

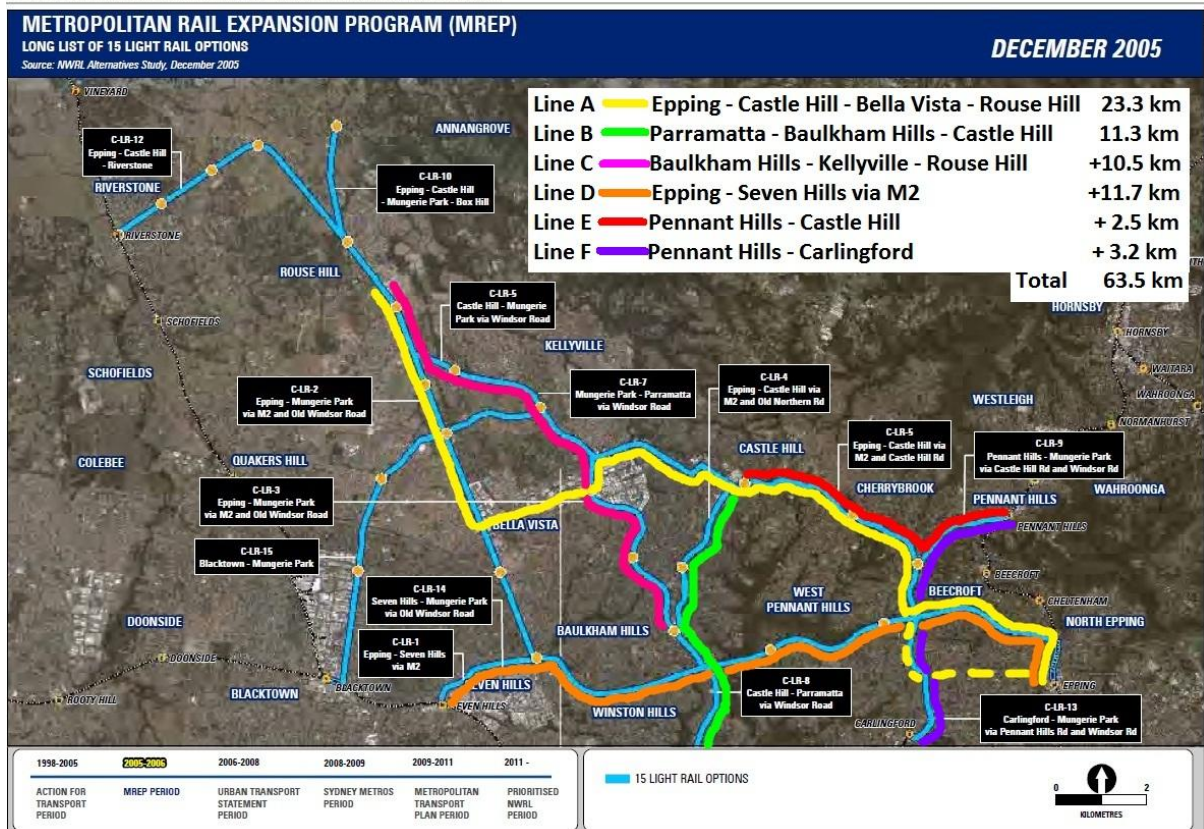
<http://crudeoilpeak.info>

Crude Oil Peak

#1 in Monitoring the Global Crude Oil Peak

Submission North West Rail Link Environmental Impact Statement #2

www.nsw.gov.au/sites/default/files/Modalandcorridoroptionsoverviewreport-NorthWestRa.pdf



Light rail is the solution for existing residents

Prepared by Matt Mushalik (MIEAust, CPEng) December 2012 mushalik@tpg.com.au

Summary

The planning context as presented on page 6 of the EIS 2 document is contradictory. “NSW 2021” declares decentralisation as a strategic State objective but then a discussion paper for “Sydney over the next 20 years” is transfixed on perpetual population growth to 5.6 m. The focus of INSW’s “First things first” is motorways and higher coal production, cancelling out any effort to develop “sustainable” cities. The 2012/13 budget paper #4 spends 55% on highways, not railways. The Long Term Transport Masterplan accepts the motorway bias of INSW. And the proposed rapid transit single decker service proposed in “Sydney’s Rail Future” has already been given up beyond Chatswood because INSW is not in favour of a new Harbour rail crossing. Strings are being pulled in many directions, typical for Sydney.

One of the objectives of the NWRL is to “facilitate a shift from road to rail”. The EIS 2 claims that 14 million fewer car trips pa will be made by 2021 without relating this to the present and future total trips and without showing detailed BTS calculations on how many of these trips are from current motorists switching to rail and how many from new residents in flats near the NWRL. This would prove whether there is a real, net reduction in overall car traffic measured in vehicle kms. Unsurprisingly, there is no number crunching on the NWRL contribution to the “NSW 2021” target of 28% journey to work by public transport (2016!)

Those 14 million trips are presumably taken up by the NWRL. This is around 40% of 2021 traffic on the M2. Hills Motorway is just completing the 3rd lane, a competing project. Transurban – with \$6bn debt - needs to increase M2 tolls to \$6 to pay interest on the additional loan they had to take. They are not commercially interested to lose traffic to the NWRL. Although the adverse contract clause has gone in Oct 2010, the Government will come under pressure to increase population further to create new traffic for the M2.

Therefore, it is clear that NWRL trains will be mainly filled from new high density developments in the immediate vicinity of stations (as is already proposed in Kellyville), and not so much from modal shift of existing traffic. Usually young families move to the West for space and for being able to stay in their own house, not a flat. Add to that the problem of Australian mortgage debt at 90% of GDP in the context of US and European debt. So there are doubts whether this growth model can actually work.

On a Sydney level, 14 million saved car trips pa in 2021 for a huge investment of \$ 9bn are negligible compared to the current 8 million driver trips every day.

That the NWRL plan does not intend to reduce car traffic can also be seen on an illustration of a “skytrain” and a bus-way running parallel to a 7-lane arterial road. If the modal shift were a serious, material objective then the road width could be halved, creating space for a much more economic rail line in the road corridor itself and that is called light rail. This submission proposes 6 LR lines serving the existing residents and some moderate in-fills. Given that we are in year #8 of peak oil, these projects should have started 10 years ago.

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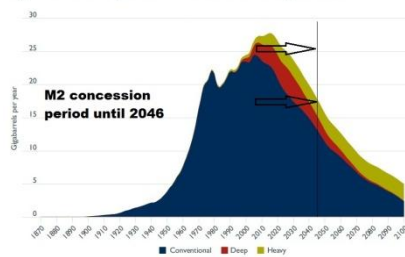
This submission responds to:

<http://northwestrail.com.au/document/index/1>

Introduction

The world economy is facing 4 main problems:

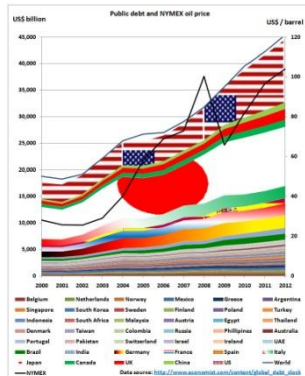
Figure 13.12 Components of total world crude oil production



Peak oil and 3-4 fold higher oil prices

24/2/2012 Australian Government kicks own goals in Senate peak oil debate (peaky leaks part 3)

<http://crudeoilpeak.info/australian-government-kicks-own-goals-in-senate-peak-oil-debate-peaky-leaks-part-3>



Accumulated Debt and Financial Crisis

4/6/2012 Global debt and oil prices

<http://crudeoilpeak.info/global-debt-and-oil-prices>

Causes and consequences of the oil shock 2007/08

James Hamilton, University of California

http://muse.jhu.edu/journals/brookings_papers_on_economic_activity/v2009/2009.1.hamilton.html



