Submission to SSI 13_6148

Regarding the M4 Western Motorway - WestConnex M4 Widening

From NoW Public Transport Inc - September 2014

Dear Sir/Madam,

I am writing on behalf of the members and member groups of the non-profit NSW incorporated association: NoW Public Transport. I am writing to oppose the widening of the M4 Motorway as detailed in the Environmental Impact Statement attached to the application #SSI 13_6148.

We shall use the names Roads and Maritime Services (RMS) to refer to the agency, the Sydney Motorways Project Office (SMPO) and the Westconnex Delivery Authority (WDA) as their actions show no clear boundary between the entities. The subordinate organisations have shown they are driven largely by the agenda and actions of their parent agency.

We believe Roads and Maritime Services has certainly failed to satisfy the spirit of the legislation, and we put it to you that they have failed to fulfil the requirements necessary to complete the process.

Firstly there has been inadequate community consultation. By seeking the minimal legal time for the process, the community has been unable to fully assess and respond to the extremely complex application to alter the public's lands and environment. There is simply not enough time to find, read, and assimilate the information and then to write a thorough considered response

The EIS itself is over 300 pages of complex technical description. With extensive citations the EIS require an understanding of at least the NSW Long Term Transport Master Plan , the Sydney Strategic Transport Model, the State Infrastructure Strategy 2012-2032, the Draft Metropolitan Strategy 2013, and the NSW Freights and Ports Strategy. In addition there are several complex and significant appendices that are required to understand the agency's proposal and how it was developed, Further, there are many significant omissions that limit consideration of the above material. For example the reader is often unable to properly compare traffic volumes as they are from different baselines and cover different time periods.

The community has been given insufficient notice of the process, with very little advertising and no use of the agencies extensive contacts within the media. Also, the Department of Planning is improperly preventing search engines from spidering their Major Projects Register. It is inappropriate for a department in a democracy to use "Disallow: / "for "User-agent: * in their robots.txt and it is certainly against the spirit of a *public exhibition.*

For these reasons alone the proposal should be rejected and a further 60 day consultation period should be undertaken, with a wider awareness public campaign, and the robots.txt should be removed from majorprojects.planning.nsw.gov.au.

However those are not the only reason to reject this proposal.

The RMS and the state and commonwealth governments have not followed the "Appraisal Guidelines" from the "National Guidelines for Transport System Management in Australia". These guidelines where developed by the state and commonwealth governments to ensure that unwarranted projects did not consume taxpayers funds. The COAG approved appraisal process requires a detailed assessment of the project before a ministerial decision. In the case of the Westconnex the EIS clearly shows the modelling was done after the announcement of and commitment of funds to the project. The community can only conclude that is why it is currently being redesigned every few months. The agency and the government continue to improperly retain the commitment to fund and build a project that has not finished its initial planning.

Further the modelling was hurriedly undertaken, incorrectly using a model that was both out of date and empirically limited. The assumptions underpinning the model have been disproven and that means the Strategic Travel Model is incapable of predicting the future travel patterns in Sydney. It did not predict the last decades decline in private vehicle travel, in fact this observed mode shift breaks the model. The model assumes no mode shift and so predicts massive traffic volumes for the future of Sydney. These massive traffic volumes are then used to compute travel times which are then used to compute the inflated travel time savings which are used to justify the proposal.

The lack of adaptability is a known and documented limitation of the Strategic Travel Model. The models prediction of a two hour road travel time from Penrith to the CBD is unreasonable when the network travel time is the one hour time of the rail journey. Transport planners know that traffic volumes decrease when the travel time exceeds the network travel time. In addition, this model was developed using 2006 data and is out of date when compared to the observed 2011 data. As well, this model assumes different scenario to current government policy and so contains terminated projects while missing essential policy like Badgerys Creek Airport and the 50,000 unit Parramatta Road Urban Activation Precinct.

It is an unacceptable omission to ignore the massive traffic impacts of an additional 75,000, or more, private vehicles from the governments planned Parramatta Road Urban Activation Precinct, despite it being an integral part of the integrated Westconnex plan. A large UAP surrounding the M4 section underassessment will totally alter the scale and thus the impacts of traffic, noise, and other pollution. The proposal cannot be accepted until this UAP has been modelled and its impacts properly assessed by the agency and then the community.

What is more, the agency has failed to properly model and assess the alternative proposed by the governments, councils and independent reviews. The STM is designed to make it simple to model alternative proposals like the Parramatta-Olympic Park or the Light Rail and Parramatta Rd Light Rail. The agency must update their model and undertake public peer reviewed assessment of the alternatives to fulfil their requirements under the Act.

For all these reasons and many others, detailed below and in other submission, we believe there is only one reasonable and rational conclusion: ***reject the application****.*

The agency will then have time to do a thorough appraisal that fulfils national guidelines and also the requirements of the Act.

Sincerely,

Mathew Hounsell

President NoW Public Transport

Detail

Bibliography

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[GSIS]	Department of Premier and Cabinet, December 2012, “NSW Government State Infrastructure Strategy”
[HTS]	Bureau of Transport Statistics, 2013, “2011/12 Household Travel Survey - Summary Report 2013 Release”
[IPI]	Ron Christie et al, May 2010, “Independent Public Inquiry into a Long-Term Public Transport Plan for Sydney - Final Report “
[LRSP]	Public Transport Advisory Council, November 1997, “Light Rail Strategic Plan for New South Wales”
[LTSPR]	Coordinator General for Rail, Ron Christie, June 2001, “Long Term Strategic Plan for Rail – Greater Sydney Metropolitan Region – Overview Report”
[LTTMP]	Transport for NSW, December 2012, “NSW Long Term Transport Master Plan”
[M4E]	Roads and Traffic Authority, December 2003, “M4 East options study - Overview Report – Summary of the Feasibility Study and Options Assessment”
[M5ED]	Roads and Traffic Authority, November 2009, “M5 Transport Corridor Study - Preliminary overview report”, RTA/Pub. 09.496, ISBN 978-1-921692-54-3
[NGTSM]	Australian Transport Council (COAG), 2006, “National Guidelines for Transport System Management in Australia”, including Volume 3 “Appraisal of Initiatives”
[SoE]	Environmental Protection Agency, 2012, “NSW State of the Environment Report 2012”, especially Chapter 1 – People & Environment
[SIS]	Infrastructure NSW, October 2012, “First Things First - State Infrastructure Strategy 2012 - 2032”

[STM]	Bureau of Transport Statistics, 2012, "Strategic Travel Model Assumptions" etc Transport Data Centre, 2001, Sydney Strategic Travel Mode Technical Documentation
[SRF]	Transport for NSW, June 2012, "Sydney's Rail Future - Modernising Sydney's Trains"

1970s

The Western Expressway was proposed as part of the Cumberland County Plan. The NSW Departments of Main Roads (DMR) worked tirelessly to get their motorway built. However, in February 1977 the NSW Premier Neville Wran (ALP) decided the proposed motorway through the historic suburbs of Ultimo, Glebe, Forest Lodge, Annandale, Leichardt, Haberfield, Five Dock, and Concord was unacceptable and terminated the project.

Some revisionists have claimed that Neville Wran was only interested in the proceeds of land sales in Haberfield. At a community meeting in Leichardt in October 2013, attendees were treated with a viewing of Tom Zubrycki's footage of the protests in Glebe, including a speech by the local Liberal candidate and then opposition leader Nevil Wran (ALP) on the reasons for their opposition to the motorway.

If you are unaware of the protests, of people from far and wide chained to bulldozers and of police standing on rooves asking residents to unchain themselves from the chimneys, then I suggest you seek out the media from that era as an instructive insight into local opposition to motorways going through neighbourhoods.

1980s

In 1989, Statewide Roads a private consortium began work on building a section of the Western Expressway between Mays Hill and Prospect. In order to finance this construction the government, under Premier Nick Greiner (Liberal), granted Statewide Roads a concession to toll the most highly traffic section of the M4 (the renamed Western Expressway) between James Ruse Dr and Silverwater Rd.

Greiner resigned as Premier in June. Three months later, he moved into the private sector himself through his appointment as a director of the consulting engineering firm CMPS and F Pty Ltd, which owns one third of Statewide Roads Ltd, the operator and financier of the M4 tollway built on land it leases from the NSW Roads and Traffic Authority. ("The Tollway Club", Sydney Morning Herald - Saturday January 9, 1993)

Subsequent empirical study of the Annual Average Daily Traffic on the Western Expressway and the Great Western Highway showed that the expansion of the motorway caused a significant increase in the total amount of traffic in the corridor. This effect is known to transport planners as **induced traffic**.

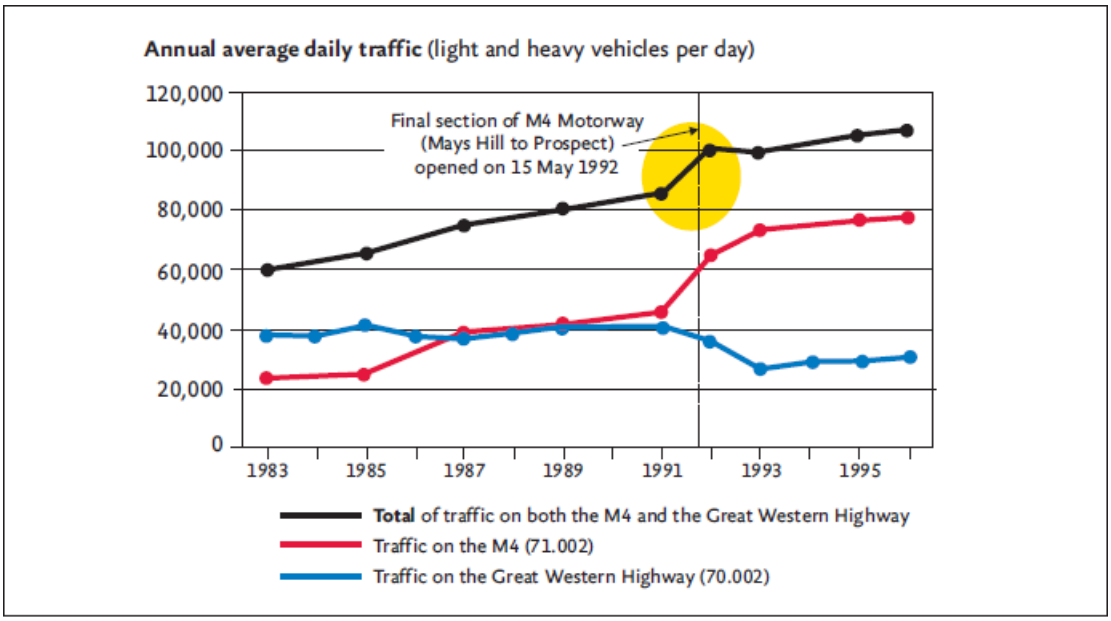


Figure 3.20. *An example of induced traffic. Source: RTA Traffic Volume Data for Sydney Region 1993, cited in Zeibots (2007).*

([IPI] Page 162)

2000s

In 2001, the Hague Consulting Group and Institute of Transport Studies delivered to the NSW Department of Transport the Sydney Strategic Travel Mode. David Hensher of the Institute of Transport Studies was instrumental in the development of the travel demand models.

