Response to NorthConnex Environmental Impact Statement (EIS)

(Application number - SSI 13_6136)

by

Ray Kearney

Declaration

This Response has been undertaken with the best of my ability and knowledge, based on materials, documents available and current information, as well as over 20 years involvement with air quality and health-impact issues of traffic tunnels (e.g., Lane Cove Tunnel, M5 East Tunnel and Cross City Tunnel) in Sydney from their earliest beginnings. I have appeared in no fewer than five NSW Parliamentary Inquiries and a contributor to the 2008 NH&MRC Report http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/eh42.pdf - all related to the health impacts of air pollution e.g., arising from unfiltered vehicle tunnels.

Its presentation is true and does not, by its presentation of information or omission of information, materially mislead or intend to materially mislead.

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Preface

Free access to clean fresh air and water of acceptable quality is a fundamental necessity and a *human right.*

(a) The Preamble to the World Health Organisation's (WHO) constitution declares that it is one of the fundamental rights of every human being to enjoy *"the highest attainable standard of health"*. The right to health is not to be understood as a right to be *healthy*. The right to health contains both freedoms and entitlements. The *entitlements* include the right to a system of health protection which provides equality of opportunity for people to enjoy the highest attainable level of health.

In June, 2012, the 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/media-centre/pr/2012/pdfs/pr213_E.pdf

(b) Australia (and NSW Government) continues to *breach* **The Universal Declaration of Human Rights** http://www.un.org/en/documents/udhr/index.shtml (Article 25) by allowing its citizens to be exposed to the carcinogenic fumes of diesel, despite the Government knowing the dangers. This is similar to deliberately exposing servicemen to the radiation of a nuclear bomb test at Maralinga 61-years ago – again, despite government knowing the dangers! http://www.creativespirits.info/aboriginalculture/history/maralinga-how-british-nuclear-tests-changed-history-forever

The United Nations further defined the right to health in Article 12 of the International Covenant on Economic, Social and Cultural Rights in 1966. The Covenant guarantees the *"right of everyone to the enjoyment of the highest attainable standard of health"*. Article 12.2 (b) comprises e.g., *"the prevention and reduction of the population's exposure to harmful substances such as radiation and harmful chemicals or other detrimental environmental conditions that directly or indirectly impact upon human health"*.

Through ratification of international human rights treaties, Governments undertake to put into place domestic measures and legislation compatible with their treaty obligations and duties. However, successive NSW Governments have been utterly derelict in their 'duty of care' in failing to implement proven filtration in its traffic tunnels in the densely populated city of Sydney. The reasons for this failure should be subject to a Royal Commission of Inquiry. To date, recommendations of at least five Parliamentary Inquiries into Tunnel Filtration in Sydney's tunnels (M5 East, Cross City and Lane Cove tunnels) have been rejected by the former prevailing Labor Governments because legislation does not commit Government to accept such recommendations!

(c) The New South Wales Court of Appeal dismissed the appeal of a particular employer and relied on the High Court's statement in Southern Shire Council v. Heyman (1985) that: *"when there is a duty to take a precaution against damage occurring to others… breach of the duty may be regarded as materially causing or materially contributing to that damage, should it occur, subject of course to the question of whether performance of the duty would have averted the harm."*

(d) It is well known that levels of cancer, neurological disease (e.g., dementia), respiratory disease (e.g., asthma) and infertility have increased dramatically over the last century, in the latter half especially. Is this just co-incidence or is there a correlation between disease, poor health and the prevalence of toxic chemical contamination of our life-support systems – air, water, food and land?

Already we witness this in action in Australia. For example, for decades, we have known that the combustion of fossil fuels e.g., ***petrol and diesel*** yields highly toxic particles that are predominately *ultra-fine* (about 0.03-0.1 micrometres - µm - in aerodynamic diameter), *soluble* and carry *toxic and carcinogenic chemicals* e.g., polycyclic aromatic hydrocarbons (PAHs).

It is emphasized that in June, 2012, the 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/media-centre/pr/2012/pdfs/pr213_E.pdf

Yet despite all this and the volumes of evidence of health impacts of PM2.5 particles, the dickering around for over 2 decades by the National Environment Protection Council (NEPC), has NOT led to the implementation of a STANDARD for carcinogenic Particulate Matter (PM) of 2.5µm or less (PM2.5). That only a *'guideline'* is set is indicative of the overt influence of e.g., the Oil/Petroleum/Automobile cartels and their representatives/lobbyists as well as alleged NEPC's negligence – along with that of the various instruments of State and Federal Governments – Health, Environment, Energy, Roads & Transport, Planning etc! The reasoning it would appear is *'economic rationalism'* i.e., if the taxes and excise-income exceed the cost of health impacts on society and there is money left over in Treasury's coffers then it is justified – *but there is no morality*!

(e) Why is this so? As with the telecommunications industries,

> *"Oil and car industries have acted again and again to deceive regulators about the hazards of their products and have used their wealth to hamstring attempts by state and federal legislators to make laws that address such threats/hazards."*
>
> Terry Tamminen *'Lives per Gallon'* (2006)

A 'guideline', unlike a 'standard' is legally unenforceable! This favours the oil cartels and vehicle manufacturers. Here it favours *Transurban* to expedite its utterly *flawed* NorthConnex EIS as a cash-cow by shifting health costs to the taxpayer! Consequently, the function of the transnational corporations (oil, pharmaceuticals, agribusiness, car manufacturers etc) is not to promote a healthy ecology, but to extract as much marketable value out of the natural world as possible, even if it means treating the environment like a septic tank. *Profit is the name of the game!* Ditto Transurban! Indeed, the 2009 documentary *The Idiot Cycle* claims that certain chemical manufacturers, including oil cartels are profiting from the production of cancer-causing products and then some of the same companies are investing in profitable cancer treatments - *making pollution itself a cash-cow.*

(f) Though ratifying international human rights treaties, the Australian Government (including NSW Government) has FAILED to undertake to put into place domestic measures and legislation compatible with their treaty obligations and duties e.g., "Article 25: *Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family...."*

Public health experts fear global trade agreements and powerful trans-national companies continue to create a boom industry in death and disease. Like the tactics of Big Tobacco, the Oil Cartels as well as *Transurban*, it seems, also seek to augment their profits at the expense of people's lives – through aggressive marketing and lobbying. The problem is that people are not being represented ethically and honestly by their politicians and bureaucrats. People feel powerless, manipulated and betrayed!

(g) It is no longer a level playing field when it comes to making healthy choices! Society is saturated by advertising, covert marketing and sponsorships! Even Transurban's NorthConnex colourful brochures are riddled with falsification and fabrication of data. The key motive being is to deceive the community! Researchers are being bought off! We are dominated by blatant and sophisticated lies! The deceitful mantra *"Ethanol damages engines"* from the oil cartels helps account for the 30% increase in sales over the last three years of vehicles powered by *carcinogenic diesel*! Such companies should no longer be given a free place at the table when it comes to negotiating a public health response to the growing health impact of air pollution.

'Globalization' is too often confused with a beneficial notion of genuine mutual interdependence and cooperation between nation states – but in reality it clearly is not. In an effort to maintain profit margins, here and abroad public assets are plundered, *human life trampled upon* as well as the environment destroyed. In secret negotiations behind closed doors, the Trans-Pacific Partnership (TPP) Agreement involving Australia is a global economic coup that will redefine the terms of globalization in a way that completely resets the social contract in favour of corporate right rather than human rights. The TPP will allow corporations to sue nations if *laws such as those* ***protecting the environment*** *interfere with corporate profits*. How are we not to sit back and see our health and biodiversity hollowed out? Transurban/NorthConnex has a clear case of an alleged dereliction of a 'duty of care' to answer!

General comments

This response to the NorthConnex EIS is only in relation to the EIS documents dealing with *air quality* and *health*. The format of the response is to copy the relevant text of the EIS document and respond accordingly.

[redacted]

There is an urgent need to have the proposed tunnel design and ventilation systems including the effectiveness of the 'piston effect' *independently reviewed* by competent engineers outside of NSW. As the design is currently presented, common sense and the laws of physics predict motorists/motor-cycle riders will be exposed to a *highly dangerous atmosphere* - especially toward the end of the 9km tunnel – being worse than the M5 East tunnel in which CO-induced unconsciousness of such individuals has been documented.

TRANSURBAN **posted a 44% lift in profits** (6.8.14). Allegedly part of the profits are achieved not only by 'creative accounting' but also by NOT installing filtration systems in their tunnels and **SHIFTING** health costs of pollution from their unfiltered stacks onto the TAXPAYER. They are adopting the same strategy with the NorthConnex tunnel – as they have elsewhere e.g., in Melbourne tunnels.

Whilst an informed person will recognise the litany of fundamental flaws in the NorthConnex EIS Report, the following response is only a measured one with an emphasis on lack of transparency, clear breaches of trust, [redacted], violation of codes of equity and due process pertaining mainly to air quality and health risks in this account. Will the NSW Government yet again fail to carry out its fiduciary duty and demonstrate its 'duty of care'?

The Law is clear - Where there is a ***foreseeable and preventable risk of harm to your neighbour***, **the owner (TRANSURBAN) has a duty of care** to **remove that risk**.

I believe this Northconnex proposal is a dereliction of TRANSURBAN's duty of care.

Such a tunnel MUST be filtered using already PROVEN filtration/detoxification systems overseas – and TRANSURBAN must meet such a cost as its 'duty of care'.

It is hoped that this NSW Planning Review into the NorthConnex EIS will not emulate all the numerous previous similar reviews, task forces, parliamentary inquiries, government reviews etc, etc that have come to essentially nothing to allow *health impacts of air pollution to continue as 'business as usual'!*

Summary

1. The modelling is very restricted or not done at all. Modelling has used flawed data e.g., background air quality for TEOM PM10 and PM2.5 do not have correction factors for ambient temperature thereby underestimating levels by up to 40%. The plume trajectory (with ground-strike) is ignored in the "modelling" and falsely claimed to be diluted to cause "no impact". This is [redacted] misleading.

2. Science, common sense and observation (e.g., plume from a ship moored at Darling Harbour) says that a plume from a 15m stack will strike the ground and cause high levels of pollution down-wind. Also ignored e.g., is the effects of temperature inversions, terrain and building 'downwash'.

3. Two-thirds of health impacts occur BELOW the PM10 standard. Where is the modelling in WINTER when temperature 'inversions' are common?

4. Use of 24-hour and annual averages are used in the EIS to obscure the exceedences during a.m. and p.m. peak traffic periods. Even 15-minute exposures to air-pollution exceedences can precipitate heart attacks in 'at-risk' elderly.

5. The national pollution guidelines (NEPM) do not apply PM10 standards to point source pollution such as road tunnel vent stacks. This misuse in the application of standards enables the Regulatory Authorities/NorthConnex to pump emissions from vent stacks in a concentrated, toxic plume that would far exceed the standards if it were measured at source.

6. If the standard is 50µg/M3, then they assume that 48 or to creep toward 50 is acceptable. In contrast, contemporary risk management principles demand that risk levels be **reduced as far as possible**. The Regulatory Authorities/NorthConnex **should not pollute up to a standard** but work down to a risk. This principle is not adopted by the Regulatory Authorities/NorthConnex generally.

7. Discharging **tonnes** (annually) of untreated toxic emissions into residential areas is intuitively illogical and a dereliction of a duty of care, especially when there is no safe threshold.

   A third lane in use in the future will impede access in a crowded 9km tunnel during likely emergencies e.g., fainting of motor cyclists/pillion riders/car drivers from carbon monoxide poisoning in a poorly ventilated 9km tunnel. Furthermore, the hypothetical 'piston effect' will be totally INADEQUATE in a 3-lane tunnel to ventilate the tunnel from the portal with increased volumes of traffic. That this has NOT been modelled is alleged negligence! Note also the danger of driver monotony in a long tunnel: http://www.smh.com.au/nsw/drivers-face-dangerous-monotony-in-long-tunnels-20140404-3646v.html

8. *Two tunnel support facilities, incorporating emergency smoke extraction outlet points and substations along the main alignment* has NOT been modelled to ensure smoke extraction (>10m/sec) does NOT worsen a fire at source.

9. "Risk assessment is inappropriate when it is a ritual rather than a meaningful process and should not be undertaken when risks may be likely, but the evidence is already well documented and it may be possible to develop evidence-based recommendations without the need for a comprehensive assessment."

10. Research has shown the superiority of systematic *review methods* (e.g., competent literature reviews) when compared to *expert opinion-based* recommendations (e.g., *Advisory C'tee*). There is NO independence of the *'Independent Advisory Committee on Tunnel Air Quality'*. [redacted] For this flawed EIS to have been published in full knowledge of the 'Advisory Committee' highlights serious probity issues and conflicts of interest that warrant an investigation e.g., by ICAC.

11. *"The emission factors are the same for E10 blends, where the trends are similar for light, medium and heavy petrol goods vehicles as for other fuelled vehicles."* is INCORRECT. E10 lowers PM2.5 by up to 50% as reported by Dr. Gary Whitten. http://ethanolrfa.org/page/-/objects/documents/69/nec_whitten.pdf?nocdn=1

12. Note the tunnel is 14m wide x 8m high.(Section 2.2 p. 13) Minimum clearance **above** vehicles is 5.3m to allow for fans, ducts etc. HOW CAN THE 'PISTON EFFECT' FUNCTION with so much air-space around vehicles? It is nonsense and unscientific to think the traffic will draw enough outside (polluted near stack) air through the portal entry to dilute the toxic fumes in the 9km tunnel! Who proposed such a reckless and dangerous idea for a 9km tunnel? [redacted]

    This 'piston effect' needs validation independently by engineering experts. Common sense says it will fail. NH&MRC Report 2008 states the 'piston effect' is lost after a short distance and cannot be adopted for long tunnels without regular cross-ventilation systems in place. How can a piston effect work with so much free space around the 'piston' i.e., cars on 2 lanes? This proposal has not been modelled. This ventilation scheme needs independent assessment by expert engineers. As presented, it is reckless and extremely dangerous. [redacted]

13. Method of TEOM continuous readings is NOT mentioned. Data UNDER-ESTIMATED up to 40%. Note one exceedance of 222ugm/M^3 is recorded for background. However, the levels inside toward the end of the 9km tunnel exceed these levels (See Table 18 on p54 – expressed in mgm/ M^3 e.g., converted to ugm - 596 and 679ugm/ M^3).

    Note: Limits of approved particle pollution in Lane Cove Tunnel stacks:
    Particulate Matter (PM10):

    LCT West Stack: concentration limit – 1.6mg/M^3/30min.
    LCT East Stack: concentration limit – 1.2mg/M^3/30min.
    LCT Combined Annual Load limit – 14 Tonnes

    The NorthConnex EIS (See Table 18 on p54 – expressed in mgm/ M^3 e.g., 596 and 679ugm/ M^3).
    In 30 minutes, this discharge amounts to 0.596 mg x 30min. = **17.88 mg/ M^3/30min.** and
    0.679 mg x 30min = **20.37 mg/ M^3/30min. i.e., 10-times the level of pollution for the LCT stacks.**

    To allow NorthConnex to discharge over 10-times the levels of carcinogenic pollution than the LCT into the community is [redacted]!

15. In **Table 21 Ventilation outlet parameters** one volumetric flow rate is 700cubic metres/second. In Table 18 on p54, the PM10 concentration of 679ugm/ M^3 internally at the end of the 9km tunnel means that, with these figures, the toxic discharge is 700x679ugm per second = 475300ugm of PM10/second = 0.4753grams carcinogenic PM10/second into the atmosphere i.e., approx **16tonnes** carcinogenic PM10 for **one stack** ANNUALLY. THIS is OUTRAGEOUS and a dereliction of a DUTY of CARE!

    Note that this calculation EXCLUDES the contribution of carcinogenic PM2.5, VOC's and PAH's into the local precinct.

    For the 3.6km Lane Cove Tunnel, the Ministers Conditions of Approval (MCoA) permitted up to 14 tonnes of carcinogenic PM10 for **both** stacks and **154 tonnes of carcinogenic VOC's annually**.

16. *"All predicted concentrations of carbon monoxide, nitrogen dioxide, key individual volatile organic compounds and polycyclic aromatic hydrocarbons are below health based guidelines."* is FALSE and is based on

[redacted]. Two-thirds of health impacts occur BELOW the PM10 standard. Annual averages and 24-hour averages MASK the real exposures during a.m. and p.m. levels. The plume trajectories are skewed in the methodology to a pre-determined outcome of "no risk".

17. NH&MRC Report 2008 on p. xvii:
"No clear evidence exists to show that monitoring such as that carried out to assess compliance with air-quality goals, especially for PM10, can reliably predict the size, nature and course of adverse health impacts."

"The methods used to monitor air quality may not be the most appropriate in terms of the measured quantities being representative of health risk. The commonly employed approaches are biased towards compliance with national environment protection measures (NEPMs), even though the NEPM explicitly does not apply to localised impacts such as emissions from road tunnel stacks. Current approaches may under-represent the impacts on health of ultrafine particles and the effects associated with the short-term experience of odour."

18. TWO emergency smoke extractors for a 9km tunnel is NEGLIGENCE. [redacted]

NH&MRC state that *"in the case of a fire it is unsafe for winds to be any faster than 10m/sec. What is the speed of "These facilities would be designed to extract smoke in the event of an emergency fire incident with a capacity of around 400 m^3/s."?*

Note in **Table 21 (Appendix G – Air Quality)** p. 59 that the ventilation rate (from stack) of 460 M^3/sec has an exit velocity of 15.9m/sec and for 380M^3/sec is 13.1 m/sec. Therefore, in the event of a fire in the tunnel then smoke extraction (2 only) at the rate of 400m3/sec will feed a fire by exceeding 10m/sec. There are no details of escape corridors from this dangerous tunnel proposal, in the event of fire, to the surface.

19. Note that NH&MRC recommends *"multiple opportunities for air exchange"* and without them it LIMITS tunnel length. The NorthConnex 9km tunnel is essentially depending on the 'piston effect' to ventilate the tunnel. Such a design is POSITIVELY RECKLESS and DANGEROUS! Motor bike riders/pillion passenger/drivers in open vehicles are highly likely to FAINT from carbon monoxide poisoning – as has ALREADY happened in the M5 East tunnel.

20. The project MUST be filtered! See options of legal action in Appendix p.44.
The Law is clear - Where there is a ***foreseeable and preventable risk of harm to your neighbour (sensitive receivers)***, **the owner (TRANSURBAN) has a duty of care** to **remove that risk**. I believe this Northconnex proposal is a dereliction of TRANSURBAN's duty of care.

21. **4.2.1 Oxides of nitrogen**
P. 51 *"Nitrogen dioxide is a colourless and tasteless gas with a sharp odour."*
Wrong! Even a high-school student doing chemistry knows **NO2 is a reddish/brown gas with a pungent, irritating odour and TASTE.** [redacted]

22. The EIS Table 4-5 is grossly misleading. Remember the bulk of the PAHs are adsorbed to PM2.5 particles. Yet none of this is disclosed in the NorthConnex EIS! [redacted] **Each 10ng/m is associated with birth retardation. (Note one nanogram – ng - is one-billionth of a gram)**
Pre-natal exposure to polycyclic aromatic hydrocarbons (PAHs) is associated with low birth weight and smaller head circumference.
F.P. Perera *et al*., (2003) *Environ. Health Perspect*. Vol. 111, p451-60.

The EIS records (Table7-101) PAHs at levels of 1000ng/M^3 i.e., 100 times the levels KNOWN/ PROVEN to be associated with birth defects. Yet the EIS reports ***"no effect"!***

23. **Although the guidelines for PM10 have been set at 50 µg m^{-3} (24-hour average), PM10 is considered a no threshold. This means there is no known safe level below which effects will not occur.** Noteworthy is the authors of the Health EIS confirm this on p. 72:
"Based on the available studies, there is no evidence of a safe level of exposure or a threshold below which no adverse health effects occur (NEPC 2010; WHO 2013b)." However, they FAIL to apply it in their health assessment. **Yet these EIS authors claim "no effect" when hundreds of tonnes of highly toxic particles/gases are exhausted into the local precincts – knowing full well there is no safe lower limit!**

24. ***'The Art of Perpetuating a Public Health Hazard'***
"Denial" of a hazard by an expert may not imply – *"the truth, the whole truth and nothing but the truth".* M. Greenberg (*J. Occup. & Environ. Med.* 2005; Vol 47: 137-144)
"*The same techniques to support the use of white asbestos (chrysotile) as a safe material are being used to subvert the community into thinking exposure to vehicle pollutants is without risk to health and well-being."* Ditto, the NorthConnex EIS.

25. *"Air pollution control technology has been used in a limited number of tunnels in a few countries including Norway, Austria, Germany and Japan as well as the M5 East Motorway tunnel trial in Sydney. This technology includes the use of electrostatic precipitators to remove particles as well as catalytic and biological processes and adsorption technologies to remove nitrogen oxides.* ***Evidence to date suggests that the effectiveness of such measures when applied to road tunnels is questionable."***

RTA disclosure

"I was in Japan the week before last looking at tunnels on a tour organised by Mr. Mizutani. Japan has some excellent cost effective longitudinal ventilation systems in long mountain tunnels employing electrostatic precipitators……"

Garry Humphrey
NSW RTA Projects Manager

Paper presented at PIARC Congress, Durban, South Africa
October 2003

[redacted] **The statement is false** [redacted] NSW RTA documents and those of RTA consultants e.g., Noel Child **verify that tunnel filtration is effective and efficient - over 90% for particles.**

26. It is clearly evident that this alleged corruption of the science which supports tunnel filtration is embodied in the NorthConnex EIS and the associated NorthConnex public brochures.

27. The CSIRO Report of the M5 East filtration EXCLUDED particles from the tailpipe. [redacted]

28. Section: **7.3.1 Tunnel ventilation system**
Analysis of the need for tunnel ventilation filtration:
P.452. *"Based on the above, the use of filtration systems within the tunnel ventilation outlets is not warranted. Such systems have been proven to be costly and inefficient. Further, greater improvements in air quality could be achieved through investment in programs targeting other emission sources that contribute higher levels of pollution to the surrounding environment."*

[redacted] Filtration in more than 50 tunnels in Japan has been proven to be efficient and effective for both in and outside the tunnels. The reasons why NSW RTA has acted against the installation of filtration should be subject to a Royal Commission of Inquiry.

29. The Lane Cove Tunnel traffic predictions were *grossly overestimated* [redacted] – to secure finance from bankers/investors. Thus the EIS was actually a 'Base Case Financial Model'. The LCT Operators went bankrupt and sold the LCT to Transurban (NorthConnex).

    The entire NorthConnex EIS, though undertaken as a 'Base Case Financial Model' has adopted a different strategy being to [redacted] reduce infra-structure COSTS [redacted] at major DISBENEFIT to the health of motorists using the tunnel and to residents in the precinct of the unfiltered stacks. [redacted]
    This NorthConnex Tunnel is dangerously proposing UNPROVEN ventilation systems in a 9km tunnel e.g., the 'piston effect' – to save on costs.

29. **"*There is no known safe threshold for the carcinogenic effects of benzene, but since the risk for leukaemia increases with exposure, it can be reduced by controlling exposure to the highest practicable standard.*"**

30. (a) There is potential for the community members to bring an action in public nuisance against Transurban, alleging that the operation of the tunnel stacks, without filtration equipment, would constitute a public nuisance, by virtue of the possible adverse health impacts due to the large quantities of exhaust fumes emitted from the stacks. An injunction should be sought preventing the operation of the road tunnel until filtration equipment is installed in the stacks. (see p44)

    (b) It may also be possible to bring an action under s.252 of the *POEO Act* seeking orders to restrain the Transurban from operating the stacks without filtration equipment. This action would be based on an apprehended breach of s.124(b) of the *POEO Act*, which prohibits the occupier (Transurban) of premises (the NorthConnex road tunnel) from causing air pollution (emission of exhaust fumes) if such pollution is caused by the occupier's failure to operate plant (the tunnel/stacks) in a proper and efficient manner (with filtration). (see p44)

Appendix G- Technical Working Paper – Air Quality Paper-1
http://northconnex.com.au/docs/eis/Appendix%20G%20-%20Technical%20working%20paper%20-%20Air%20quality%20-%20Part%201.pdf
Response by Ray Kearney

1. Executive Summary p. iii: *"These emissions are manageable through standard management measures, which, if implemented, are considered to minimise and adequately mitigate any effects of the emissions on sensitive receivers."*

RK Response: This statement is overblown [redacted] the use of the expression "*adequately mitigate any effects of the emissions on sensitive receivers."* Note people are 'dehumanized' to now become 'receivers/receptors'. Ignored is the fact that hundreds of tonnes of highly toxic particles and gases (e.g., VOC's incl. benzene) will be exhausted, annually, into the atmosphere, exposing residents (unborn fetuses, children, teenagers and young adults of future generations, as well as the at-risk elderly) to proven toxic effects of the stack emissions! There is NO lower limit of 'no-effect' of these toxins!

2. Executive Summary p. iii: *"The effects of the operation of the project were assessed quantitatively using dispersion modelling."*

RK Response: The modelling is very restricted or not done at all. Modelling has used flawed data e.g., background air quality for TEOM PM10 and PM2.5 do not have correction factors for ambient temperature thereby underestimating levels by up to 40%. The plume trajectory (with ground-strike) is ignored in the "modelling" and falsely claimed to be diluted to cause "no impact". [redacted]

3. Executive Summary p. iii: *"The dispersion of the combustion emissions released through the ventilation outlets, namely particulate matter (PM_{10} and $PM_{2.5}$), nitrogen dioxide (NO_2), carbon monoxide (CO), total volatile organic compounds (total VOCs) and polycyclic aromatic hydrocarbons (PAHs), was assessed using the CALPUFF suite of models."*

RK Response: Science, common sense and observation (e.g., plume from a ship moored at Darling Harbour) says that a plume from a 15m stack will strike the ground and cause high levels of pollution down-wind. Also ignored e.g., is the effects of temperature inversions, terrain and building 'downwash'. CALPUFF and computer modelling will prove this if the correct data are applied! See CSIRO meandering plume: http://www.cmar.csiro.au/airquality/meander/index.html

- Furthermore, several crucial and difficult-to-recognise problems with the CALPUFF compromise its reliability. See: http://www.researchgate.net/publication/222694094_Using_CALPUFF_to_evaluate_the_impacts_of_power_plant_emissions_in_Illinois_model_sensitivity_and_implications

- Note the following from reference: http://www.atmospolres.com/articles/Volume5/issue4/APR-14-076.pdf
p. x: *"Thus, the modelling method used here would not be advisable to use for predicting quantitative concentrations in the strict sense. (Kesarkar et al., 2007)."*

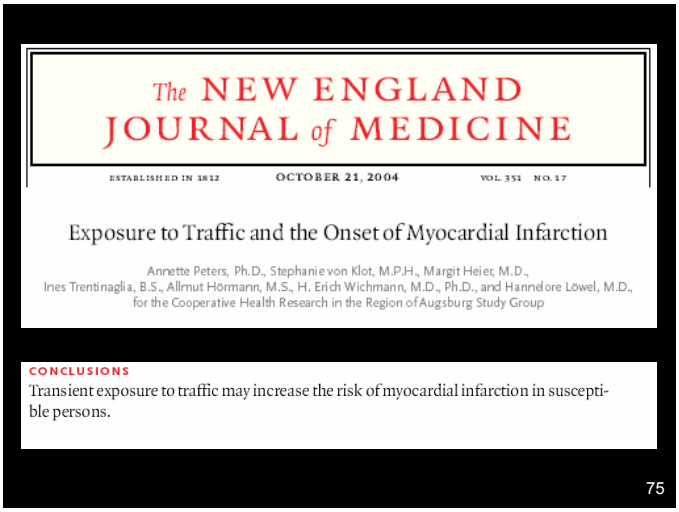
- Common sense and observation predict that if a large component of bushfire smoke is ultrafine particles then ground level dispersion will be similar from NorthConnex tunnel vent stacks.

4. Executive Summary p. iv: *"For all the scenarios assessed, all predicted pollutant concentrations were well below their respective impact assessment criteria except for particulates. Exceedences of the assessment criteria were predicted to occur for PM10 concentrations for the 24 hour averaging period and PM2.5 concentrations for both the 24 hour and annual averaging periods. The project's predicted contributions to the exceedences were, however, very minor, with the exceedences attributable to elevated background concentrations of these pollutants. No additional exceedences of the PM10 or PM2.5 criteria were predicted to occur as a result of the project."*

RK Response: [redacted] The fact is EXCEEDENCES will occur and there is no low threshold below which health impacts will not occur!

Notes: (a) Two-thirds of health impacts occur BELOW the PM10 standard. Where is the modelling in WINTER when temperature 'inversions' are common?

(b) Use of 24-hour and annual averages are used in the EIS to [redacted] the exceedences during a.m. and p.m. peak traffic periods. Even 15-mine exposures to air-pollution exceedences can precipitate heart attacks in 'at-risk' elderly.



Heart Attacks and Short-Term Exposure to Fine Particles

- Within hours of exposure to PM2.5 fine particles, at levels of 10 µg/M^3, can trigger a myocardial infarct in elderly persons at-risk with atherosclerosis.

C. A. Pope *et. al.*, *Circulation*. (2006); 114: 2443-8

- A further increase in risk is gene-related

S. Y. Park *et. al.*, *Circulation* (2006); 114: 2798-2805

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Pollution 'increases risk of heart disease for women'

- The risk of post-menopausal women dying from a heart attack or stroke increases dramatically with increases of $PM_{2.5}$
- Each 10 µg/M^3 rise was matched by a 76% increase in the chances of dying from any cardiovascular cause.
- For women living within, rather than between cities, the risk more than doubled, increasing by 128%, with each step up in pollution levels.

New Engl. J. of Med (Feb, 2007) v 356; p 447-58

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Dilute Diesel Exhaust Promotes Heart Disease in Men

Brief exposure (1-hour) to dilute diesel exhaust by males, with underlying heart disease, greatly increases risk of heart attack.

The health benefits of exercise can be increased if people exercise away from traffic.

New Engl. J. of Med (Sept, 2007) v 357; p 1075-82

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5. **Using Air Quality Goals as a License to Pollute**

The national pollution guidelines (NEPM) do not apply PM10 standards to point source pollution such as road tunnel vent stacks. This misuse in the application of standards enables the Regulatory Authorities/NorthConnex to pump emissions from vent stacks in a concentrated, toxic plume that would far exceed the standards if it were measured at source.

However, when these poisons are dispersed, they appear to have minimal effect on air measured several kilometers away (the regional airshed). The problem is that the Regulatory Authorities/NorthConnex cannot guarantee that the poisons disperse before they fall to the ground. Modelling shows that certain wind conditions can cause them to fall to ground level quite close to the stack, well before "dilution" can occur.

PM10 24-hour averages obscure or dilute the major unhealthy exceedances during peak or heavy traffic periods. The Regulatory Authorities/NorthConnex seem to view air quality goals as a licence to pollute. If the standard is 50µg/M3, then they assume that 48 or to creep toward 50 is acceptable. In contrast, contemporary risk management principles demand that risk levels be **reduced as far as possible**. The Regulatory Authorities/NorthConnex **should not pollute up to a standard** but work down to a risk. This principle is not adopted by the Regulatory Authorities/NorthConnex generally.

Discharging **tonnes** (annually) of untreated toxic emissions into residential areas is intuitively illogical and a dereliction of a duty of care, especially when there is no safe threshold. In 1800, industry stacks belched clouds of pollution into the environment. Two hundred years later we cannot continue to use the atmosphere as a sink.