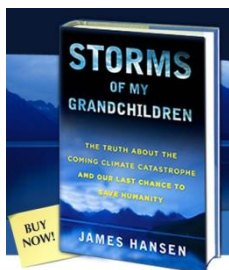
Armed conflicts in Middle East

24/9/2012 Minesweeping exercise near Saudi oil hub

<http://crudeoilpeak.info/minesweeping-exercise-near-saudi-oil-hub>

7/8/2012 Iran's 2nd and last oil peak

<http://crudeoilpeak.info/irans-2nd-and-last-oil-peak>



Global Warming and CO2 emissions

Hurricane Sandy predicted by NASA climatologist James Hansen in 2006:

"The effects of a rising sea level would not occur gradually, but rather they would be felt mainly at the time of storms. Thus for practical purposes sea level rise being spread over one or two centuries would be difficult to deal with. It would imply the likelihood of a need to

continually rebuild above a transient coastline.

http://www.columbia.edu/~jeh1/2006/CaseForCalifornia_20060630.pdf

8/3/2010 Hansen at Sydney Uni: "Australia doesn't agree now that they got to stop their coal, but they are going to agree. I can guarantee you that within a decade or so because the climate change will become so strongly apparent that's going to become imperative"

http://www.usyd.edu.au/sydney_ideas/lectures/2010/professor_james_hansen.shtml

Conclusion: All of the above together is converging into an oil and general energy crisis. There are time and financial limits to solve these problems. Governments are blissfully ignorant or reticent about it. Much faster-to-built and cheaper solutions to transport problems are needed than an expensive rail tunnel. The same applies to road tunnels of course.

(1) Comments on the Submission (EIS 1) Report and unresolved earlier issues

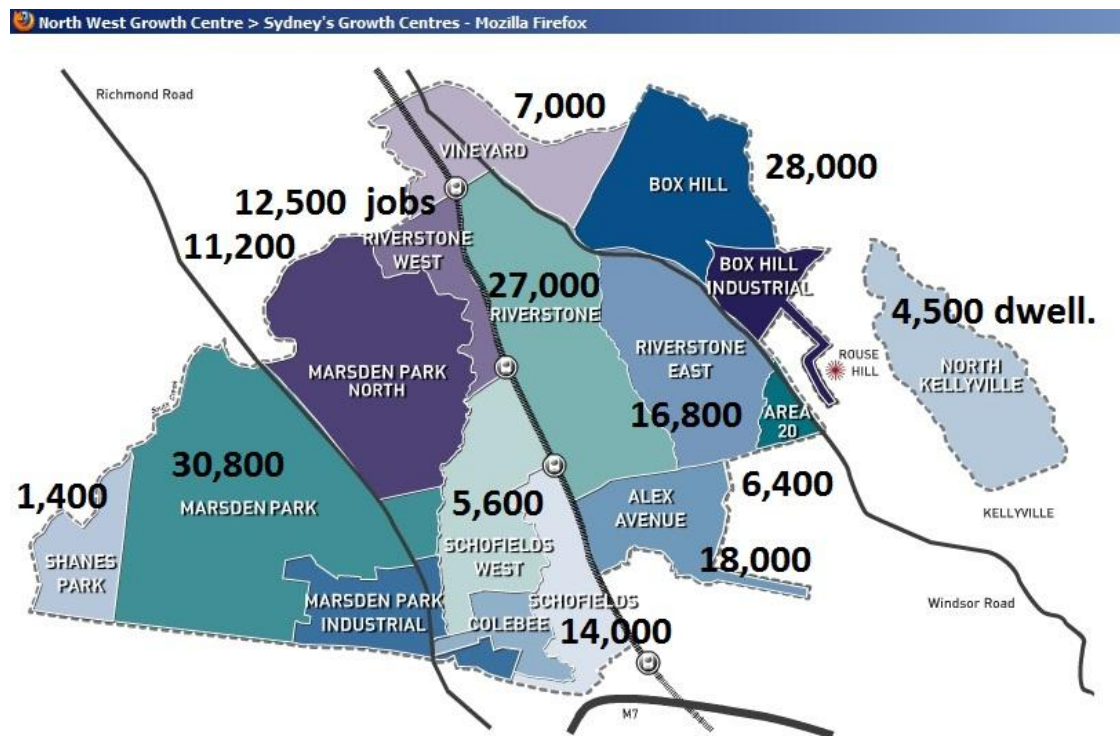
It is very interesting to note that Hills Motorway Ltd had no other comments than minor issues 430-432 (p 219 in <http://northwestrail.com.au/document/show/78>) although this tollway operator would expect a substantial part of its business taken away by the NWRL, just as the 3rd lane is being completed on their competing M2. It is a declared objective of the NWRL project to “free up space on the major road network by attracting passengers”.

In the NWRL submission to Infrastructure Australia (Nov 2011), a patronage demand of 12,800 per hr was mentioned for 2006 (?) and a maximum of 19,000 for 2026 (p. 26 in <http://www.nsw.gov.au/sites/default/files/NorthWestRailLinkSubmissiontoInfrastructureAustralia.pdf>). This needs to be reviewed.

(2) Catchment area for the NWRL

The EIS 2 says: “Over coming decades, an extra 200,000 people will move into the North West, taking the region’s population above 600,000.” (p4)

Let’s see where this population will go.



<http://www.gcc.nsw.gov.au/north+west-21.html> (population numbers inserted by author)

The population in the colored areas is 180 K (190 K incl. Rouse Hill). If properly planned this should be a self-contained city in itself with a city centre at Schofields. But it isn't. It's an unstructured settlement pie. We also see that this area is currently served by the Richmond line which runs through the centre. The problem here was and still is that trains to the city have to pass through the Granville - Strathfield – CBD rail sector which is reaching capacity. The original plan was to divert some of the Western trains to the Parramatta – Epping – Chatswood rail link but then Transport Minister Costa arbitrarily cancelled the Parramatta – Epping leg. The solution to this problem would be to build a rail line Quakers Hill – Epping

on the M7 and M2. But even if this were a cheaper rapid transit bus-way, a wrong decision was made when pulling down a bus ramp connecting M2 bus lanes to the Epping station.

