Rail Link, other than “the medium term”, meaning in five to ten years (i.e. by 2022). A recent (16 June 2013) media release by the Transport Minister claims the new link will be “open to customers by the end of 2019”, but does not indicate whether this “opening” will involve the whole of the link or merely an undefined first stage, and the media release leaves the government with even more wriggle room by adding that the “opening time” is still to be “confirmed” by “the finalisation of the contract procurement process over the next 18 months”.

So far no planning approvals have been sought for any of the works required east of Epping, including but not limited to works at Chatswood station and on the North Shore and Epping-Chatswood lines.

There is also no committed timeframe for the second harbour crossing and CBD line. The only promises made are to “commence planning”, whatever that means, within five years and to build these components “in the long term”.

No route options for this harbour crossing/CBD line have been presented, although no doubt Lend Lease’s preferences for a western CBD route have already been made clear, notwithstanding the fact that even with the Barangaroo developments the greatest concentrations of underserved employment-related demand will still be along the CBD’s central spine.

There are repeated references in *Sydney’s Rail Future* and the *Transport Master Plan* to a new tunnel under the harbour, so it appears the government has already discarded, without discussion, any serious consideration of potentially much cheaper options using the harbour bridge, including

concepts that would preserve both the bridge’s existing road capacity and its heritage values.

The North West Rail Link and Epping-Chatswood hand-overs represent only the first stage of the planned cannibalisation of CityRail tracks for the new privatised single deck services. Once the second harbour crossing has been completed two of the four Illawarra line tracks from Central/Redfern to Hurstville and all of the Bankstown and New Main South line tracks from Sydenham to Cabramatta and Lidcombe will be handed over as well (Figure 5).

The contract for building the North West Rail Link’s tunnels was let on 25 June 2013, and the private operator for the initial North West to Chatswood services is to be selected from two shortlisted consortia—one with MTR as the principal operator, and the other with prisons and immigration detention centre operator Serco in that role—“before the end of 2014”. The selected operator will almost inevitably, by default, become the operator of the entire privatised “rapid transit” network, although no relevant commercial or ethical principles or processes for this selection, extending well into the future, have yet been announced.

MYOPIC SPECS, SECRECY AND MORE PR FLUFF (AND A QUIET OVERTURNING OF SYDNEY’S RAIL FUTURE AND TRANSPORT MASTER PLAN COMMITMENTS)

The pre-emptive release of *Sydney’s Rail Future* in June 2012 was followed within days, at an “industry briefing” on 26 June 2012, by the first of a series of changes to the specifications for the North West Rail Link that, in combination with the poaching of key *Sydney Trains*/*NSW Trains* tracks, will effectively cripple network development in Sydney for decades to come: **a reduction in the diameter of the North West Rail Link’s tunnels** just sufficient to prevent their ever being used by current *Sydney Trains* and *NSW Trains* double deck trains and similar trains in the future.

The initial reduction in the tunnel sizes announced by Rodd Staples in June 2012 was from an internal diameter of

7.2 m, close to that used on the Epping-Chatswood line, to 6.4 m (the lined tunnels will have circular cross-sections). This diameter has subsequently been further reduced to 6.1 m and then to 6.0 m (Figure 6). The “transit space” engineering standards for Sydney’s electrified double-deck network (ESC215) specify that there must be at least 5.9 m between the top of the track’s rails and the underside of the tunnel lining above the track, a clear impossibility for such small tunnels.

Before these reductions the North West Rail Link’s tunnels would have been consistent with the rest of the Sydney network’s tunnels, which through the foresight of John Bradfield in the 1920s were designed to accommodate the loading gauge requirements of much larger trains than then envisaged.

Contrary to some recent assertions by the Transport Minister, Gladys Berejiklian, smaller tunnels are not required by the switch to smaller, single-deck trains announced in *Sydney’s Rail Future*. As was clearly demonstrated between the 1920s and the 1980s, single-deck trains are perfectly capable of using larger tunnels that can also be used by double deckers! It’s just that the government has chosen to build smaller tunnels.

But why? Even if there were construction cost savings from building slightly smaller tunnels—and it is significant that the government and the North West Rail Link project’s bureaucrats have never claimed savings will be achieved, and that the Transport Minister herself has repeatedly said “it’s not about saving money”—they would be trivial in comparison with the other costs involved. And operational cost issues such as “windage” (piston-effect wind resistance) and energy consumption at the forecast operating speeds of 100 km/h in tight tunnels appear not to have been taken into account.

One doesn’t have to be paranoid to see another motive entirely.

And one doesn’t have to be over-conservative to see the sheer short-sightedness and stupidity of this back-to-the-1850s narrow gauge decision.

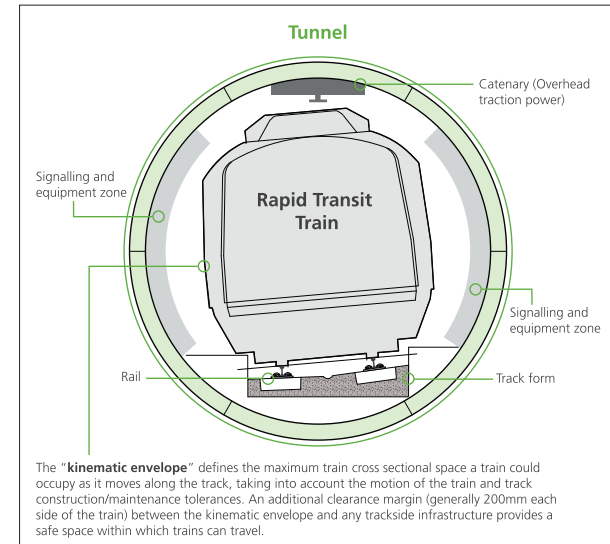


Figure 6. The North West Rail Link’s tunnels will be “tight” even for single-deck trains, with limited space for safety evacuation walkways and with the likelihood of significant piston-effect wind resistance at the trains’ planned tunnel speeds of 100 km/h. Their internal diameter has been progressively reduced to 6.0 metres, thereby preventing their use by Sydney’s double deck trains just as effectively as the adoption of (say) a different track gauge would have done (graphic is from the EIS for “Stage 2” works, October 2012).

It’s not just the North West Rail Link that will be affected by the narrowed loading gauge specification. By default, it will affect all the lines that will ultimately connect with it, including the second harbour crossing, which could otherwise almost certainly be used as part of any new regional and long-distance high-speed rail connection north from Sydney, and a possible future Liverpool-Parramatta-Epping line, which would provide a vital link between Sydney’s south-western suburbs, with limited employment opportunities, and the rapidly growing employment and educational centres in Sydney’s north.