In 2003, the DMR had been renamed to the Roads and Traffic Authority (RTA) when it put forward the M4 East Options Study. The RTA encountered fierce resistance from local residents who used their local councils to organise their opposition to the plan and lobby the state government, under Premier Bob Carr (ALP), which then terminated the project.

In 2005, the government slowed the journey times on the entire Sydney Metropolitan heavy rail network. A reading of the background papers on the Sydney Strategic Travel Mode would suggest that such an action would lead to a decline in rail patronage and an increase in road congestion as passengers shifted to other transport modes to save time. The mode shift has since been proven empirically by studies of the transport data.

Using the 2006 Census, the 2007 transport networks and the patronage data the Transport Data Centre updated the "Sydney Strategic Travel Mode". Unfortunately this new baseline was established after the artificially slowed rail journey times which artificially transpired mode share from heavy rail to private car.

In 2009, realising that the M4 East duplication was strongly opposed by the community and seeing Premier Nathan Rees' (ALP) support for the totally unplanned Rozelle Metro, the RTA changed direction. This time the agency proposed to duplicate the M5 East tunnels. This project was designed to rectify the design faults in the original and to overcome the induced traffic caused by the government's Cash-Back policy.

The RTA encountered fierce resistance from local residents who used their local councils to organise their opposition to the plan and lobby the state government, under Premier Kristina Keneally (ALP), which then terminated the project.

2010s

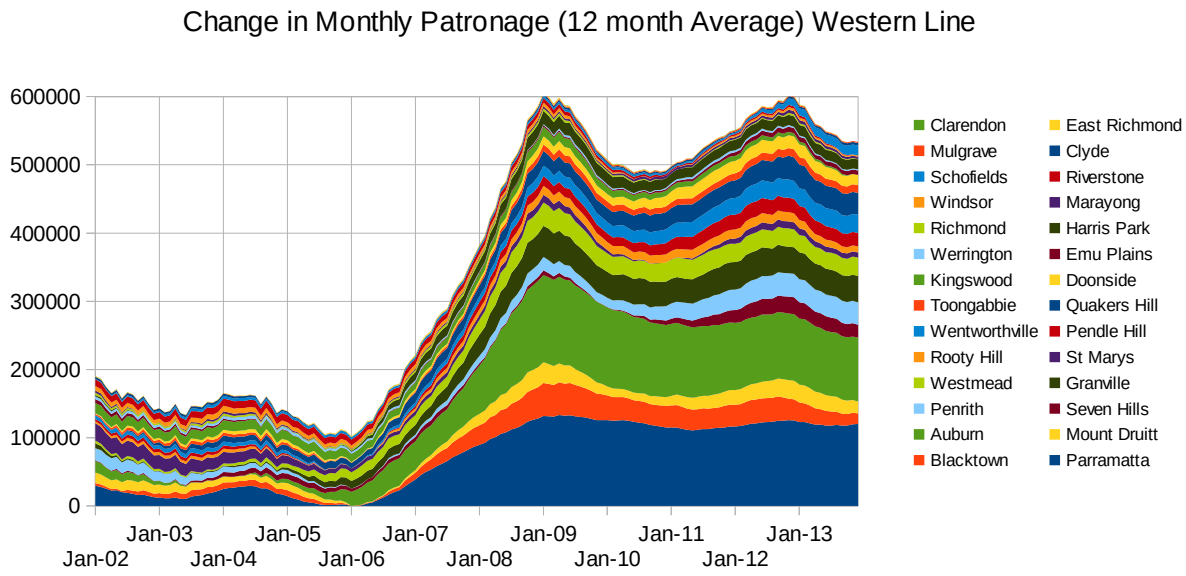
Tolls and Patronage

On 16 February 2010, the concession on the M4 Motorway expired and ownership was transferred from Statewide Roads to the NSW Government. The toll on the M4 Motorway was removed at this

time. Immediately prior to its removal, the motorway toll was $2.75 for cars and $6.60 for trucks [excluding the Cash-Back program]. ([EIS] - Appendix D – Page 91)

From the RTA's assessment there was a 500 vehicle drop in traffic on Parramatta Road in the four hours of the morning and a 1500 vehicle increase in vehicles on the M4 (Western Expressway). This represents an induced traffic effect of over one thousand vehicles. The effect is evident by the immediate visible increase in road congestion and reduction in travel speeds experience on Sydney's roads. After the toll was removed, the average monthly rail patronage started to slide because of the significantly reduced patronage caused by mode shift to private vehicles. With each month, the new reduced baseline pulled the twelve month rail patronage average lower.

You can see quite clearly on the below graph where the slower timetables and removal of the toll on the Western Expressway have significantly reduced the patronage on the Western Line. However you can also see that the trend is holding for over 150% growth (300,000 passengers a month) above the 2001 figures.



Note: the NSW Bureau of Transport Statistics recommends the use of the 12 month average on rail Patronage data to eliminate seasonal variation due to factors like wet weather.

Transport Plans

In 2011, the Liberal National coalition was elected to government in NSW. The Transport Minister Gladys Berejiklian (Liberal) theoretically reorganised the various transport planning agencies (road, rail, etc) into one department: Transport for NSW. The Roads and Traffic Authority was meant to transform into a service delivery agency called Roads and Maritime Services (RMS). However the former roads authority reports to another cabinet minister: the Minister for Roads, Duncan Gay (Nationals). It is worth noting that the rail operators do not have a separate cabinet minister equal in position to Mr Gay, they are represented as part of her portfolio by Minister Berejiklian.

In 2011, Transport Minister Gladys Berejiklian started a process to develop the "NSW Long Term Transport Master Plan". At the same time Premier Barry O'Farrell (Liberal) commissioned the former premier Nick Greiner and former treasurer Bruce Baird (Liberal) to lead an organisation called Infrastructure NSW, which was charged with creating a "State Infrastructure Strategy".

It soon became clear that Transport for NSW and Infrastructure NSW would release two competing transport plans. Especially with Infrastructure NSW giving interviews in July and August to the Daily Telegraph outlining their vision for the Westconnex.

In September 2012, the government released the "Draft NSW Long Term Transport Master Plan". In October 2012, the former premier Nick Greiner (Liberal) released the Infrastructure NSW report "First Things First - State Infrastructure Strategy 2012 - 2032". One proposed a small suite of high capacity rail transport and several large road transport projects that were designed to significantly increase the overall transport network capacity. The other proposed a suite of road projects, including the Westconnex, perhaps reflecting the views of its chairman who describes himself as the father of Sydney's toll roads.

In December 2012, Transport for NSW released the "NSW Long Term Transport Master Plan". Under section 12.2 titled "What changed as a result of your contributions" on page 690 this statement was added:

Included the planning and delivery of WestConnex including urban renewal solutions for the Parramatta Road corridor and strategies to optimise benefits from new investment ([LTTMP])

Much of the community was surprised by such a significant change to the draft. Perhaps, because no one else had been able to get approval for the immediate start on their $11 billion proposal.

The Westconnex relied heavily on the terminated "M5 Transport Corridor Study - Preliminary overview report" with Stage 2 being a direct copy of that project. However in a surprise move Infrastructure NSW had proposed that the M4 be extended as the Slot Option outlined in the "M4 East options study - Overview Report – Summary of the Feasibility Study and Options Assessment". The Long Tunnel was the preferred option of the RTA, not the Slot Option. The disadvantages of Infrastructure NSW's initial Westconnex plan were many; not least those outlined by the RTA in [M4E]:

> *Disadvantages*
>
> - Need for extensive property acquisition and associated relocation impacts on residents and businesses.
>
> - Direct impacts on several significant heritage sites would need to be managed.
>
> - Major issues with regard to drainage and potential flooding at several major drainage canals. [emphasis added]
>
> - Major disruption to traffic flow during construction.
>
> - Impact and disruption to businesses during construction.
>
> - No significant improvement to air quality along Parramatta Road immediately adjacent to slot is likely.
>
> - Relatively long lag time in redevelopment of land hence a visual 'scar' would be likely for a longer period of time.
>
> - Longer time to construct due to the requirement to purchase significant property. Businesses would need time to find alternative premises and relocate.

In 2013, preliminary modelling (WRTM) was based on the STM and undertaken for the initial cabinet discussions. The Stream 1 was developed privately by Jacobs SKM-AECOM in January 2013 based on a copy of the then STM. **Half of the model** was delivered in April 2013 for use in the development of the Business Case taken to cabinet soon after.

> The independent [WRTM] review committee included an independent expert Denis Johnston and Professor David Hensher of Sydney University Institute of Transport and Logistics Studies.

Notable inclusions in the WRTM include the Parramatta-to-Epping Rail Line which is no longer government or department policy and is not in Transport for NSW's "NSW Long Term Transport Master Plan" or "Sydney's Rail Future" nor the Department of Planning's "Draft Metropolitan Strategy for Sydney". While we support the Parramatta to Epping Rail Line we find it interesting that the roads operator is planning for its medium term construction but the rail operators are not.

