Submission No 13

INQUIRY INTO IMPACT OF THE ROZELLE INTERCHANGE

Name: Mr Matt Mushalik

Date Received: 17 March 2024

Rozelle Interchange

Submission by Matt Mushalik (MEng)

17 Mar 2024

This submission refers to this inquiry:

Inquiry into the impact of the Rozelle Interchange

https://www.parliament.nsw.gov.au/committees/inquiries/Pages/lodge-a-submission.aspx?pk=3029

Introduction

The author of this submission is a peak oil researcher with a focus on how to make Sydney oil proof in time before the next oil crisis and at least cost. Of course the Rozelle interchange (and Westconnex) is not a project with these objectives. I had written following submissions

12/11/2013
Sydney's Westconnex road tunnel proposal based on too many untested assumptions
http://crudeoilpeak.info/sydneys-westconnex-road-tunnel-proposal-based-on-too-many-untested-assumptions

12/9/2014

My WestConnex submission

https://crudeoilpeak.info/wp-content/uploads/2014/09/Westconnex_submission_Matt_Mushalik.pdf

https://majorprojects.affinitylive.com/public/c53f208bc4490e9d6e134d5566fa594f/Westconnex_submission_Matt_Mushalik.pdf

Response to the Terms of Reference

(a) the planning, design and development of the Rozelle Interchange project and its impact on traffic flow, including the prioritisation of traffic from toll roads including WestConnex over local traffic

The question here is: who had the spaghetti mindset to come up with this abstruse idea? When did that happen?

It was a long process over many years

2012

NSW LONG TERM TRANSPORT MASTER PLAN

December 2012

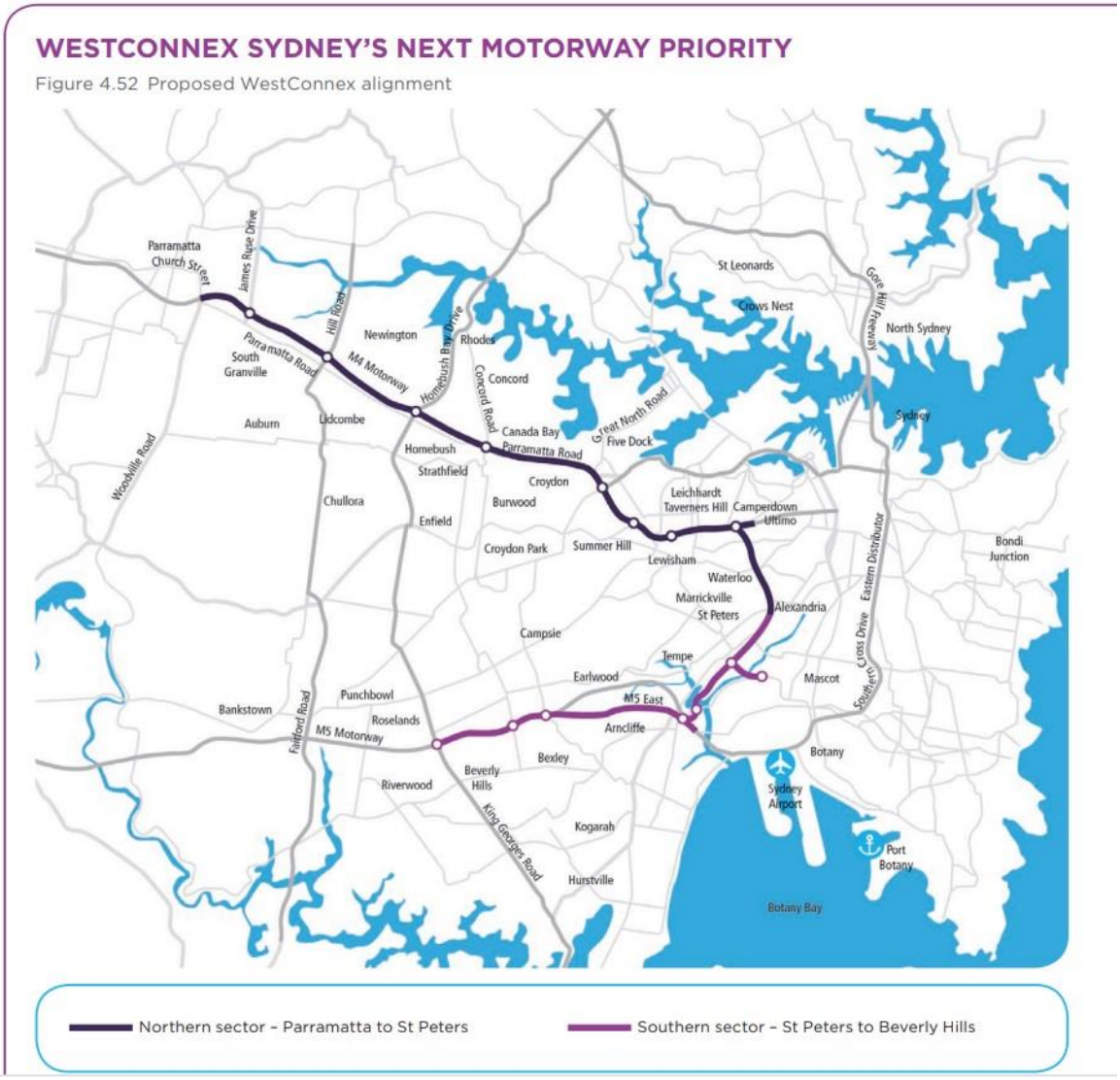
Signed by Minister for Transport Galdys Berejiklian and Minister for Roads Duncan Gay

https://www.transport.nsw.gov.au/sites/default/files/media/documents/2017/nsw-transport-masterplan-final.pdf

Figure 4.51 Potential connections to bridge gaps in the Sydney motorway network by 2031

Fig 4.5.1 p 140). Note the “enhanced North-South Link’ double arrow. But under “WESTCONNEX SYDNEY’S NEXT MOTORWAY PRIORITY” (p 142) there is a Camperdown exit in Fig 4.52

https://www.transport.nsw.gov.au/sites/default/files/media/documents/2017/nsw-transport-masterplan-final.pdf



