

**Submission
No 166**

INQUIRY INTO IMPACT OF THE ROZELLE INTERCHANGE

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Portfolio Committee No. 6 – Transport and the Arts

Inquiry into the impact of the Rozelle Interchange

Opening Statement by Paul Forward

Overview

We have extensive experience in the state's transport infrastructure.

We played early seminal roles between 2011 and 2015 in the conception and development of WestConnex. It originally avoided the Rozelle area and included what is now Gateway, the airport access.

We assisted in various ways the government agencies and sought to find an optimal balance between the aspirations of roads management, traffic modality, urban design and state finances.

The objective moved over time. Originally it was to improve productivity by getting faster access for trucks from western Sydney to the airport and Port Botany. To that was added the requirement to access the CBD and to allow access to a future Western Harbour Tunnel (WHT).

The solution to those objectives appears to have benefited state finances but has provided a sub-optimal transport outcome. There is congestion on the approaches to Anzac Bridge where approximately 14 lanes are required to merge to 4. Some ramp connectivity to the southern CBD was deleted in the Camperdown/Glebe area.

The future doesn't look great.

- All cross harbour traffic will land in the Warringah Freeway zone which, despite current works, may be unsuitable for that demand.
- Access into the WHT from Rozelle Interchange may make worse its congestion.
- Government needs to find a way to better balance the competing demands of state finance, transport operation and urban form.

Some of our suggestions may help.

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Who we are

Members of the Upper House Committee, thank you for the opportunity to appear before the Committee. I will make an opening statement to explain to members who we are and why we are appearing today.

- My name is Paul Forward – I am an economist and town planner, was CEO of the Roads and Traffic Authority, and a principal of Evans & Peck Infrastructure Consultants.
- Stuart McCreery is a civil engineer and was a principal of Evans & Peck Infrastructure Consultants.
- Chris Ford is a traffic engineer who was the head of Traffic and Transport at the RTA, and who established the transport management centre at the RTA. Chris was a member of Evans & Peck team who worked on WestConnex with Stuart and me from 2011 to 2015.
- Les Wielinga is a civil engineer, he established TfNSW, was Chief Executive of the Sydney Metro Authority, and held many senior roles in the RTA, including Chief Executive, Director of Motorways and Head of the Pacific Highway Upgrade program from Hexham to the Queensland border.

WestConnex Achievements

We should not forget the scale of the WestConnex project, and the extraordinary achievement delivered by the NSW Government, its consultants, and the construction contractors.

WestConnex contains the longest urban road tunnels in the world and arguably the most complex motorway interchange in Australia. A trip on the M8 going underground from Kingsgrove and coming out at City West Link is 14.7km. The longest possible trip is 20.4 km.

It was conceived in 2011 and was fully operational (apart from Gateway to Sydney Airport) by 2023: a relatively short time frame for such a large motorway. Especially where such a complex interchange like Rozelle is built in a furiously live traffic zone.

In such a project it is not unexpected that mistakes might be made. While we can look backward and allocate blame for the shortcomings, the critical outcome from this inquiry should be to eliminate the possibility of more and poor consequences going forward. Concrete has a way of being unforgiving.

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We should minimise to the extent possible the future impacts of high traffic congestion associated with as yet incomplete works. To us that means addressing the impact of Western Harbour Tunnel. At both ends. Whether at Rozelle, which is already stressed, or the Warringah Freeway undergoing an upgrade, and into which will land all the cross-harbour traffic. That seems a poor concept.

Today we want to:

- Provide some background to the Committee on the early formative years of WestConnex – 2011 to 2015;
- Identify what appear to be the moments when poor decisions were made;
- Provide our views on possible solutions; and
- Comment on other suggested solutions that will not provide the answers.

Our involvement in WestConnex

Infrastructure NSW was established in 2011 and asked to develop a 30-year infrastructure plan for NSW.

In 2011 Evans & Peck was commissioned by Infrastructure NSW to advise on the next motorway project for Sydney for inclusion in the state infrastructure strategy. [Stuart McCreery and I led that task.](#)

Our paper “WestConnex – Sydney’s next motorway priority” October 2012, prepared with INSW, is available on the Infrastructure NSW website.

This was the beginning of WestConnex.

Concept

In the years leading up to the preparation of our paper, the RTA was working independently on an upgrade of the M4 East and an inner west bypass of the CBD providing a north south connection to Sydney Airport and Port Botany.

We were not privy to their work when we prepared our advice to INSW.