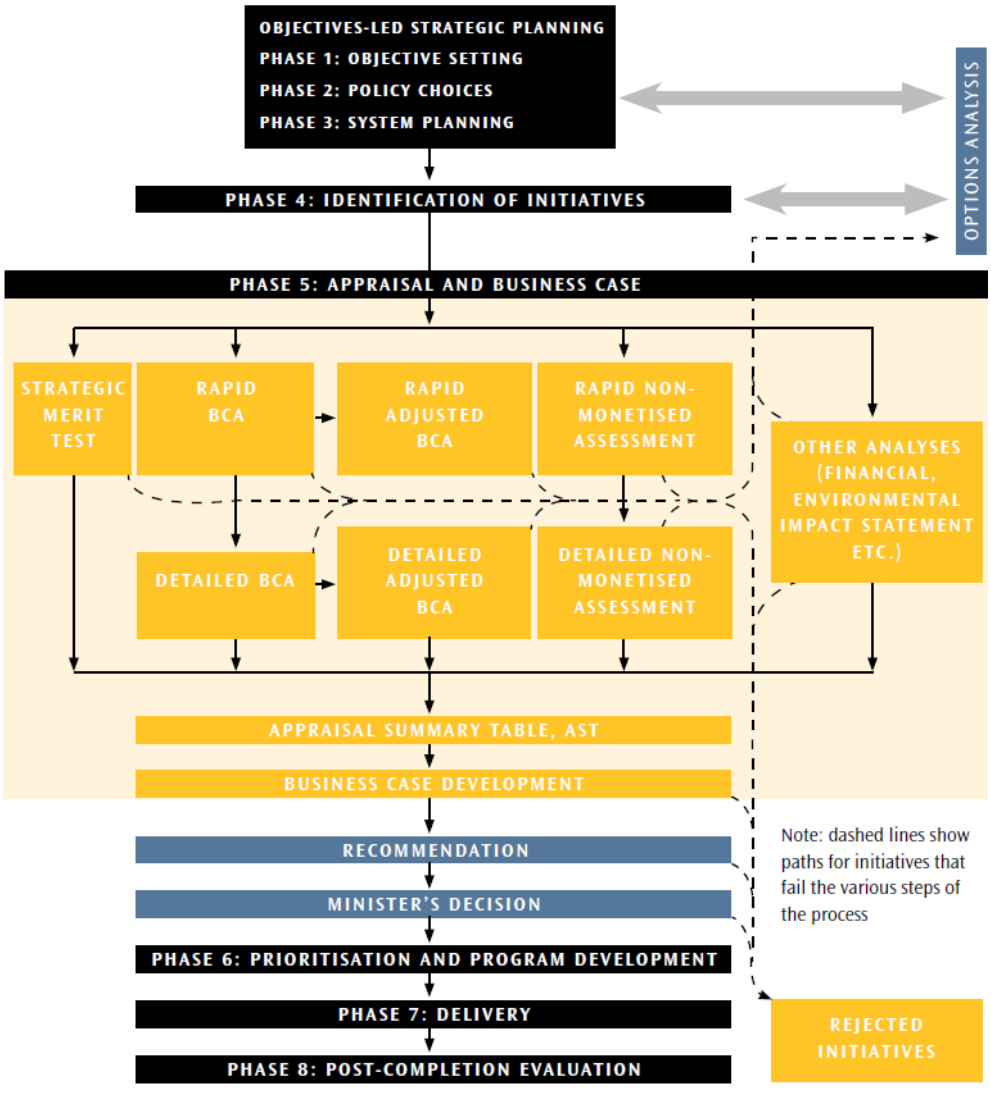
It is hardly surprising that the model was questionable and rushed. The vision for the 33km motorway was outlined in July 2012. The NSW government decision to build it was announced in October 2012, within moments the current Prime Minister Tony Abbot affirmed the unconditional support of his impending government for the Westconnex. That commitment was despite not having seen the business case, most likely because the preliminary business case was prepared for cabinet in April and May 2013.

So, the modelling to test the feasibility of the Westconnex proposal started in January 2013, only three months after the decision to build the motorway has been announced. The model was then partly finished in April before the **Preliminary Business Case** went to the NSW Cabinet over eight months after the project had been announced.

The Stream 1 model was commenced in January 2013 and completed in April 2013 in time for use in the preliminary Business Case. ([EIS] Appendix D Page 101)

I draw to your attention, as I fear no-one associated with the project has read it: Australian Transport Council (COAG), 2006, "National Guidelines for Transport System Management in Australia" including Volume 3 "Appraisal of Initiatives". Under the guidelines developed by the state and commonwealth governments, the Detailed Modelling is completed **before** the Business Case which is also completed **before** the Ministers Decision. Sadly in the case of the Westconnex, the government's own actions and documents show the decision to build came before the project appraisal.

Figure 1.1: Appraisal methodology flowchart



([NGTSM] Volume 3 Page 11)

All Change

In 2014, the Slot Option had been abandoned in preference for the Short Tunnel Option, The short option has now also been abandoned, with the latest reports and public information from the WDA and Urban Growth NSW indicating the Long Tunnel Option is now preferred. In August 2014, Marrickville council has been told the government is completely redesigning the Southern Sydney Connection of Stage 2, the M5 duplication through Tempe.

The Long Tunnel Option and the Short Tunnel option rise to the surface at completely different points. Exiting onto Anzac Bridge and Victoria Road is a very different matter to exiting onto Broadway at Victoria Park. There is no way the traffic modelling for the Short Tunnel matches the actual traffic patterns of the Long Tunnel Option. Since the Business Case was presented to Cabinet (but not the public) in early 2013, we can only assume that the modelling is now dramatically out of date.

Badgerys Creek

In 2014, keen to be the Infrastructure Prime Minister, Tony Abbot announced a $3.5 billion dollar road package to build the southern section of the M9 and support Badgerys Creek Airport, with plans to determine a rail corridor to support the airport. Soon after Transport Minister Gladys Berejiklian began the consultation on a proposed rail corridor and a number of stations through Badgerys Creek to St Marys.

Prime Minister Tony Abbott and Infrastructure Minister Warren Truss this afternoon announced Federal Cabinet approval of Badgerys Creek as the site of the new airport.

After decades of debate about the location, Mr Abbott - who wants to be known as the "infrastructure prime minister" - says he wants to "get cracking".

"The planning and design work will start immediately, and my expectation is that construction will begin in 2016," he said.

However, he says the first flight will "realistically" take off in the mid-2020's and when it does, it may not be subject to any limits on flight times.

The Government estimates 4,000 jobs will be created in the construction phase and that 35,000 could be generated by the development of the airport by 2035.

(ABC "Badgerys Creek: Second Sydney airport gets Federal Government approval" Emma Griffiths - Updated 15 Apr 2014, 9:18pm)

This proposed rail corridor, the extra money to the Western Sydney Employment Centre, the funded M9 and Badgery's Creek Airport opening in 2026 is not in the STM or the WRTM.

> Even though a recent announcement regarding a future second Sydney airport indicated that it would be in operation by 2026, it is not yet an approved project and, consequently, is not included in the Sydney Strategic Transport Model (STM). **Undoubtedly if a second airport were to proceed there would be resultant changes to employment and residential land use which would generate changes to trip distribution across the Sydney road network**. These changes are not reflected in the traffic forecasts generated by the WestConnex Road Transport Model (WRTM) for the reasons stated above and described in more detail in Chapter 5. [Emphasis Added] ([EIS] Appendix D Page 7)

This text is, to put it politely, inaccurate. Badgerys creek airport is not considered in the STM because it has only just been announced. What is more, the purpose of the STM is to test hypotheses on unapproved projects. The STM already has all kinds of unapproved or orphaned projects; the F6 and the Parramatta-to-Epping Rail Line springs to mind.

Furthermore, the reasons described in more detail in Chapter 5 make it clear that the WRTM does not have the Badgerys Creek Airport included because it was developed in April 2013, before the Sydney's 'second' airport was announced. (It is actually the seventh or eighth airport depending on how you count.)

Undoubtedly if a second airport were to proceed there would be resultant changes to employment and residential land use which would generate changes to trip distribution across the Sydney road network. (Appendix D Page 7)

It is worth repeating that Badgerys Creek airport will have a monumental effect on the travel patterns of Sydney.

The EIS is predicated on the assumption that many in Western Sydney will need to travel to Eastern Sydney for employment. Most people in Sydney choose to either work near their home or live near their work. Only a very small number of people commute long distances across the city. With a second airport in Western Sydney, plus the Western Sydney Employment district there will be a major change to the modelled population and employment and thus to the forecast traffic, It is worth waiting for three months to redo the travel model with the major new information to determine if the Westconnex is still the wisest investment.

The proposal should be rejected as it is clear that the Badgerys Creek Airport and other works will dramatically reshape the city and they must be modelled to properly asses the proposed M4 Widening.

State of the Environment

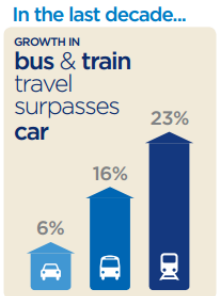
In 2012 the Environmental Protection Agency released "NSW State of the Environment Report 2012" which empirically assessed the observed transport usage data and found many important changes, including those outlined below.

While the number of trips in Sydney has been growing, the proportion of trips using private vehicles peaked in 2004–05 and is now the lowest it has been in 11 year.

In contrast, over the same period, total public transport passenger kilometres travelled grew at nearly double the annual average rate of VKT at 1.1% per year (BTS 2011).

The Liverpool–Parramatta Transitway amounts to more than200 million passenger trips annually in the Sydney metropolitan region. ([SoE] Section 1.1)

The Transport Data Centre (now the Bureau of Transport Statistics) followed up on the report by the EPA with their "2011/12 Household Travel Survey - Summary Report 2013 Release". With the release of the report the need for public transport has become suddenly very clear. In the past decade Sydney's population has increased by 12% but the demand for Sydney's trains increased by 23% and Sydney's Buses by 16%. However the growth in private vehicles for personal and commercial purposes only grew by 6%. The BTS even provided this cute infographic.