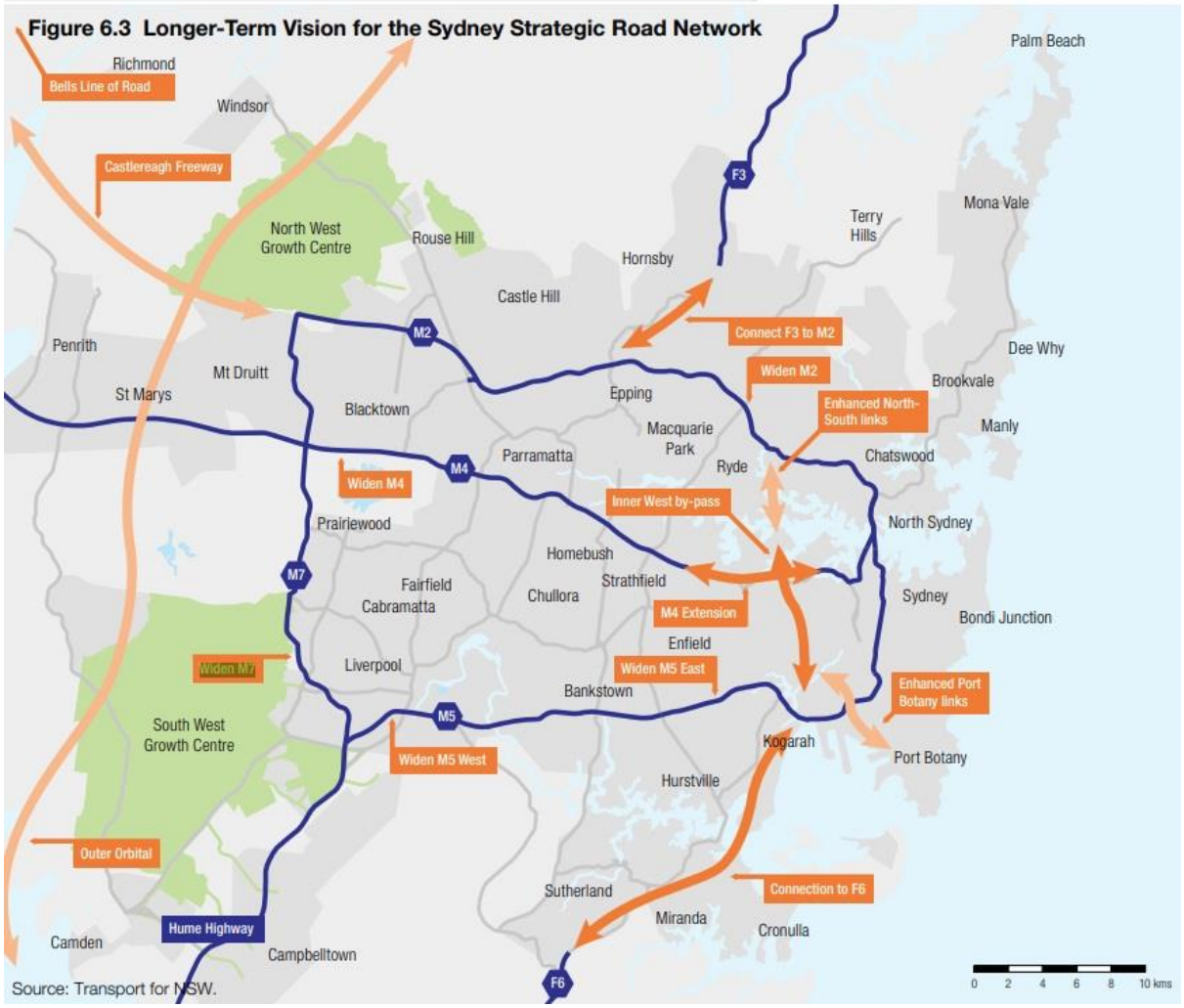
Under "Statewide Actions" on p 408 the role of Infrastructure NSW is mentioned.

https://www.transport.nsw.gov.au/sites/default/files/media/documents/2017/nsw-transport-masterplan-final.pdf

So let's have a look at INSW

Signed by Chairman Nick Greiner. This document has the objective to identify missing toll-ways links:

ttps://www.infrastructure.nsw.gov.au/media/hk2i1l0n/sis_2012_report_print_version.pdf



No new motorway project has been tendered in NSW for almost a decade. One factor behind this has been the lack of an affordable coherent network strategy for the SSRN. Before any new project is commenced, NSW needs an overarching vision equivalent to the Sydney Orbital Network plan of two decades ago. The Draft NSW Long Term Transport Master Plan (Draft Transport Master Plan) sets out a vision for the longer term of Sydney's motorway infrastructure. This is shown in Figure 6.3. Infrastructure NSW is strongly supportive of this vision. (p 83)

"Inner West Bypass and enhanced North-South links to the M2
This conceptual option proposes a motorway from the airport to the Victoria Road corridor, with a potential extension North to the M2.
The road would form a Western bypass of the CBD to relieve pressure on the harbour crossings. No reservation or detailed alignment exists and construction costs are likely to be very high"(p 84)

6.9.1 Recommended Actions

	Recommendations	Years	Type	Cost and Funding Implications
	Section 6 Urban Roads			
7	**Identify and preserve corridor for new sub-surface motorway links West of the CBD (Airport – Gladesville – M2)**	10 – 20	Corridor	Cost of corridor preservation is not material. No assessment of land acquisition costs has been made.

Identify and preserve corridor for new sub-surface motorway links West of the CBD (Airport – Gladesville – M2). Cost of corridor preservation is not material. No assessment of land acquisition costs has been made. (p 93)

https://www.infrastructure.nsw.gov.au/media/hk2i1l0n/sis_2012_report_print_version.pdf

There you are. The idea of an "Inner West Bypass" is born. By toll-way tsar Nick Greiner.

2013

23 May 2013

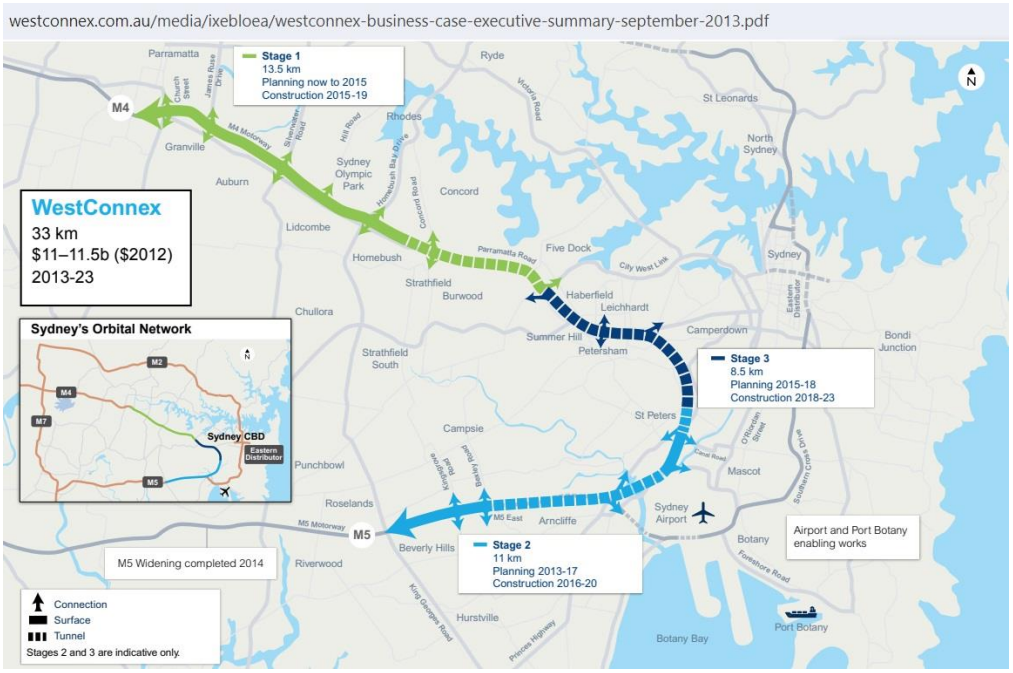
Greiner comes to end of road as infrastructure tsar

