

**Submission
No 374**

INQUIRY INTO IMPACT OF THE WESTCONNEX PROJECT

Organisation: Inner West LEAN

Date Received: 31 August 2018



Submission to the New South Wales Legislative Council’s Public Accountability Committee Inquiry into the impact of the WestConnex Project

Inner West LEAN is a branch of the national body LEAN “a group of Labor members and supporters that celebrate Labor's environmental legacy and campaign to ensure environment is central to its future”. Specifically, we are concerned to protect the environment of the Inner West region of Sydney.

Under terms of reference (TOR) of this inquiry - “(f) The extent to which the Project is meeting the original goals of March 2011”, we note the failure of the State Government to provide a proper analysis of transport alternatives – public or private - which could remove or significantly reduce the negative environmental impacts by redesign of the project.

Under TOR - “(j) any other related matter, we address the major environmental failures of WestConnex, in particular Stage 3 (M4-M5 link and associated interchanges). These include a radical increase in traffic movements with a consequent dangerous decline in air quality, as well as threats to the level and quality of groundwater resulting from tunnel construction.

Inner West LEAN therefore calls on the State Government to halt any further construction of Stage 3 until these matters can be resolved.

In this submission, we refer to the Department of Planning and Environment’s Environmental Assessment Report (“State Significant Infrastructure Assessment: WestConnex Stage 3 – M4-M5 Link SSI 7485” March 2018) being the document critical to the Government’s decision to proceed with Stage 3 of the project. We also refer to studies mentioned in the Assessment as well as independent experts and other WestConnex publications.

Analysis of alternatives TOR “(f)”

While we agree that road congestion – the reason for WestConnex - is an increasing problem, at no point could we see a clear representation of the volume, extent and timing of future road congestion. Just that it was going to be big, very big, very, very big. However, without a clear picture of the emergent problem and the impact of current measures for example, Sydney Metro, Light Rail, and planned measures to improve things like Metro West, there is no factual basis to compare alternatives, short, medium or long term. How might improved rail and public transport networks, closely integrated and using enhanced technology (capacity, speed) together with greater use of demand-management techniques (ride-sharing, park-and-ride, bus/bike lanes, fare subsidies, peak time pricing, etc.) compare with the juggernaut that is WestConnex? We are simply told that the benefits outweigh the negative impacts as the latter can be managed by an ensemble of consultative forums, plans, strategies, monitoring bodies and reviews. **So instead of weighing evidence, we are left to weigh words** and consoling efforts to make us resign to the inevitable. The case for benefits is not made

The Committee is requested to seek information in respect of the impact of current public transport measures and all reasonable alternative measures to WestConnex

Air quality (operational) TOR “(J)”

It is calculated that up to 4 % of premature deaths in Europe are caused by air pollutants such as particulate matter, carbon monoxide and nitrogen dioxide, both of which come from vehicle emissions. Source: Science News “The health effect of air pollution from traffic” June 4, 2018 Lund University. Decreased pollution can prevent consequent premature deaths, childhood asthma and bronchitis, hospitalisations for respiratory diseases dementia cases and preeclampsia.

With respect to air quality, the Department of Planning and Environment summarises “[we] are satisfied that the changes in health risk associated with the project across the local area will be acceptable and will include improvements in some areas, including when measured against a no project scenario. However, it is acknowledged that elevated levels of pollutants will occur at some locations, such as adjacent to ANZAC Bridge and St Peters, under the worst-case scenario as a result of increased vehicle numbers and emissions along surface roads on the approach to and exiting from the St Peters and Rozelle surface Interchanges. However, the health risk associated with these increases is predicted to be acceptable.” (vi)

Again, the DPE reports “ a health risk assessment was undertaken by the Proponent (RMS) to assess the impact of vehicular emissions and involved predicting the risk of changes in pollution concentrations arising from the project on two classes of receptors - approximately 86,375 residential, workplace and recreational (RWR) receptors, and 40 community facilities including schools, child care centres and medical centres. The risk assessment indicates that the maximum increases to health risk during the operation of the project are ‘acceptable’. (55)

The Committee is requested to seek information as to what the Department’s ‘acceptable’ means in this context

The Department considers that the project would have a minor impact on local air quality in certain locations, and that the effects on human health in those areas would be small and in the range of the current variations in air quality in the area. (65)

The Committee is requested to seek information again, as to what does the Department means by ‘small’

The Department states that it abides by the principles of the Environmental Protection Act and the precautionary principle. However the approach taken is anything but precautionary.