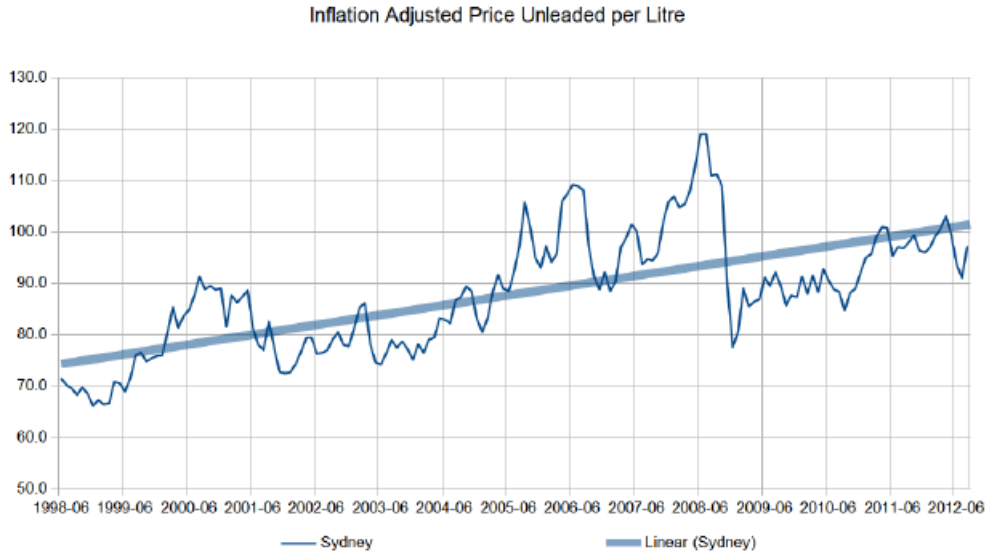
Strategic Travel Model

With private vehicle growing slower than population it creates a problem for the use of the Strategic Travel Model. Simply, this model is based on the fundamental assumption that travel mode demand is largely inelastic.

For example the proponents of motorways have stated for decades that demand for motorways (and oil) is inelastic and will not decrease with other factors. This however has been disproven by the experience here and overseas. This assertion has been disproven as the demand for oil has decreased as its price has risen above inflation. However the Strategic Travel Model assumes:

Fuel and toll costs rise with CPI ([STM] Assumptions)

If that was true then adjusting the average Sydney petrol price for inflation would show a level trend line not the steady increase in price that we have seen over the past fifteen years.



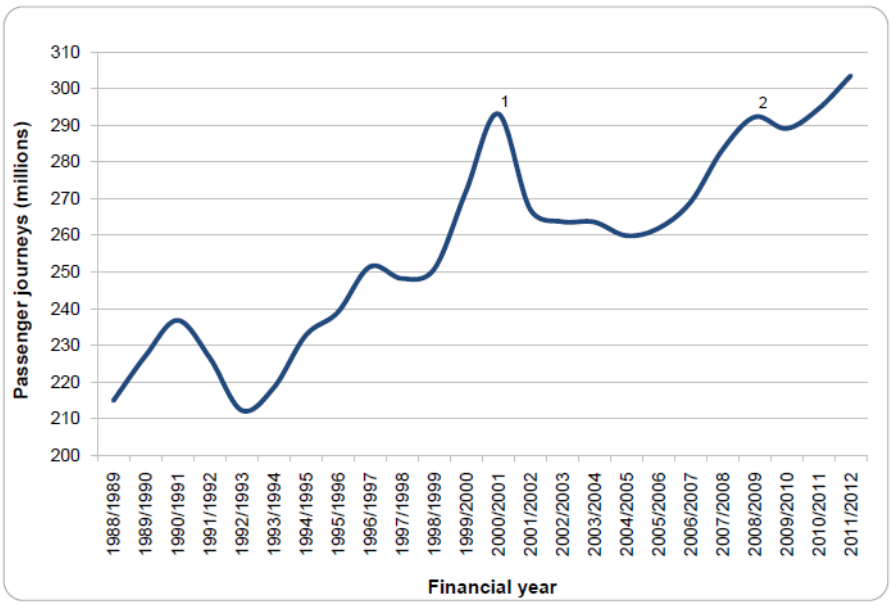
Data from Automobile Associations of Australia and Australian Bureau of Statistics

What is more the Strategic Travel Model assumes that there is no other factors that may impact mode choice such as generational preferences. The number of licence holders and car owners in the under 30 segment of the Sydney population has been decreasing.

Regardless, the model suggests that a 12% increase in population should lead to a 12% increase in vehicle drivers. However it is clear that other unmodelled factors are altering transport mode choice. The STM is currently incapable of modelling the observed reality.

The reality is there has been a significant increase in rail patronage above population across the metropolitan rail network.

Figure 7 – Annual CityRail passenger journeys since 1988/89



Notes:
1. 2000/2001 includes Olympic and Paralympics related passenger journeys. See Table 4 for annual passenger journey figures since 1988/1989.
2. 2008/2009 excludes World Youth Day 2008 related passenger journeys.

Source: Rail Patronage Data June 2012, Bureau of Transport Statistics, TfNSW.

This increase in rail patronage is despite slower trains and less services than 2004, It is also despite many major and significant railway failures

What is more, the Value of Travel Time Savings of rail passengers has increased because of the growth in real incomes and the consolidation of higher incomes in housing around the citiy's railway stations and faster bus corridors. According to the assumptions underpinning the Strategic Travel Model the users near the rail system would be less amenable to its services because they value their travel and wait times much more than they did in 2004.

A contrived simplified example: Raj lives near Homebush, since 2004 his real wage has increased from $20/hr to $30/hr (2004 $) his travel time to the CBD has increased by 5 minutes to 15 minutes and his average wait time has increased to 7.5 minutes (from 5) due to less trains stopping at Homebush. His perceived cost in 2004 was $6.67 (20*(10+2*5)/60); in 2014 his perceived cost has risen to $12.50 (30*(10+2*7.5)/60). Yet Raj is still catching the train to the CBD and he has been joined by many more people all over Sydney; so many in fact that rail patronage has grown by 23% over the past decade [HTS].

The STM is a limited strategic model. Reading its technical documentation gives insight into the assumptions that it is based upon. These assumptions lead to the model making certain guaranteed predictions. One guaranteed prediction is that traffic will always rise with population. In the decade since the model was created this has been empirically disproven. The STM is correct in showing that slower trains reduce patronage and tolls reduce cars use. However it can't accommodate the change in car usage, the change in oil price or a revealed preference for Facebooking and Tweeting for the half hour on the way to work.

While the number of trips in Sydney has been growing, the proportion of trips using private vehicles peaked in 2004–05 and is now the lowest it has been in 11 year. ([SoE])

It is questionable whether the department was using the model correctly. It is also questionable whether they should have been using it at all. The NSW and Commonwealth Governments assert that Westconnex must be built to cut travel times, if even by just 1 minute. However, their own figures show they know this to be misleading.

In the official travel times released for the Westconnex, the government shows driving through traffic will take 66 minutes for Parramatta to the Airport (excluding parking). However, using any train trip planner it shows a 40 minute ride, including a change at Central.

Most of the Government's travel times show Westconnex will be slower than public transport.

These alleged travel time savings are based on the assumption that the amount of traffic will continue to rise indefinitely. This has been disproven by the last decade of travel figures. It is also contrary to the governments own modelling on people's response to imminent tolls to be levied on the M4.

Below are the assumptions used in the preparation of the WRTM. Notice the now cancelled Western Express and Parramatta to Epping Rail Line. The inclusion of those projects is because the Bureau of Transport Statistics is planning in late 2014 to update the STM to 2011 data. Currently, the STM is still using the 2006 census and travel data and still using obsolete and defunct plans.

The proposal should be rejected because the model it is based on is using out of date data; and because the model is being used incorrectly as a planning tool not a strategic project comparison tool.

Table 6-1: Strategic travel model network assumptions (EIS Appendix D Page 109)

Year	Road	Rail	Bus
2006	Network version July 2009	Network version March 2007	Network version March 2007
2011	Lane Cove Tunnel Inner West Busway (Iron Cove Bridge duplication) F3 Freeway (M1 Pacific Motorway) widening Hume Highway widening	Enhanced 2009 timetable network Cronulla Rail Line duplication Epping to Chatswood Rail Line	Integrated bus networks phase one
2016	Hunter Expressway M2 Motorway widening M5 West widening Western Sydney employment hub Great Western Highway widening	A variety of rail projects to improve operability of the rail network South West Rail Link Inner West light rail extension to Dulwich Hill	Integrated bus networks completed Additional 1,000 buses Increased frequencies
2021		North West Rail Link Central business district (CBD) and South East Light Rail	Northern Beaches busway Bus network extensions and frequency adjustments aligned with changes in land use and rail network assumptions
2026	NorthConnex	Western Express	

Origin	Destination	2021 w/o Westconnex – Minutes	2021 w/ Westconnex – Minutes	Tranit 131500.info - Minutes
Penrith	CBD	114	92	62
Penrith	Surry Hills	117	89	58
Penrith	Airport	113	91	71
Parramatta	Strathfield	30	20	12
Parramatta	CBD	64	44	17
Parramatta	Airport	101	66	40
Strathfield	Surry Hills	45	30	14
Strathfield	Airport	66	44	28
Summer Hill	Broadway	27	24	24
Liverpool	Randwick	61	42	80
Liverpool	U Syd	61	43	65

2031	South West Growth Centre	Three tier railway plan – railway services based on three service types to meet different customer needs Parramatta to Epping Rail Line	
2036	F6 Freeway (M1 Princes Motorway)	Three tier railway plan – railway services based on three service types to meet different customer needs	
(2041)	M2 Motorway extension via Gladesville Bridge to M4 East extension		

Traffic

Consider the statement on page iv of the Executive Summary.

> "Once completed, the M4 Widening project would provide immediate operational benefits in relieving congestion on the M4 Motorway between Church Street and Homebush Bay Drive, delivering reductions in travel times and improvements in the level of road safety on the motorway."