Since June 2012 **other changes to the specifications** for the North West Rail Link, and by default all the lines connecting

with it, have also been quietly dribbled out, most notably in an *Industry Briefing* document on the proposed rail operations, trains and systems released in September 2012 and a media release issued by the Transport Minister, Gladys Berejiklian, on 6 June 2013. (The *actual* specifications issued in the tender documents for the rail operations, trains and systems contract, referred to in this media release, have not themselves been released, so from past experience there can be no guarantee that the government’s descriptions of them are accurate.)

These changes, some of which overturn clear undertakings made by the government in *Sydney’s Rail Future* and the *Transport Master Plan*, have included:

- An “expectation” that the private sector operator will be granted an initial operating concession—“initially” between Rouse Hill and Chatswood, but by implication potentially later on the wider single deck “rapid transit” train network—of around 15 years, in addition to the North West Rail Link project’s construction period.
- A classic example of the privatisation of profits and socialisation of major risks, with the private operator being guaranteed a “service fee” from the government structured to meet all its operating, maintenance and financing costs, on top of the gifting of the publicly funded North West Rail Link tunnels, viaducts and other civil works and the recently completed Epping-Chatswood line, but with the government wearing all of the patronage risks and other revenue risks.
- An unexplained increase in the maximum grade on the North West Rail Link from 3.5% to 4.1% at unspecified location(s), thereby now making the line too steep for Sydney’s current double deckers. All previously released plans for the North West Rail Link have involved gentler grades, well within the capabilities of double deckers.
- Requirements for the trains to be able to operate at grades of up to 4.5%, presumably so they can use a “longer term” second harbour crossing/CBD line with grades as steep as this in the future.
- Requirements for automatic train protection, automatic train operation and automatic train supervision. No

further information on the standards and capabilities being specified for these elements has been provided.

- A requirement for a “fully automated rapid transit system” with driverless trains.

This is a new requirement, announced on 6 June 2013, and directly contradicts express commitments in *Sydney’s Rail Future* and the *Transport Master Plan* that the trains “will not be driverless”. No explanations for this change have been provided, beyond fluffy PR statements about “building a 21st century system” and a “world class network”.

It seems likely, however, that the switch has been forced by the difficulty (and probably the impossibility) of turning back 12 or more North West Rail Link trains per hour at Chatswood, given the delays involved if drivers have to switch from one end of their trains to the other (this difficulty is discussed in more detail below). Or maybe they just hate train drivers and/or their union.

- A requirement for platform screen doors “on all platforms”.

It is unclear whether this includes the *Sydney Trains* (double deck) sides of the platforms at Chatswood station, potentially served by a variety of types of trains with different door openings.

The Transport Minister’s June 2013 media release announcing this change claimed platform doors will make loading and unloading “faster and safer”. There is little if any evidence from overseas experience to support the “faster” assertion, but public safety factors probably help to explain why the switch has been made: studies of likely platform overcrowding at Chatswood station, discussed below, have pointed to the probability of highly dangerous congestion, producing not only delays in interchanging but a real potential for passengers to fall or be pushed onto the tracks.

- A requirement for 1,500 V DC traction power. This is a peculiar requirement for an allegedly “entirely separate” set of lines, for which AC traction power would usually

be a more attractive option. Presumably it has been adopted simply with a view to easing the seizure and privatisation of existing *Sydney Trains/NSW Trains* lines, starting with the Epping-Chatswood line and then, in the “longer term”, two tracks of the Illawarra line, the Bankstown line and the New Main South line (*Figure 5*).

- An indication, in the September 2012 *Industry Briefing* paper, that the tender specifications for the private operator—issued in June 2013 but not publicly released—would include headway frequencies and operating hours, the trains’ kinematic envelope, station platform widths and lengths, train gradient capacities and train seating ratios, but *not* carriage and train lengths, comfort levels (!), passenger door configurations, seating configurations, top speeds or fleet sizes.

So even though the government has repeatedly promised eight-carriage trains, the private operator will be allowed to run much shorter, lower capacity trains, provided it meets as-yet-unspecified service frequency and journey time requirements (the government has said there will be 12 trains per hour during undefined peak periods, not exactly a high peak service frequency even by current Sydney standards, but has said only that there will be “fewer” at other times).

The operator will also be free to choose unsuitable rolling stock with (for example) narrow doors and small vestibules, thereby undermining one of the supposed rationales for single-deck trains, shorter station dwell times.

And in case you are thinking that at least the service frequencies will be specified, it’s worth recalling the track record of the predecessors of Transport for NSW on such matters. The original PPP contracts for Sydney’s existing light rail line required services at least every 5½ minutes during peak periods and every 11 minutes at other times, but in practice, thanks to “blind eye” enforcement, even today, 20 years on, the service headways are generally no better than around 15 minutes, even though the conductors will tell you “ten”.

IS IT (um...) LAWFUL?

As already indicated,

- The original (2008) planning approval for the North West Rail Link was granted only for the first stage of the abandoned “North West Metro” line (Figure 3), even though the preceding planning approval application and *Environmental Impact Statement (EIS)* had been based on the MREP concept of integration with a second harbour crossing and frequent services by large double-deck trains (Figure 1), and even though there had been no public consultations about the change, and
- This narrowly based planning approval for a fundamentally different project has since been progressively modified, under a “transitional” continuation of the “Part 3A” planning law provisions which largely exclude the public from challenging decisions in court.

The two most important modifications of the original planning approval to date have been for “Stage 1”, the project’s major civil construction works, including the tunnels, the underground station cavities, the viaduct between Bella Vista and Rouse Hill and other above-ground works, and “Stage 2”, for other construction works and for the operation of the railway, including the construction and operation of the stations and their precincts, other rail infrastructure and systems, service facilities and a train stabling facility.

Again there have been significant differences for each stage between the proposed project as described in its *EIS* (and therefore as commented on by the public) and later versions of the project, as finally approved.

For “Stage 1”, the *EIS* was prepared and released in March 2012, before the *Sydney’s Rail Future* announcements, and was therefore based on fully integrated double deck *CityRail/Sydney Trains* services. This marked a significant shift in the types of services proposed, compared with the previously approved 2007–08 “North West Metro” line concepts.

The “Stage 1” modifications of the planning approval were approved on 25 September 2012, after the *Sydney’s Rail*

Future announcements. Yet despite the quite fundamental restrictions on the development of Sydney’s rail system imposed by *Sydney’s Rail Future* and the subsequent exploitation of this to exclude double deck trains absolutely from the North West Rail Link, the Epping–Chatswood line and the rest of the proposed “rapid transit” network, this “Stage 1” approval was granted on the basis of advice from the NSW Department of Planning and Infrastructure, in words precisely parroting a submission from Transport for NSW, that the *Sydney’s Rail Future* changes “would not result in any substantial changes to the environmental impacts described and assessed as part of the Stage 1 *EIS* process” that had preceded the *Sydney’s Rail Future* announcements.

