Submission No 426

INQUIRY INTO IMPACT OF THE WESTCONNEX PROJECT

Name: Mr Mat Hounsell

Date Received: 31 August 2018

Submission to Public Accountability Committee Inquiry – 'Impact of the WestConnex project'

Regarding the M4 Western Motorway - WestConnex M4 Widening

From Mathew Hounsell - August 2018

Dear Sir/Madam,

I am a Transport Analyst and Planner, and as an independent citizen I have been studying transport in Sydney since 2008, specifically the M4, the M5 and Kingsford Smith Airport.

I have been studying the Westconnex since it first appeared in drops to the Daily Telegraph in mid-2012. I have provided independent technical and historical analysis of the project to the community and I am one of the persons most familiar with the project outside of its contractors.

This submission aims to address a key few of the inquiry's terms of reference. Westconnex is not a single project, it is a brand that has been used for public relations to cover a range of existing road upgrade projects and long-planned motorway. Westconnex must also be considered in the context of the departments full plan which always included additional projects like the Campbell St widening, Quantas Dr widening, F6, and an M2-M4 motorway. Recently, the Westconnex brand has been used by the government to create new projects such as the Western Harbour Tunnel.

This submission has been written to provide the committee with the big picture and then some detailed technical information. I have attempted to provide information to assist you in understanding the hidden historical context.

I apologise that this submission is not exhaustive. During the writing process, I came to realise that an 18-page submission with attachments barely scratches the surface on this topic. Please feel free to contact me individually or as a committee if you would like additional information or assistance.

Sincerely,

Mathew Hounsell

Declarations

I have never been employed by, nor paid by, nor received any gifts or benefits from NSW Roads and Traffic Authority, NSW Roads and Maritime Services, Sydney Motorway Project Office, WestConnex Delivery Authority, Sydney Motorway Development Corporation, Transurban, Leightons, Macquarie Bank, CIMIC, AECOM, Arup, NSW Department of Planning, Planning NSW, Urbangrowth NSW, Landcom, Marrickille Council, Leichhardt Council, or the Inner West Council. Nor am I in dispute with any of those entities. Nor have I received any benefit from their commercial competitors.

My current employer (Institute for Sustainable Futures at the University of Technology Sydney) and I work have worked with Transport for NSW on unrelated projects.

My current employer and I were contracted to conduct independent assessments of the WestConnex (M4-M5), Western Harbour Tunnel, and Northern Beaches Link for City of Sydney and North Sydney Council.

I previously held unpaid positions as co-convenor of Ecotransit Sydney and President of Now Public Transport.

Inquiry's Terms of Reference

That the Public Accountability Committee inquire into and report on the impact of the WestConnex project, including:

(a) the adequacy of the business case for the WestConnex project, including the cost-benefits ratio
(b) the cost of WestConnex project, including the size and reasons for overruns
(c) consideration of the governance and structure of the WestConnex project including the relationship between Sydney Motorway Corporation, Roads and Maritime Services, the Treasury and its shareholding Ministers
(d) the compulsory acquisition of property for the project
(e) the recommendations of the Audit Office of New South Wales and the Australian National Audit Office in regards to WestConnex
(f) the extent to which the project is meeting the original goals of the project as articulated in 2012
(g) the relationship between WestConnex and other toll road projects including the Sydney Gateway, Western Harbour Tunnel, F6 and Beaches Link
(h) the circumstances by which WestConnex and the Sydney Gateway were declared to be separate projects in 2017
(i) the cost of the project against its current valuation as determined through the sale of the Sydney Motorway Corporation and whether it represents a good investment for NSW taxpayers
(j) any other related matter.

Bibliography

[DLTMP]	Transport for NSW, September 2012, "Draft NSW Long Term Transport Master Plan"
[LTTMP]	Transport for NSW, December 2012, "NSW Long Term Transport Master Plan"
[M4E1]	Westconnex Delivery Authority, September 2015, "Westconnex - M4 Widening Environmental Impact Statement", including Volume 1 and all Appendices
[M4W1]	Westconnex Delivery Authority, August 2014, "Westconnex - M4 East Environmental Impact Statement", including Volume 1 and all Appendices
[M5E1]	RTA, November 2009. "M5 Transport Corridor [Feasibility] 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"
[SIS12]	Infrastructure NSW, October 2012, "First Things First - State Infrastructure Strategy 2012 - 2032"
[SIS14]	Infrastructure NSW, 2014, "2014 State Infrastructure Strategy Update"
[SIS18]	Infrastructure NSW, February 2018, "Building Momentum - State Infrastructure Strategy 2018 - 2038"
[STM]	Bureau of Transport Statistics, 2012, "Strategic Travel Model Assumptions" etc Transport Data Centre, 2001, Sydney Strategic Travel Mode Technical Documentation
[STM12]	Bureau of Transport Statistics, February 2012, "TransFigures - Travel Forecasts 2006-2036"
[STM14]	Bureau of Transport Statistics, March 2014, "TransFigures - Travel Forecasts 2011-2046"

Big Picture

Historical Context

To understand the Westconnex projects you need to be familiar with the historical context. Especially Figure 1: County of Cumberland - Planned Freeway – 1972, which diagrams the planned freeways developed by the NSW Department of Main Roads in the 1940s.

Much of the Western Freeway (M4) has been built, as has most of the South Western Freeway (M5). The Sydney Newcastle Freeway (F3) was built to Hornsby. Half of the Castlereagh Freeway (M2) has been built. The Southern Freeway (F6) was built to Waterfall. The Warringah Freeway (M1) was built to Willoughby and then cancelled.

The North Western Freeway (in yellow) was only partly built from the Druitt Street to the Anzac Bridge at Rozelle. It was meant to continue via Balmain and Drummoyne to Huntley's Point. There it was to connect with the Lane Cove Valley Expressway (in yellow) which, in turn, was to join the Sydney-Newcastle Expressway at Wahroonga. In 1971 a "*major section [of the Motorways], consisting of the Gladesville, Tarban Creek and Fig Tree bridges, the Huntley's Point overpass and associated roadworks [had] already been built.*" [DMR197109].

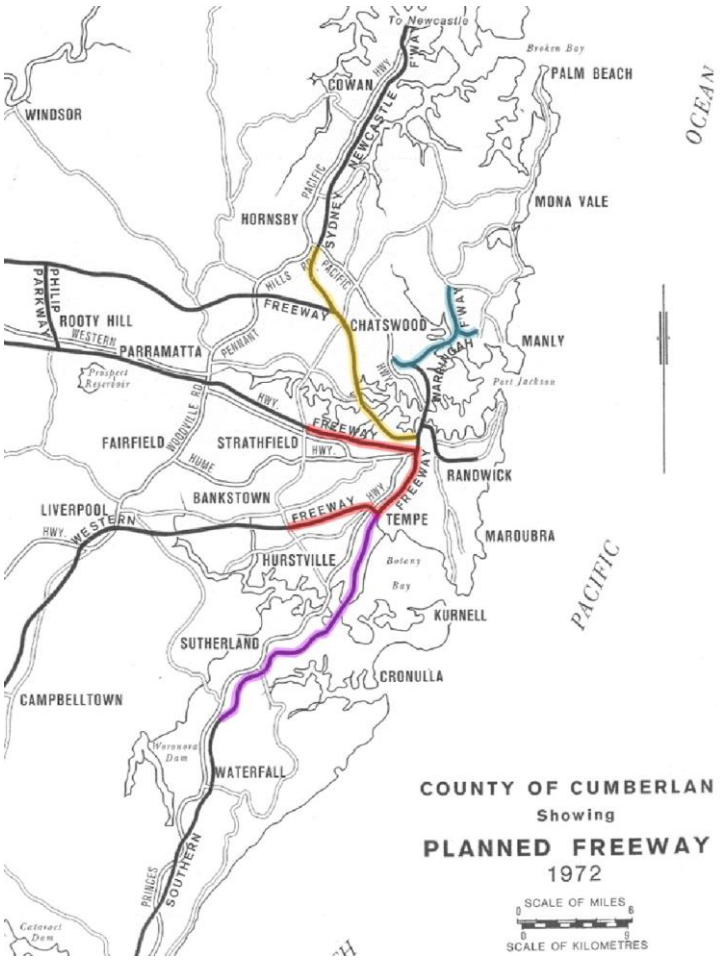


Figure 1: County of Cumberland - Planned Freeway – 1972

WestConnex (red), F6 (magenta), Northern Beaches Link (cyan), Lane Cove Valley Expressway (yellow).

The unbuilt sections of the Lane Cove Valley Expressway and North Western Freeway can be described as an "M2 to F3 Tunnel" and as an "M2 extension via Gladesville Bridge to M4 East".

A road reservation for the F6 to Alexandria remains gazetted. The Westconnex St Peters interchange is located near the same location as the previous planned interchange near Campbell Rd.

What were the department's long-term plans before the Westconnex announcement?

This section outlines what projects the community knew the Department of Roads had planned in 2012, before the Westconnex announcement. This section shows how the Westconnex is a brand covering many projects.

Early 2012

The Strategic Travel Model (STM) is maintained by Transport for NSW. It was commissioned by the Transport Data Centre (TDC) of the New South Wales Department of Transport (TfNSW) and was developed in several stages 1997-2000 by Hague Consulting Group (HCG) and the Institute of Transport Studies (ITS). The model generates travel demand forecasts as trip matrices and skim matrices for use by the planning and transport departments and agencies such as Roads and Maritime Services (RMS).

The government used to release the STM forecasts to a 30-year horizon. These releases included a list of projects the department and agencies believe were required in the future. As the STM is internal the assumptions for the model tell the community what projects the agencies wanted the government to initiate and when they were expected. Additionally, the changes to the assumptions tell the community what projects have been added to the departments agenda by the government.