6. p. 1: *"Twin motorway tunnels up to around nine kilometres in length with two lanes in each direction. The tunnels would be constructed with provision for a possible third lane in each direction if required in the future."*

RK Response: A third lane in use in the future will impede access in a crowded 9km tunnel during likely emergencies e.g., fainting of motor cyclists/pillion riders/car drivers from carbon monoxide poisoning in a poorly ventilated 9km tunnel. Furthermore, the hypothetical 'piston effect' will be totally INADEQUATE in a 3-lane tunnel to ventilate the tunnel from the portal with increased volumes of traffic. That this has NOT been modelled is alleged negligence!

7. p. 1: *"Two tunnel support facilities, incorporating emergency smoke extraction outlet points and substations along the main alignment."*

RK Response: This has NOT been modelled to ensure smoke extraction (>10m/sec) does NOT worsen a fire at source.

8. Section1.2 p. 5: "*consideration of the requirements of* Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards *(enHealth, 2012)".*

RK Response: EnHealth (2012) states:

"Risk assessment is **inappropriate** when it is a ritual rather than a meaningful process and should **not** be undertaken when:

- there is no data or an insufficient amount of data
- it is clear that the proposal, situation or activity is seen by health and other experts as having few potential risks to health
- **risks may be likely, but the evidence is already well documented and it may be possible to develop evidence-based recommendations without the need for a comprehensive assessment "**

9. Section1.2 p. 5: *"take into account any applicable advice provided by the Independent Advisory Committee on Tunnel Air Quality."*

RK Response: Research has shown the superiority of systematic *review methods* (e.g., competent literature reviews) when compared to *expert opinion-based* recommendations (e.g., *Advisory C'tee*). See link:
http://ehp.niehs.nih.gov/wp-content/uploads/advpub/2014/6/ehp.1307175.pdf

There is NO independence of the *'Independent Advisory Committee on Tunnel Air Quality'.* [redacted]

10. Section1.2 p. 5*: "Identify the relevant assessment criteria specified in Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (DEC, 2005)."*

RK Response: Note on p3 of the DEC, 2005 link:
http://www.environment.nsw.gov.au/resources/air/ammodelling05361.pdf it states: *"Stage 3 of the assessment process is the prediction ground-level concentrations (glcs) of pollutants in the region surrounding the premises. The predicted glcs of all pollutants must be in the same units and for the same averaging period as the relevant impact assessment criteria."* Yet [redacted] (Air Quality EIS) and

Health EIS have interchanged units ugms (micrograms) and mgms (milligrams) [redacted]

11. Section1.2 p. 6: *"The NSW Government established the Advisory Committee on Tunnel Air Quality, chaired by the NSW Chief Scientist Professor Mary O'Kane, to review national and international practice and experience with motorway tunnels to safeguard the health and safety of the community and motorists. Roads and Maritime briefed the Advisory Committee on Tunnel Air Quality on the project and the air quality impact assessment approach."*

RK Response: This is not independent! [redacted]

12. Section1.4 p. 9: *"The Australian Government National Pollutant Inventory (NPI) Emission Estimation Technique Manual for Combustion Engines (2008) provides a $PM_{2.5}$ emission factor of 2.0 kg/m^3 for diesel vehicle exhaust emissions from cars. This represents approximately 95 per cent of the PM_{10} emission rate of 2.1 kg/m^3. A similar relationship is found for light, medium and heavy diesel goods vehicles, as well as buses. Petrol cars also show a similar trend, with an emission factor of 0.062 kg/m^3 for $PM_{2.5}$; this represents approximately 93 per cent of the PM_{10} factor of 0.067 kg/m^3."*

RK Response: This paragraph is INCOMPREHENSIBLE! It is irrelevant to TOXICITY!

13. Section1.4 p. 10: *"The emission factors are the same for E10 blends, where the trends are similar for light, medium and heavy petrol goods vehicles as for other fuelled vehicles."*

RK Response: This is INCORRECT. E10 lowers PM2.5 by up to 50% as reported by Dr. Gary Whitten. http://ethanolrfa.org/page/-/objects/documents/69/nec_whitten.pdf?nocdn=1

14. Section 2.2 p. 13: *"The tunnels would be around 14 metres in width and eight metres in height. Each main alignment carriageway would consist of two lanes with a minimum posted speed limit of 80 kilometres per hour. Each lane would be 3.5 metres wide with the shoulder on the left hand side being 2.5 metres wide and the shoulder on the right hand side being one metre wide. The minimum vertical clearance of each tunnel would be 5.3 metres."*

RK Response: Note the tunnel is 14m wide x 8m high. Minimum clearance **above** vehicles is 5.3m to allow for fans, ducts etc. HOW CAN THE 'PISTON EFFECT' FUNCTION with so much air-space around vehicles? It is nonsense and unscientific to think the traffic will draw enough outside (polluted near stack) air through the portal entry to dilute the toxic fumes in the 9km tunnel! Who proposed such a reckless and dangerous idea for a 9km tunnel? [redacted]

15. Section **2.2.2.1** p. 14 **Configuration of the ventilation system:** *"During operation, the ventilation system would draw fresh air into the tunnels and emit air from within the tunnels via two ventilation facilities. One of the ventilation facilities would be located near the northern tunnel portal and one would be located near the southern tunnel portal. The most efficient location for ventilation outlets is close to the main alignment tunnel portals. This is because vehicles travelling through the tunnels create a piston effect, which draws air into the tunnel and pushes it forward in the direction of traffic flow."*

RK Response: This 'piston effect' needs validation independently by engineering experts. Common sense says it will fail. NH&MRC Report 2008 states the 'piston effect' is lost after a short distance and cannot be adopted for long tunnels without regular cross-ventilation systems in place. How can a piston effect work with so much free space around the 'piston' i.e., cars on 2 lanes?

16. Section **2.2.2.1** p. 14. *"Locating the ventilation outlets near the main alignment tunnel exit portals maximises the benefit of the piston effect and minimises the need for and cost of additional energy consumption to operate tunnel jet fans and to transport the exhaust air from the tunnel to the outlet. This approach provides environmental benefits through the reduction in energy consumption and greenhouse gas emissions from the project."*

RK Response: Air being drawn into the tunnel is not pure air but ambient air of variable pollution - depending on wind direction. The portals are in close proximity to the stacks! Technically, it is possible for exhausted air to be re-cycled in the tunnel according to wind direction.

17. Section **2.2.2.2** p.16. **Operation of the ventilation system:** *"During normal operation, the tunnel would be longitudinally ventilated; that is, fresh air would be drawn in from the tunnel entry portals and through the tunnels by a vehicle-generated piston effect (the suction created behind a moving vehicle, which pulls air into and through the tunnel) and pushed towards the tunnel exit portals. Tunnel air, which would contain vehicle exhaust emissions, would be drawn upwards into the ventilation outlets located near the main alignment portals via ventilation fans and discharged to atmosphere."*

RK Response: This proposal has not been modelled. This ventilation scheme needs independent assessment by expert engineers. As presented, it is reckless and extremely dangerous. [redacted]

18. Section **2.2.2.2** p.16. **Emergency procedures:** *"During smoke control, air would be extracted from the tunnel and transferred to the emergency smoke extraction outlet via a vertical shaft. The smoke would then be discharged from the facility to the atmosphere"*

RK Response: This scheme needs independent expert review. The proposal is extremely dangerous. It has not been modelled/tested. NH&MRC 2008 guidelines recommend wind speed NOT exceed 10m/sec.

19. Section **3.1** p.17. **Air Quality:** *"Exceedences of PM_{10} criteria do, however, occur in Sydney, primarily as a result of bushfires and dust storms."*

RK Response: Old 'red herring' – dust storms and bushfires. The fact is that continuous monitoring for Particulate Matter (PM), using the Tapered Element Oscillating Measure (TEOM) does not incorporate a correction factor, thereby underestimating PM pollution by up to 40% dependent on temperature. Thus when 'exceedences' occur the levels of pollution are actually greater and seldom due to bushfires which is the traditional excuse.

20. Section **3.1** p.17. **Air Quality:** **Figure 3 24 hour PM10 exceedences: Sydney, 1994 – 2011 (source: EPA, 2012)**

RK Response: Diluting real figures by averages of averages [redacted] PM10 data are underestimated by not incorporating a correction factor. In France, TEOM measures have 9.5ugm added to all TEOM readings.

21. Section **3.1** p.18. **Air Quality:** *"concentrations using a PM10 to PM2.5 ratio of 0.35 (average ratio for 2009 - 2011 from Sydney monitoring stations recording both pollutants)[3]"*

RK Response: Ratio of PM10 to PM2.5 shown 0.35 is 1: 0.35 = 35%. Prof. Lidia Morawska report PM2.5 is about 3% of PM10 in ambient atmosphere. How is there a 10-fold difference here? However, the *AMOG Consulting 2012* study of the M5 East trial filtration showed that in the tunnel the PM2.5 levels are about 80% those of the PM10 (by weight) demonstrating the PM2.5 levels are largely from the tailpipe.

22. Section **3.1** p.21. **Air Quality:** **Chart 1 Combined OEH 24 hour PM10 concentrations, 2009 - 2011**
*"The PM_{10} data are plotted in **Chart 1** and summarised in **Table 3**. As shown, the recorded concentrations were typically well below the criterion level, although some instances of high exceedences are evident, with a maximum recorded PM_{10} concentration between 2009 and 2011 of 222 ug/m3. Nine exceedences of the criterion were recorded in 2009."*

RK Response: Method of TEOM continuous readings is NOT mentioned. Data UNDERESTIMATED up to 40% . Note one exceedance of 222ugm/M^3 is recorded for background. However, the levels inside toward the end of the 9km tunnel exceed these levels (See Table 18 on p54 – expressed in mgm/ M^3 e.g., converted to ugm - 596 and 679ugm/ M^3).
Note: Limits of approved particle pollution in Lane Cove Tunnel stacks:
Particulate Matter (PM10)

LCT West Stack: concentration limit – 1.6mg/M^3/30min.
LCT East Stack: concentration limit – 1.2mg/M^3/30min.

Combined Annual Load limit – 14 Tonnes

The NorthConnex EIS (See Table 18 on p54 – expressed in mgm/ M^3 e.g., 596 and 679ugm/ M^3). In 30 minutes, this discharge amounts to 0.596 mg x 30min. = **17.88 mg/ M^3/30min.** and 0.679 mg x 30min = **20.37 mg/ M^3/30min. i.e., 10-times the level of pollution for the LCT.**

To allow NorthConnex to discharge over 10-times the levels of carcinogenic pollution than the LCT into the community is NEGLIGENCE!

23. The remainder of this EIS document from pages 7 to 68 is filled with so many flaws that it is recommended that the entire EIS document be subject to INDEPENDENT assessment by accredited experts outside NSW. It is further recommended that neither NorthConnex/Transurban nor NSW Regulatory Authorities be involved in the commissioning of such experts.

24. Section **4.2.10.2** p. 59. **Ventilation outlet diameter and volumetric flow rate**

RK Response: In **Table 21 Ventilation outlet parameters** one volumetric flow rate is 700cubic metres/second. In Table 18 on p54, the PM10 concentration of 679ugm/ M^3 internally at the end of the 9km tunnel means that, with these figures, the toxic discharge is 700x679ugm per second = 475300ugm of PM10/second = 0.4753grams carcinogenic PM10/second into the atmosphere i.e., approx **16tonnes** carcinogenic PM10 for **one stack** ANNUALLY. THIS is OUTRAGEOUS and a dereliction of a DUTY of CARE!

Note that this calculation EXCLUDES the contribution of carcinogenic PM2.5, VOC's and PAH's into the local precinct.

For the 3.6km Lane Cove Tunnel, the Ministers Conditions of Approval (MCoA) permitted up to 14 tonnes of carcinogenic PM10 for **both** stacks and **154 tonnes of carcinogenic VOC's annually**.

25. [redacted]

It is noteworthy that the Committee Chair of the Parliamentary Inquiry into the M5-East Ventilation Stack, the then Hon. Richard Jones, MLC, stated *" It is now clear that there is affordable and effective filtration available for this stack and it can be installed at a fraction of the cost claimed previously by the RTA"* (July, 2001).

The Noel Child Reports:
http://www.rms.nsw.gov.au/roadprojects/projects/building_sydney_motorways/tunnel_air_quality/m5_east/documents/reports/293_m5_east_freeway_review_of_emission_treatment_technologies_2004.pdf

http://www.rms.nsw.gov.au/environment/downloads/m5east-air/indep_advice_filtration_system_june_2006.pdf

Appendix G- Technical Working Paper – Air Quality Paper-3
http://northconnex.com.au/docs/eis/Appendix%20G%20-%20Technical%20working%20paper%20-%20Air%20quality%20-%20Part%203.pdf

Response by Ray Kearney

1. Section **8.0 Conclusion** p. 175: *"While exceedences of the criteria for PM_{10} and $PM_{2.5}$ were predicted to occur, these were attributable to elevated background concentrations of these pollutants, with the project contributing only minor levels of particulates to the airshed. The estimated annual TSP concentrations, using the annual PM_{10} concentrations as a surrogate, were also determined to be well below the assessment criteria. As such, the project is considered unlikely to adversely affect local or regional air quality."*

RK Response: These assertions are overblown [redacted]
The cooked conclusions should be tested by the commission of at least three independent accredited experts (outside NSW) not beholden to either of the NorthConnex/Transurban proponents or the NSW Regulatory Authorities. This was done by Lane Cove Council to assess the NSW Health's M5 Study Report and unanimously found to be utterly flawed by the three consultants. This is recorded in the NH&MRC Report 2008.

2. Section: **Appendix B Pollutant descriptions:** *"Particles with diameters less than or equal to 10 um (known as PM10) are primarily created through crushing and grinding of rocks and soil, and typically comprise soot, dirt, mould and pollen. These particles tend to remain suspended in the air for longer periods than larger particles (minutes or hours), and can penetrate into human lungs. Fine particulates (those with diameters less than or equal to 2.5 um, known as PM 2.5)"*

RK Response: Note the incorrect description of particles. The correct meaning of term PM10 refers to an 'aerodynamic diameter' meaning a particle which will pass through a hole of diameter 10um. This often includes clusters, rods etc – not just spheres. It is noteworthy that such particles are 'porous' giving a greater surface area for toxic chemicals to condense.

3. Section: **Appendix C Ambient monitoring data review:** *"The two OEH monitoring stations located closest to the study area are at Prospect and Lindfield. Ambient pollutant data from these monitoring stations for the modelling period (2009 – 2011) were obtained. The data collected in December – March for each of the modelling years were compared to the project monitoring data from the ambient air quality monitoring stations. The maximum hourly concentrations of PM10 and NO2 from either OEH station for the comparison period (December – March) were compared to the data recorded by the project ambient air quality monitoring stations."*

RK Response: Note there is NO mention of the method i.e., the Tapered Element Oscillating Measure (TEOM) which is used for continuous measurements of particles. Nor does the EIS mention that the measurements do NOT incorporate a correction factor to account for temperature. Thus ambient levels are UNDERESTIMATED by up to 40%. TEOM measurements in France have 9.5ugm added to each of the readings. Why not here? [redacted]

Note the following in relation to TEOM PM10 background air measurements for the LCT:
"Background levels of PM10 have been underestimated by 11- 40 % dependent on meteorological and air quality conditions"
(Dr. Peter Best, Air Quality Scientist, *Katestone Group*, *Review of Lane Cove Tunnel PM10 Impact Issues*, April 2003)

This UNDERESTIMATION has NOT changed!
http://www.environment.nsw.gov.au/resources/air/14035AAQNEPMReport2012.pdf
Page 6
Monitoring methods
"The NSW network is comprised of instruments that are in accordance with the relevant Australian standard (See Table 3 for further details). It will be noted that, in the case of PM10, the Tapered Element Oscillating Microbalance (TEOM) method is used for NEPM monitoring and reporting.

*PM10 data from the TEOM are presented as measured and **unadjusted** for temperature. For PM2.5, a combination of TEOM and Beta Attenuation Monitors (BAMs) were used."*

Page 9
"PM10 TEOM data have undergone an internal correction factor for USEPA equivalency but without subsequent treatment or temperature adjustment.

PM2.5 measurements were made using TEOMs and Beta Attenuation Monitors or BAMs; the latter is a Federal Equivalent Method. TEOM PM2.5 data do not include the internal correction for USEPA PM10 equivalency or any subsequent treatment or adjustment for temperature."

Appendix H - Technical working paper - Human health risk assessment - Part 1
http://northconnex.com.au/docs/eis/Appendix%20H%20-%20Technical%20working%20paper%20-%20Human%20health%20risk%20assessment%20-%20Part%201.pdf

Response by Ray Kearney

1. Section: **Executive Summary:** *"In relation to impacts to air quality, potential health impacts have been evaluated using appropriate health based guidelines (that are protective of public health), or, in the case of exposure to PM2.5 and PM10, a detailed assessment of the impact of the emissions on key community health indicators. All predicted concentrations of carbon monoxide, nitrogen dioxide, key individual volatile organic compounds and polycyclic aromatic hydrocarbons are below health based guidelines."*

RK Response: The statement is FALSE [redacted]. Two-thirds of health impacts occur BELOW the PM10 standard. Annual averages and 24-hour averages MASK the real exposures during a.m. and p.m. levels. The plume trajectories are skewed in the methodology to a pre-determined outcome of "no risk".

2. Section: **1.1 Project overview** (p. 1)**:** *"Twin motorway tunnels up to around nine kilometres in length with two lanes in each direction. The tunnels would be constructed with provision for a possible third lane in each direction if required in the future."*

RK Response: How does this relate to a "piston effect" with so much air-space around vehicles? The analysis is dangerously flawed and reckless!

3. Section: **1.4 Objectives** (p. 7) *"The overall objective of the HHRA presented in this technical working paper is to assess health risks associated with the following:*
Emissions to air (associated with vehicle emissions) and exposures of the local community to emissions from the ventilation facilities during the operation of the competed tunnels…."

RK Response: NH&MRC Report 2008 on p. xvii:
"No clear evidence exists to show that monitoring such as that carried out to assess compliance with air-quality goals, especially for PM10, can reliably predict the size, nature and course of adverse health impacts."

"The methods used to monitor air quality may not be the most appropriate in terms of the measured quantities being representative of health risk. The commonly employed approaches are biased towards compliance with national environment protection measures (NEPMs), even though the NEPM explicitly does not apply to localised impacts such as emissions from road tunnel stacks. Current approaches may under-represent the impacts on health of ultrafine particles and the effects associated with the short-term experience of odour."

4. Section: **1.5.1 What is a risk assessment?** (p.7)
Risk
"Risk assessment is used extensively in Australia and overseas to assist in decision making on the acceptability of the risks associated with the presence of contaminants in the environment and evaluation of projects with potential risks to the public. Risk is commonly defined as the chance of injury, damage, or loss. Therefore, to put oneself or the environment "at risk" means to participate, either voluntarily or involuntarily, in an activity or activities that could lead to injury, damage, or loss."

RK Response: Risk assessment is not a scientific application, but an art. Different assessors will come up with different outcomes. The 'Risk-Based Approach' is not necessarily based on "the truth, the whole truth and nothing but the truth." See M. Greenberg (*J. Occup. & Environ. Med.* 2005; Vol 47: 137-144).

NH&MRC Report 2008 on p. 13. *"The WHO guidelines for PM cover exposure durations of 24 hours and one year only, and are strictly applicable only to general ambient concentrations".*

What is NOT disclosed is the amount of pollution permitted by the Ministers Conditions of Approval (MCoA). For the 3.6km (approx) LC Tunnel the MCoA for carcinogenic PM10 is 14 tonnes annually;

for carcinogenic VOC's it is 154 tonnes annually. For the 9km Northconnex is it up to 3-times these limits?

5. Section: **1.5.2 Overall approach** (p. 8) *"The methodology adopted for the conduct of the HHRA is in accordance with national and international guidance that is endorsed/accepted by Australian health and environmental authorities, and includes: EnHealth Environmental Health Risk Assessment: Guidelines for Assessing Human Health Risks from Environmental Hazards: 2012 (enHealth 2012a);"*

RK Response: Most of these are reviews not CHANGES to the NEPM standards.
The 2013 Senate Inquiry into health impacts of air pollution in Australia made recommendations for change - but NOTHING has happened!

6. Section **1.5.2 Overall approach** (p. 8) *"The methodology used for the conduct of the HHRA presented in this reported has been presented to and discussed with NSW Health prior to the completion of this assessment."*

RK Response: From experience, NSW Health has an appalling track record of credibility in this area and confirmed by NH&MRC 2008 on p. 90. "The results did not show any trends across zones and the authors (NSW Health) recommended that additional epidemiological investigations would not be scientifically justified. This report was unanimously criticised by three independent reviewers and it was suggested that the conclusions not be accepted." (2003, 2006)

7. Section: **2.3 Ventilation system** (p. 19)**:**
"Tunnel ventilation is proposed to be undertaken through the use of the following:
During normal operation fresh air is drawn into the portals via a vehicle generated piston effect (ie the suction created behind a moving vehicle pulls air into and through the tunnel). Air in the tunnels would be pushed towards the main tunnel exit portals. Near the main tunnel exit portals air would be drawn upwards into the ventilation facilities and vented to atmosphere via the discharge points."

RK Response: **This concept MUST be reviewed independently by a qualified engineer. Remember the tunnel is 14m wide and 8m high with a clearance of some 5.3m above vehicles.** Provision is made for a 3rd lane. Laws of physics predict this proposal of a 'piston effect' will FAIL for a 9km tunnel. There is so much open space around vehicles on 2 lanes that the 'pulling and pushing' of air will be MINIMAL and inadequate to draw sufficient outside polluted air into the tunnel to dilute the toxicity building up with distance along the 9km tunnel. This reckless and dangerous proposal of a **fetish 'piston effect'** [redacted]

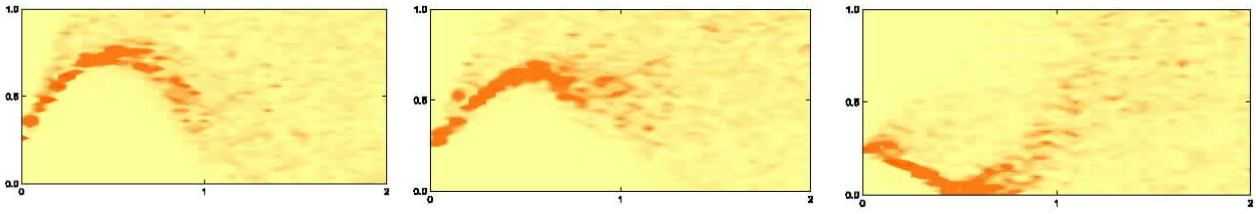
NH&MRC Report 2008 on p. 10. *"The CETU recommends that air velocity be limited to a maximum of 8 m s^{-1} in a bidirectional tunnel and 10 m s^{-1} in a unidirectional tunnel because in the case of a fire it is unsafe for winds to be any faster. When a tunnel design has to meet a fixed upper concentration limit, this effectively puts a limit on the tunnel length, unless multiple opportunities for air exchange (other than portals or a single stack) are introduced to the design. In the case of low traffic in the tunnel, a minimum airflow should be included in the design to cope with the transient effects of gross polluting vehicles or tunnel road blockage."*

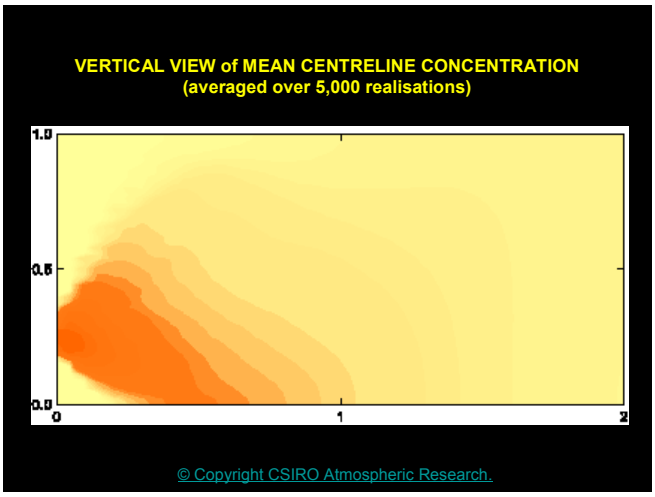
Note that NH&MRC recommends *"multiple opportunities for air exchange"* and without them it LIMITS tunnel length. The NorthConnex 9km tunnel is essentially depending on the 'piston effect' to ventilate the tunnel. Such a design is POSITIVELY RECKLESS and DANGEROUS! Motor bike riders/pillion passenger/drivers in open vehicles are highly likely to FAINT from carbon monoxide poisoning – as has ALREADY happened in the M5 East tunnel.

8. Section: **2.3 Ventilation system** (p. 19)**:** *"Ventilation facilities near the northern and southern main alignment portals (refer to **Figure 2-3**. Near the main tunnel exit portals air from the tunnel would be drawn into the ventilation facility where it would be discharged via a **15 metres high discharge point** (when measured from adjoining land). Jet fans are used to draw air back in to the ventilation facility from the on and off-ramps."*

RK Response: A 15m stack (about same height of street electric-light pole or gum tree) is almost equivalent to portal emissions. Research has shown that for proper dispersal from smelter stacks the minimum height should be at least 100-120m.

[redacted] a 15m stack is absolutely unable to effectively exhaust highly toxic pollution without impacting adversely on the local precinct – downwind!. See link of CSIRO's meandering plume:
http://www.cmar.csiro.au/airquality/meander/index.html Click on 'Start'





CSIRO plume model shows ground-strike of particles down-wind of stack. PM10 falls out nearby. PM2.5 particles also on and above ground further down-wind. The notion of NorthConnex that pollution dilutes out in the "upper" atmosphere is false.

LC Tunnel west stack (approx 32m high) super-imposed on photo of departing cruise ship at Darling Harbour. Ship's funnel approx 40m above water level. Note how the diesel fumes 'fold down', as confirmed by CSIRO, and strike the surface of the water. (See below). The proposal by NorthConnex of 15m stacks disperse carcinogenic fumes "safely" [redacted]

The photo on LHS taken by RK shows the visible carcinogenic haze of the exhaust down-wind as the ship was departing the passenger terminal. Note the pollution strikes at water level and above. This would be worse with 15m high NorthConnex stacks. The photo on RHS shows the haze dissipates as the ship left the area to travel down the harbour. The point is that the complex modelling in the NorthConnex EIS is loaded with false data e.g., TEOM levels of PM10 so that a pre-determined "no effect" on "sensitive receivers" is intended to deceive the community.

9. Section: **2.3 Ventilation system** (p. 19)**:** *"Two emergency smoke extraction facilities would be located on the corner of Wilson Road and Pennant Hills Road (southern) and on the corner of Trelawney Street and Pennant Hills Road (northern), refer to **Figure 2-3**. These facilities would be designed to extract smoke in the event of an emergency fire incident with a capacity of around 400 m^3/s. During low speed traffic conditions the emergency smoke extraction facilities could be used to provide additional fresh air into the tunnels."*

RK Response: TWO emergency smoke extractors for a 9km tunnel is NEGLIGENCE. [redacted]

NH&MRC state that *"in the case of a fire it is unsafe for winds to be any faster than 10m/sec. What is the speed of "These facilities would be designed to extract smoke in the event of an emergency fire incident with a capacity of around 400 m^3/s."?*

Note in **Table 21 (Appendix G – Air Quality)** p. 59 that the ventilation rate (from stack) of 460 M^3/sec has an exit velocity of 15.9m/sec and for 380M^3/sec is 13.1 m/sec. Therefore, in the event of a fire in the tunnel then smoke extraction (2 only) at the rate of 400m3/sec will feed a fire by exceeding 10m/sec. There are no details of escape corridors from this dangerous tunnel proposal, in the event of fire, to the surface.

10. Section: **2.3 Ventilation system** (p. 19)**:** *"The project has been designed so that all air from the project tunnels can be discharged via the two tunnel ventilation facilities. The project does not currently propose portal emissions from the main alignment tunnels, however this approach may be considered in future and would be subject to appropriate assessment and approval. This would include a human health risk assessment."*

RK Response: Where is the data as per MCoA that determines limits to exhausted pollution. Eg., LC tunnel (3.6km approx) - VOC's 154 tonnes; PM10 14 tonnes. Will the NorthConnex have 3-times these amounts?

Note - A condition of approval of the M5 East Tunnel – Condition 72 – requires filtration to be installed within 6-months if exceedances of air quality PM10 occur. To date this 'exceedance' is **avoided** by using "portal emissions" and by NOT incorporating a correction factor in the TEOM monitoring of particulates. The NorthConnex should have a similar condition.

As part of the same conditions the NSW RTA had to evaluate the science of tunnel filtration overseas. [redacted] The Noel Child Report is found at:

http://www.rms.nsw.gov.au/roadprojects/projects/building_sydney_motorways/tunnel_air_quality/m5_east/documents/reports/293_m5_east_freeway_review_of_emission_treatment_technologies_2004.pdf

[redacted]

11. Section: **Table 3-1 Location of sensitive receivers surrounding the southern interchange** (p. 29)

RK Response: People are de-humanized to "sensitive receptors/receivers". [redacted] The project MUST be filtered! See options of legal action in Appendix.

The Law is clear - Where there is a ***foreseeable and preventable risk of harm to your neighbour (sensitive receivers)***, **the owner (TRANSURBAN) has a duty of care** to **remove that risk**. I believe this Northconnex proposal is a dereliction of TRANSURBAN's duty of care.

TRANSURBAN **posted a 44% lift in profits** (August 6). Part of the profits are achieved by NOT installing filtration systems in their tunnels and SHIFTING health costs of pollution from their unfiltered stacks onto the TAXPAYER. It is noteworthy that the Court case dealing with a class action for the over-estimation of traffic numbers for the Lane Cove Tunnel was allegedly motivation as part of a 'Base Case Finance Model' for financial backing for the project. Here in the NorthConnex tunnel the converse is applied i.e., rather than inflate traffic numbers, the project costs are REDUCED by passing health costs to the taxpayer AND by NOT installing filtration using false [redacted] anti-filtration claims.

[redacted]

12. Section: **3.4 Existing health of population**
3.4.1 General
p. 38 *"When considering the health of a local community there are a large number of factors to consider. The health of the community is influenced by a complex range of interacting factors including age, socio-economic status, social capital, behaviours, beliefs and lifestyle, life experiences, country of origin, genetic predisposition and access to health and social care."*

RK Response: It is HIGHLY SIGNIFICANT that the Health EIS excludes the proven adverse health effects of EMR from Mobile Phone Base Stations/Towers – within 300m. EMR/EMF are documented to INCREASE susceptibility to various diseases including cancer. EMF's reduce melatonin which is a potent anti-tumour hormone.
See links:
http://www.powerwatch.org.uk/science/studies.asp
http://www.powerwatch.org.uk/health/sensitivity.asp
http://www.cellphonetaskforce.org/?page_id=128
http://www.globalresearch.ca/smart-meter-dangers-the-health-hazards-of-wireless-electromagnetic-radiation-exposure/31891

Response by >40 experts to false claims of "no health impacts":
https://maisonsaine.ca/sante-et-securite/electrosmog/smart-meters-correcting-gross-misinformation.html#comment-120283

13. Section **3.4.1 General**
p.38. *"Hence, while it is possible to review existing health statistics for the local areas surrounding the project, and compare them to the greater Sydney area and NSW, it is not possible or appropriate to be able to identify a causal source, particularly individual or localised sources."*

[redacted]

14. Section: **3.5 Existing environment**
3.5.1 Existing air quality
p. 44 *"This technical working paper has used background air quality data collected by the Office of Environment and Heritage at Lindfield and Prospect, which are the closest stations to the project area."*

RK Response: As already stated and confirmed, Lindfield monitoring station measures only PM10 particles by the TEOM method which has NOT had a correction factor applied. Particle measurements are UNDERESTIMATED by up to 40% and equivalent to about 9.5ug/M^3.