Both strategies made similar assumptions, namely:

- The M4 East extension should connect the western suburbs to Sydney Airport and to Port Botany;
- The M5 should be extended eastward and connect with the ports;
- The extended M4 and M5 should connect and allow options for access into the urban fabric;
- The M4-M5 link should act as an inner west bypass of the CBD;

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- Connection to the CBD over the Anzac Bridge was not contemplated: it was already running at full capacity in the morning peak and was considered a major constraint to any future motorway design.

The initial WestConnex concept had some very different elements to that finally built. For example, the M4 eastern section was aligned along Paramatta Rd in an open slot, much like the Eastern Distributor.

At that time, we understood that the RTA was interested in developing an additional harbour crossing but on a direct line from the inner west - underground beneath Balmain (Darling Street) and Drummoyne (Lyons Rd) and using the existing Iron Cove and Gladesville bridges and connecting directly into the M2 at Ryde, and north to the F3/M1. This was a preferred alignment to that now under development as the Western Harbour Tunnel/Beaches Link. It was that expressed preference that underpinned the testing and adopting of the Iron Cove Link.

Concept development

In 2012, to further test and develop the initial WestConnex solution, a more detail study was undertaken internally and presented to the INSW Board. The study involved a joint assessment by INSW, TfNSW, RMS and Evans & Peck.

It should be noted that the strategies developed by the RTA/RMS and the INSW team did not contained a Rozelle Interchange. The link between an extended M4 and M5 steered well away from that area.

Further concept development

Between 2012 and early 2015 **Forward/Ford/McCreery formed an Expert Review Group** working with TfNSW, INSW and RMS to further refine the design of WestConnex.

INSW was keen to encourage innovation into the detail design and delivery of WestConnex, so in 2012/13 the Expert Review Group commissioned four leading teams of road designers and civil construction companies. Those industry partners were put into a process to check through the design and delivery possibilities and advise on optimal solutions for WestConnex. The brief was to consider not only design but also contracting strategies.

The Industry Partners were split into two streams.

Team A investigated the M4 extension including the Parramatta Road concept including the Taverners Hill portal and connection to the Inner West Tunnel,

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Team B investigated access from the extended M5 and Inner West Tunnel to the Airport and Port Botany

The teams were:

Team A LCPL plus AECOM

Ferrovial

Team B Baulderstones Bougues JV (BBJV) plus Aurecon/SMEC,

Thiess plus Hyder

The process delivered some valuable innovations.

Team B conceived of splitting the M5 approach to the ports with a north arm and a south arm. This was adopted and resulted in the St Peters Interchange and the M8 approach.

The designs proposed by Team A kept to the Paramatta Rd alignment and connectivity and did not go anywhere near Rozelle except as an outlier. That alignment was ultimately changed by TfNSW in favour of the Rozelle Interchange.

It should be noted that the world's best road designers did not come up with the Rozelle interchange concept.

Delivery stages

WestConnex was split into three delivery stages, some with parts.

- Stage 1: M4 East extension
- Stage 2: M5 East extension
- Stage 3: M4-M5 link

2013 saw the establishment of WestConnex Development Authority (WDA) which ultimately morphed into Sydney Motorway Corporation (SMC) in 2015 with its own Board. It was ultimately privatised.

In 2014 the Expert Review Group (ERG) continued a strategic review with members from Evans & Peck, TfNSW, RMS and traffic modellers from Mason, Wilson, and Tierney. They reviewed both Stage 2 and Stage 3.

The Stage 2 review confirmed the St Peter's interchange solution and the M8 approach.

The Stage 3 review considered fifteen different schemes with extensive traffic modelling undertaken for each. Late in that process the WDA Board expressed a desire to possibly

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include access to a future Western Harbour Tunnel (WHT). In September 2014 the WDA/SMC developed a reference scheme that included the Rozelle Connection. The ERG identified significant challenges, modelled the associated traffic and found it had negative impacts on morning peak traffic flows to the Anzac Bridge. The Evans & Peck team advised against further development of this option.

WestConnex has had more traffic analysis undertaken than any other Sydney Toll Road.

In 2015 WDA released an Updated Strategic Business Case. Critical changes included requiring access to the CBD and making provision for a future WHT. This led to the interchange location being at Rozelle. This in turn necessitated changes in the location and configuration of the places in which the underground tunnels came to the surface. The mainline tunnel remained further west under Camperdown and Enmore in an alignment like the original concept and similar to the Marrickville Motorway concept of the RTA.

At this stage the Camperdown ramps were still included providing access from the mainline tunnels to Paramatta Road and to the employment generating areas around Sydney University, UTS, RPA Hospital and the developing Redfern Waterloo area.

In early 2015 Evans & Peck personnel were no longer engaged in the developments of WestConnex.

