Submission No 457

INQUIRY INTO IMPACT OF THE WESTCONNEX PROJECT

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Legislative Council Public Accountability Committee

Chair:	Nile, Fred (CDP, LC Member)
Deputy Chair:	Mason-Cox, Matthew (LIB, LC Member)
Members:	Donnelly, Greg (ALP, LC Member)
	Field, Justin (GRNS, LC Member)
	Houssos, Courtney (ALP, LC Member)
	Khan, Trevor (NAT, LC Member)
	Ward, Natalie (LIB, LC Member)

Re: Parliamentary Inquiry into the Impact of the WestConnex Project (and its relationship with other projects including Western Harbour Tunnel & Beaches Link [WeHaT BL])

Dear Committee Members,

I am a concerned NSW citizen and resident of Naremburn in the Lower North Shore and my 6 year old daughter attends Anzac Park Public School, a school located approximately 200 meters from Glady's Monster Stack (two unfiltered stacks in the same location proposed for WeHaT BL in Cammeray).

While my concerns on the matter for this inquire are multiple, I have focused my submission to the ones I consider to be most critical at present:

- The process for selecting and implementing multibillion dollar infrastructure projects in NSW is flawed (taxpayer funds are being wasted on politically driven projects rather than on projects based on demonstrable merits and without independent scrutiny). Furthermore, the lack of transparency around WestConnex and its offspring (or next stages), including WeHaT BL, its costings and true environmental impacts is concerning. A flawed process is doomed to result in flawed outcomes to the detriment of the citizens and taxpayers of NSW. It is us the taxpayers who ultimately pay for the NSW Government's inane decisions as it is becoming increasingly evident with a wide range of projects across Sydney (including WestConnex and WeHaT BL).
- Misleading representations by RMS and the Member for Willoughby around air quality, world best practice around filtration for tunnels and location of stacks has become common practice.

As the Committee Members would be widely aware, there is widespread community cynicism around the tunnels and their proponents, including the Member for Willoughby. While is not new, the magnitude of the impact from the proposed tunnels is likely to have an outlasting impact over decades to come. As CSIRO reported over a decade ago (http://www.cmar.csiro.au/e-print/internal/2007/maninspc_xa.pdf) reported community cynicism has been deepened by:

1. Multiple Parliamentary Inquiries which have documented the issues of:
    a. lack of filtration despite Community pleas based upon international medical literature documenting risks;
    b. ignored advice from NSW Department of Health to RTA (now RMS) to post signage at tunnel entrances regarding winding up windows, etc;
    c. a recent Parliamentary Inquiry had to be expanded to review contractual arrangements, tolling structure, road closures and level of community consultation; and
    d. Parliamentary Inquiry Reports recommending best practice and filtration, but not actioned.

While international evidence of the negative health issues of diesel emissions continues to grow, the NSW Government, now led by the Member for Willoughby who openly campaigned and argued for filtration of tunnels to protect our health while in opposition, has been promoting the development of some of the world's longest road tunnels (including WestConnex, NorthConnex and WeHaT BL) without filtration. This has resulted in unfiltered stacks popping up across Sydney which will soon begin spewing substantial amounts of concentrated carcinogenic diesel emissions into a wide range of suburbs. Some relevant key points for consideration:

- Diesel exhaust is a mixture containing over 450 different components, including vapours and fine particles coated with organic substances. Over 40 chemicals in diesel exhaust are considered toxic air contaminants overseas.
- Exposure to this mixture may result in cancer, respiratory effects, and other health problems. Weight-for-weight diesel particles are more than 40 times as carcinogenic as tobacco smoke.
  https://ama.com.au/sites/default/files/documents/AMA_submission_inquiry_into_health_impacts_of_air_quality_.pdf
- In June 2012, the World Health Organisation (WHO) declared diesel fumes to be a Level-1 Human Carcinogen i.e. proven evidence of carcinogenicity in human beings.
  http://www.iarc.fr/en/mediacentre/pr/2012/pdfs/pr213_E.pdf
- The Member for Willoughby was Transport Minister for NSW from 2011-2014 and, as far as I'm aware, has NOT publicly denied she does NOT believe the link between carcinogenic emissions and cancer or other documented negative effects on human health (particularly in children or older people) is real. Notwithstanding, her actions and support for RMS policy NOT to filter stacks at any costs indicates she believes there is NO problem with releasing these carcinogenic emissions in high concentrations in selected suburbs across Sydney.
- The Berejiklian Government and the statutory authorities are dickering about on the margins of a duty of care with an end 'do-nothing' outcome as it is being observed through the path of WestConnex and emerging next stages including WeHaT BL.
- Many long tunnels (longer than 3KM) in first world countries including Spain, Norway and Japan include filtration when tunnels are located in urban environments. RMS has mislead the citizens of NSW by indicating it uses world best practice by comparing apples with oranges (short tunnels that may not require filtration with long tunnels such as WestConnex, NorthConnex and WeHaT BL) or by comparing third world countries (which are typically not world best practice in protecting the health of their citizens).
- It defies logic that the most recent tunnel in Hong Kong was delivered by a subsidiary of CIMIC (Leighton Asia) with filtration to protect the health of residents of Hong Kong (refer Annexure A) while another subsidiary of CIMIC (CPB Contractors) was not required to deliver such a solution notwithstanding the materially longer distance involved in WestConnex.

Of further concern, the recent representations made by the Member of Willoughby during her announcement of WeHaT BL, an offspring of WestConnex, indicating that the location of the stacks for these new tunnels are now located "away from schools and residents" are highly misleading and offensive. Annexure B contains a copy of such representations and maps illustrating the close proximity from her proposed Monster Stack (two smoke stacks in one location from the WeHaT and BL representing 13.5km x 3 lanes = 40.5 km of polluting road) at Ernst Street near Anzac Park Public School in Cammeray and Artarmon Public School near the Artarmon stack.

I would strongly encourage the members of this committee to consider legislating filtration as the status quo for any long tunnels in NSW, stripping RMS of any involvement or oversight re health impacts around the same and requesting RMS and the Member for Willoughby to stop any further misrepresentations.

Process Issues

The relationship between WestConnex and other toll road projects including the Western Harbour Tunnel and Beaches Link and F6 is evident. It is one big interconnected project and many of us in the Lower North Shore recognise that the significant impacts already observed from WestConnex are likely to be replicated across the path of the WeHaT BL.

The separate staging used for WestConnex and its offspring, the use of private companies to hide detail from public scrutiny, the sham of the community information sessions, the blatant disregard of objections and the lack of INDEPENDENT reviews demonstrates that the Government is acutely aware that the public genuinely believes that WestConnex and its offspring, including WeHaT BL, do not represent the best solution or use of tax funds needed in Sydney.

Prior to WestConnex, the last two greenfield volume risk toll roads in NSW (Cross City Tunnel and Lane Cove Tunnel) were privately funded and resulted in unmitigated financial disasters. Transurban acquired both tunnels once these went into receivership.

In 2014, the NSW Government also accepted an unsolicited proposal from Transurban to build NorthConnex (a 9Km tunnel) and is considered the most likely acquirer of WestConnex, notwithstanding competition issues raised by the ACCC given its unquestionable monopolistic business and illustrated in the table below.