15. Section: **3.5.1 Existing air quality**

p.44 *"Air quality in the greater Sydney area is most significantly affected by bushfires (including hazard reduction burns) and dust storms with transport-related emissions identified as the largest source of human-related pollution. In general, NSW is considered to have good air quality in relation to international standards. Review of PM2.5 and PM10 in many countries by the WHO[3] identified that concentrations reported in Australia low (amongst the lowest of all countries evaluated) compared with international levels."*

RK Response: This paragraph is misleading [redacted]. The FACT is the levels of particle pollution in Sydney are [redacted] UNDERESTIMATED by up to 40% using the TEOM method.

[redacted]

16. Section: **3.5.1 Existing air quality**

p. 44 *"Exceedances of the NEPC guidelines and advisory goals for particulate matter (PM) do occur in Sydney (as presented in the AQIA), primarily due to occasional bushfires, dust storms and hazard reduction burns rather than more every day conditions."*

RK Response: Again, whilst the occasional bushfire smoke contributes it should NOT be used as an excuse to explain exceedances. Remember NSW EPA exclude correction factors from their TEOM measures causing levels to be UNDERESTIMATED by 11-40%.

17. Section: **4.1 Air impact assessment**

4.1.1 Summary

p.47. *"Emissions to air from the operation of the tunnel have been assessed using CALPUFF and CAL3QHCR models, meteorological data collected by the Office of Environment and Heritage (over 2009, 2010 and 2011) and terrain information relevant for the area. The modelling has considered impacts to sensitive receivers located close to the southern and northern interchanges extending (at increasingly reduced density of coverage as distance to the interchanges increase) around 20 kilometres in all directions."*

RK Response: There are technical limits of these modelling systems see link:
http://www.aecom.com/deployedfiles/Internet/Capabilities/Environment/_Events/Paine%20500%20Model%20Distance%20Limitation.pdf
Also see recommendations:
https://www.mfe.govt.nz/publications/air/atmospheric-dispersion-modelling-jun04/html/page5.html

NH&MRC Report 2008 on p. xvii: *"No clear evidence exists to show that monitoring such as that carried out to assess compliance with air-quality goals, especially for PM10, can reliably predict the size, nature and course of adverse health impacts. The methods used to monitor air quality may not be the most appropriate in terms of the measured quantities being representative of health risk. The commonly employed approaches are biased towards compliance with national environment protection measures (NEPMs), even though the NEPM explicitly does not apply to localised impacts such as emissions from road tunnel stacks. Current approaches may under-represent the impacts on health of ultrafine particles and the effects associated with the short-term experience of odour."*

NH&MRC Report 2008 on p. 115. *"Assessment of background concentrations, to which tunnel contributions may be added, is an inexact science—even agreed definitions of 'background' do not exist—and approaches and viewpoints are continually evolving."* Thus data can be skewed to pre-determined outcomes!

EnHealth (2012) states:

Risk assessment is **inappropriate** when it is a ritual rather than a meaningful process and should **not** be undertaken when:

- **risks may be likely, but the evidence is already well documented and it may be possible to develop evidence-based recommendations without the need for a comprehensive assessment**

18. Section: **4.2 Review of key air pollutants**
4.2.1 Oxides of nitrogen
P. 51 *"Nitrogen dioxide is a colourless and tasteless gas with a sharp odour."*

RK Response: Wrong! Even a high-school student doing chemistry knows **NO2 is a reddish/brown gas with a pungent, irritating odour and TASTE.** [redacted]

19. Section: p.58. **Table 4-5 Polycyclic aromatic hydrocarbon (PAH) speciation profile for diesel vehicle emissions**

RK Response: The EIS Table 4-5 is grossly misleading. The data are highly selective. No mention of e.g., di-methyl benzanthracene - a carcinogen used to induce breast cancer in animals.
See link:
http://www.biomedcentral.com/1753-6561/7/S2/P46

Remember the bulk of the PAHs are adsorbed to PM2.5 particles. (See table RHS of PAHs in NZ traffic tunnel)
Yet none of this is disclosed in the NorthConnex EIS! [redacted]

PAH Concentration (ng/m^3). Distribution between the aerosol and gas phases (26/05/99)

Pollutants	Tunnel centre		Portal	
	Pat. PM 2.5	Gas	Pat. PM 2.5	Gas
Naphthalene	<	10669.3	<	2117.7
Acenaphthylene	<	614.3	<	156.8
Acenaphthene	<	42.0	<	15.7
Fluorene	<	216.6	<	52.3
Phenanthrene	<	223.1	<	49.5
→ Anthracene	1.6	64.7	0.2	11.6
Fluoranthene	6.8	29.1	1.4	9.9
→ Pyrene	10.3	38.8	2.9	12.9
→ Benz(a)anthracene	16.2	<	2.0	<
Chrysene	19.4	<	2.3	<
Benzo(b)fluoranthene	13.3	<	2.8	<
Benzo(k)fluoranthene	13.6	<	2.2	<
→ Benzo(a)pyrene	17.1	<	1.9	<
Indeno(123cd)pyrene	12.0	<	1.6	<
→ Dibenz(ah)anthracene	1.6	<	0.3	<
→ Benzo(ghi)perylene	30.1	<	3.6	<
Total of 16 Pollutants	141.9	11898	21.1	2426

< = Less than limit of detection

Note: Several PAHs(→)are known carcinogens and adsorb to FINE particles that are soluble.
→ Breast cancer carcinogens
From V. K. Dravitzki and I. A. Kvatch (2000)

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See link: http://ecan.govt.nz/publications/Reports/Myles2.pdf

Each 10ng/m^3 is associated with birth retardation. (Note one nanogram – ng - is one-billionth of a gram)

Pre-natal exposure to polycyclic aromatic hydrocarbons (PAHs) is associated with low birth weight and smaller head circumference.

F.P. Perera *et al.*, (2003) *Environ. Health Perspect.* Vol. 111, p451-60.

The EIS records (Table7-101) PAHs at levels of 1000ng/M^3 i.e., 100 times the levels KNOWN/ PROVEN to be associated with birth defects. Yet the EIS reports ***"no effect"!***

20. Section: p. 61. **Table 4-6 Evaluation of potential acute impacts in local area**

[redacted]

21. Section: **4.4 Review of particulate matter**
4.4.1 General
P. 69. *"It is well accepted nationally and internationally that monitoring for PM10 is a good method of determining the community's exposure to potentially harmful dust (regardless of the source) and is most commonly measured in local and regional air quality monitoring programs."*

RK Response: Such a claim is false [redacted]. **Prof. Lidia Morawska *et. al.* state that PM10 is a measure of course particles but NOT of the particles from the exhaust pipe.** Therefore, the statement [redacted] is allegedly positively uninformed [redacted].

Note:
International experts - Professors Lidia Morawska and Michael Moore - of Queensland review fine and ultra-fine particle pollution:

http://www.deh.gov.au/atmosphere/airquality/publications/health-impacts/index.html

It is highly relevant that in Section 1.3 under 'Toxicology' they make the following profound statement:

"All of the studies available to us demonstrate that the primary determinant of the effect of ultra-fine particles is their number and their surface area and not the weight of particles present. This means that the traditional use of PM weight measures is inappropriate in evaluation of the likely biological effects of ultra-fine particles."

Although the guidelines for PM10 have been set at 50 µg m^{-3} (24-hour average), PM10 is considered a no threshold. This means there is no known safe level below which effects will not occur.

Noteworthy [redacted] the Health EIS confirm this on p. 72:
"Based on the available studies, there is no evidence of a safe level of exposure or a threshold below which no adverse health effects occur (NEPC 2010; WHO 2013b)." However, they FAIL to apply it in their health assessment.

Yet [redacted] EIS [redacted] claim "no effect" when hundreds of tonnes of highly toxic particles/gases are exhausted into the local precincts – [redacted] there is no safe lower limit!

22. Section: **4.4.4 Initial assessment of potential health issues from exposure to particulate matter**
P. 73. "***Guidelines***
Air quality goals for PM10, and advisory goal for PM2.5, have been established by NEPC (NEPC 2002, 2003) that are based on the protection of human health and well-being. The goals apply to average or regional exposures by populations from all sources, not to localised "hot-spot" areas such as locations near industry, busy roads or mining."

RK Response: It is highly significant that the authors of the NorthConnex Health EIS acknowledge that the NEPM Guidelines DO NOT apply to a point source (stacks) or in tunnels. [redacted]

23. Section 5. **Detailed assessment of exposure to particulate matter**

RK Response: The entire section 5 can be read as a series of misapplied, wrong interpretations of environmental medicine coupled with distortions of fact. [redacted]

- If a substance is known to be harmful, it should not be necessary to demonstrate 'scientifically' that it is actually causing harm before doing something about it.

- [redacted] *"not sure yet"* how big the problem is and *"we have not identified the extent of the problem"* or *"we have yet to understand the underlying mechanism"*.

'The Art of Perpetuating a Public Health Hazard'
"Denial" of a hazard by an expert may not imply – *"the truth, the whole truth and nothing but the truth"*. M. Greenberg (*J. Occup. & Environ. Med.* 2005; Vol 47: 137-144)

"*The same techniques to support the use of white asbestos (chrysotile) as a safe material are being used to subvert the community into thinking exposure to vehicle pollutants is without risk to health and well-being.*"

[redacted]

National Annual Diesel Fine Particle Health Impacts[7]

Annual Cases in the U.S., 2010	
Premature Deaths	21,000
Lung Cancer Deaths	3,000
Hospital Admissions	15,000
Emergency Room Visits for Asthma	15,000
Non-fatal Heart Attacks	27,000
Asthma Attacks	410,000
Chronic Bronchitis	12,000
Work Loss Days	2,400,000
Restricted Activity Days	14,000,000

http://www.catf.us/publications/reports/Diesel_Health_in_America.pdf

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'Declaration of Human Rights'

The United Nations defined the right to health in Article 12 of the International Covenant on Economic, Social and Cultural Rights in 1966.

The Covenant guarantees:

"The right of everyone to the enjoyment of the highest attainable standard of health".

Article 12.2 (b) comprises e.g.,

"The prevention and reduction of the population's exposure to harmful substances such as radiation and harmful chemicals or other detrimental environmental conditions that directly or indirectly impact upon human health".

Is Australia in breach?

International Covenant on Economic, Social and Cultural Rights

4

Section 7.3 Air Quality EIS
http://northconnex.com.au/docs/eis/Section%207.3%20-%20Air%20quality.pdf
Response by Ray Kearney

1. Section: **7.3.1 Tunnel ventilation system**
P. 447. *"The tunnel ventilation system would maintain appropriate air quality that is protective of the health and amenity of motorists within the tunnels during normal operation and emergency conditions."*

RK Response: Such a comment has no validity as there is no safe limit for particles from the tail-pipe. The toxicity toward the end of the 9km tunnel WILL be DANGEROUSLY HIGH! The modelling inside the tunnel is INCOMPLETE.

2. Section: **7.3.1 Tunnel ventilation system**
P. 448. *"During operation, the ventilation system would draw fresh air into the tunnels and emit air from within the tunnels via two ventilation facilities. One of the ventilation facilities would be located near the northern tunnel portal and one would be located near the southern tunnel portal."*

RK Response: To not emit polluted air for 9km is **negligent and hazardous** such that build-up of toxins e.g., for a motorcyclist could cause fainting as has happened in the M5-East tunnel. [redacted] See link:

http://www.smh.com.au/nsw/consultants-paid-19m-but-still-no-air-for-underground-20130329-2gyx6.html

3. Section: **7.3.1 Tunnel ventilation system**
P. 448. *"The most efficient location for ventilation outlets is close to the main alignment tunnel exit portals. This is because vehicles travelling through the tunnels create a piston effect, which draws air into the tunnel and pushes it forward in the direction of traffic flow. Locating the ventilation outlets near the main alignment tunnel exit portals maximises the benefit of the piston effect and minimises the need for additional energy consumption to operate tunnel jet fans and to transport the exhaust air from the tunnel to the outlet. This approach provides environmental benefits through the reduction in energy consumption and greenhouse gas emissions from the project."*

RK Response: The piston effect is going to have little effect as dust swirls under and behind vehicles. The levels of toxicity toward the end of 9km will be unacceptably high. NH&MRC Report (2008) states that the 'piston effect' is limited. [redacted] Warrants investigation and the proposal analysed by qualified consultants outside of NSW.

4. Section: **7.3.1 Tunnel ventilation system**
P. 448. *"The location of ventilation outlets for the project have been determined based on proximity to the main alignment tunnel exit portals, as well as consideration of other factors including land access and acquisition requirements, geology, engineering and construction constraints, potential landscape and visual impacts, and the location of other major infrastructure."*

RK Response: What is NOT disclosed is the amount of pollution to be allowed by the Ministers Conditions of Approval (MCoA). For the 3.6 km (approx) LC Tunnel the MCoA for PM10 is 14 tonnes annually; for VOC's it is 154 tonnes annually. For the 9km Northconnex is it **3-times** these limits?

5. Section: **7.3.1 Tunnel ventilation system**
P. 448. *"The project does not currently propose portal emissions from the main alignment tunnels, however this approach may be considered in the future and would be subject to appropriate assessment and approval at the relevant time."*

RK Response: Again, this is an outrageous proposal. There should be NO portal emissions! [redacted]

when it is found NOT to work then resort to PORTAL emissions as a 'back-up' for a reckless mistake not to filter the pollution in the tunnel! Lessons from the M5 East debacle have NOT been learnt!

6. Section: **7.3.1 Tunnel ventilation system**
P. 449. **Table 7-88 Key components of the project's ventilation system**
*Two emergency smoke extraction outlets would be required, one located on the corner of Wilson Road and Pennant Hills Road (at the Wilson Road tunnel support facility), and one located on the corner of Trelawney Street and Pennant Hills Road (at the Trelawney Street tunnel support facility) (refer to **Figure 5-13**).*
- *Each tunnel support facility would have a maximum exhaust capacity of around 400 cubic metres per second to generate a net flow of around five metres per second along the tunnel.*
- *Each tunnel support facility would consist of four horizontally mounted bidirectional axial fans, each with an exhaust capacity of around 135 cubic metres per second.*
- *Emergency smoke extraction requirements could be achieved with three fans, with the fourth fan on standby.*
- *During low traffic conditions, the tunnel support facilities would be used to supply additional fresh air to the tunnels.*

RK Response: Smoke extraction is NOT adequate! Nor is there evidence of any modelling by real experts – not hoodwinkers! In event of a fire, the fan rate should not exceed 10m/sec.
Remember car speed of 60k/hr = about 16m/sec. Piston effect is about 5m/sec. Insufficient exhaust capacity for 9km. The proposal MUST be analysed independently by real experts [redacted] outside NSW.

7. Section: **7.3.1 Tunnel ventilation system**
P. 449. **Normal traffic conditions:** *"During normal operation the tunnel would be longitudinally ventilated. That is, fresh air would be drawn in from the tunnel entry portals and through the tunnels by a vehicle generated piston effect (the suction created behind a moving vehicle which pulls air into and through the tunnel) and pushed towards the tunnel exit portals. Near the portals, tunnel air would be drawn upwards into ventilation facilities with ventilation fans prior to discharge to the environment via a **15 metre high** ventilation outlet (relative to the height of neighbouring land)."*

RK Response: [redacted] A 15m high stack will NOT disperse heavy pollution. It will lead to frequent 'ground strike'. Research has indicated a minimum height be 120m as e.g., smelters and coal-power stations.

8. Section: **7.3.1 Tunnel ventilation system**
P. 450, **Low speed traffic conditions***: "During low speed traffic conditions the vehicle generated piston effect would be lessened. In these situations the airflow may need to be assisted by the tunnel jet fans located throughout the tunnels. Under these conditions, additional fresh air may need to be supplied to the main alignment tunnels via the reverse flow operation of the axial fans in the two emergency smoke extraction points."*

RK Response: [redacted]

9. Section: **7.3.1 Tunnel ventilation system**
P. 450, **Low speed traffic conditions***: "The operation of axial fans in the ventilation facilities would be increased to ensure that acceptable air quality is maintained in the tunnels and to achieve acceptable dispersion of tunnel air following discharge to the atmosphere."*

RK Response: Acceptable to whom? [redacted]

10. Section: **7.3.1 Tunnel ventilation system**
P. 450, **Emergency conditions:** *"The two emergency smoke extraction outlets would principally function to maintain air quality in the tunnels in the unlikely event of a fire incident. As a secondary feature, these facilities would also supply fresh air to the tunnels during low speed traffic conditions (discussed above)."*

[redacted]

11. Section: **7.3.1 Tunnel ventilation system**
P. 450, **Emergency conditions:** *"During smoke control, air would be extracted from the tunnel and transferred to the emergency smoke extraction outlet via a vertical shaft. The smoke would then be discharged from the facility to the atmosphere."*

RK Response: This tunnel is 9km long with only 2 smoke extraction outlets! [redacted] Urgent independent investigation by an accredited expert [redacted] is needed.

12. Section: **7.3.1 Tunnel ventilation system**
P. 450, **Emergency conditions:** *"The emergency smoke extraction outlets are expected to operate infrequently for the extraction of smoke during an emergency, and for a short duration while emergency services and tunnel fire and life safety systems bring the situation under control."*

[redacted]

13. Section: **7.3.1 Tunnel ventilation system**
Analysis of the need for tunnel ventilation filtration:
P. 450. *"Air pollution control technology has been used in a limited number of tunnels in a few countries including Norway, Austria, Germany and Japan as well as the M5 East Motorway tunnel trial in Sydney. This technology includes the use of electrostatic precipitators to remove particles as well as catalytic and biological processes and adsorption technologies to remove nitrogen oxides.* ***Evidence to date suggests that the effectiveness of such measures when applied to road tunnels is questionable."***

RK Response: The above seems a comment from an alleged unqualified consultant wearing different titles. **The statement is false** [redacted] NSW RTA documents and those of RTA consultants e.g., Noel Child **verify that tunnel filtration is effective and efficient - over 90% for particles.** **(see below)**

See statement (RHS) by former RTA Projects Manager who visited tunnel filtration in Japan who NOW have more than 50 filtered long tunnels.

RTA disclosure

"I was in Japan the week before last looking at tunnels on a tour organised by Mr. Mizutani. Japan has some excellent cost effective longitudinal ventilation systems in long mountain tunnels employing electrostatic precipitators……"

Garry Humphrey
NSW RTA Projects Manager

Paper presented at PIARC Congress,
Durban, South Africa
October 2003

[redacted]

It is noteworthy that the Committee Chair of the Parliamentary Inquiry into the M5-East Ventilation Stack, the then Hon. Richard Jones, MLC, stated *" It is now clear that there is affordable and effective filtration available for this stack and it can be installed at a fraction of the cost claimed previously by the RTA"* (July, 2001).

The Noel Child Reports:
http://www.rms.nsw.gov.au/roadprojects/projects/building_sydney_motorways/tunnel_air_quality/m5_east/documents/reports/293_m5_east_freeway_review_of_emission_treatment_technologies_2004.pdf

http://www.rms.nsw.gov.au/environment/downloads/m5east-air/indep_advice_filtration_system_june_2006.pdf

Parliamentary Inquiry - findings into M5 East ventilation:
http://www.rms.nsw.gov.au/environment/downloads/m5east-air/indep_advice_filtration_system_june_2006.pdf

It is clearly evident that this alleged corruption of science supporting tunnel filtration is embodied in the NorthConnex EIS and the associated NorthConnex public brochures.

14. Section: **7.3.1 Tunnel ventilation system**

Analysis of the need for tunnel ventilation filtration:

P. 450. *"A filtration system was constructed to filter the air in the westbound tunnel of the M5 East Motorway. For a period of 18 months an extensive assessment of system performance was carried out by CSIRO and AMOG Consulting. While the system did remove nitrogen oxides and particulate matter, it was expensive to run and did not operate reliably. The M5 East Motorway filtration trial removed 200 kilograms of PM10 per year, at an operating cost of around $3.8 million per tonne and a total cost of $17.4 million per tonne (including civil and machinery costs) (AMOG, 2012)."*

RK Response: [redacted]. The CSIRO Report of the M5 East filtration EXCLUDED particles from the tailpipe. [redacted]

[redacted]

I personally met with Roads Minister Duncan Gay and his senior advisers (25.10.12) [redacted]. I have high regards for Roads Minister Duncan Gay, whom I regard is a person of integrity and stands head and shoulder above his RTA predecessors. [redacted]

NorthConnex has NOT mentioned the decision of the Minister and has used the [redacted] **CSIRO Report** of the trial filtration as grounds for NOT installing filtration.

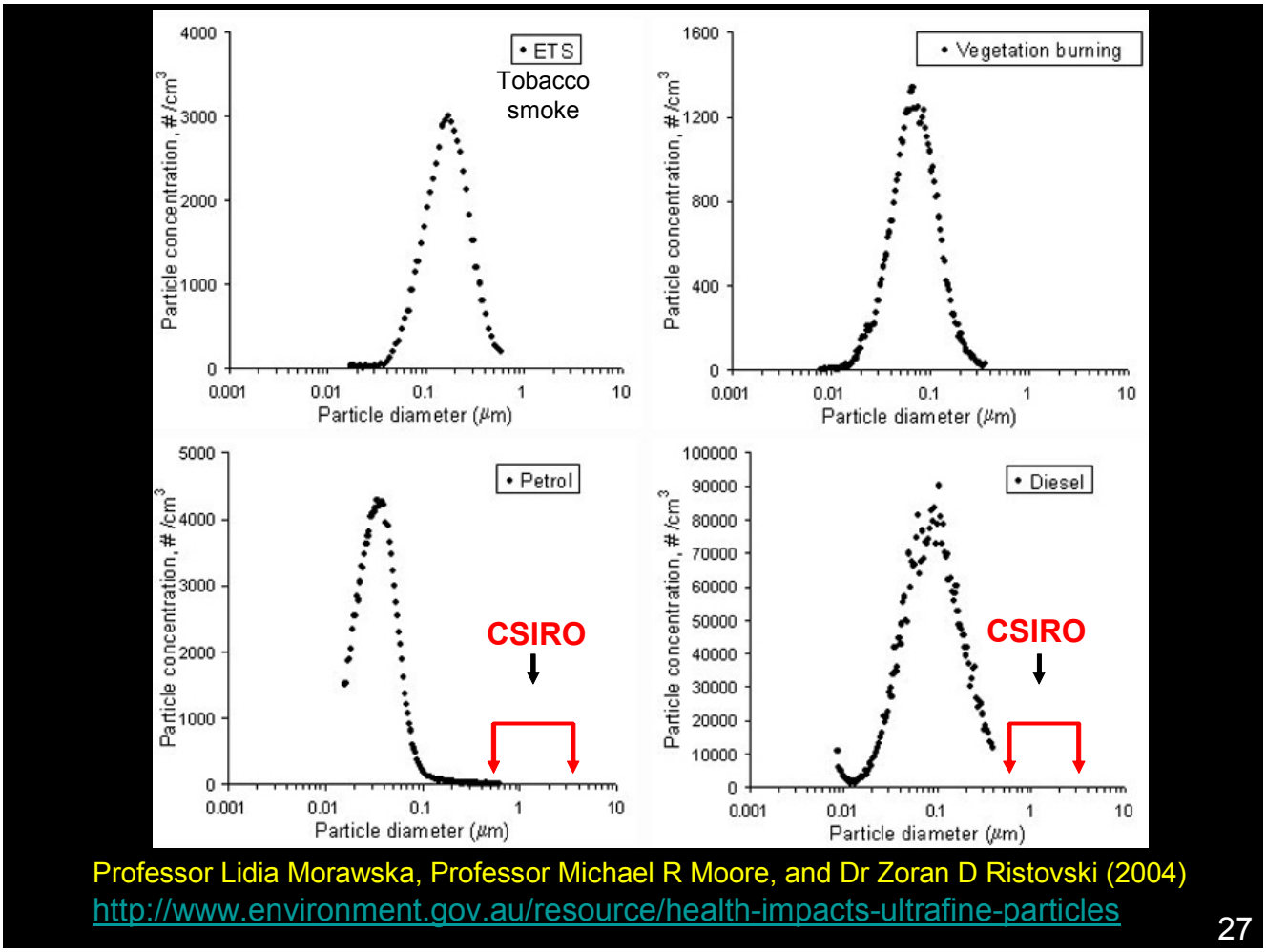
[redacted]

CSIRO REPORT

http://www.rta.nsw.gov.au/roadprojects/projects/building_sydney_motorways/tunnel_air_quality/m5_east/project_documents.html

CSIRO Executive Summary

Only 0.5 -2.5 µm particles were measured (i.e., **excludes particles from tail-pipe**, see graphs below).



Report

1. On p11, CSIRO confirms particles in tunnel are dominated by *"finer particle fraction"* **– but did not measure them!**

2. On p12, CSIRO seems to say that the instrumentation used was expected to measure down to 0.02 µm (20nm).

3. **On p13, CSIRO chose an instrument with a size range from 0.5 µm – 20 µm.** CSIRO state: *"Particles with diameters of less than 0.5um have* ***not been considered in this study*** *due to the diminishing contribution of particles less than 0.5 µm to PM10 and PM2.5."* Thus CSIRO used equipment [redacted] inadequate for proper measurements of the TOXIC fine fraction.

4. RTA should justify why CSIRO [redacted] use **irrelevant measurements** etc. [redacted]

5. RTA should comment on the demonstrated benefits of a trial (not commercial) scale filtration when stack-monitoring was measured (13.5% -16%) comparing June, 2009 with June, 2010.

6. RTA should comment on the smallness of NO2 equipment, even though it worked but inadequate for benefit. [redacted]

7. Electrostatic Precipitators (ESPs) operate with efficiencies > 90% overseas. Why the "poor" performance here? See Noel Child Report 2004 (link above).

8. What is needed is the filtration equipment be designed and built by credible and experienced overseas manufacturers.

9. The cost analysis is misleading. The CSIRO testing FAILS to account for the particle removal by filtration as per stack monitors. The filtration is more efficient than CSIRO calculated from selective 'fiddled' data in its flawed study.

[redacted] **ISSUES**

1. **Deloitte (April 2006).** The advances in technology and experience along with RTA's change in nature of project from 50cu.m/sec to 200cu.m/sec should have gone to retendering. Why not?
2. RTA should address whether 3 proponents were adequate to meet the proposed scale of the project.
3. Would the revised scope have changed the *"weightings, selection criteria or result from the initial expressions of interest"?*
4. *'Filtrontec'* (German Co.) was the last and successful proponent – allegedly no filtration experience in tunnels it seems – many technical problems encountered. RTA [redacted] unable to address deficiencies. RTA should justify selection and filtration inadequacies!

Was the filtration 'trial' originally planned to fail?

[redacted]

[redacted]

15. Section: **7.3.1 Tunnel ventilation system**

Analysis of the need for tunnel ventilation filtration:

P. 451. *"In 2013 the NSW EPA commissioned PAEHolmes to develop a valuationmethodology that accounted for the health impacts associated with changes in particulate matter emissions (PAEHolmes, 2013). This study estimated the health benefit of removing one tonne of PM2.5 in Sydney to be $280,000."*

RK Response: [redacted] This information has NO relationship to what is coming out of the 9km tunnel stacks. [redacted]

The fact is that some 1400 people DIE each year from air pollution in Sydney. The total cost of health impacts of air-pollution in Sydney exceed $9-billion annually. Cost varies according to parameters used.

[redacted] is an absurd analysis of removing a tonne of PM2.5 from Sydney airshed but IGNORE the fact that for the LC Tunnel the MCoA allows up to 14 tonnes of PM10 annually. Their analysis provides NO relevant or credible information for assessing the Northconnex EIS.

Other reports calculate the cost at about $600,000 per tonne of PM2.5 in health savings. What is more relevant are the health costs of exhausting hundreds of tonnes of toxic particles/gases into residential areas.

16. Section: **7.3.1 Tunnel ventilation system**

Analysis of the need for tunnel ventilation filtration:

P. 452. *"Nearly all of the particles removed in the M5 East Motorway trial consisted of PM2.5. Based on the above valuation, the M5 East Motorway filtration trial had operational costs of more than ten times the estimated health benefit. All of the measures considered by the SKM 2010 study cost more than ten times less than the M5 East Motorway filtration trial and would remove substantially more particulate matter, delivering a much greater health benefit than tunnel filtration. This is consistent with the conclusions of the National Medical and Health Research Council (NH&MRC,*

2008). This report found that the most effective method to manage air quality in and around tunnels is through vehicle fleet emission reductions."

RK Response: Again, another false association [redacted]. As a delegate to the NH&MRC Workshop 2007, [redacted] Roads Minister Duncan Gay [redacted] reversed his decision to de-commission the M5 East filtration.

17. Section: **7.3.1 Tunnel ventilation system**
Analysis of the need for tunnel ventilation filtration:
P. 452. *"One measure of in-tunnel air quality is visibility which is measured as an extinction coefficient. Visibility can be used as a measure of in-tunnel particulate matter using a conversion factor from the Permanent International Association of Road Congress (2012) (PIARC)."*

RK Response: Visibility has NOTHING to do with health risk! Again, this section is MISLEADING [redacted].

18. Section: **7.3.1 Tunnel ventilation system**
Analysis of the need for tunnel ventilation filtration:
P.452. *"Based on the above, the use of filtration systems within the tunnel ventilation outlets is not warranted. Such systems have been proven to be costly and inefficient. Further, greater improvements in air quality could be achieved through investment in programs targeting other emission sources that contribute higher levels of pollution to the surrounding environment."*

RK Response: The paragraph is full of false [redacted] information [redacted]. Filtration in more than 50 tunnels in Japan has been proven to be efficient and effective for both in and outside the tunnels. [redacted] Refer also to the Noel Child Report (link above)

19. Section: **7.3.2 Assessment methodology**
Operational impact assessment criteria
P. 453. *"The Director-General's Requirements specify an assessment of PM2.5, however there are currently no criteria for the assessment and regulation of PM2.5 in NSW. For the purpose of this assessment, the advisory reporting standards and goals for airsheds have been adopted from the Air NEPM."*

RK Response: Again, note the NEPM standards are applied in full knowledge that they MUST NOT be applied to point sources or tunnels. To do so helps to falsely diminish the risk to health [redacted].

20. Section: **7.3.2 Assessment methodology**
Traffic data
P. 455. *"Forecast traffic flows on surface roads have been determined based on a combination of inputs from the Strategic Sydney traffic model and further traffic modelling, as detailed in **Section 7.1** (Traffic and transport)."*

RK Response: The Lane Cove Tunnel traffic predictions were *grossly overestimated* [redacted] – to secure finance from bankers/investors. Thus the EIS was actually a 'Base Case Financial Model'. The LCT Operators went bankrupt and sold the LCT to Transurban (NorthConnex).

The entire NorthConnex EIS, though undertaken as a 'Base Case Financial Model' has adopted a different strategy being to recklessly reduce infra-structure COSTS [redacted] at major DISBENEFIT to the health of motorists using the tunnel and to residents in the precinct of the unfiltered stacks. [redacted] data for a "no risk to health" outcome [redacted] This NorthConnex Tunnel is dangerously proposing UNPROVEN ventilation systems in a 9km tunnel e.g., the 'piston effect' – to save on costs.

TRANSURBAN **posted a 44% lift in profits** (6.8.14). Allegedly part of the profits are achieved by NOT installing filtration systems in their tunnels and **SHIFTING** health costs of pollution from their unfiltered stacks onto the TAXPAYER. They are adopting the same strategy here with the NorthConnex tunnel – as they have e.g., in Melbourne tunnels.

The Law is clear - Where there is a ***foreseeable and preventable risk of harm to your neighbour***, **the owner (TRANSURBAN) has a duty of care** to **remove that risk**. I believe this Northconnex proposal is a dereliction of TRANSURBAN's duty of care.

Such a tunnel MUST be filtered using PROVEN systems overseas – and TRANSURBAN must meet such a cost as a 'duty of care'.

