Submission on North West Rail Link

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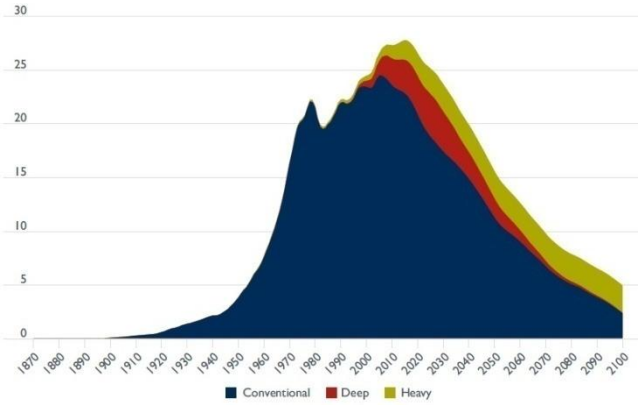


Prepared by Matt Mushalik (MIEAust, CPEng) May 2012 mushalik@tpg.com.au

Summary:

Since I wrote my submission in September 2011 "Too late for big rail tunnel projects in year 7 of peak oil"[1] the situation has worsened.

The combination of consistently high oil prices and the evolving debt crisis (which was triggered by peak oil) has severely impacted on State and Federal budgets. Governments are under pressure to cut expenditure to achieve a surplus so that the credit rating is maintained.

A team at the IMF has just released modelling which warns:

20/5/2012
IMF team warns of global economy entering uncharted territory with U$ 180 a barrel in 2021
http://crudeoilpeak.info/imf-team-warns-of-global-economy-entering-uncharted-territory-with-usd-180-a-barrel-in-2021

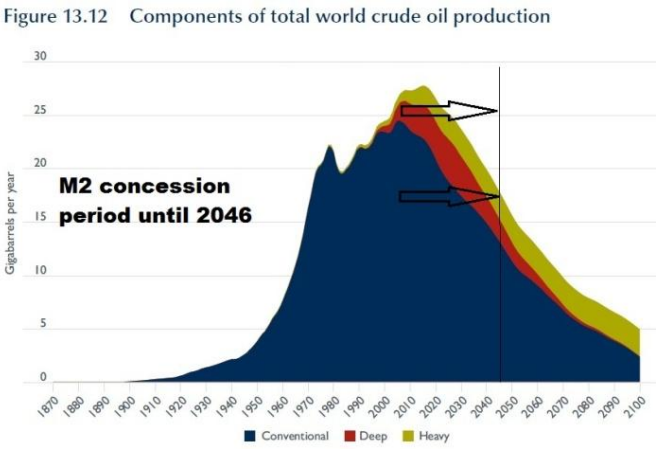
There is very little chance that a AU$ 8-9 billion rail tunnel is ever built. For this money one could build 400 – 450 km of light rail. This is now openly discussed, e.g for Parramatta.[2]

The focus of this submission is on these alternatives. In this submission, I often refer to articles on my website in which the topics have been researched with more details, statistics and graphs. For example:

30/4/2012
NSW Transport Master Plan debates conventional peak oil 2006, assumes continuing oil age
http://crudeoilpeak.info/nsw-transport-master-plan-debates-conventional-oil-peak-2006-assumes-continuing-oil-age

They form part of my submission. I could not include them directly as the submission would have become too long. This submission is based in the premise that we are going to see the end of our car culture I this decade. The number crunching is here:

31/8/2011 1 billion vehicles in year #7 of peak oil
http://crudeoilpeak.info/1-billion-vehicles-in-year-7-of-peak-oil



Peaky leaks report BITRE 117: global peak with M2 concession period

[1] http://crudeoilpeak.info/wp-content/uploads/2011/02/Too_late_for_big_rail_tunnel_projects.pdf
[2] http://news.ninemsn.com.au/national/8468240/western-sydney-light-rail-proposal

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My track record:
7/10/2009
Too late for Sydney Metro Tunnels
http://crudeoilpeak.info/too-late-for-metro-tunnels

(1) Assessment Brief of Infrastructure Australia

These are comments on the IA assessment brief as published in a recent Stateline program.
Quote:

> The submission does not adequately demonstrate whether the capacity issues and forecast demand justify significant infrastructure investment to access the inner metropolitan area (stretching from Sydney Airport and Port Botany through the Sydney CBD), or alternatively in access to Parramatta and the west of Sydney. Information in the submission suggests that a higher proportion of daily work trips from the north-west are to the western areas of Parramatta and Blacktown than to the inner metropolitan area (24 per cent compared with 17 per cent).

Comment: The so-called "Global Arc" from Macquarie Park – Chatswood – North Sydney – CBD – Green Square – Sydney Airport is a key element in the Metropolitan strategy. If a 2nd Harbour crossing is too expensive, the above argument means that this part of the plan should be given up.