Table 1: Australian toll-roads ownership profile

Type	Name	State	Length (km)	Majority Owner
Harbour/river crossing	Harbour Bridge	NSW	1.1	RMS
	Harbour Tunnel	NSW	2.7	Transfield / Kumagai Gumi
	Go Between Bridge	QLD	0.3	**Transurban (62.5%)**
Tunnels or roads with tunnels	Cross City Tunnel	**NSW**	2.1	**Transurban**
	Lane Cove Tunnel	**NSW**	3.8	**Transurban**
	Clem7	QLD	6.8	**Transurban (62.5%)**
	Airport Link	QLD	6.7	**Transurban (62.5%)**
	Legacy Way	QLD	5.7	**Transurban (62.5%)**
Intra-city links	M1 (Eastern Distributor)	**NSW**	6.0	**Transurban (75.1%)**
	M2 (Hills)	**NSW**	21.0	**Transurban**
	M7 (Westlink)	**NSW**	40.0	**Transurban (50%)**
	M5 (South-West)	**NSW**	22.0	**Transurban (50%)**
	CityLink	VIC	22.0	**Transurban**
	EastLink	VIC	39.0	Horizon Roads Pty Ltd
	Gateway Motorway	QLD	23.1	**Transurban (62.5%)**
	Logan Motorway	QLD	38.7	**Transurban (62.5%)**
Under development	NorthConnex	**NSW**		**Transurban**
	Westconnex	NSW		51% for sale [to Transurban]
	West Gate Tunnel	VIC		**Transurban**

Transurban has unquestionably been successful in building a monopolistic business and the question of how successful it has been in extracting monopolistic returns and concessions from the NSW Government remains open. The issue of donations from Transurban to political parties will remain a contentious issue and one that does not "pass the pub test" with the wider community.

The NSW's Government's eagerness to launch into WestConnex and commit to billions of dollars in funding, prior to having a business case has resulted in a project with a marginal business case (as reflected by a a low benefit to cost ratio of under 1.7x before it suffered significant cost blowouts and without properly

incorporating all costs and independent review of its assumptions) resulting in a matter of serious concern for some time. While the process reflects poor judgment from the NSW Government, the secrecy that has surrounded this project, its cost magnitude and significant cost blowouts leave WestConnex with a bad smell which warrants further independent scrutiny.

The same applies to WestConnex offspring projects, including WeHaT BL, which is another political project where the NSW Government has eagerly committed itself to (and our taxes) without a proper business case or public scrutiny.

Issues with Misrepresentations

When I first started looking at the issues involved, my concerns grew from the commonly held view that the NSW Government was driving infrastructure projects politically rather than economically. The obvious attempts to gloss over issues around health impact from unfiltered smoke stacks and blatant refusal by the RMS to filter the exhaust stacks quickly became evident.

These decisions can be expected to cause premature morbidity, ranging from respiratory affections (including asthma) to cancer and its costs are not clearly understood or included as part of the cost benefit analysis. It appears there is a deliberate effort from both RMS and the NSW Government to overlook the real cost of these impacts and compare them to feasible solutions used elsewhere for this purpose. It ignores world's best practice - as road tunnels in Japan, Norway, Spain, Italy, and China are constructed with in tunnel particulate and nitrogen dioxide filtration.

By way of examples, the 4 proposed stacks in Rozelle are expected to emit in excess of 50 tonnes of particulate matter annually, based on RMS figures for the M5 East exhaust stack. The cost to the community in financial terms is impossible to quantify but could easily run into billions.

NorthConnex on its own EIS indicates that users will be exposed to levels of carcinogenic emissions (PM2.5) equivalent to 30-50 times WHO guideline inside the last Kms of the tunnel and those levels of concentrated carcinogenic emissions would then be ejected UNFILTERED to the community.