21. Section: **REMAINDER of DOCUMENT**

RK Response: The entire EIS document to the end is so UTTERLY FLAWED, it would take some 20 more pages to address [redacted] s coupled with the regular interchange in units from ugm to mgm [redacted].

The entire NorthConnex EIS should be subject to independent review by interstate accredited experts. [redacted]

Section 7.4 Health EIS
http://northconnex.com.au/docs/eis/Section%207.4%20-%20Health.pdf
Response by Ray Kearney

1. Section: **Quantitative human health risk assessment**
P. 151. *"Identification of appropriate primary and secondary health indicators in consultation with NSW Health."*

RK Response: NSW Health is already proven in the M5 East project to be dishonest and unreliable in giving objective advice. Confirmed by NH&MRC Report (2008). See commentaries in the Appendix.

2. Section: **7.4.3 Initial screening assessment (external air quality)**
P. 536. *"In terms of health effects, nitrogen dioxide (NO2) is the primary oxide of nitrogen of interest. Nitrogen dioxide is a colourless and tasteless gas with a sharp odour."*

RK Response: This is POSITIVELY false. NO2 is a reddish-brown toxic gas and has a characteristic sharp, biting odour. See link: http://en.wikipedia.org/wiki/Nitrogen_dioxide

3. Section: **7.4.3 Initial screening assessment (external air quality)**
P. 536 *"On this basis the current National Environment Protection Council guidelines are appropriate for the assessment of potential health impacts associated with the project."*

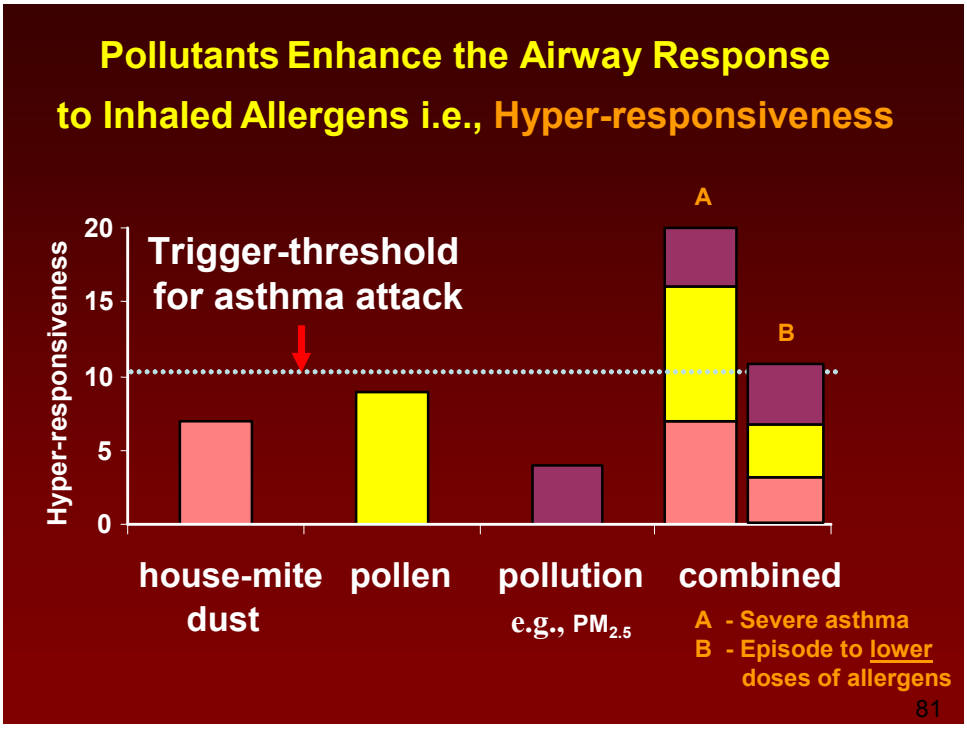
RK Response: This is an outrageous disregard to the NEPC Guidelines which specifically states NEPM standards DO NOT apply to point sources (stacks) and in tunnels.
Note: NH&MRC Report 2008 on p. xvii: *"No clear evidence exists to show that monitoring such as that carried out to assess compliance with air-quality goals, especially for PM10, can reliably predict the size, nature and course of adverse health impacts. The methods used to monitor air quality may not be the most appropriate in terms of the measured quantities being representative of health risk. The commonly employed approaches are biased towards compliance with national environment protection measures (NEPMs), even though the NEPM explicitly does not apply to localised impacts such as emissions from road tunnel stacks. Current approaches may under-represent the impacts on health of ultrafine particles and the effects associated with the short-term experience of odour."*

4. Section: **7.4.3 Initial screening assessment (external air quality)**
P. 536. *"The modelled peak cumulative concentrations of nitrogen dioxide during operation of the project are well below the acute and chronic National Environment Protection Council guideline values of 246 µg/m3 and 62 µg/m3 respectively."*

RK Response: [redacted] mis-using NEPM standards.

5. Section: **7.4.3 Initial screening assessment (external air quality)**
P. 536. *"As a result, no adverse health effects are expected in relation to exposures to nitrogen dioxide in the local area surrounding the project. On this basis, nitrogen dioxide has not been carried forward for more detailed assessment."*

RK Response: The EIS statement reflects ignorance and no understanding of the role NO2 can have on the asthmatic. Exposure to NO2 (or PM2.5) can make an asthmatic experience asthma episodes to lower doses of specific allergen e.g., pollen. [redacted]



6. Section: P. 537. **Table 7-107 Initial screening of potential hazards – nitrogen dioxide**

RK Response: NEPM standards DO NOT apply to a point source or in a tunnel - only to the background airshed. The tabulation is false [redacted]! These data do not disclose levels during peak hour traffic flows! Cooking data! Where are the P.M. and A.M. data levels? They are being diluted out by hourly averages and annual averages! [redacted]

7. Section: **Carbon monoxide**
P. 537. *"The current National Environment Protection Council guidelines are consistent with health based guidelines currently available from the World Health Organisation and the United States Environmental Protection Agency, which were specifically develop to be protective of exposures to sensitive populations including asthmatics, children and the elderly. On this basis the current National Environment Protection Council guidelines are appropriate for the assessment of potential health impacts associated with the proposed project."*

RK Response: Again, the NEPM standards cannot be applied here. They do not apply to stacks and tunnels. Again, this is false [redacted] assessment! Positively FALSE [redacted]

NH&MRC Report 2008 on p. xvii: *"No clear evidence exists to show that monitoring such as that carried out to assess compliance with air-quality goals, especially for PM10, can reliably predict the size, nature and course of adverse health impacts. ....The commonly employed approaches are biased towards compliance with national environment protection measures (NEPMs), even though the NEPM explicitly does not apply to localised impacts such as emissions from road tunnel stacks..."*

8. Section: **Volatile organic compounds and polycyclic aromatic hydrocarbons**
P. 539. *"The predicted (incremental) concentrations of individual volatile organic compounds and polycyclic aromatic hydrocarbons associated with emissions from the project have been reviewed against published peer-reviewed health based guidelines that are relevant to acute and chronic exposures (where relevant)."*

RK Response: [redacted] Where is the evidence of the "review"?

9. Section: **Volatile organic compounds and polycyclic aromatic hydrocarbons**
P. 539. *"The individual Hazard Indexes has then been summed to obtain a total Hazard Index for all the volatile organic compounds and polycyclic aromatic hydrocarbons that have been considered."*

RK Response: It is impossible to arrive at a 'Hazard Index' without knowing the amounts of VOCs and Particle Matter that will be determined in the Ministers Conditions of Approval. Remember some PAHs are volatile while others are adsorbed to fine particles PM2.5 which are soluble in the lungs, off-loading their cancer-causing cargo. The analysis [redacted] is clearly false [redacted]!

10. Section: **Volatile organic compounds and polycyclic aromatic hydrocarbons**
P. 539. *"A total Hazard Index of greater than one means that there is the potential for adverse health effects, and further more detailed assessment is required."*

RK Response: All the commentary in this section lacks rigour. [redacted]

11. Section: **Volatile organic compounds and polycyclic aromatic hydrocarbons**
P. 539. *"The calculated Hazard Index for all scenarios is well below the target Hazard Index of one. On this basis no further detailed assessment of the peak emissions from the project is warranted."*

RK Response: All the commentary in this EIS section [redacted] lacks openness and proper analysis. Another feeble attempt to hoodwink! The analysis FAILS to take account of the trajectory of a plume and the extreme toxicity of PAHs. As little as 10 nanograms per cubic metre will cause birth defects.

12. Section: **Particulates**
P. 541. *"**PM10, PM2.5 and PM1** – These particles are small and have the potential to penetrate beyond the body's natural clearance mechanisms in the nose and upper respiratory system, with smaller particles able to further penetrate into the lower respiratory tract and lungs. It is well accepted nationally and internationally that monitoring for PM10 is a good method of determining the community's exposure to potentially harmful dust (regardless of the source) and is most commonly measured in local and regional air quality monitoring programs."*

RK Response: This is positively FALSE! Prof. Lidia Morawska *et al* state that PM10 is a measure of course particles but NOT on the particles from the exhaust pipe. Therefore, the statement [redacted] is positively uninformed [redacted]. Further, the authors do not admit the TEOM PM10 can underestimate PM10 by up to 40%.

13. Section: **Particulates**
P. 541. *"It is important that the quantitative evaluation of potential health impacts adopts robust health effect associations and utilises particulate matter measures that are collected in the urban air environment."*

RK Response: The notion that the Health EIS is "robust" is self-delusional! *"The real threat to knowledge seems not ignorance but the illusion of knowledge"* (Stephen Hawking)

14. Section: **Particulates**
P. 542. *"Air quality goals for PM10 and PM2.5 have been established by the National Environment Protection Council and the NSW Environment Protection Authority that are based on the protection of human health and well-being. The goals apply to average or regional exposures by populations from all sources, not to localised 'hotspot' areas such as locations near industry, busy roads or mining."*

RK Response: RUBBISH! The NEPM PM standards DO NOT apply to point sources. Furthermore, number of particles and surface area not weight are more accurate indices of health risk! [redacted]

15. Section: **Particulates**
P. 542. *"They are intended to be compared against ambient air quality monitoring data collected from appropriately sited regional monitoring stations. However, in the absence of alternative measures, these criteria are applied on occasion to assess the potential for impacts to arise at 'hot-spot' locations, particularly for new projects."*

RK Response: Rubbish! This claims a [redacted] MISUSE of NEPM standards that DO NOT apply to tunnels and stacks. [redacted]

16. Section: **Particulates**

P.542. *"Generally, the goals established by the National Environment Protection Council and the NSW Environment Protection Authority are slightly more conservative (health protective) than the those provided by the World Health Organisation, the European Union and the United States Environmental Protection Agency."*

RK Response: Irrelevant! [redacted] The fact remains that the NEPM standards do not apply to point sources (stacks) or in tunnels.

17. Section: **Particulates**

P.542. ***"****The maximum background concentration of PM2.5 is 10.16 µg/m3 and the maximum predicted cumulative concentration (project plus background) of PM2.5 is 10.29 µg/m3. Both these levels are above the annual average advisory reporting standard of 8 µg/m3. However, this concentration of PM2.5 is dominated by background air quality with only a very small contribution from the project (0.13µg/m3, or 1.63 per cent of the advisory reporting standard)."*

RK Response: These annual averages data dilute out risks in a.m. and p.m. peak periods. [redacted] apply NEPM air-quality measures to a point source (stacks) in BREACH of the application of NEPM standards.

18. Section: **Particulates**

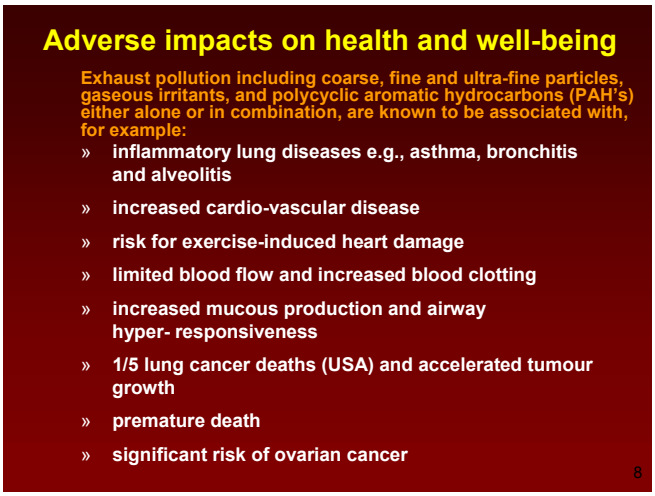
P.542. *"For many of the key health effects associated with exposures to PM10 and PM2.5 the exposure-response relationship is linear (ie there is no level or threshold below which no adverse effects have been identified). As there is no threshold for potential adverse effects, particulate matter has been carried forward for a more detailed assessment of the incremental increase in exposure as a result of the project."*

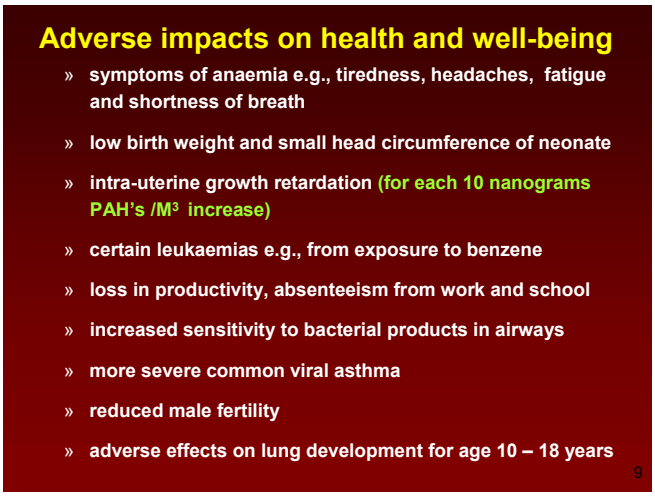
RK Response: Note the acknowledgement that there is no threshold below which health impacts do not occur. [redacted] the EIS [redacted] proceeds to demonstrate *"no health effects"* from hundreds of tonnes of emissions annually.

19. Section: **Exposure to diesel particulate matter**

P.542. *"Available evidence indicates that there are human health hazards associated with exposure to diesel particulate matter. The hazards include acute exposure-related symptoms, chronic exposure related non-cancer respiratory effects, and lung cancer."*

RK Response: In June 2012 the WHO declared diesel fumes to be a Level-1 Human carcinogen! There are many, many more health impacts [redacted]. See following figures:





20. Section: **7.4.4 Quantitative human health risk assessment**

P. 543. *"Based on the initial screening conducted for air emissions from the project (refer to* ***Section 7.4.3****), particulate matter has been carried forward for further quantified assessment of human health risks. Other pollutants emitted from the project have been identified as below thresholds at which a human health effect would occur."*

RK Response: Incredibly FALSE! [redacted]

21. Section: **7.4.4 Quantitative human health risk assessment**
P. 543. *"**Increased annual risk** for each relevant health effect. This is an incremental risk over and above the baseline risk (or incidence) of the effect occurring for any member of the population, where exposed to the modelled particulate matter concentration."*

RK Response: Remember in Sydney the cost of health effects of air pollution exceeds $9 billion and up to 1400 deaths annually.

22. Section: **7.4.4 Quantitative human health risk assessment**
P. 543. *"The following sections detail:*
- *The human health effects considered as part of the quantitative human health risk assessment.*
- *The acceptable risk levels applied to the quantitative human health risk assessment for calculated increased incidence and increased annual risk of health effects.*
- *The calculated increased incidence and increased annual risk of health effects when taking into account only the operational air emissions from the project.*
- *The calculated increased incidence and increased annual risk of health effects when taking into account all changes in air quality along the Pennant Hills Road corridor."*

RK Response: All of this lacks a proper knowledge of the facts [redacted]

23. Section: **Assessed human health effects**
P. 543. "**Table 7-110 Health outcomes considered in the quantitative human health risk Assessment"**

RK Response: The text of the Table is typical arm-chair epidemiology. The 'Risk-Based Approach' is not necessarily based on "the truth, the whole truth and nothing but the truth." See M. Greenberg (*J. Occup. & Environ. Med.* 2005; Vol 47: 137-144).

24. Section: **Assessed human health effects**
P. 544. *"The assessment of health impacts addresses impacts that may occur to all members of the community including young children, the elderly and individuals with preexisting health conditions. The exposure-response relationships are based on effects identified in large urban communities and while some of the health indicators used have focused on age groups where the exposure-response relationships are the most robust, there are a number of health indicators that address all ages of the population. Hence the calculations undertaken, and the discussion presented in this section are relevant to all the individual receivers assessed including young children attending day-care and schools in the area, the elderly in aged care, individuals with health conditions at hospital facilities or in the community and all members of the public living in the area. A more specific assessment of the impact of the project on asthma in young children has been presented separately in **Section 7.4.5**."*

RK Response: "Risk assessment is not a science but is largely an art!" (Greenberg, 2005).

- Assessors will make different judgments when faced with the same data (or the same lack of data). [redacted]

[redacted]

- Yet risk assessment is routinely characterized in the media and elsewhere as a scientific enterprise - a characterization that is misleading at best [redacted]

- Risk assessment is not a technique that can protect the public from toxic chemicals.

- [redacted]

25. Section: **Acceptable risk levels**
P. 544. *"A risk level of one in a million (1 x 10-6) has previously been adopted as the negligible end of the spectrum by some regulators, such as the United States Environmental Protection Agency for linear type risks, such as that for health impacts from particulate matter."*

RK Response: [redacted] None of this relates to real risks to residents in the stack's impact zone i.e., of tens to hundreds of metres from the stacks.

26. Section: **Acceptable risk levels**
P. 544. *"For this assessment, the risk level is also referring an increased risk level of developing a specific adverse health outcome due to exposure to a substance. For example, if the current chance of an individual developing a particular adverse health outcome was 40 per cent, and the increased risk associated with the project was one in one million, an individual's increased risk would be 0.00025 per cent."*

RK Response: This is oversimplification. There are many other factors that impact on susceptibility overlooked [redacted]

27. Section: **Acceptable risk levels**
P. 544. *"In relation to the calculation of increased incidence of a particular health effect, the calculated increase in cases has been compared to the variability in the number of cases per year of the relevant health effect based on statistics available from NSW Health. Where the calculated increase in the number of cases could not be detected above the normal variability, this increase has been considered to be negligible."*

RK Response: [redacted] not applying it to the "most affected receptors" i.e., those in the precinct of the stacks from which 'ground-strike' of the plume occurs. [redacted]

28. Section: **Potential health impacts (operational project air emissions only)**
Primary health indicators
P. 545. *"A summary of the calculations of increased annual risk and increased incidence for the primary health indicators for the local populations around the southern and northern interchanges is provided in **Table 7-111** and **Table 7-112**. The tables present the results based on the forecast traffic flows for the project in 2019 and in 2029. These tables present the results for the ventilation outlets in isolation. This section should be read in conjunction with **Table 7-114** which presents the project as a whole (that is, the project ventilation outlets and the changed traffic environment of Pennant Hills Road combined). When the project as whole is considered, there would be an overall decrease in the annual incidence for the whole population of the assessed health outcomes."*

RK Response: RUBBISH! This conclusion CANNOT possibly be reached [redacted] Must be reviewed independently by an expert outside NSW.

29. Section: p. 546. **Table 7-111 Maximum increased annual risk – primary health indicators (project only)**
Table 7-112 Increased incidence – primary health indicators (project only)

[redacted]

30. Section: **Diesel particulate matter**
P. 547. *"The increased annual risk and increased lifetime risk for exposure to diesel particulate matter remains within and towards the lower end of the range of acceptable risks."*

[redacted]

31. Section: **Potential health impacts (Pennant Hills Road corridor)**
P.548. **Table 7-114 Changes in incidence – primary health indicators (Pennant Hills Road corridor)**

RK Response: [redacted] Recommend independent review by real experts outside NSW.

32. Section: **Asthma**
P.549. *"When the project is considered as a whole an overall decrease in the number of days of bronchodilator use by children is predicted. The calculated change in bronchodilator use in children is very low and would not be measurable within the local community."*

RK Response: A[redacted] The data should be reviewed by independent experts outside NSW.

33. Section: **Particulate matter (PM2.5)**
P. 552. *"The hourly concentrations of PM2.5 within the main alignment tunnels are expected to range from less than 0.1 mg/m^3 at the entry portals to around 0.35 mg/m^3 during peak hours at the ventilation offtake for the southbound main alignment tunnel and around 0.55 mg/m^3 during peak hours at the ventilation offtake for the northbound main alignment tunnel. As discussed in **Section 7.3**, these concentrations are determined using emission factors from PIARC, and are conservative when compared to those published by the NSW Environment Protection Authority, particularly in relation to PM2.5."*

RK Response: Using different UNITS i.e., mg (milligrams) is used instead of ug (micrograms). [redacted]
Thus, 0.1mg is 100ug. [redacted] 0.1mg = 100ug ; 55mg = 550ug
PIARC is for VISIBILITY, not health risk. [redacted]

34. Section: **Particulate matter (PM2.5)**
P. 552. *"Closing car windows and recirculating are can reduce these calculated exposures by around 80 per cent. This could result in in-vehicle average exposures during peak hour of around 0.04mg/m3 in the southbound main alignment tunnel and around 0.06mg/m3 in the northbound main alignment tunnel."*

RK Response: [redacted] The units should be expressed in ug NOT mg. Thus 0.2mg = 200 ug. The 24-hour guideline is 25ug. Therefore, the data is exceeding the NEPM guidelines! [redacted]

35. Section: **Particulate matter (PM2.5)**
P. 552. *"Exposure-response relationships for health effects associated with exposure to particulate matter have been developed based on 24-hour average concentrations of PM2.5 in urban air. These relationships do not provide applicable and reliable guidance of potential health effects for much shorter exposure periods, as would be the case for motorists passing through the main alignment tunnels in a matter of minutes"*

RK Response: Therefore, it rests with a [redacted] analysis of the peer-reviewed literature to identify real risks of exposure.

36. Section: **Particulate matter (PM2.5)**
P. 553. *"Available studies do not cover a range of exposure concentrations, nor do they address other variables such as co-pollutants (gases) or repeated short duration exposures."*

RK Response: [redacted]

37. Section. **Polycyclic aromatic hydrocarbons (PAHs)**
P. 553. *"The concentrations of carcinogenic polycyclic aromatic hydrocarbons reported in other tunnels (in Sydney and around the world) range from 0.000000009 mg/m3 to 0.000000118 mg/m3 at differing averaging periods (ranging from hours to 24 hour) (NHMRC 2008)."*

RK Response: This data is grossly UNDERESTIMATED. [redacted] See Table above on p25 to see levels of PAHs in a NZ traffic tunnel. Note the units in Health EIS are in mg. Research reports have confirmed 10ng (nanograms)/M^3 causes birth defects.

38. Section
P. 553. *"There are no guidelines for short term peak exposures to polycyclic aromatic hydrocarbons that would be relevant to assessment of exposures within the main alignment tunnels. However, the calculated incremental carcinogenic risks for very short duration exposures (in the order of minutes) to carcinogenic polycyclic aromatic hydrocarbons at the concentration mentioned above would be less than one in one million (< 1 x 10-6). This level of risk is considered to be negligible."*

[redacted]

39. Section: **Volatile organic compounds**
P. 554. *"Based on speciation of individual volatile organic compounds, all concentrations of individual compounds (and all components together) are below acute guidelines. Hence no adverse health effects are expected on the basis of exposures to volatile organic compounds within the main alignment tunnels."*

RK Response: [redacted] The levels of pollution at the end of the 9km will be unacceptably TOXIC. The flaws in the assessment MUST be analysed independently by accredited experts outside NSW.
Remember the Ministers Conditions of Approval for the 3.6km Lane Cove Tunnel allows up to 154 TONNES of VOCs annually. How much more will be approved by the Minister of Planning for the 9km NorthConnex tunnel is yet UNKNOWN. Remember **benzene** is just one of the carcinogens in VOC, proven to cause leukaemia. Yet the NorthConnex EIS HEALTH says *"no adverse health effects are expected".*
[redacted]

"There is no known safe threshold for the carcinogenic effects of benzene, but since the risk for leukaemia increases with exposure, it can be reduced by controlling exposure to the highest practicable standard."

Options for possible legal action

1. Advised is received that legal action may be brought against any person (including a government authority) who causes interferences with the comfort or rights of the public as a whole. The NorthConnex EIS currently documents evidence that the conduct of the defendant (that is, the person who allegedly caused the nuisance - Transurban) is *unreasonable*.

2. Legal advice has shown that there is potential for an action under the *Protection of the Environment Operations Act 1997* seeking an order that Transurban is not to operate the NorthConnex tunnel stacks unless filtration equipment is installed. This argument is based on a possible breach of a provision of that Act which prohibits air pollution caused by failing to operate of any plant or apparatus in a "proper and efficient manner."

3. Further legal advice claims that the *Crown Proceedings Act 1988* states clearly that the Crown (being the State of New South Wales or a Minister of the NSW government) may be sued. It is not entirely clear from the *Crown Proceedings Act* whether a statutory authority may be sued. However, it appears that the courts in the past have treated such bodies as being an emanation of the Crown and therefore capable of being sued. If a government body acts negligently or unreasonably in carrying out its powers then it cannot avail itself of the statutory authority defence.

4. The exhaust fumes will cause adverse health impacts on e.g., residents, school children as well as "at-risk receptors" in the local precincts of the two NorthConnex tunnel stacks. Evidence available to the NSW RTA, Health, EPA and Planning indicates that these impacts are *foreseeable and preventable* – despite the alleged flawed claims of negativity in the EIS.

5. Advice has indicated that the plaintiffs could seek an injunction:

   - Preventing the Transurban/RTA from proceeding with the construction of the tunnel and stacks; or,
   - Preventing the Transurban/RTA from opening the motorway until filtration equipment was installed in the stacks.

There is clear scientific evidence that pollution from the stack will cause health problems, and in particular, have greater potential for health problems for residents in the precincts of the tunnel stacks, than elsewhere.

6. It is an offence under both the *Trade Practices Act 1974* (a Commonwealth Act) and the *Fair Trading Act 1987* (a NSW Act) **("*FT Act*")** to engage in misleading and deceptive conduct. [redacted]

Section 42 of the *FT Act* provides:

> *A person shall not, in trade or commerce, engage in conduct that is misleading or deceptive or which is likely to mislead or deceive.*

[redacted]

7. Consideration should be given that the ventilation of the NorthConnex road tunnel by an unfiltered stack may constitute a breach of s.124(b) of the *Protection of the Environment Operations Act 1997* ("*POEO Act*").

Section 124(b) states:

The occupier of any premises who operates any plant in or on those premises in such a manner as to cause air pollution from those premises is guilty of an offence if the air pollution so caused, or any part of the air pollution so caused, is caused by the occupier's failure to … operate the plant in a proper and efficient manner.

It could be argued that the road tunnel is a place while Transurban, having the responsibility for management of the road tunnel, is the occupier of premises for the purposes of s.124(b).

The most important legislation concerning pollution in NSW is the *POEO Act*. Although the *POEO Act* is administered by the NSW Environment Protection Authority, any person may bring legal action in the Land and Environment Court to restrain a breach of the *POEO Act* (*POEO Act*, s.252). The breach does not have to be an actual breach but may also be a threatened or apprehended breach.
Therefore,

- Operating a plant (tunnel/stacks) in a "proper and efficient manner" means operating the plant with respect to preventing or reducing pollution, not operating the plant in a cost-effective and economical manner.

- If pollution is emitted from premises and it is possible to reduce or prevent that pollution by means of some sort of plant (filtration), but that the opportunity to so reduce or prevent that pollution is not taken, then the plant (tunnel/stacks) has not been operated in a proper and efficient manner.

It could therefore be argued that by operating the stacks without filtration equipment, Transurban/RTA/Health/EPA/Planning are allowing air pollution to occur which could be significantly reduced by means of filtration equipment. The stacks are therefore not being operated in a proper and efficient manner.

The *POEO Act* includes (in s.3(a)):

To protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development.

"Ecologically sustainable development" ("ESD") has the same meaning as in the *Protection of the Environment Administration Act 1991* ("*POEA Act*"), where it is stated that ESD "requires the effective integration of economic and environmental considerations in decision-making processes." The *POEA Act* goes on to define ESD as including the following elements:

- "inter-generational equity", that is, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. Note: Impacts on fetal development, childhood development and teenage health impacts as well as on next generational adults from vehicle pollution are very well documented; and,

- "polluter pays", that is, those who generate pollution and waste i.e., Transurban should bear the cost of containment, avoidance or abatement.

Therefore,

(a) There is potential for the community members to bring an action in public nuisance against Transurban, alleging that the operation of the tunnel stacks, without filtration equipment, would constitute a public nuisance, by virtue of the possible adverse health impacts due to the large quantities of exhaust fumes emitted from the stacks. An injunction should be sought preventing the operation of the road tunnel until filtration equipment is installed in the stacks.

(b) It may also be possible to bring an action under s.252 of the *POEO Act* seeking orders to restrain the Transurban from operating the stacks without filtration equipment. This action would be based on an apprehended breach of s.124(b) of the *POEO Act*, which prohibits the occupier (Transurban) of premises (the NorthConnex road tunnel) from causing air pollution (emission of exhaust fumes) if such pollution is caused by the occupier's failure to operate plant (the tunnel/stacks) in a proper and efficient manner (with filtration).

APPENDIX

In my Opinion

These comments regard the Private Members Bill before the Lower House of NSW Parliament. The Bill calls for the installation of filtration in the traffic tunnels including M5 East, Cross City Tunnel and Lane Cove Tunnel.

If we were assembled to deliberate on such life and death issues as **capital punishment** and **abortion** the process of discourse and the elements of reason would be different. The issue in the Private Members Bill before the Lower House is also about **life and death**.

Indeed, it is perhaps quite ironic in this so called 'age of science and materialism' that probably never before have ordinary men and women, including scientists, as well as politicians, been confronted with so many moral and ethical problems. Scientists, on the one hand, stress and seek objectivity whilst in the arts, religion and philosophy, by contrast, the emphasis is upon subjectivity, i.e., the experience through the individual conscious.

Thus, whether or not something is good or beautiful or right in a moral sense, for example, cannot be determined by the scientific method. Science is thus limited to what is **observable and measurable**. Theories about precisely **how** pollution affects health and well-being maybe shattered, but with additional knowledge, new theories are found. However, the **recorded observations endure**. Moreover, such **observations** are used over and over again. The extensive literature documents episodes of air pollution are positively associated with enhanced mortality and acute/chronic illness in urban populations.

Because of this emphasis on **OJBECTIVITY**, value judgements cannot be made in science in the way such judgements are made in religion, philosophy and the arts.

However, in a **moral sense** whether it is **right** to install filtration systems in a stack – any stack – is a problem solved not only by a **value judgement** but also this decision can be **greatly assisted** in this case by the **scientific method**.

Therefore, the problem that now confronts us in this forum, in my view, can and should be solved **both** by **value judgements** AND by the **scientific method**. This issue then is one, I believe, that transcends party politics.
There is no difficulty, in my view, as one familiar with the stack-filtration issues during the last few years for any person of integrity in telling the "good guys" from the "bad guys" especially in the saga of events recounted this year.

The regulatory authorities and in particular the RTA and the EPA have **isolated** and **quarantined** new

filtration systems and technologies which have arisen abroad, especially when such technologies have been contrary to the prevailing political point of view.

These technology decisions it would appear have also been **assisted** by comments, **without proof of evidence**, from the associated regulatory authority – the **NSW Health Department**. Despite all the posturing about new engine designs and better fuels, the combustion engine continues to belch out pollution and fill the air with noxious particles and chemicals.