Before the release of the Draft NSW Long Term Transport Master Plan [DLTTMP] the NSW Bureau of Transport Statistics (BTS) released the following 2012 NSW Transport Network Assumptions. For this Westconnex inquiry the key projects are:

- 2021 – M5 East Duplication
  - Developed because the M5 East tunnels were too steep causing dangerous air pollution. "New, three lane westbound tunnel between Marsh Street and Bexley Road/King Georges Road. Convert existing westbound tunnel to eastbound tunnel to access General Holmes Drive. Maintain existing eastbound tunnel to provides access to Princes Hwy and Marsh Street only."
  - Detailed in RTA (November 2009). "M5 Transport Corridor [Feasibility] Study - Preliminary overview report" [M5E1]
- 2026 – M4 Extension
  - "The short tunnel option is favoured by the RTA" … "would comprise twin 3.6 km tunnels running mainly under Parramatta Road from the M4 at North Strathfield to Haberfield."
  - North Strathfield "portals (entrance/exit) would be located just east of the existing M4 road reservation." "Parramatta Road would be maintained but would be reduced from three lanes to two lanes." Haberfield "separate connections with Parramatta Road and the City West Link (via Wattle Street), the tunnels would diverge underground just west of Great North Road."
  - Detailed in RTA, December 2003 "M4 East options study - Overview Report - SUMMARY OF THE FEASIBILITY STUDY AND OPTIONS ASSESSMENT"
- 2026 – M4 Widening
- 2031 – M2 to F3 Tunnel
  - As planned in the Lane Cove Valley Expressway – see above
- 2036 – F6
- 2041 - M2 extension via Gladesville Bridge to M4 East
  - As planned in the Lane Cove Valley Expressway – see above
  - Note this project is not the Western Harbor Tunnel

To understand the issues surrounding the 'WestConnex' its goals, business case, changing design, cost and valuation you have to understand the WestConnex is a brand that covers many unrelated projects. Some of these unrelated projects are parts of the Cumberland County Plan developed by the Department of Main Roads in the 1940s. **Funding for the WestConnex was seen as an opportunity to achieve many of the agencies long term plans.** Accepting Westconnex is a brand not a project the big picture plan can be considered to understand the cumulative impacts; and the reasons for and impacts of each individual component can be examined separately. Table 1 lists the projects planned by the transport agencies prior to the Westconnex.

Table 1: February 2012 NSW Transport Network Assumptions.

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
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	network assumptions
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.

Source: Bureau of Transport Statistics (February 2012). "Strategic Travel Model Assumptions", NSW

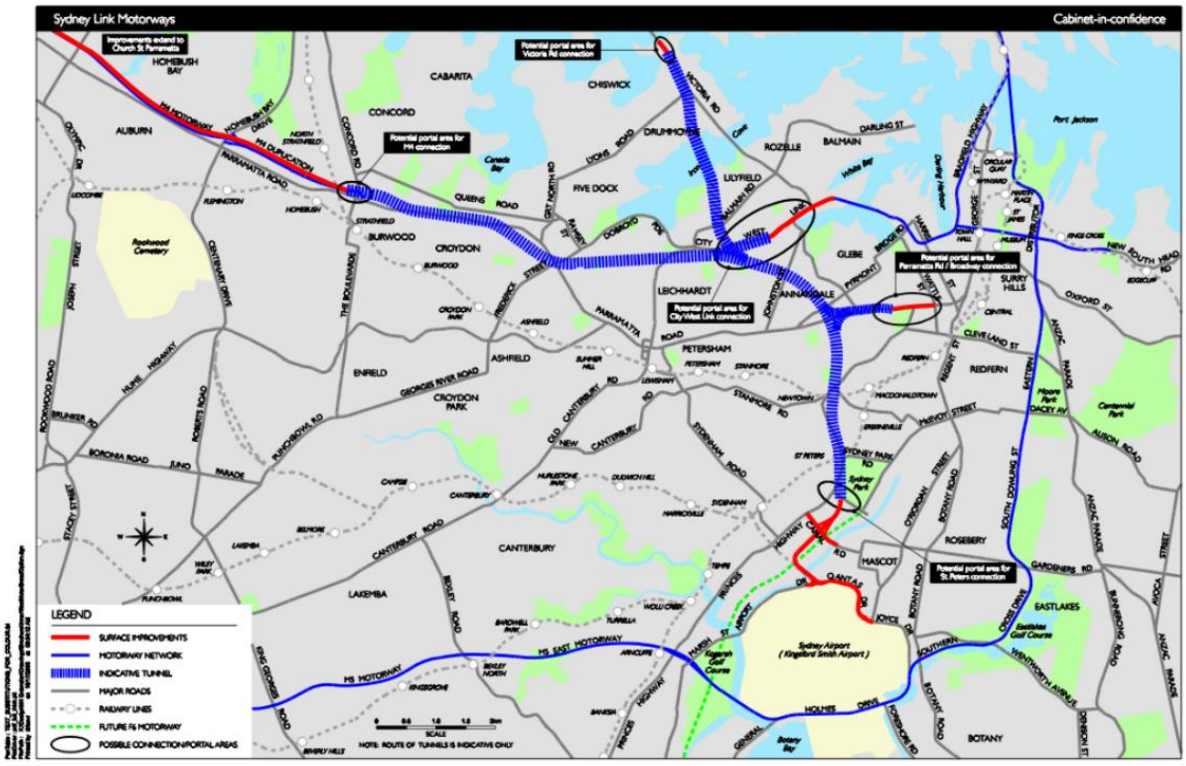
What was the M5 East Duplication?

Figure 2: M5 East Expansion Reserve Option (Indicative) [M5E1]

What about that M4 Extension & "M2 extension via Gladesville Bridge to M4 East"

In the NSW Government's Updated Submission to Infrastructure Australia in 2010 the NSW RTA made it clear that an M5 East Extension was their priority labelling it "Ready to Proceed" and the M4 Extension was labelled as a Future Priority rating only "Threshold". Note: the RTA submission included a tunnel from the M4 Extension to Gladesville Bridge to enable a future connection to the M2. Also note the Qantas Dr "Surface Improvements".

Figure 3: Part 3: Initial Project submissions - M4 Extension (This image was publicly released despite the CIC label)



What were the department's long-term plans after the Westconnex announcement?

The NSW government reorganised the departments and transformed the NSW Roads and Traffic Authority into a transport operator reporting to Transport for NSW to create a holistic approach to transport planning. The NSW government commissioned a long-term planning document Transport for NSW (2012) "Draft Long Term Transport Master Plan" [DLTTMP]. Westconnex was not in the draft master plan.

Westconnex was announced by the government in 2012 and then officially included in the [LTTMP]. Westconnex only rebranded the existing projects; it caused no changes to the agencies planned network as shown in 2013 STM assumptions in Table 2.

Table 2: December 2013 NSW Transport Network Assumptions

1. **Model Version STM 2.5** (7 purposes, 7 modes, 2,690 travel zones, 4 times of day)
2. **Network Assumptions** based on the Long Term Transport Master Plan

Year	Road	Rail / Light Rail	Bus
2006	Network version July 2009	Network version ITIS March 2007	Network version ITIS 2007
2011	- Lane Cove Tunnel - Inner West Busway (Iron Cove Bridge duplication) - F3 widening - Hume Hwy widening	- Enhanced 2009 timetable network - Cronulla duplication - ECRL	131500 bus network and 2011 ferry network
2016	- Hunter Motorway (F3-Branxton) - M2 widening - M5 widening - W-Syd.Emp.Hub - Gt.Western Hwy widening	- SWRL via East Hills - LRT Dulwich Hill extension	- Bus route adjustments in SWRL sector, revised ferry network for 2016
2021	- WestConnex Stage 1: M5 East Duplication	- North West Rail Link to Rouse Hill - CBD and South East Light Rail	- CBD Bus plan, Regional level 1 and level 2 bus network, bus route adjustments in NWRL and SWRL sectors, bus priority, revised ferry network
2026	- WestConnex Stage 2: M4 Extension and M4 Widening - NW Growth Centre	- 2021 heavy rail base (20 trains/h over SHB and City Circle)	
2031	- M2 to F3 Tunnel - SW Growth Centre	- 2021 heavy rail base (20 trains/h over SHB and City Circle)	
2036	- F6 - NW Growth Centre	- 2036 heavy rail base (20 trains/h over SHB and City Circle)	
2041	- M2 extension via Gladesville Bridge to M4 East - Spit bridge upgrade	- 2036 heavy rail base (20 trains/h over SHB and City Circle)	
All years Travel costs	Fuel and toll costs rise with CPI	MyZone fare system Fares rise with CPI, light rail treated as heavy rail for fare calculation purpose	MyZone fare system. Fares rise with CPI

Bureau of Transport Statistics (December 2013). "Strategic Travel Model Assumptions", NSW

After the Westconnex brand was announced the plan was still as follows:

- 2021 – M5 East Duplication
  - Renamed Westconnex **Stage 1** as this was considered more urgent by the Department.
  - Starting in 2016 - Assuming 5 years for construction
- 2026 – M4 Extension and M4 Widening
  - Renamed Westconnex **Stage 2** as this was considered less urgent by the Department.
  - Starting in 2021 - Assuming 5 years for construction
- 2031 – M2 to F3 Tunnel
  - As planned in the Lane Cove Valley Expressway& M4 Extension (above)
  - Starting in 2026 - Assuming 5 years for construction
- 2036 – F6
  - Starting in 2031 - Assuming 5 years for construction
- 2041 - M2 extension via Gladesville Bridge to M4 East

- As planned in the Lane Cove Valley Expressway & M4 Extension (above)
- Starting in 2036 - Assuming 5 years for construction

At this stage a 'connection' to the port and the airport was still described as a key component of Westconnex.

Reprioritisation

It was reported that the NSW Government had developed the Westconnex proposal in consultation with construction company Leightons, tollway operator Transurban, investment bank and infrastructure sales specialists at Macquarie Bank and the government advisory Infrastructure NSW including Nick Greiner.

The government's stated objective was to invest a minimal amount in one road project. Then the government would sell the tolling rights for the first completed project to fund the investment in the second project and so on until all projects were completed.

The construction order of the M4 & M5 road projects was reprioritised by the government so as to complete them in an order that would hopefully generate strong income streams. This reprioritisation followed the same strategy as Nick Greiner had used in 1989, toll the most highly traffic section of the M4 between James Ruse Dr and Silverwater Rd.

> 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. (NoW Public Transport Inc, Sep 2014 "Submission to SSI 13_6148")
>
> 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)

After the reprioritisation the M4 Widening became top priority (Westconnex Stage 1A) and the Environmental Impact Statement for the widening was released in August 2014 and quickly approved with minimal conditions.

From Chapter 6 of the M4 Widening we can see that the F6 project was still only expected in 2031 and the "M2 extension via Gladesville Bridge to M4 East" project was still planned in 2041. (EIS WestConnex Delivery Authority (August 2014) "WestConnex M4 Widening – Environmental Impact Statement - Traffic and transport working paper", Chapter 6: Future base case traffic conditions, Page 109)

Mike Baird (Member for Manly) becomes premier of New South Wales on 17 April 2014

This section will outline the setting in which the Northern Beaches Link (motorway) transitions from a very low priority to a high priority and back to a low priority for Infrastructure NSW. During this transition the agencies record Premier Mike Baird's directions in the development of the 2014 State Infrastructure Strategy.