It seems that a few people in the government’s transport and planning bureaucracies have forgotten that under the NSW Environmental Planning and Assessment Act “environment” is defined as including “all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings”, and not just the very narrow range of issues, such as noise and construction traffic, that were actually considered in the “Stage 1” modification process. Certainly the decision was made without any express examination of the sweeping changes wrought on Sydney’s rail future by the changes made to the North West Rail Link.

The bush and real lawyers among you might wish to ponder the legal validity of the resultant “Stage 1” approval modifications.

The “Stage 2” *EIS* and planning approval modification process, which culminated in a further approval on 8 May 2013, similarly failed to consider the *broad* service-related “environmental” effects of the amendments made to the project by *Sydney’s Rail Future* and the government’s subsequent decisions, and may therefore also be blighted as a result.

Another “interesting” legal question, and one of immediate importance, is whether the project’s design and construction contract specifications for smaller tunnel diameters and steeper grades comply with this planning approval granted in September 2012 for the project’s tunnel civil

works. This approval requires these “Stage 1” works to be carried out in accordance with the March 2012 *EIS* for these works, which was expressly based on the provision of infrastructure for *CityRail/Sydney Trains* double deck trains, except in the case of an inconsistency with a July 2012 *Submissions Report* prepared by Transport for NSW just after *Sydney’s Rail Future* was released. This *Submissions Report* included a single-sentence “clarification” indicating that the North West Rail Link “would operate as a Tier 1 rapid transit single deck train system” in line with *Sydney’s Rail Future*. But neither the *Submissions Report* nor *Sydney’s Rail Future* mandated or proposed the adoption of smaller tunnels or steeper grades—indeed, neither of these matters was even mentioned—and obviously, as already pointed out, the slightly larger tunnels originally proposed, for the North West Rail Link services described in the *EIS*, would still be able to be used by single-deck trains. So, *Catch 22*, where, precisely, is the “inconsistency” in the civil works described in these documents? And if there is none, the lawfulness of any contract specifications requiring smaller, steeper tunnels would seem dubious, at best.

(We don’t know what these specifications actually are, because with only one exception Transport for NSW has comprehensively failed to comply with the requirements of the Government Information (Public Access) Act for the public release of copies of all major contracts executed for the North West Rail Link project.)

In a similar vein, the “Stage 2” planning approval modifications of 8 May 2013 requires the “Stage 2” works to be carried out in accordance with the October 2012 *EIS* for these works, except in the case of an inconsistency with a March 2013 *Submissions Report* prepared by Transport for NSW, and both of these documents expressly stated that the trains will have drivers, will have eight carriages and three doors on each side of each carriage. As indicated above, the government has subsequently decided, in June 2013, that the trains will instead be controlled by “fully automated” systems and will be driverless, and in September 2012 it indicated that its contract specifications for rail operations would permit shorter trains and would not dictate carriage door configurations. The lawfulness of these changes, contrary to the terms

of the “Stage 2” planning approval, would therefore appear to be in doubt.

And all this is before one considers other legal issues conveniently ignored in all the government’s announcements—such as whether the forced exclusion of *Sydney Trains* and *NSW Trains* services from the RailCorp-owned Epping-Chatswood line and in the “longer term” from other RailCorp-owned tracks south of the harbour, and the dedication of these lines for the exclusive use of the chosen private sector operator’s services, complies with the NSW Rail Access Undertaking under schedule 6AA of the Transport Administration Act—and related policy questions, such as just how the government justifies such inherently anti-competitive behaviours (and, if it ultimately orders RailCorp to relinquish its ownership in order to get around this difficulty, just how it justifies such a massive “free” transfer of very valuable public assets to the private sector).

IS IT SAFE?

In another significant omission, absolutely no information on **crashworthiness and other safety specifications** for the new trains has yet been issued to the public, a matter that has continually been deferred during the debates about single deck options over the last few years.

Light-weight trains such as those envisaged for the single-deck “rapid transit” network are generally much less crashworthy than current *Sydney Trains/NSW Trains* double deckers, and under the *Sydney’s Rail Future* plans they will be running across and/or close beside tracks used by much heavier trains, including coal and other freight services, so this is much more than a moot point.

Some advocates of single deck services within RailCorp and now Transport for NSW have suggested the current safety standards, which are consistent with safety standards for intermingled services throughout the world, might be relaxed “in this case”, ostensibly to help reduce the costs of the trains—even though the as-yet-unreleased train specifications now reportedly set out for the North West Rail Link make it highly unlikely any of the magical “off the shelf”

designs they speak of will be suitable anyway—but also, much more fundamentally, to make the proposed single deck routes, all of which involve potential conflicts with heavier trains, possible at all.

To date, however, neither these advocates nor the government have seen fit to take the public into their confidence on this critical matter, and their vague reassurances that train crashworthiness safety issues will be “looked at” by others, usually on an ad hoc by chosen individuals rather than by rail safety agencies, are far from reassuring.

Another safety-related omission from the materials made public so far has been any mention of the potential impacts of applying modern **“fire and life safety” standards**, and especially train evacuation standards and standards concerning the time taken for evacuees to walk to safety, to the North West Rail Link and the Epping-Chatswood line.

Both of these rail links feature tunnels that will allow only very narrow evacuation walkways (*Figure 6*) and will be long and deep, with up to 6 km between the underground stations, several of which are also very deep underground. So the “fire and life safety” standards might well effectively limit the permissible frequencies of the proposed single-deck train services on these lines to levels below the longer-term “up to 30 trains per hour” or “more than 30 trains per hour” variously touted by Transport for NSW.

If they do, this will significantly reduce the practical capacity of the future cross-harbour and CBD line as well, because all of its services from the north are now to be sourced from the North West Rail Link and the Epping-Chatswood line.

It’s another fundamental question, but again it seems to have been regarded as a mere “detail”, and therefore not worthy of mention, by the authors of *Sydney’s Rail Future*, the *Transport Master Plan* and the North West Rail Link *EISs*, glossy booklets and other publicly released documentation. There may or may not be a problem, but who knows? And, more to the point, who’s (not) telling?

Similarly, there has been no formal release to the public of any information about the as-yet-unapproved **transfers of North West Rail Link/Epping-Chatswood line passengers to**

and from the busy and already congested North Shore line at Chatswood, with all the single deck trains turning back just south of this station (assuming a four-track layout into and through the station is retained).

As already indicated, it is likely that the June 2013 switch to driverless trains on the North West Rail Link was dictated by inability of the current “turnback” infrastructure at this location to handle even the “initial” peak-period 24 train movements per hour (12 southbound and 12 northbound through one set of points onto and off a single track) with the drivers having to swap ends, even if platform congestion at this station were not an issue.

And it’s much more than “an issue”: it’s an extremely concerning public safety problem, as demonstrated in a detailed study commissioned by Transport for NSW and leaked to the media in October 2012, following a refusal by Transport for NSW to release it under freedom of information laws on the ground that to do so might prejudice “responsible and effective government”. (Apparently, placing people at risk is “responsible and effective government”, provided you don’t tell them.)

