WestConnex M4-M5 Link EIS, a partial assessment

(traffic and transport and the St Peters Network)

Ben Aveling,
Alexandria Residents Action Group Co-convenor

Scope of this review

⇒ Traffic and Transport ⇐	Soil and water quality	Contamination
Air quality	Flooding and drainage	Biodiversity
Noise and vibration	Social and economic	Greenhouse gas
Human health risk	Groundwater	Resource use and waste
Land use and property	Non-Aboriginal heritage	Climate change
Urban design, visual amenity	Aboriginal heritage	Hazard and risk

What is WestConnex?

Stage 1. M4 Widening & M4 East:
Parramatta to Haberfield

Stage 2. M5 Widening and New M5:
Beverly Hills to St Peters

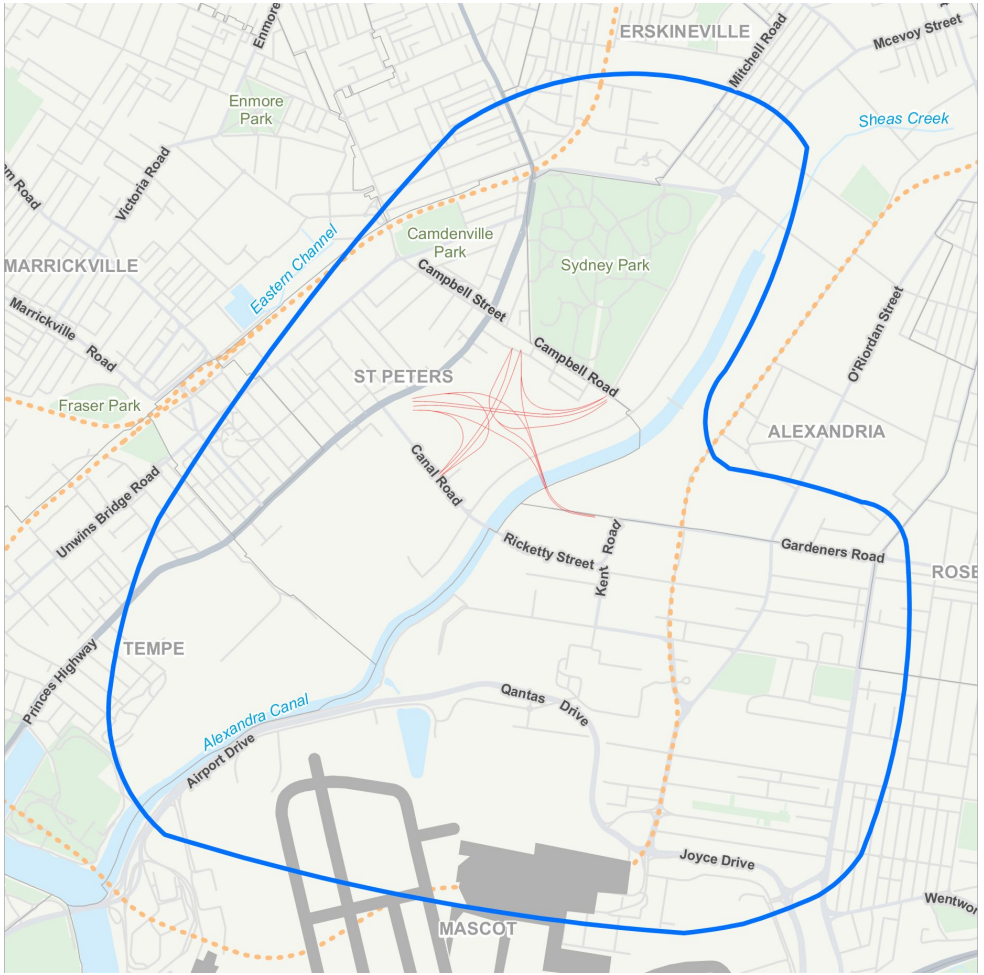
Stage 3. M4-M5 Link ⇐ this is now
Haberfield to St Peters

Airport Gateway:
St Peters to Airport
(somehow - not planned or funded)