Quote:

> The submission provides an overview of the existing CityRail line (Richmond) that links parts of the North West with Parramatta (and therefore other stations on the CityRail system). Construction of the North West Rail Link will create additional capacity on the Richmond line as some customers switch to the North West Rail Link, which does not necessarily facilitate a shift from road to rail.

Comment: There are only 3 ways in which a modal shift from road to rail can take place:

(a) **Reduce** the number of car lanes and convert the lanes thus gained for the use by public transport, be it buses or light rail

(b) Continuously increasing petrol and diesel prices brings motorists to leave their car at home and take PT. There is also the possibility that rising oil prices damage the economy in general to such an extent that there are less economic activities and therefore less traffic

(c) An oil shock like in 1973[3] or 1979[4] forces motorists to take public transport. In this scenario current PT capacities are not sufficient and we can expect a collapse of the transport system hugely damaging the economy

While (a) would be preferable current policies make scenarios (b) and (c) more likely. The reason for this is the continuing peak oil denial mode in Infrastructure Australia, best demonstrated by the performance of the Secretary for Infrastructure and other top government bureaucrats in the Senate estimate hearing in February 2012

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

With regards to NWRL trains running on the Richmond line – and thus reducing the need to go via Parramatta - this would actually relief the main western line as this is running at capacity. IA is not well informed. They should read the documentation provided during the EIS for the Chatswood – Epping – Parramatta rail link

[3] http://crudeoilpeak.info/oil-crisis-1973
[4] http://crudeoilpeak.info/my-experience-oil-crisis-1979

Quote:

> In order to better understand the potential demand for a new rail link, the submission would benefit from consideration of a range of future scenarios (e.g. higher or lower density levels in the corridor and alternative Sydney employment patterns yielding different patterns of home-work journeys over the longer term). Scenario modelling should include the impact of new infrastructure on the operations of the city-wide rail network, and future land use and employment patterns that are likely to evolve by implementing new heavy rail infrastructure.

Comment: It is too late to change Sydney's settlement structure in year #8 of peak oil. The global debt problem means that finance for housing will dry up. The real scenario planning must deal with the problem to REPLACE car traffic

Quote:

> ***Mode selection***
>
> The submission explains that light rail and busways have been rejected due to the limited capacity provided by these alternative options, and the potential negative impacts of passenger interchange. Insufficient evidence has been provided to fully exclude light rail and busways. A staged approach of building up corridor capacity to a heavy rail system over time (e.g. bus rapid transport as an interim step) should be considered.

Comment: This is a valid point. It seems to be that the current Liberal government is stuck in pre-election promises.

Quote:

> ***Reform proposals***
>
> The submission explains why some alternative options have been rejected, however a number of options have been excluded without sufficient justification. For example, the submission rejects bus fare reductions as a potential solution on the grounds that previously these have not resulted in a material increase in bus mode share.

Comment: Bus fare reductions will not create additional capacities. This proposal demonstrates that IA will use any argument to discredit rail solutions. It also questions the seriousness of the above point on light rail.

Let's have a look at the Metrobus 54. Former Transport Minister Michael Costa ("every passenger on a train costs me money") cancelled PERL and now the State government thinks it can just solve the problem with buses. These pictures show that many local roads were not designed for these heavy buses.

Quote:

Sequencing

The submission is based on an assumption that providing access to certain growth areas is a priority ahead of improving existing network efficiency and capacity. However, there does not appear to have been sufficient consideration of the current interactions between connections, efficiency and capacity and therefore where the key priorities are. For example, given that the Harbour Bridge is nearly at full capacity, integration of trains from the North West Rail Link into the CBD may require other trains to terminate short of the bridge and passengers on those trains to interchange.

Comment: The Lane Cove tunnel and the M5East tunnel are also running at capacity. Have we ever heard that IA was against the M2 and M5 widening? This demonstrates that logical concepts are not followed through by applying them to roads as well. The bias against rail solutions is crystal clear after this critique.

Quote:

The submission did not include any analysis of the need for or extent of government funding that might be required. There is no reference to the value that might be captured from associated development or from fare determinations as a result of the project. Private sector funding options have only been briefly addressed.

Comment: Which private investor will use funds for a rail project that is in direct competition to the M2 widening? The whole transport policy is in a mess.

12/2/2012
Car addicted Sindney destroys bus ramp near rail hub as tollway debt increases 60% at least
http://crudeoilpeak.info/car-addicted-sindney-destroys-bus-ramp-near-rail-hub-as-tollway-debt-increases-60-pct-at-least

1/2/2012 M2 concession period extends into era of steep oil decline
http://crudeoilpeak.info/m2-concession-period-extends-into-era-of-steep-oil-decline

Quote:

BCR appraisal

An outline economic appraisal is currently being undertaken (a full business case will be available in early 2012). Based on the analysis to date, the proponent claims a BCR between 0.9 and 1.15, however further details were not provided in the submission. The proponent should identify each of the key costs and benefits and specify how each of these has been estimated, including the approach to estimating the scale of the impact, unit valuation of the impact and how these escalate across time.