It is clear that for some time there has been an organised campaign, orchestrated, I believe, principally through the Ministers Office and the RTA against filtration technology. This was evident in the Report of the Parliamentary Inquiry on the Ventilation of the M5 East Stack when the Chairman, the Hon. Richard Jones wrote in the Forward

"The single stack as currently planned will concentrate the tunnel emission into one source and add to the pollutant load of the valley. The adverse health effects of this increased pollution on the surrounding community must be acknowledged, but the RTA fails to do so."

The predominant culture of any society or political system is **not a conspiracy**, it is a taken-for-granted acceptance of many spoken and unspoken precepts. The RTA states, without objective proof, filtration systems have not been shown to be effective. The NSW Health declares – there is no risk to health or well-being – again, I understand, without objective evidence of proof. The EPA oversees a monitoring program that fails to disclose the size and number of ultra-fine particles generated locally but resorts to irrelevant averages of Sydney's regional airshed. This all helps to under-estimate exposure by up to 35%.

Such a prevailing political and patronising culture is more powerful than any conspiracy. A conspiracy can be tracked down, found out, divided and broken. The deep weave of cultural and political patronage that, I believe, currently exists among the regulatory authorities is difficult to unpick. No single individual or group of individuals can be easily brought to book or held responsible for the collective representation. No single statement or set of statements outlines their code. This cultural and political patronage does not have an easily identifiable beginning or an end. It simply is: engrained within the consciousness of each individual – the senior advisor, the project manager, the political spokesperson or even the Consultant. It goes on largely unquestioned, however bizarre its consequences and with an indifference to the objective analysis of scientific and medical evidence.

My observation confirms that the RTA-managed Workshop in June, this year had little to do with a search for the truth and a great deal to do with the confirmation of prejudice i.e., *"tunnel stacks do not require filtration*

– the technologies do not work and there is no risk to health." It is my understanding **nothing could be further from the truth**.

In addressing this Private Members Bill and 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.**

This should not be, as it is at the moment, a dickering, by the Government, its Minister and the statutory authorities, **on the margins of a duty of care**, and an endless and irrelevant discussion about whether or not more research is needed to be undertaken. The latter was a patronising **'do-nothing'** recommendation by Mr. Arnold Dix, Facilitator of the RTA Workshop.

I believe the **totality of the evidence** is, beyond reasonable doubt, in favour of installing filtration and makes it **obligatory** for Government, to **unanimously endorse** the installation of filtration technology in tunnels and/or in stacks as a **responsibility** and a '**duty of care'**.

NOTE: The Private Members Bill was prorogued in the Lower House by the Carr Government – hence the Bill formulated to call for the installation of filtration in traffic tunnels was extinguished.

Dr Ray Kearney,
Chairman,
Lane Cove Tunnel Action Group Inc.

[redacted]

In-tunnel filtration - RTA sees the light!

The Lane Cove Tunnel Action Group Inc (LCTAG) applauds Roads Minister Carl Scully's recent announcement to accept a recommendation from the RTA that the latest generation of electrostatic precipitators (ESPs) and denitrification technology be piloted in a Sydney road tunnel….but we wonder why it has taken so long, and if it really will make a difference to Lane Cove.

RTA delegation inspects Japan's filtered tunnels
In June, 2003, representatives of Lane Cove Council and LCTAG persuaded Minister Scully to send a RTA delegation to Japan to inspect tunnel filtration systems. Numerous internal documents tabled by the NSW Regulatory Authorities under NSW Parliamentary Orders have disclosed that the RTA had already known that of the 60 or so tunnels over 2km in Japan, at least 40 have filtration systems installed. One member of the RTA delegation to visit Japan, from 30 September-10 October, was the NSW RTA's Tunnel Project's Manager, Mr Garry Humphrey who afterwards attended a PIARC World Road Congress in Durban, South Africa 19-25 October, 2003. The following is a startling disclosure in his paper about Road Tunnel Operations (PIARC website).

"I was in Japan the week before last looking at tunnels on a tour organised by Mr Mizutani. Japan has some excellent cost effective longitudinal ventilation systems in long mountain tunnels employing electrostatic precipitators."

[redacted] the RTA has attempted to convince the broader community that tunnel filtration was *"unproven technology,"* until the Minister's announcement, Sunday 14 March 2004. Even Minister Scully[redacted], is on record, claiming *"tunnel filtration is nothing more than a high-tech placebo."*
[redacted]
Paul Willoughby, Director of Communications and Corporate Relations, as well as a member of the RTA delegation to Japan, by his admission at a public meeting held on 15 March, Ashfield Town Hall to discuss the M4 tunnel options - is the principal author of the RTA/Japan Report. [redacted] the [redacted] RTA/Japan Report forms the basis of Minister Scully's welcome announcement - *"The State Government is to pilot filtration technology for motorway tunnels in Sydney"*.

[redacted]
Though cautiously received by the community, the text of Minister Scully's announcement, [redacted] statement in Minister Scully's RTA-prepared release reads *"The delegation found that electrostatic precipitators (ESPs) have been installed in a very small minority of tunnels in Japan - less than one percent - and primarily in rural tunnels for visibility purposes"*. The claim has its origins in the RTA/Japan Report stating 40 of 8000 tunnels are filtered. By disassociating visibility from litigious health impacts, the report gives the impression that Japan has a long way yet to go and tunnel filtration is not fully embraced there. The reality is that fewer than 100 tunnels in Japan are longer than 2km and account for 75 per-cent of the 40 or so ESPs in use in Japan where they are installed in 4-5 tunnels, annually.
Remember that in June, 2000, the RTA invited the representatives of Japan's biggest manufacturers of tunnel filtration systems, with 20 years experience, about <u>one week</u> before the RTA-convened 'International Conference on Tunnel Ventilation' in Sydney 9-11 June 2000. Not surprising, the manufacturer's representative apologised in a letter, dated 6 June, 2000, that a presentation of the technology could not be prepared at such short notice and begged for the opportunity to do so. The RTA never gave the world's leaders in the field of in-tunnel ESPs the chance. Did the RTA have too much to lose by the truth being told?

Through three M5 East Parliamentary Inquiries, [redacted] the untruths continued [redacted] Equivocal media releases and glossy spin-doctored brochures baffled the communities involved with the M5 East, Cross City and Lane Cove tunnel projects. Democracy insidiously degenerated to autocracy.

At our meeting with Minister Scully he also honoured his promise to have an independent review of the disclosure in Dr Peter Best's Report commissioned by Lane Cove Council that background pollution for the LC tunnel was underestimated by up to 40% along with other major air-quality flaws. The independent review was undertaken and essentially confirmed the conclusions of Dr Best, but Lane Cove Council was not given a copy by the RTA. LCTAG accessed the Report under a Parliamentary Order. [redacted] You were also not told the Lane Cove Tunnel (LCT) has been recently lengthened by 145metres and adds a further pollution load from the eastern stack.

LCTAG hastens to commend Minister Scully for honouring his promises and to send a [redacted] RTA delegation to Japan as well as to announce their inescapable findings. It is noteworthy that the RTA refused to allow a representative of Lane Cove Council to accompany the delegates.

[redacted]
Far-reaching effects have been incurred by the RTA hindering access to the truth that tunnel filtration is proven technology. It has been alleged the RTA thwarted the tendering processes by not permitting non-conforming tenders that incorporated filtration systems in the bidding process for the construction of the LCT. Given that air quality has been an issue and the RTA knew the technology at least since October, the RTA should have made specific provisions in the LCT financial contract, approved in December, with the LCT Consortium. The RTA knew full well, at that stage, changes in the design for filtration technology should have been incorporated in the contract. By failing to do so, LCTAG believes the RTA has acted recklessly and negligently while the legality should be tested independently.

Third ventilation tunnel shafts cost much more than filtration
Also in his presentation in the PIARC World Road Congress in Durban, South Africa, Garry Humphrey disclosed the cost of building the third ventilation tunnel shafts for the Cross City and Lane Cove Tunnels will be $40million and $60 million respectively. These additional tunnels are intended to act only as 'sumps' to draw off the polluted tunnel air-stream before it is exhausted untreated through stacks into the atmosphere of the residential/commercial precincts. Manufacturers of the filtration systems installed in the Japanese tunnels have provided documentation to Lane Cove Council and to LCTAG of the costs for both particle filtration and gas detoxification systems, benefiting both residents and motorists. Such costs are a fraction of the expenditures for the third tunnel shafts that do absolutely nothing to improve external air-quality.

Minister Scully, there is no need to trial tunnel filtration!
Minister Scully's announcement to pilot latest generation ESPs in a Sydney tunnel with new technology at removing nitrogen dioxide (NO_2), pre-empted recommendations of a concurrent report by an independent expert consultant, commissioned by the RTA to review tunnel filtration systems. Japan introduced tunnel ESPs 25 years ago, so why with all their experience is there a need to 'trial' what has already been proven to work overseas? [redacted] See the link for the release and the RTA/Japan Report while noting its key attachments are missing at:
http://www.rta.nsw.gov.au/newsevents/japan_tunnel_report_release_14032004.html

Unfiltered road tunnels poison people!
In its report released in September, 2003, the Australian Bureau of Transport and Regional Economics estimated that in 2000 twice as many people died, in Sydney, from the effects of vehicle exhaust than fatalities (267) on the roads. Total cost of the mortality and morbidity associated with exposure to vehicle pollution was about $1.5 billion for Sydney alone.

Flaws in air quality studies that are acceptable in regional air studies cannot be permitted in the specific contexts of stack exhausts. Such flaws can invalidate health-risk assessments. This conduct is fundamentally wrong, both ethically and scientifically and is part of the reason why the M5 East tunnel-project, from an air-quality and health-risk perspective, is a debacle. The difficulty LCTAG has with the RTA is they sometimes obscure rather than elucidate the truth. The end result is a public denial of liability and the cancer, my friend, is blowing in the wind!
Readers are urged to access the dramatic CSIRO model of 'plume ground-strike' from a stack by going to http://www.dar.csiro.au/pollution/Meander/index.html , press the [Start] button. Click on the picture while it is working etc. The RTA does not disclose such facts.

LCTAG applauds Minister Scully's announcement and urges him to approve, forthwith, the tendering of custom-built installation/design-incorporation of in-tunnel filtration and gas detoxification technologies in the M5 East, Cross City and Lane Cove tunnels and similar. The community is still waiting for the RTA to install signs at the entrance to the M5 East tunnel to warn motorists to wind up the windows to minimise proven toxic effects. The solution is to install filtration that is already proven to be efficient, effective and affordable. Minister, please switch off the RTA's propaganda machine, they now see the light!

Dr Ray Kearney
Chairman, LCTAG Inc.

Road's Minister Carl Scully –"Filtration is a high-tech placebo"

The Lane Cove Tunnel Action Group (LCTAG) Inc., representing a coalition of at least 15 groups drawn from the residential, commercial and industrial sectors of Lane Cove, welcomes the Government's response to the LCTAG's proposal for a continuous twin three-lane tunnel to link the M2 and the Gore Hill Expressways.

However, the Transport Minister Carl Scully's refusal, on the advice of the RTA, to accept the compelling evidence provided by the LCTAG and other residential groups across Sydney to install proven filtration systems to reduce adverse health impacts, is to be utterly condemned.

Minister Scully's arrogance in stating filters are "a high-tech placebo that makes people feel good" should invite the Sydney electorate to give the Carr Government a "placebo" vote, at the next election, and you will feel even better!

Twelve months have elapsed since the representatives of the RTA, EPA and DUAP as well as their consultants met with community representatives including those of the LCTAG. Despite persistent requests by the LCTAG for original data on air pollution and dispersion modelling, the RTA continued to refuse to release such information and, to date, is still not forthcoming despite our request through an FOI.

Whilst an informed person will recognise the litany of fundamental flaws in the EIS Report, the following is only a measured response with an emphasis on lack of transparency, clear breaches of trust, [redacted] violation of codes of equity and due process pertaining mainly to air quality and health risks in this account. The LCTAG believes the NSW Government has yet again failed to carry out its fiduciary duty and to demonstrate its 'duty of care.'

The EIS Report, as the LCTAG anticipated, demonstrates the NSW Government and its authorities have taken very little, if any, notice of expressed objections by the community to build such tunnels without filtration. They still refuse to accept the condemnatory findings of two Parliamentary Inquires, an International Workshop in Tunnel Ventilation as well as critical reports from independent experts.

It is noteworthy that the Committee Chair of the Parliamentary Inquiry into the M5-East Ventilation Stack, the Hon. Richard Jones, MLC, stated " It is now clear that there is affordable and effective filtration available for this stack and it can be installed at a fraction of the cost claimed previously by the RTA" (July, 2001).

In considering the following points that highlight the inadequacies of the EIS Report, it is important to understand the term 'PM_{10} 50μg/M^3, 24 hr. average.' This expression refers to particulate matter (PM) of aerodynamic diameter of 10 micrometres (μm) or microns (1/1000mm) or less, with an average summative weight of 50 micrograms (μg) per cubic metre (M^3) of air normally collected at 10-15 minute periods over 24 hours. $PM_{2.5}$ and PM_1 are particles of 2.5μm and 1μm diameter respectively.

The alleged anomalous behaviour, though not new to the NSW Health, is allowed to flourish when a government, with absolute power in the Lower House, appears to have transformed democratic processes into totalitarian government. The Carr Government has, by stealth, removed the mechanisms that were in place to constrain governments from actively violating the community. Every surveillance check on the RTA, for example, that a democracy would expect to be there (EPA, Health and Planning) is totally ineffectual. Such bureaucracies now behave as worn out bristles in the one brush and bend according to the political pressures to serve ministers of the respective portfolios i.e., government servants, but no longer able to act as independent 'public servants'.

The entire EIS process is a charade and sham. Boxes of tabled documents obtained by Parliamentary Orders disclose highly anomalous conduct and cover-ups by the Regulatory Authorities that extend into the Agent-Client relationships where patronage, it seems, is the lifeblood of politics. Nobody among them appears to accept responsibility for decisions and actions taken, or enforcement of conditions of project approval. From the experience of the Lane Cove Tunnel Action Group Inc and other such community groups across Sydney, there seems no place left where the community can find ethics, or compassion, or decency and honesty in all levels of the NSW Government and its bureaucracy.

Why then, can we expect Minister Scully to soon express his regrets that changed circumstances do not permit him to honour his commitment to install proven in-tunnel filtration and detoxification equipment? Because NSW Health has 'shown' no discernable ill effects from the M5East tunnel stack, so there is no need to waste taxpayers' or motorists' tolls on pointless filtration equipment. Please, re-consider Minister. You cannot afford, politically, to be caught out badly yet again, by wrong and misleading advice from your bureaucrats!

If a substance is known to be harmful, it should not be necessary to demonstrate 'scientifically' that it is actually causing harm before doing something about it. To date, despite recommendations, the RTA has still not installed signs at the entrances to the M5 East tunnel warning motorists of the risks from the hazardous tunnel airstream, by not winding up their windows. Are such warnings too litigious, Minister?

Dr Ray Kearney
Chairman
Lane Cove Tunnel Action Group Inc

LANE COVE TUNNEL –

Not worth another Bob, without filtration

The corner stone of the Lane Cove Tunnel Action Group's (LCTAG) mission is to achieve the construction of a twin three-lane 3.7 km continuous tunnel with the installation and operation of air-pollution treatment systems to reduce adverse health impacts. This objective is based upon independent expert advice from experts in tunnelling design and construction as well as from air-filtration consultants at both national and international levels. Our commitment to this mission is also based upon the inescapable fact that vehicle emissions are injurious to the health of everyone exposed to them. "At risk" persons such as asthmatics, are especially affected by both short and cumulative exposures.

In sharp contrast, as though stranded in the past, the RTA's preferred design is a twin two-lane tunnel, unfiltered and serviced by an extremely energy-inefficient ventilation system that exhausts toxic vehicles emissions from an unsightly stack located in a valley. Overseas experts invited to the RTA's stage-managed 'International Workshop on Tunnel Ventilation' held in Sydney last year, stood aghast at what they saw revealed of Lane Cove's carbon-copy – the M5-East 4km twin two-lane tunnel and its unfiltered stack located in a valley at Turrella. Even RTA's own hand-picked advocates from abroad harshly criticised the downright stupidity of a litany of flawed decisions and faulty practices as being inconsistent with international best practice and especially of RTA's failure to acknowledge a risk to health.

However, beware Lane Cove! The RTA, when in damage control, has a powerful weapon to regain its bruised self-esteem. Like an untutored school-boy who threatens to take his bat and ball home if he is not allowed to play by his rules, the RTA regularly invokes powers, enshrined in current legislation, that allows them to over-rule existing democratic decisions and to make final determinations without community consultation. By proceeding with incredible craftiness and indifference they have invoked such powers to impose their unwanted tunnel designs incorporating unfiltered single stacks upon communities affected by emissions from the M5-East and Cross City tunnels emissions.

During the last two years, broad community outrage initiated a number of Parliamentary Inquiries to try, desperately, but to no avail, to address the characteristic but breath-taking 'strut and puff' arrogance, reckless contempt and haughtiness by the NSW Carr Labor Government and certain of its Ministerial advisers. In the latter domain, beyond the reach of the electorate, is where stringent investigative journalism should be undertaken to expose the real truth behind an image of august respectability, professional dignity and authoritative infallibility.

Bolstered by its current invincible seat majority, this State Government has again had the temerity to abandon its 'duty of care'. Just as it discarded the insightful recommendations arising from the Parliamentary Inquiry of the Northside Storage Tunnel – Scotts Creek Vent, it has also rejected the astute advice of the Standing Committee that conducted the recent second Parliamentary Inquiry into the M5-East Tunnel Ventilation Stack. The electorate would be astonished to learn that the current legislation does not require the Government to adopt the recommendations of Parliamentary Inquiries.

So why waste resources, at taxpayers expense, in having them?

The LCTAG believes a more cost-effective method of inquiry is rigorous investigative journalism that exposes any breaches of probity as well as any anomalous conduct and patronage e.g., in the agent-client relationships when consultants are commissioned in costly projects. Like diamonds on a slag heap, notable examples of stringent investigative journalism, in the past, have been catalytic for positive corrective action. There is now an urgent need to investigate how political expediency may influence scientific probity as an illusory artform, crafted by a bureaucracy where patronage is undoubtedly, its political lifeblood.

The LCTAG, having already experienced anomalies in community consultation in the RTA-orchestrated Environmental Impact Study (EIS) process, as did the Residents Against Polluting Stacks (RAPS) in their EIS of the M5-East tunnel, joined forces with the RAPS in the recent Parliamentary Inquiry into the M5-East Tunnel Ventilation Stack.

In its documented submission to the Inquiry, the LCTAG provided independent expert evidence to prove that respirable particles, less than one micron (<1μm) in diameter, are associated with 90% of road traffic tail-pipe emissions. The LCTAG, in drawing upon independent scientific data, showed that the current measurement of particulate matter (PM) of 10 microns i.e., PM_{10} information is almost entirely on mechanical processes e.g., resuspension of road dust as well as wear and tear of tyres, but NOT on the COMBUSTION PROCESSES from motor vehicles. Only 3% of particulates associated with fuel combustion are measured in PM_{10} monitors of the background atmosphere. Thus, the major proportion of toxic respirable particulates exhausted from the vehicle tail-pipe is not accounted for in current PM_{10} measurements.

To date, the RTA has declined to provide the LCTAG any data for independent audit on its Lane Cove air quality monitoring which allegedly was the basis of the RTA's preferred Lane Cove Tunnel option. Furthermore, with regard to the Lane Cove Tunnel EIS, the RTA's last meeting with community representatives, including those of the LCTAG was last year, soon after the Olympic Games. The RTA has refused to undertake any further community consultation in its EIS process, until, no doubt, the time is politically expedient. *Be warned, Lane Cove!* Watch how RTA's characteristic form of 'community consultation' is conducted. We believe, from our past experience, the RTA already has their own preferred

option finally packaged, behind closed doors. From now on community consultation is likely to be only a hollow formality.

Remember how the LCTAG, by a Parliamentary Petition, thwarted RTA's attempt to widen Epping Road in stages, without an EIS or community consultation several years ago. How coincidental it was when the LCTAG publicised its 'by-pass' tunnel concept with a western portal at the intersection between Epping Road and Mowbray Road that the RTA promptly sold the location to developers to build a monument of land-locked town-houses at the ideal site of a tunnel portal.

In further evidence, given under oath, to the Standing Committee of the Inquiry, the LCTAG disclosed that the PM_{10} standard, based on an annual average of 24-hr. averages, conceals the pollution exceedances that occur during a.m. and p.m. peak traffic periods. During these excursions, documents confirm that 15-minute readings are found associated with a 2 to 3-fold increase health risk than 24-hour averages.

Readers may be startled to learn that the NSW Health Department has no legislative or regulatory requirement to participate in the health assessment of exposure to emissions or approval of major developments such as the M5-East, Cross City and Lane Cove Tunnels. *NSW Health only provides advice to other departments or members of the public, when requested.* More often it is the concern of an informed community that provides the catalyst for NSW Health to give advice. We believe, the late arrival of NSW Health to such projects places them in a distinctly compromising situation of endorsing approvals made by the other Statutory Authorities (e.g. RTA, EPA and DUAP) and to avoid confrontation with them in public. The LCTAG maintains that NSW Health should be a partner right from the beginning as its statutory responsibility and not have to wait to be asked. The problem that seems to consistently emerge in the current political arena is scientific probity can easily be compromised by political expediency. [redacted]

Serious concern is held by the LCTAG when faulty thinking, it seems, is the basis of the assessments, by NSW Health, of health risks or impacts of exposure to traffic emissions from vent stacks. For example, rather than present scientific data that can be validated, 'feelings' are let to carry weight in problems or issues where facts and accurate data are at stake. Repeatedly, 'feelings' are then allowed to judge facts. Even worse is when 'feelings' are treated as evidence of fact. Then, it appears, begins the transition, by an insidious artform, from scientific stringency to political expediency. To defend its claim of 'no risk to health' NSW Health provided evidence to the Inquiry based on lowest concentrations to assess risk, not the "worst-case predictions" and certainly not the cumulative effects of exposure. In private, however, NSW Health and the Regulatory Authorities most certainly do admit to risks to the health of vulnerable persons in 'at risk'

populations exposed to traffic pollutants and are fearful that such documentation will fall into the hands of the rapacious press and media. Such documentation is consistent with the following published facts:

- Studies have shown that pollutants such as exhaust particles can interact with allergens to amplify allergic reactions. Acutely high concentrations (e.g., a.m. and p.m. exceedances) of different pollutants can induce transient respiratory symptoms in asthmatic subjects.
- Diesel emission of particulates (90% are not measured by current PM_{10} monitors) enhance allergic inflammation.
- Inflammation is now acknowledged to be the most potent accelerator of tumour growth.
- The EPA in USA has already declared not only is diesel a definite health hazard but it is "likely" that diesel exhaust is a human carcinogen.
- Recent studies in New Zealand confirmed that highly toxic and carcinogenic additives that have replaced lead in fuel are associated with the fine respirable particles.
- During the Atlanta Summer Olympics, a decrease in traffic volume of 22.5% was accompanied by up to a 41.6% reduction in asthma events. It is noteworthy, that the current traffic volume, in excess of 90,000 vehicles per day on Epping Road, combusts more than 100,000 litres of fuel per week over the 4km link between the M2 Motorway and the Gore Hill Expressway.

The LCTAG understands that in overseas countries, in response to recent increasing knowledge of the association between health risk and exposure to traffic emissions, air-filtration systems have been installed to improve not only in-tunnel air quality but also the atmosphere surrounding exhaust vents in residential areas. In Japan where a class action against Government for negligence has been undertaken, 17 tunnels have recently been fitted with air filtration systems. In Norway, two new tunnels are currently being fitted. However, in recent community meetings in Ultimo and in Darlinghurst, the RTA representatives were positively equivocal by ignoring such examples of a 'duty of care' and support of filtration by overseas Governments. For the RTA spokesperson to have stated that "study upon study have shown filtration does not work" is also positively misleading when results of such alleged studies **do not exist** for independent appraisal. Equally misleading is when an opinion is quoted, out of context, from a non peer-reviewed conference abstract, devoid of research data.

Worldwide, the health effects of particulate air pollution are of growing public concern. Particulates and specifically fine particulates (PM_1) are the most relevant air quality indictors for health-risk assessments, not PM_{10}. This does not mean that particulates are the only causes of the health effects ascribed to air pollution. However, they are viewed as one of the most likely causative agents of observed associations between air pollution and an array of health end points, such as premature mortality, chronic obstructive pulmonary diseases, respiratory function, asthma and other acute cardiovascular conditions, days with restricted activity and long-term survival. Policies have been developed in industrial countries at national and international

levels to reduce the levels of atmospheric pollutant emissions at their major sources (including stacks) and to inform the general population when exceedances occur.

Roads Minister, Carl Scully and Premier Bob Carr, some of the information you receive from your respective advisers is demonstrably flawed.

Carr pollution exhausted from stacks without filtration is not the solution, Bob!

Dr. Ray Kearney
Chairman, LCTAG

Disputed Claim of Privilege – Papers on Tunnel Projects

The Lane Cove Tunnel Action Group Inc (LCTAG) has been a member of a coalition of like-minded community groups with similar goals seeking in-tunnel filtration of the M5 East and Cross City as well as the Lane Cove Tunnel projects. For several years, the coalition of Groups Against Stack Pollution (GASP) has been directly responsible for initiating each 'call for papers', regarding these tunnel projects, through respective members of the NSW Parliament Legislative Council. On each occasion the 'Parliamentary Order' has appointed an Independent Legal Arbiter (retired Chief Justice Sir Lawrence Street) to determine whether any 'claim of privilege' by the respective bureaucracies is upheld or denied.

On each occasion, these calls for papers have resulted in numerous boxes of documents being tabled. Whilst the majority of documents are for public viewing, a few of the boxes contain documents for which privilege is sought. A typical claim of privilege is as follows:
"The release of the document(s) specified in the folder marked Privilege, are deemed to be of such a commercial sensitive nature that release of the material contained in these documents will have serious adverse commercial implications for the Consortium parties. These implications include the disclosure to competitors of the methods and costings for the construction, financing, maintenance, and operations of the project". Another claim is:
"Legal professional privilege – confidential document created for the dominant purpose of giving legal advice".

Members of LCTAG and of GASP were pleased when the Independent Legal Arbiter in November, 2005 determined that privilege was denied on all the documents. His determinations are typically as follows:
Referring to six-point tabulation by Treasury of alleged detriments should documents be made public, the Legal Arbiter concluded: *"I do not regard any of these elements, either singly or together, as outweighing the clear public interest in the material being disclosed. Every aspect of the financial arrangements relating to this project is relevant to a properly informed public evaluation of the many issues relating to this tunnel. The balance of the public interest in disclosure and transparency over-rides the grounds advanced in support of the claim of privilege. The claim of privilege is denied".*

In reference to documents by the Cabinet Office: *"The demands of open government, transparency and accountability are almost irresistible. I regard those claims of privilege be denied"*

Commenting on the RTA documents, the Legal Arbiter stated: *"...But regardless of varying degrees of sensitivity, I am of the view that there is a legitimate public interest in all the RTA's actions being laid bare. Indeed, although it may find this unwelcome and irksome, I am of the view that it is in the RTA's*

own interests as one of the State's great institutions of Government, to table all its material and "to stand up and be counted". My determination is that in the interest of full and completely informed public discussion of all aspects of the tunnel project, the claim of privilege is denied".

There is no doubt from the experience of LCTAG having read these documents, that the tabling of 'privileged' documents has disclosed a litany of alleged scandalous conduct by the bureaucracies, especially by the RTA, and of the abuse of privilege as a means to 'cover-up'. Documents disclose secret deals negotiated with the consortia that effectively augment profitability of the corporate stakeholder by passing costs to taxpayers. With regard to the Cross City Tunnel, the scandals surrounding Material Adverse Effects (MAE) where the government is liable to pay compensation should roads be re-opened to annul the effect of "funneling" are disclosed in these legal documents for which privilege was denied.

Time and again, when details of traffic volumes were sought by LCTAG and Lane Cove Council for independent assessment of pollution levels, such requests were met with a 'Commercial in Confidence' refrain by the spokesperson for Thiess John Holland, the constructors of the LCT. Such alleged abuse in the name of commercial secrecy is untenable when in truth the claim of such privilege has nothing to do with preventing a *"disclosure to competitors of the methods and costings for the construction, financing, maintenance, and operations of the project"*. It would seem more to do with covering up alleged anomalous conduct.

Another example is where a privileged document disclosed a claim of $14 million having been lodged against the RTA by the Operators of the M5 East Tunnel. Such a disclosure gives greater significance and an alarming perspective to Planning Minister Sartor's recent public statement that he was considering deleting a Condition of Approval, for the M5 East tunnel, that specifies portal emissions are permitted only in an emergency. LCTAG believes that a further plausible reason for the Planning Minister's alleged scandalous intent is that the RTA so grossly under-estimated the M5 East traffic volume on which the current struggling ventilation system was designed that the Operators cannot comply with the conditions of approval when ongoing traffic volumes are in excess of 110,000 vehicles a day. Of relevance is since another privileged document states *"tunnel filtration is not government policy"*, it becomes clear that Minister Sartor is happy to allow routine exhausting of toxic pollution out of the portals *"to save costs"* by passing the health impacts onto residents in the local precinct and thereby allegedly appease the corporate stakeholder. For Minister Sartor to follow through with his preliminary intent would seem grounds for a Class Action.

Many documents reveal that the system in NSW produces disease because political, economic, regulatory and ideological norms prioritize values of wealth and profit over human health and environmental well-being. The RTA through its influence and management in these profit-earning co-ventures has falsely determined not to install protective filtration technology thereby enhancing corporate profit in exchange for financial paybacks. Tabled internal papers disclosure the RTA has indemnified their bed-fellow companies in relation to any investigation or 'legal challenge' at cost to taxpayers. Examination of the secret 'Deeds of Contract' reveals RTA also appear to protect the companies from paying unenforceable fines for any breaches of the Conditions of Approval.

How can these serious allegations be investigated properly? From experience, LCTAG has no confidence, to date, in politicized Parliamentary Inquiries but would welcome a full independent Royal Commission of Inquiry to investigate allegations of recklessness and other highly anomalous conduct throughout the NSW Government bureaucracies.

However, positive systemic change may be daunting, but it is essential. Recognizing this need, and understanding the underlying structures of harm and creating an integrated activist practice are some key steps in raising the likelihood and pace of success.

Dr Ray Kearney,
Chairman,
Lane Cove Tunnel Action Group Inc.

The Art of Perpetuating a Public Health Hazard

In April 2004, NSW Health released its findings from Phase 2 of its 'Investigation into the possible health impacts of the M5 East Tunnel Stack.' The conclusion reached was there was *"no evidence of an association between the prevalence of reported symptoms and the modeled emissions* (annual averages of pollution levels in previous year) *from the M5 East stack."* The results of the study were subsequently used by the RTA and the former Roads Minister Carl Scully to claim that the impacts of tunnel emissions are free of risks. The results have also been used by NSW Health in providing advice that a major development incorporating a primary school did not have health impacts from the M5 East stack, despite knowing that their assessment excluded children and long-term health impacts.

In the knowledge of glaring inadequacies in the NSW Health Report, Lane Cove Council (LCC) commissioned an independent review by three experts, outside of NSW, and coordinated by Dr Peter Best of Katestone Environmental in Queensland.