Infrastructure NSW in 2012 was The Honourable Nick Greiner AC – Chairman, and Paul Broad – Chief Executive Officer. In the Infrastructure NSW (2012) "The State Infrastructure Strategy 2012 – 2032" [SIS12] they state that neither the Northern Beaches Link nor the Warringah Freeway were options proposed by Transport for NSW or Roads & Maritime Services (RMS). There is no mention in that document or any other government document in 2012 of the Western Harbour Tunnel (WHT). Neither of those two projects are mention in the NSW Long Term Transport Masterplan [LTTMP].

> Infrastructure NSW has reviewed each of the motorways identified by Transport for NSW, together with a potential **Northern Beaches Link (NBL), which has been advocated in a number of unsolicited proposals** to the NSW Government. [Emphasis added]

> Northern Beaches Link – 'This road would link the Gore Hill Freeway with the Burnt Bridge Creek Deviation via a tunnel under Mosman and a new bridge over the Spit. It could be combined with a transitway for buses from the Northern Beaches to the CBD'

As an ostensibly independent agency Infrastructure NSW recommends against the NBL.

> Infrastructure NSW has concluded that Northern Beaches Link is a lower priority for Government funding support because of the lower traffic volumes, the lack of through traffic, limited population growth on the Peninsula and the limited role of Military Road in the freight distribution network.
>
> As with the F3-M2 link, the Northern Beaches Link could be accelerated if it can be built without public subsidy. In the short term, priority should be placed on incremental reforms to improve public transport from the Northern Beaches. [Emphasis added]

Remember in 2014 the NSW Department of Transport and the NSW Roads and Maritime Services agency still expected the Westconnex projects to connect to a version of the Lane Cove Valley Expressway using the Gladesville Bridge. (see above including Figure 3 and [M4W1])

Mr Greiner and Mr Broad resigned from Infrastructure NSW and in 2014 Graham Bradley AM is Chairman. In the INFRASTRUCTURE NSW ACT 2011 - Part 4, Division 1, Section 17 it states "(3) ***Infrastructure NSW must****, in preparing or reviewing the strategy,* ***have regard to any State strategic priority of which Infrastructure NSW has been advised by the Premier.***" [Emphasis added]

In Infrastructure NSW (2014) "2014 State Infrastructure Strategy Update" [SIS14] the Western Harbour Tunnel and the Northern Beaches Link are now listed as priority projects with caveats.

> 1.0 Context - Section 1.1 'Why Infrastructure NSW has prepared an updated State Infrastructure Strategy':
>
> On 31 July 2014, the NSW Premier directed Infrastructure NSW to prepare and submit a revised 20 year State Infrastructure Strategy under section 16(3) of the Infrastructure NSW Act 2011 (the Act).
>
> The Premier also directed that, in developing this Report, Infrastructure NSW should take into account the following State strategic priorities in accordance with section 17(3) of the Act: [in part]
>
> • Sydney Roads Renewal – major projects to address congestion on key arterial routes across Sydney, including in Southern Sydney, the West and Northern Beaches, and the augmentation of WestConnex with greater north/south connectivity

The act calls for the State Infrastructure Strategy to include projects based on assessment of economic, social or environmental impacts (17.2a); assessment of deficiencies (17.2b); assessment of options (17.2c); or assessment of best practice (17.2d). It is not publicly known why the chairman of Infrastructure NSW choose to specifically record that those road projects were included at the direction of premier Baird.

INSW does make the below recommendation in 2014. The business cases for the F6, WHT, NBL hadn't been written before the agency was directed to include them as state priority projects.

> Infrastructure NSW recommends the WestConnex Delivery Authority develop final business cases for the Northern and Southern Extensions to WestConnex by the end of 2015, with a view to their procurement and delivery as toll roads within the next decade. [SIS14]

Mike Baird retires as the 44th premier of NSW in 23 January 2017

In 2017 Mike Baird resigns and Gladys Berejiklian (Willoughby) becomes the premier of NSW. In 2018 various *revised* strategy documents are released including Infrastructure NSW, February 2018, "Building Momentum - State Infrastructure Strategy 2018 - 2038" [SIS18]; Graham Bradley AM is still Chairman of INSW.

> It is important to complete the business case for Western Harbour Tunnel as a priority, enabling the NSW Government to take an investment decision on this critical project. Recommendation 56: Infrastructure NSW recommends that subject to completion of the business case in 2018, the NSW Government invest in the Western Harbour Tunnel to complete a Western CBD Bypass and inner urban motorway network.

Infrastructure NSW considers that the F6 Extension and Beaches Link both need to be weighed carefully against other potential government sector investments. In a constrained fiscal environment, a near term decision to invest in these new motorway connections serving the Eastern Harbour City may mean deferral of projects elsewhere in Greater Sydney which may have greater city-shaping impacts. Infrastructure NSW supports an increased focus on public transport (such as the Northern Beaches B-Line and SmartRail), demand management and continued investment in pinch points to ensure fast and reliable access in these locations over the next 20 years. [SIS18]

By 2018 with a new premier the Western Harbour Tunnel project has been downgraded to an investment decision. INSW advised that the F6 & Northern Beaches Link should be explicitly compared against investment in alternative high return public transport projects before proceeding.

INSW states that the WHT business case wasn't completed in February 2018 which means it had not gone to cabinet. The Westconnex Stage 3 included a very complicated Rozelle Interchange in it's 2017 EIS because of the Western Harbour Tunnel. **Therefore, the government included an expensive addition to the Rozelle Interchange to support a Western Harbour Tunnel which did not have a business case or approval.**

The Projects

This section outlines what the department's preferred southern projects were before they were rebranded as Westconnex and underwent significant political changes. This section is to show that the projects existed as long term departmental plans before they were grouped under the Westconnex brand. In many cases the projects were much simple and much cheaper before they were added to the Westconnex brand. Only select southern projects are listed as this document is already quite long.

M5 East Duplication

In 2009, the RTA proposed a single three lane tunnel running from Kingsgrove to Arncliffe was all that was required to reduce pollution accumulation in the existing M5 tunnels and to relieve congestion on that link. RTA, November 2009. "M5 Transport Corridor [Feasibility] Study - Preliminary overview report" [M5E1]

6.3 Preferred strategic option

The preferred strategic option for the M5 corridor is option E, which includes:

• Widening of the existing M5 South West Motorway from King Georges Road, Beverly Hills to the F5 Freeway, Prestons.

• Duplication of the M5 East Freeway from Cooks River, Mascot to King Georges Road, Beverly Hills which comprises:

– A new three lane westbound tunnel with portals in the vicinity of the current portals.

– The existing eastbound tunnel connected to the Princes Highway and Marsh Street only.

– The existing westbound tunnel converted to eastbound and connected to General Holmes Drive only.

– Widening to three lanes each way at the western end from the portals to the King Georges Road ramps.

– Maintaining two lanes each way at the western end under King Georges Road.

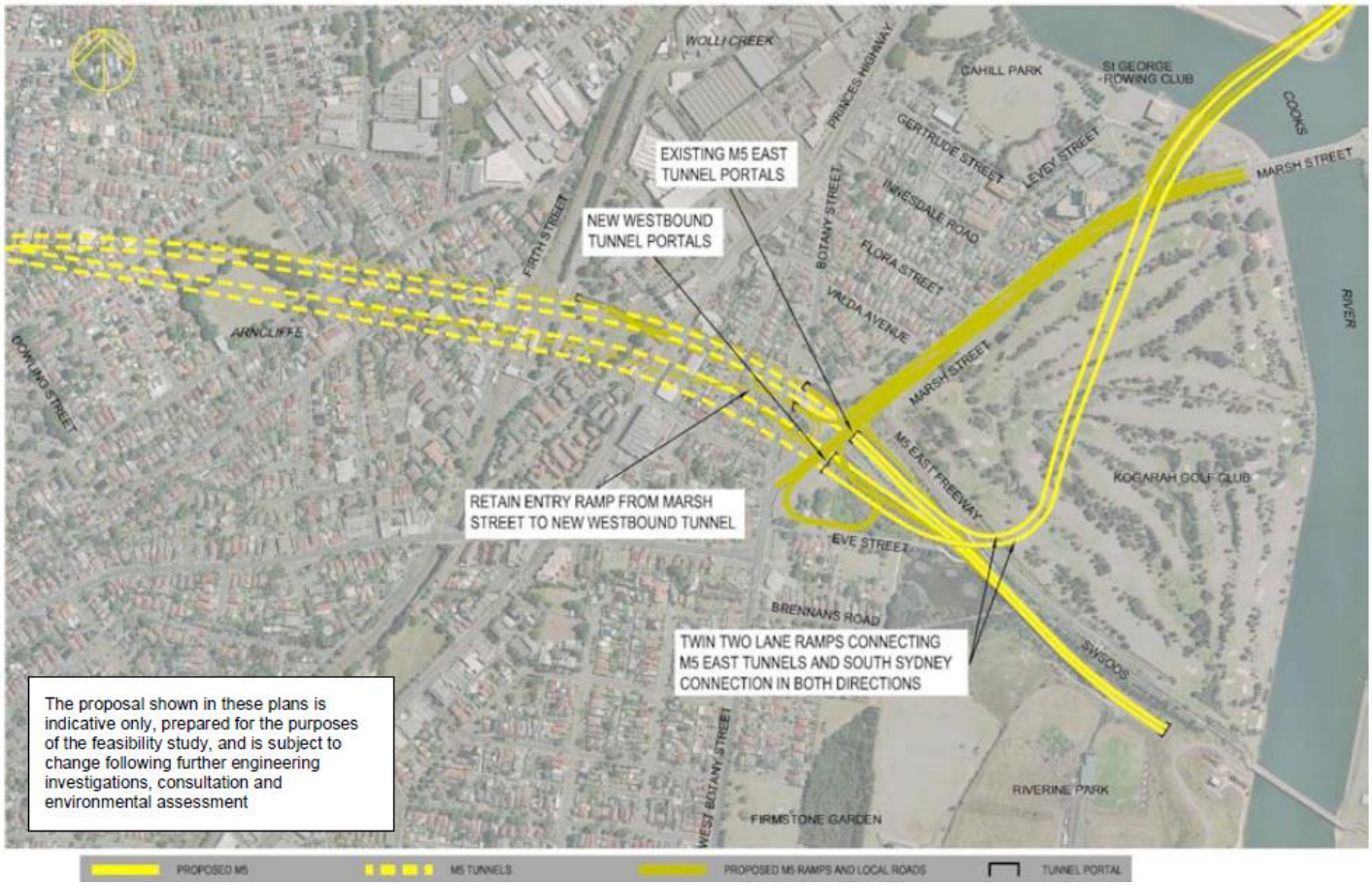
– Maintaining two lanes each way at the eastern end from the portals to General Holmes Drive.