Figure 1: Concentration of carcinogenic emissions in NorthConnex EIS

Pollutant	Pollutant concentrations (mg/m^3) (peak hour) Approximate distance along main alignment tunnels 1 km	2 km	3 km	4 km	5 km	6 km	7 km	8 km	9 km
Southbound main alignment tunnel at 9 am (2019)									
CO	0.331	0.772	1.06	1.34	1.62	1.90	2.17	2.58	3.45
	0.348	0.812	1.12	1.41	1.70	2.00	2.28	2.71	3.63
NO_2	0.039	0.098	0.124	0.144	0.165	0.186	0.206	0.250	0.374
	0.044	0.111	0.140	0.162	0.186	0.210	0.232	0.282	0.422
	0.070	0.177	0.224	0.260	0.298	0.335	0.372	0.451	0.675
PM_{10}	0.039	0.084	0.122	0.158	0.193	0.229	0.265	0.307	0.377
	0.040	0.087	0.127	0.164	0.200	0.238	0.275	0.318	0.391
$PM_{2.5}$	0.037	0.080	0.115	0.149	0.183	0.217	0.251	0.290	0.347
	0.039	0.085	0.122	0.158	0.195	0.231	0.267	0.308	0.369
Northbound main alignment tunnel at 6 pm (2019)									
CO	0.156	0.911	1.76	2.62	3.47	4.32	5.12	5.59	6.26
	0.152	0.890	1.71	2.55	3.38	4.20	4.98	5.44	6.09
NO_2	0.005	0.110	0.231	0.352	0.473	0.594	0.707	0.771	0.860
	0.005	0.112	0.235	0.358	0.481	0.604	0.719	0.784	0.875
	0.008	0.179	0.376	0.573	0.770	0.97	1.15	1.26	1.40
PM_{10}	0.032	0.090	0.153	0.215	0.278	0.340	0.401	0.450	0.504
	0.033	0.092	0.156	0.220	0.284	0.347	0.410	0.460	0.515
$PM_{2.5}$	0.030	0.085	0.144	0.203	0.263	0.322	0.379	0.425	0.477
	0.031	0.087	0.147	0.207	0.269	0.329	0.387	0.434	0.487

By delivering these tunnels without FILTRATION, the NSW Government has missed a unique opportunity to materially improve the air quality in our community and disregarded its duty of care. As one of the current MPs indicated when in opposition in respect of addressing the question of filtration in stacks and tunnels: ***"there is clearly a need for Government to apply honesty, as well as objectivity, to the appraisal of the technologies as well as to the scientific and medical evidence for health risk."***

Does Sydney have amazing ambient air quality? – we don't even measure it and RMS is openly making misrepresentations about it

RMS propaganda leaflets state that Sydney's air quality is better than that of similar sized Canadian cities. In addition, they have been bombarding our local communities' Facebook feeds with FALSE advertising, claiming that our air quality is "really really good by International standards". While "really really good" is not a measure that the WHO or OECD use to describe air quality, this information is completely untrue and misleading when there is no air quality monitoring in the Lower North Shore and the one monitor in existence that is closest to this area (ie. Lindfield) is nowhere near a road (it is sitting in the Lane Cove national park) and the Office of Environment and Heritage that runs the monitor advises on its website that the monitor is not compliant with Australian standards (see error message on their website, below). In addition, there are no air quality monitors in the vicinity of the CBD or anywhere one might consider that monitoring is necessary. The Rozelle, Chullora, Earlwood, Callan Park monitors are either non-compliant or have been taken offline. The Office of Environment and Heritage (OEH) may be tasked with monitoring air quality, but they obviously don't take their obligations seriously. The RMS is producing propaganda about management of air quality on the back of this vacuum of information which further compounds the level of negligence.
http://www.environment.nsw.gov.au/topics/air/monitoring-air-quality/sydney/~/link.aspx?_id=16151FF24071464FB5E713D2A2410E90&_z=z

Figure 2: Note re Linfield air quality monitoring station (last updated 29 May 2018)

> **NOTE:** The site does not currently comply with **Australian Standard AS/NZS 3580.1.1:2007 - Methods for sampling and analysis of ambient air - Guide to siting air monitoring equipment** as the clear sky angle is < 120° due to trees within 20 metres to the north-east and east of the monitoring site.

RMS lied to us when they promised baseline air quality monitoring at Anzac Park Public School

In July 2017, the RMS visited Anzac Park Public School and outlined the project. The RMS had previously met with the principal to discuss air quality monitoring and they promised to put baseline air quality monitoring at or near the school.

The RMS told the Anzac Park Public school parents at a meeting on 14 November 2017 that they would now not monitor air quality at our school and furthermore, that they wouldn't do monitoring where the stacks would be located. The RMS told parents that if we wanted baseline air quality monitoring done as part of the EIS, then **we parents** would have to request it of the Planning Department.... Who is monitoring our public servants? Who is coordinating this project if not the RMS?