The Committee is requested to seek information as to what the Department means when it says it abides by the principles of the Environmental Protection Act and the precautionary principle

Air Quality in the Sydney Region

A key finding of the Updated Strategic Business Case (Section 15.3.1) was that regional air quality is unlikely to change due to WestConnex. This finding overlooks the absolute increase in air pollution attributable to vehicles using WestConnex.

The original Strategic Environmental Review (SER) examined the potential impacts of WestConnex on existing air quality by quantifying the broad change in air emissions with and without WestConnex. Using the same approach the review of the SER conducted for the Updated Strategic Business Case concluded that there was unlikely to be any direct effect of WestConnex on the existing regional air quality and the level of compliance with air quality criteria.

A major impact of Westconnex on air quality is the consequence of the increased traffic flows projected to use it in 2031 as compared to 2012. This has not been addressed in the published documents and this is a major shortcoming. Comparing the impact of WestConnex to the impact without Westconnex does not reveal the impact on air quality of the increased traffic flows that are provided for under WestConnex

The WestConnex documents should set out the impact on air quality of the increased VKTs projected. That is the absolute increase in air pollution between 2012 and 2031. It is a distraction to find that the levels of emissions with and without WestConnex were essentially the same. This is because if there was no WestConnex there are alternatives to the without WestConnex scenario.

Update to Strategic Environmental Review

Page 50 of Technical Paper 3 - Update to Strategic Environmental Review states,

6.3.2 Strategic review

General air shed (ambient) air quality

The original SER (Strategic Environmental Review) examined the potential impacts of WestConnex on existing air quality by quantifying the broad change in air emissions with and without WestConnex. The principal objective was to determine how regional air quality may change with WestConnex, and to determine whether air quality criteria would be compromised.

This was done by:

- *Modelling of Sydney region traffic movements for a base year (2011), and for 2021 and 2031 scenarios, with and without WestConnex*
- *Estimating total emissions of CO, NO_x and PM₁₀ from each road type (residential, arterial and highway/freeway) and aggregating emissions of each pollutant to determine the total annual emissions of CO, NO_x and PM₁₀, for each scenario. Emissions were estimated using factors developed by the EPA and taking account of anticipated changes in vehicle technology and emission standards over time. PM_{2.5} emissions were estimated by assuming that 96 per cent of the PM₁₀ is PM_{2.5}. This was based on measurements made by Environment Australia (2003)*
- *Comparing changes in emissions under each scenario.*

The significance of changes in emissions under each scenario was assessed in terms of the potential for influencing existing air quality, and the level of compliance with ambient air quality criteria.

*The traffic modelling for the original SER showed very little change in Vehicle Kilometres Travelled with and without WestConnex (refer **Figure 6-3**), although a shift from arterial to the freer flowing highway/freeway mode of travel was predicted with WestConnex.*

A general reduction in emissions over time was identified, largely driven by improvements in vehicle technology and the introduction of new emission standards. It was noted that the

levels of emissions with and without WestConnex were essentially the same (that is, less than one per cent difference). Based on the results, it was concluded that there was unlikely to be any direct effect of WestConnex on the existing regional air quality and the level of compliance with air quality criteria.

On page 51 of Technical Paper 3 it is stated that,

*The updated traffic modelling produced similar results to the original traffic modelling, that is, there is very little difference in Vehicle Kilometres Travelled with and without WestConnex across the Sydney region (refer **Figure 6-4**). The patterns and trends in total emissions for CO, NO_x and PM₁₀ and PM_{2.5} noted in the original SER would therefore be expected to be similar*

The concern here is that there will be an absolute increase in air pollution in the Sydney basin as a consequence of the projected increase in vehicle kilometres travelled (VKT). This increase is likely to be significant, as Figure 6-4 shows the increase in VKT will be from 90 million in 2012 to 120 million per year in 2031. The consequent absolute increase in air pollution has not been published anywhere in the WestConnex documents.

This impact on air quality is a very important public health issue that has not been addressed.

The Committee is requested to seek information in respect of the absolute increase in air pollution as a consequence of the increase in Vehicle Kilometres Travelled between 2012 and 2031.

The Committee is requested to seek information in respect of the impact on public health in the Sydney region as a consequence of the absolute increase in air pollution associated with the increase in VKT between 2012 and 2031

Local Air Quality

Another matter of concern is the narrowness of the scope for examining of the impact on local air quality. This is demonstrated by the commentary on page 53 of Technical Paper 3. This states,

Local air quality – ventilation outlets

WestConnex will include a number of road tunnels that will require ventilation, typically by way of suitably located ventilation outlets. Ventilation outlets provide an effective means for dispersing air from a road tunnel and delivering positive local air quality outcomes. This is primarily because tunnel air is discharged well above ground level allowing dispersion into the atmosphere and creating a separation from the majority of the population.