These purported travel times are then outlined as 1 minute – just 1 minute – during the evening peak westbound and a staggering 14 minutes morning peak eastbound. That is the eastbound morning peak journey will be five minutes – that is the fastest time you can legally travel from Church St to Homebush Bay Drive. In other words it will be like there is no traffic at all; such a statement defines credibility.

To quote the outline on the Department of Planning's Major Project Register:

> "The RMS proposes to widen and upgrade approximately 7.5 kilometres of the M4 Western Motorway between Pitt Street, Parramatta/Granville/Holroyd/Merrylands and Homebush Bay Drive, Homebush/Homebush West. The project is a component of the WestConnex scheme. WestConnex is a proposed 33 kilometre motorway to link Sydney's west with the airport and the Port Botany precinct. "

Therein lies the problem at the heart of the project. Throughout the EIS and its appendices the government makes it clear that the widening of the M4 will have no real benefits until the whole 33km Westconnex project is complete, In fact reading the detail it is clear that the widening will have significant disbenefits and these will have a significant cost on the NSW economy.

> When the fully completed WestConnex is operational, modelling shows that an average of around 4,500 fewer trucks and 20,000 fewer cars per day are expected to travel on the section of Parramatta Road between Concord Road and Camperdown. ([EIS] Executive Summary)

In an average 16-hour day that is 281 trucks a minute or 4.68 trucks a minute. This number is contradicted by observing Parramatta Rd and by examing the data in the [LTTTMP] and later in the [EIS])

Also, that's 1/3 of all the cars on Parramatta Rd or two lanes of traffic – despite reports in the Sydney Morning Herald indicating that the Government was advised that a reduction in traffic was improbable.

Cost

> NSW Government is contributing $1.8 billion to fund WestConnex, while the Australian Government is contributing $1.5 billion with a further $2 billion through a concessional loan to the NSW Government. ([EIS] Executive Summary – Page ii)

That is $5.3 billion already committed to a project that has not completed its planning.

Let's consider the capital cost. It's odd, but not surprising, that one can find no mention in the EIS or the Executive Summary of the Business Case (i.e. the public documents) of the actual capital cost of the proposed widening of the M4 Motorway. How is anyone supposed to take a BCR seriously without an estimated capital cost.

Stage	Location	Key Features	Estimated Capital Cost
1	Parramatta to Haberfield M4	Widening 7.5 km of the existing M4 to 2x4 lanes between Church Street, Parramatta and Homebush Bay Drive. Widening 1 km and new 5 km 2x3 lane tunnels to extend the M4 from Homebush Bay Drive to Parramatta Road and the City West Link.	$3.4 billion – $3.6 billion (including contingency)

WestConnex Business Case Executive Summary Page 17

Stage 3 is an 8.5 km twin three lane motorway tunnel in Sydney sandstone with estimates of $4.1 billion indicating an approximate cost of $480 million per kilometre. This is consistent with RMS estimates for the Northconnex and previous estimates for the M5 duplication. Thus we are left to estimate that the motorway widening will cost approximately $1.2 billion dollars, or just over $140 million dollars a kilometre. Of course these are educated assessments as the government has gone to extraordinary lengths to keep the financial and modelling details of this project secret. Perhaps that's because the business case was written after the announcement? Perhaps that's because the project doesn't even have a final route?

Tolls

> On 16 February 2010, the concession on the M4 Motorway expired and ownership was transferred from Statewide Roads to the NSW Government. The toll on the M4 Motorway was removed at this time. Immediately prior to its removal, the motorway toll was $2.75 for cars and $6.60 for trucks. (Appendix D – Page 91)

We can see from the numbers that there was a significant surge in the number of vehicles using the Parramatta Rd and M4 corridors when the tolls where removed. In fact there was approximately and extra thousand vehicles in the corridor; on top of those who changed roads. This is why the Commonwealth Treasury, Infrastructure NSW and the Productivity commission all recommend the introduction of distance based, time-of-day road pricing.

	Parra Rd Before	Parra Rd After	Parra Rd Difference	M4 Tolled	M4 Untolled	M4 Difference
AM 06:00 – 10:00	2370	1869	-501	8124	9657	1533
PM 15:00 – 19:00	2820	2511	-309	8243	8979	736

Change In Traffic With M4 Toll Removal - M4 Toll Plaza and Parramatta Road, Silverwater (Appendix D Page 72)

Estimated Traffic

	Parra Rd 2021	**M4 2021**	**Parra Rd 2031**	**M4 2031**	**Parra Rd Diff**	**M4 Diff**
AM Peak	2740	12120	3450	12930	710	810
Inter-Peak	2730	9960	3020	10620	290	660
PM Peak	3140	11680	3820	12330	680	650

Traffic By Time Period on M4 Motorway At Toll Plaza (2021 vs 2021)

The government's model predict an increase of 1520 vehicles in the M4/Parramatta Rd corridor by 2031 if there is no widening of the M4 nor any Westconnex.

This a passenger equivalent load of 1.5 Waratah trains.

There is an expectation of additional vehicles during the majority of the day. Based on the above estimates the widening will cost $300,000 per additional vehicle per day, or 50,000 days to recover the cost charging $6 a day in tolls.

However, according to the numbers contained in the EIS and Appendices the widening of the M4 will actually reduce the total amount of traffic in the corridor. The government acknowledges that there will be an increase in traffic on Parramatta Rd as motorists compare the toll to their VTTS and find it to be too high. However the government does not mention the fact that there will be a total reduction in traffic within the corridor as discretionary or impulse trips are deferred or redirected to other transport modes like public transport.

Increased traffic on Parramatta Road and other roads due to toll avoidance.

	Parra Rd	M4	Parra Rd After	M4 After	Difference
AM Peak	2740	12120	3350	10740	-770
Inter-Peak	2730	9960	3310	6610	-2770
PM Peak	3140	11680	2510	8600	-3710

Traffic By Time Period on M4 Motorway At Toll Plaza (2021): Base and M4 Widening Scenario

To put it simply the state can make most of the problem go away by reintroducing tolls. That would improve travel speeds and provide revenue to pay for important capital works like those mentioned below.

Based on their own numbers why was the simple alternative option of levying tolls not thoroughly assessed? Especially if there was only going to be an additional 800 cars per hour and many of them would be scared off by tolls.

The proven carrying capacity of the three lane Parramatta Rd is over 6,000 cars an hour in just one direction in the morning peak. The theoretical capacity of the six lane M4 Motorway is 14,400 vehicles, while the theoretical capacity of the five lane Parramatta Rd (assuming a clearway) is another 12,000 vehicles. The theoretical capacity of an eight lane widened M4 and Parramatta Rd is an astounding 19,200 vehicles. Based on the governments numbers for the existing M4 plus Parramatta Rd represents an overprovisioning of 60% - well above industry standards. Meanwhile the proposed M4 widening would represent an over-provisioning of 90%.

It is astounding that the government would spend an estimated $1.2 billion dollars to save 1 minute on a drive westbound, especially when tolls would cut traffic.

What is more, the RMS has not considered the positive impact on traffic by the transfer of east-west commuters on to public transport. The 2011 JTW figures show a substantial of people still drive east-west despite living and working along the east-west rail corridor. With improvements to the Western Line, the Main Line, and the Inner West Line there will be road capacity released in the Parramatta Rd / M4 corridor. With the construction of the Parramatta-Olympic Park and the Parramatta Rd Light Rail there would be significant capacity transferred from east-west car commuters to commercial vehicles and other commuters. However the leveraging of high capacity public transport to free road capacity has not been properly considered in the EIS.

From the repeated assertion in the EIS, we can conclude that RMS Is concerned that the unreliable travel times on the M4 is leading to a reduction in desirability for their product. This is clearly evident in the loss of transport mode market share from road to rail.

This proposal should be rejected because the predicted travel benefits do not outweigh the predicted costs.

Freight

> Modelling by the Bureau of Freight Statistics estimates that the average number of weekday freight trips in the Sydney Metropolitan Area would increase by almost 40 per cent between 2011 and 2031. This includes:
>
> • An increase in the number of trips made by rigid trucks on an average weekday from 271,000 to 355,000, an increase of around 30 per cent.
>
> • A more rapid increase in articulated truck trips from 95,000 to 157,000, an increase of around 65 per cent. ([EIS] Executive Summary)

That's an expected increase of 60,000 semi-trailers or, since the Government is expecting to increase the access of High-Performance-Vehicles to Sydney, it could also mean B-Triples.

The freight argument is in reality revealed in Appendix D. Where after all that talk about trucks on Parramatta Rd it is revealed that the roads operator would like another freight route to reduce some of the cost on the A3.

It is noticeable how the freight numbers in this diagram from the Appendix suggest a daily load on Parramatta Rd of about 1000 trucks not the 4,000 plus trucks stated in the executive summary.