We want baseline air quality monitoring before the EIS comes out. How can anyone assess the cumulative health risk otherwise? Where is the Department of Health on this? Is there any coordination across departments? Why is the Berejiklian Government ignoring such requests?

RMS do not currently *manage* air quality

To verify in RMS website "How is Air Quality Managed?" page, users are presented with a glossy brochure and a statement about the M5 East tunnel that states:

"The M5 East Tunnel is fitted with a smoky vehicle camera.... This deters drivers of smoky trucks from using the tunnel and encourages them to repair their trucks."

It is clear that RMS has no duty of care to the citizens of NSW (or do not take it seriously) by presenting this to the public as air quality management.

http://www.rms.nsw.gov.au/projects/key-build-program/building-sydney-motorways/sydney-tunnels/ebook/index.html#/12/

There is NO monitoring of the 5 recommended indicators of pollution either in-tunnel or ambient in relevant locations. There is only a smoky vehicle camera for the M5 East, and only Carbon Monoxide is measured and reported for the Lane Cove tunnel.

Sydney tunnels have nothing like the air quality monitoring happening on the two Brisbane tunnels (Airportlink and Clem7 tunnels) built in 2013 and 2015. There are ambient air quality sensors at more than 5 sites and in-tunnel sensors and all 5 air quality pollutants are measured. These tunnels also have no filtration and the ambient air quality numbers are **very worrying**.
http://govianetwork.com.au/sustainability/clem7-air-quality/?type=external#graph-type

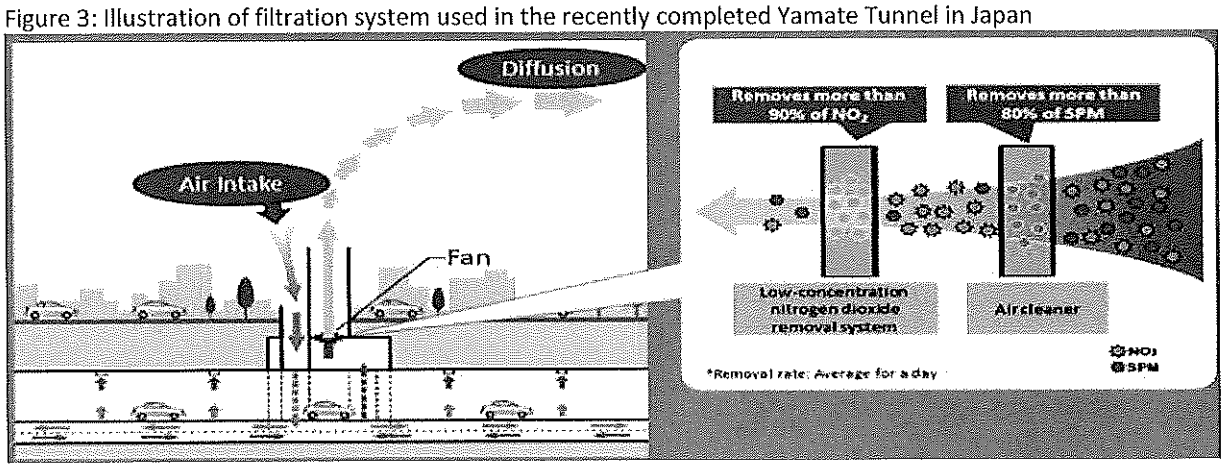
These are real time numbers and there are very large readings in peak hours. Once the daily readings are averaged out, these readings do not appear to breach minimum standards, but I note that they have bumped up the minimum standard for PM2.5 from 25 micrograms/m3 (Australian minimum standard) to 45 micrograms/m3 (I have no idea where on earth they come up with this number as a standard. Even the US has a minimum standard of 10 micrograms/m3).

Tunnel filtration works

Filtration and scrubbing of pollutants is not new, is not rocket science and it works!