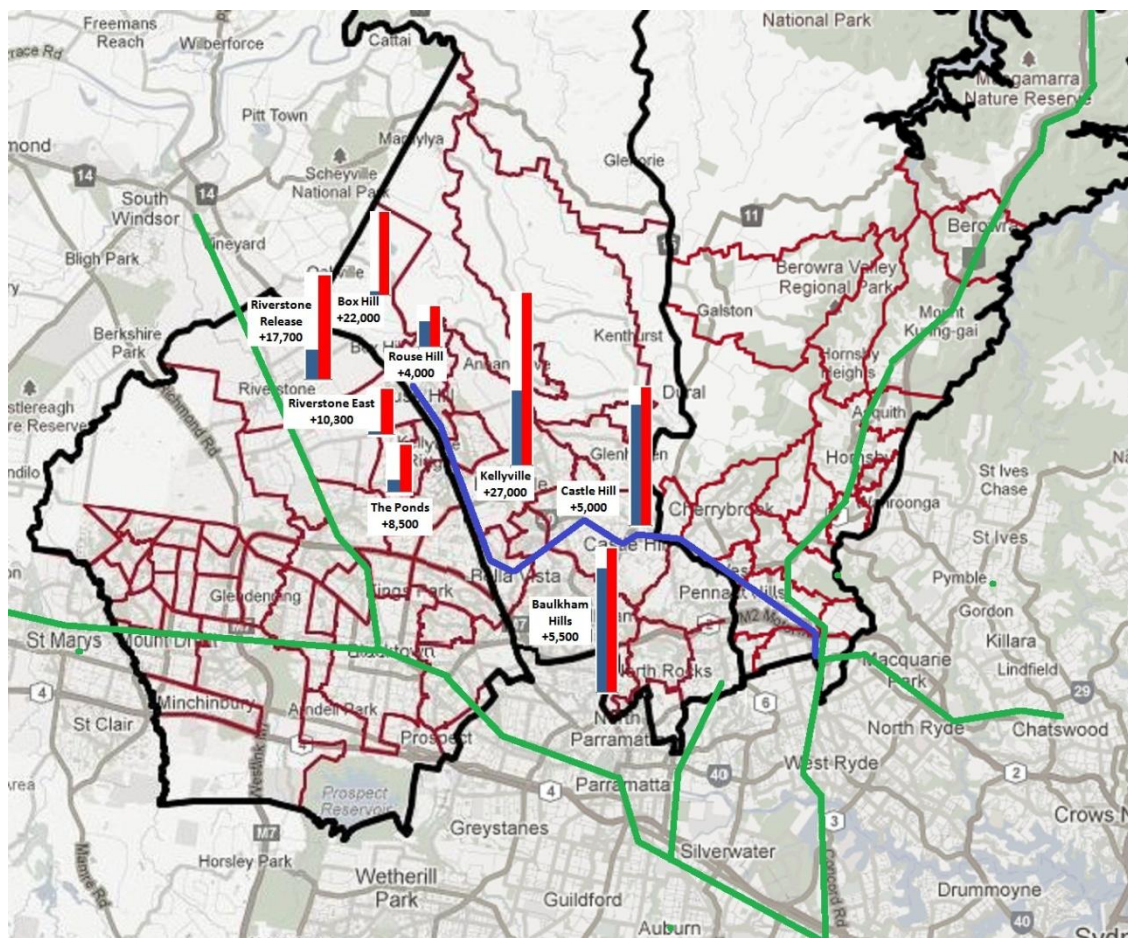


12/2/2012

Car addicted Sydney destroys bus ramp near rail hub as tollway debt increases 60% at least
<http://crudeoilpeak.info/car-addicted-sydney-destroys-bus-ramp-near-rail-hub-as-tollway-debt-increases-60-pct-at-least>

Wherever you look, public transport planning in Sydney is in disarray.

The proposed NWRL runs through the Eastern part of the above area. It is unlikely that residents West and in the immediate vicinity East of the Richmond line will use the NWRL. Let's see what major **additional** population (red columns – blue columns is existing population in these areas) is planned in the NWRL catchment.



The data are taken from the population projections of .id.com.au

Blacktown: $17,700 + 10,300 + 8,500 = 36,500$

<http://forecast2.id.com.au/Default.aspx?id=211&pg=5180>

The Hills: $22,000 + 4,000 + 27,000 + 5,500 + 5,000 = 63,500$

<http://forecast2.id.com.au/Default.aspx?id=261&pg=5180>

Hornsby: negligible or already served by Northern line.

<http://forecast.id.com.au/templates/forecast1/Clients/240Horn/PDF/220.pdf>

That is around 100,000 or about half of what is claimed in the EIS 2. It is recommended that a detailed catchment analysis is undertaken.

(3) Reduction in car traffic

12,000 fewer car trips (2 way, 2 hr AM peak) or 14 million car trips pa would be made as a result of the NWRL (p. 8) by 2021. That would be $12,000 / 4 = 3,000$ per peak hr in one direction. Assuming that all those car trips saved would then be train trips.

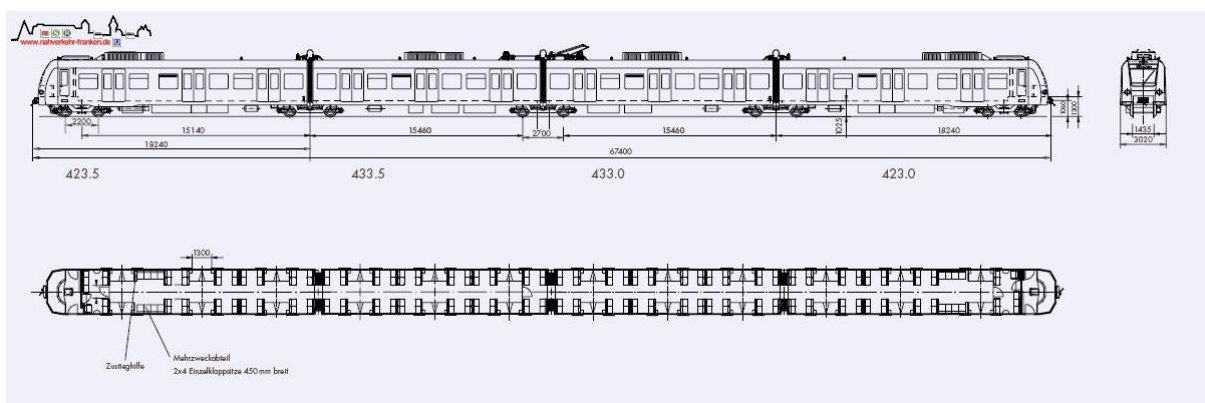
The EIS does not say how many buses on the M2 will be replaced by rail but let us assume 75% of 90 x 144% by 2021 = around 100 buses @ 50 = 5,000 per peak hr.

The proposal is to run single deck trains with a maximum of 1,300 passengers running every 5 minutes in peak hrs. That would be $12 \times 1,300 = 15,600$ per peak hr in one direction.

So $3,000 + 5,000$ of 15,600 is only a load factor of around 51 % in peak hrs. Since these are mono-directional traffic flows, the overall load factor would be less than that.

However, 1,300 is on the high side, even higher than the 8 car double deckers (900 seating and 300 standing) proposed in the Nov 2011 Project definition report (p 58

<http://www.nsw.gov.au/sites/default/files/NorthWestRailLinkProjectDefinitionReport.pdf>) with 8 trains per peak hr. or 9,600 total capacity.



Quick check: this 4 car EMU ET 423 of the German railways is 67 m long and has 192 seats. Assume standing 208 to make a total capacity of 400. Triple traction in peak hr. would yield 1,200. Standing would only be acceptable on approaching the city centre and for short times, say 15-20 minutes at most, but not for long distances.

Whatever the capacity of the proposed single deckers, there is a big difference between peak hr demand in the EIS 2 and the IA submission.

It is strange that these basic calculations for what will be a multi billion dollar project have not been done in a detailed way e.g. by doing a representative household survey.

(4) Impact on M2

m2ueavol2pt1tiainreportch6to8.pdf - Adobe Reader

Table 40 - Forecast Daily Impacts M2

EASTBOUND DIRECTION		2011 Base	2011 Upgrade	2011 Impact	2021 Base	2021 Upgrade	2021 Impact
From	To						
Old Windsor Road	Windsor Road	31,800	33,950	2,150	37,550	40,050	2,500
Windsor Road	Pennant Hills Road	41,200	42,000	800	49,750	51,330	1,580
Pennant Hills Road	Beecroft Road	36,150	37,450	1,300	44,750	46,830	2,080
Beecroft Road	Christie Road	40,350	42,100	1,750	49,250	51,830	2,580
Christie Road	Lane Cove Road	36,250	40,070	3,820	42,900	47,810	4,910
Lane Cove Road	Delhi Road	26,950	30,670	3,720	32,500	37,310	4,810
Delhi Road	Epping Road	19,200	21,920	2,720	25,850	29,810	3,960

WESTBOUND DIRECTION		2011 Base	2011 Upgrade	2011 Impact	2021 Base	2021 Upgrade	2021 Impact
From	To						
Epping Road	Delhi Road	18,750	21,450	2,700	24,300	27,800	3,500
Delhi Road	Lane Cove Road	27,200	31,600	4,400	30,500	35,250	4,750
Lane Cove Road	Herring Road	36,150	42,350	6,200	40,200	47,100	6,900
Herring Road	Beecroft Road	40,800	44,130	3,330	47,250	50,920	3,670
Beecroft Road	Pennant Hills Road	37,750	41,480	3,730	43,600	47,720	4,120
Pennant Hills Road	Windsor Road	43,750	45,280	1,530	50,350	52,020	1,670
Windsor Road	Old Windsor Road	33,300	38,280	4,980	37,350	42,715	5,365

<< This table is from the M2 widening EIS

At Beecroft Rd. traffic in 2021 is almost 100,000 per day in both directions.