In 2016 SMC did a major re-work of the design, invisible to the public and the ERG. It led to the deletion of the Camperdown ramps. This had a number of effects:

- Traffic load increased on the Rozelle Interchange: a negative outcome for users.
- Traffic modelling suggested it would increase the volume of tolled trips which would in turn have the tendency to increase the sale price of the WestConnex entity to the private sector and to the benefit of NSW Treasury.
- The capital cost of the project was reduced by the cost of those deleted Camperdown ramps.

A bird's eye view of the outcome still sees approximately 14 lanes feeding morning traffic onto the 4 lanes of Anzac Bridge. The three lanes (including a bus lane) from Victoria Road, join with two lanes from Roberts/Mullens Streets and merge into half a lane on the Anzac Bridge.

Following that review in mid-2016, TfNSW changed the design of the M4-M5 Link and Rozelle Interchange.

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The Auditor Office of NSW report¹ on changes in 2019 since 2014 noted that these changes included:

- deletion of the Camperdown intersection to improve traffic conditions on Parramatta Road
- a fully underground and larger Rozelle Interchange with 10-hectare dedicated parklands
- a toll-free tunnel link from Iron Cove Bridge to Anzac Bridge
- increasing the lanes in the dual tunnels from three to four each way.

The Audit Office reported that “TfNSW documented, but did not publish, the rationale for the design changes.”

Ramifications

Up to the development of WestConnex all toll roads in Sydney were delivered at no or little cost to Government. The procurement and planning process was managed by Government and the private sector took the traffic, construction, and the financial risk.

WestConnex represents a different approach where the Government takes the traffic, construction, and financial risk and manages the process through a separate single asset entity (Sydney Motorway Corporation). After which time the Government hopes to cover its costs by selling the motorway to the highest bidder. Treasury were motivated to obtain the maximum price for WestConnex and to minimize its cost.

As it noted in its strategic review of Stage 3 in 2014, in making its recommendations the ERG sought to balance the sometimes competing views of the various constituencies being:

- WDA who seeks an optimal commercial asset;
- RMS who seeks to manage a road network including WCX;
- TfNSW who seeks to implement over the long term a transport strategy with multiple balanced modes;
- UrbanGrowth NSW who seeks to create an optimal urban form, particularly in the Bays Precinct.

Since our extensive involvement in the design of WestConnex from 2011 to 2015 we have developed views on the final design of WestConnex and its connectivity to the

¹ Audit Office of NSW WestConnex: Changes since 2014, 17 June 2021

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Western Harbour Tunnel and future matters of concern associated with the Warringah Freeway. We are happy to share these views with the Committee.

We also have views on the impact of the WHT and its design on the WestConnex traffic congestion and will provide the Committee with a list of initiatives that may help compensate the inner west community and businesses for the social cost they are experiencing through the Rozelle Interchange.

Thank you: We are happy to answer your questions.

Rozelle Interchange: Upper House Inquiry – Recommendations

METRO SERVICES

1. Fast track the Sydney Metro West Project to provide improved connectivity between the inner west and the Sydney and Parramatta CBD.

BUS SERVICES

2. Review and where necessary upgrade the frequency of the morning peak hour bus services using electric buses into the Sydney CBD along:
 - Victoria Road (existing heavy bus corridor).
 - City West Link (Currently no buses operate along this corridor) and
 - Parramatta Road (buses currently operate from Leichhardt).
3. Review the configuration and the location of the Victoria Road bus lanes between Iron Cove Bridge, Darling Street Rozelle, and the Anzac Bridge. Current lane 2 bus operation is confusing.
4. Investigate the potential to run express bus services in the morning peak through the WestConnex tunnels, particularly the tunnel from Iron Cove Bridge to the Anzac Bridge.

FERRY SERVICE

5. Review and upgrade the morning peak hour ferry service between the Circular Quay/Barangaroo and the Balmain peninsular, Birkenhead Point, Drummoyne, Hunters Hill, Huntleys' Cove, Chiswick, and Abbotsford. Note that the Parramatta River ferry services have increased with more services to come when all the new ferries are in operation. The new ferries have lower seating capacity so more services are required for the task. In view of the increased services, turnaround delay times at Barangaroo and Circular Quay and other wharves have increased and currently add up to 10 minutes to the journey. A comprehensive review of operating strategy and docking facilities needs to be undertaken.
6. Identify other potential ferry wharfs along the Parramatta River to upgrade the ferry service into the Sydney CBD and develop a comprehensive ferry strategy for Sydney Harbour and the Parramatta River.