Notwithstanding these benefits, air discharged from tunnel ventilation outlets would be subject to investigation as part of a detailed air quality assessment, once the project and ventilation design has been further developed. The assessment would be based on the location and design characteristics of the outlet, emissions to air (as determined from in-tunnel information), buildings and land use, prevailing meteorology, and topographical effects to determine any changes in air pollutant concentrations at sensitive receptor locations.

The air quality assessment would inform the ventilation outlet design parameters and operating conditions to make sure that compliance with air quality criteria is achieved at all sensitive receptor locations. The assessment would also consider the net air quality effect of each project due to transferring traffic from surface roads to a ventilated tunnel.

Well-designed ventilation outlets result in no measurable change in local air quality. A ventilation outlet located close to the tunnel portal is the most cost effective and energy efficient location.

The Lane Cove Tunnel is an example of a well-designed ventilation outlet causing no discernible change in local air quality. Monitoring data collected for the Lane Cove Tunnel has shown no discernible impact and no exceedances of air quality criteria have been attributed to emissions from the outlets.

Similarly ambient air quality monitoring has been and continues to be undertaken in the vicinity of the ventilation outlet for the M5 East Tunnel. The monitoring is carried out at five locations, with continuous measurement of CO, NO₂ and PM₁₀ concentrations. Since opening in December 2001, the M5 East Tunnel has been operating within the ambient air quality goals set in the December 1997 Planning Minister's approval for the project.

The conclusion to be drawn is that air pollution standards will not be exceeded along the WestConnex routes.

This ignores those locations that are not part of WestConnex but which provide the source and destination of the increased traffic flows. These increased traffic flows will commence on roads and streets before entering WestConnex and will continue after exiting WestConnex. There is no analysis of the impact in respect of other vehicle routes that will carry traffic to and from WestConnex.

The Committee is requested to seek information in respect of the impact of WestConnex on the wider vehicle routes that carry traffic to and from WestConnex

The example provided by the Lane Cove tunnel suggests that filtered exhaust outlets are not needed to maintain air quality. The Lane Cove tunnel example relates to performance under current traffic conditions and not in relation to traffic flows in the period to 2031. There are also questions about the relevance of this example considering the different characteristics of that tunnel as compared to WestConnex. For example the WestConnex tunnels are much longer and wider.

Filtration of exhaust outlets is a relevant consideration in respect of the impact of WestConnex on air quality and it is appropriate to fully evaluate the filtration options including cost benefit analysis. The WestConnex documents do not provide such evaluation.

The Committee is requested to seek information that fully evaluates filtration of exhaust outlets and which includes cost benefit modelling of filtered exhaust outlets

The example provided by the Lane Cove tunnel raises another matter for concern. This relates to the exposure of motorists to in-tunnel air pollution. As stated above the characteristics of the Lane Cove tunnel are different to the WestConnex tunnels.

On page 58 of Technical Paper 3 it is stated that,

The number of people using a road tunnel would increase substantially with WestConnex. However, the maximum time spent in tunnels would be less compared to without WestConnex due to improved traffic flow across the network.

Again WestConnex is compared to without WestConnex in 2031 to conclude that WestConnex will improve air quality for motorists using the tunnels. There is no information concerning the absolute increase in exposure to air pollution for motorists as compared to 2012.

The Committee is requested to seek information in respect of the absolute increase in exposure to air pollution for motorists in WestConnex tunnels in 2031 as compared to 2012.

Groundwater

“The design standard for groundwater inflows, based on other tunnels in the Sydney Basin, is one litre per second over any given kilometre of tunnel (1L/s/km). The Proponent has indicated uncertainty in achieving this design standard for the entire tunnel length in a cost-effective manner. Approximately three kilometres of the mainline tunnels will be tanked to reduce excessive groundwater inflows with shotcreting proposed in areas of lesser inflow rates. The Department considers that all practical engineering measures should be applied throughout the length of the tunnel to achieve the 1L/s/km inflow rate and where this cannot be achieved justification must be provided.” (vii)

The Committee is requested to seek information in respect of the impact on the surrounding environment should the 1L/s/km inflow not be achieved

The Committee is requested to seek information in respect of the mitigation planned by the department if justification is not provided or inadequate and the inflow is exceeded.

The Committee is requested to seek information in respect of the validity of ‘justification’ in managing groundwater.