Comment: That's rich. Where is the BCR calculation for the M2 and M5 widening?

21/9/2010
RTA fails to present business case for M2 widening (part 1)
http://crudeoilpeak.info/rta-fails-to-present-business-case-for-m2-widening-part-1

Quote:

It is not clear that the proposed rail link maximises the opportunity to transform Sydney's transport network and land use opportunities. Any project that will shape the future of western Sydney and the CBD should consider Parramatta and the capacity constraints across the network as key factors.

Comment: This is a valid point. With land use opportunities they mean new residential and industrial areas, much of which is currently oriented towards using the M7. However, the recent Climate Commission report warns that Sydney's West will become very hot with global warming:

http://climatecommission.gov.au/wp-content/uploads/NSW-report_final_web.pdf

This means there will be limits to growth in the West. So the task is not to use rail links to provide for growth (as is done now for the SW rail link to Leppington) but to replace existing car (and also truck) traffic.

Quote:

The Office of the Infrastructure Coordinator recommends that:

- A public transport strategy for North West Sydney (not this proposal) be included on the infrastructure priority list at **Early Stage;**

Comment: This should actually cover the whole West if IA is serious with its earlier critique

Quote:

- A broader range of options be considered, in particular alternative transit solutions (busways) and links to Parramatta; and

Comment: to run a million city on buses alone is not sufficient.

Quote:

- Scenario modelling should be undertaken to determine the impact of any new infrastructure on capacity constraints in the CBD, and in particular on the need for a second Sydney Harbour Crossing.

Comment: Where is the infrastructure scenario planning for all the CBD-centric projects undertaken right now, like Barangaroo and a new convention centre in Darling Harbour?

18/11/2010
Sydney builds huge "sustainable" basement car park in Darling Harbour
prone to flooding by sea level rise

http://crudeoilpeak.info/sydney-builds-huge-sustainable-basement-car-park-in-darling-harbour-prone-to-flooding-by-sea-level-rise

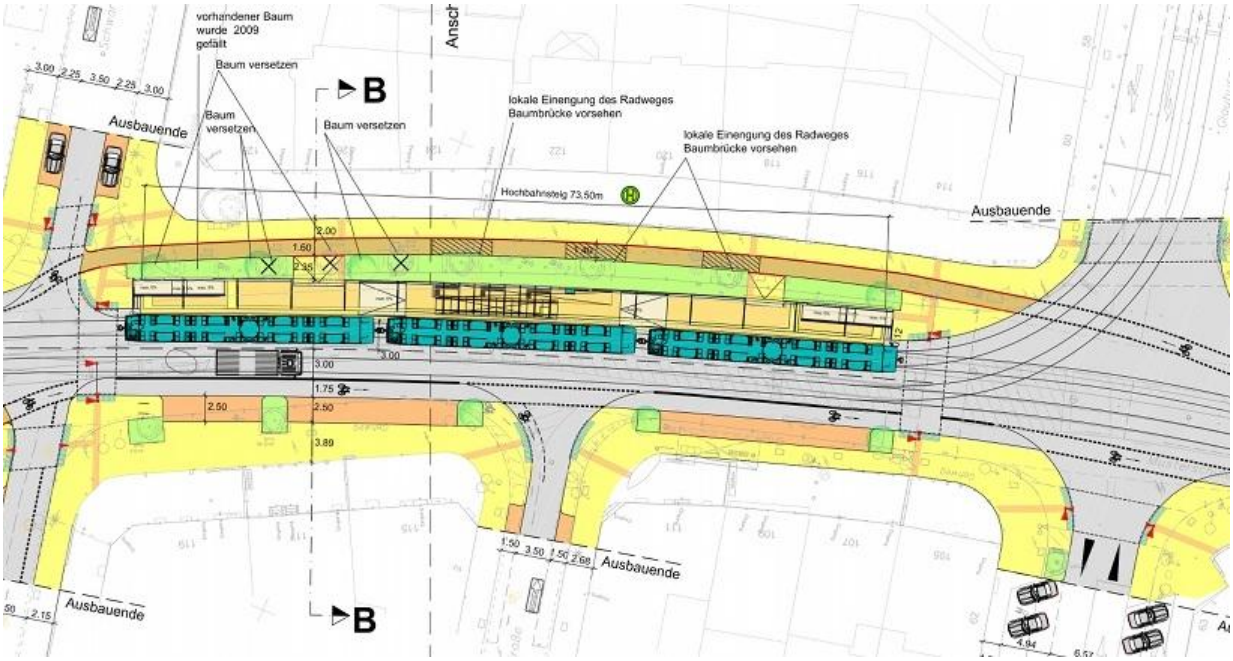
13/9/2010 Barangaroo will not make existing Sydney sustainable
http://www.crudeoilpeak.com/?p=1859

Conclusive comment on IA assessment:

The arguments in the critique are not consistent with other decisions on road funding (delaying tactics and bias against rail). They are not supported by any numbers. No proper bibliography is included. If this is the job of infrastructure experts then there is a clear need to give them more training, at a suitable University.