This Arup study forecast frankly dangerous “crush” loadings of the platforms at Chatswood—which were never designed with such large-scale transfers in mind—under many common operating scenarios, and concluded that even under “optimised” conditions more than 40% of the passengers leaving North West Rail Link trains in the morning peak will be unable to alight, cross the platform and board the next arriving CityRail train to the CBD.

The Transport Minister responded to this leak by saying it was only a “preliminary” study—as if somehow it were a virtue that in June 2012 she had announced the government’s wholesale commitment to the Chatswood transfers on the basis of a May 2012 “preliminary” analysis suggesting the transfers would entail major public safety risks—and that in any event the government planned to increase *CityRail/Sydney Trains* service frequencies on the North Shore line to 24 trains per hour by the time the North West Rail Link opened. On the Arup analysis this would seem to be quite insufficient to overcome the identified safety problems,

line to 24 trains per hour by the time the North West Rail Link opened. On the Arup analysis this would seem to be quite insufficient to overcome the identified safety problems, especially in view of the forecast growths in other passenger movements into and out of Chatswood station and on *Sydney Trains* and *NSW Trains* services to and from the north. But now it's academic anyway; the commitment, never a short-term practicality on the North Shore line, has now been quietly dropped, with the December 2012 *Transport Master Plan* reverting to a commitment of only 20 trains per hour, compared with 18 at present.

As for Transport for NSW, they apparently responded to the leak not by thinking more deeply about the issue but by commissioning a searing witch-hunt to track down the leaker. If these reports are correct, they've got their priorities seriously wrong.

MORE CAUSES FOR DISCOMFORT

What else is crazy about the *Sydney's Rail Future* plans and the subsequent North West Rail Link glosses and *Master Plan* regurgitations? A lot, but the most obvious are:

- **The requirement for large numbers of passengers to stand in crowded carriages for long distances**, far longer than those usually associated with “metro-style” trains. Sitting in the M2 tollway carpark may still be an attractive option for many commuters. The fact that Transport for NSW has stated that it intends not to specify any passenger comfort or train passenger capacity standards for the “rapid transit” trains really says it all.
- **The inherent need for at least 20% more trains** than would be required for fully integrated services, along with all the associated separate and additional stabling, maintenance and operational facilities.
- **The apparent underestimation of North West Rail Link patronage.** No recent patronage forecasting results have been released, but the “initial” peak period single deck train numbers of 12 per hour will provide *less* capacity than previous RailCorp and Transport for NSW patronage studies have suggested will be required (prior to

Sydney's Rail Future, there were to have been 12 or more double deck services per hour from the outset, four to eight of them continuing on past Chatswood). This is difficult to judge without any data, however, as the *Sydney's Rail Future* plan to terminate all trains at already tightly packed Chatswood platforms will make these services a much less attractive proposition for many.

- **The fact** that the “medium term” and indefinitely timed post-“long term” *Sydney's Rail Future* concepts for the “tier 1” single deck train network, driven by the enthusiasm of Transport for NSW and the politicians for something shiny and new and blatantly developed and announced “on the run”, will **seriously diminish the capacity of the rest of the existing rail network, both immediately and, to a greater and greater extent, well into the future.**

More specifically,

- ✘ **It will become impossible to significantly increase *Sydney Trains/NSW Trains* services on the congested Western Line**—as repeatedly promised by the government, mostly through a series of glaringly incompatible media statements by the Transport Minister in 2011 and 2012, before she fell silent on this in 2013 and failed to deliver any increases in her draft October 2013 timetable “reforms”—because of the diversion of increasing numbers of Northern Line suburban and Central Coast services back onto these tracks once they are prevented from using the Epping-Chatswood link, which was purpose-built to provide an alternative route into the CBD and thus provide more capacity for western Sydney services between Strathfield and the city.

Indeed, the closing off of the Epping-Chatswood line for its “conversion” works on some yet-to-be-publicised date prior the opening of the North West Rail Link, followed by the total exclusion of *Sydney Trains/NSW Trains* services from the Epping-Chatswood line and its exclusive use by the privatised North West Rail Link trains, will see **an immediate**

and significant loss of capacity on the Western Line for western Sydney services.

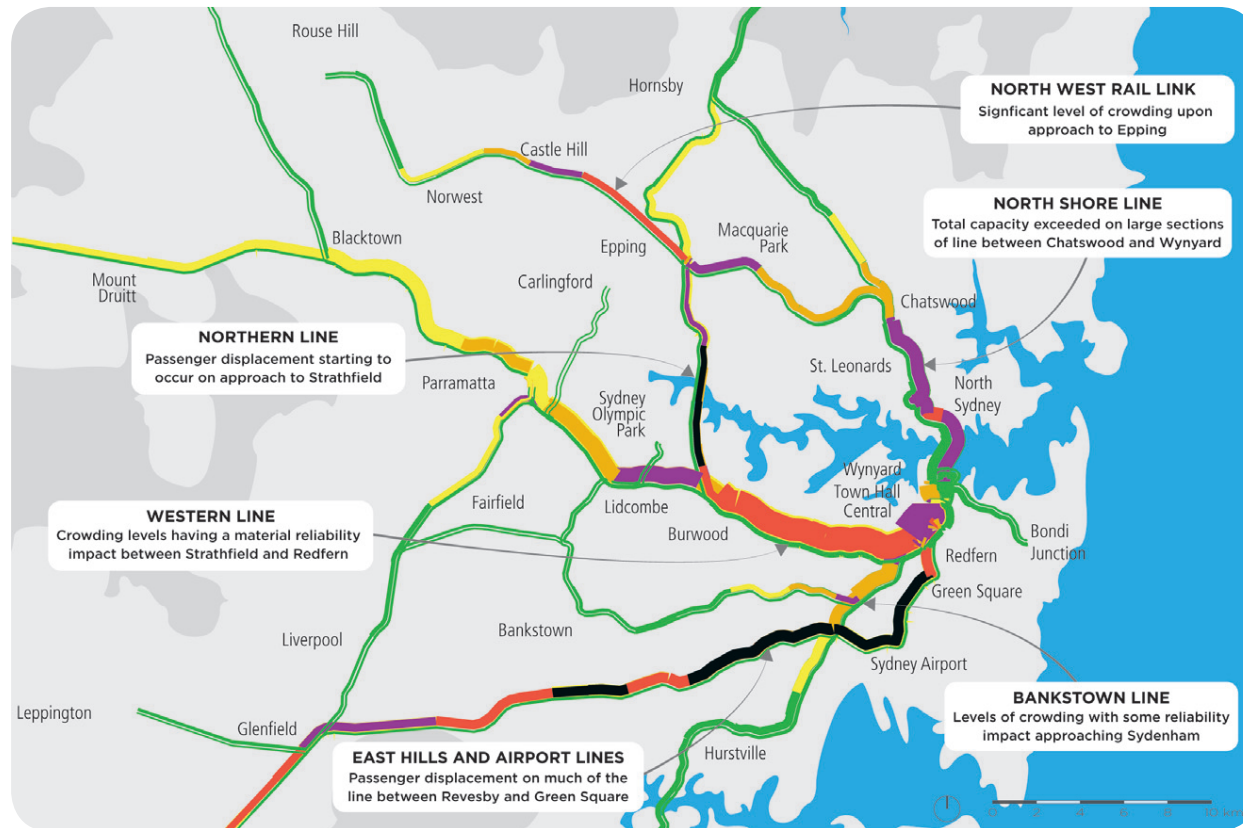
For reasons that are unknown but not too hard to guess, this seems never to have been publicly acknowledged in any of the government’s “strategies”, brochures, media releases and other grand announcements.