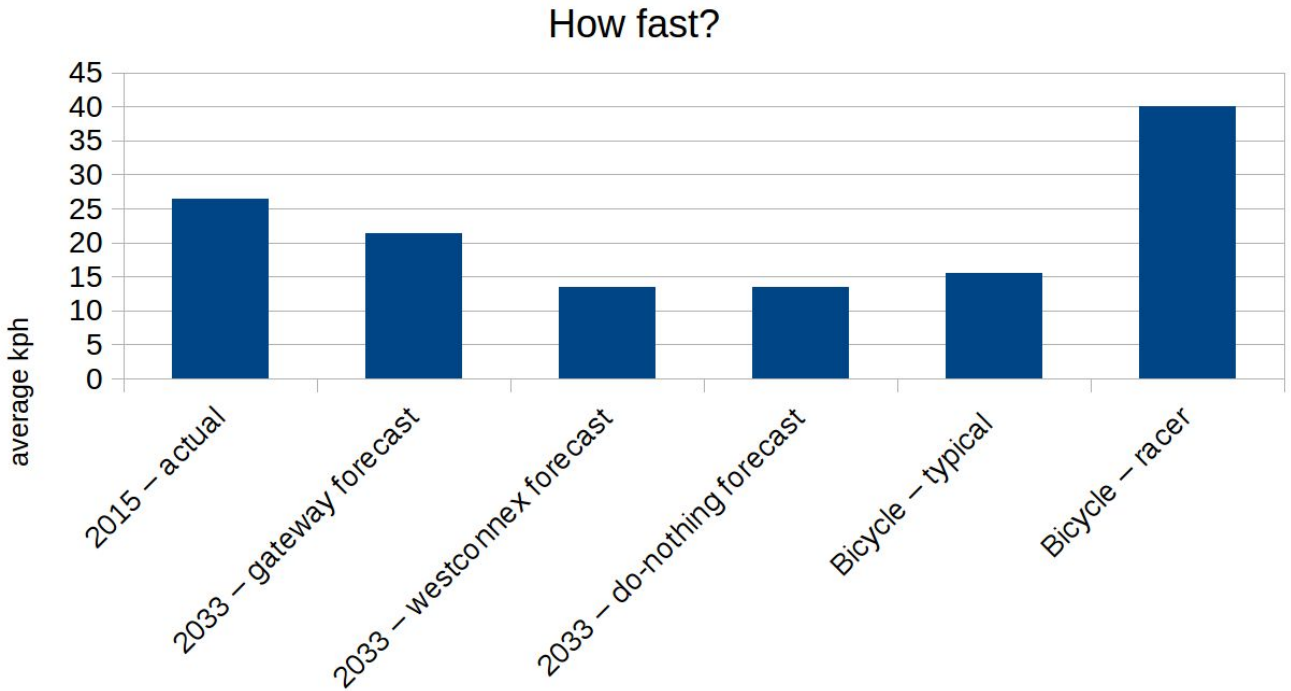
St Peters Study Area

Only the area immediately around the St Peters Interchange (Also known as ‘Crown of thorns’) has been modelled.

Does not include all the areas that will be impacted.



Best Case for St Peters Network



St Peters - 2033 Without vs With (AM & PM)

Network measure	2033 'without project'	2033 'with project'	2033 'without project'	2033 'with project'
All vehicles				
Total traffic demand (veh)	29,160	31,990	27,610	30,990
Total vehicle kilometres travelled in network (km)	72,830	92,690	84,570	84,000
Total time travelled approaching and in network (hr)	12,360	7,890	4,970	9,700
Total vehicles arrived	20,720	27,130	26,350	24,120
Total number of stops	274,310	250,290	195,250	248,790
Average per vehicle in network				
Average vehicle kilometres travelled in network (km)	2.6	2.8	2.8	2.7
Average time travelled in network (mins)	17.0	10.9	9.2	14.5
Average number of stops	13.2	9.2	7.4	10.3
Average speed (km/h)	9.0	15.7	18.0	11.2
Unreleased vehicles				
Unreleased demand (veh)	6,950	4,310	1,150	6,340
% of total traffic demand	24%	13%	4%	20%
Demand reduction to/from Sydney Airport precinct (veh)	690	830	320	420

St Peters Network - 2015 (AM & PM)