The Japanese and Norwegians pioneered filtration of road tunnels. Long road tunnels in urban areas in other countries are now routinely built with filtered ventilation stacks. Stack filtration technology is available from Norweigian, Austrian, German and Japanese manufacturers. This is international best practice. The filtration systems remove fine particulate matter, a **CATEGORY 1A CARCINOGENIC**, and noxious gases such as nitrogen dioxide, a known trigger for asthma and other respiratory disease. Recent examples with stack filtration to prevent emissions into the air of surrounding communities include the Madrid's Calle 30 tunnels (opened 2008, multiple tunnels, totalling 50 km length, 30 particle filtration stacks and 4 gas filtration systems), Tokyo's Yamate tunnels (latest opened 2015) and the Hong Kong CWB bypass & tunnel (opening 2019). Countries which do not filter long road tunnels include India and Turkey. But even then, the 5km unfiltered Turkish Eurasia tunnel, which opened in Dec 2016, bans trucks and is only 2 lanes each way and vents its emissions out over the water of the Bosphorous.

Figure 3: Illustration of filtration system used in the recently completed Yamate Tunnel in Japan



The UK and USA have no long road tunnels - they put trains in theirs. **The July 2014 Chief Scientist Committee report was informed by outdated RMS reports (the latest referring to tunnels up to 2012)**. This report is not only outdated but it wrongly says the future Hong Kong tunnel will not be filtered. That tunnel, known as the

CWB bypass is only 3.6km long and built with a full air purifying system (filtering air inside the tunnel, not just at the outlets) by Leighton Asia (refer Annexure A).

At a meeting at Anzac Park Public School, when asked RMS told us they can't go overseas to check out these newer, filtered tunnels and yet they claim "World's Best practice" for a system of ventilation that objectively is not. **The RMS has been openly misrepresenting these matters.** We lag in air quality standards and policy and this is borne out by a refusal to address vehicle emissions, consider policy amends to transition away from petrol and diesel vehicles and review pollution stack filtration at work.

The M5 East filtration trial worked

RMS claim that the M5 East filtration trial 'not having worked' is really a red herring. Filtration works and provides a demonstrable improvement to air quality. It is used by first world countries on **long** road tunnels in urban areas.

The M5 East filtration trial had filters that only operated 4 hours per day yet removed 65% of particulates. The CSIRO admitted later that their equipment was not capable of measuring ultra-fine particles so couldn't tell status of PM2.5 when filters were on or off, and so the report disingenuously said that the filtration was ineffective. Furthermore, the final report scaled up the cost to remove 1 tonne of particulates – a number so ridiculous that if it weren't so serious it would be funny. This equates to about 50 years of operation of the filters. So the cost was overinflated to get the outcome that the RMS wanted – further weight to the recommendation of NO filtration.

So, all in all, this filtration trial was successful (removed pollutants) but the report was doomed to fail because the RMS wanted it to.

http://www.chiefscientist.nsw.gov.au/_data/assets/pdf_file/0017/51911/060814-FINAL-Initial-Report-Tunnel-Air-Quality-WEB.pdf

The report in the link above contains no scientific analysis that would help the RMS to understand what is the point at which they would ever consider filtration. That is, what is the length of tunnel where filtration would be necessary? There is NO scientific study (even a graph) to show the length of a tunnel against pollution stack height where air quality is deemed to be safe for a particular ventilation rate. There is no measurement of the actual change in ambient air quality per tunnel length.

Residents of the Lower North Shore such as myself are currently wondering what is the effect on air quality of two long road tunnels and their pollution stacks in such close proximity to one another and to a 10-lane freeway – as will be the case for our community in the vicinity of the WeHaT BL and Warringah Freeway?

This scientific analysis would be something that would be expected to be contained in a report from the Chief Scientist influencing whether exhaust stacks should not be filtered.

Instead, we get the Member for Willoughby representing to its own electorate that the location of these stacks is now away from schools and residents (refer Annexure B) and RMS propaganda!