(2) Problem Analysis

The main problem in Sydney is that after the closing down of the last tram line in 1961, the know-how and the planning capacity for urban light rail design also disappeared. In the same year, for example, the Frankfurt City Council decided to move trams underground and that has evolved into a hybrid system of metro and light rail where trains start above ground in outlying suburbs and then use tunnels in the inner city. Tunnels have now become prohibitively expensive and there has been a revival of above ground trams and light rail also in the inner city. Here is a design example:



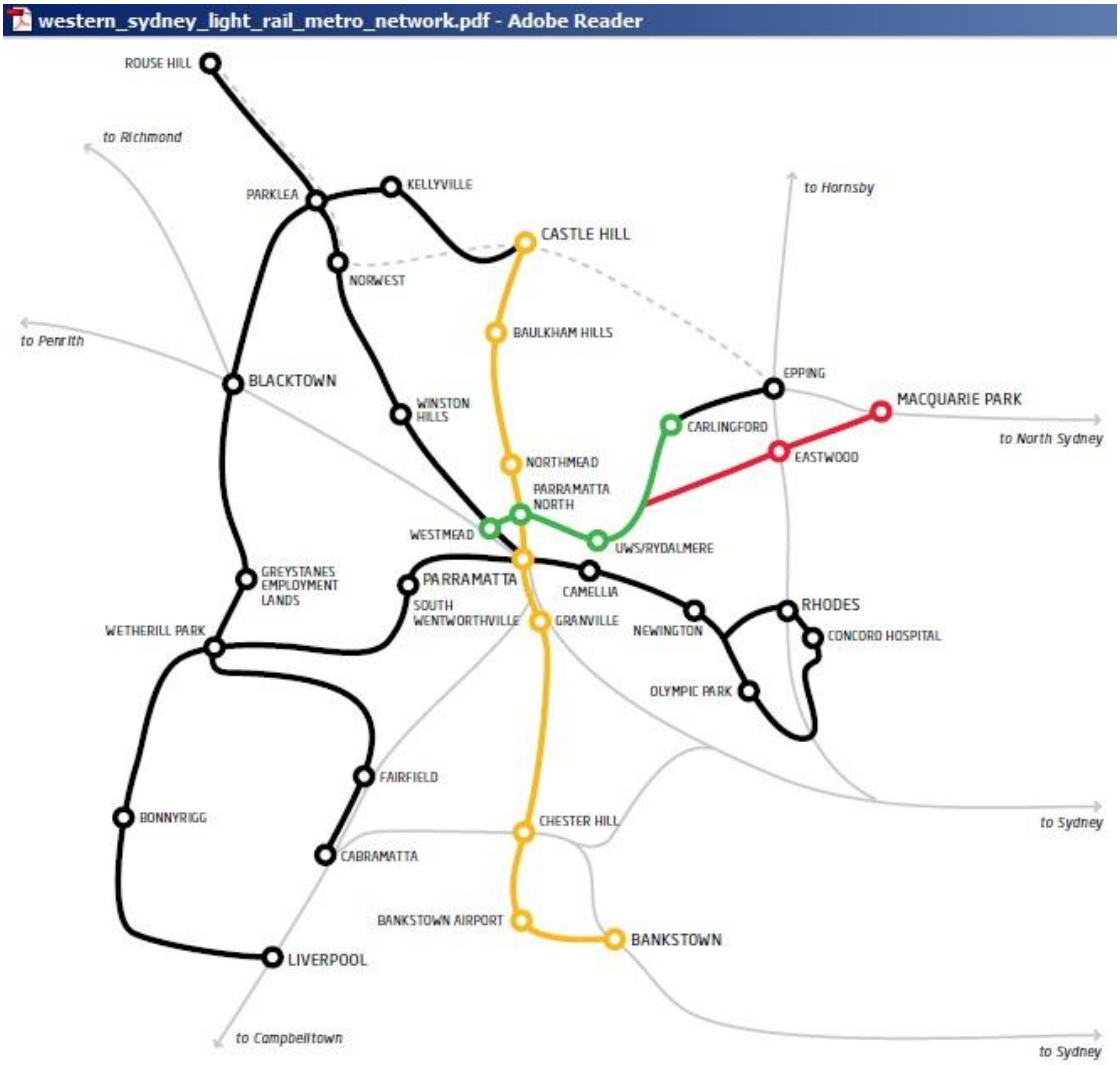
Proper planning for a light rail stop in narrow road corridor (Frankfurt)

There is no way Sydney can catch up with decades of European urban rail development before oil serious oil decline sets in. Therefore, month after month is lost in endless public debates, public consultation periods, political in-fighting and other delays.