- ✘ In marked contrast to the MREP concept (*Figure 1*), **the *Sydney's Rail Future* concepts south of the CBD (*Figure 5*) totally fail to provide additional capacity for *Sydney Trains/NSW Trains* services on the Main South and East Hills lines from Campbelltown to the city**, despite the fact that the *Transport Master Plan* identifies this as becoming by far the most congested rail corridor in Sydney “if nothing is done” (*Figure 7*).

This is symptomatic of a wider problem with the post-“long term” aspects of the *Sydney's Rail Future* concepts. On the one hand, they involve all of the MREP concept’s expenditures on a second harbour crossing and a new CBD line, *plus* substantial extra expenditures on the proposed new “rapid transit” arrangements south of the CBD, which will necessitate major junction, station and train control system rebuilds, including expensive and disruptive grade separations and new tracks to keep the new driverless trains clear of potential conflicts with *Sydney Trains* and *NSW Trains* services and lumbering heavy coal and other freight trains. (The long-abandoned Maldon-Dombarton freight line, a prerequisite for removing coal trains from the Illawarra line, might now finally have to be completed after all!) But on the other hand, they will:

- Forgo most of the increased rail capacity benefits of the MREP concept and similar concepts, other than the additional capacity provided by the new line itself, and
- Actively reduce or eliminate the potential for essential additional capacity to be developed in

Figure 4.24 Rail network performance (represented by volume-capacity ratio), AM peak, 2031 do nothing scenario



Crowding Level

- █ Very Low
- █ Low
- █ Moderate
- █ High
- █ Very High
- █ Passenger displacement

Description of crowding for double deck trains

- Passengers are mostly seated
- Seated capacity is reached and people start to stand
- Standing space approaching full capacity for reliable running
- Crowding with some reliability impact
- Crowding starting to have material reliability impact
- Additional passengers are unable to board the train

Note: The above passenger crowding levels are based on total capacity (including both seated and standing passengers). This is a more generally accepted measure internationally rather than expressing capacity on the basis of seating alone.

*Figure 7. An excerpt from the NSW government's December 2012 **Transport Master Plan**, reproducing a figure first presented in **Sydney's Rail Future**, identifying the Main South and East Hills lines as becoming by far the most congested rail corridor in Sydney "if nothing is done" (i.e. with the North West Rail Link but without a second harbour crossing etc), closely followed by the Western Line and the Northern Line north of Strathfield, the new North West Rail Link itself (so much for the adequacy of the capacity of its planned single deck train services!) and the North Shore line south of Chatswood.*

*In blatant defiance of these forecasts, the government's plans in **Sydney's Rail Future**, regurgitated in the **Transport Master Plan**, not only fail to address any of these major suburban rail capacity problems—other than on the North Shore line, through the construction of a second harbour crossing line at some unspecified time "in the longer term"—but will actually reduce capacity on the Western Line for services to and from western Sydney, because the loss of access to the Epping–Chatswood line by Sydney Trains and NSW Trains services from Hornsby and the Central Coast will force these trains to revert to using the Northern Line from Epping to Strathfield, creating the gross congestion forecast here, and then force them to use Western Line tracks from Strathfield to Central that are now, and would otherwise continue to be, available for use by western Sydney services.*

*Conversely, the Sydney's Rail Future "longer term" concepts south of the harbour (see Figure 5) will replace Sydney Trains' double deck services with "metro style" trains, which the government claims are essential because they "will increase capacity", on the lines forecast by the government to have **the least** congestion if nothing were done: two tracks of the Illawarra line south to Hurstville, and the Bankstown and New Main South lines to Cabramatta and Lidcombe.*

the future on several key double deck “suburban” lines. (Other examples are provided below.)

It seems to matter not one whit that the network that is now to be dismantled and variously cannibalised, “gifted” to the private sector or choked off has been built up and upgraded over many decades at a stupendous public cost, is now relied on by almost a million people every weekday and could carry another 50% or more passengers, in a single step change, if alternative concepts, most of them broadly similar to the 2005 MREP solution shown in *Figure 1* and almost certainly cost-competitive, were adopted.

This hasn’t stopped the *Transport Master Plan* from brazenly claiming combinations of rail capacity benefits under the *Sydney’s Rail Future* concepts which are frankly impossible under those concepts but appear instead to have been simply “lifted” from previously modelled estimates of the capacity benefits of MREP-style schemes.

- **The diversion of all East Hills line services onto the Airport Line**, because the current use of the Illawarra line’s local tracks by express services from Campbelltown will no longer be possible once these tracks are handed over for the exclusive use of the private “rapid transit” single-deck services.

The *Transport Master Plan* parades this as a positive, because (after unacknowledged upgrades to signalling and power supplies) it would lift Airport Line peak service frequencies to 16 or 20 per hour (depending on which version of the *Master Plan* you are reading!). What it doesn’t openly acknowledge, however, is that on its own forecasts of future rail network performance these diverted trains will be packed full, with additional passengers simply being unable to board, long before they get anywhere near the airport (*Figure 7*).

- **The wanton destruction of the “sectorisation” of passenger rail services in Sydney**, a rail planning and operational principle designed to contain service disruptions to individual parts of the network by operating different lines’ services on entirely separate tracks as much as possible. Under the *Sydney’s Rail Future* plans,

the “theft” of key tracks for the privatised single-deck services and the forced rearrangement of *Sydney Trains* and *NSW Trains* services mean the remnant double deck services will have far more conflicts than now, at junctions and on shared tracks, with other *Sydney Trains/NSW Trains* lines’ services and with freight services.

Improved “sectorisation” is fundamental to achieving more frequent and more reliable rail services in Sydney. It has been a major focus for several decades, most recently through the “*Clearways*” suite of infrastructure upgrades. Now, it appears, it is simply no longer a priority. The privately operated “rapid transit” single-deck trains may well be treated as “Tier 1”, although they too may well have at least some (unacknowledged) conflicts with other services—including junctions crossing over freight lines, a most worrying concept for driverless trains—if the internal push within Transport for NSW for the current safety standards to be relaxed “in this case” succeeds. But the “Tier 2” and “Tier 3” passenger services and freight services will be forced to operate in a far more tangled mess with significantly more intermingling of different services, reducing the reliability of these services and the ability to add extra services of these types in the future.