After very detailed examination of the NSW Health Report, the Katestone Review recommended that *"Council not accept the findings of the Phase 2 report"* noting that *"The Phase 2 findings of no association between the prevalence of reported symptoms and modeled emissions from the M5 East stack are readily criticized for potential flaws in study objectives and design."*

On Tuesday 8 February, 2005, representatives of the NSW Health met at LCC to discuss and respond to the litany of serious criticisms. To the dismay of those present, there was no intent by NSW Health to withdraw their Report. Compounding this intransigence was the revelation by NSW Health that they had submitted their Report as a 'paper' to an undisclosed journal for 'peer-review' and publication. They now know that pollution was discharged from the ends (portals) of the tunnel during the study period making their own data-sets invalid. NSW Health is on notice in the face of documented scientific and methodological defects, that to proceed with their attempt to publish without correction [redacted]

The Lane Cove Tunnel Action Group Inc (LCTAG) and Residents Against Polluting Stacks Inc (RAPS) now want NSW Health to publicly acknowledge that they were unaware of the frequent discharge of pollution from the tunnel portals during the study period and withdraw their Report forthwith. [redacted]

Furthermore, why did NSW Health not bother to validate the basis of their data of stack emission and ask the RTA or tunnel operators if portal emissions had occurred? Why did the RTA not stop the regular, mostly unapproved discharge of pollution from the portals of the tunnel, and why did the RTA not advise NSW Health accordingly?

[redacted] Only acute effects, not long-term ones, were assessed using methodology that did not and could not determine the pollution exposure of the respondents to the NSW Health 'phone questionnaire conducted over four weeks.

Whilst it was common for complainants to report on odour issues [redacted] Recent scientific reports confirm that odours can be indicators of potential risks to health due to one or more co-pollutants. A more serious field study of odour plume-characteristics as well as a positive response by NSW Health to manage the problem is warranted.

[redacted]

[redacted]
subvert the community into thinking exposure to vehicle pollutants is without risk to health and well-being. It can be readily inferred from the highly critical Katestone Review of the NSW Health Report that, as with the asbestos scandal, a "denial" of the hazard of an agent by its protagonists, no matter how distinguished, may not correspond with "the truth, the whole truth and nothing but the truth."

The conclusion of NSW Health's findings seems consistent with a popular form of "denial" used by the advocates of asbestos and runs like*: "We did not find the evidence for a causal association between an agent and its alleged effects"* when the evidence is based on such factors as:

- Unsound "negative" results derived from flawed data, methodology and study-design.
- [redacted]
- Sampling (or questionnaire) is not properly conducted in the true exposure and breathing zones.
- [redacted]
- [redacted] avoiding definitive answers to a number of important questions by failing to establish and operate a long-term sampling strategy for determining the qualitative and quantitative measures of hazard exposure of subjects in the study.
- [redacted]
- [redacted]
- Claiming to adopt "world's best practice" [redacted] falsely, there are no risks to health.
- Omitting significant numbers of workers (receptors) and thereby introducing a 'negative' bias.
- Applying inappropriate standards or methods to effectively minimize the concentration of the hazardous agent in the exposure.
- By initiating an 'epidemiological survey', [redacted] when faced with a health problem, [redacted] . [redacted] similar to RTA's 'filtration trial.'
- [redacted]
- Failing to adopt Precautionary Principles to contain the toxic agent by not installing adequate environmental control technology.
- [redacted]

There have been too many studies world-wide which directly link vehicle emissions with mortality and morbidity [redacted] not be able to find the associations between stack emission and community health [redacted] **myth** [redacted] that the exhausting of vehicle pollutants from tunnel stacks, in residential areas, poses no health risk, either short or long term, for anyone.

It is high time lessons from asbestos, tobacco, exposure to radiation and the like are learnt and as the Hon Ms Sandra Nori, a Government Minister in the Carr Government and Member for Port Jackson said recently that action *"must be taken to protect our communities from the impact of car emissions by using the latest and best tunnel filtration technology available".* Ms Nori should know the health impacts of vehicle emissions as she is Secretary of the ALP's Air Pollution Task Force.

Dr Ray Kearney
Chairman
Lane Cove Tunnel Action Group Inc.

RTA's Faulty Tunnel Supervision!

On 15 June 2004 some 14 boxes of prescribed internal documents, related to the Lane Cove, Cross City and the M5 East tunnel projects, from the RTA, EPA, Health and Planning (DIPNR) Departments as well as Contractors, were tabled by a Parliamentary Order. Two boxes of privileged documents are now being determined for declassification to non-confidential by an independent arbiter. Community's inspection of the available documents provides good reasons why the NSW Carr Government resisted the Motion carried in the Upper House, 31 May 2004.

Many of the documents disclose that, at all levels, the RTA, in particular, has not responded squarely about the ventilation conditions in the M5 East tunnel. [redacted] Political expediency has led to total disregard for the health and well-being of motorists and residents exposed directly and indirectly to the highly toxic emissions from tunnel vehicle exhausts.

Documents show that these pollutants accumulate to toxic levels in the tunnel and cannot be controlled by the utterly flawed M5 East ventilation design, without in-tunnel filtration systems. Internal papers also reveal cover-ups and highly anomalous conduct regarding the Lane Cove Tunnel Project that warrant a full investigation by a Parliamentary Inquiry.

In April, this year, Road's Minister Carl Scully announced a 'filtration trial', coinciding with the release of a misleading RTA Report about Japan's numerous filtered traffic tunnels. What seems a case of RTA's worsening paranoia is that the Minister's announcement purposefully pre-empted a concurrent independent Report on filtration of tunnels by a consultant. Among its conclusions, the consultant's Report states that *'significant progress has been made in the field of emission treatment technology, and that mature or established technologies are now available to remove suspended particles, nitrogen dioxide, some portion of other oxides of nitrogen, and hydrocarbon vapours from road tunnel exhaust air.'* [redacted] the RTA proceeded [redacted] with a 'trial' that was never intended to test proven filtration in a whole tunnel.

For each of the tunnel projects, Community Liaison Groups and Community Consultative Committees have been established in which all members, including the RTA and its contractors, have the following responsibilities:

- "To act with honesty, integrity, fairness, reasonableness and in good faith".
- "To act in a way which enhances the broader community's confidence in the community consultation process for this project."

However, the tabled documents demonstrate that the Planning Minister's approved conditions of the M5 East Tunnel Project, had been regularly breached by the Operators, *for at least a year*, by exhausting large scale emissions from the tunnel entrances (portals) of up to 400 (average about 200) cubic metres per second, or almost half of the ventilation volume of the stack, for up to 8 hours a day. The Parliamentary Order for such documentation alerted the M5 East Operators to 'come clean'. They reported to the media, *one day* before the documents were tabled, that the polluted tunnel air-stream had been deliberately vented from the portals allegedly "because of a faulty monitor". The real truth is now emerging.

But what was the RTA doing all this time? Documents reveal that they knew, full well, that portal emissions were occurring and the RTA continued to show complete disregard for any of the Planning Minister's 'strict conditions'. While such breaches were suppressed, Road's Minister Carl Scully MP, Paul Forward (CEO RTA), Garry Humphrey (RTA Tunnel Projects' Manager) and Paul Willoughby (Director of RTA Communications) consistently reported that the tunnel ventilation system was operating 'properly' in the M5 East.

[redacted] It is noteworthy that during these periods, the NSW Health was conducting a [redacted] to determine whether health impacts alleged by residents (excluding those near the portals) were caused by stack emissions. Not surprising, these systematic breaches were [redacted] with-held from the M5 East Community Liaison Committee, despite persistent requests from its informed members. RTA also failed to respond to requests from the EPA acting on behalf of the community concerns.

Why the alleged cover-up? Would a disclosure reflect badly on the RTA as supervisors of the tunnel ventilation operation? [redacted]

The Planning Minister's M5 East Conditions of Approval Nos 72-75 is a directive that should there be one proven exceedance, attributed to pollution from the tunnel exhaust stack, the RTA is required to install filtration within six months of the directive from the Director General. It seems that the RTA has failed to ensure that the reported conditions in the tunnel were factually correct.

Other sets of documents reveal that the RTA and EPA (now part of the Dept. of the Environment & Conservation) still refuse to allow the application of a site-specific temperature-dependent correction factor to be incorporated in the continuous monitoring of toxic fine particulate matter. As was disclosed in a Report, commissioned by Lane Cove Council, failure to incorporate such a factor applied routinely in Victoria and overseas, can *underestimate* the background particle pollution by between 11-40%, depending on weather conditions. The terrorising dilemma for the RTA is that an incorporation of such correction factors in the continuous measurements of the M5 East ex-tunnel particulates will demonstrate exceedances of the air-quality standards and compel the RTA to install filtration.

LCTAG Inc believes this conduct is a failure of 'due diligence' on the part of the regulators and also a clear breach of the EPA Charter "to reduce the risks to human health by adopting the principle of reducing to harmless levels the discharge into the air…. and advising the Government to prescribe more stringent standards…"

The crucial point is that the RTA and Minister Scully have FAILED, to date, to admit to the appalling extent of the portal emissions which tabled documents reveal have been going on, large scale, for over a year. Meanwhile, reports of the alleged health impacts on local residents living near the portals have been recklessly dismissed. The RTA continues to refuse to install signs warning motorists to wind up their windows on entering the tunnel's toxic air-stream.

So much for a 'faulty monitor'! The fault lies squarely with an apparent failure of the RTA to do its job [redacted] i.e., to supervise the operation of the ventilation system to ensure full compliance with the conditions of approval. RTA's defence of its incompetent supervision being "procedural' is utterly unacceptable when the solution is the installation of particle filtration and gas detoxification systems.

Please wake up, Minister Scully! It is now long overdue for YOU to face the truth!

Dr Ray Kearney

Chairman,
Lane Cove Tunnel Action Group Inc.

RTA and More Disclosures in Tabled Papers

In its report released in September, 2003, the Australian Bureau of Transport & Regional Economics estimated that in 2000, twice as many people died, in Sydney, from the effects of vehicle exhaust than fatalities on the roads. Total cost of the associated mortality and morbidity was about $1.5 billion for Sydney alone. Yet, perhaps because these effects are less visible and dramatic than road accidents, very little seems to be done to address this deplorable situation.

The decision taken by John Stott, the CEO of State Transit, to purchase new buses powered on dirty diesel rather than by largely pollution-free natural gas is at variance to the Charter of the NSW Environment Protection Agency/Department of Environment and Conservation (EPA) *"to reduce the risks to human health by adopting the principle of reducing to harmless levels the discharge into the air…. and advising the Government to prescribe more stringent standards…"*

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. Exposure to this mixture may result in cancer, respiratory effects, and other health problems.

A compound found in diesel exhaust fumes may be the most carcinogenic agent ever analyzed, say Japanese researchers (*New Scientist*, October, 1997). They warn that a major source of the chemical is heavily loaded diesel engines, and that it could be partly responsible for the large number of lung cancers in cities.

The Lane Cove Tunnel Action Group Inc (LCTAG) and like-minded Sydney community groups also have grave concerns about the standards and frameworks used to regulate the increasing number of road tunnels in our city. Of equal concern is the RTA's and regulatory authorities' approach to dealing with serious health and safety risks these tunnels pose to drivers and residents alike. Tail-pipe emissions in tunnels and especially from exhaust stacks are more concentrated and more toxic than background pollution.

For the safe administration of road tunnels, LCTAG believes the public is entitled to expect that:

- the design and regulations of these tunnels would reflect international best practice, especially in terms of their safety, ventilation systems, value for money and accepted precautionary principles
- the standards and regulations would be strictly enforced
- mechanisms would be in place to promptly and adequately respond to any foreseen or unforeseen problems, including the emergence of new knowledge and the development of new guidelines
- all public agencies involved in planning and regulation, and especially those proposing and developing new projects, would be held accountable for their performance and that mistakes made would be rectified in both current and later projects.

The sad experience of LCTAG and of similar action groups across Sydney is that not one of these criteria has been met.

LCTAG finds it untenable that tunnels are allowed to operate and be constructed in the full knowledge that the designs, standards and regulatory frameworks are deficient. The focus of the different departments seems to be more on "strategically managing" the public's perceptions and reaction to issues rather than on solving the actual problems.

LCTAG sees the containment of vehicle emissions, by proven filtration technology in a tunnel, as an opportunity to clean the polluted air before releasing it into the atmosphere. It seems the RTA's resistance to install filtration is driven more by ego than by competence.

The RTA has recently announced major design changes to the LCT, well after the Environment Impact Study (EIS) and approval stages, without any public consultation or scrutiny. These changes, according to the RTA's documents, significantly increase pollution impacts. The alterations include extending the tunnel length by 145 metres, deleting about 1600m of the ventilation shaft and reduction of fan capacities by more

than 20 per cent. The RTA and DIPNR regard these as ‘minor changes’ and do not warrant another EIS. The details of the modified ventilation system would not be released by either the RTA or the LCT Company, claiming ‘commercial in confidence’. The saving to the LCT Company of not building a third ventilation shaft is about $60 million. LCTAG awaits the decision by the appointed independent arbiter whether such documents can be de-classified and released to the public by a Parliamentary Order.

Internal papers tabled in 2003 revealed that the RTA’s Representations Report (RR) for the LCT project was submitted to the Department of Infrastructure Planning & Natural Resources (DIPNR), without RTA addressing the serious questions raised by the EPA regarding air quality issues in the EIS. Papers disclosed that the RTA merely treated such questions as 'correspondence'. Director General of EPA, Lisa Corbyn, sent a [redacted] letter (also tabled) to Paul Forward, CEO of the RTA, [redacted] "did not make the process transparent to the community."

One of the fundamental flaws in the EIS process is the lack of independent, rigorous assessment of traffic volumes, impact on public transport, health, the environment, costs, amenity or even property values.

[redacted]

Internal papers confirm that the EPA initially determined at least a 10-fold increase in cancer risk for most “affected receptors” (individuals) exposed to toxic stack exhaust from the LCT, but nevertheless [redacted] include discounts for future vehicle technology improvements and average the results over a 70 year lifetime. It then became an acceptable risk. Recently tabled documents disclose that the levels of pollution are much higher than levels submitted to DIPNR for approval by the Minister. Who fudged the data to get Ministerial approval? LCTAG raised vigorous concerns and concluded that the levels in the EIS were seriously underestimated. This was confirmed independently, with pollution levels underestimated by 11-40%, [redacted]

Rather than impose stricter conditions in relation to particles, the conditions for the Cross City and Lane Cove tunnels allow the RTA to maintain higher in-tunnel levels of pollutants by setting inappropriately high in-stack limits for particles (up to 1600 $\mu g/m^3$ PM10), greater than those currently experienced in the M5 East.

Substantial changes to the LCT EIS were made by the RTA without communities being informed. It was only after the project was approved, and for which RTA insisted there was “no right of reply” when the public was told the approved LCT had a third ventilation shaft that was never mentioned as part of the EIS. As already mentioned this third ventilation tunnel was deleted from the Contract by the RTA without notifying NSW Planning, NSW EPA, NSW Health, Lane Cove Council or the community. We believe this failure of notification failed to translate into updating plans on ventilation design and accompanying geotechnical issues that contributed , in part, to the ‘cave-in’ of the apartment block in November, 2005.

In the case of the LCT project, it seems tenders were NOT permitted by the RTA to include 'non-conforming proposals' such as in-tunnel filtration etc, despite such exclusion being unlawful. The community was excluded from the entire process.

LCTAG believes the regulatory authorities, DIPNR, EPA and NSW Health have not exercised due diligence in the planning and regulating of these tunnels. Moreover, there is no environmental licence for these projects, only imprecisely set conditions administered by DIPNR, based on inappropriate standards. Neither DIPNR nor the RTA is required to take the advice of other departments or experts. The lack of an environmental licence and appropriate regulatory standards for such projects has meant that monitoring and compliance with project conditions continually falls between the cracks of bureaucratic buck-passing. Unlike environmental licences that are regularly reviewed, project conditions seem immutable, regardless of their inappropriateness.

Advice by the EPA and NSW Health as to the interpretation of conditions or additional measures that should be taken can and is regularly ignored by the RTA while DIPNR seems quite powerless to ensure compliance.

We assert that the NSW RTA, EPA, Health and DIPNR as well as the LCT Company have so far failed to exercise appropriate care, skill and foresight, as they have failed to act to provide the appropriate protections to the public. They have also failed to deliver an ecologically sustainable infrastructure project that represents value for money.

Dr Ray Kearney

Chairman,
Lane Cove Tunnel Action Group Inc.

The methodology used by the Roads and Traffic Authority for tendering and contract negotiations in connection with the Lane Cove Tunnel

Does NSW RTA control data-input into the LCT project and censors information to the public?

During the period of construction since the contract was signed with the Lane Cove Tunnel Company, the RTA has refused to release original data on air pollution and dispersion modeling as well as traffic volumes on which such 'modelling' has been based. To date, it is still not voluntarily forthcoming as it is deemed 'Commercial in Confidence'. However, Transfield Services who are the 'Operators' of the tunnel 'inadvertently' disclosed on their web-site that the LCT was designed for an expected traffic volume of over 140.000 vehicles per day. The data was [redacted] removed [redacted].
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The LCTAG believes the NSW Government has yet again failed to carry out its fiduciary responsibility and its 'duty of care.' They still refuse to accept the condemnatory findings of two Parliamentary Inquires, an International Workshop on Tunnel Ventilation as well as critical reports from independent experts.

The following measured response to the EIS emphasises the lack of transparency, clear breaches of trust, [redacted], violation of codes of equity and due process pertaining mainly to health risks and air quality:

The indicator for air pollution in the EIS data e.g., PM_{10} 50μg/$M^{3,}$, 24-hour average, refers to a mean of 50μg (micrograms) of particulate matter (PM) with an aerodynamic diameter of less than 10micrometres (μm or 1/1000mm) collected regularly (e.g., 10 minute periods) over 24 hours. $PM_{2.5}$ and PM_1 are particles of 2.5μm and 1μm diameter respectively.

FLAWS IN THE AIR QUALITY ASSESSMENT

- A serious defect in monitoring air pollution is the failure to take account of the relative size of particles from combustion of fuel is within two peaks i.e., 0.03μm and 0.1μm. Neither of these particle sizes (mass or number) is measured in any of the EIS Air Quality surveys.

- Morawska &Thomas (2000) report that only 3% of combustion particles between 0.1μm and 1μm are present in PM_{10} measurements. RTA seems to mislead by claiming that PM_{10} measures all particles less than 10μm in size. Monitoring by NSW EPA excludes particles 1μm and less.

- About 90% (by mass) of diesel particulates are less than 1μm and are missing in the PM_{10}/M^3 measurements in the EIS Report. This also implies that the 16 kg/day of PM_{10} particulates vented from each stack is grossly under-estimated.

- Studies by Morawska & Thomas (2000) concluded:
  *"PM_{10} measurements provide information almost entirely on particles generated from mechanical processes. In an urban environment, this could mean particles resuspended by vehicular traffic and mechanical wear and tear**, but not on emissions of motor vehicles."***

  Therefore, because the PM_{10} measurement is not an instrument for evaluating traffic emissions, the air pollution data and the calculated health-risks are grossly underestimated. The above authors conclude the PM_1 measurement provides very good information about contributions from the combustion engine, and distinguishes it from suburban background.

- PM_1 contributions being about 2-fold greater in traffic aerosol than in ambient air are not disclosed. This lack of transparency by the RTA seems to hide the exceedances of air quality standards and avoids community outcry. By using PM_{10} measurements, the bulk of tail-pipe particulates is excluded while mainly resuspended dust from the road surface is analysed. The exclusion of combustion particles suppresses data of the enormous surface area (> 100 fold) of toxic respirable particles missing from PM_{10} measurements.

- Unlike overseas countries, Australia only has a standard for PM_{10} not $PM_{2.5}$. It is positively misleading of the RTA to imply PM_{10} is stringent and includes $PM_{2.5}$ and PM_1.

- RTA ignores the national pollution guidelines that never intended PM_{10} standards be applied to point source pollution (stacks), only regional air-sheds.

- RTA uses PM_{10} 24-hour averages that obscure or dilute the major unhealthy exceedances during a.m. and p.m. peak periods. The EIS seems to view air quality goals as a licence to pollute. If the standard is $50\mu g/M^3$, then 48 or to creep toward 50 is acceptable to the RTA. In contrast, contemporary risk management tries to get the levels as low as possible. RTA should not work up to a standard but work down to a risk, but this is not adopted here.

- Discharging tonnes of untreated toxic emissions into residential areas is intuitively illogical, especially when there is no safe threshold. In 1800, industry stacks belched clouds of pollution into the environment that was a sink. Such is not the case today.

- In the EIS, only two monitors, rather than an air quality network, measured air pollution levels. The choice seems not to have followed a standard protocol.

- The monitoring of PM_{10} appears to lack validation for loss of volatile chemicals, for influence of humidity and temperature as well as for variable wind conditions in an undulating terrain.

- Stringybark Creek under Epping Road is about 60 metres below Pacific Highway and near the proposed location of a 30m stack i.e., in a valley as was condemned for the M5 East tunnel.

- The value or use of dispersion modelling is diminished by lack of validation and transparency.

The LCTAG believes the RTA seems to have engaged in concurrency i.e., the degree of overlap between project design, development and assessment by commissioned consultants without proper validation, testing or evaluation by consultants, independently.

FLAWS IN THE HEALTH RISK ASSESSMENT

- Toxic emissions discharged from each stack, daily, include carbon monoxide (2000 kg), oxides of nitrogen (650 kg), hydrocarbons (170 kg) and PM_{10} (16 kg). The EIS acknowledges these are only a small fraction of the toxic products, including numerous carcinogens discharged, untreated, from the stacks. [redacted]
  The 'risk management' is treated as a serendipity process in which the community is asked to trust outcomes [redacted]. Informed community groups are reluctant to do so [redacted].

- The RTA fails to acknowledge that it cannot be acceptable to increase health risks to one population i.e., exposed to unfiltered toxic emissions, on the grounds that another might correspondingly benefit.

- The EIS fails to evaluate best information currently available, but relies on outdated assessments. Thus, exposure to emissions is not merely a tiny increment on a much larger background, but a substantial increment risk on an already significant problem.

- The risk analysis fails to take into proper account the PM_{10} is not an indicator of respirable fine (<2.5μm) and ultrafine (<0.1μm) fractions that contain surface-bound carcinogens and irritants.

- The health-risk assessment does not calculate the expected number of cases at the 'Lowest Assessed Level' of PM_{10} e.g,. 7.5μg/M^3 annual mean. The next step should have been to calculate the number of additional cases for every 10μg/M^3 PM_{10} above that level.

- Evidence is not provided of the size of the 'at risk' population (e.g., asthmatics, bronchitics, cardiac patients, children < 5 years). The extent to which a 'risk' population is not quantified e.g., in the stack precincts, it is impossible to undertake specific risk assessments, only guesses.

- The risk analysis provides no evidence, by validated thermal modelling, that exceedances of pollution levels during temperature inversions, i.e., when a polluted air mass is capped, do not affect health.

- The failure to take account of cumulative effects on health is bewildering. At least 43% of inhaled particulates are retained in the lung and is associated with serious cumulative effects. An adult breathes 18 M^3 of air daily. The EIS fails to provide a thorough [redacted] assessment of this matter. In the absence of certainty, the Precautionary Principle should be adopted.

- The EIS fails to acknowledge that two-thirds of the health costs occur during days when particulate levels are less than 50μg/M^3.

- The 15-minute excursions in pollution levels during peak traffic periods that carry a 3-4 fold increase in health risk are hidden by PM_{10} averages. This is compounded by the fact that a.m. and p.m. peaks coincide with maximum pedestrian and residential exposure.

- The risk analysis fails to take account of the potential health impact of numerical ultrafines not detected by PM_{10} measurements. For example, 1 x 10^6 particles 0.1μm (cube) are equivalent in weight to one 10μm cube particle but have 100-fold the surface area and carry more toxins. The surface area is further under-estimated because the fine char particles are highly vesiculated or perforated like coral.

- The health assessment fails to appreciate that in a study during the 1996 Olympic Games in Atlanta, a peak week-day drop of 22.5% in morning traffic counts was accompanied by a 41.6% decrease in asthma acute care events, and was correlated with ozone levels, not PM_{10} measures.

- The EIS acknowledges unleaded petrol reduces atmospheric lead levels but fails to disclose that unleaded petrol has higher amounts of carcinogenic polyaromatic hydrocarbons which adhere to $PM_{2.5}$ particles,

largely excluded from the PM_{10} data. The EIS also fails to take account of modern engine design generates more invisible and more harmful fine and ultrafine particles.

The LCTAG believes that the proponent (RTA) is not only responsible to meet the prevailing air quality guidelines, but assumes the authority to make a separate judgment as to what level below the existing guideline is in fact "safe" or acceptable. This issue of an alleged conflict of interest is highly relevant to the Lane Cove Tunnel project.

The LCTAG will continue to vigorously address the need to install in-tunnel filtration and gas-cleaning systems already available and of guaranteed efficiency to reduce health risk and to negate the need for unsightly stacks.

Dr Ray Kearney

Chairman,
Lane Cove Tunnel Action Group Inc.

Planning Minister Sartor's Answer to Cancer – Blow it in the Wind!

It is time we the people came together and took back our State of NSW and our country. The community at large, of different political alliances, have ALL been alienated, manipulated, ridiculed and ignored by ruling elite at both political and bureaucratic levels whose only ideology it seems, is to serve money and power.

The real question is "Whom does this NSW Government serve?" We need a government committed to serving the people and big enough and strong enough to do the job.

The Government has also handed over its regulatory powers to the lobbyists and ex-politicians representing the corporations supposedly being regulated. We now have the biggest government that we have ever had, but one that is totally ineffectual in protecting us from the big money interests exploiting us.

What has emerged in the M5 East, CCT and the LCT projects is a scandalous dereliction of duty. [redacted]. The Government, through the RTA, has formed alliances with the corporate stakeholders to augment profit by externalizing costs to the community and environmental well-being.

This pre-election year is set to become a tsunami of documented recklessness by the NSW Government. Contributing to these scandals, Planning Minister Frank Sartor seems set to expunge a strict Condition of Approval of the M5 East tunnel that allows toxic fumes to be discharged from the tunnel portals (entries and exits) ONLY under emergency conditions such as a fire. At present such cancer-causing fumes are normally exhausted from the single tunnel stack.

The truth of the debacle is the ventilation system in the M5 East tunnel cannot cope with the high levels of toxic fumes by blowing them out the stack and to concurrently maintain lower toxic levels in the tunnel. However, what Minister Sartor also failed to disclose is that the levels of pollution in the residential precinct around the stack are now close to exceeding the prescribed national air-quality standards because the RTA grossly underestimated the traffic volumes, now over 110,000 vehicles a day. Should there be one proven exceedance of the air-quality standard outside the stack, another Condition of Approval requires the RTA to install filtration.

The demonstrably inept NSW DEC (formerly EPA) appears also to aid the RTA by refusing to incorporate an appropriate correction factor into the monitoring data, thus underestimating the real levels of toxic pollution –

another scandal? The RTA is now faced with a major dilemma. How can the RTA save the Tunnel Company the expense of installing retro-fitted in-tunnel filtration? Simple, rather than install filtration, the cancer, my friend, is blown in the wind. The resultant costs of health impacts are passed onto the community by legalizing portal emissions at ground level. [redacted]

[redacted] The h[redacted] 'filtration trial' was [redacted] to appease the community's anger and allow the CCT and LCT construction to reach a stage where in-tunnel installation could only be an expensive retrofit.

A tabled internal audit by NSW Planning reveals the RTA has failed to comply with a litany of other Conditions of Approval regarding the M5 East. Whom does this Government serve?

What seems unconscionable about Minister Sartor's desire to blow known cancer-causing pollution into the lungs of taxpayers for commercial, bureaucratic and political expediency is that in June, 2003, as Minister for Science and Medical Research, he launched the $205 million NSW Cancer Institute. Among its aims is "To reduce the incidence of cancer in NSW". See the following link:
http://www.cancercouncil.com.au/editorial.asp?pageid=1124

As former Lord Mayor of the Sydney City Council, he was one of the architects of the 'Gateways Works' in which the narrowed William Street was undertaken in secret and proven now to be integral to the commercial viability of the CCT. See the following link:

http://www.smh.com.au/cgibin/common/popupPrintArticle.pl?path=/articles/2003/02/14/1044927802247.html

The air pollution levels in William Street that were already exceeding national standards were acknowledged by NSW Planning will be even higher after the CCT opens!

The focus of current community anger, however, at what the CCT really means to the community, is the coercion written into the tunnel deal. The contract is clear: the Government must keep a long list of alternative routes closed or narrowed and provide dedicated lanes feeding the tunnel. The roads cannot be re-opened without penalty to the motorist and taxpayer who in turn also meets the cost of the CCMotorway Company in any legal dispute. That means the outcome of the tunnel boycott is continuing congestion. And the frustration is not just local; traffic piling up around Macquarie Street and the Eastern Distributor is slowing the travel times from Sydney's north. For all this anger, motorists are left with two unpalatable choices: a $3.56 one-way toll for 2kms or a very slow trip.

Despite all the current Government posturing about reducing the toll, it was the RTA that amended the tunnel contract only late in 2004 to load another 15 cents into the toll to cover $35 million in extra construction costs. It was the NSW Government which signed a flawed deal. And it is government which is responsible for the ensuing mess - be it exorbitant tolls, gross impacts on local traffic amenity, portal emissions, no in-tunnel filtration, disgraced, wishy-washy go-along-to-get-along 'Community Consultative Meetings' coupled with a litany of bureaucratic incompetencies at immense cost to the taxpayer.

The secret 'Contract Deeds' have eroded the protection of Human Rights and moved us toward an autocratic state. Indeed, it seems, in these contract deeds the corporate co-partners are given veto power over many of our laws and regulations – even those of states and municipalities. Where is the Crown Solicitor in all this? Licenses are not issued for these tunnels, putting them outside existing NSW EPA (DEC) Legislation.

Government should concern itself with morality in the board room. Morality has a great deal to do with money and power. Minister Sartor, it is to do with how we treat one another. It is immoral for the big money interests to force government to serve their greed instead of serving the people's need.

In the end it comes down to just three principles
1. support for the Constitution and Human Rights
2. commitment to honesty and openness in government, and
3. independence to serve the needs of people according to their individual judgment and conscience.

Dr Ray Kearney,
Chairman,
Lane Cove Tunnel Action Group Inc.

NSW Health's Polluted Findings

April '04

At a public meeting held in November, 2003, for the residents allegedly affected by the exhausts from the M5 East tunnel vent, spokespersons for the NSW Health Department reported that preliminary studies to assess any cause and effect association were "inconclusive." However, what NSW Health was not aware was that, on the same day, their report which they wanted kept confidential was declassified by an independent arbiter, a retired judge, who had been appointed by parliament to review such documents requested for tabling by a Parliamentary Order. The relevant section of Health's declassified document reads as follows:

"The first phase of the health investigation, in which volunteers were individually assessed by experienced allergy, respiratory medicine and occupational medicine physicians, identified a substantial number of subjects and complaints of eye, nose and throat discomfort. In some cases these symptoms were accompanied by headache. The time course of the symptoms, and consistency among subjects, convinced the attending physicians that there was prima facie evidence of adverse health effects related to the vent stack, requiring further investigation. Importantly, the symptoms did not vary substantially with time, unless the affected persons left the area for a vacation"

[redacted] NSW Health who have always insisted that toxic effluent from more than 80,000 vehicles per day, in a 4km twin tunnel (8km total) and discharged from a point source in a valley will **not** impact on the health of local residents, regardless of meteorological conditions. Over 10% of the vehicles are trucks. Exhaust emissions from a single truck are equivalent to 10-15 cars. NSW Health has said the same about the Lane Cove Tunnel.

[redacted] NSW Health [redacted] s[redacted] e: "Based upon the findings in the study, there is no scientific justification to conduct further epidemiological studies into the reported health effects…" Thus the door was slammed in the face of a suffering community.

Already, a pleased Roads Minister Carl Scully, who embraced the Report, advised the community protesting the new proposed M4 tunnel, if it goes ahead, there will be no health impacts from untreated stack emissions. The sadness in all this is that communities are completely abandoned, for party politics, by the people who are generously paid to care for them.