Table 6.7 Evaluation of strategic options

Options	MCA	REA		Comparative appraisal
Option E	Limited environmental and social impacts, although potential benefits to Wolli Creek floodplain. Provides increased capacity in both peak and contra peak direction.	BCR	1.63	This option provides the highest BCR. Provides additional capacity in both peak and contra peak direction and utilisation of the tunnels is relatively balanced, although the additional capacity in the eastbound tunnel is under utilised to a degree.
		Estimated capital cost	$2.00 B	
		Direct user benefits	$3.33 B	
		Travel time savings	$3.34 B	

Note: this project is not exactly the Westconnex's "New M5" which no longer connects to the Eastern Distributor and will not reduce dangerous air pollution levels in the M5 East nor reduce congestion old tunnels.

Figure 4: Proposed M5 East tunnel – west of Marsh Street {M5E1]



Southern Sydney connection

Figure 5: Cumberland County Road Reservations in St Peters

The Cumberland County Plan had an interchange for the Southern and South Western Motorways at Campbell Rd near St Peters and this included the Johnston Creek Route (see below).

Since the F6 road reservation was across parks, marshes, garbage dumps, and industrial sites it remains all the way from Waterfall to St Peters.

Never ones to miss an opportunity the RTA added the F6 to the M5 East as part of the "M5 Transport Corridor [Feasibility] Study" and called it the "Southern Sydney connection".

This additional four-lane road on the F6 road reservation significantly increased the cost of the project and reduced the projects Benefit Cost Ratio.

This project was clearly the start of the F6 and was designed to allow the F6 to continue from the Kogarah Golf Club onto Waterfall. Ironically this extra road faced the most community opposition. It was the lower BCR and community opposition that killed the whole project. If the RTA had only proposed the M5 East, the third tunnel probably would have been built in 2009 for $2 billion and the traffic and pollution issues in the M5 East would have eased for a while.

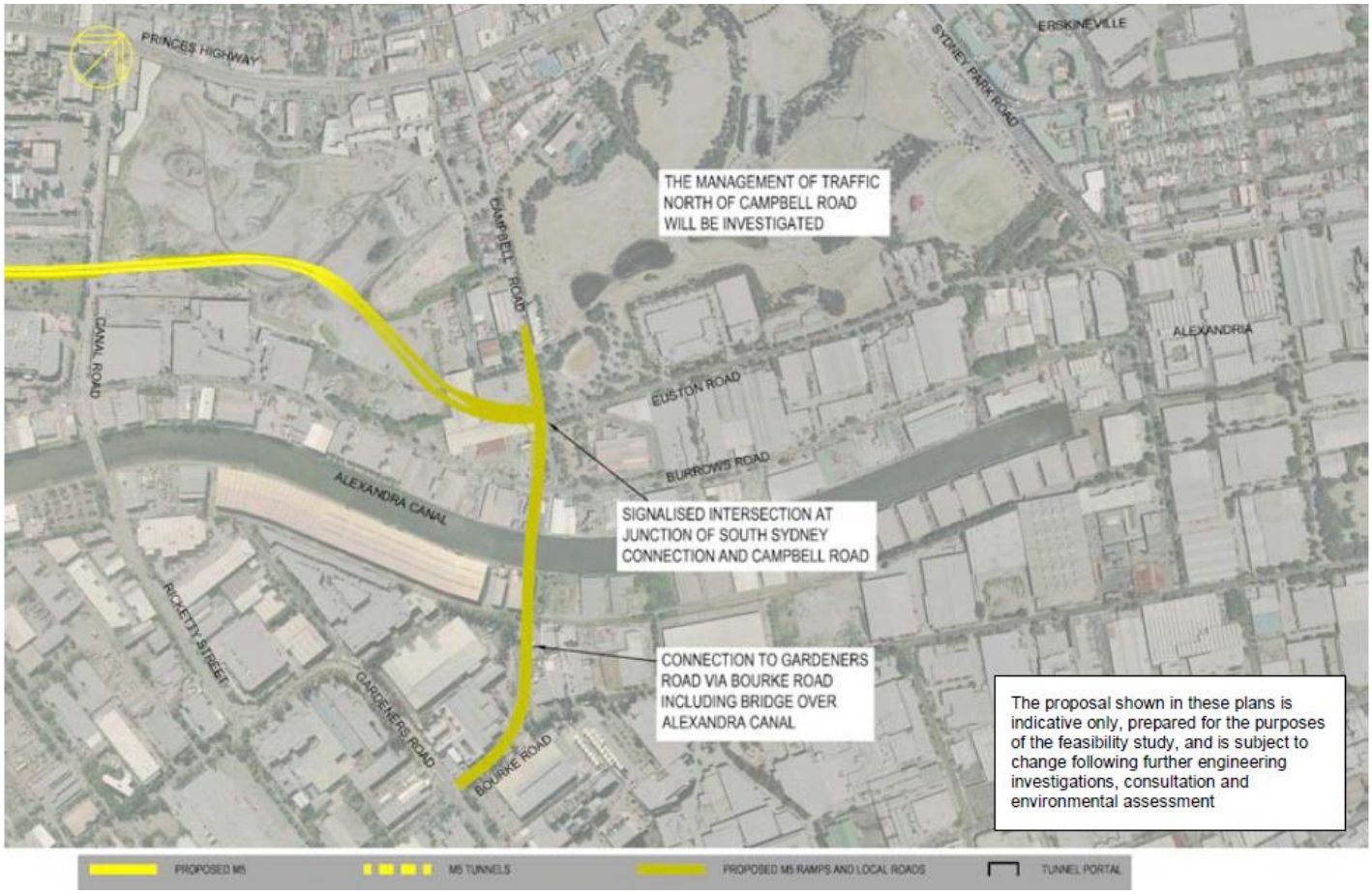
The concept for the connection along the F6 corridor called the southern Sydney connection in this report, generally comprises:

- Upgrading Marsh Street from the M5 East Freeway to Cooks River.
- A new four-lane road along the F6 corridor from Marsh Street to Campbell Street.
- Connections via a new road south of Campbell Street to Gardeners Road at Bourke Road.
- Direct connection between the southern Sydney connection and the M5 East tunnels.

Table 7.4 REA outcomes

	M5 East duplication (tolled)	M5 East duplication and southern Sydney connection (M5 East tolled only)	M5 East duplication (four lanes westbound) and southern Sydney connection with link to Qantas Drive (M5 East tolled only)	M5 East duplication (four lanes westbound) and southern Sydney connection with link to Qantas Drive (all untolled)
Estimate capital cost ($million – 2008 dollars)	$2,000	$3,500	$4,000	$4,000
Present value of monetised costs (including periodic maintenance and operating/ maintenance costs)	$2,109	$3,314	$3,642	$3,642
Total direct user benefits ($million)	$3,814.6	$5,158.8	$5,056.4	$4,018
BCR	1.81	1.56	1.39	1.10

Figure 6: Southern Sydney connection Canal Road to Sydney Park Road



Notice that the 2009 Southern Sydney connection runs to the exact same location that the Westconnex St Peters Interchange is being built, however the 2009 plan was only had 4 lanes heading south not 10.

Figure 7: Westconnex - St Peters Interchange

Johnston Creek Route – Campbell Rd

In the Cumberland County Plan above, the council LEPs, and the "M5 Transport Corridor [Feasibility] Study" there exists a plan for a widened Campbell St/Rd and a new bridge over the canal to Bourke Rd in Alexandria. This was part of the Johnston Creek Road Corridor most but not all of which was removed in March 2006. It was also considered for the Inner-West Motorway (see Daily Telegraph Feb 28, 2007).

> A new four-lane road along the F6 corridor from Marsh Street to Campbell Street. Connections via a new road south of Campbell Street to Gardeners Road at Bourke Road. [M5E1]

As part of the Westconnex brand the widened Campbell Rd and a new bridge over the canal to Bourke Rd in Alexandria were funded. However, close examination of these projects and their traffic interactions with the interchange show the Campbell Rd project is largely unrelated to the new M4 or M5. There are is only one left turn from Westconnex onto Campbell Rd and the sub project is quite large for just one turning lane.

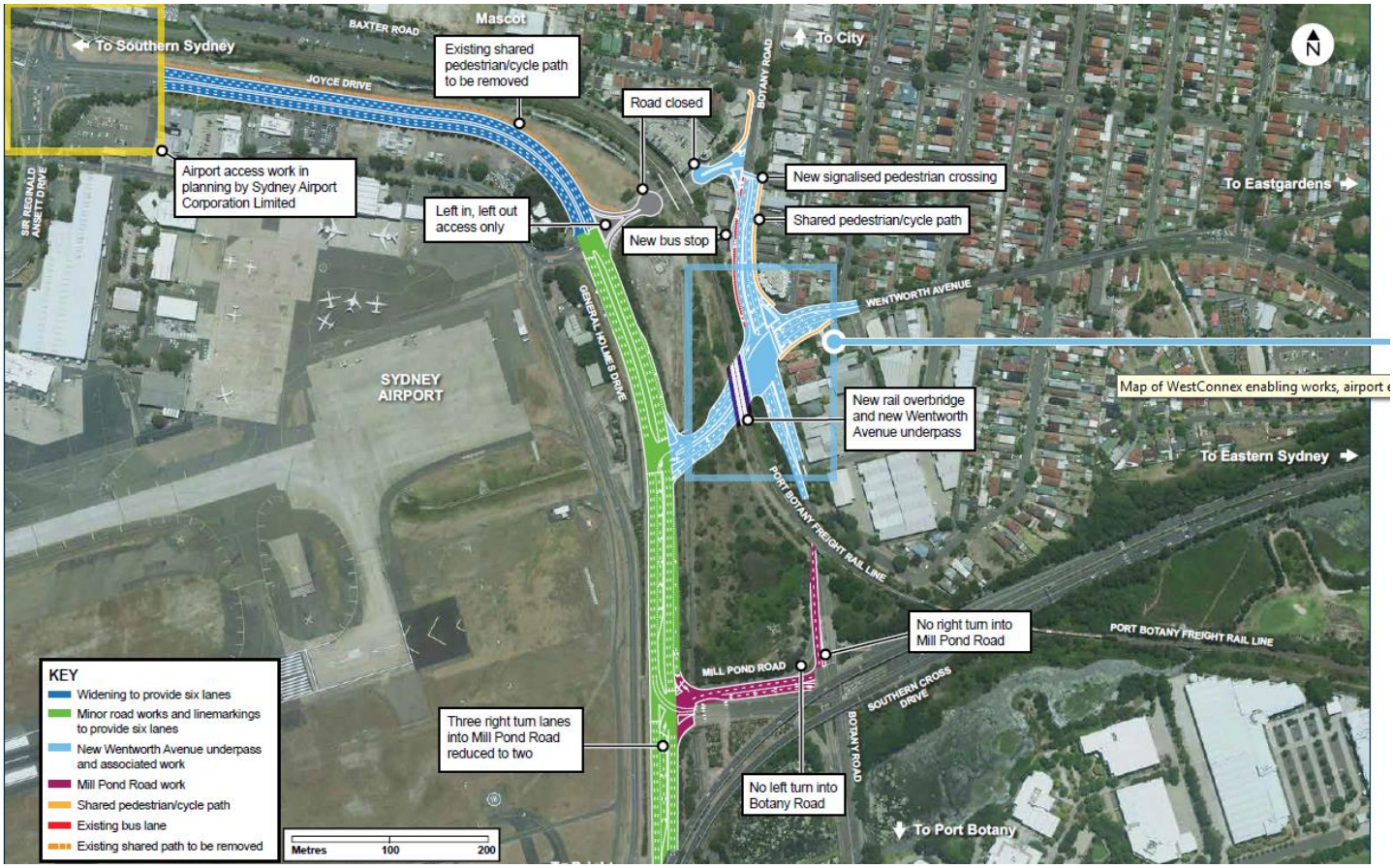
Figure 8: Westconnex branded Campbell St widening and bridge