14 mill car trips pa would be 38,000 trips per day. This would be around 40% of traffic on the M2.

The EIS 2 does not say how many of the 38 K trips would have been made on the M2, but even just a quarter or around 10,000 would render the M2 widening a completely unnecessary (\$500 m) investment (e.g. $50,920 - 40,800 = 10,120$ for the section Herring Rd – Beecroft Rd)

Transurban would not welcome the NWRL reducing traffic on the M2. Already now, they have problems with their \$6 bn debt:

www.transurban.com/1134584.pdf

GROUP DRAWN DEBT AT 30 JUNE 2012

TRANSURBAN CORPORATE DEBT	AUD (\$m)	USD (\$m)
Working capital lines ¹	-	61
Term bank debt	600	-
US Private Placements	1,336	162
Domestic AUD bonds	1,060	-
Canadian MTN (CAD Notes)	233	-
Total	3,219	223

Non recourse (AUD \$ million)	Asset Debt	Ownership	Proportional
Lane Cove Tunnel	290	100.0%	290
M1 – Eastern Distributor	520	75.1%	391
Hills M2 – Hills Motorway ²	645	100.0%	645
M5 Interlinks Roads ³	531	60.0%	265
M7 Westlink	1,255	50.0%	628
Total	3,211		2,189

Non recourse (USD \$ million)	Asset Debt	Ownership	Proportional
Pocahontas – Senior	306	75.0%	229
Pocahontas – TIFIA ⁴	179	75.0%	134
495 Express Lanes – Senior	589	67.5%	398
495 Express Lanes – TIFIA ⁴	576	67.5%	389
Total	1,650		1,150

- \$450m facilities, \$390m available undrawn assuming drawn USD is converted at the spot exchange rate (\$1.0191 at 30 June 2012). Separate Letters of Credit are issued to the value of \$42m in relation to Capital Beltway and CityLink.
- \$55m available in undrawn capital facility.
- \$204m available in undrawn facility.
- Undrawn but restricted TIFIA facility of US\$4m. Debt balance includes US\$33m of accreted interest.
- Undrawn TIFIA facility of US\$53m. Debt balance includes US\$40m of accreted interest.

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14/8/2012 Transurban does not pay back its debt

<http://crudeoilpeak.info/transurban-does-not-pay-back-its-debt>

A business which cannot pay back debt is actually not viable. In the next credit crunch cum oil crisis they'll be in trouble. So there is no way they can accept a reduction in traffic.

It is incomprehensible why these problems were not sorted out during the concept stage in 2005 and why the M2 widening was approved in October 2010.

(5) Sydney-wide context

Let's put those 14 million annual car trips saved into perspective. According to the household travel survey there were 8 million vehicle driver trips every day in 2010/11.

 r2012-09-hts-summary-report.pdf - Adobe Reader

Table 2.1: Key transport indicators for residents of the Sydney Statistical Division

Indicator ¹		1999/00	2006/07	2007/08	2008/09	2009/10	2010/11	% change 09/10-10/11	AAGR ² 99/00-10/11
Population ³	Persons ('000)	3,958	4,218	4,279	4,352	4,437	4,507	1.6%	1.2%
	No. of households ('000)	1,452	1,583	1,606	1,633	1,664	1,691	1.6%	1.4%
Total travel	Trips								
	Trips av. weekday ('000)	15,112	15,939	16,263	16,312	16,171	16,335	1.0%	0.7%
	Trips av. weekend day ('000)	12,992	14,700	14,618	14,799	15,130	15,217	0.6%	1.4%
	Trips per capita - weekday	3.82	3.78	3.80	3.75	3.64	3.62	-0.6%	-0.5%
	Trips per capita - weekend	3.28	3.49	3.42	3.40	3.41	3.38	-1.0%	0.3%
	Trips per household - weekday	10.41	10.07	10.13	9.99	9.72	9.66	-0.5%	-0.7%
	Trips per household - weekend	8.95	9.29	9.10	9.06	9.09	9.00	-1.0%	0.1%
Vehicles	Vehicles								
	Private vehicles ('000)	2,027	2,339	2,394	2,465	2,538	2,604	2.6%	2.3%
	Vehicles per household	1.40	1.48	1.49	1.51	1.52	1.54	1.0%	0.9%
Mode ⁶ of travel (trips)	Trips '000s								
	Vehicle driver	7,572	7,992	8,080	8,015	7,943	8,062	1.5%	0.6%
	Vehicle passenger	3,443	3,550	3,643	3,635	3,610	3,653	1.2%	0.5%
	Train	771	815	863	890	896	920	2.6%	1.6%
	Bus	972	923	962	986	985	1,007	2.3%	0.3%
	Walk only	2,748	2,964	3,035	3,130	3,148	3,153	0.2%	1.3%
	Other modes	284	384	406	408	412	407	-1.4%	3.3%
Purpose ⁵ of travel (distance)	Kilometres '000s								
	Social/recreation	27,310	26,970	26,886	27,169	26,687	29,174	9.3%	0.6%
	Serve passenger	15,451	16,728	16,678	17,369	17,136	17,888	4.4%	1.3%
	Shopping	11,489	12,564	13,180	12,480	12,273	13,026	6.1%	1.1%
	Commuting	32,194	34,756	36,608	37,055	37,581	37,917	0.9%	1.5%
	Work related business	18,941	20,611	21,124	20,527	20,219	19,598	-3.1%	0.3%
	Education/child care	8,420	9,606	9,609	9,963	9,657	10,630	10.1%	2.1%
	Personal business	8,039	7,827	7,673	7,775	7,260	6,878	-5.3%	-1.4%
Other	2,009	1,668	1,729	1,684	1,723	2,019	17.2%	0.0%	
Mode ⁶ of travel (distance)	Kilometres '000s								
	Vehicle driver	72,004	75,614	76,349	77,037	76,827	79,835	3.9%	0.9%
	Vehicle passenger	26,950	27,354	26,969	27,022	26,946	28,827	7.0%	0.6%
	Train	14,072	15,758	17,208	16,628	15,802	15,368	-2.8%	0.8%
	Bus	5,706	5,658	6,106	6,331	6,441	6,713	4.2%	1.5%
	Walk only	2,366	2,585	2,602	2,664	2,650	2,539	-4.2%	0.6%
	Other modes	1,453	2,147	2,328	2,562	2,535	2,534	-0.1%	5.2%

<http://www.bts.nsw.gov.au/ArticleDocuments/79/r2012-09-hts-summary-report.pdf.aspx>

Therefore, the saving would be $14/8 \times 365 = 0.5\%$, in terms of trip numbers and 0.8 % in terms of kilometres (train trips are 70% longer). This shows the NWRL will only have a marginal impact e.g. on fuel savings and is therefore not a solution to the evolving oil crisis.

(6) Outdated Benefit Cost Ratios

It is obvious that much, much cheaper rail solutions must be found and that can only be surface rail in road corridors. So the alternatives must be reconsidered.