Mr Greiner leaves Infrastructure NSW a year before his three-year term as chairman was due to end in June next year, having informed Premier Barry O'Farrell of his decision on February 11

https://www.smh.com.au/national/nsw/greiner-comes-to-end-of-road-as-infrastructure-tsar-20130523-2k40e.html

Sep 2013 WestConnex Business Case Executive Summary

This document did not show any link from Westconnex to the Western Distributor (p 2)



But it includes Fig 4.5.1 of the 2012 NSW Transport Masterplan with an arrow "Enhanced North South Links" as a corridor for investigation.
https://www.westconnex.com.au/media/ixebloea/westconnex-business-case-executive-summary-september-2013.pdf

2015

westconnex.com.au/media/yejnwxmw/westconnex-updated_strategic_business_case.pdf

Figure 5.8 WestConnex incorporating revised Stage 3 alignment including northern extension

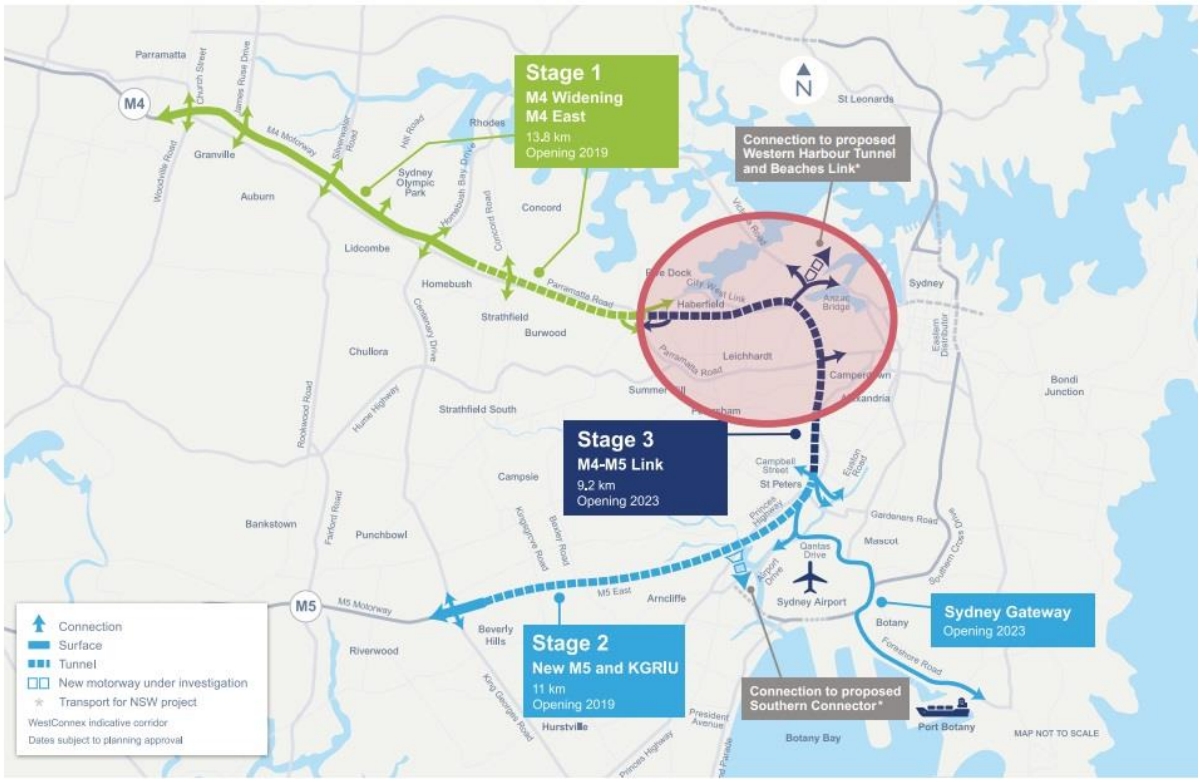
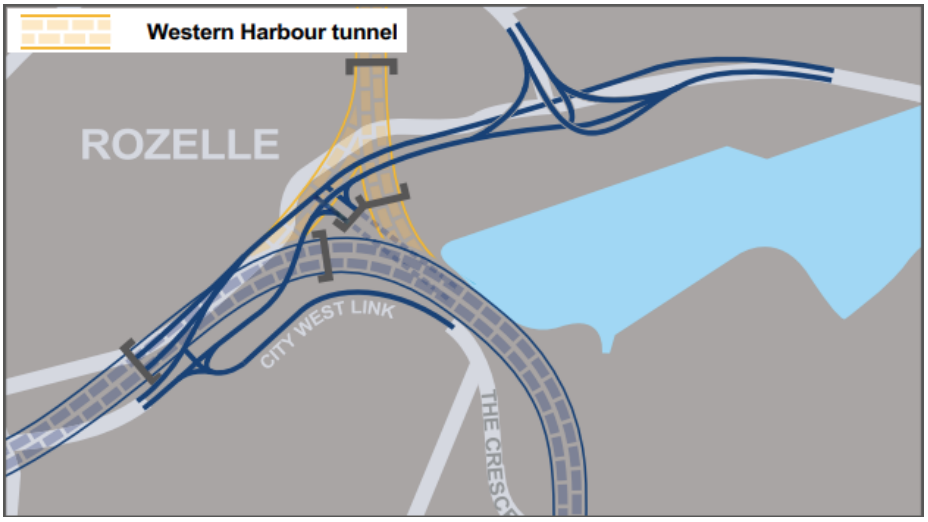


Fig 5.8 (p 139) shows for the first time a Rozelle interchange with an arrow pointing towards the Western Harbour Tunnel under Balmain.

The M4 – M5 Link originally followed Parramatta Road to Camperdown, but will now duplicate the City West Link to Rozelle before heading south. This provides better connectivity to the Anzac Bridge and Victoria Road, while still providing an alternative to Parramatta Road. Importantly, the new Stage 3 alignment also enables connection to the future Western Harbour Tunnel and Beaches Link (see Section 7.4). (p 154)



In this detail the Western Harbour Tunnel goes directly north under Rozelle, without connecting to the Victoria-West Link tunnels, quite different from Fig 5.8 above. Apparently, planners had not made up their mind.