Airport Road Upgrades – a trilogy

Sydney Airport causes significant traffic congestion and Marsh St - Airport Dr - Qantas Dr - Joyce Dr were mostly two lanes. There are also other road configurations in the area that the RMS has long wanted to change and the Westconnex banner enabled a steady flow of funding for these projects.

One project under the "WestConnex enabling works, airport east precinct" is actually the unrelated but long planned direct connection from Wentworth Avenue to General Holmes Drive with a new rail overbridge.

Figure 9: Wesconnex enabling works, airport east precinct



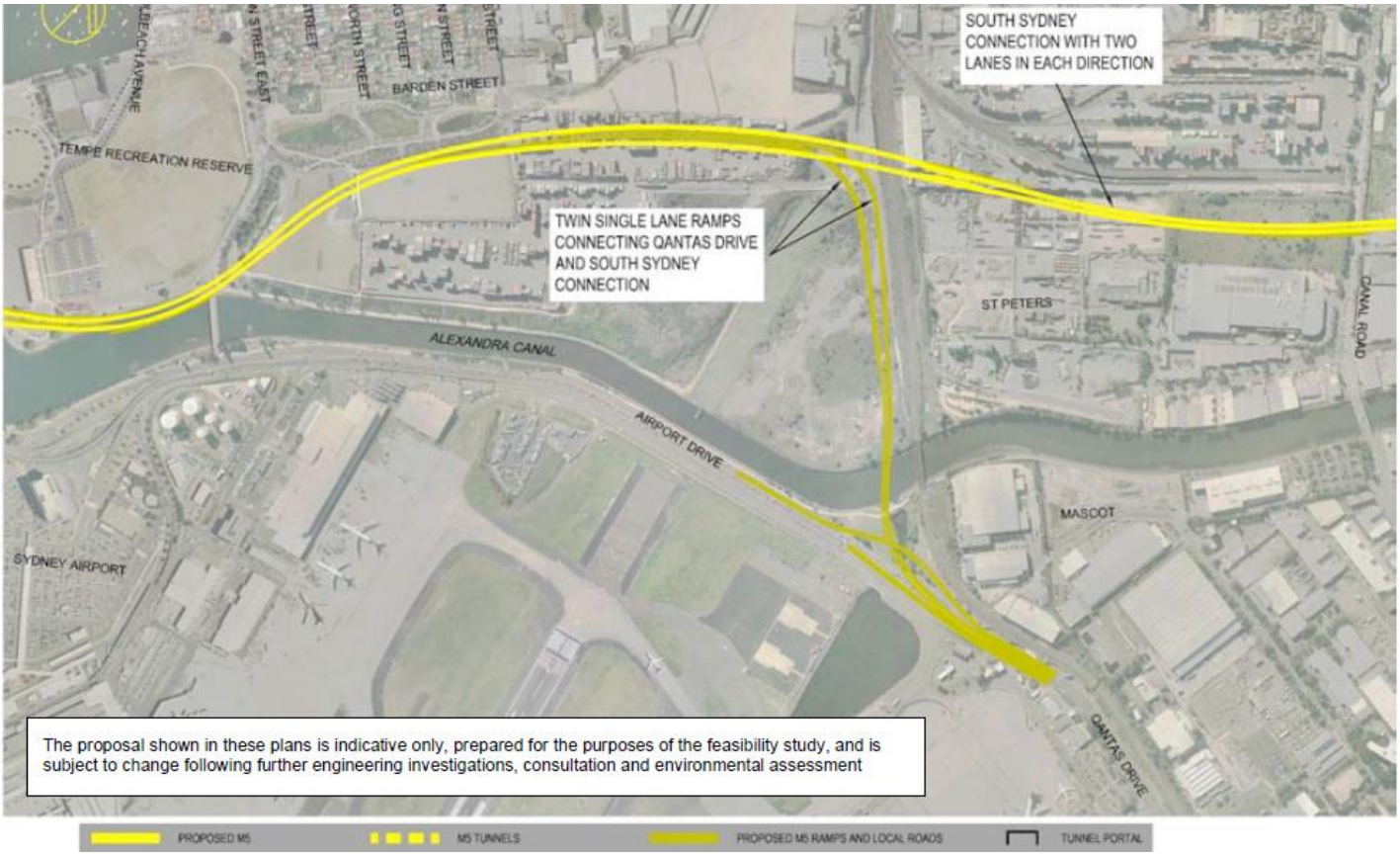
"Widening of Marsh Street, Arncliffe to three lanes westbound" was also declared Westconnex enabling works for the airport west precinct. This was extended to widening the roads at the International Airport. Those roads were shown as "Surface Improvements" in the M4 Extension above in Figure 3.

The previous M5 plane included the Qantas Drive Connection on the southern side of the Goods Railway.

> Traffic volumes significantly increase along Marsh Street in the scenarios represented in Columns 2 and 5 even with the inclusion of the southern Sydney connection. In order to reduce demand on Marsh Street, an enhancement was developed to provide a link between Qantas Drive and the southern Sydney connection. It was anticipated that traffic travelling between the M5 East Freeway, the domestic terminal and other centres in the south east of Sydney will use this link. The link would remove further demand on Airport Drive, fronting the internal terminal, and Marsh Street between the international terminal to the M5 East tunnels.

Unfortunately, since the government moved the interchange to St Peters the low-cost Qantas Drive Connection is no longer possible as the road must come from the north side of the railway. The original Qantas Drive connection was designed by the RTA and not construction companies bidding for work.

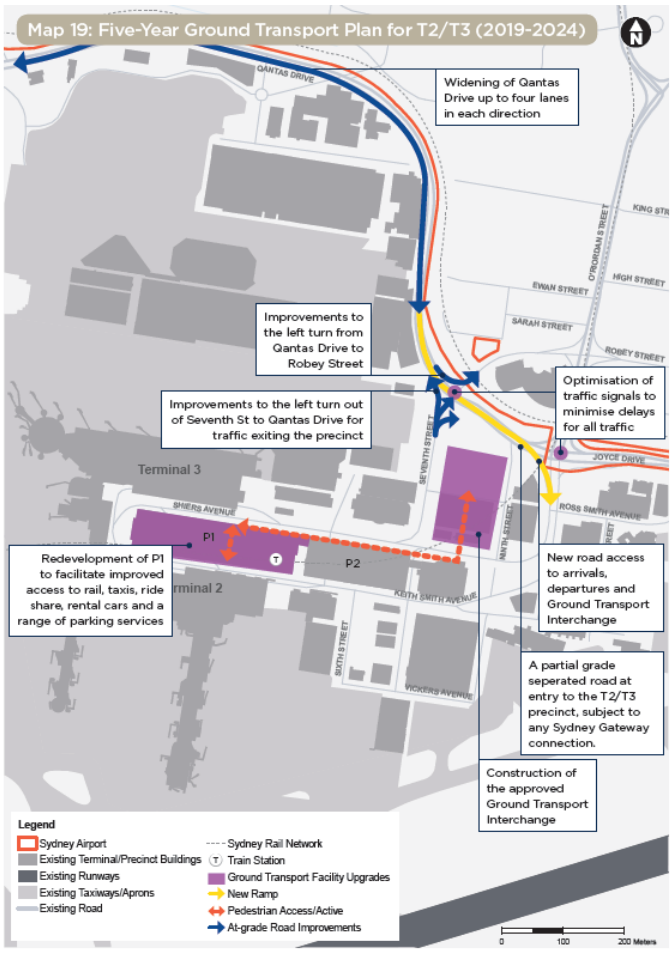
Figure 10: Qantas Drive connection from the proposed Southern Sydney connection [M5E1]



The biggest most expensive airport project is the "Sydney Gateway" which was part of Westconnex and is now not part of Westconnex.

Part of the problem for the Sydney Gateway is that it has been loaded with a new road through Coward St Mascot and a grade separation of the O'Riordan St, Qantas Dr and Joyce Dr intersections; even though such a change may not be possible in such a tight space. This is further complicated by a Qantas Dr surface road widening from four to eight lanes which takes all of the spare space in the corridor.

Figure 11: Sydney Airport 2018 Master Plan



Most of those proposals have long been discussed in the Airport's Master Plan, City of Sydney plans, and other road planning documents.

Euston Rd McEvoy St Road Widening

When the details of the St Peters Interchange became public, the local community groups, councillors and MPs were reminded of the road widening long planned for Euston Rd & McEvoy St were the Westconnex 'ended'.

They were assured that there were no current plans to use that road reservation. Several months later the Alexandria to Moore Connectivity Upgrade was announced using that road reservation. One of the reasons cited for the upgrade was additional traffic for the Westconnex. However, the road widening project also included long planned upgrades in far-away Kingsford and Waterloo.

The approval pattern

The timelines for Westconnex projects have shown a disturbing pattern.

1. The concept for the project is dropped to a sympathetic media outlet,
2. Then the state government commits to building it,
3. The modelling for this business case is started after the public commitment is made,
4. The preliminary business case goes to cabinet, although a commitment to proceed was always made.