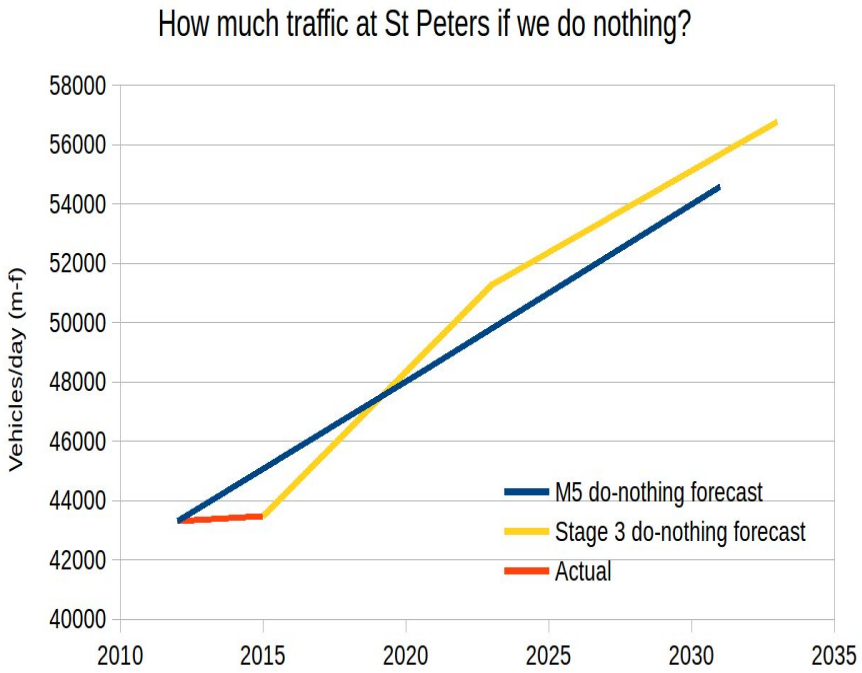
Table 8-33 St Peters interchange network performance – 2015 AM and PM peak hour

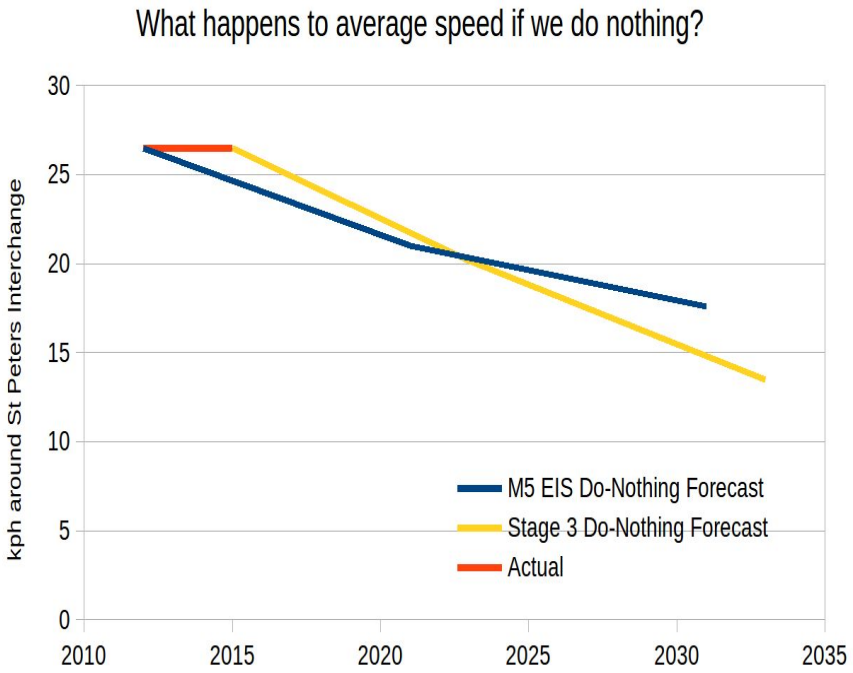
Network measure	AM peak hour	PM peak hour
All vehicles		
Total traffic demand (veh)	22,080	21,390
Total vehicle kilometres travelled in network (km)	62,220	59,650
Total time travelled in network (hr)	2,350	2,370
Total vehicles arrived	21,840	21,160
Total number of stops	105,830	101,670
Average per vehicle		
Average vehicle kilometres travelled in network (km)	2.6	2.6
Average time travelled in network (mins)	5.8	5.9
Average number of stops	4.8	4.8
Average speed (km/h)	26.8	26.1
Unreleased vehicles		
Unreleased demand (veh)	90	250
% of total traffic demand	0%	1%