- **The “theft” of half of the Illawarra line**—or more, once the diversion of coal trains onto the remaining tracks is taken into account, assuming the Maldon–Dombarton alternative is not adopted—even though this and the Eastern Suburbs Railway to Bondi Junction constitute by far the most successfully isolated sector of the CityRail network and are thus potentially prime candidates for trialing efficiency, safety, train control and other improvements and have frequently been spoken of as a potential sector for privatisation.
- **The absurd termination of Bankstown line services at Cabramatta, two stations short of the major regional centre of Liverpool**, which will end up with rail services that are even worse than the appalling slow and infrequent services provided today. (And most of the con-

cepts developed so far for the Cabramatta interchange involve a long walk between the trains.)

- **An assertion that the North West Rail Link will somehow “remove” all 160 of the buses currently entering the CBD across the harbour bridge from the M2 motorway** during the two-hour weekday morning peak period, even though this motorway is well to the south of the new rail alignment and many of the buses clearly serve quite different catchments.

(Very conveniently, the long-distance M2 busway, correctly classified by the September 2012 draft *Transport Master Plan* as a key “mass transit” route within “the 2012 Sydney strategic transit network”, was quietly downgraded to a mere subsidiary “intermediate transit” route in the December 2012 final *Transport Master Plan*. Presumably this bureaucratic manoeuvre now means removing these buses will be *much* less of a sacrifice.)

- **The absence of any information on the nature of “reformed fare structures” to be introduced for Sydney’s public transport services at unspecified times in the future**, and most notably **the absence of any commitment to eliminate or even reduce the punitive “flagfall” fare penalties** that currently apply when Sydney commuters transfer from one public transport service to another. This is frankly a disgrace, when the rest of the *Master Plan* is locking in a need for and more such interchanging in the future.
- **And, of course, the absence of any government funding commitments beyond the current budget cycle!**

TWO BRIGHT, SHINING LIES

So how does the government seek to justify all this?

Two core arguments are presented in *Sydney’s Rail Future*, the *Transport Master Plan* and the “Stage 2” *EIS* for the North West Rail Link:

- We should “follow the lead of other global cities and move to a ‘differentiated service’ approach”, and

- The new single deck trains “can run faster, more frequently and carry more people”.

Both of these assertions are almost absurdly incorrect. And even if they weren’t, the sheer arrogance and stupidity of thinking that things won’t change in the future, for infrastructure assets meant to be used for at least 100 years, and then quite unnecessarily and rapidly moving the “loading gauge” and other goalposts to ensure that they *cannot* change, is quite breathtaking. John Bradfield would be horrified.

However, it appears that years of mindless repetition of both assertions by the “metro” and “metro-style” advocates has led to their being accepted as gospel by many, especially those whose heads hurt if they are asked to do any calculations or who comfortably overlook physical reality.

The first assertion is a perverse reversal of what has actually occurred in comparable major cities overseas, where inner city “metros”, with small trains and small tunnels over relatively short distances, typically of 4 to 8 km at most, were a response, in the late 19th and early 20th centuries, to the great expense and disruption then faced, using the technologies of the time, of extending railways into the heart of the cities.

Sydney had the luxury of developing its suburban rail network later, in the 1920s and 1930s, and under Bradfield’s guidance this permitted the construction of suburban lines right into the CBD (with a generous loading gauge too, as already discussed), thereby avoiding the need for interchanging between suburban and “metro” services.

The clear trend now, in major cities around the world, is to provide rail systems that facilitate the use of single rather than multiple types of rail services for as many trips as possible. And whether it be in London, Paris or Berlin, the principal focus is on building new suburban lines into and through the city centres, with larger trains carrying more people, and definitely *not* on replacing larger trains with smaller ones and forcing more interchanges.

Nowhere else in the world is a city deliberately setting out to recreate the “metro”/suburban divide of the late 19th and early 20th centuries. And nowhere else in the world is a city abandoning comfortable large suburban trains with ample

seating in favour of “metros” travelling the distances travelled in Sydney, where the average *Sydney Trains* trip is now close to 20 km and the proposed longer “rapid transit” single deck trips will cover more than twice this distance.

As far as the second assertion is concerned,

- Light-weight single deck trains can certainly accelerate and travel faster than Sydney’s current double deck rolling stock, but so can many double deck trains, and often with much the same energy efficiency per passenger. As much as anything else this depends on how much one is willing to spend on providing the necessary power supplies and how much energy one is prepared to consume for each incremental improvement in travel times. At higher speeds in long, tight tunnels (*Figure 6*),



piston-effect air resistance, or “windage”, can become an important factor in this equation.



From personal observations, new designs of double-deck RER trains in Paris, with three fairly wide doors per carriage side and large vestibules, have shorter peak-period station dwell times than the single deck trains they are replacing, with four doors per side—not quite the conventional wisdom of “more doors means shorter dwell times” the advocates of single deck trains in Sydney would have you believe. And they are quite capable of providing up to 30 services per track per hour, a service frequency the advocates of single deck trains in Sydney often think (or pretend) is available only with single deckers.

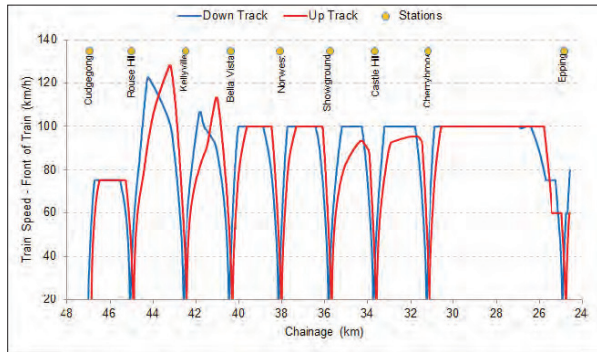


Table 4 Forecast NWRL Travel Times to Key Destinations

From station	Travel time (mins) to:			
	Macquarie Park	Chatswood	North Sydney	Wynyard
Cudgong Road	28	37	51	57
Rouse Hill	26	35	49	55
Kellyville	24	33	47	53
Showground	17	26	40	46
Castle Hill	15	24	38	44
Cherrybrook	12	21	35	41

Source: Transport for NSW (2012)

Note: Travel times are based on the NWRL Revised Rail Service Strategy (see Figure 7). Outside peak hours, times beyond Chatswood would at times be slightly longer than those shown due to a slight reduction in frequency of connecting services on the North Shore Line.