Then

5. Construction companies are invited to work with the department to develop a design for the project,
6. The winning bidder is selected, and the construction companies design is developed to a full EIS,
7. The EIS is published and the department of planning sets a minimum public review period and specifies an approval date,
8. The construction company answers public questions on the project,
9. The thousands of submissions are collected and collated by the construction company,
10. The project is approved on the date previously specified by the planning department.

For example

July 2012	33km of motorway projects under the Westconnex brand are outlined to the media.
October 2013	The NSW coalition government decision to build all Westconnex projects is announced. Opposition leader and future Prime Minister Tony Abbot affirmed the unconditional support of his impending government for the Westconnex. Federal transport minister for the current Commonwealth government, Anthony Albanese, gives conditional support from the then based on reviewing the completed business case.
January 2013	Preliminary modelling (WRTM) based on the STM is 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.
April and May 2013	The **preliminary** business case was prepared for cabinet in April and May 2013

According to the INSW in 2018 the business case for The Western Harbour Tunnel or the Northern Beaches Link have not been completed. However, the government has already made many public commitments to completing those projects.

The Long Game

As shown above most of the projects under the Westconnex brand were planned long before the Westconnex was announce in 2012. Most of the projects were considered discrete and separate projects by the RTA. Several of the projects are unrelated to the problems with the M5 East or the M4 East extension that formed the basis of the Westconnex business case.

The Westconnex changes so regularly and dramatically because it is a political brand. Also, the designs and business case are not complete before the announcement. In addition, the departments long term plans keep changing the concept design. That is why the slot in Parramatta Rd was dropped and there is now a Rozelle Interchange, exactly as outlines in the RTA's M4 Extension documents.

Westconnex cannot meet the goals revealed to the parliament in October 2012, because it was never one project. Westconnex is a brand used to appropriate funds and to market a selection of previously rejected urban motorways to a sceptical public.

Business Case Modelling

Three of the terms of reference for inquiry are:

- the adequacy of the business case for the WestConnex project, including the cost-benefits ratio;
- the recommendations of the Audit Office of New South Wales and the Australian National Audit Office in regards to WestConnex; and
- the cost of the project against its current valuation as determined through the sale of the Sydney Motorway Corporation and whether it represents a good investment for NSW taxpayers

The business case and the current valuation depend on the correct results from the modelling and the Auditor General's reports assumed correct results from the modelling. Unfortunately, the inputs and assumptions used in the modelling may be incorrect, this section attempts to describe why.

The business case for all Westconnex branded projects have worked as follows:

1. Assume traffic grows in line with population to develop a worst-case "do minimum" scenario,
    - This assumption causes very slow network speed and long travel times,
2. Quantify how the project improves traffic relative to this worst-case scenario.
    - Any improvement compared to the "do-minimum" scenario is technically a benefit.

If the traffic growth assumptions do not hold in the real world then the business case will be inadequate.

As part of their design the initial results of the STM and the WTRM were rebased to match the input 'behavioural responses' with journeys reallocated from rail back to road. **Within the STM/WRTM model, car journeys will always grow at the rate of population growth.** The model forces traffic growth in line with population.

Table 3: Transfigures 2014 - Travel Forecasts 2011-2046 (Greater Metropolitan Area)

	Population	*Car Journeys*	*Train Journeys*	*Road Lane Length (km)*
2011	5,578,000	11,017,000	934,000	48,307
2031	7,077,000	14,297,000	1,419,000	50,030
Growth	27%	30%	52%	4%

The predicted 2021 Westconnex travel time from Penrith to the CBD by road was a full 30 minutes slower than the train for an extraordinary 92 minutes in total. However, since that time was faster than assumed 114 minutes without Westconnex the business can treat those road travel time reductions as a benefit.

The fact that most reasonable person would use the train rather than drive for nearly two hours from Penrith to the CBD is not accounted for in the strategic models. In fact, the models just assume that the overall road network speed continues to drop with every third additional person meaning another additional car.

Table 4: Sydney Motorway Project Office (2012) "Travel time savings Fact Sheet"

Origin	*Destination*	*2021 (min)*	*2021 + Westconnex (min)*	*Transit (min)*	*2021 Westconnex vs Transit (min)*	*2021 (km/h)*	*2021 + Westconnex (km/h)*
Penrith	CBD	114	92	62	+30	30.0	37.2
Penrith	Surry Hills	117	89	58	+31	29.7	39.1
Penrith	Airport	113	91	71	+20	30.8	38.2
Parramatta	Strathfield	30	20	12	+8	26.0	39.0
Parramatta	CBD	64	44	17	+27	21.6	31.4
Parramatta	Airport	101	66	40	+26	17.8	27.3
Strathfield	Surry Hills	45	30	14	+16	18.7	28.0
Strathfield	Airport	66	44	28	+16	13.6	20.5
Summer Hill	Broadway	27	24	24	+0	15.6	17.5
Liverpool	Randwick	61	42	80	-38	38.4	55.7
Liverpool	U Syd	61	43	65	-22	31.5	44.7

The modelling logic Westconnex in the business case and environmental impact statements is:

1. Assume road journeys grow at the same rate of population and road lane length does not grow much

2. Therefore, the problem of road congestion will increase, and travel speeds will decrease.
3. Therefore, travel time, air pollution and greenhouse gas pollution all increase because of congestion.
4. Assume building motorway will decrease congestion and increase travel speed for some journeys.
5. Therefore, travel time, air & greenhouse gas pollution all increase in total but have a relative decrease because of that motorway.
6. Assume all relative travel time, air & greenhouse gas reductions are benefits despite the fact that overall travel time, air & greenhouse gas pollution have all increased.

If there is evidence that Sydney's population has grown but the per capita use of private cars has not grown as fast, then the models used in the Westconnex business case and EIS will be incorrect and so the business case would be inadequate.

In fact, the overall trend across all of Australia is for the number of vehicle kilometres travelled for passenger cars per person to have declined back to 1991 levels from a high in 2003 to 2005. In Sydney, the passenger car vehicle kilometres travelled per capita have also declined from a 2003 peak to below 1991 levels.

Figure 12: Vehicle kilometres travelled in Australia per capita per financial year since 1980

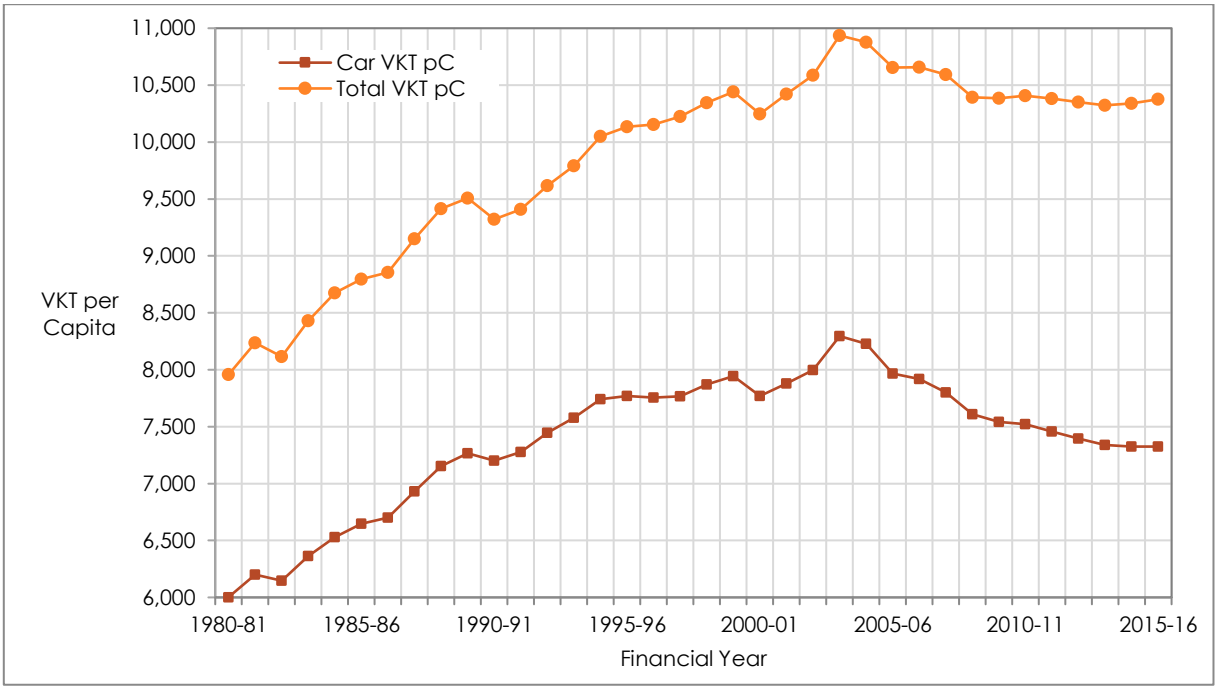
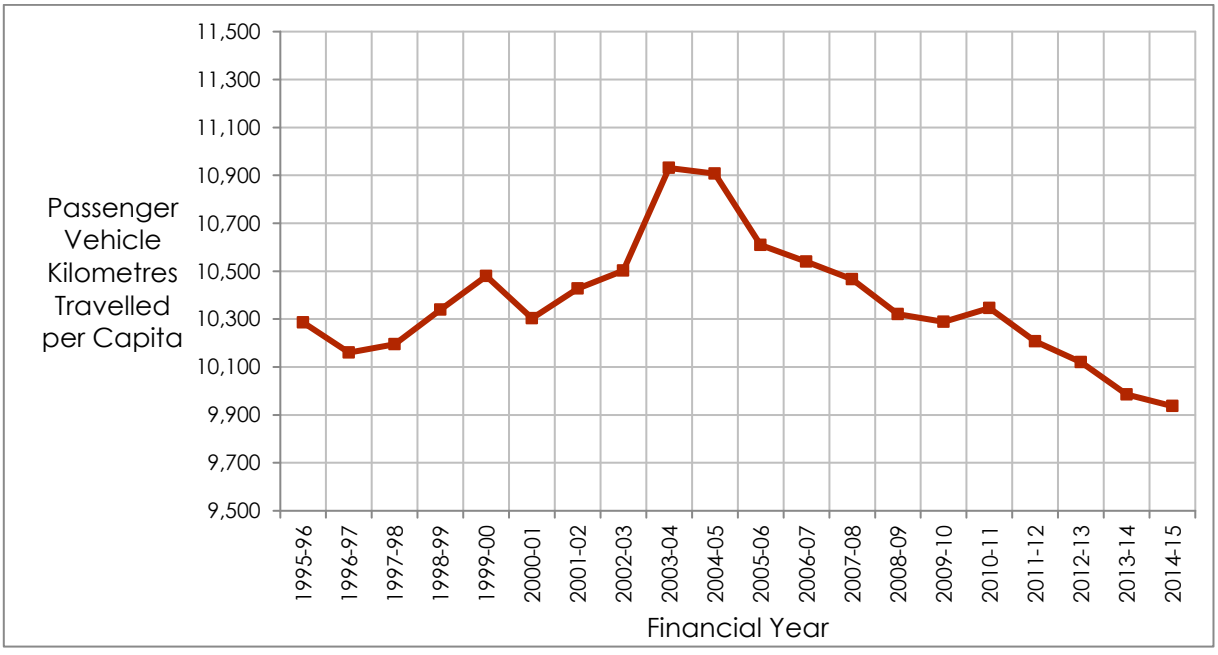