St Peters Network - 2012 (AM & PM)

Network measure	Existing (2012)	Existing (2012)
AM peak		
All vehicles		
Total traffic demand (vehicles)	22,000	21,300
Total vehicle kilometres travelled in network (kilometres)	59,100	56,500
Total time travelled in network (hours)	2,310	2,070
Total number of stops	102,700	102,000
Average per vehicle		
Average vehicle kilometres travelled in network (kilometres)	2.7	2.7
Average time travelled in network (minutes)	6.3	5.8
Average number of stops	4.7	4.8
Average speed (kilometres)	25.6	27.3
Unreleased vehicles		
Unreleased demand (vehicles)	0	0
Per cent of total traffic demand	0	0

What forecast for St Peters if we do nothing?



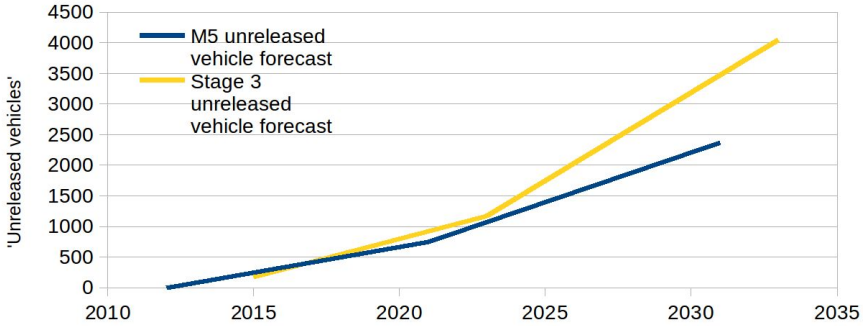


What's [not] happening?

Network measure	20 'with proj			
All vehicles				
Total traffic demand (veh)	29,			
Total vehicle kilometres travelled in network (km)	72,			
Total time travelled approaching and in network (hr)	12,			
Total vehicles arrived	20,			
Total number of stops	274,			
Average per vehicle in network				
Average vehicle kilometres travelled in network (km)	2.6	2.8	2.8	2.7
Average time travelled in network (mins)	17.0	10.9	9.2	14.5
Average number of stops	13.2	9.2	7.4	10.3
Average speed (km/h)	9.0	15.7	18.0	11.2
Unreleased vehicles				
Unreleased demand (veh)	6,950	4,310	1,150	6,340
% of total traffic demand	24%	13%	4%	20%
Demand reduction to/from Sydney Airport precinct (veh)	690	830	320	420

Where does all the traffic go?

(Spoiler: it doesn't go anywhere)



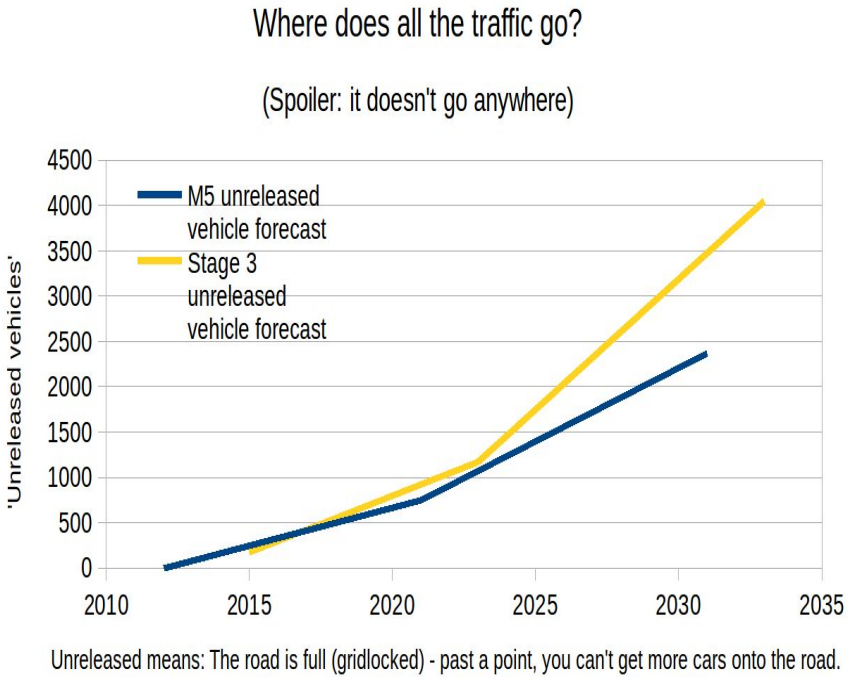
Unreleased means: The road is full (gridlocked) - past a point, you can't get more cars onto the road.