The problem is also that the State government is interfering with town planning while their actual job should be State Planning. In Frankfurt all urban rail planning is done by a transit authority. The State's only role is to provide funding.

Recommendation: A department for light rail planning, supported by both State government and Councils needs to be set up in which qualified planners can work on proposals without the need to employ costly consultants.

(3) Example Castle Hill – Parramatta light rail



http://www.parracity.nsw.gov.au/__data/assets/pdf_file/0010/98146/western_sydney_light_rail_network.pdf

Windsor road with light rail. There are many solutions where to put the tracks. RTA engineers will have to learn it.

Examples from European cities

Tram train in Frankfurt using road corridor. Old trams were modified to use high platform tunnels. Many improvisation will be needed once the car culture ends.

Solution in Munich on 4-lane road

Recommendation: RTA engineers who are interested in these solutions should be sent on an on-the-job training course overseas to acquire the necessary skills.

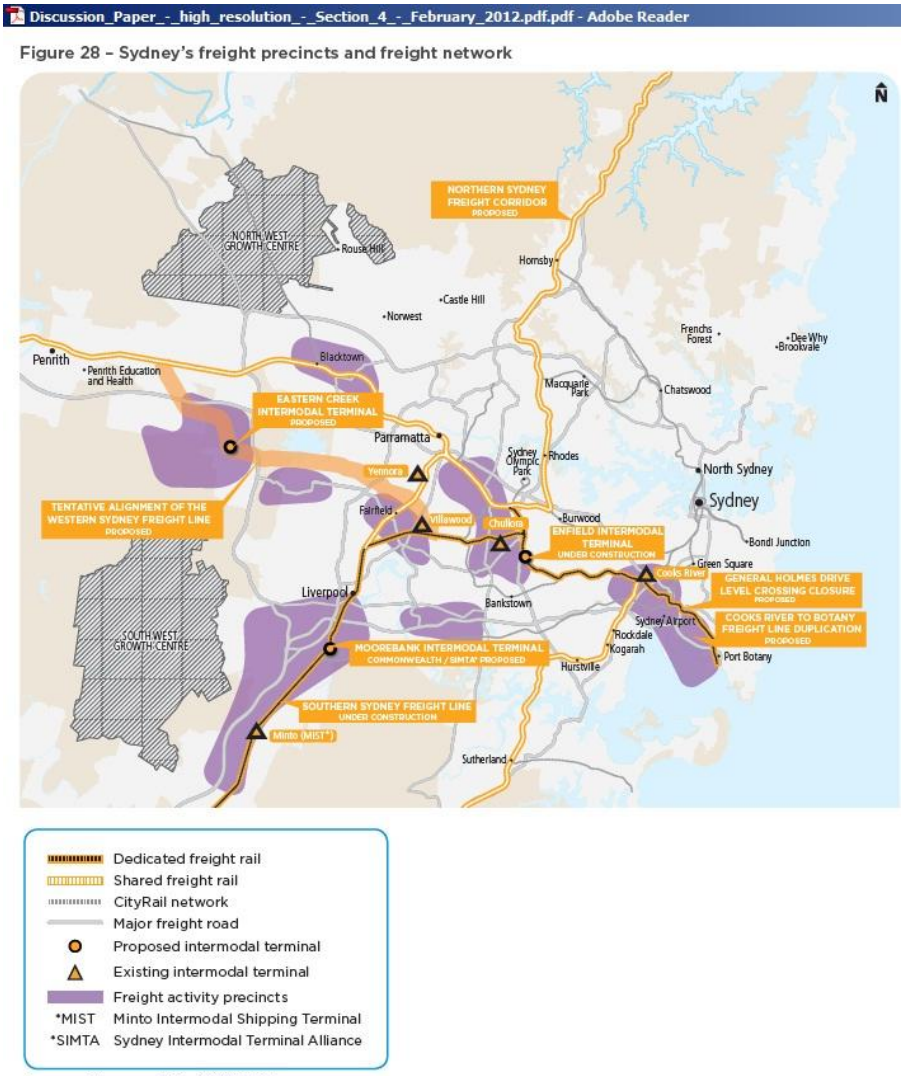
Tram train in Karlsruhe: classical median strip solution.


Dual voltage: can use heavy rail track
Watch this video in English:
http://www.youtube.com/watch?v=pzFgSOTUVPM

Passing through shopping mall
http://en.wikipedia.org/wiki/Karlsruhe_Stadtbahn

(4) Serving industrial Parks

The sustainable solution to bring cargo to dispersed industrial estates in the whole metro area is Cargo Trams with power from renewable energies.