Figure 13: Sydney Passenger Vehicle Kilometres Travelled per Capita per financial year since 1995



The Strategic Travel Model (STM) relies on the Journey to Work data from the Australian Census along with a periodic Household Travel Survey. From the Westconnex Delivery Authority, September 2015, "Westconnex - M4 Widening Environmental Impact Statement" [M4E1]

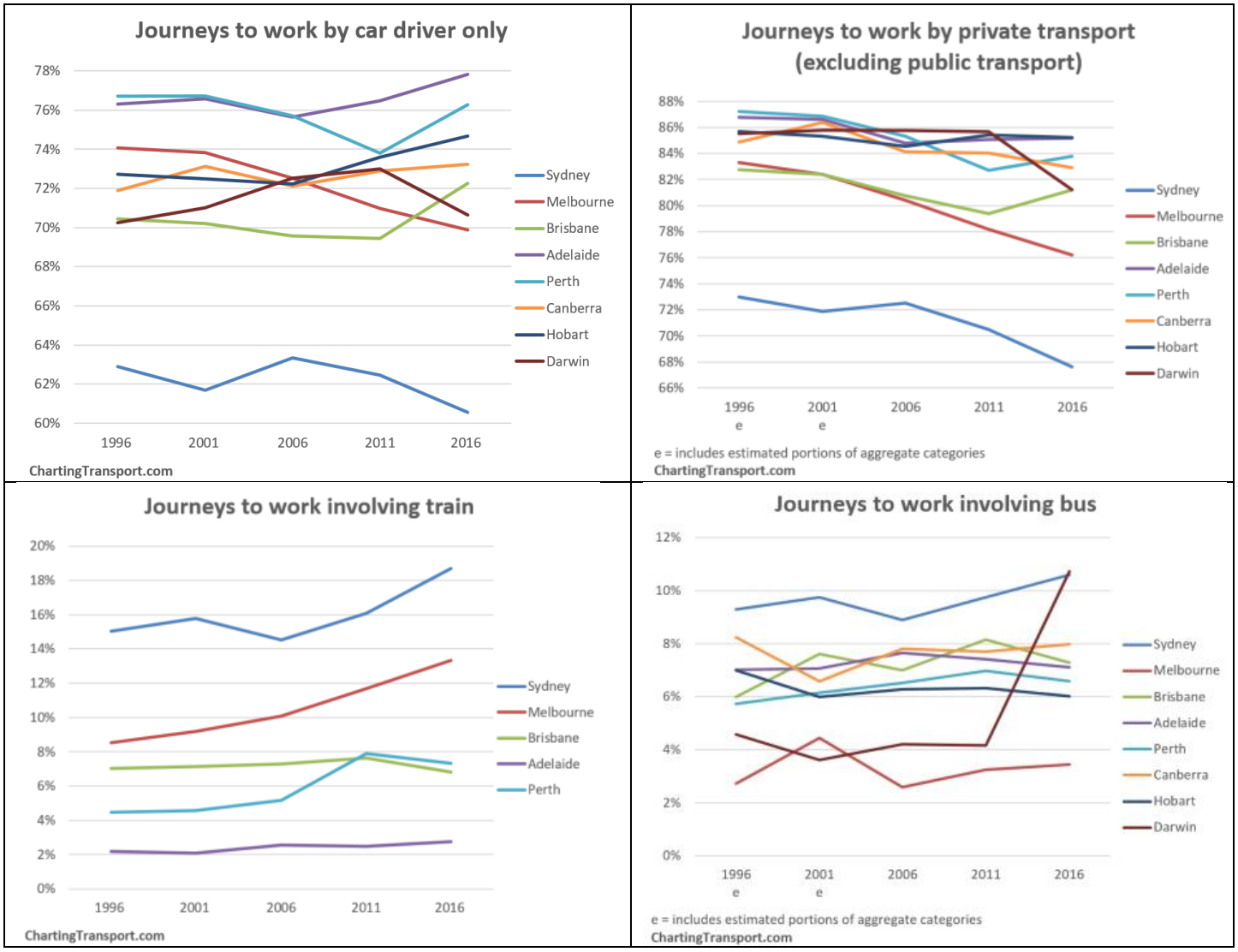
> Base and future population and employment data was sourced from the Bureau of Transport Statistics (BTS) (September 2014 release). The Sydney Strategic Transport Model (STM) data together with a previously developed model database provided by WDA were both used as the starting point for the development of demand matrices using a matrix estimation process. [M4E1]

From Bureau of Transport Statistics, March 2014, "TransFigures - Travel Forecasts 2011-2046"

> Behavioural models estimated using Household Travel Survey data up to and including 2008 and Journey to Work data up to and including 2006 Census.

The Westconnex models used the 2006 census as the baseline for the mode share and private vehicle usage. If the 2006 census data was influenced by that peak in personal car usage, then the inputs to and calibration of the model may be distorted.

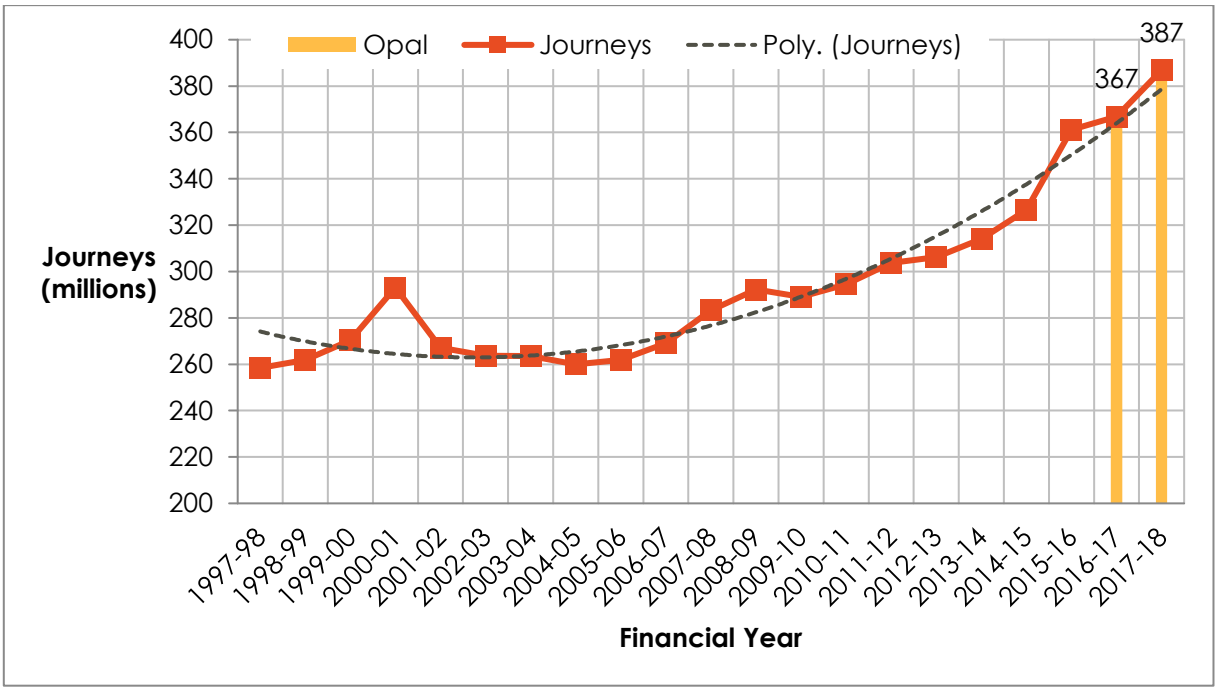
In Sydney (GCCSA) mode share for private car peaked in 2006 and has been declining since; with the 2016 census having the lowest levels since before 1996. In contrast mode share for public transport (such as trains and buses) has been rising steadily from its lowest point in 2006 to its highest recent level in 2016.



If there is a shift in Sydney's transport mix away from private vehicles to public transport, then there would be a commensurate growth in the number of journeys on Sydney's trains. There has been a 50% increase in the number of journeys on NSW metropolitan railways between FY 1997-98 and FY 2017-18. The Greater Sydney