What's happening?

"Unreleased demand [is] vehicles unable to enter the model due to congestion extending back to model entry points."

That means: people can't leave their own driveways, and/or queues in the roads leading into the area under study.

That means: some streets are moving. Some streets are gridlocked.



Unreleased vehicles

“Unreleased vehicles are a serious model calibration problem, since they create a mismatch between the travel demand and the actual number of vehicles that are successful in getting through the network. Typically, this results in a downstream traffic volume undercount and gives the false impression that downstream operations are better than they actually are. (In these situations the model generally fails Realism Tests 3.2, 3.3 and/or 3.4, which in turn invalidates the results of Realism Tests 1 & 2).

Blocked vehicle problems must be resolved before computing any of the mathematical targets (Realism Tests 1 & 2).”

http://www.wisdot.info/microsimulation/index.php?title=Model_Calibration#Unreleased_Vehicles_and_Stuck_Vehicles

“Generally the percentage of unreleased vehicles must be equal to zero for the base model at the end of the simulation period.”

Paramics Microsimulation Modelling, RTA Manual. Available at: www.aldridgetrafficcontrollers.com.au/ArticleDocuments/148/paramicsmanual_i.pdf.aspx

Intersection performance

EIS says:
“For the purpose of analysing intersection performance in this assessment, all exit blocking constraints, applied in the microsimulation models to reflect network congestion beyond the modelled network extents, were removed. This allows for an assessment of the intersections within the modelled network, irrespective of any downstream queuing that would mask the actual operation of the intersection.”

Translation:
This is how our intersections would perform if only the rest of the network wasn’t congested.

The model is broken. And RMS says so in the EIS

“the network is forecast to not be able to accommodate the forecast traffic demand.”

“the forecast one hour future demand would exceed the physical road capacity.”

“In the St Peters interchange model area, the demand growth forecast by the WRTM in the ‘with project’ scenarios caused the operational models to become inoperable ...”

“...peak hour **demand was therefore reduced** in the ‘with project’ scenarios...”

M4 M5 EIS - Traffic and Transport

What is Demand management? The EIS says...

Definition:

“minimising or avoiding the need to invest in new motorway infrastructure such as the project, by reducing individual trip lengths and making alternative transport mode options more viable.”

Examples from the EIS:

- “Jobs closer to homes”
- “Restrict parking”
- “Time of day tolling”
- “Transport pricing”

- “ramp metering, variable speed limits and lane use management”
- “re-optimisation” of traffic signal timings
- “**capacity constraint**” ⇐ last resort

What is Capacity constraint?

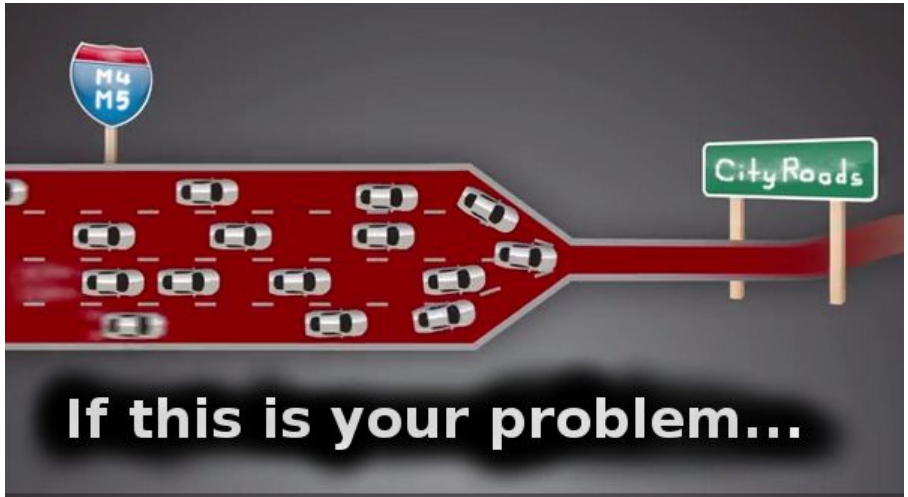
“capacity constraint can be used as a demand management technique, which discourages car travel and that conversely, over-provision of capacity can encourage more car use.”