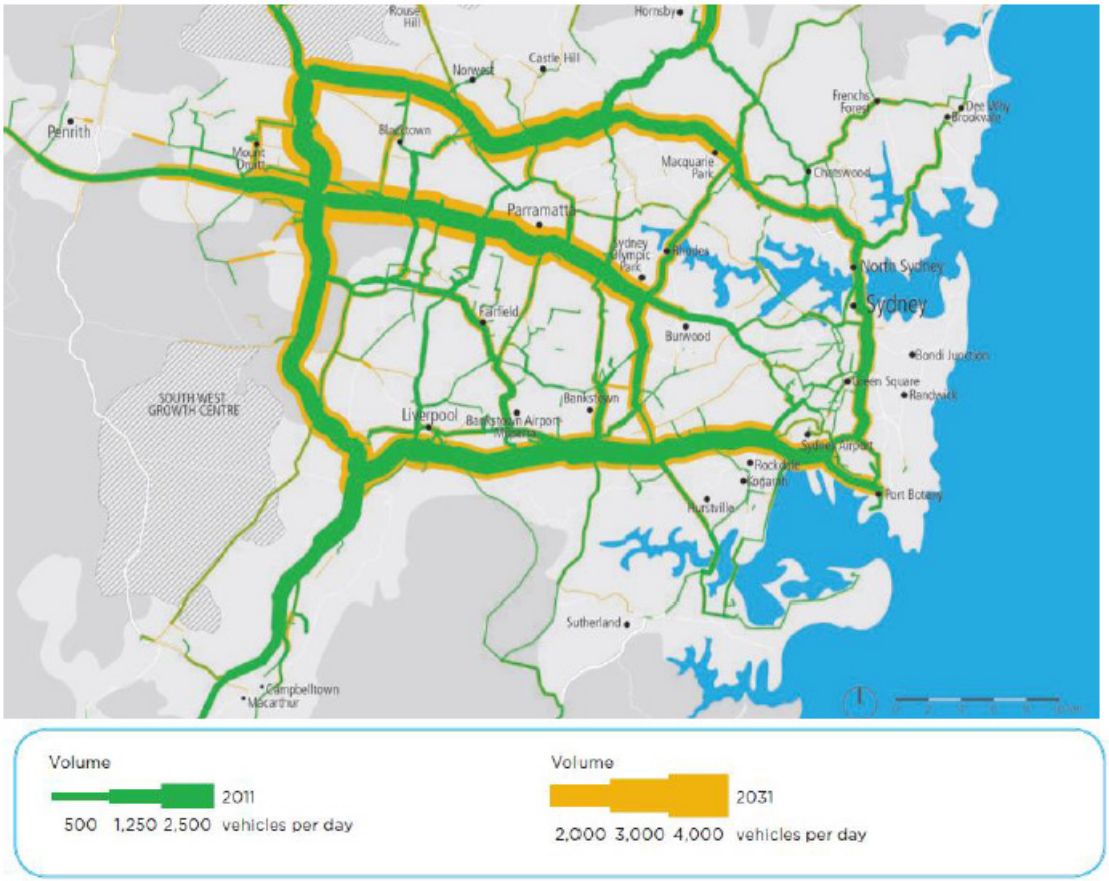


Figure 3-6: Heavy vehicle movements in Sydney, 2011 and 2031

Source: TfNSW, LTTMP, 2012a p.282

Currently the primary north-south freight route from the eastern end of the M4 Motorway at Parramatta Road to the Port Botany/Sydney Airport precinct relies on the surface arterial and sub-arterial road network. This route includes West Street, Sydenham Road, Livingstone Road, Stanmore Road, Edgeware Road, Canal Road and Gardeners Road. These inner city roads, with narrow lane widths, largely undivided carriageways without adequate turning lanes to accommodate heavy vehicles, are not suited to carrying high volumes of heavy vehicles. The result is that heavy vehicles have difficulty navigating these roads, with traffic incidents causing significant disruption.

Due to the poor north-south connectivity in the inner west, the M7 Motorway, M5 Motorway and A3 corridor bear a heavier load with traffic from the M4 Motorway travelling south via the A3 corridor and onto the M5 East to head east towards the Port Botany/Sydney Airport precinct. This is not an efficient movement for traffic and increases congestion, wear and tear, and safety risks.

WestConnex creates an additional route to the Port Botany/Sydney Airport precinct, relieving current freight routes such as the M5 Motorway, the A3 corridor and Sydenham Road. Some heavy vehicles are expected to switch from these routes to WestConnex to continue west on the M4 Motorway. This means more route options for freight and commercial vehicles, improving flexibility and the resilience of the road network to respond to incidents. It also provides a level of network redundancy for freight connections into the Port Botany/Sydney Airport precinct, as heavy vehicles could be diverted north via WestConnex to the M4 Motorway corridor if there were significant delays or traffic incidents on the M5 Motorway corridor. ({EIS} Appendix D Page 8)

Meanwhile the Westconnex does not work towards achieving Government 2021 policy, such as:

Under Goal 19 of NSW 2021, the State Government has committed to the following target: 'Enhance rail freight movement: double the proportion of container freight movement by rail through NSW ports by 2020'

The proposal should be rejected because its statements and number on freight and trucks are grossly misleading.

Urban Activation

The NSW Government has made it quite clear that the Westconnex is as much about "higher population density" ([DMSS]) as it is about road transport.

WestConnex is the largest integrated transport and urban revitalisation project in Australia." ([EIS] Executive Summary – Page i)

However the EIS only considers two of the planned precincts. It does not consider the planned office developments in Central Olympic Park nor does it consider the massive Parramatta Road "density uplift" program by UrbanGrowth NSW.

> There are two Urban Activation Precincts (UAPs) in the vicinity of the M4 Motorway corridor including Wentworth Point and Carter Street, Lidcombe. ([EIS] Page 55)

The Wentworth Park, and Carter St Urban Activation Precincts and nearby development will account for an additional 8,000 residences adjacent to the M4. That is probably an additional 16,000 residents and based on minimum parking requirements an additional 12,000 vehicles.

At the same time the government has transferred planning authority for the Parramatta Rd corridor to UrbanGrowth NSW, the corporation formally known as Landcom. UrbanGrowth NSW has convinced a number of Sydney councils to sign a Memorandum of Understanding and provide staff and transfer planning within the corridor to the corporation. The corporation has distributed a brochure about their Urban Renewal Portfolio entitled Project Profile - Parramatta Road Urban Renewal Program,

The brochure and other public documents including those released to councils indicate that UrbanGrowth NSW and the NSW Government are planning other extensive Urban Activation Precinct in the area around the section of the M4 under assessment and Parramatta Rd.

The Strategic Travel Model is highly dependent on population forecasts and land use planning. If the model for the business case did not include the proposed Parramatta North, Parramatta Rd, Carter St, Wentworth Park, and Olympic Park UAP then its data is incomplete. Examining the model documentation and bureau's land use documentation, it is clear that the model did not support these Urban Activation Precincts. Without accurate land use and population planning for the 200,000 people in thes UAP, the models results are worthless.

The proposal should be rejected and the Urban Activation proposals for the corridor should be modelled and their impact on travel should be assessed. If there are too many people for the network to handle that means bringing forward Parramatta Rd Light Rail or even the $3 billion dollar (approx.) Western Metro.

Alternatives

The Westconnex does not work towards achieving Government 2021 policy, such as:

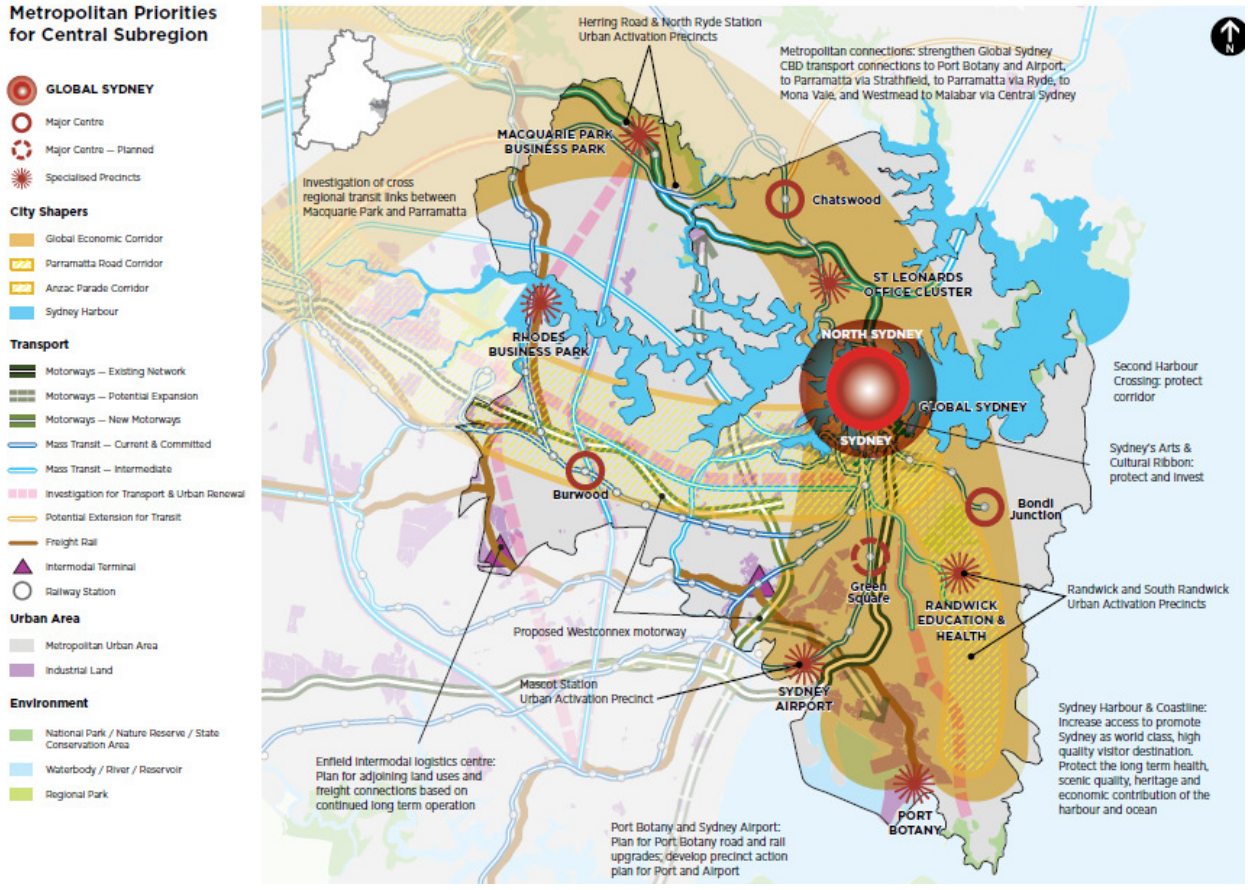
NSW 2021 Goal 20 – 'Build liveable centres' has set a target to increase the percentage of the population living within 30 minutes by public transport of a city or major centre in the Sydney metropolitan area.

The EIS was developed without fully considering all the important alternatives. In fact the RMS dismisses all the alternatives as ineffectual and thus not worthy of assessment; this is in breach of the assessment process. It is not up to the roads department to make assertions that public transport and freight rail alternatives are by definition inferior. It is the duty of the RMS under the SSI and EIS process to model the alternatives and demonstrate with clear documentation and public data what impact the alternatives had. It is for the assessor to determine if the decision made by the RMS was correct and well-reasoned.