Rozelle Interchange

The Rozelle Interchange contains a connection at City West Link and provides for a future connection to the Western Harbour Tunnel and Beaches Link. At the time of opening, the Rozelle Interchange will allow traffic to enter the WestConnex tunnels from the Anzac Bridge. However, access from the M4–M5 Link to the Anzac Bridge will be managed to optimise traffic flow until the opening of the Western Harbour Tunnel in order to effectively optimise traffic flow. Modelling indicates the Rozelle Interchange will provide effective access to the WestConnex tunnels in 2031. Victoria Road and the Western Distributor will continue to be congested during peak periods in 2031. (p 216)

https://www.westconnex.com.au/media/yejnwxmw/westconnex-updated_strategic_business_case.pdf

Note the traffic congestion now experienced was already predicted in 2015. The astronomical costs have been blacked out in the above document. Lack of transparency.

2016

This document contains in Fig 1.1 the same plan (Fig 5.8) as in the updated business case but gives no further details on the Rozelle interchange

https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-7485...

Fig 1-2 and 4-1 Orange marked areas are surface works, not tunnels. It seems at this stage that the Government had not finalised tunnel plans ot does not want to show the public what is waiting for residents. And now Gladys pet projects come into the picture, driverless metros in deep tunnels, the most expensive urban transport solution there is on earth.

"The design of the mainline tunnels for the project would consider the final alignment design for the Sydney Metro City & Southwest project, as well as any interfaces of the Rozelle interchange with the maintenance depot for the CBD and South East Light Rail. Roads and Maritime will continue to consult with Transport for NSW concerning the coordination of these projects with the M4-M5 Link" (p 49)

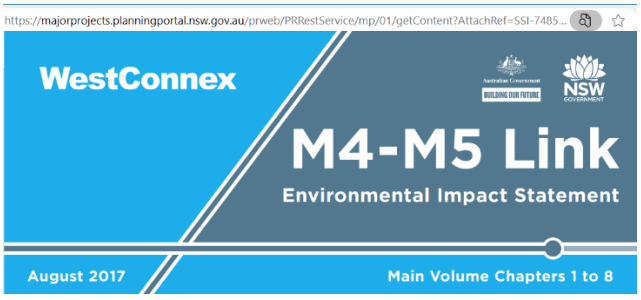
https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-7485%2120190221T132127.970%20GMT

This SSIAR was followed by

addendum 1 (Sep 2016, Inclusion of Iron Cove Link) and

addendum 2 (March 2017, removal of the Camperdown interchange, realignment of the mainline tunnel and increase in the number of traffic lanes, change to the location of the Rozelle interchange, and inclusion of infrastructure for the proposed future Western Harbour Tunnel)

2017



That's how the spaghetti interchange evolved. It got ever more complex as more and more links were added and the upcoming Meto West tunnel had to be considered.

https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-7485%2120.