Already, a pleased Roads Minister Carl Scully, who embraced the Report, advised the community protesting the new proposed M4 tunnel, if it goes ahead, there will be no health impacts from untreated stack emissions. The sadness in all this is that communities are completely abandoned, for party politics, by the people who are generously paid to care for them.

[redacted] NSW Health's Report of this [redacted] study [redacted] The conclusions are already proved invalid due in part to the study's skewed application of data, inappropriate methodology, [redacted] breaches of the application of the national air-quality standards and guidelines [redacted]. In short, whilst the findings of the report have immense value in political currency they utterly fail on grounds of scientific merit. More akin to ill-founded market research, the report should be withdrawn forthwith and be subject to not only an independent review by

medical experts and atmospheric scientists outside NSW, but also to an audit of performance by the NSW Auditors Office. Such actions have now been initiated. The full health report is at:
http://www.health.nsw.gov.au/pubs/i/investigation040055.html

Among its many flaws warranting rebuttal are the incorrect statistical analyses and invalid assumptions about the type of pollution impacts. For example, the study of claimants was strictly limited to symptoms experienced during the four weeks prior to the date of a telephone interview. However, for plume exposure the study used an **annual** pollution map. By analogy, NSW Health would conclude that a hypothetical devastating hail storm (symptoms) you experienced this morning did not happen because the daily averages of the annual rainfall (pollution) show that today was 'normal.'

Furthermore, the north-east winds were almost completely absent during the time of the survey. Thus, people with few symptoms in the zone to the west of the M5 stack were counted as being in a 'high' area of exposure when they were actually in a low area of exposure. [redacted]

The study was also based on a questionnaire not designed to identify symptoms and associations with short bursts of exposure to high levels of mixed pollutants as the stack plume swung over the homes of the residents most at risk of adverse effects. The following CSIRO link illustrates how a plume from a stack can strike the ground.
http://www.dar.csiro.au/pollution/Meander/index.html, press the [Start]
button. Click on the picture while it is working. Etc.

Such events are not disclosed by annual averages of averaged daily pollution. It is well documented [redacted] that the prescribed symptoms of illnesses relate mostly to short-term exposures as inferred in the Phase I Report [redacted].

The survey respondents included those (around 50%) who spent a long period of their time outside of the study area i.e., persons not subjected to higher day-time pollution levels. The inclusion of such persons, not subject to peak pollutant loadings, has skewed the results. Relevant data for adjusted prevalence ratios for eye, nose and throat symptoms, when correlated, show a **higher** prevalence of 16%, 20% and 18% respectively of symptoms among those residents in the 'high zone' of impact than those in the 'low zone'. [redacted]

The alleged anomalous behaviour, though not new to the NSW Health, is allowed to flourish when a government, with absolute power in the Lower House, appears to have transformed democratic processes into totalitarian government. The Carr Government has, by stealth, removed the mechanisms that were in place to constrain governments from actively violating the community. Every surveillance check on the RTA, for example, that a democracy would expect to be there (EPA, Health and Planning) is totally ineffectual. Such bureaucracies now behave as worn out bristles in the one brush and bend according to the political pressures to serve ministers of the respective portfolios i.e., government servants, but no longer able to act as independent 'public servants'.

The entire EIS process is a charade and sham. [redacted]. Nobody among them appears to accept responsibility for decisions and actions taken, or enforcement of conditions of project approval. From the experience of the Lane Cove Tunnel Action Group Inc and other such community groups across Sydney, there seems no place left where the community can find ethics, or compassion, or decency and honesty in all levels of the NSW Government and its bureaucracy.

Why then, can we expect Minister Scully to soon express his regrets that changed circumstances do not permit him to honour his commitment to install proven in-tunnel filtration and detoxification equipment? Because NSW Health has 'shown' no discernable ill effects from the M5East tunnel stack, so there is no need to waste taxpayers' or motorists' tolls on pointless filtration equipment. Please, re-consider Minister. You cannot afford, politically, to be caught out badly yet again, by wrong and misleading advice from your bureaucrats!

If a substance is known to be harmful, it should not be necessary to demonstrate 'scientifically' that it is actually causing harm before doing something about it. To date, despite recommendations, the RTA has still not installed signs at the entrances to the M5 East tunnel warning motorists of the risks from the hazardous tunnel airstream, by not winding up their windows. Are such warnings too litigious, Minister?

Dr Ray Kearney,
Chairman,
Lane Cove Tunnel Action Group Inc.

Last year, in the Upper House, a 'Filtration Bill' was passed on the basis of compelling evidence of proven technology and documented health impacts of particulates. Independent medically qualified politicians contributed to the debate. However, in the Lower House, the Carr Government has consistently used its voting power and untested information to thwart not only such a Bill but to reject the recommendations of three separate M5 East Parliamentary Inquiries calling for the installation of realistic, proven, cost-effective filtration systems.

The Carr Government stands utterly condemned for its arrogance and abject failure to adopt a duty of care in response to such recommendations.

Of equal concern is when Regulatory Authorities that now serve Government, rather than the community, increasingly show absolute contempt for due process, accountability, enforcement of conditions as well as for open and meaningful community consultation. Such anomalous conduct appears to persist under the jurisdiction of Ministers of the respective portfolios. Surely, it is time for change to correct an out-of-control crisis among the Regulatory Authorities. [redacted]

Unfortunately, the unsuspecting public is largely unaware of the misleading information in the RTA glossy brochures prepared by the 'spin doctors' whose job it seems is to obscure the truth and influence the thinking of the community by with-holding essential information. Not only what is said seems misleading but also, of more importance, is the failure to disclose all the facts. [redacted] The Conditions of Approval make no mention of a 'ventilation shaft'. Yet, the RTA, for the first time and without a shred of detail, incorporate it in the project design as their answer to filtration as recorded in their post-conditions brochure distributed to the community. Based on the concept of a ventilation shaft for the Cross City Tunnel, it will be a parallel tunnel of about 6m in diameter costing at least $40-70million (est.) as opposed to $15million (est.) for in-tunnel filtration. The 'shaft' will function, it seems, as an experimental 'air-pollution sump' into which is transferred the twin tunnel's toxic air-stream before the noxious contents are exhausted, untreated, from the stacks.

[redacted] Minister Scully has also resorted to adopting another principle of persuasion by labeling events and people with distinctive phrases or slogans e.g., when he regularly states "Tunnel filtration is a placebo". [redacted] is audience will reject the idea on the basis of the negative symbol, instead of looking at the available evidence.

Dr Ray Kearney,
Chairman,
Lane Cove Tunnel Action Group Inc.

More of Govt's Filtered Facts and Fiddled Figures

20.10.03

A recent call for papers through NSW Parliament delivered 13 boxes of papers from four government departments (RTA, Health, EPA and DIPNR- formerly Planning NSW) mainly relating to the M5 East, Cross City (CCT) and Lane Cove Tunnels (LCT).

The documents show systematic shifting of responsibility and blame between the different departments, avoidance to own up, let alone address, fundamental errors and deficiencies, [redacted]

LCTAG Inc believes the internal papers reveal widespread negligence in dealing with high levels of toxic exhaust pollution.

The following excerpts highlight the concerns of LCTAG Inc.

- EPA alleges the RTA submitted the LCT Representations Report (RR) for approval by DIPNR without addressing and resolving major outstanding issues raised by the EPA.
- The EPA declares they could not make a formal determination e.g., on air quality impact assessment and stack emission concentration, because of the absence of proper and complete data.
- RTA fails to provide a copy of their RR to the EPA, before it is sent to the DIPNR for approval.
- Director General of EPA [redacted] asserts "It is important these air quality issues be assessed rigorously and transparently prior to submission of the final RR".
- [redacted]
- EPA warns of alarming health impacts from the stacks and expects action to be implemented to reduce predicted illnesses. [redacted] discloses "There will be a number of potentially harmful emissions from the tunnel ventilation stacks…" and introduces 'adjustment factors' whereby the risk to health, claimed by EPA, is reduced to 'insignificance'.
- [redacted]
- Expert internal analysis confirms the RTA's consultant underestimates health risks and identifies flaws in the calculations. DIPNR accepts flawed data.
- EPA [redacted] acknowledge fine particles are more hazardous.
- [redacted]
- EPA defies the recommendations of the national committee and consultants on air-quality standards as well as world's best practice and advise DIPNR that EPA will continue to report and accept flawed monitoring. Documents confirm the Regulatory Authorities know that underestimated pollution effectively invalidates health-risk analysis and are aware that when unadjusted, avoids the detection of exceedances from stack emissions.
- Advice from EPA to DIPNR is not to recommend the use of correction factors to accurately measure the toxic particle pollution associated with the Cross City and Lane Cove Tunnels.

Documents show that the departments know the standards and conditions being used to regulate tunnels are inadequate, [redacted] dmitting, as well, that once a tunnel has been approved, there is no scope to change the standards, the recurring refrain is that they are awaiting new national or international standards (that can't be applied to existing projects). The

EPA seems to concede in the papers that it is better to let the community take on the rogue RTA than for the EPA!

If air quality goals are exceeded, filtration is an option for each tunnel. However, the RTA maintains that filtration systems in tunnels do not work, but internal papers reveal a RTA report detailing all tunnels in Japan with filters, why and how they are installed. RTA knows full well that filtration is operational in more than 44 tunnels in Japan [redacted]

Because of the problems with the M5 East tunnel, instead of filtering the fumes, the RTA has decided to put in a 3rd exhaust tunnel, parallel to the two road tubes in both the CCT and LCT, at a cost exceeding $40 million each. Filtration systems would have cost less than half of this, and resulted in better protection for drivers and residents. This 3rd tunnel option was never independently assessed, or ever considered as part of the LCT EIS process.

Minister Scully reported to Parliament that the RTA purchased No.5 Sirius Road, Lane Cove and No.16 Marden St., for $4,559,740 and $9,110,375 respectively for exhaust stacks, well above market value.

In early October, a RTA delegation visited Japan to confirm what they already knew privately about tunnel filtration. The same team went to Norway three years ago and came back with a very carefully crafted, sanitized report embarrassing the Norwegian Authorities. Lane Cove Council asked to accompany the delegation to Japan, paying their way, but the RTA refused them.

Internal papers disclose that the RTA refused, on legal grounds, to heed NSW Health's advice to install warning signs for drivers to put their windows up to protect themselves against ill-effects of pollution in the tunnel. [redacted]

RTA assures us, for example, that an 80% reduction of particle load, if the windows are closed, should put us at ease. However, a fall in levels of soluble, toxic, respirable particles from >500µg to 100µg/M^3 $PM_{2.5}$ is still 4-times the national guideline (25µg/M^3 $PM_{2.5}$) for background air quality. The RTA also failed to disclose that a study in Stockholm, in April 2000, showed that short-term exposure to in-tunnel air pollution significantly enhances asthma. These effects were found at levels of $PM_{2.5}$, that were equivalent to those recorded (i.e., 100µg/M^3) in the M5 East Health study, when the vehicle windows were **closed**.
The NSW Health study establishes that current air-quality standards and monitoring systems are inappropriate and inadequate while potential legal implications, under the NSW Occupational Health and Safety Act, 2001 are implied.

The Carr Government should take note of a historic ruling in the US Supreme Court, February 2001. In a unanimous decision, nine judges ruled that health benefits should be the sole criterion in setting air pollution standards. The most important lesson for the NSW Regulatory Authorities to learn from this bleak period is their extraordinary capacity for self-delusion.

Dr Ray Kearney,
Chairman,
Lane Cove Tunnel Action Group Inc.

[redacted]

18.5.03

[redacted]

Dr Ray Kearney,
Chairman,
Lane Cove Tunnel Action Group Inc.

Was NSW Health's M5 East Study a Sham?

Following numerous complaints, NSW Department of Health (DoH) initiated Phase1 of an investigation in 2003 into illnesses of residents near the M5 East tunnel stack. Under a Parliamentary Order, a declassified 'privileged' internal DoH report disclosed: *"Experienced allergy, respiratory medicine and occupational medicine physicians, identified a substantial number of subjects who complained of eye, nose and throat discomfort. In some cases these symptoms were accompanied by headache. The time course of the symptoms, and consistency among subjects, convinced the attending physicians that there was prima facie evidence of adverse health effects related to the vent stack".* [redacted]

[redacted]

[redacted] the Lane Cove Tunnel Company boasted: *"**There will be no health impacts from the unfiltered stack emissions."***

But how valid are DoH's 'findings' and do they apply to other tunnels? [redacted] Minister Scully had told Members of Parliament regarding tunnel filtration, *"But we have to get the message clear and concise: electrostatic precipitators* (particle filters) *do not work"* (Hansard No. 28 of 2.7.03). With such now discredited, is Minister Scully's 'clean bill of health' comment also equally misleading and wrongly implying 'you don't need filters now anyway'?

To seek the truth, Lane Cove Council commissioned Dr Peter Best of Katestone Environmental in Brisbane to coordinate reputable experts, outside NSW, to independently review the DoH Study. The Reviewers - Professor Michael Moore (Q'ld) - a Medical Environmental Toxicologist, Professor David Fox (Vic) - a Chartered Statistician in Environmetrics, and Dr Peter Best (Q'ld) - Air Quality Science Consultant, all concluded that the findings by the DoH into the M5 East Health Effects **should not be accepted.**

The Reviewers found the internally designed and managed study was scientifically and methodologically deficient, [redacted] The four weeks of self-reported symptoms, **without any form of actual measurement of pollution exposure**, were found highly restrictive and where no causal relationship was or could be established because of the study design. Control groups, involving residents who were not exposed to stack emissions, were absent.

Agreeing with Professor Brunekreef's comments, the Reviewers pointed out that self-reported symptoms are more related to acute exposure, while annual averages are more relevant to chronic health impacts. Yet DoH used annual averages in modeled pollution, from the previous year, rather than the actual exposures of the people studied. They pointed out that these cannot be a substitute of acute exposure to temporary high levels of peak-hour stack pollution. Professor Brunekreef stated *"...it seems mandatory to estimate the contribution of the stack emissions to air pollution exposures for each individual for the four weeks before administration of the questionnaire.*" [redacted] a major and serious flaw.

The authors of the Critique also found that the sample-size to obtain prescribed statistical significance with the numerical data and the numbers of residents in the respective groups was too low, by at least 5-fold. They also commented that questionnaires of this kind are unlikely to be satisfactory, even when weighted. The experts could not establish or assess whether the 'weightings' applied by the DoH to the questionnaire were appropriate to adjust for bias.

The fact that portal emissions [redacted] occurred, almost daily, in breach of the Minister's Conditions of Approval would have exposed residents in the 'low' impact zone to high levels of pollution, thus invalidating any comparison with 'high' pollution residential zones. The experts considered it "bizarre" that the DoH excluded children and infants i.e., a high-risk group, from the study and believed the omission may have biased the research to a 'no effect' outcome. The selected groups could also have bias because of a strange predominance of older women.

The exclusion of a respiratory objective from the Phase 2 study was judged also to be "weird" and not "compliant" with the intent and recommendations of the Phase 1 Study. That asthma was conspicuously and oddly "de-emphasised" was seen by the Reviewers as being decidedly "extraordinary" when such expertise existed both in the DoH research team and in the Steering Committee. The DoH study, however, did find a high proportion of health impacts e.g., 64% of all participants reported sore eyes, 66% reported nasal problems and 33% throat problems, but the DoH failed to offer any explanation. Why? The specialist physicians who examined the affected residents in the Phase 1 study were convinced *"...that there was prima*

facie evidence of adverse health effects related to the vent stack." Yet the official report stated the findings were inconclusive. Why?

The Reviewers found the self-reported quality statement by the DoH that: *"the methodology used represents the best feasible epidemiological approach"* was without justification. Rather they found that the objectives of Phase 2 were unrelated to or "disconnected" from the recommendations of the Phase 1 study to test causation between reported illness and stack emissions. They also strongly contested the relevance of the DoH's findings to other tunnel situations. Not surprising, the Reviewers recommended that an independently designed and managed study as well as a reanalysis of the collected data is justified.

In conventional scientific/medical research, flawed publications are normally withdrawn, amended or rejected. [redacted]

[redacted]

[redacted]

The review recommended that conclusions by the DoH of its M5 East Health Study should not be accepted. The proper action is for the DoH to withdraw its findings publicly, forthwith. They further proposed an independently managed and properly conducted Phase 2 and 3 studies should be implemented immediately to obtain credible evidence to prove, or disprove, a causal association of documented health impacts.

The Lane Cove Tunnel Action Group Inc is adamant that in the light of all the overwhelming evidence about ill effects of unfiltered tunnels that the latter is all well and good if we are talking about a lab experiment. However, these are real people suffering daily. It is time to act NOW and fix the M5 East debacle and ensure Lane Cove does not suffer the same deal. By the time this new study is done, Sydney will be circled by a toxic ring of tunnels, with the onus of proof on victims to prove they are being poisoned.

[redacted]

Dr Ray Kearney
Chairman, Lane Cove Tunnel Action Group Inc.

NSW Health's Shameful Sham Study

Following numerous complaints, NSW Department of Health (DoH) initiated Stage1 of an investigation in 2003 into potential health impacts on residents near the M5 East tunnel stack. [redacted]

Under a Parliamentary Order, a declassified 'privileged' internal DoH report disclosed, *"Experienced allergy, respiratory medicine and occupational medicine physicians, identified a substantial number of subjects who complained of eye, nose and throat discomfort. In some cases these symptoms were accompanied by headache. The time course of the symptoms, and consistency among subjects, convinced the attending physicians that there was prima facie evidence of adverse health effects related to the vent stack".* [redacted]

Despite serious criticisms from the community and from experts both local and overseas, DoH's [redacted] Stage 2 study into the effects of the M5 East Stack on residents was released on the 1st April, 2004. Stage2 involved a random telephone survey asking respondents to comment on their health for the previous 4 weeks. Without any form of actual pollution-exposure measurement, NSW Health 'found' **no evidence of health effects due to the stack, and concluded there was no need to do any further investigation of any kind.**

Relevant legal opinion is: ***"The Court is more inclined to give relief if it can be demonstrated that an actual impact will be experienced as a consequence of the venting of these pollutants to the environment"*** (Legal advice to LCC, 12.2.03).

[redacted]

[redacted] he Lane Cove Tunnel Company now maintains **there will be no health impacts from the unfiltered stack emissions.** But how valid are DoH's findings and do they apply to other tunnels? Did the study have scientific rigour, [redacted]? Remember, on a related issue, Minister Scully informed the Members of Parliament with regard to tunnel filtration, *"But we have to get the message clear and concise: electrostatic precipitators* (particle filters) *do not work"* (Hansard No. 28 of 2.7.03). Already discredited on the latter, are Minister Scully's 'clean bill' comments also equally misleading, implying 'you don't need filters now anyway!'?

In mid-2004, the NSW Audit Office refused a formal request from the Hon Dr Arthur Chesterfield-Evans MP, to extend terms of a Performance Audit, being undertaken, to include prescribed issues relating to NSW Health and its M5 East Health Report. The Audit, assisted by community groups and finished six months ago, has yet to be released.

[redacted] Lane Cove Council commissioned Dr Peter Best of Katestone Environmental in Brisbane to coordinate a review of the DoH Study by independent experts. The critique involved unconnected appraisals from Professor Michael Moore (Q'ld) – a Medical Environmental Toxicologist, Professor David Fox (Vic) - a Chartered Statistician in Environ-metrics, as well as Dr Peter Best (Q'ld) – Air Quality Science Consultant. Their highly professional Critique unanimously and strongly recommends that the conclusions by the DoH **"not be accepted".** The following are excerpts of the Katestone Environmental (KE) Critique, November, 2004:

DoH asserted that the methodology used represents *"the best feasible epidemiological approach". "This is a self-reported quality statement for which justification is not provided"* (KE).

DoH went further to conclude: *"there was no scientific justification to conduct further epidemiological studies into reported health effects ..."* Each of the three consultants recommends ***"the findings not be accepted and strongly contest their relevance to other tunnel situations"***. The findings are ***"tenuous"***and " *inconsistent with the DoH's stated priority of ensuring that 'risks to health of the community are reduced through effective vigilance, surveillance, and responsiveness'* (Corporate Plan 2003-2005, DoH). "*There is a corporate and moral responsibility to undertake ongoing monitoring of health impacts"*(KE). The three consultants conclude *"there is little or no evidence to support the claims of DoH and determine the Phase 2 study is based on some 9 untested assumptions, being either poorly founded or misleading"* (KE).

"Constraining the reporting of symptoms to four previous weeks at time of questioning is extremely restrictive..." (KE). *"The Phase 2 Study is only a 'snapshot' i.e., a 4-week period in 2003 from which no temporal relationship was or could be established"* (KE).*"The manner in which the studies have been carried out make it difficult to link exposure with self-reported symptoms"* (KE). *"Both studies lack control groups who would be unequivocally unexposed to stack emissions"* (KE).

"Changes in an annual average concentration of any pollutant are more likely to be associated with chronic effects whereas, ***by virtue of its design****, the phase 2 study is targeting acute effects. Acute effects may be more strongly correlated with short, transitory peaks in concentration than an annual average".* (KE)

"Methodology and measures employed by DoH were determined internally without major discussion with other external health and/or pollution professionals" (KE).

"*A high level of autonomy and independence has not been preserved"* (KE). *"The Steering Group and the Research Group are basically the same in Phase 2 Study"* (KE). [redacted]

"Potentially serious deficiency in the study because of an absence of a 'no exposure' classification". (KE). Comparisons were restricted only to flawed exposure zones.

"There was no independent analysis of Phase 2 findings and no Phase 3 study proposed" (KE).

There is *"disconnection"* between Objectives 1-3 of the Phase 2 Study and the stated objective of the Phase 1 Study where the latter stated a study should be undertaken *'to determine if there was a plausible, temporal relationship between pollutant and/or odorous emissions from the M5 East and clinical effects'*. (KE).

"It is ***odd*** *that Phase 2 had no respiratory objective"* (KE). *"The absence of a more thorough investigation into respiratory health is at odds with statements made in section 3.6.5 of the Report which claim that these questions were introduced into the Phase2 survey to allow a comparison of asthma around the M5 East stack with the rest of the state"* (KE). The KE Reviewers are especially critical of why asthma was "de-emphasised". *"The decision to drop this line of investigation possibly warrants review"* (KE).

"It is ***bizarre*** *to have excluded children and infants*" (KE) i.e., a known at-risk sub-population from the study. *"This exclusion may have contributed to the lack of detectable effects associated with the stack"* (KE).

"Another criticism of the study would be that the selected persons had different age demographics to those in the general population. There was a clear excess of older women" (KE).

"There is particular concern in the lack of any form of exposure measurements as well as exposure modeling" (KE).

"Furthermore, there is no attempt to correlate observed effect with the times of peak traffic flow" (KE).

"The chosen impact zones for PM10 and NOx may not be suitable for investigating odour-related health impacts or the influence of coarse particles emitted in the stack exhaust and do not account for the effects of any portal emissions"(KE).

"The study design did not incorporate recent stack emission data of odour and particle size" (KE).

"It is difficult to see that modeling of impacts is going to provide an adequate assessment of environmental exposure to traffic fumes" (KE).

"The odour diaries of the Phase 1 Study and odour responses of the Phase 2 study seem to have been under-utilised" (KE).

"No reference to pollution-sensitive people within the community" (KE).

DoH reports "*no evidence between prevalence of reported symptoms by telephone interview and modeled emissions*" (KE). The DoH used *"modeled emissions",* not the actual exposures of the people studied. It would have been possible to get such information from the CSIRO work, but DoH failed to do so. This is a major methodological flaw in the study. It is commented on by KE - *"four-week study period is extremely restrictive", "lack of exposure modeling and time of peak traffic flow", "time-averaged information" "no evidence for a claimed 'the best feasible epidemiological approach"* - are examples of justified highly critical comments that warrant a forceful condemnation of the study.

"Telephone surveys based on samples drawn from public directories are unlikely to be satisfactory, even when weighted" (KE). *"The extent to which the re-weighting scheme adopted by the DoH succeeded in adjusting for the bias cannot be determined from the information available"* (KE). The Reviewers have been especially critical of the Telephone Survey and identify where bias can occur. Particular criticisms are leveled at the inability to assess whether the 'adjustments' for bias are appropriate.

[redacted]

Only 3 of 18 criticisms of Prof. Brunekreef (overseas expert) were incorporated into the study that already had started. (KE). The promise that the balance of 18 criticisms would be incorporated in the Phase 3 Study was reneged by DoH when they neglected not to undertake the latter study.

The critique by Prof. Brunkreef states "… *it seems **mandatory** to estimate the contribution of the stack emissions to air pollution exposures for each individual for the four weeks before administration of the questionnaire'* In fact, DoH did not wait to get the comments but had started the interviews before they received his suggestions. 'Mandatory' is a forceful word meaning 'a command, without an option'.

"Social aspects of exposure have not been considered in either of these studies" (KE).

The DoH Report did not overlook the symptoms - actually it showed surprisingly high numbers of symptoms. 64% of all participants reported sore eyes, 66% reported nose problems and 33% throat problems. What the DoH's study could not find was a difference in the frequencies between the 'Zones', which were wrongly estimated. What people reported were smells, sore eyes and asthma attacks. More importantly they reported children with these same problems plus more colds, longer extent of illnesses, respiratory distress at night, frequent rashes. The study did not include children even though this was the residents' main concern.

"There has been surprisingly little discussion of the results by DoH" (KE).

"There is scientific justification for a reanalysis of the collected data and for further studies that evaluate exposures of affected people with suitably-chosen controls" (KE).

"Exposure of surveyed people should be estimated to account for various sources and time away from home. Many affected people appear to have been relatively stationary" (KE).

A medical specialist of the DoH's Steering Committee declares in a tabled paper*: "...there is also a question of whether environmental worry, odour detection etc., are related to eye, nose and throat symptoms. They probably are, <u>but so what</u>?"* (KE).

.

[redacted]

<u>Comments by R. K.</u>

Previous legal opinion is: ***"The Court is more inclined to give relief if it can be demonstrated that an actual impact will be experienced as a consequence of the venting of these pollutants to the environment"*** (Legal advice to LCC, 12.2.03).

It is noteworthy that the documented findings in the Phase 1 Studies by the RPAH respiratory physicians were originally disclosed by a Parliamentary Order. [redacted]

It is equally apparent that the DoH's Phase 2 Study was designed and <u>internally</u> managed, in almost total indifference by DoH to its chosen external/overseas expert, Professor Brunekreef, and his 18-point critique. Only three of his recommendations were adopted while the study had already commenced.

In the Phase 2 Study, its three objectives were found to be "disconnected" from the recommendations of the Phase 1 Preliminary Study. The Phase 2 Study, itself, failed to adopt the necessary criteria and scientific stringency to give any credibility to the DoH's findings and conclusions. In fact, the study appears to have elements of <u>scientific misconduct</u> and <u>conflicts of interest</u> as well as <u>bias</u>.

[redacted]

[redacted]

The conclusions by the DoH of its M5 East Health Study should not be accepted, being without scientific substance. A properly controlled and independently managed and conducted Phase 2 and 3 studies should be implemented immediately to obtain credible evidence to prove or disprove a causal association of alleged health impacts.

[redacted]

Dr Ray Kearney
Chairman, Lane Cove Tunnel Action Group Inc.
November, 2004

[redacted]

Far from being claimed original research and first of its kind, NSW Health recently reported results of their two studies confirming that pregnant women exposed to levels of pollution found in Sydney are at risk of having under-developed babies while the elderly are at risk of a myocardial infarct. The latter arises in persons when an area of heart muscle dies following cessation of blood supply, usually when a supplying artery is 'blocked'.

The irony is that the background and outcomes of both of these studies by NSW Health would have been known to them when at the same time they were erroneously claiming that they could not find any association between health impacts on residents and the toxic fumes exhausted from the M5 East tunnel. The glaring inadequacies of the M5 East studies by NSW Health have been severely criticised by three independent experts commissioned in 2004 by Lane Cove Council.

In April 2004, NSW Health released its findings from Phase 2 of its 'Investigation into the possible health impacts of the M5 East Tunnel Stack.' The conclusion reached was there was *"no evidence of an association between the prevalence of reported symptoms and the modelled emissions* (annual averages of pollution levels in previous year) *from the M5 East stack."* The results of the study were subsequently used by the RTA and the former Roads Minister Carl Scully to claim that the impacts of tunnel emissions are free of risks. The

findings have also been used by NSW Health in their advice that a major development incorporating a primary school did not have health impacts from the M5 East stack, despite [redacted] their M5 East Health Study excluded pregnant women, children and long-term health impacts. [redacted]

After very detailed examination of the NSW Health M5 East Report, the inter-state Independent Reviewers recommended that *"Council not accept the findings of the Phase 2 report"* noting that *"The Phase 2 findings of no association between the prevalence of reported symptoms and modelled emissions from the M5 East stack are readily criticized for potential flaws in study objectives and design."*

[redacted] Lane Cove Council and community action groups including the LCTAG Inc., to review their M5 East Health Study results. To date, NSW Health has been very slow to respond and now must confront another alleged serious dilemma.

[redacted]

NSW Health medical bureaucrats know full well from published literature that combustion of petrol and dirty diesel produces a toxic, cancer-causing chemical fraction referred to as polycyclic aromatic hydrocarbons (PAHs). As the combustion gas cools, about 75% PAHs mostly condense on fine particulate matter, referred to as PM2.5 which is inhalable and mainly SOLUBLE in the lungs. The rest of the PAHs remain as a toxic vapour.

Already the annual average of PM2.5 in Sydney's air-shed is exceeding the National prescribed standard for PM2.5, of 8 micrograms (millionths of a gram) per cubic metre. Current annual average of PM2.5 in Sydney's air-shed is over 10.5 micrograms per cubic metre and is increasing.

Reports have already established that atmospheric PAHs in concentrations as low as 10 nanograms (a billionth of a gram) per cubic metre can retard foetal growth, incrementally. These additive effects on development are measurable such as a smaller body weight, length and head circumference.

Thus, concentrations of PAHs in parts of Sydney are at levels that carry a highly significant risk to the unborn. Levels of PM2.5 in sections of the M5 East tunnel air-stream regularly exceed 300 micrograms (or 300,000 nanograms) per cubic metre before being exhausted into a residential precinct already exceeding national standards for PM2.5 levels. Yet, despite being advised of these facts, NSW Health continues to patronise the RTA lie of "no risk to health", thereby bending, like bristles in the same brush, to a warped political mindset to oppose tunnel filtration.

NSW Premier Iemma continues to promote an admirable image through his media minders as the 'family man'. However, it is lamentable that at the same time he did nothing to withdraw the flawed NSW Health study or protect the health of the community around the Turella Stack and continues to do NOTHING to alleviate known adverse impacts of vehicle pollution on children and the unborn as well as on the elderly. Needless to say, all of whom are among the most vulnerable and defenceless persons most at risk. Is [redacted]

Recently the British Heart Foundation reported that even cyclists riding to the office along busy roads in cycleways adjacent to bus lanes do themselves more harm than good by inhaling the toxic diesel fumes from buses and urged that cycleways be located away from major roads.

Costs of morbidity and mortality due to exposure to fossil fuel-combustion in Sydney alone exceed $2-3 billion annually and more people die each year from motor vehicle emissions that in road accidents. However, former Roads Minister Costa, now NSW Treasurer, has also done NOTHING, so far, to address such unsustainable but preventable health costs in debt-ridden NSW.

A Case Study in Tokyo, reported this year, showed that by reducing particle pollution by 50% was accompanied by a health-cost benefit in one year alone of at least $A47 billion.

We agree totally with the Australian Medical Association, endorsed by the Australasian Lung Foundation, who reported recently that the following interventions would reduce the negative health impacts of fossil fuel pollution:

- introduction of mandatory biofuel blends (petrol with 10% ethanol and diesel with 20% biodiesel)
- reduction of highly toxic aromatics such as benzene in petrol
- replacement of petrol/diesel vehicles with those that use liquid petroleum gas (LPG) or compressed natural gas (CNG);
- installation of in-tunnel filters and gas-detoxification systems in vehicular tunnels in heavily populated cities.