The WDA does not model and assess the Parramatta council plan for a light rail running from Parramatta through Olympic Park to Strathfield or Rhodes. Nor do they model and assess Parramatta Rd Light Rail running from the CBD to the Carlingford Line and onto Granville and Parramatta. That is despite these two light rails being adjacent with the proposed Widening of the M4. This is a shocking breach of the assessment process; especially since we know the strategic modelling for the motorway was completed in three months.

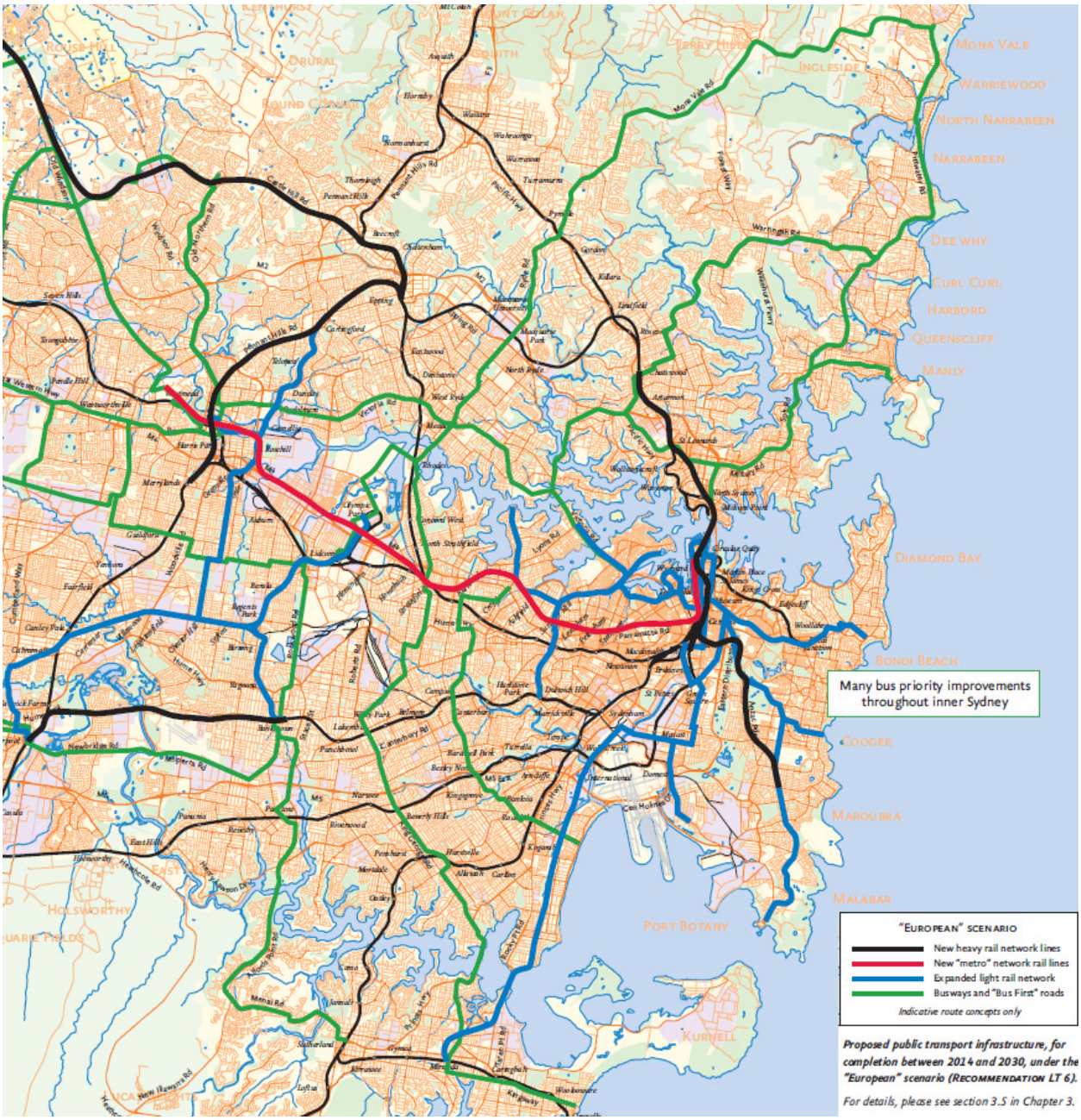
I wonder if the WDA read the Coordinator General for Rail Ron Christie's report titled "Long Term Strategic Plan for Rail – Greater Sydney Metropolitan Region". In this document which has been directing government policy for a decade, Christie outlines the proposal to sextuplicate the western line between Lidcombe and Homebush. Why was this alternative not assessed?

We know that the initial modelling was done in only three months at the start of 2013. This is probably why it contains none of the Mass Transit corridors outlined in late 2013 in the Draft Metropolitan Strategy for Sydney. However, it is clear that Transport for NSW and the Department of Planning believe that a major Mass Transit system will soon be required through the areas under assessment.



([DMSS])

The WDA did not consider previous government policy and based on the planning documents, impending government policy of the "Western Metro" as outlined in the "Independent Public Inquiry into a Long-Term Public Transport Plan for Sydney - Final Report "

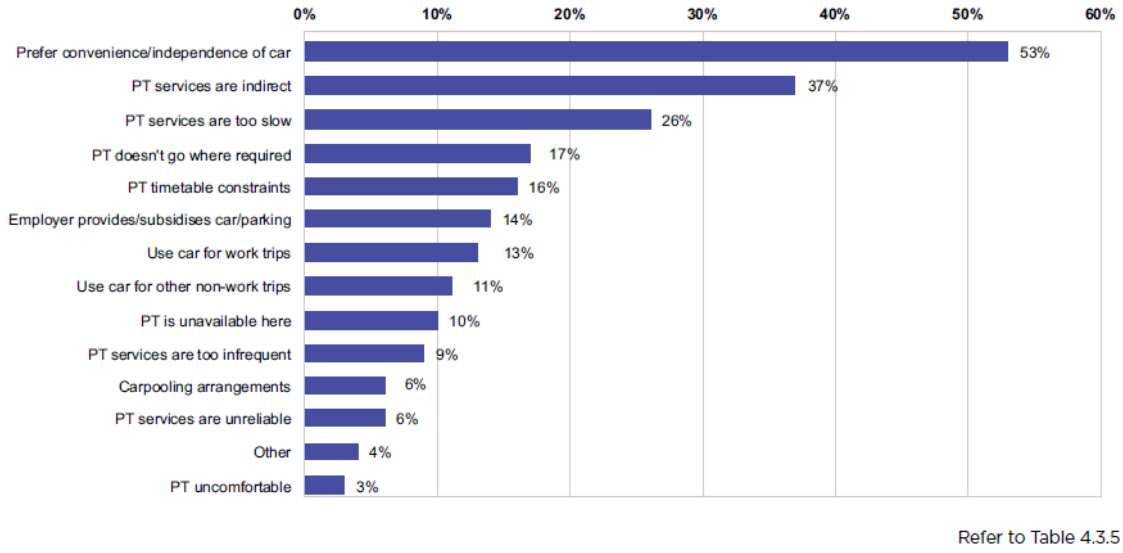


Infrastructure NSW recommends Time of Day Pricing in [SIS] on page 91. The Australian Future Tax Review, and so the Commonwealth Treasury recommend an increase in the use of road pricing; as does the productivity commission, the NRMA, and countless other public and private reviews into Australian Transport. Road Pricing was not properly considered as a viable alternative in the development of this EIS.

This analysis suggests that ultimately it may be desirable to implement a comprehensive system of congestion pricing on the [Sydney Strategic Road Network], but …
… existing road charges may need adjusting ([SIS])

The NSW Household Travel survey has been asking people for over a decade why the commute by car. The answers are quite obvious and many feed into the Strategic Travel Model. So the alternatives discussed above can be readily assessed to determine if they would have an actual impact. The WDA has not taken this into account in modelling.

Figure 3.5.2: Reasons for commuting by car, 2011/12



Refer to Table 4.3.5

([HTS])

Sydney's east compared to Sydney's west, generating a net flow of journey to work (JTW) trips from west to east. Furthermore, many jobs in the east are also out of centre jobs not in Sydney CBD (eg. the southern part of the Global Economic Corridor). Strategic centres hold 41 per cent of jobs within Sydney's east. These areas are not well served by public transport, particularly from Sydney's west and WestConnex would support travel to these out of centre jobs. ([EIS])

The WDA repeatedly identifies inadequate public transport as a major problem and then suggests that a new mega-road is the answer. It also chooses to wilfully ignore that the majority of the city's economic arc is served by public transport that could be cheaply and easily improved.

This proposal should be rejected because it did not properly consider the alternatives.

Conclusion and recommendation

This poorly developed application should be rejected because of the complete omission of assessment of alternative and because the projects justification has been made on the basis of incomplete and "cherry picked" data. The determining authority should instruct the WDA to follow the full process outlined in the "National Guidelines for Transport System Management in Australia" volume 3 "Appraisal of Initiatives" and undertake a full assessment of the alternatives before their application will be accepted for consideration. We would expect the WDA to model a Distance Based Time of Day Toll on the Existing M4, Parramatta Council's Western Light Rail, Parramatta Rd Light Rail, Lidcombe to Homebush Sexduplication [LTSPR], Port Botany Rail Duplication, and the all combinations thereof and other important alternatives outlined by past government, council and independent reports.

Carter St Precinct - (NSW Department of Planning)

Appendix A: Draft Metropolitan Strategy for Sydney

Excerpt Parramatta Road Corridor

The Parramatta Road Corridor connects Global Sydney and Parramatta via Sydney Olympic Park. It is one of the busiest road corridors in Sydney.

The WestConnex Motorway will provide opportunities to transform the local centres that exist alongside the Corridor and better connect them as Sydney Olympic Park grows.

The Parramatta Road Corridor offers prime regeneration opportunities to create lively, well-designed centres with improved north-south and east-west linkages currently limited by the busy Parramatta Road.