The NSW chief scientist the RMS Chemical Engineer (Air Quality representative) and the RMS need to get on board with what the rest of the world is treating as urgent.

The link between carcinogenic emissions and our health should be taken seriously. The RMS talk of downwash zones and sensitive receptors, yet they say there is no difference in air quality from filtration. This has not been backed this up scientifically and an INDEPENDENT report should be completed for such purpose.

RMS Policy is wrong - World's best practise is to filter tunnels in urban areas

The RMS policy to not filter at any cost is wrong. They say that this approach is World's Best Practise. In fact, the only report that mentions world best practise in relation to not filtering tunnel exhaust emissions is a report written in 2009.

It is almost certainly outdated, and it seems that the RMS have conveniently only read the last line of the report. The final conclusion, which in fact states that:

"Without taking aspects such as urban design into consideration, the most effective way to treat portal emissions appears to be the GRP-fan installation without filtration. At minimum cost and minimum energy consumption, the pollutants are removed from the portal area and diluted to immeasurable concentrations at ground level."

http://www.hbi.ch/fileadmin/downloads/pdf/publikationen/11_Possibilities-and... 13th-ISAAVVT-2009_New-Brunswick.pdf

It seems that they have also ignored the beginning of that particular conclusion and urban design does not factor into their approach.

Whilst the World Health Organisation (WHO) and Australian government guidelines say that there is no safe minimum of PM2.5 levels, it seems there is no upper limit of pollution at which the RMS will consider filtration.

The RMS should take the time to understand the reports that they are using and the frame of reference in which they are written. If they did, they would know how absurd the extrapolation of this report is to any of the tunnels in Australia. **The RMS has proven time and time again that it can't be trusted on this matter.**

The NSW Parliament should work with the Chief Scientist to commission INDEPENDENT, recent, Australia-specific research to assure the public that future policies are sound and in the best interest of the Citizens of NSW.

Ventilation is not enough

The RMS acknowledged in a meeting with Anzac Park Public School parents that air pollution causes permanent lung damage, cognitive delay, heart problems etc. They then proceeded to say that these effects are theoretical only and that they would improve air quality in the local area even with the additional pollution that they would pump out over the top of the school. It is evident that RMS has been and continues to operate in isolation of; or worse, in a parallel universe to – other government departments including the Department of Health.

The pollution dose is what matters

At the end of the day, the dose of pollution that these pollution stacks will deliver is not healthy for residents and school children, despite the message that the RMS negligently promotes and the NSW Government seems to endorse.

As noted by the European Environment Agency in the Air and Health publication,
"Pollutants enter the human body in three main different ways: by inhalation, ingestion or skin absorption. The amount of any given pollutant that is received is often termed the dose. The dose will be dependent on the duration and intensity of the exposure. organ dose refers specifically to the amount that reaches the human organ where the relevant effects can occur, e.g. the lung"