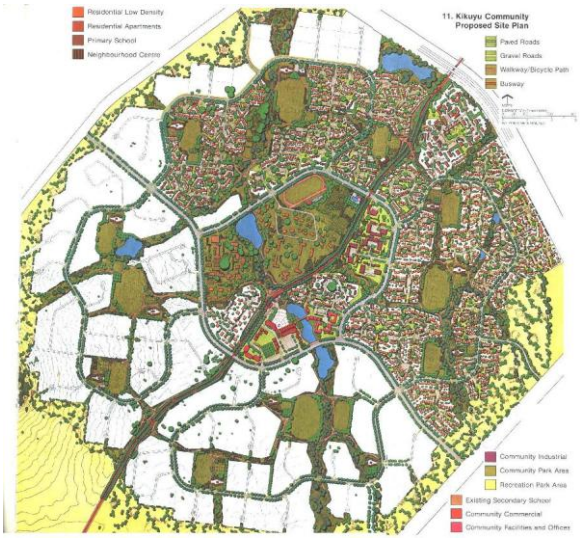
Source: Transport for NSW 2012

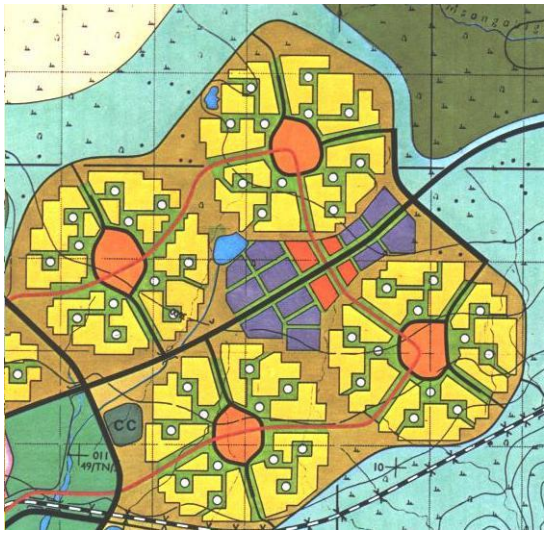
http://en.wikipedia.org/wiki/CarGoTram

(5) Sustainable Cities

The word "sustainable" is constantly being misused. It is found in almost every report without even a clue what it means.

Sustainable, that is energy frugal cities, where half of the population can walk or cycle to work would be between 150 K to 200 K (size for hospital is the critical factor to determine the minimum size). In order to set the standard, here are the plans for a sustainable city (I learned this in Tanzania when planning for the new Capital)





Left: Communities with 30-40 K population with employment and socio economic infrastructure in the centres. Right: 4 communities grouped around a common city centre with higher level infrastructure and job centres. More details are here:

26/8/2009 Sustainable Cities Master Plan
http://crudeoilpeak.info/sustainable-cities-master-plan

(6) Rail on tollways

Tollway operators will go into receivership when global oil production goes into serious decline or when credit markets seize up again. In the case of Transurban there are $5 billion debt and $6 bn equity at stake, a disaster a magnitude larger than the Lane Cove tunnel collapse. The reader of this submission might want to check how much of his or her super is invested in such oil-dependent companies. The 1st Fleet trucking company going into administration showed us how fast things can happen

Transurban took up another CAN$ 250 m in debt in February , by the way without prospectus or product disclosure statement.
http://www.transurban.com/1083481.pdf

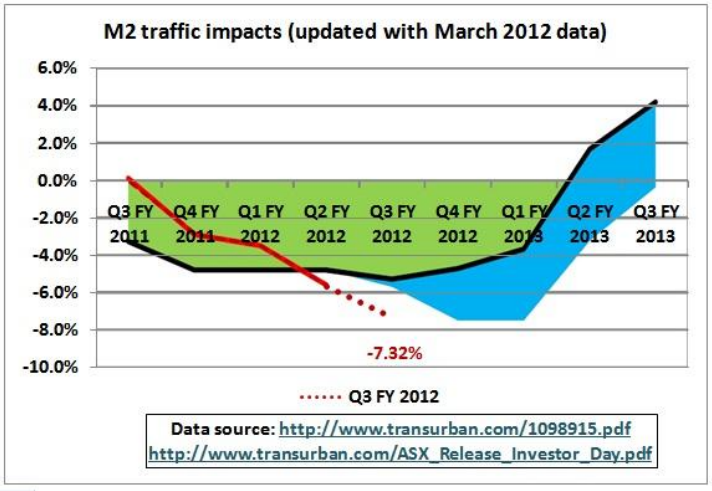
Read my previous analysis:

11/2/2011 Money in Transurban's cash box not enough to complete M2 widening
http://crudeoilpeak.info/money-in-transurban%e2%80%99s-cashbox-not-enough-to-complete-m2-widening

9/12/2010 Will Transurban ever pay back its debt? (part 2)
http://crudeoilpeak.info/will-transurban-ever-pay-back-its-debt

<< It will be interesting to see what will happen with traffic volumes once tolls on the M2 are increased

Traffic on the M2 is weaker than predicted, considering construction impacts. Signs to come of softening traffic demand?