This will help to deliver a diversity of housing and jobs choices, close to the shops and services in a new, liveable context.

Priorities for Parramatta Road Corridor

• deliver improved road connections through the WestConnex Motorway,30 ensuring improvements allow for better links between local centres so they can flourish and attract new investment

• deliver stronger east-west connections along, and at grade north-south connections across, Parramatta Road

• focus on Sydney Olympic Park as a Specialised Precinct to be a major location for employment, high density housing, sports and entertainment

- use the planned regeneration31 to better integrate Sydney Olympic Park into adjacent areas
- facilitate delivery of Urban Activation Precincts at Carter Street and Wentworth Point as part of the wider regeneration of Sydney Olympic Park
- create high quality places and spaces at key points along and adjacent to Parramatta Road
- plan for well-designed housing including smaller dwellings and apartments to ensure the Corridor achieves a higher population density that can stimulate business and retail investment
- plan for a viable and frequent public transport service the length of the Corridor.

Appendix B: Australia's Future Tax System

The following excerpts are from the federal government's review of the Australian Tax and Transfer System completed in December 2009

Excerpt: Appendix B: The Australia's Future Tax System Review Panel

- Dr Ken Henry AC (Chair), Secretary to the Treasury
- Dr Jeff Harmer, Secretary, Department of Families, Housing, Community Services and Indigenous Affairs
- Professor John Piggott, Professor of Economics and Associate Dean, Research, Australian School of Business, University of New South Wales
- Mrs Heather Ridout, Chief Executive, Australian Industry Group
- Mr Greg Smith, Adjunct Professor, Economic and Social Policy, Australian Catholic University

Excerpt: Chapter 8: Enhancing social and market outcomes

In Australia's future tax system, the only additional taxes to those on the four broad bases described earlier would be specific taxes imposed for one of three purposes: to improve market or social outcomes by addressing spillover costs and benefits; to help counteract self-control problems (in the special case of tobacco); and to improve market efficiency through appropriate price signals. Such taxes would only be used where they are a better means to achieve the desired outcome than other policy instruments. The rate of tax would be set in accordance with the social cost of the activity. Revenue should be a by-product of such taxes, not the reason for them.

User charging would play a complementary role, as a mechanism for signalling the underlying resource cost of publicly provided goods and services and rationing individuals' access to community resources, including renewable resources. User charging can be an efficient means of financing some government-supplied goods and services, provided the user is charged the cost (or loss) that consuming the good or service imposes on others. Where users do not directly impose costs on others, as is the case with public goods, funding should be by way of general taxation.

Other existing taxes would have no place in a future tax system and should be phased out over time. The elimination of a large number of taxes that distort production decisions or add to production costs would improve the competitiveness of Australian business. Fewer taxes would also enable further automation of tax administration, reducing business compliance costs.

8.1 Road transport taxes

Current road tax arrangements will not meet Australia's future transport challenges. Poorly functioning road networks harm the amenity, sustainability, liveability and productivity of our society. Moving from indiscriminate taxes to efficient prices would allow Australia to leverage the value of its existing transport infrastructure. Less congested roads, shorter travel times and investment in road infrastructure that addresses user demand would provide a foundation for further productivity growth, improved living standards and more sustainable cities.

There are large challenges facing transport in Australia. In particular, under 'business as usual' assumptions, the avoidable costs of urban congestion may grow to around $20 billion in 2020. This cannot be reduced simply by building more city infrastructure, as most new road space induces new traffic. Helping to manage road use, through efficient prices, provides the best long-term approach to reducing congestion.

If fuel tax is used as a variable road charge, it should apply to all transport fuels. Equally, fuel taxes should not exceed the levels justified by broadly defined social costs of use (whether of roads or environmental costs).

In major cities, location-specific congestion charges should vary according to the time of day. City roads would be less congested during peak periods, with travel at higher speeds and shorter travel times, saving time for road users, reducing vehicle costs and greenhouse emissions. The revenue from congestion charges on existing roads should flow back to the community, initially to finance public transport in affected areas.

Heavy vehicle charging would ensure that individual trucking operators pay their own specific costs, no longer cross-subsidising or being subsidised by other operators. Truck operators would have incentives to avoid route choices and vehicle configurations that cause the highest costs, but would have access to roads and bridges they are willing to pay for. Revenue from road-wear would directly fund road owners' maintenance.

In addition to helping manage demand for transport, reforms could be considered to ensure that spending on roads matches anticipated need. This should be determined according to strategic planning and comprehensive and transparent benefit-cost analysis. This would help ensure new roads are built where needed, and roads are maintained to minimise total life cycle costs, including costs to road users. Road users with specific needs could enter commercial agreements with road suppliers.

Existing institutions have not led to the most efficient use and supply of roads. Prices are essential to making the best use of roads, but they must be coupled with improved governance that better serves the needs of road users, now and in the future. New investment based on economic criteria and accountability for investment decisions would help ensure that roads are constructed and maintained in accordance with future needs.

Appendix C: Strategic Travel Model Assumptions

1. Model Version STM 2.3 (7 purposes, 7 modes, 2,690 travel zones, 4 times of day)

2. Network Assumptions based on the Metropolitan Transport Plan MTP 1.0 and Long Term Rail Strategy LTRS 4.0

Year	Road	Rail / Light Rail	Bus
2006	Network version July 2009	Network version March 2007	Network version March 2007
2011	- Lane Cove Tunnel - Inner West Busway (Iron Cove Bridge duplication) - F3 widening - Hume hwy widening	- Enhanced 2009 timetable network - Cronulla duplication - Epping to Chatswood Rail Link	Integrated bus networks Phase 1
2016	- Hunter Motorway (F3-Branxton) - M2 widening - M5 widening - Western Sydney Employment Hub - Great Western Hwy widening	- Consolidation works[1] - South West Rail Link - LRT Dulwich Hill extension	- Integrated bus networks completed - Additional 1,000 buses - Increased frequencies
2021	- M5 East Duplication	- North West Rail Link to Rouse Hill - LRT CBD Extension	- Northern Beaches Busway - Bus network extensions and frequency adjustments aligned with changes in landuse and rail network assumptions
2026	- M4 Extension - M4 Widening	- Western Express	
2031	- M2 to F3 Tunnel - South West Growth Centre	- 3-tier Railway Plan[2] - Parramatta-Epping Rail Line	
2036	- F6	- 3-tier Railway Plan	
(2041)	- M2 extension via Gladesville Bridge to M4 East		
All years Travel costs	Fuel and toll costs rise with CPI	MyZone fare system. Fares rise with CPI	MyZone fare system. Fares rise with CPI

[1] A variety of rail projects to improve operability of rail network.
[2] Railway services based on three service types to meet different customer needs.

3. Land Use Assumptions

Year	Population	Employment
Source	**2006:** ABS Estimated Resident Population (ERP) **Future years:** BTS October 2009 Release Population Forecasts:[3]	**2006:** BTS Employment Estimate[4] **Future years:** BTS October 2009 Release Employment Forecasts:[5]
Major growth areas	• North West Growth Centre • South West Growth Centre • Green Square/Zetland • Rhodes/Olympic Park • Thornton North (Maitland) Established/Greenfields split: Approximately 70/30	• Western Sydney Employment Area • Barangaroo • Cooks Cove • Olympic Park • Redfern Development • Rouse Hill Regional Centre • Liverpool CBD • Darling Harbour
Total per year		
2006	5,133,000	2,467,000
2011	5,440,000	2,594,000
2016	5,755,000	2,746,000
2021	6,076,000	2,964,000
2026	6,402,000	3,085,000
2031	6,725,000	3,209,000
2036	7,041,000	3,346,000

4. Heavy Vehicle Demand assumptions

BTS Freight Movement Model (FMM) Freight Forecast, February 2010 Release. 6

5. Behavioural assumptions

• Behavioural models were estimated using Household Travel Survey data collected from 1997/98 to June 2008/09 and Journey to Work data up to and including 2006 Census.

• Assumed 1% growth in real income per annum.

• Travel behaviour responses to times, costs and modes within synthetic household classes (128 different types) were assumed not to vary over time, although the number of people within each household class will vary along with demographic change and socio-economic change. [Emphasis Added]

6. Caution

The assumptions listed above may not occur in reality and do not necessarily reflect government policy. In addition, users should also be aware of some other limitations inherent in the STM:

• The STM is a simplification of reality. It breaks the GMA into 2,690 travel zones, and further by 128 population segments within each travel zone. These 350,000 segments by travel zone represent over 5 million people in the GMA, and thus involve using averages and simplifying assumptions to predict behaviour and access to the transport system.

• The STM does not currently apply a capacity constraint on public transport use. What this means is that in effect, each public transport vehicle is infinitely large. It is possible to identify where services are over capacity by dividing predicted demand by known supply. The BTS believes that the most likely response to congestion on public transport is a shift of travel time, not of mode, thus it stands by the STM's 2 or 3.5 hour peak estimates of travel demand by mode.

• Whilst the STM has been validated to ensure that it reproduces reasonable estimates of current travel behaviour, it has not been calibrated to match base year travel in this implementation.

7. Fitness for purpose

The STM is a strategic multi-modal modelling tool incorporating the latest population and employment forecasts.

The STM has been successfully used to inform evidence-based policy development and decision-making in strategic, metropolitan scale land use and transport scenario modelling projects.

For specific projects, the STM results should be used as a starting point to produce estimates of overall demand in response to alternative land use and/or transport supply scenarios. However, due to its limitations as a strategic modelling tool, the STM may need to be supplemented with more detailed analyses for project evaluation purposes.

Notes

3 Please refer to the Technical Documentation on these population forecasts. These forecasts are compatible with Department of Planning (DoP) 2008 Release Population Projections and the 2010 Metropolitan Plan.

4 Journey to Work employment counts are factored by 13.3% to account for Census under-enumeration.

5 Please refer to the Technical Documentation on these employment forecasts which include information about the labour force assumptions such as participation and unemployment rates produced by Access Economics.

6 Please refer to the Technical Documentation on these freight forecasts.