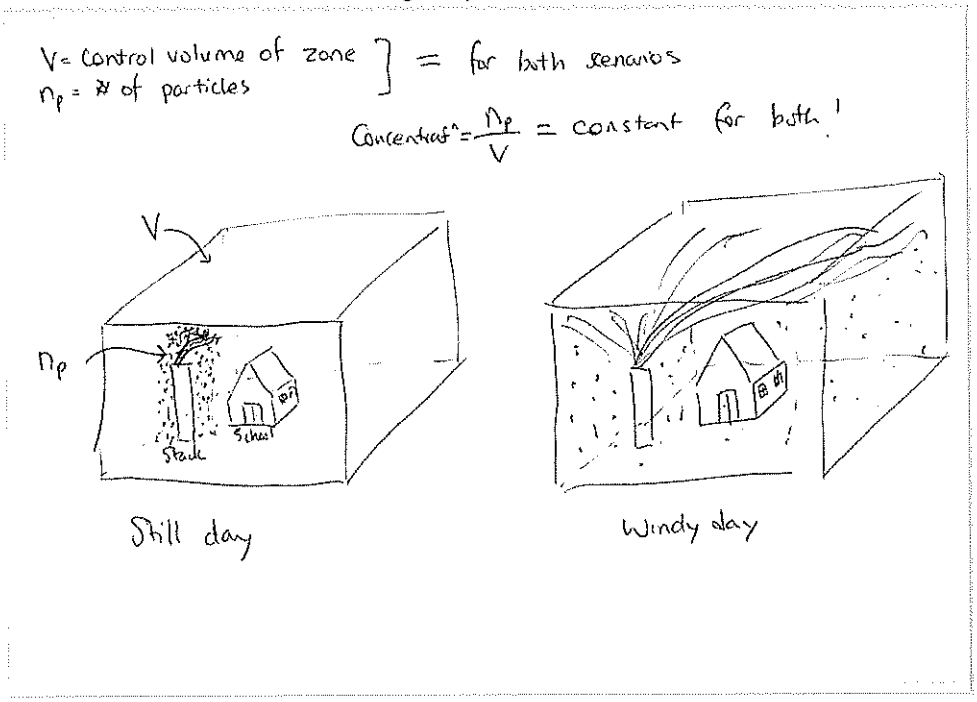
https://www.eea.europa.eu/publications/2599XXX/page006.html

There will be **40.5km of unfiltered polluting road being pumped out** of the stacks in Artarmon, Cammeray and North Sydney from WeHaT BL. These stacks continue to be in the 500m sensitivity zone for a number of schools including Anzac Park Public School and Artarmon Public School contrary to the statements made by the Member for Willoughby illustrated in Annexure B.

Regardless of how much air you blow out of the stack along with the pollution, the dose the Berejiklian Government will be delivering to our community is undisputedly one the largest public health experiment we have ever seen. The lower north shore is the largest education precinct in Australia and the effect of the dose

is cumulative and irreversible! Figure 4 below illustrates the dose of carcinogenic emissions from smoke stacks. The number of particles is constant and the volume is constant. The concentration (or dose) to the community therefore is constant and the RMS would do well to remind themselves of simple chemistry.

Figure 4: Illustration of concentration of carcinogenic particles over the same volume.



Please legislate filtration as the status quo for long tunnels, strip RMS of any involvement or oversight re health impacts and stop the misrepresentations

Thousands of school children are depending on government departments making the right decisions for their future. The Member for Willoughby, over her career, has demonstrated she is unwilling to do so.

I ask you to demand an **INDEPENDENT** scientific study that is not contaminated by RMS ideology, with appropriate terms of reference to understand at which point will the NSW Chief Scientist demand RMS and the NSW Government to filter tunnels irrespective of their open opposition to the same.

That is, what is the length of tunnel where filtration would be necessary? The NSW Chief Scientist should produce proper scientific analysis to show length of tunnel against pollution stack height at various ventilation rates over the course of a day (with traffic peaks and troughs) where air quality is deemed to be safe (at every time of the day) and benchmark it to a full filtered alternative.

They should produce scientific results using accurate measurement instruments that can gauge the actual change in ambient air quality (of all pollutants) per tunnel length. They should produce a scientific assessment of the effect on air quality of two long road tunnels and their pollution stacks in such close proximity to one another and to a 10-lane freeway.

And finally, I ask that the cost benefit analysis of filtration be considered in the project design not just by the RMS and the NSW Chief Scientist, but in conjunction with NSW Health and experts in the field of health impact from pollution.

In the absence of such INDEPENDENT WORK, the NSW Parliament should consider legislating filtration as the default option as a preventive measure against the health damages that the NSW Government's road tunnels (WestConnex, WeHaT BL and F6) will impose in the citizens and residents of Sydney.

It should not be left to the RMS or their self-appointed anti-filtration experts to determine the health implications of 24 hour a day (equivalent to 40.5km of polluting road in the case of WeHaT BL) unfiltered pollution on a population. The NSW Government has for too long glossed over these important issues which should be fixed before these long road tunnels become operational.

Yours truly,