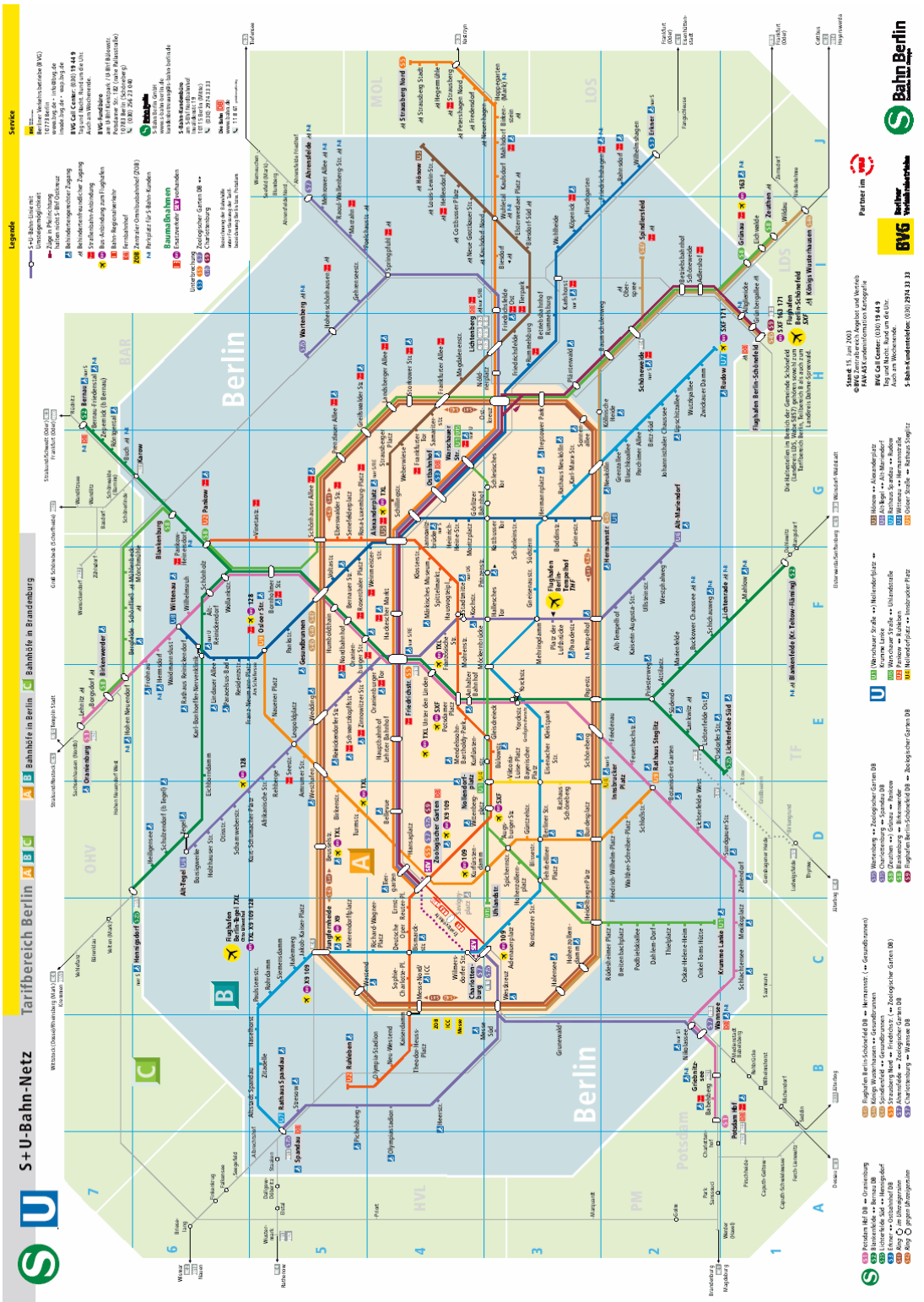
Given the disarray in which both Labour and Liberal governments "deal" with rail projects for the post peak oil era, one solution is for the private sector to build rail lines on their toll-way corridors (there, where the traffic is and where tunnels are not needed)

Perth has already done it:

Transperth on freeway

(7) Sydney's rail job

We need to look at cities which developed their rail network before the arrival of the car.