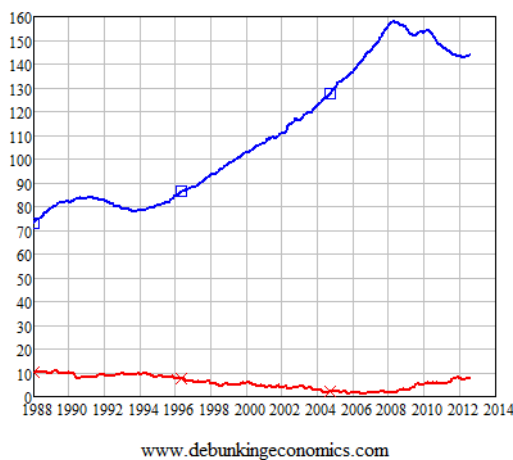
In any case all benefit-cost (BCR) calculations are now outdated as tunnel construction costs have skyrocketed.

Brisbane tunnel blowout drops Leighton in a hole

28/3/2012

<http://www.smh.com.au/business/brisbane-tunnel-blowout-drops-leighton-in-a-hole-20120327-1vwnm.html>

There are more reasons why patronage and BCR studies referred to in the IA submission have to be reviewed.



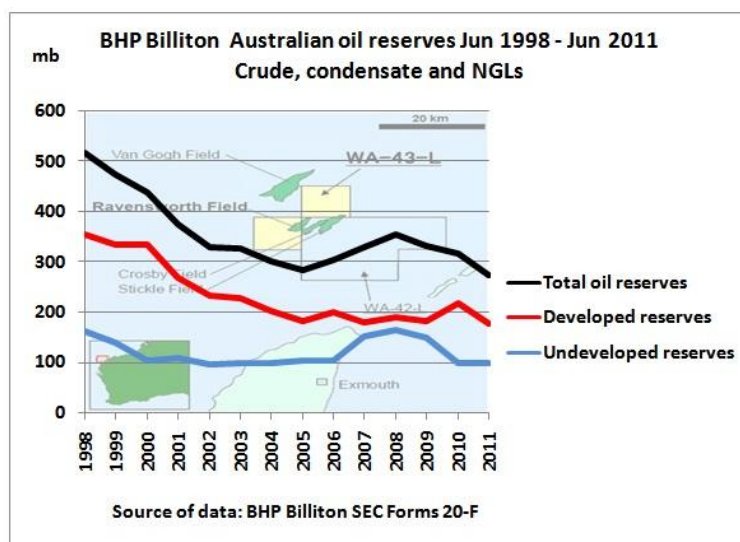
(a) The debt crisis continues which means that ambitious North West growth plans are unrealistic. Australian private debt peaked at 160% of GDP in 2008. De-leveraging is taking place and the ratio is now 140% of GDP, still very high. Mortgage debt is around 90% of GDP. Note that the IMF does not usually lend to countries with a debt >120%. That gives you an idea how unsustainable Australia's private debt levels are.

<http://www.debtdeflation.com/blogs/2012/10/31/lets-go-back-to-the-future/>

Note the low public debt reflects the fact that Australia's infrastructure has been neglected.

(b) The mining boom is ending, i.a. because diesel prices are too high

24/8/2012 BHP Billiton's Australian oil reserves in long term decline



<http://crudeoilpeak.info/bhp-billitons-australian-oil-reserves-in-decline>

(c) The Federal budget is struggling to remain in surplus

\$32bn budget splurge threatens surplus

24/11/2012

The net effect of Labor's policy interventions in eight successive economic statements has improved the projected fiscal balance by a mere \$2.8bn, adding weight to the view the Gillard government is a "tax and spend" administration.

In coming weeks, Wayne Swan will be asking for community input into the 2013-14 budget process, being framed against global economic volatility and lacklustre conditions at home.

<http://www.theaustralian.com.au/national-affairs/treasury/bn-budget-splurge-threatens-surplus/story-fn59nsif-1226523126402>

(7) High Rise Objectives

The objective of the NWRL is not to reduce car traffic or car dependency as is demonstrated on this "artist's impression" (p. 16) which reveals the mindset of planners:



Why have a 4 lane road when there is a bus-way and a high capacity rail line? We also see in the background low-rise residential development in contradiction to high rise developments already approved in gateway determinations by the State Government like for the Samantha Riley Dr in Kellyville.

www.thehills.nsw.gov.au/ignite/Gate/uploads/docs/Council Report and Minute - 24 April 2012.pdf

- 424 residential units over six storeys;
- 6000m² of business and office space split between the ground and first floor including neighbourhood shops;
- Floor space ratio of 1.6:1; and
- Building height of 28 metres.



Figure 2
Concept Plan - 8 November 2011

<< this is how the application started, with 6 storey flats. Look at the car based world of those architects and note the black, hot asphalt under global warming conditions.

And this is how it ended up:



- 81,600m² residential floor space (746 residential units)
- 7,000m² of commercial office floor space
- 3,000m² of retail floor space including a supermarket of 1,500m²

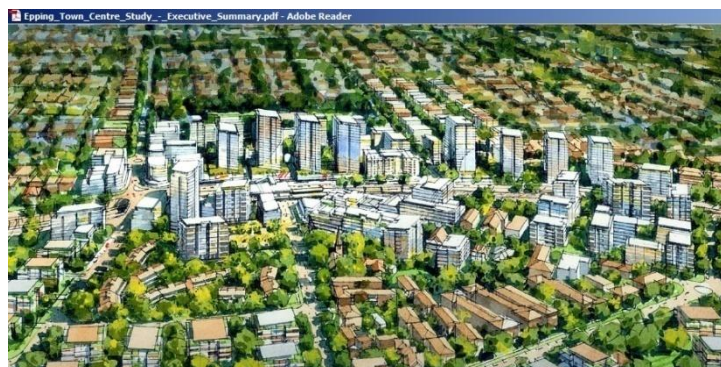
Tower	Retail/Commercial	Residential	Height	Storeys
1	2 levels	23 levels	87 metres	25
2	2 levels	23 levels	88 metres	25
3	Nil	8 levels	29 metres	8
4	Nil	8 levels	29 metres	8
5	5 levels (commercial only)	9 levels	58 metres	14

Table 3
Development Configuration – Option 1

<http://www.thehills.nsw.gov.au/IgnitionSuite/uploads/docs/Concept%20Design%20-%20Option%201%20-%202025%20Storeys.pdf>

Note the 12 month time pressure the State government put in its gateway determination.
<http://www.thehills.nsw.gov.au/IgnitionSuite/uploads/docs/Gateway%20Determination%20-%20Samantha%20Riley%20Drive%20Planning%20Proposal.pdf>

The objective is obviously to increase population. The NWRL is the tool to connect new high-rise developments to achieve this objective. Look at what is planned at Epping:



<http://yoursayhornsby.com.au/eppingtowncentre>

Cherrybrook

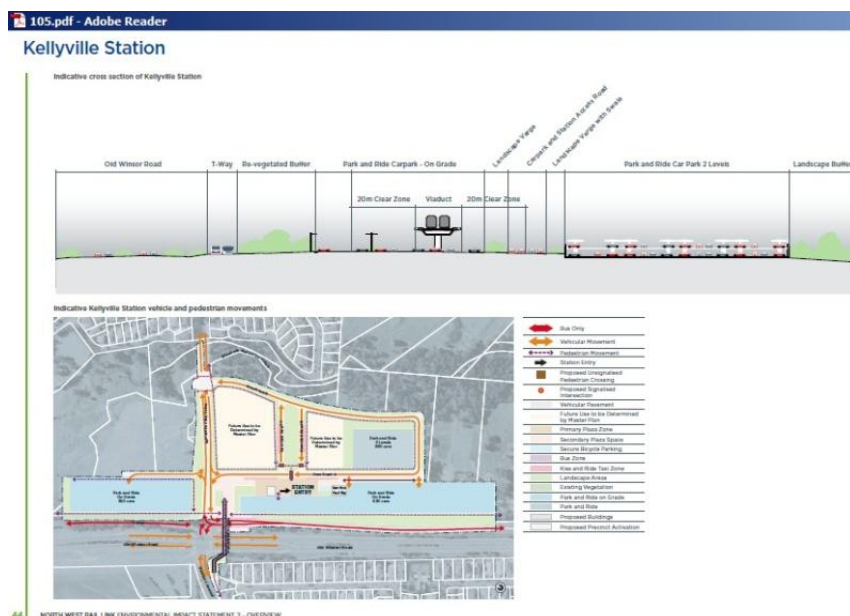
https://majorprojects.affinitylive.com/public/cdd69bfb06f24b683d7846a3a036eacf/03_Chapters_5b_to_7..pdf

Showground

Bella Vista

That should be moved into the centre of the existing industrial/business area

Kellyville



exhaust fumes from 1,000s of cars both on the 4 lane Old Windsor Rd and the car parks. That is not the environment one could hope for rail commuters.