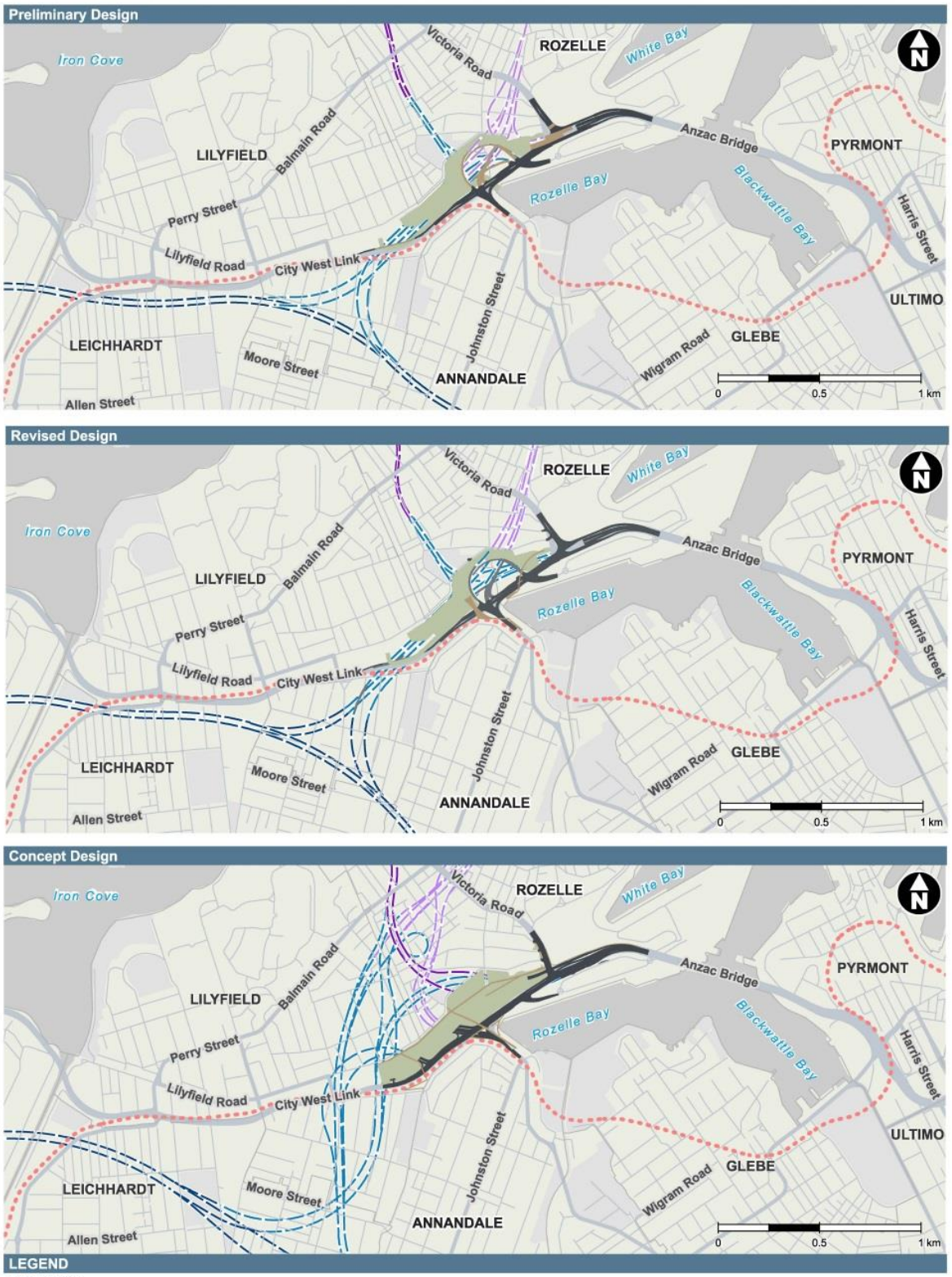


Figure 4-13 Evolution of the Rozelle interchange concept design

4-36

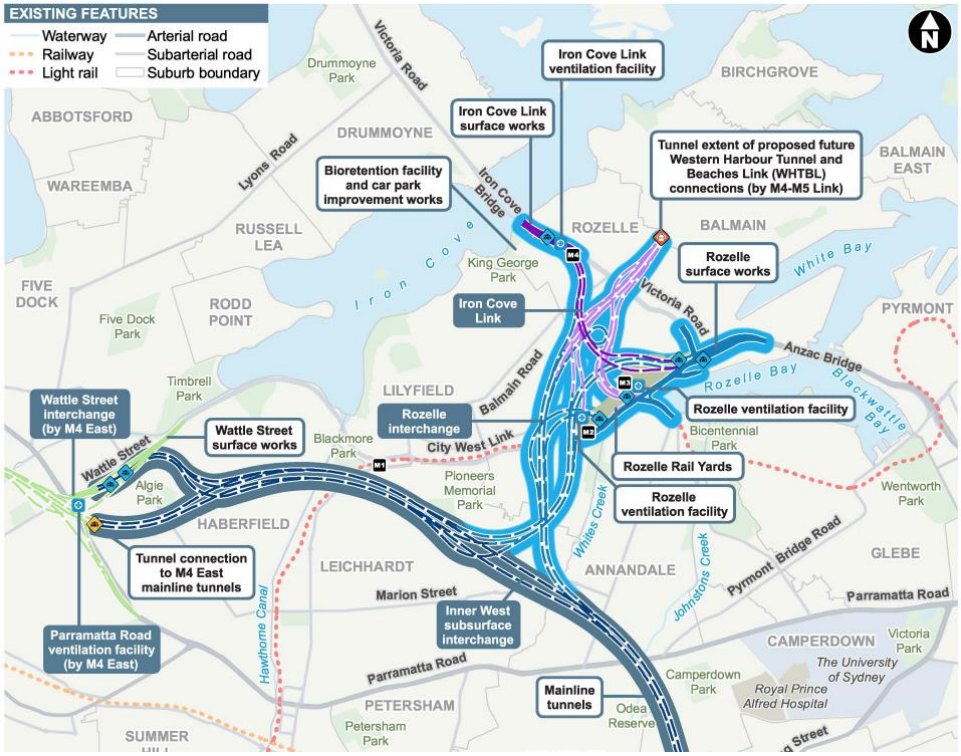


Fig 4-15 on p 4-46

https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-7485%2120190227T230621.878%20GMT

In conclusion, it took 5 years for this spaghetti to be put on the table

(b) all traffic modelling that was undertaken, including for WestConnex, all surrounding arterial roads and all local roads

Continuing with the same document (M4-M5 Link EIS)

majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-7485

Intersection performance

Table 8-20 presents the modelled AM and PM peak hour LoS for key intersections in the existing situation at Rozelle. The intersection performance analysis demonstrates several intersections along Victoria Road at Rozelle experience poor levels of service during the PM peak hour. The poor level of service indicates that the intersections are at or close to capacity.

Table 8-20 Rozelle interchange: key intersection performance (LOS) – 2015 AM and PM peak hour

Key intersections	AM peak hour	PM peak hour
Victoria Road/Lyons Road	D	D
Victoria Road/Wellington Street	D	B
Victoria Road/Darling Street	F	F
Victoria Road/Robert Street	D	F
Victoria Road/The Crescent	B	F
The Crescent/James Craig Road	A	B
City West Link/The Crescent	B	D
The Crescent/Johnston Street	C	F

Table 8-3 Level of service criteria for intersections

LoS	Average delay per vehicle (seconds)	Traffic signal / roundabouts	Give way and stop signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but crash study required
D	43 to 56	Operating near capacity	Near capacity and crash study required
E	57 to 70	At capacity; at signals incidents would cause excessive delays	At capacity; requires other control mode
F	More than 70	Roundabouts require other control mode	At capacity; requires other control mode

Source: Guide to Traffic Generating Developments (RTA, 2002)

Definitions of LoS

https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-7485

Table 8-85 Rozelle interchange: key intersection performance (LoS) – 2015 Base, 2023 and 2033 'without project' and 'with project' scenarios

Key intersections	2015 Base	2023 'without project	2023 'with project	2033 'without project	2033 'with project
AM peak hour					
Victoria Road/Lyons Road	D	F	F	F	F
Victoria Road/Wellington Street	D	D	C	D	D
Victoria Road/Darling Street	F	F	F	F	F
Victoria Road/Robert Street	D	D	C	D	F
Victoria Road/The Crescent	B	B	C	C	D
The Crescent/James Craig Road	A	A	B	B	B
City West Link/The Crescent	B	B	C	B	D
The Crescent/Johnston Street	C	C	C	D	C
The Crescent/M5 ramps	–	–	B	–	B
PM peak hour					
Victoria Road/Lyons Road	D	F	F	F	F
Victoria Road/Wellington Street	B	D	B	D	C
Victoria Road/Darling Street	F	F	D	F	D
Victoria Road/Robert Street	F	F	C	F	C
Victoria Road/The Crescent	F	F	C	E	C
The Crescent/James Craig Road	B	C	A	B	A
City West Link/The Crescent	D	F	B	D	C
The Crescent/Johnston Street	F	F	F	E	F
The Crescent/M5 ramps	–	–	B	–	B

Quote from the document:

"Intersection performance

A summary of the modelled intersection performance on roads around the Rozelle interchange in 2023 and 2033 with and without the project is shown in Table 8-85. In the 2023 AM peak hour, the forecast intersection performances are similar in the 'without project' and 'with project' scenarios. However, in the 2033 AM peak hour, due to forecast demand from Victoria Road to The Crescent, delays are forecast at the Victoria Road/The Crescent intersection in the 'with project' scenario. The southbound queuing at this intersection is forecast to also result in a poor level of service at the Victoria Road/Robert Street intersection.

In the PM peak hour 'with project' scenario, the intersections along Victoria Road and City West Link are forecast to operate at an improved level of service compared to the 'without project' scenario, due to the direct link from Anzac Bridge to the M4 and Iron Cove Link.

The Victoria Road/Lyons Road intersection in both peak hours, the Victoria Road/Darling Street and Victoria Road/Robert Street intersections in the AM peak hour and The Crescent/Johnston Street intersection in the PM peak hour remain at or over capacity due to the forecast demands. Upgrades are proposed as part of the project at The Crescent/Johnston Street intersection (see section 8.5.1), however further upgrades at this intersection to improve performance are constrained by the existing light rail bridge."

But now read this:

"With the inclusion of the project there is a drop in the daily VKT and VHT on the arterial (non-motorway) network and a corresponding increase in kilometres and hours travelled along the motorway and highway routes. The addition of the M4-M5 Link provides a substantial overall benefit to the network where more or longer trips could be made on the road network in a shorter time." (p 106)

Table 8-74 Comparison of daily 2033 VKT and VHT for metropolitan Sydney in 'without project' and 'with project' scenarios

Scenario	Daily VKT ('000 km)			Daily VHT ('000 hours)		
	Motorway	Other	Total	Motorway	Other	Total
Do minimum (without project)	31,030	101,900	132,930	590	4,670	5,560
With project	32,010	101,410	133,430	600	4,610	5,220

Source: WRTM v2.3, 2017

And read about the claims about an improvement in network productivity:

"Road network productivity is forecast to improve in the 2023 'cumulative' scenario compared to the 2023 'with project' scenario with the inclusion of the proposed future Sydney Gateway and Western Harbour Tunnel. There is a drop in the VKT and VHT on the arterial (non-motorway) network with an increase in kilometres and hours travelled along the motorway routes, as shown in Table 8-94. Therefore, greater distance could be travelled on the road network in a shorter time."