The Groundwater Review Report

The report, Appendix H of the Environmental Assessment Report for Stage 3, M4-M5 link raises concerns that have not been addressed by WestConnex. These are as follows (page 5 of the report),

- 1. The modelling provides limited reporting of changes in groundwater conditions around various subsurface assets and liabilities. The proponent’s groundwater modellers should liaise with relevant NSW Government Agencies including NSW EPA and Crown Lands and Water and local government stakeholders to ensure that predicted changes to groundwater levels, flow rates and directions near key assets and liabilities such as landfills, surface water bodies and groundwater wells are thoroughly documented in tables and figures and incorporated into plans of management for those assets. As discussed in Section 8.1.2 NSW EPA advises that by undertaking their project the proponent may become legally responsible for the contamination left behind in the subsurface soils and groundwater by other responsible parties.*
- 2. The EIS reporting acknowledges that the project may cause some saline intrusion into alluvial and sandstone aquifers between the tunnel alignment and coastal / estuarine water bodies over the very long-term (many decades to centuries) but suggests that the design life of the WestConnex tunnels is only about one hundred years and the groundwater in this area presently has very little beneficial use.*
- 3. The particle track modelling accompanying the supplementary assessment provides suitable information for establishing monitoring locations for groundwater salinity to verify the proponent’s assessment of impacts on groundwater salinity.*
- 4. The NSW State Groundwater Quality Protection Policy 1998 encourages the conservation of the highest possible environmental value (beneficial use category) of groundwater regardless of its current use and any previous degradation due to anthropogenic activity.*
- 5. A prediction that any part of a groundwater resource would be made more saline does, in the opinion of WRL’s reviewer, trigger the more than minimal impact assessment provisions of the NSW Aquifer Interference Policy 2012.*
- 6. If the project does slowly increase the salinity of the groundwater resource and relevant NSW*

Government Agencies are of the view that beneficial fresh-water groundwater resources exist within the sandstone and alluvium within the project footprint and it is expected these resources might conceivably be utilised in the future, then the proponent should be instructed to consult with NSW Government to obtain directions for further more detailed assessment work.

- 7. In previous WestConnex assessments the proponent's modelers prepared a map of changes in the evapotranspiration rates from the water table that might result from the project as an indicator of potential impacts on vegetation communities that might depend on or opportunistically utilise groundwater. No such map was provided for this assessment.*
- 8. The proponent should verify the status and current use details of the registered groundwater wells identified during the study.*
- 9. The proponent should verify that all groundwater supplies that might conceivably be impacted by the project can be managed by considering the economics of any additional pumping expenses, bore deepening and/or provisioning of an alternate supply of suitable quality water.*

Although these comments refer to only stage 3 of WestConnex they raise concerns about the impact on groundwater in the Sydney basin attributable to the large scale of tunnelling for the full WestConnex project.

It is noted that a key groundwater document, the "WestConnex Sensitivity and Uncertainty Study" that provided a revised set of model predictions for the project with adjusted values of groundwater recharge, aquifer hydraulic conductivity and storage is classified 'Commercial-in confidence' and has not been published (see page 3 of the report).

The above information demonstrates that it has not been possible to reasonably determine the full impact on groundwater of WestConnex. As point 2 above notes, the EIS reporting acknowledges that the project may cause some saline intrusion into alluvial and sandstone aquifers between the tunnel alignment and coastal / estuarine water bodies over the very long-term. WestConnex may lead to environmental degradation on a large scale.

The Committee is requested to seek information to reasonably determine the full impact of WestConnex on groundwater in the Sydney Basin

Conclusion

Inner West LEAN looks forward to addressing the public hearings in October and to the report of the Committee in December 2018.