Note the ramps to the basement car parks (1,760 – although this may be relaxed) and the roundabouts needed to accommodate the related traffic. This mass model was prepared already in February 2012 so it was known to the NWRL planners when preparing the EIS 2.

This sort of planning is totally contradictory and will not come cheap. Definitely not affordable housing. http://crudeoilpeak.info/wp-content/uploads/2012/07/The_Fantasy_of_Affordable_Housing.pdf

The above 3 stations seem to have been deliberately located into areas with a lot of open space where car parks and future flats can be built. This confirms the strategy described in (7)

(9) First things first – but oil ignored



The first thing is to look at oil supplies. But this is not being done.

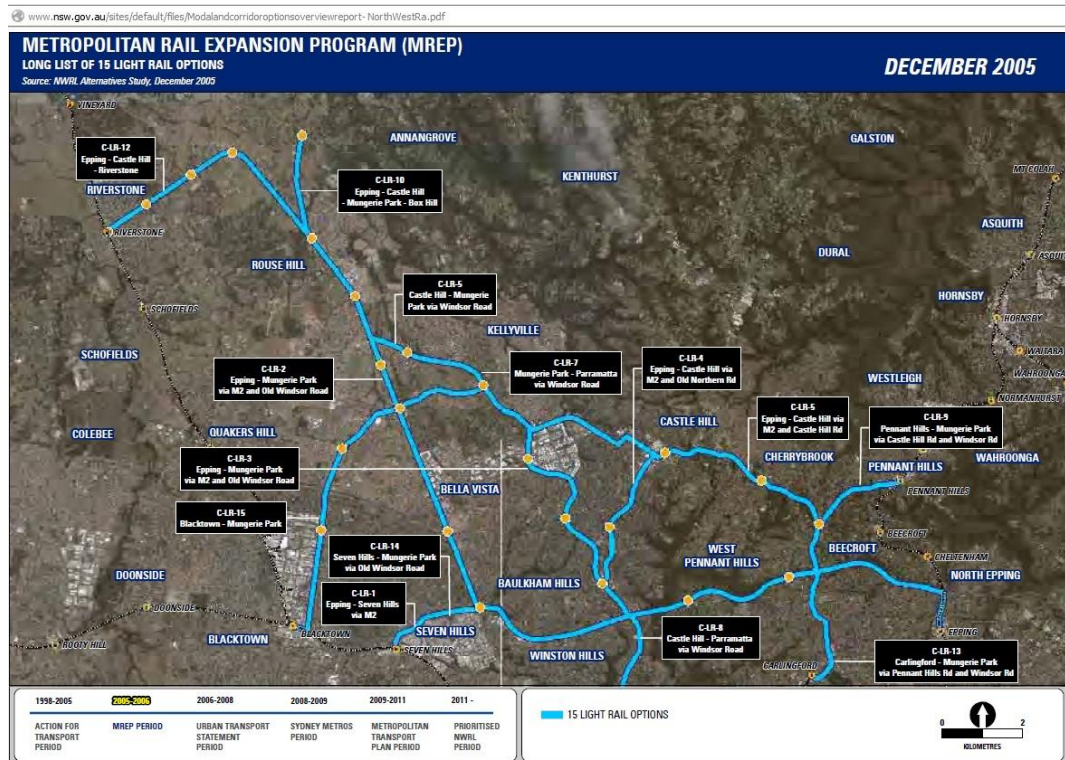
7/11/2012 Australian infrastructure bosses want more traffic on motorways



(10) Alternatives revisited

However, in year #8 of peak oil, the task ahead is to REPLACE EXISTING car traffic by public transport.

In 2005, the year in which peak oil started, these light rail options were considered:



<http://www.nsw.gov.au/sites/default/files/Modalandcorridoroptionsoverviewreport-%20NorthWestRa.pdf>

From the above list we design following lines, in order of priority

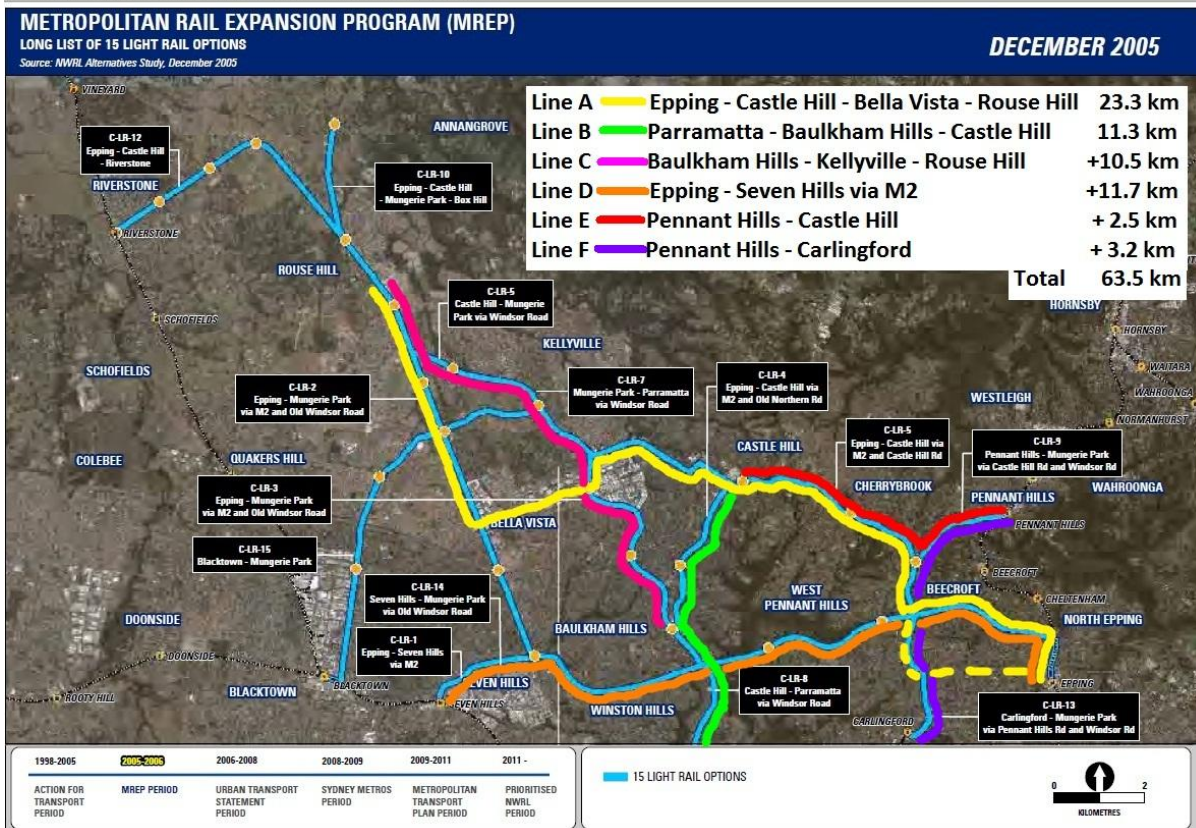
Line A Rouse Hill - Bella Vista - Castle Hill – Epping

This alignment basically follows the NWRL

It contains an alternative alignment via Carlingford Court shopping centre. That avoids the M2 and a difficult off ramp to Epping station. (where the RTA has pulled down the bus ramp). However, the trade-in is a challenging 90 degree corner and a steep gradient at Carlingford Court shopping centre.