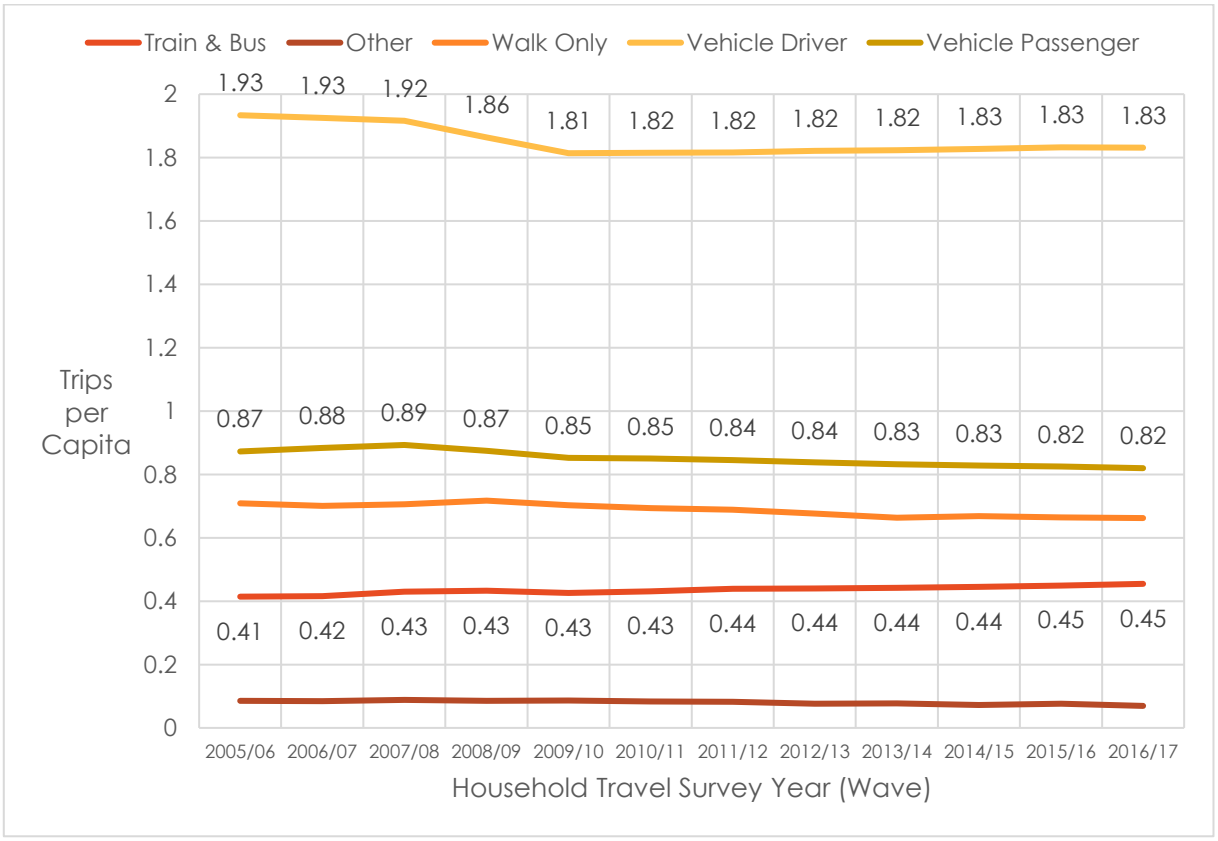
population has only growth by around 30%. In fact, the annual patronage on the metropolitan railways grew by 20 million journeys (5.5%) in the last census year between FY 2016-17 and 2017-18.

Figure 14: Estimated public transit patronage on heavy rail in GMA NSW



The other input to the Westconnex modelling are the NSW Household Travel Surveys. These surveys are also showing a drop in the number of trips per capita made in passenger car and an increase in the number of trips per capita made on public transport.

Figure 15: Number of Trips per capita per mode from the Household Travel Survey



The modelling logic of "Assume road journeys grow at the same rate of population" has been disproven. **In Sydney the road journeys per capita are reducing over time.**

Put simply, as road congestion worsens and road journey times increase the walking, railway, and ferry journey times are more attractive relative to driving. As such more people choose to use other modes rather than driving, which causes the per capita trips to shift from driving. In fact, if the road network is too congested then people who can only drive will choose to make less trips overall, which is evident in the data. This is consistent with the industry knowledge and COAG's National Guidelines of Transport System Management.

It is important to remember that all driver must use local and arterial roads to access a motorway. Road congestion in Sydney is across the entire network and the Westconnex will not solve that.

Analysis of the ceiling capacity of the many roads around the Westconnex show they are unable to deliver or receive the predicted traffic flows to allow the motorway to function at the levels required in the business case to break-even.

The business cases assume that the high levels of per capita private car use would continue. This assumption results in an ever-increasing number of private cars. However, the travel time fact sheets and EIS reports have shown that travel times on popular sections of the Westconnex will be substantial worse than now. As such we conclude that these motorways will not be as attractive as modelled.

From recent data we can conclude that

a) ***2006 was near the peak period for per-capita private car use in Sydney***,
b) 2006 was used as a baseline for much of the Westconnex modelling,
c) Per-capita private car use has declined in Sydney since 2006 and public transport use has increased,
d) The number of private cars journeys in the Westconnex modelling are unlikely to occur,
e) Sydneysiders will choose to change mode or forgo trips if travel times or prices become unacceptable

Therefore

f) The increase in road congestion and drop in travel speed forecast **without Westconnex** are incorrect,
g) Increases in travel times, air pollution, and greenhouse gases without Westconnex are overestimates,
h) Then savings in travel times, air pollution, and greenhouse gases with Westconnex are overestimates,

Therefore

i) The benefits for the Westconnex are overestimated.

Put simply:

- In the real-world Sydney's traffic will not reach the worst-case 'do minimum' as predicted in the Westconnex business cases and EIS because reasonable persons would change their behaviour,
- The relative benefits in the business cases and EIS are overestimates compared to the real-world,
- The benefits are likely over-estimated and the Westconnex has a lower value and BCR than stated.

These problems are all without discussing the issues of the Value of Travel Time, Toll Avoidance and induced Traffic as those all suggest the benefits are further over-estimated.

A note on other assumptions

In most feasibility statements written by the RTA/RMS there is an interesting logic pattern. They acknowledge that improved public transport would reduce the number of persons using a road and thus reduce congestion.

However, they then conclude that there must not be any investment in public transport because most of their customers would be travelling to locations other than the major centres. The road projects are then designed to connect to major centres such as the Airport, University, Parramatta & CBD. The RTA then assesses the road

projects based on reducing travel time to major centres such as the Airport, University, Parramatta & CBD. The RTA also excludes the idea of improving public transport outside of the major centres from consideration.

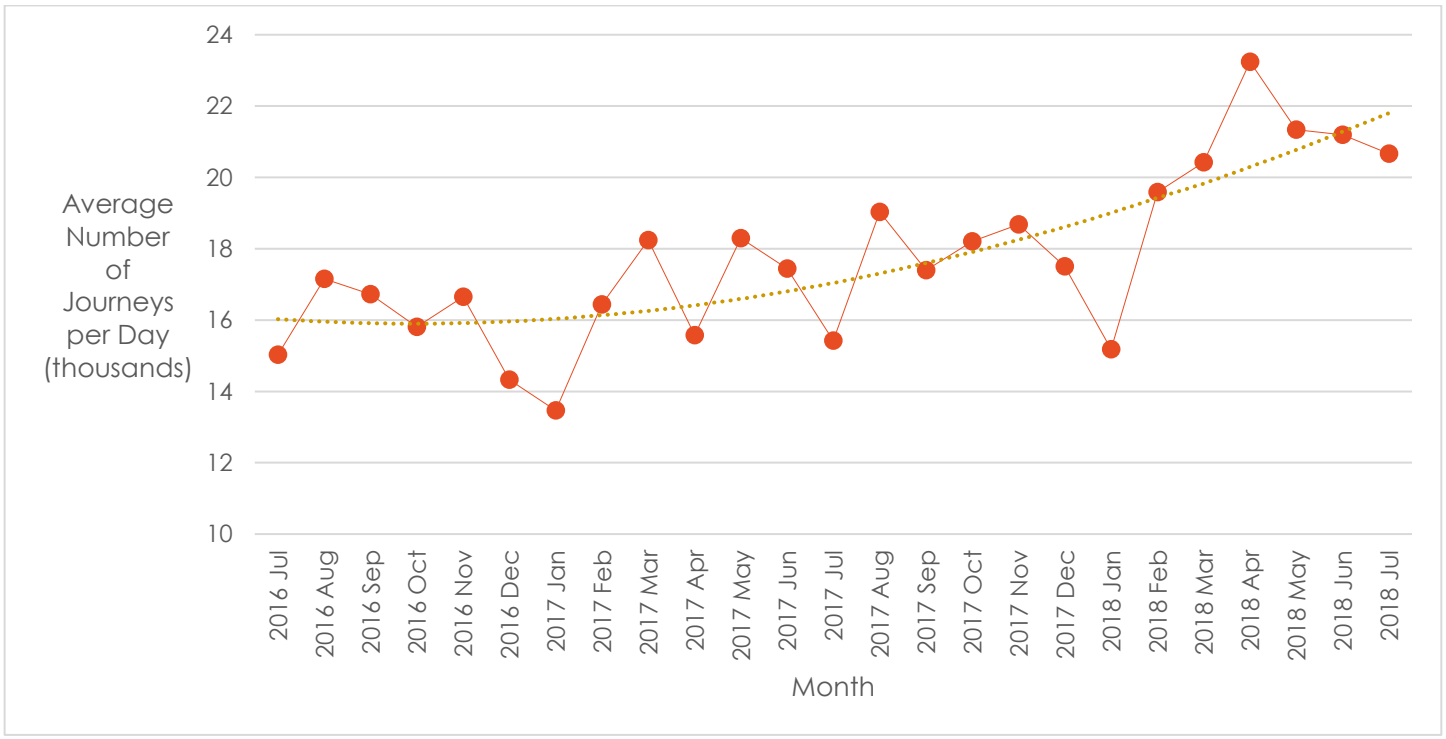
To quote the M4 East EIS Chapter 4:

> Combined transport options
>
> A 'park and ride' scenario, supplemented with a light rail line along Parramatta Road or express heavy rail services to Central Station, has been identified by a public transport advocacy group known as Eco-Transit. This transport alternative would introduce a 'park and ride' facility and bus-rail interchange in Olympic Park, an additional railway station on the Olympic Rail Line near its crossing of the existing M4, and an express service linking the new station with Central Station via the Main Western Rail Line. The park and ride facility would be supplemented by a light rail line from this new station, along Parramatta Road to Central Station.
>
> Passenger trips for work, education, health, recreation and personal business are recognised as a key customer market on the M4 East. A majority of these trips are by private vehicle, as many destinations are located outside the major centres. Commuting and education trips typically occur in the morning and afternoon travel peaks, whereas other passenger trips are more discretionary and can occur in inter-peak times and on weekends. These trips are typically highly dispersed and travel patterns are complex.
>
> Public transport is not the most effective way of servicing a majority of these passenger trips. It also fails to address demand for the movement of freight and trades and services. For these reasons, public transport options are seen as complementary services supporting, but not wholly able to address, the transport demands that would be addressed by the project and the broader WestConnex scheme.

However, having studied the 2011 and 2016 Census Journey to Work extensively, the data shows that many people drive to work in the major centres. Research also shows that many car trips are people travelling short distances where public transport is poor and cycling is unsafe.

Research clearly shows that improving 24-hour public transport, especially inter-reginal public transport encourages more passengers. In Figure 16 we can see that average daily patronage on the Cumberland Line increased substantially with the introduction of more all-day services. Research also shows that safe cycling infrastructure increases the number of cyclists. **Improved public transport and safer cycling have been shown repeatedly to free up space for those motorists who have no reasonable alternative.**

Figure 16: Average number of passengers per day on the T5 Cumberland Line (Liverpool – Parramatta – Blacktown)



The following attachments are provided for your reference.

Please note they are the work of the original authors listed.