Francis Breen

Coordinator

Inner West LEAN

Attachment

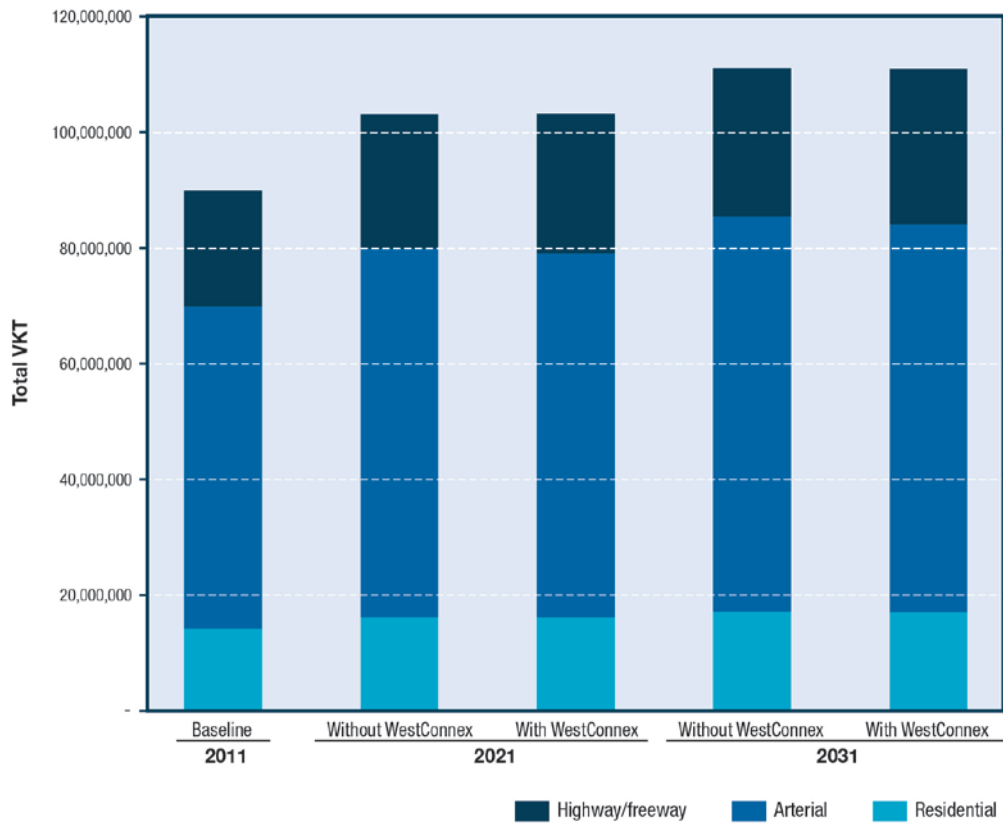


Figure 6-3 Daily network traffic statistics (based on preliminary traffic modelling)

Source: pers. comm. RMS (March 2013)

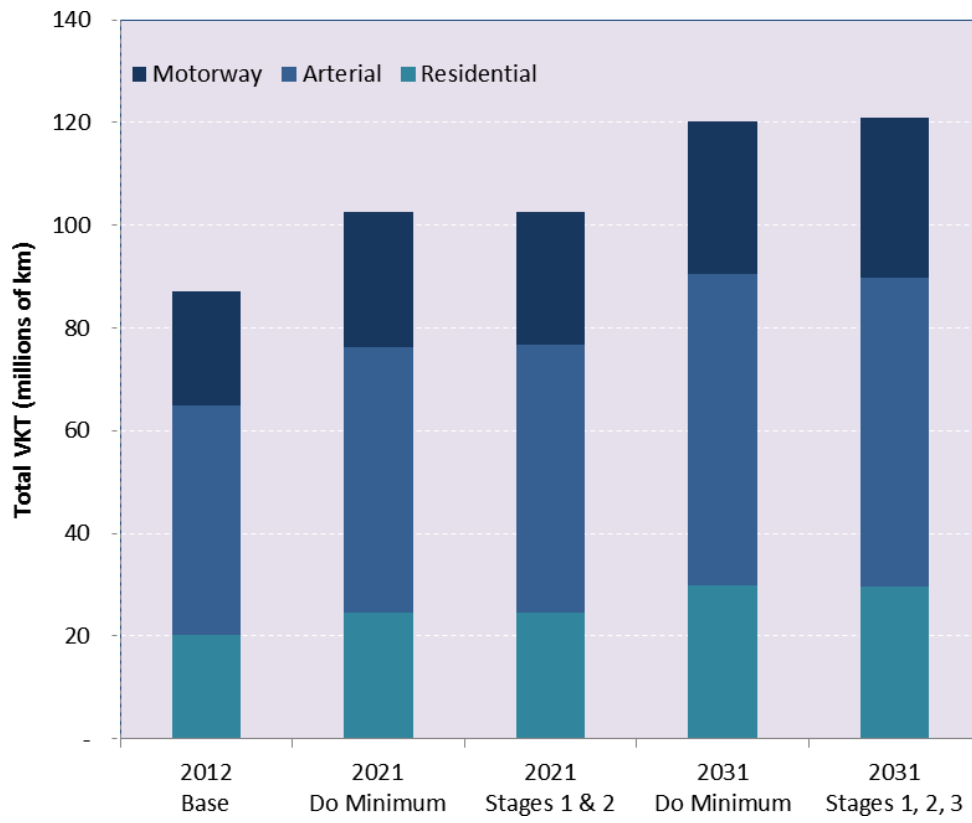


Figure 6-4 Daily network traffic statistics (based on revised traffic modelling)

Source: WDA (July 2015)