There are also unresolved problems around the Victoria Rd industrial park between Norwest Bvde and Castle Hill. Ideally, line A should go straight through this area (as the NWRL tunnel does but bizarrely, there is no station proposed there). But the road layout does not allow this. Maybe a short tunnel or underpass is needed there.

Likewise, the branch-off from Old Windsor Rd into Norwest Bvde is a problem. The whole road design is car-, not LR based.



Line B
Castle Hill - Baulkham Hills – Parramatta
Along Old Northern Rd, Windsor Rd and Church St.

This comes from the wish-list of Parramatta Council

Line C
Rouse Hill - Baulkham Hills – (Parramatta)
Along Windsor Rd

This connects the Victoria Rd industrial park with Parramatta

Line D
Epping - Seven Hills



Along the M2, Abbott Rd and Prospect Highway. All toll-way operators will ultimately go into receivership. Running electric rail on motorways is the only way to rescue them and the super money which has been buried in these unsustainable investments. Transurban needs a new business model.
<< Perth has already done it.

Dual voltage trains (Karlsruhe model) are needed for trains to run in road space.

Line E

Castle Hill - Pennant Hills

On Castle Hill Rd and Pennant Hills Rd. This has the function for commuters from the North and Central Coast to access the North West directly instead of having to go via Epping

Line F

Pennant Hills – Carlingford – (Parramatta)

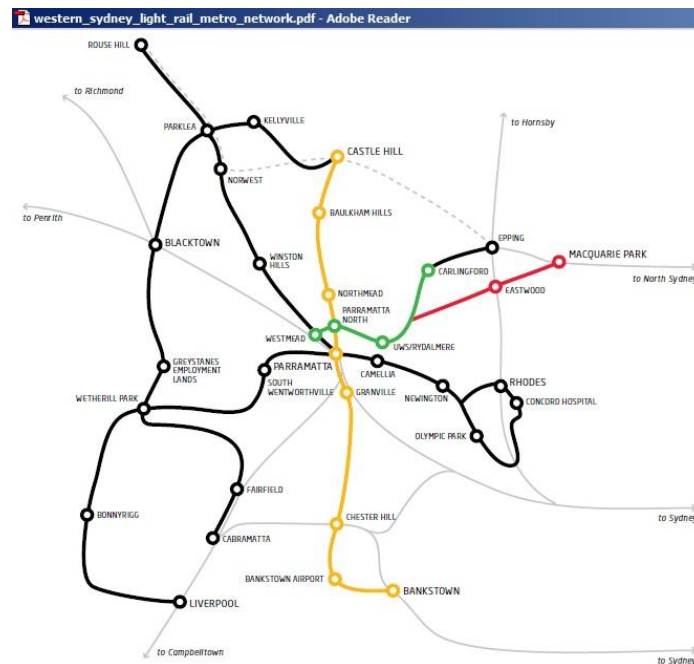
On Pennant Hills Rd.

Light rail lines in North West					
Line	Roads used	From	To	kms	mill. \$/km million \$
A Rouse Hill - Bella Vista - Castle Hill - Epping					
	Old Windsor Rd	Rouse Hill	Bella Vista	6.1	
	Norwest Bvde	Bella Vista	Windsor Rd	2.6	
	Showground Rd	Windsor Rd	Castle Hill	4	
	Castle Hill-Pennant Hills Rd	Castle Hill	M2	6.3	
	M2	Pennant Hills Rd	Epping	4.3	
				23.3	30 \$699
A1 alternatively via Carlingford Court					
	Pennant Hills - Carlingford Rd	Pennant Hills Rd	Epping	5.3	
				24.3	30 \$729
B Castle Hill - Baulkham Hills - Parramatta					
	Old Northern Rd	Castle Hill	Baulkham Hills	4	
	Windsor Rd	Baulkham Hills	Parramatta	7.3	
				11.3	30 \$339
C Rouse Hill - Baulkham Hills					
	Windsor Rd	Rouse Hill	Kellyville	1.7	shared with line A
	Windsor Rd	Kellyville	Norwest Bvde	5.5	
	Windsor Rd	Norwest Bvde	Baulkham Hills	5	
				10.5	30 \$315
D Epping - Seven Hills					
	Abbott Rd	Seven Hills Station	Old Windsor Rd	2.4	
	M2	Old Windsor Rd	Pennant Hills Rd	9.3	
	M2	Pennant Hills Rd	Epping	4.3	shared with line A
				11.7	30 \$351
E Castle Hill - Pennant Hills					
	Castle Hill Rd	Castle Hill	Thompson Corner	5.1	shared with line A
	Pennant Hills Rd	Thompson Corner	Pennant Hills station	2.5	
				2.5	30 \$75
F Pennant Hills - Carlingford					
	Pennant Hills Rd	Pennant Hills Station	M2	3.7	shared with line A,E
	Pennant Hills Rd	M2	Carlingford station	3.2	
				3.2	30 \$96
Total 6 lines					
				63.5	30 \$1,905
	Several underpasses and short tunnels (guess)				\$600
	Grand total construction cost in million dollars				\$2,500

The function is different from the NWRL. It is not so much to encourage long distance commuting along the “global arch” but to substantially improve rail based PT in the North West itself. This is in line with many strategic policy declarations which, however, are always overruled by a CBD centric planning lobby. Therefore, the above list includes Parramatta's proposals.

The bus transitways Blacktown-Parklea and Rouse Hill-Parramatta are not converted to LR as this is not a priority considering the time-limits given by peak oil and global warming.

(11) Parramatta light rail



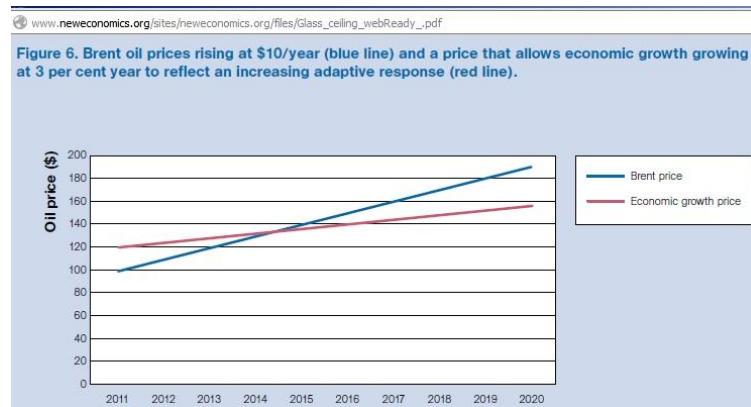
http://www.parracity.nsw.gov.au/work/economic_development/strategy/solving_transport_problems/light_rail_for_western_sydney



In this collage we see how a light rail train runs along Windsor Rd (line B above), coming from Baulkham Hills and approaching the intersection with the M2. There is total confusion in Sydney what light rail is. See Appendix C on the hierarchy of rail solutions in Frankfurt.