Table 8-94 Comparison of daily 2023 VKT and VHT for metropolitan Sydney in 2023 'with project' and 'cumulative' scenarios

Scenario	Daily VKT ('000 km)			Daily VHT ('000 hours)		
	Motorway	Other	Total	Motorway	Other	Total
With project	27,730	86,050	113,780	480	3,120	3,600
Cumulative	27,980	85,970	113,950	470	3,110	3,570

The differences in "productivity" are marginal and within the uncertainties of estimates.

There is no objective here to reduce VKT, let alone fuel consumption. It's not included in the Director-General's Requirements (SEARs).

I have looked at the GHG calculations for the M4East (Appendix U). There is a big table with many road sections but not totalled, so no one really had an interest in this. It put the data into an Excel table and arrived at (for M4, Parramatta Rd and M4East) in the year 2031:

85 ML petrol, 42.5 ML diesel and 3.2 ML LPG.

https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-7485%2120190227T230621.878%20GMT

(e) the communication and consultation processes undertaken by Transport for NSW and other relevant stakeholders throughout the lifespan of the Rozelle Interchange Project

Not many will have the time and skills to sift through dozens of EIS documents but will rather rely on what the media report. So the more detailed Rozelle interchange information came only to light in

2019

26 Sep 2019

The complex spaghetti junction deep beneath Sydney's inner west revealed

"The complex spaghetti junction deep beneath Sydney's inner west revealed" Project director of the Rozelle Interchange Tarnjit Chahal says the underground spaghetti junction could be the most complex of its kind anywhere in the world.

The Rozelle interchange, a twisting maze of overlapping tunnels some 40 metres below Sydney's inner west, could be the most complex underground junction ever built, according to its project director. A draft design of the last and most complicated stage of WestConnex was released to the Herald on Thursday (and is published in full at the bottom of this article), revealing how the new M4 and M5 tunnels, the ANZAC Bridge and Iron Cove will be linked together"

https://www.smh.com.au/national/nsw/the-complex-spaghetti-junction-deep-beneath-sydney-s-inner-west-revealed-20190926-p52v95.html

Belatedly:

https://www.westconnex.com.au/media/cnlkvjjf/web_community-update_september2019_sa_.pdf

Rozelle Interchange

WestConnex

Australian Government

BUILDING OUR FUTURE

NSW GOVERNMENT

Rozelle Interchange tunnel design

Online tunnel tool now available

September 2019

The Rozelle Interchange is the final stage of WestConnex providing an underground connection to the New M4 and New M5 tunnels, and a bypass of Victoria Road between Iron Cove and the ANZAC Bridge. The Rozelle Interchange will **deliver up to 10 hectares of open space** and also connect to the future Western Harbour Tunnel.

You may notice some differences between the concept design provided in the Environmental Impact Statement (EIS) released in 2017, and the tunnel design shown over the page.

It's not uncommon for changes and improvements to be made to the concept design after the EIS following the detailed design process.

https://www.westconnex.com.au/media/cnlkvjjf/web_community-update_september2019_sa_.pdf

https://www.westconnex.com.au/media/cnlkvjjf/web_community-update_september2019_sa_.pdf

(i) solutions to ease the congestion and gridlock that the opening of the Rozelle Interchange has created, including the impact of the Western Harbour Tunnel after opening

Unfortunately, there are few solutions. The metro station The Bays is badly located as it has only a very reduced walking catchment, squeezed in by the Victoria/West Link intersection. Cement silos don't need a metro. This is another planning disaster.

When Maxine McKew won the seat of Bennelong in 2007 I had a meeting with her in the oil shock year 2008, then in Howard's office on Victoria Rd. in Lane Cove. I explained peak oil to her and she asked me what to do. I proposed a light rail Parramatta – Ryde – CBD with short tunnels in critical sections. But my recommendation, like many others, were not followed up. I now have to say that many decision windows which were open 20 years ago (when the conventional oil peak started) have now closed and irreversible facts have been concreted into the ground.

The only thing which can be done is to reduce immigration.

When we look at tables 8-74 and 8-94 we see that traffic increases:

133,430 / 113,780 = 1.17 or 17.2% pa = 1.72 % pa between 2023 and 2033

Compare that to population growth 5.9/4.3 =37.2 % / 20 years = 1.86 %

So these numbers are quite similar.

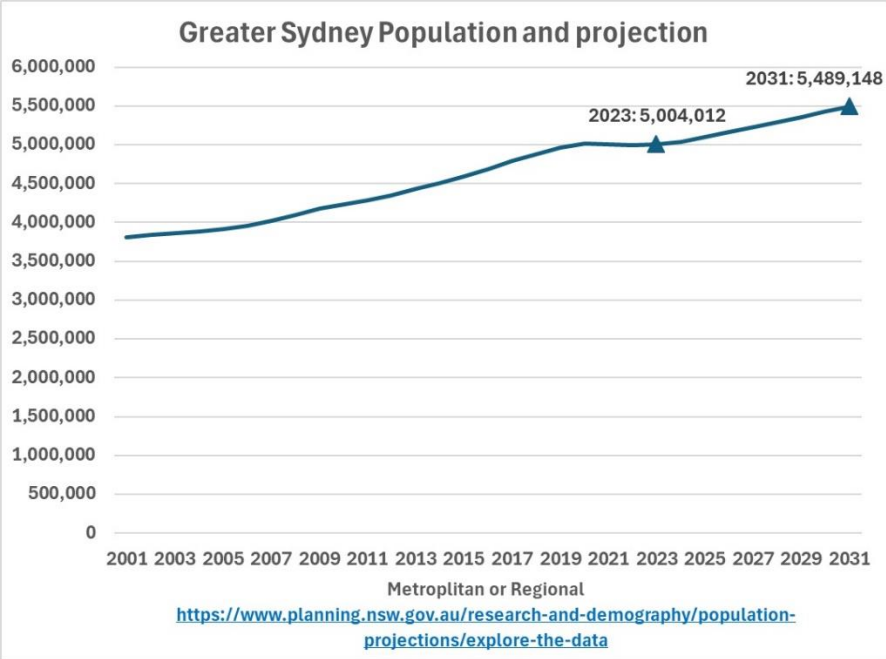
Why is it needed?

The transport network in Sydney is expected to be put under increasing pressure over the next 20 years. *A Plan for Growing Sydney* (NSW Government 2014) indicated that from 2011 to 2031, Sydney's population is forecast to increase from 4.3 to 5.9 million, which equates to an average of 80,000 additional residents per year. Moreover, by 2036, the number of trips made around Sydney each day is forecast to increase by 31 per cent, from 16 to 21 million vehicle trips. This growth will place increasing pressure on the NSW transport network and the key travel demand corridors connecting regional cities and major centres across the greater Sydney metropolitan area.