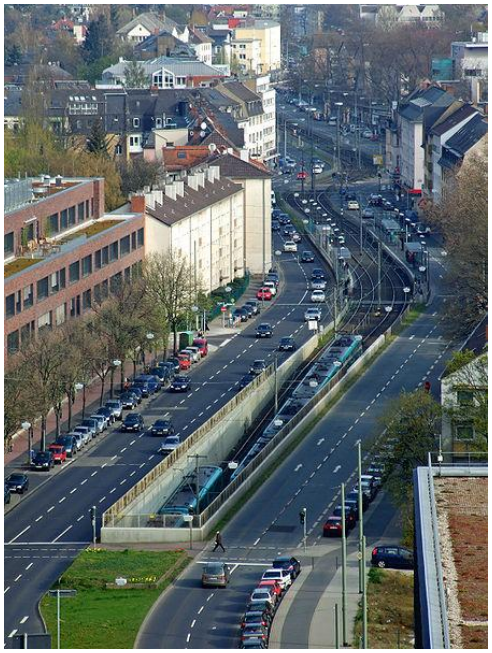
Rail network of a 3.5 million city: Berlin. Most of the heavy rail network was built up in an era with few cars and long distance trucks. It will be impossible for Sydney to catch up. Decades of freeway development and neglect of the rail network will have severe consequences. The NSW government still has not grasped what task is ahead to oil proof Sydney, within a quite limited time and budget framework.

Appendix A: Example: hierarchy of rail services in Frankfurt

Double deckers are only used for **city express** or regional express services.

Heavy rail (S Bahn) on elevated clearway to separate long distance trains from urban rail

Metro tunnels were built in the 60s to 80s mainly in the CBD (up)



Many lines continue as **light rail** on main roads in the outer suburbs (up), some far into the regional hinterland (left)

Old style 3 unit **tram train** (75 m long), used both on low and high platforms and also in tunnels.

Standard low floor **tram** (up)

Appendix B: Recent light rail projects in Frankfurt:

Extension of tram 18 into new suburb (3.5 km for 55 million Euro or AU$ 20 m / km)



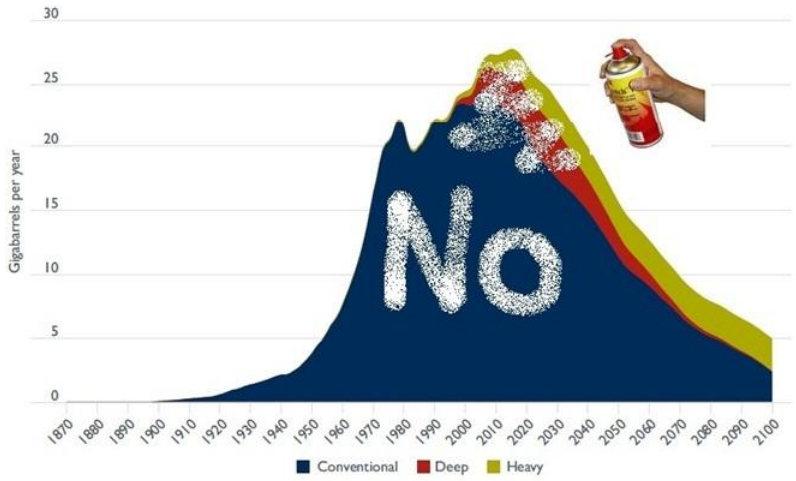

Tram service is provided as construction of suburb is still underway. Buses can use paved tram track corridor

Extension of light rail U8 and U9 to new campus of Goethe University and staff housing


Sydney should spend $9bn earmarked for an expensive NWRL (just 20 kms) for such light rail solutions. Using the above cost (standard is equal to light rail) that would make 450 kms!!! Every Council's wish for a rail connection could be fulfilled. The problem now is of course the time available before the big bang in the Middle East. And the political insight and will.

Rolling stock is from Bombardier http://en.wikipedia.org/wiki/Flexity_Swift

Submission on 2011 Energy White (Wash) Paper
or
Peak oil denial not yet peaked



Senator LUDLAM: You can table it, Minister.
Senator [Kim] Carr: The answer is no.

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

This 40-page paper describes what peak oil is all about. While the peak oil debate is transfixed on the global peak, oil production has already peaked in so many countries that serious damage to their economies has already occurred which is getting worse year by year.

Submission 198 on Energy White Paper
http://www.ret.gov.au/energy/facts/white_paper/submissions/Pages/submissions.aspx
http://www.ret.gov.au/energy/Documents/ewp/draft-ewp-2011/submissions/198.Matt-Mushalik.pdf

Better quality version on my website under downloads
http://crudeoilpeak.info/downloads
http://crudeoilpeak.info/wp-content/uploads/2012/04/Submission-On-2011-Energy-White-Paper_Mushalik.pdf