Appendix A – Oil prices and Australian home sales

From: The economics of oil dependence: A glass ceiling to recovery
Why the oil industry today is like banking was in 2006



Oil price trends at + US\$ 10 per annum may exceed an economic growth price curve in the middle of this decade, meaning another oil crunch.

http://www.neweconomics.org/sites/neweconomics.org/files/Glass_ceiling_webReady_.pdf



From: ABC TV 7 pm news 12 Nov 2012. The financial crisis in 2008/09 was triggered by high oil prices (peak oil) in an economy which had a pre-condition of accumulated debt. The housing boom will not continue as a result of the debt problem.

Appendix B: Government links – growth and motorway bias

(i) NSW 2021

Increase the share of commuter trips made by public transport to and from Parramatta CBD during peak hours to 50% by 2016

Increase the proportion of total journeys to work by public transport in the Sydney Metropolitan Region to 28% by 2016

http://www.2021.nsw.gov.au/sites/default/files/NSW2021_WEB%20VERSION.pdf

(ii) Sydney over the next 20 years

5.62m: Sydney's population 2031

<http://haveyoursay.nsw.gov.au/document/show/291>

(iii) First things first

Recommendation Infrastructure NSW recommends that the F3-M2 link should be the next priority following completion of the M4 and M5 upgrades. This scheme could be accelerated if shown to be viable without public subsidy.

Infrastructure NSW endorses the three tier railway strategy developed by Transport for New South Wales (Transport for NSW) as the basis for rail infrastructure investment, including the North West Rail Link (NWRL).

<http://www.infrastructure.nsw.gov.au/state-infrastructure-strategy.aspx>

HOWEVER: North West rail link is political, says Nick Greiner

<http://www.dailytelegraph.com.au/news/sydney-news/north-west-rail-link-is-political-says-nick-greiner/story-e6freuzi-1226196137327>

(iv) NSW 2012/13 budget paper 4

http://www.budget.nsw.gov.au/budget_papers_2012-13/bp4/2012-13_budget_paper_4

(v) Long Term Transport Master Plan

A long term plan to complete critical links in Sydney's Motorway network, with Infrastructure NSW to advise on the next major project. Projects identified include M5 East freeway expansion, the M4 extension, the Inner West Bypass, the F6 corridor, and the F3 to M2/Sydney Orbital connection

<http://haveyoursay.nsw.gov.au/transportmasterplan>

(vi) Sydney's Rail Future – modernising Sydney's trains

<http://haveyoursay.nsw.gov.au/article/sydneys-rail-future>

<http://haveyoursay.nsw.gov.au/document/show/328>

(vii) M2 – NWRL compensation claim issue

28/10/2011

The Hon. DUNCAN GAY: ... In October 2010, the Roads and Traffic Authority entered into an agreement with Hills Motorway to widen the M2 motorway in north-west Sydney. As part of that agreement the pre-existing material adverse effect contract clause was altered. The change removed the potential for Hills Motorway to seek compensation from the Government should the construction of the North West Rail Link, as set out in the Metropolitan Transport Plan, result in a reduction in M2 motorway traffic and therefore revenue and profitability. The contractual change enables the Government to construct the North West Rail Link without this potential claim risk from Hills Motorway.

[http://www.parliament.nsw.gov.au/Prod/parlment/committee.nsf/0/9441462ecb1ed713ca2579390082e92a/\\$FILE/20111028_Roads%20and%20Ports.pdf](http://www.parliament.nsw.gov.au/Prod/parlment/committee.nsf/0/9441462ecb1ed713ca2579390082e92a/$FILE/20111028_Roads%20and%20Ports.pdf)

Appendix C: Hierarchy of Urban Rail System in Frankfurt

Heavy rail



Double deckers are used as city or regional express only; limited stops every 15 mins or so



Single deckers for all stopper services. Average distance between stations: 2.5 kms

Metro



Stops every 800-1000 m, runs every 5 mins



Also above ground on dedicated track.

Light rail – surface metro



8 car trains - high platforms - frequent stops



Simple stations can be built fast

Trams – low floor



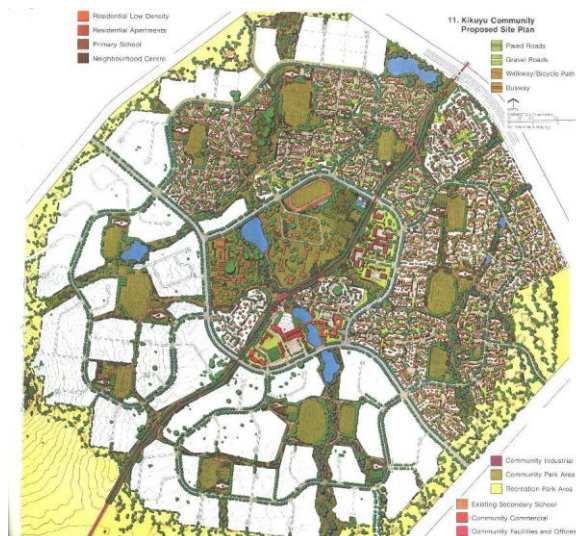
Sharing road way



On dedicated track; car lanes gone

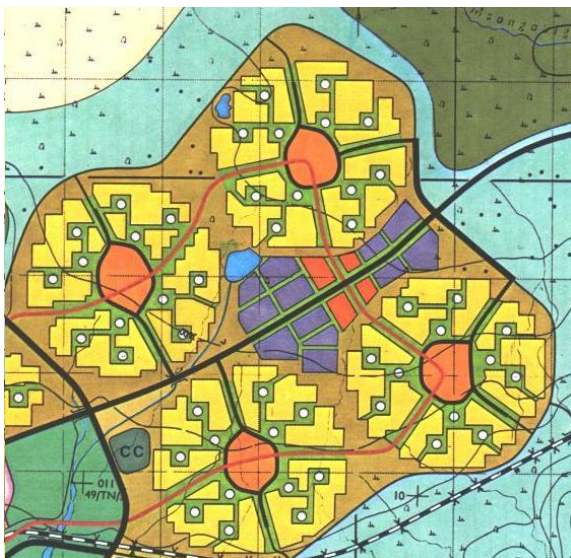
Appendix D: New sustainable cities

The NSW government is transfixed with the idea to plan for an increase of Sydney's population by 1.3 million by 2031. Apart from solving half of the problem by lobbying the Federal government to reduce immigration, this population could be accommodated in a series of completely new, smaller cities outside the commuting distance of Sydney, based on genuinely sustainable, energy frugal design principles with much reduced transport requirements (and definitely not expensive rail and road tunnels) and no need for lift and aircon-dependent high rises in Sydney's hot West. Decentralisation was declared as an objective in the Sep 2011 document "NSW 2021" but then forgotten in the May 2012 discussion paper "Sydney over the next 20 years". Planning should have started with the most basic calculation on what would be the most economic way of accommodating additional population. E.g. how much high level infrastructure in new cities could be built for what the NWRL (and road tunnels) costs.



<< This is not your average subdivision. It is a community (28,000 population, 316 ha, 4 neighbourhoods with 1,400 dwelling units each) in which 50% of residents walk or cycle to their jobs in their own community centre, including offices and a light industrial area.

No building or structure is higher than 3 floors to save on power hungry escalators and lifts. 100% solar orientation and optimization of the use of prevailing winds for cooling in summer.



<< 4 communities surround a city centre with the other half of the jobs. One ring line (bus or tram) and 2 radial lines would be sufficient as public transport. The total population would be 112 thousand, but that could easily be increased to 120K or even 160K (on a larger area). A pentagon shape could accommodate a maximum of $5 \times 40K = 200K$.

This is equivalent to one yearly immigration in-take at present levels. In other words, to sustainably accommodate immigrants, Australia would have to build 1 city of this type every year, preferably OUTSIDE the commuting distance of existing capital cities.

But this is NOT being done. Instead we are adding more and more population to cities which are already now unsustainable.