(page V)

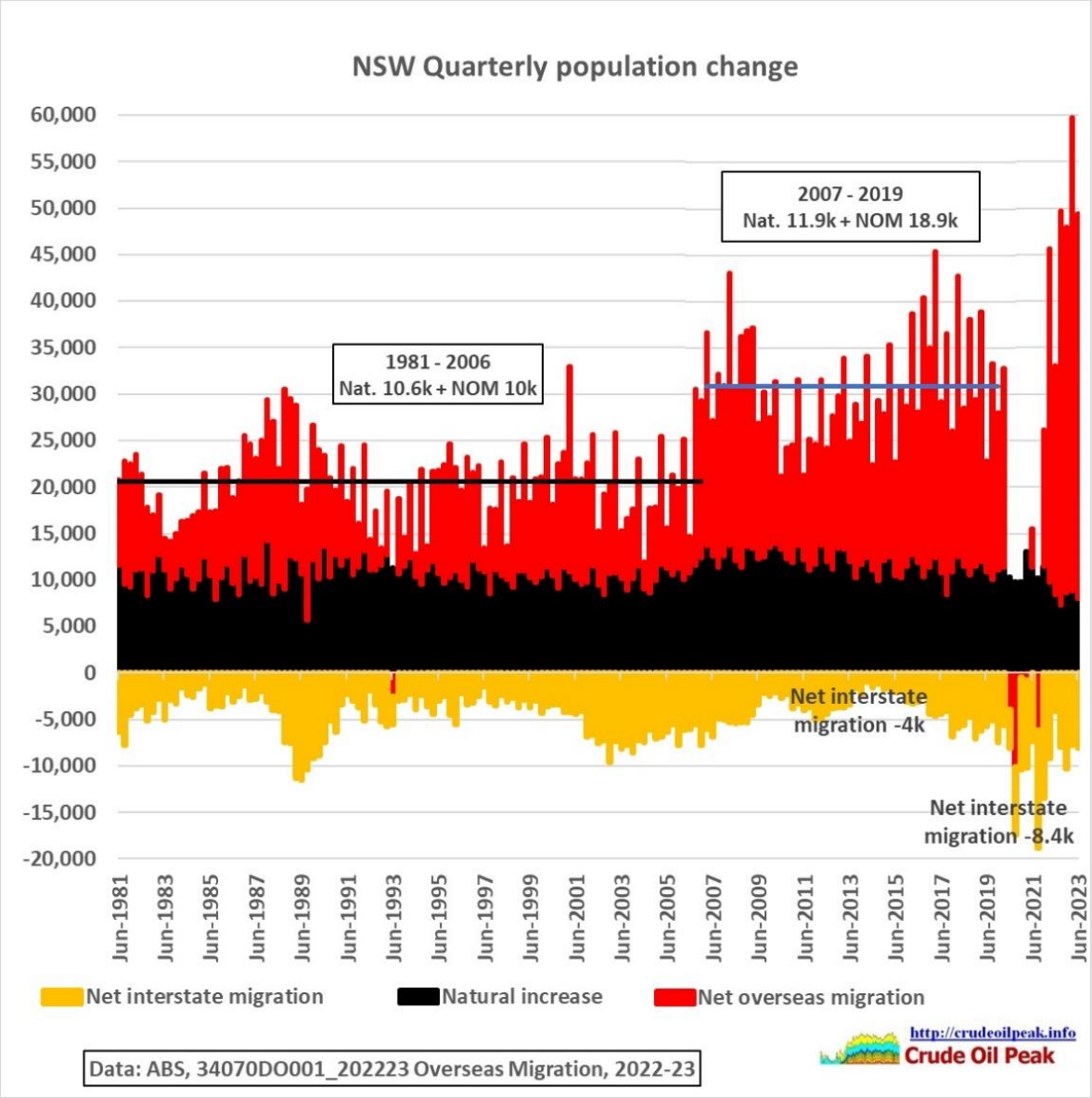
20 years 5.9/4.3 = 1.37 or 37%/20 => 1.9% pa or 1,600,00/20 = 80 K pa

2011-2023=> 12 x 80 k = 960 4.3 +0.96 = 5.26 million in 2023



These are the current population data of the NSW Planning Department

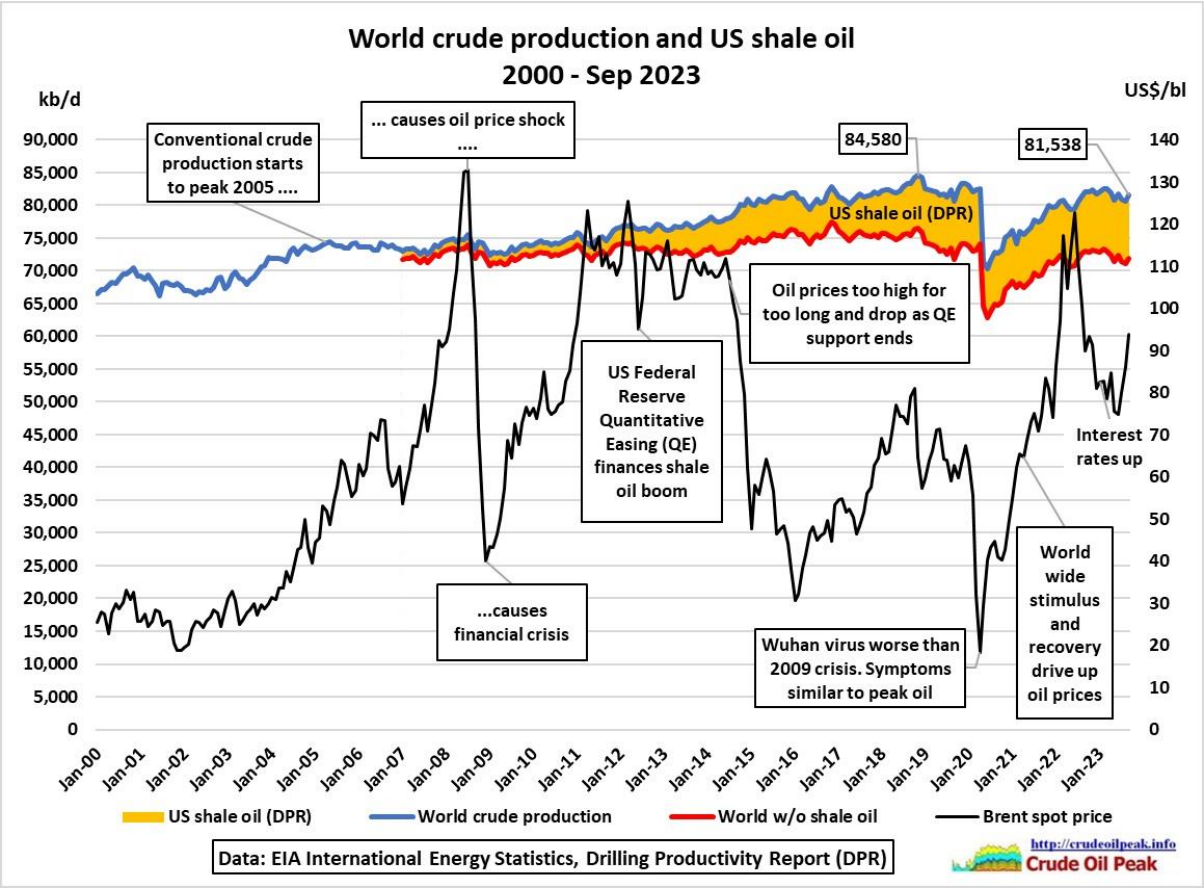
We cannot reduce natural population growth because this is the result of many private decisions in families. But immigration can be reduced which is a politically and arbitrarily set target.