6.2 Study area

In some parts of the catchment area the NWRL may not be the primary choice (e.g. areas along the Richmond Line) particularly for travel to the Sydney CBD. But in these locations the NWRL will be an

Figure 8. The “Stage 2” North West Rail Link Environmental Impact Statement’s forecasts of the “faster” single deck train speeds on that line (left) are compatible with the EIS’s claims of total train travel times (right), which it sourced to Transport for NSW and Sydney’s Rail Future even though the latter included no such data, only if the trains’ total “dwell times” at NWRL stations, including around 10 seconds for the trains’ automatic doors to open and close, are only 5 to 15 seconds per station, an absurd physical impossibility.

It is on “expert” analyses such as these that the long-term future of Sydney’s passenger rail services, and public and private sector expenditures of many billions of dollars, have been and are now being decided.

(And many of the “analyses” advanced by Infrastructure NSW in its October 2012 State Infrastructure Strategy, First Things First, in support of its obsession with 1950s-style motorways, were even worse.)

adopted, as has been convincingly demonstrated by the suburban RER network in Paris.

The comparisons made by single deck train advocates in Sydney have typically and misleadingly ignored the fact that the technologies that allegedly give “metro-style” trains an edge are equally able to be applied, and have been successfully applied, to double deck rolling stock.

The “more doors mean shorter station dwell times” rhetoric of the single deck train advocates has also been ridiculously simplistic; while this usually (but not always) helps, it is only one factor amongst many and at Sydney’s existing stations it is rarely the critical factor limiting train service frequencies. Station design factors, including the widths and locations of platforms and accessways, are often far more significant considerations. And from personal observations in Paris, the new double-decker RER trains there typically load and unload faster during peak periods than the single-deck

trains they are replacing, even though the latter have more doors, because the new trains have wider doors and larger vestibules. (This issue was comprehensively addressed by the Sydney Morning Herald’s 2010 independent inquiry into a public transport plan for Sydney, whose reports may be downloaded from www.catalyst.com.au.)

- Transport for NSW’s claimed “faster” travel times for single deck trains on the North West Rail Link are nonsense, and provide a perfect illustration of the misleading nature of these sorts of claims.

The October 2012 “Stage 2” Environmental Impact Statement (EIS) for this project included three identical tables of “forecast” total travel times between selected stations, including dwell times at intermediate stations, and two identical graphs of a “profile” of train speeds along the route (the modelled maxima were almost 130 km/h on an elevated surface section of the route and a steady 100 km/h in the tunnels) (Figure 8).

By recalling one’s high school physics it is easy to calculate, from these sources, the range of station dwell times that must have assumed in the forecasting of total travel times, assuming the two sources are consistent as one would hope and expect.

But the answer, depending on the station origin/destination pairs selected and after taking account of possible rounding errors, is only 5 to 15 seconds per station. Since it takes about ten seconds for automatic train doors to open and close, leaving at most 5 seconds for everyone to get on and off at each station, it is clear that someone has been a bit too fast and loose with their “forecasts”. (It wouldn’t be the first time. In 2008 the advocates of the “North West Metro” (Figure 3), some of whom are now key figures in developing the latest form of the North West Rail Link, released claims of travel times that completely ignored station dwell times!)

And if (as seems likely, although we’ve never been told) the EIS’s travel time estimates have been used as input assumptions in Transport for NSW’s computer modelling of the relative attractiveness, patronage and loadings of these and alternative types of services... well, you’d think it would be inconceivable for the people who rorted the computer modelling in 2009 by giving the modellers fudged train travel time inputs still to be doing this today, but that’s precisely what the EIS data suggest. Relying on these “experts” may have been a courageous decision, Minister.

- Despite some grossly misleading claims about train capacities by Infrastructure NSW, in particular, the practical capacity of an eight-carriage Sydney double decker is significantly greater than that of a single-deck train of the same length, even assuming practical crush loadings on both. (The North West Rail Link calculations on this have apparently assumed up to four standing passengers per square metre. Let’s hope everyone from the north-west is on friendly terms.)

So even if double deckers were to have lower service frequencies—and, as pointed out above, with the application of readily available and proven train, train

control, network and station designs there really is no technological reason why they should—they are inherently capable of carrying more people per railway track per hour, and they are most definitely capable of carrying many more *seated* passengers, in much greater comfort.

WHAT ELSE?

Despite their huge page counts, there is frankly not a lot else of substance concerning NSW rail systems in the draft and final *NSW Long-Term Transport Master Plans* of 2012.

For **light rail**, the proposed new line to Sydney University has been quietly scrapped, without explanation, but the new line from Randwick and Kingsford to Circular Quay via Central station and George Street is now “planned for delivery”, albeit at an unspecified time in the future.

This project will, however, provide peak period service frequencies of only one tram every two or three minutes (Melbourne readers should stop laughing now) and its forecast capacity has quietly been reduced from the 12,500 passengers per hour in each direction envisaged in September 2012 to only 9,000 per hour under the final plan in December 2012. This may have been dictated by an unacknowledged reduction in the number of trams and/or by intransigence by road authorities, as in the past, about introducing faster traffic light cycle times at key intersections—but the *Master Plan* is silent, so who knows?

And absolutely no information has been provided on how the proposed large-scale interchanging from buses, heavy rail and light rail to the George Street trams near Central station is going to be achieved. This was always going to be a difficult challenge during peak periods, but these difficulties will now be exacerbated by the proposed low frequency of tram services.

For **motorway** fans there is a bonanza, with a go-ahead for a genuinely 1950s-era “WestConnex” motorway concept developed by Infrastructure NSW, after Transport for NSW chose in September 2012 to abrogate its statutory responsibilities for road transport planning and leave all the decisions

on Sydney motorway priorities in that overtly pro-motorway organisation’s hands.

Although the government’s spin tries to pretend otherwise, this project essentially comprises superficially disguised widenings and extensions of two major existing radial motorways, the M4 and the M5 East, into the area immediately southwest of the CBD, plus the first stage of a new north-south “subsurface” motorway (in other words, potentially built in a ditch part of the way, just like the originally proposed form of most of the proposed M4 extension) that is ultimately intended to slice through the Lane Cove River valley and Sydney’s inner western suburbs from the M2 to the airport, with multiple connections along the way, thereby providing yet another radial motorway link, both from the north and from the southwest, into the area immediately southwest of the CBD. In combination with the extension of the M4, this new radial link will inevitably produce a huge dump of traffic onto Parramatta Road next to Sydney University and thence onto Broadway. It has also been claimed, quite disingenuously, that this project will improve road freight access to Port Botany, but it will in fact go nowhere near the port.

Why is this important for railways? Because these huge radial motorways will compete directly with passenger and freight rail services, even though they will be vastly less efficient and environmentally sustainable, and because they will soak up limited construction resources, escalating costs for rail projects as well, and *at least* \$9–13 billion in direct funding that could be very much better spent. (The estimates have been bouncing around all over the place from day to day, hardly a surprise as absolutely no serious engineering work was done before the government’s approval and funding commitments were granted. If only it were that quick and easy to obtain the government’s support and funding for public transport projects!)