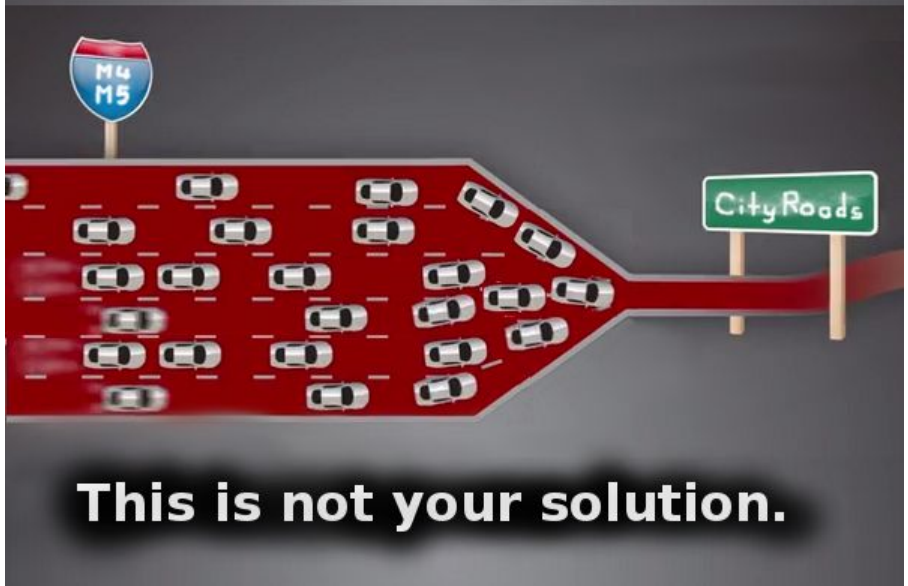
Why this matters

St Peters is one end of WestConnex.

If the roads around St Peters don’t work:

WestConnex won’t work





The Alternatives - according to the EIS

Improve existing arterial roads	“improvements to the arterial road network alone … are not a feasible or long-term alternative to the project.”
alternative transport modes	“Public transport improvements alone are therefore not a viable alternative to meeting the project objectives. Rail freight improvements alone are therefore not a viable alternative to meeting the project objectives. Improvements to cyclist and pedestrian infrastructure alone would not cater for the diverse travel demands”
demand management	“Travel demand management changes alone are therefore not a viable alternative to meeting the project objectives.”
the M4-M5 Link.	“WestConnex alone would not be able to accommodate the additional container traffic ...”

Which Alternative? Wrong question.

None of the alternatives, on its own, is sufficient.

Neither is WestConnex, on its own, sufficient.

That doesn’t mean we need “all of the above”.

It means we need a sensible mix of the options.

That debate is not to be found in the EIS.

Arterial Road Upgrades

E.g. A3, A6

Alternative transport modes

Passenger rail - “demand for rail services is forecast to increase by 37 per cent”

Buses - “improvements to the bus network are essential”

Rail freight - “WestConnex [cannot] accommodate the additional container traffic”

Ferries

Light Rail

Cycling - aim to increase share for trips up to 20 to 30-minutes/5 kilometres.

Walking - “‘walk only’ trips [are] 32 per cent of all trips in the Inner West LGA

This review covers less than 1/18 of the full horror

⇒ Traffic and Transport ⇐	Soil and water quality	Contamination
Air quality	Flooding and drainage	Biodiversity
Noise and vibration	Social and economic	Greenhouse gas
Human health risk	Groundwater	Resource use and waste
Land use and property	Non-Aboriginal heritage	Climate change
Urban design, visual amenity	Aboriginal heritage	Hazard and risk

Questions?

Resources

- How to object (the easy way): http://www.westconnexactiongroup.org.au/m4m5eis
- How to object (with the works): http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7485
- More information:fixwestconnex.com.au thepeopleseis.wordpress.com
- City of Sydney alternate plan: cityofsydney.nsw.gov.au/vision/changing-urban-precincts/westconnex
- Infrastructure Australia on Induced Demand: https://www.infrastructureaustralia.com/road/induced-demand/
- Contact ARAG: facebook (Alexandria Residents Action Group - ARAG), twitter (@arag_org_au), arag.org.au, or info@arag.org.au