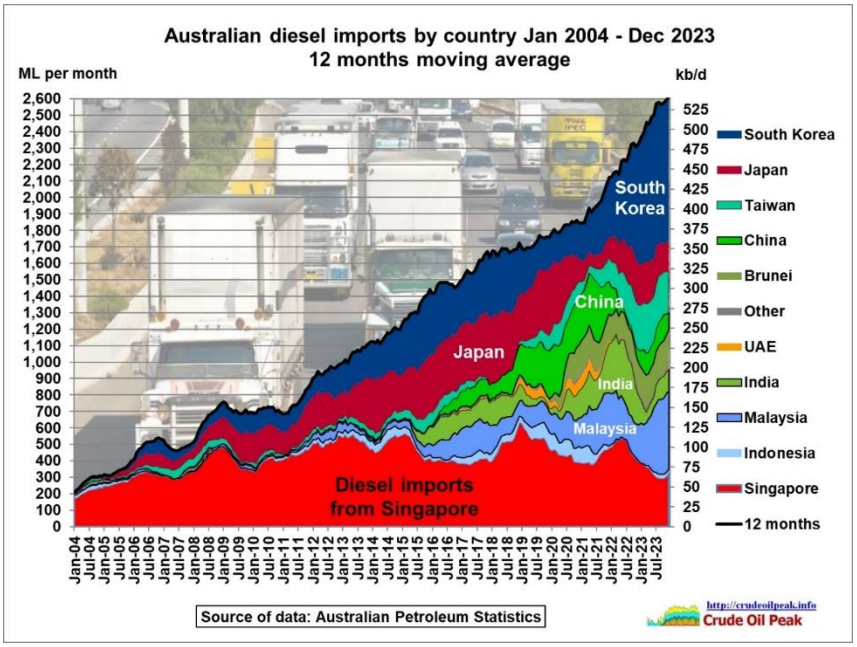
Net overseas migration (NOM) was increased in the last Howard year with the objective to avoid a recession as happened in the US as a result of high oil prices. Rudd came with his “Big Australia” policy, a completely wrong policy in an era of resource depletion.

The traffic jams on our roads are just similar to the housing shortages.

Appendix



The world is in crude oil peak mode



Australia is utterly dependent fuel imports from Asia

These areas are in turn dependent on the Middle East which is disintegrating. South Korea and Taiwan could also see military confrontations.

When that happens, Transurban will have big problems to pay back its debt.

transurban.com/content/dam/investor-centre/01/1H24-ResultsPresentation.pdf

Group debt as at 31 December 2023

	FACILITY (USD M)[1]	FACILITY (CAD M)[1]	FACILITY ($M)[1]	TOTAL FACILITY ($M)[2]	TOTAL DRAWN ($M)[2]	AMORTISATION SCHEDULE	PROPORTIONAL DRAWN ($M)[2]	STATUTORY DRAWN ($M)[3]
CORPORATE DEBT								
Working capital facilities[4]	-	-	2,650	2,650	-	-	-	-
EMTN (CAD, NOK and EUR Notes)	-	650	6,335	7,053	7,053	-	7,053	7,213
144A	500	-	2,042	2,772	2,772	-	2,772	2,922
TOTAL CORPORATE DEBT	**500**	**650**	**11,027**	**12,475**	**9,825**	**-**	**9,825**	**10,135**
Letters of credit[5]	274	-	156	557	392	-	392	-
NON-RECOURSE DEBT[2]								
TQ[6]	-	-	5,791	5,791	5,689	> 5 years	3,556	6,170
LCT	-	-	626	626	626	FY25	626	626
CCT	-	-	282	282	282	FY25	282	282
ED	-	-	341	341	341	Current	256	341
M2	-	-	815	815	815	> 5 years	815	815
M5 West	-	-	171	171	171	Current	171	171
M7	-	-	2,634	2,634	2,109	> 5 years	1,054	-
NorthConnex	-	-	202	202	202	> 5 years	101	-
WCX Group	-	-	8,489	8,489	8,489	> 5 years	4,245	-
M8/M5 East[7]	-	-	2,764	2,764	2,406	> 5 years	1,203	-
95 Express Lanes	1,006	-	-	1,470	1,470	> 5 years	735	-
495 Express Lanes	1,400	-	-	2,046	1,845	> 5 years	923	-
A25		350	-	386	386	Current	193	-
TOTAL NON-RECOURSE DEBT	**2,406**	**350**	**22,115**	**26,017**	**24,831**		**14,160**	**8,405**
Other[8]	-	-	-	-	-	-	-	(45)
Non-recourse letters of credit[9]	-	15	27	43	39	-	21	-
TOTAL GROUP DEBT	**3,180**	**1,015**	**33,325**	**39,092**	**35,087**		**24,398**	**18,495**

1. Shown in effective currency after hedging. CAD, CHF, EUR, NOK and USD debt converted at the hedged rate where cross currency swaps are in place.
2. USD debt is converted at the spot exchange rate (0.6845 at 31 December 2023) where no cross-currency swaps are in place. CAD debt is converted at the spot exchange rate (0.9052 at 31 December 2023) where no cross-currency swaps are in place.
3. Statutory drawn debt differs to proportional drawn debt as foreign currency debt issuances are translated at the spot rather than hedged rate. In addition, statutory debt does not adjust for proportional ownership and reflects consolidated assets. M7, NorthConnex, WestConnex, 95 Express Lanes, 495 Express Lanes and A25 assets are not consolidated.
4. The corporate working capital facilities may be drawn in AUD and/or USD.
5. Issued in relation to Corporate, CityLink, ED, M2, M7, 95 Express Lanes and 495 Express Lanes. Drawn values represent letters of credit issued.
6. Transurban Queensland's $35 million working capital facility can issue letters of credit. Facility value shown does not include $12 million letters of credit issued.
7. Facility value includes capitalised interest.
8. Consists of shareholder loans, net capitalised borrowing costs.
9. Issued in relation to Transurban Queensland, M7 and A25. Drawn values represent letters of credit issued.

Transurban 66

Remember the Lane Cove Tunnel in the credit crunch?

27/1/2010
Peak oil brought forward moment of truth for Lane Cove Tunnel
http://crudeoilpeak.info/peak-oil-brought-forward-moment-of-truth-for-lane-cove-tunnel

The response was money printing which has made the problem bigger.

The NSW government asked for it.

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