For **rail freight**, there is nothing that is real. There are no commitments to any new upgradings or construction of any rail freight lines, all the emphasis is on supporting road freight, especially for long-distance movements, and no

action is proposed to address any of the pricing differentials that handicap rail’s ability to compete.

The only concrete commitment is to “identify and protect” the alignment for a new western Sydney freight line and intermodal (road/rail) terminal—but the route shown in the *Master Plan*’s maps is a lazy rehash of an unproven preliminary concept, developed almost a decade ago, that aimed simply to connect this long-proposed terminal with the existing route to Port Botany, without any consideration of interactions with interstate and other long-distance rail freight flows to and from the north, south and west and to and from other intermodal terminals in Sydney’s west and southwest.

For **regional passenger rail services**, again there is next to nothing, or worse.

The only overall strategies are to develop a “Country Passenger Rail Strategy” and to “work to protect” high-speed rail corridors once these have been identified by the Commonwealth. And there are a few vague but essentially meaningless commitments to “support” several primarily Commonwealth-funded initiatives.

But the bravest decision of all by Transport for NSW, as the state’s primary statutory public transport advocate, was to leave any decision on the axing of rail services into central Newcastle entirely to others, ostensibly so that “any decision will reflect land use planning for the revitalisation of the Newcastle City Centre”, notwithstanding all the waffle elsewhere in the *Master Plan* about how Transport for NSW’s transport planning is “fully integrated with land-use planning”. Needless to say, within days of the December *Master Plan*’s release the decision *was* announced by others: now, the uniquely Newcastle way to revitalise a major city’s CBD is to close down all rail access, both from the Hunter and from Sydney, run a few buses (or maybe trams) instead and let the land developers rip.

And for **everything**, there are no funding commitments for anything beyond the next four years, other than the certainty that if a project hasn’t been “ticked off” in the *Master Plan* it will definitely *not* be funded.

There is only the briefest of discussion, without any clear actions, on options for additional funding sources such as “value capture” techniques, and there are no commitments for any further public consultations on, or even future revisions of, the *Master Plan*.

BUT WHY?

It would be all too easy simply to blame the politicians for this rather typical mess. After all, for all their fine words, promises and bureaucratic restructurings, not much about public transport planning in NSW has fundamentally changed in the last two years—even if the situation is not quite as ridiculous as in 1855, when the unique “expertise” of the engineer who instigated Australia’s first gauge difference fiasco was that he was a Scot and not an Irishman.

The politicians have certainly contributed, from all sides of the political fences. But on transport issues most oppositions are lazy and most transport ministers and premiers, while seldom short of hubris after a year or two in the job, have little relevant personal experience or expertise, so despite their best endeavours they are often essentially actors, parroting lines fed to them by their bureaucrats and political minders and, increasingly, by “tame” consultants, notably the large accounting firms but also including others with some rather glaring apparent conflicts of interest.

At the same time, most of the more independently minded smaller specialist consultancies that used to characterise rail and public transport planning (and cost the taxpayers *much* less!) have been swallowed up by larger multinational firms, fled interstate or overseas, been quietly blacklisted by the bureaucrats, typically through word-of-mouth bans, or in at least two cases of which I am aware “unofficially” warned by Transport for NSW “not to criticise”.

And the reports of public servants and consultants whose findings turn out to be “inconvenient” can be and have been

ruthlessly suppressed, with the reporting of the overcrowding safety problems expected at Chatswood under *Sydney’s Rail Future* being but one example.

It’s certainly not a rosy picture in this new carpetbagging, multiple gauge, cannibalised network world—and it’s not likely to ever become one until, among other things,

- There is a systematic re-establishment of a genuinely professional and experienced core of rail operational and planning expertise within Transport for NSW, *not* limited to construction engineers rebadged as infrastructure “project managers”, the timid and the MBAs and others who, as the saying goes, having been taught a little about quite a lot, know *just* enough about any particular subject to get into real trouble but not enough to even realise this has happened
- These public servants and their consultants are once again both prepared and free to tell the politicians what they need to hear, not just what they might want to hear, and always fully support their recommendations with sound and genuinely independently tested analyses
- “Public consultation” is also taken seriously, with no more charades such as the *Long-Term Transport Master Plan* “consultations” after the real decisions had been made and with a full public release of all relevant consultancy advice (and if Transport for NSW, which has become increasingly secretive in recent months and has openly flouted its Government Information (Public Access) Act obligations to release copies of its North West Rail Link contracts, still thinks the publication of this sort of information conflicts with “responsible and effective government”, it should remember it was utterly shamed on this in 2012 by, of all people, Nick Greiner’s Infrastructure NSW, which, for all its myriad faults, at least laid bare the bases for its recommendations)
- The funding of proposals for new and revised public transport infrastructure and services becomes an integral part of both these public consultations and subsequent

government decision-making, and is no longer simply fudged and/or hidden from view, and

- The personal liabilities of any senior public servant or consultant who deliberately or cavalierly provides misleading advice within or to the government on a major project become equivalent to the sanctions applying to others providing similarly misleading advice in, for example, the disclosure documents for a public float for a PPP transport infrastructure project.

After all, the only real difference is that a public servant doing this is likely to be asking for a *lot* more of our money.

All of this will, unfortunately, take time. But there’s one simple step that NSW Transport Minister Gladys Berejiklian could and should have taken *immediately*, and still can take if she has retained any of her previously demonstrated intellectual depth: veto the lunatic attempt by her bureaucrats to quietly create a multiple “loading gauge” rail network in Sydney through the specification of unnecessarily small and steep tunnels on the North West Rail Link.

If Ms Berejiklian does this, she’ll be rightly remembered as the politician who took only a year or so to unravel the looming mess of multiple gauges in Sydney. In comparison, that first “expert” multiple gauge decision in Sydney, in 1855, is still creating problems around the nation 158 years on.

If she does intervene in this way, even if realpolitik forces her in the short term to persist with *Sydney’s Rail Future’s* cobbled together “vision” for second-best services on the North West Rail Link, in the longer term sanity can be restored and everyone wanting to keep open a real possibility of much-needed, cost-effective improvements in *all* of Sydney’s rail services, instead of the cannibalisation and quiet dismantling that is now proposed, will have cause to thank her forever.

Sandy Thomas
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Sandy Thomas was a member of the *Sydney Morning Herald's* 2009-10 *Independent Public Inquiry into a Long-Term Public Transport Plan for Sydney*, whose reports may be downloaded from www.catalyst.com.au. The views expressed in this article are, however, his own, and not necessarily those of other *Inquiry* members.

This article is an August 2013 update of an article originally prepared for *Rail Express* in February 2013. It is confined to commenting on matters that are already in the public arena, either as a result of reports, briefings, media statements and other materials released by the NSW government and/or its agencies or as a result of leaks of documents that have been reported in the mass media. *Acrobat* (pdf) files of this article may be downloaded from www.catalyst.com.au, and may be freely distributed and reprinted.