Rozelle Interchange: Upper House Inquiry – Recommendations

GOVERNMENT ACTIONS

7. Enhance the dedicated team within the Transport Management Centre to manage inner west AM peak traffic flow feeding onto the Anzac Bridge and the traffic moving through adjacent suburbs, for example, Rozelle, Annandale, Camperdown, Drummoyne etc.
8. Establish a project team in Transport NSW to investigate the feasibility, design, and potential implementation of tidal flow on Anzac Bridge and approach works (moveable medians, signage etc.). The tidal flow arrangements should include a dedicated lane for Victoria Road traffic (existing ramp metering would be redundant). As part of this work, the team should also address widening of selected sections of the Western Distributor over the Fish Markets past the Goldborough Mort Building (the 'pinch point') to dedicate an exclusive lane for Sydney Harbour Bridge traffic.

REVIEW AND MODIFY - ANZAC BRIDGE

9. Review the ramp metering operations onto Anzac Bridge. Consider:
 - Is required full-time?
 - Should it be adaptive to merging traffic volumes like its predecessor through the 'mouse hole'?
 - Can traffic merges (3 lanes into 1) from Victoria Road to the Anzac Bridge be shared with WestConnex lanes which are currently free flow?
 - Can proposed ramp metering of Iron Cove tunnel traffic merging with WestConnex traffic be adaptive?
10. Review all the traffic merge arrangements leading onto Anzac Bridge.

Note: currently the traffic from Victoria Road, boosted with flow from Balmain (Mullens and Roberts, merges into half a lane on the Anzac Bridge.
11. Traffic demand modelling undertaken by the WestConnex Delivery Authority and reported in June 2015 (*Stage 3 Business Case Traffic Report*) showed clearly that the Anzac Bridge would be operating at capacity during the morning peak in 2031, notwithstanding the impact of the Western Harbour Tunnel. The robustness of this conclusion needs to be verified with current demand modelling. Assumptions on the tolling regime for the WHT, SHB and SHT need to be updated in line with the

Rozelle Interchange: Upper House Inquiry – Recommendations

Governments decision on Professor Fells' Report on Tolling of the Sydney Motorway network to incorporate into the modelling.

REVIEW AND MODIFY - GENERAL

12. Review the timing and co-ordination of all major traffic lights along the road corridors feeding on to WestConnex and the Anzac Bridge (particularly along Victoria Road through Drummoyne where current congestion and delays are excessive). Develop a morning peak hour strategy to speed up traffic flow, considering pedestrian movements along the road network.

REVIEW AND MODIFY – WESTERN HARBOUR TUNNEL

13. Develop a traffic model to review the impact of the operations of the Western Harbour Tunnel on traffic flow along the Victoria Road and City West Link Road corridors, taking into account the recent traffic movements as a consequence of the opening of WestConnex. The NSW Government should specify the tolling regime for the Western Harbour Tunnel (WHT), SHB and Sydney Harbour Tunnel. The Government to respond to Professor Fells report into Tolling of the Sydney Motorway Network particularly whether the Government accepts the recommendation to toll both directions on the SHB and SHT. Assumptions about tolling regimes of the Sydney Harbour crossing are critical for the development of a traffic model for the Western Harbour Tunnel.
14. Review the design of the Western Harbour Tunnel and its north facing portal locations on the Warringah Freeway to assess traffic movements from the Anzac Bridge and whether the WHT or SHB is the desired route. Assess whether WCX and the Rozelle entrances/exits encourage more cross-harbour traffic and drags some flow from the Gladesville n/s option thus further impacting Warringah Freeway.

REVIEW AND MODIFY – JAMES CRAIG

15. Re-route access to the James Craig precinct. Use Roberts Rd, so that there is no traffic signal cycle west of Anzac Bridge periodically blocking off east and west bound traffic.

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REVIEW AND MODIFY – VICTORIA RD

16. Victoria Road through Drummoyne is currently heavily congested during the morning peak period mainly because of changes to the traffic signal co-ordination operational plans which now meter and slow the free flow of traffic to the Rozelle interchange and creating congestion at the Lyons Road intersection. As a result, traffic tends to divert and 'rat-run' through local streets. Access to the Iron Cove tunnel through to Anzac Bridge is thus restricted. The original traffic signal co-ordination operational plans need to be reviewed and re-instated. In addition, traffic signal operation at the intersection of Victoria and Lyons Roads needs to be reviewed and upgraded. This review should consider:

- One-Way east in Lyons Road east (with a counter-flow Bus Lane); and
- A complementary arrangement at next signals at Edwin Street whereby Edwin Street would be One Way west. These arrangements would improve traffic flow through Drummoyne.

Prepared by:

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