In general, the current NSW Government and its respective bureaucracies have demonstrably failed to provide good governance and to constitutionally serve the electorate with a sense of common decency, justice and a duty of care.

[redacted]

Dr Ray Kearney
Chairman,
Lane Cove Tunnel Action Group Inc

Autocratic NSW Government Breeds Contempt for Community Consultation

The RTA, when in damage control, has a powerful weapon to regain its bruised self-esteem. Like an untutored school-boy who threatens to take his bat and ball home if he is not allowed to play by his rules, the RTA regularly invokes powers, enshrined in current legislation that allows them to over-rule existing democratic decisions and to make final determinations without community consultation. By proceeding with incredible craftiness and indifference they have invoked such powers to impose their unwanted tunnel designs incorporating unfiltered single stacks upon communities affected by stack emissions.

During the last few years, broad community outrage initiated a number of Parliamentary Inquiries to try, desperately, but to no avail, to address the characteristic but breath-taking ‘strut and puff’ arrogance, reckless contempt and haughtiness by the NSW Government and certain of its Ministerial advisers. In the latter domain, beyond the reach of the electorate, is where stringent investigative journalism should be undertaken

to expose the real truth behind an image of august respectability, professional dignity and authoritative infallibility.

Bolstered by its current invincible seat majority, this State Government has again had the temerity to abandon its 'duty of care'. The electorate would be astonished to learn that the current legislation does not require the Government to adopt the recommendations of Parliamentary Inquiries. Already contempt by Premier Morris Iemma has already been demonstrated to the current Chairman of this particular Inquiry. So why waste resources, at taxpayers expense, in having them?

The LCTAG believes a more cost-effective method of inquiry is rigorous investigative journalism that exposes any breaches of probity as well as any anomalous conduct and patronage e.g., in the agent-client relationships when consultants are commissioned in costly projects. Like diamonds on a slag heap, notable examples of stringent investigative journalism, in the past, have been catalytic for positive corrective action. There is now an urgent need to investigate how political expediency may influence scientific probity as an illusory artform, crafted by a bureaucracy where patronage is undoubtedly, its political lifeblood.

As mentioned, the LCTAG, having already experienced anomalies in community consultation in the RTA-orchestrated LCT Environmental Impact Study (EIS) process, as did the Residents Against Polluting Stacks (RAPS) in their EIS of the M5-East tunnel, joined forces with the RAPS in the recent Parliamentary Inquiry into the M5-East Tunnel Ventilation Stack.

In its documented submission to the Inquiry, the LCTAG provided independent expert evidence to prove that respirable particles, less than one micron (<1μm) in diameter, are associated with 90% of road traffic tail-pipe emissions. The LCTAG, in drawing upon independent scientific data, showed that the current measurement of particulate matter (PM) of 10 microns i.e., PM_{10} information is almost entirely on mechanical processes e.g., resuspension of road dust as well as wear and tear of tyres, but NOT on the COMBUSTION PROCESSES from motor vehicles. Only 3% of particulates associated with fuel combustion are measured in PM_{10} monitors. Thus, the major proportion of toxic respirable particulates exhausted from the vehicle tail-pipe is not accounted for in current PM_{10} measurements.

Queenslanders - Assoc Professor Lidia Morawska and Professor Michael Moore – writing in their excellent review found at:
http://www.deh.gov.au/atmosphere/airquality/publications/health-impacts/index.html
say under 'Toxicology':
"All of the studies available to us demonstrate that the primary determinant of the effect of ultrafine particles is their number and their surface area and not the weight of particles present .This means that the traditional

use of PM weight measures is inappropriate in evaluation of the likely biological effects of ultrafine particles".

One billion PM 0.01particles are equivalent to one PM10 particle but with 1000 times the surface area. Carcinogenic PAH's adsorb onto the surface of soluble fine/ultrafine particles and off-load their cancer-causing cargo in the airways of the respiratory tract.

NSW Health may one day catch up with current science, and see that measurements of PM10 in health impact determination are largely irrelevant when it comes to impacts of stack emissions that are different, toxicologically, to ambient background.

To date, the RTA has declined to provide the LCTAG with any data for independent audit on its Lane Cove air quality monitoring which allegedly was the basis of the RTA's preferred Lane Cove Tunnel option. Furthermore, with regard to the Lane Cove Tunnel EIS, the RTA's last meeting with community representatives, including those of the LCTAG was last year, soon after the Olympic Games. The RTA has refused to undertake any further community consultation in its EIS process, until, no doubt, the time is politically expedient. We are appalled how RTA's characteristic form of 'community consultation' is conducted. We believe, from our past experience, the RTA already has their own preferred option finally packaged, behind closed doors. From now on community consultation is likely to be only a hollow formality.

The LCTAG, by a Parliamentary Petition, thwarted RTA's attempt to widen Epping Road in stages, without an EIS or community consultation several years ago. How coincidental it was when the LCTAG publicised its 'by-pass' tunnel concept with a western portal at the intersection between Epping Road and Mowbray Road that the RTA promptly sold the location to developers to build a monument of land-locked town-houses at the ideal site of a tunnel portal.

In further evidence, given under oath, to the Standing Committee of the Inquiry, the LCTAG disclosed that the PM_{10} standard, based on an annual average of 24-hr. averages, conceals the pollution exceedances that occur during a.m. and p.m. peak traffic periods. During these excursions, documents confirm that 15-minute readings are found associated with a 2 to 3-fold increase health risk than 24-hour averages.

The community at large may be startled to learn that the NSW Health Department has no legislative or regulatory requirement to participate in the health assessment of exposure to emissions or approval of major developments such as the M5-East, Cross City and Lane Cove Tunnels. *"NSW Health only provides advice to other departments or members of the public, when requested".* More often it is the concern of an informed community that provides the catalyst for NSW Health to give advice. We believe, the late arrival of NSW

Health to such projects places them in a distinctly compromising situation of endorsing approvals made by the other Statutory Authorities (e.g. RTA, EPA and DUAP) and to avoid confrontation with them in public. The LCTAG maintains that NSW Health should be a partner right from the beginning as its statutory responsibility and not have to wait to be asked. [redacted]

Serious concern is held by the LCTAG when faulty thinking, it seems, is the basis of the assessments, by NSW Health, of health risks or impacts of exposure to traffic emissions from vent stacks. For example, rather than present scientific data that can be validated, 'feelings' are let to carry weight in problems or issues where facts and accurate data are at stake. Repeatedly, 'feelings' are then allowed to judge facts. Even worse is when 'feelings' are treated as evidence of fact. Then, it appears, begins the transition, by an insidious artform, from scientific stringency to political expediency. To defend its claim of 'no risk to health' NSW Health provided evidence to the Inquiry based on lowest concentrations to assess risk, not the "worst-case predictions" and certainly not the cumulative effects of exposure. In private, however, NSW Health and the Regulatory Authorities most certainly do admit to risks to the health of vulnerable persons in 'at risk' populations exposed to traffic pollutants and are fearful that such documentation will fall into the hands of the rapacious press and media. Such documentation is consistent with the following published facts:

- Studies have shown that pollutants such as exhaust particles can interact with allergens to amplify allergic reactions. Acutely high concentrations (e.g., a.m. and p.m. exceedances) of different pollutants can induce transient respiratory symptoms in asthmatic subjects.
- Diesel emission of particulates (90% are not measured by current PM_{10} monitors) enhance allergic inflammation.
- Inflammation is now acknowledged to be the most potent accelerator of tumour growth.
- The EPA in USA has already declared not only is diesel a definite health hazard but it is "likely" that diesel exhaust is a human carcinogen.
- Recent studies in New Zealand confirmed that highly toxic and carcinogenic additives that have replaced lead in fuel are associated with the fine respirable particles.
- During the Atlanta Summer Olympics, a decrease in traffic volume of 22.5% was accompanied by up to a 41.6% reduction in asthma events. It is noteworthy, that the current traffic volume, in excess of 90,000 vehicles per day on Epping Road, combusts more than 100,000 litres of fuel per week over the 4km link between the M2 Motorway and the Gore Hill Expressway.

The LCTAG understands that in overseas countries, in response to recent increasing knowledge of the association between health risk and exposure to traffic emissions, air-filtration systems have been installed to

improve not only in-tunnel air quality but also the atmosphere surrounding exhaust vents in residential areas. In Japan where a class action against Government for negligence has been undertaken, over 60 tunnels have recently been fitted with air filtration systems. In Norway, two new tunnels have been fitted.
However, in community meetings in Ultimo and in Darlinghurst, the RTA representatives were positively equivocal by ignoring such examples of a 'duty of care' and support of filtration by overseas Governments. For the RTA spokesperson to have stated that "study upon study have shown filtration does not work" is typically untruthful and also positively misleading when results of such alleged studies **do not exist** for independent appraisal. Equally misleading is when an opinion is quoted, out of context, from a non peer-reviewed conference abstract, devoid of research data.

Worldwide, the health effects of particulate air pollution are of growing public concern. Particulates and specifically fine particulates (PM_1) are the most relevant air quality indictors for health-risk assessments, not PM_{10}. This does not mean that particulates are the only causes of the health effects ascribed to air pollution. However, they are viewed as one of the most likely causative agents of observed associations between air pollution and an array of health end points, such as premature mortality, chronic obstructive pulmonary diseases, respiratory function, asthma and other acute cardiovascular conditions, days with restricted activity and long-term survival. Policies have been developed in industrial countries at national and international levels to reduce the levels of atmospheric pollutant emissions at their major sources (including stacks) and to inform the general population when exceedances occur.

The present Roads Minister Eric Roozendaal, as did his predecessors, continues to receive from the respective advisers information that is demonstrably false or flawed that will be the subject of ongoing scandals.

Dr Ray Kearney
Chairman,
Lane Cove Tunnel Action Group Inc.

TUNNEL POLLUTION UNDER-ESTIMATED

Independent Expert re-analysis of continuous air pollution monitoring for the M5 East, Cross City and Lane Cove Tunnel projects has revealed astonishing flaws in the levels of particulate pollution.

A Conclusion reached in the Report, commissioned by Lane Cove Council, is the 'background' levels of particulate matter (PM) of diameter les than 10 micro-metres (μm) or PM_{10} have been under-estimated by 11-40% dependent on weather and air quality conditions. Clearly, such flaws raise concerns about the validity of the health impact analysis undertaken in the EIS, also severely criticised by LCTAG and independent health professionals.

Similarly, in double-blind clinical trials when it is apparent that one patient group is deriving benefit (or disbenefit), the experimental codes are disclosed and the trial normally ceases forthwith. There are no ethical grounds on which a trial can continue in the knowledge of a proven benefit to one group of patients whilst those in the other suffer a disbenefit. The same principle, however, does not apply in this case.

Because the health-risk assessment is allegedly based on an analysis of flawed data and a proven failure to adopt the prescribed national standards for risk assessment, the EIS is significantly defective. The health disbenefits allegedly impacted on residents by the emissions from the M5 East stack were predictable, when more competent independent scientific and medical assessments were objectively applied in the original M5 East EIS. Again, the law seems unable to provide relief except under certain prescribed conditions. The only relief, it seems, that may be granted by a Court is if **"…it can be demonstrated that an actual impact will be experienced as a consequence of the venting of these pollutants to the environment."** (Memorandum of Advice, Point 17, p. 9; 3.2.02). This provision for future action may allow a Court to provide relief to our grievances. This legal opinion, then, underpins the suggested recommendations arising from the discussion.

(a) The particulate emissions from a stack are composed of primary and secondary particles. The primary insoluble particles are derived from mechanical processes e.g., wear and tear of tyres, dust on road surface. They are mainly in the coarse mode, or PM_{10} .
The secondary particles, mainly soluble, are derived from the gas arising from the combustion of fuel (secondary particles are also left by the exhaust of the launching space shuttle) and from diesel and petrol carry most of the carcinogenic polycyclic aromatic hydrocarbons. They are in the fine mode, less than $PM_{2.5}$.

(b) The secondary particles are present in enormously greater numbers than the primary particles and on a weight basis have a greater surface area e.g., $1x10^6$ cube particles (0.1μm) are equivalent to **one** 10μm cube particle and will have 100 times the surface area. The fine particles are potentially far more toxic as they are carried to the alveoli or air sacs of the lungs where the particles dissolve or are carried into circulation. They are believed to account for documented cumulative toxic effects.

Therefore, composition of the air-stream in a twin tunnel carrying say 80,000 vehicles per day is rich in secondary particles and constitute the 'haze' in the M5East tunnel. Thus the air-stream is very **different** to that of the ambient background where the particulates are derived from **numerous sources** including motor vehicles.

(c) If over the approx. 3.4 km length of tunnel the average volume of fuel combusted per vehicle is 250 mls then **each day** 80,000 vehicles generate secondary particles from approx. 20,000 litres of fuel. The emission product is equivalent to the approx. load of a fuel tanker exploding daily, and being discharged from two point sources.

(d) Secondary particles formed from the gas by nucleation, condensation and coagulation **increase** in quantity in a tunnel that behaves as a 'closed' system, despite intake of 'fresh;' air. To draw off the polluted air-stream from the twin tunnels and into a proposed 'ventilation shaft' only permits **more efficient formation** of toxic secondary particles to be discharged into the respective residential and commercial areas. In other words, the fact the vehicle emissions are being **contained** in 'closed' tunnels permits **greater** production of secondary particle formation as opposed to the same vehicle exhaust being discharged on an **open** freeway.

(e) Numerically, the distribution of particles formed in vehicle exhaust falls in two peaks corresponding to particle sizes of 0.1µm and 0.03µm respectively. The cut-off of the Hi-Vol PM_{10} monitor filter adopted by Holmes Air Sciences, by their own admission, is 0.3µm.

Recent research estimates that 6% of deaths per year in Austria, France and Switzerland are due to air pollution. Half these deaths – some 20,000 – were linked to traffic fumes. The researchers also estimated that traffic fumes were responsible for more than 25,000 new cases of chronic bronchitis and more than 500,000 asthma attacks. One campaigner said "if impacts are the same in Britain, then nearly 19,000 deaths every year are due to road traffic. That's equivalent to a jumbo jet crashing every then days. The government must take tougher action on traffic levels to reduce this appalling death toll." A proportional impact is expected here.

In another study, involving 500,000 American subjects, one fifth of lung cancer was attributed to exposure to fine particles of vehicle exhaust i.e., the respirable soluble particles largely excluded from the monitoring due to a failure to incorporate appropriate correction factors.

Especially noteworthy, is that the Hon. Frank Sartor, Minister of Medical Science and an allegedly supporter of measures to prevent cancer, as former Lord of Sydney betrayed his City of Sydney Council ratepayers by patronising the untenable position of Government to not install proven filtration in the Cross City tunnel. As the Member for Rockdale, he is already aware of the adverse health impacts the M5 East is having on the residents around the stack. Backbone, Minister Sartor, is available form the local Sydney fish markets.

Dr Ray Kearney
Chairman,
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Feb 2003

Bureaucratic Community Consultation is Largely a Charade

The alleged anomalous behaviour, though not new to the NSW bureaucracies, including NSW RTA and NSW Health, is allowed to flourish when a government, with absolute power in the Lower House, appears to have transformed democratic processes into totalitarian government. The NSW Government has, by stealth, removed the mechanisms that were in place to constrain governments from actively violating the community. Every surveillance check on the RTA, for example, that a democracy would expect to be there (EPA, Health and Planning) is totally ineffectual. Such bureaucracies now behave as worn out bristles in the one brush and

bend according to the political pressures to serve ministers of the respective portfolios i.e., government servants, but no longer able to act as independent 'public servants'.

The entire EIS process is a charade and sham. [redacted] Nobody among them appears to accept responsibility for decisions and actions taken, or enforcement of conditions of project approval. From the experience of the Lane Cove Tunnel Action Group Inc and other such community groups across Sydney, there seems no place left where the community can find ethics, or compassion, or decency and honesty in all levels of the NSW Government and its bureaucracy.

Why then, can we expect former Roads Minister Carl Scully to express his regrets that changed circumstances do not permit him to honour his commitment to install proven in-tunnel filtration and detoxification equipment? [redacted]

If a substance is known to be harmful, it should not be necessary to demonstrate 'scientifically' that it is actually causing harm before doing something about it. To date, despite recommendations, the RTA has still not installed signs at the entrances to the M5 East tunnel warning motorists of the risks from the hazardous tunnel air-stream, by not winding up their windows. Are such warnings too litigious?

Ethics and Skeptics: The Lingering Threat of Fossil Fuel

The relationship between air pollution, death and disease has been studied for decades, leading to the recent conclusion that combustion of diesel and petrol is among the most toxic sources of emissions today (USA Clean Air Task Force Report, Feb. '05) viewed at the link: http://www.catf.us/publications/view.php?id=83

These exhausts contain numerous dangerous compounds, ranging from respiratory irritants to carcinogens including a host of air toxics, particulate matter, carbon monoxide and nitrogen oxides.

The very fine particles adsorb toxic gases and liquids onto their surfaces. On a weight basis, a billion ultra-fine particles are about equivalent to one coarse particle 10 micrometres in diameter, but have 1000 times the surface area. The fine particles are mainly soluble and penetrate deep into the lungs. Health research indicates that the invisible exhaust may be the most dangerous of all. Technology exists right now to clean up emissions from these engines and to remove such toxics from road tunnels. The only thing that stands between us and dramatically healthy air is the political will to require these reductions.

NSW Health Minister Morris Iemma knows that in Sydney, twice as many people die from exposure to vehicle pollution than from road accidents. Yet, despite NSW Health's protestations and legal advice, as disclosed in tabled internal documents, RTA deliberately refuses to install signs warning motorists to close their windows on entering the toxic M5 East tunnel.

In the USA, fine particle pollution kills 21,000 people each year. Diesel exhaust poses a cancer risk that is 7.5 times higher than the combined risk from all other air toxics. The risk of lung cancer for people living in urban areas is three times that for those living in rural areas (CATF Report, Feb. '05). Air pollution was not on the agenda of the Carr Government in deciding to power its new bus fleet with toxic diesel that replaced clean LPG.

Children are more susceptible than adults (except the elderly) to the adverse effects of air pollution because:

- Children are more active and breathe more rapidly.
- They have more lung surface area compared to their body weight and inhale more air kgm-for-kgm than adults.

- They have higher lung volume to body size, higher respiration rates and spend more active time in the polluted outdoor environment.
- When exposed to fine particles, children have slowed lung function growth, increased emergency room visits, increased incidence of asthma, bronchitis and crib death (CATF Report, Feb. '05).

Lane Cove Tunnel Action Group Inc. (LCTAG) is justifiably concerned about health effects from exposure to toxic unfiltered stack exhausts of the 3.7 km Lane Cove Tunnel (LCT). These concerns are heightened by:

- Failure of NSW Health to apply the recommendations of an overseas expert who identified numerous serious flaws, confirmed by three independent experts, in the design and methodology of the study into the health impacts of residents exposed to M5 East stack emissions. Tabled documents reveal NSW Health already knew in September, 2004 that their study required re-analysis, but continued to mislead both the Minister and the community. [redacted]
- Failure by the builders of the LCT, Thiess John Holland (TJH), to disclose the actual traffic numbers on which the modeling of stack pollution is said to be "compliant." Experience with the Gore Hill Freeway, LCT and M5 East projects, as documented by LC Council, confirms RTA's projected traffic volumes are greatly underestimated. [redacted] Such would weaken the case for tunnel filtration. TJH's claim to 'commercial in-confidence' is unsustainable. On expert advice, LCTAG had agitated successfully to change RTA's original design of the LCT, from a twin two-lane to a three-lane tunnel.
- Failure of TJH to extend the pollution modeling of the stacks to include accurate background levels of pollution provides misleading health risks. Documents obtained by a Parliamentary Order disclose that the levels of pollution arising from traffic volumes on the Gore Hill Freeway alone, in the vicinity of the proposed LCT, will be at levels exceeding the National Standard. However, TJH continues to exclude relevant background levels in modeling pollution discharged from the stacks including benzene from the large Shell Service Complex adjacent to the western stack.
- In all formal community liaison/consultative meetings, to date, under the auspices of TJH and the RTA, there has been no representation by NSW Health. An embargo has been imposed on the Air Quality Community Consultative Committee not to discuss health impacts officially.
- LCTAG believes the proportional increase in privileged documents in a recent parliamentary call for internal papers is a reflection of the desire for the bureaucrats to keep their 'business' secret. It was a declassified report that disclosed in 2004 that medical specialists concluded from a Phase 1 Study there was *prima facie* evidence the illnesses reported by M5 East residents were causally related to stack emissions. Shocked by this unplanned public disclosure, NSW Health designed a Phase 2 study, proven so defective and methodologically flawed, that the predictable 'findings' would show no causal relationship.
- Tabled internal papers disclose NSW DEC (formerly EPA) protested strongly against the RTA for not notifying the DEC of a secret arrangement with the LCT company to eliminate the $60 million 1600 metre ventilation shaft in the design of the LCT approved by the Minister. DEC expressed dissatisfaction with the RTA's explanation that such changes were minor.

Community residents have a number of expectations of NSW Health, RTA, DEC, DIPNR and the LCT Consortium. We expect these agents will:

- Understand the public's point of view and that our concerns will be the agency's top priority.
- Ensure these concerns will be scientifically investigated, researched, studied, documented and addressed.
- Explain or find the reason for the illnesses of M5 East community residents and prevent further exposures as well as to learn from the agency's own mistakes.
- Adopt proper and effective enforcement of the Minister's Conditions of Approval and not to corrupt enforcement by delegating that responsibility to the RTA.
- Maintain a permanent documentation database of records and information.
- Validate the concerns of the residents.
- Implement all these duties in a timely manner.

[redacted]

Why then is the 'Precautionary Approach' not taken? Because the risk-based approach to public health is adopted instead [redacted]. Whilst diesel fumes are a known cause of lung cancer, health bureaucrats state they are "not yet sure" how big the problem is and "we have not identified the extent of the problem".

This is the classic risk-based approach. Ignore the evidence so long as it is not 100% watertight. Use uncertainty as an excuse to delay. [redacted] Remember asbestosis? Precaution is not (yet) fashionable while risk-assessment is!

The risk-based approach to unfiltered tunnels, as it also is for diesel and petrol, is to adopt the principle 'business as usual'. This has the backing of powerful special-interest corporate groups harnessing governments to deflect and stymie the search for least harmful alternatives. So long as the exact size of the problem is uncertain, risk-assessors call for delay and more study. It is now clearly evident that RTA's insidious delaying tactic of implementing a 'filtration trial', as endorsed by former Roads Minister Scully, is to buy time politically as the tunnel projects continue. [redacted] Maybe DEC will be more forceful in going public with its concerns about the trial estimated to cost tens of millions of dollars and their reluctance to be part of the review panel. They know the trial is a waste of time and is under-rated to about 10% of the airflows in the LCT.

Doubt is a powerful helpmate when your goal is to maintain 'business as usual' and typifies the current mindset especially of the Carr Government, the NSW RTA and NSW Health regarding air toxics and tunnel filtration. The risk-based approach waits for the holy grail of scientific certainty to emerge from the data. Then, alas, the NSW Government is likely to enact legislation to take away yet another of your 'rights' i.e., to litigate against sheer bureaucratic negligence.

Finally, former Roads Minister Costa, failed to pick up a phone and talk to the Federal Government about its $10 million offer for filtration!

Dr Ray Kearney
Chairman,
Lane Cove Tunnel Action Group Inc.

The extent to which the substance of the Lane Cove Tunnel contract was determined through community consultation processes

Flaws in air quality assessment:

- Seaton (1996) states that the relative size of particles from combustion of fuel is within two peaks i.e., 0.03μm and 0.1μm. Neither of these particle sizes (by mass or by number) is measured in the EIS Air Quality surveys.

- Morawska and Thomas (2000) report that only 3% of combustion particles between 0.1μm and 1μm are present in PM_{10} measurements. RTA seems to mislead by claiming that PM_{10} measures all particles less that 10μm in size.

- Approximately 90% (by mass) of diesel particulate emission has a size less than 1μm (Brown *et al.,* 2000). EPA disclosed that its monitoring of atmosphere pollutants does **not** include those particles 1μm or less. (International Workshop on Tunnel Ventilation, June 2000). Therefore, the 90% of diesel emission is not included in the mass of PM_{10}/M^3 recorded in the RTA EIS Report.

- Studies by Morawska & Thomas (2000) concluded:
  "PM_{10} measurements provide information almost entirely on particles generated from mechanical processes. In an urban environment, this could mean particles resuspended by vehicular traffic and mechanical wear and tear, ***but not on the emission of motor vehicles."***
  Therefore, PM_{10} measurement, as used entirely for the EIS Report on air quality, is not an instrument for evaluating traffic emissions. The RTA fails to disclose the fact that the PM_{10} data for emissions grossly under-estimate contributions from the stacks.

- The invalid PM_{10} data for measurements of traffic emissions implies the health risk "assessment" is also grossly under-estimated and flawed.

- Morawska's research shows that PM_1 measurement provides very good information about contributions from the combustion engine and does distinguish "traffic influence emissions" from "suburban background", unlike PM_{10}. The EIS Report fails to disclose PM_1 contributions are about 2-fold greater in traffic aerosol (stack emission) than in ambient air. This lack of transparency in pollution monitoring by the RTA fails to disclose air quality standards are exceeded.

- The EIS Report fails to reveal the health significance of particle numbers, for example, 1×10^6 particles, PM 0.1μm, equivalent in volume that have a surface area 100-fold greater than one particle PM 10μm. This surface area is further under-estimated because the fine char particles are highly vesiculated or perforated like coral.

- By using PM_{10} measurements, the RTA excludes virtually the bulk of the constituent particulates arising from the tail pipe. This exclusion then totally fails to acknowledge the existence of the **enormous surface area** (> 100 fold) of respirable particles that carry toxins when only the PM_{10} mass/M^3 measurements are made.

- Research shows that the 75% of the toxins, including carcinogens among the polyaromatic hydrocarbons, are carried on respirable particles less than 2.5μm i.e., particles not fully accounted for by the RTA in its PM_{10} air quality data.
- Unlike overseas countries, Australia only has a standard for PM_{10} not for $PM_{2.5}$ nor PM_1. It is positively misleading of the RTA to imply PM_{10} includes $PM_{2.5}$ and PM_1.

- It seems erroneous and devious of the RTA to state ***"bearing in mind $PM_{2.5}$ particles are a sub-component of PM_{10} particles, this is a more stringent standard than the US EPA's standard for $PM_{2.5}$ particles, which is set at 65μg/M^3."*** (EIS Air Quality and Health Risk, p. 8). In fact, US $PM_{2.5}$ standard is now set at 20μg/M^3.

- Despite the fact that the standards in the National Environmental Protection Measures (NEPM) do **not** apply to a point source emission, but to e.g., a Sydney regional airshed, the RTA has ignored the NEPM guidelines and applied an inappropriate PM_{10} instrument for measuring emission pollution from stacks. Community advice was ignored.

- Independent expert advise confirms that the PM_{10} emissions could be a factor of two or more higher than the estimates at full load in the eastbound uphill tunnel as the majority of the emission will in fact come from high power operation and exceed the PM_{10} 50μg/M^3 standard. This is not disclosed in the RTA data. In fact the claim is made the east-bound (uphill) produces less pollution than the west-bound (downhill) tunnel.

- The RTA fails to disclose the levels of pollution at 15 minute intervals i.e., that demonstrate major exceedances during a.m. and p.m. peak traffic periods. Such exceedances are diluted by 24 hour averages and further diluted by annual averages on which health risk assessments are guessed. Hence the reluctance of the RTA to release such information.

- The RTA and the NSW Health fail to realize that discharging untreated toxic emissions from the combustion of more than 25,000 litres of fuel per day by 80,000 vehicles is intuitively illogical. That was an option in the 1800 when industry stacks belched clouds of pollution into the environment that was a sink. Such is not the case today. Transfield Services plan on more than 140,000 vehicles per day using the LCT.

- The RTA seems to view air quality goals as a licence to pollute. The standard for PM_{10} is $50\mu g/M^3$ average over 24 hours. But the EIS treats 48 or 49 as acceptable. This is the problem with the idea of operating a standard. We should say that 50 is the upper limit, therefore our average must be lower, in the range of 10, 20 or so. The RTA has the view it can creep toward 50 and that is acceptable. In contrast, contemporary risk management is about trying to get the levels as low as possible.
  We should not work up to a standard, we work down to a risk – that is not what has happened in this process.

- The EIS Report fails to respond to the results of research that confirms there is no safe threshold level of particulate exposure.

- The lack of an identifiable safe threshold level for particulate exposure points to the need to reduce ambient particulate concentrations to as low a level as practical. This means that the RTA needs to acknowledge there are feasible, practicable and warranted measures to reduce toxic emissions in tunnels without the need for stacks.

- Air pollution levels were measured by only two monitors rather than an air quality network. The choice seems not to have followed a standard protocol regarding the selection of stations, correlation between stations and missing values e.g., topography.

- The change in units of PM_{10} from $\mu g/M^3$ to grams/second seems to the LCTAG to be a devious attempt by the RTA to obscure or suppress the fact there are major exceedances in PM_{10}. (See Fig. 14, Air Quality & Health Risk). From the data it can be calculated that in 12 hours of peak traffic periods more than 40 kgm of toxic particulates are emitted into the atmosphere. It is puzzling at first why east-bound traffic uphill generates less pollution (Fig. 14) than downhill westbound traffic. This is likely to be due to undisclosed cross-ventilation through a link tunnel labelled 'emergency vehicle access' but with fans in the ceiling. Wind direction is not indicated and clearly misleading by omission consistent with RTA practice.

- The definition of air quality "goals" is not presented in a meaningful and transparent manner. Through the EIS Report acknowledges there is no lower threshold for PM_{10} regarded as 'safe' RTA rejects its implications regarding unfiltered stack emissions.

- The Report fails to evaluate the dispersion of traffic pollutants (from a point source) in a rational and logical manner.

- 24 hour averages of PM_{10} do not identify short-term pollution sources e.g., a.m. and p.m. peak periods. Thus multi-station monitoring at shorter intervals (e.g., 10 minutes) will help to more accurately identify impact-source of pollution events.

- "Exceedances" during short-term events should be identified unambiguously.

- Monitoring stations should be defined in terms of height and location to avoid errors in the extrapolation of data, as has been the case.

- The terms 'fine' and 'ultrafine' particulates have been used without a precise meaning. Thus whether the monitoring equipment used in the collection of data from 2 stations is sufficiently accurate needs to be disclosed or subjected to independent evaluation.

- The error of monitoring needs to be disclosed i.e., does the monitor significantly under-estimate the PM_{10} component in the collection sample? What climatic conditions existed at the time of collection e.g., humidity and temperature. An error factor of 20% would indicated PM_{10} >40μg/M^3 represents an exceedance above the 50μg/M^3 standard.

- Research shows that PM_{10} have volatile chemicals that can be lost in the collection. Do the data presented in the EIS Report guarantee such losses are accounted for. This loss is more likely with aerosols generated from the combustion engine. Where is the validation?

- Is the monitoring of PM_{10} adjusted for seasonal influences e.g., temperature, wood-burning, etc.?

- The RTA Report provides no information about whether the location of the monitoring stations correlated between PM_{10} and high volume measurements of samples and the error factor.

- How exact are monitors in variable wind conditions in an undulating terrain location?

- How was the data of PM_{10}, for example, obtained for a ventilation stack and especially how the contributions from the stack and background were established from the type of monitors and their locations.

- How long were the monitors in place before readings were taken and what evidence is available that the locations were appropriate? Exceedances are defined in terms of 'ground-level' monitoring, yet some monitors are on the top of tall buildings.

- How relevant is the absence of pre-station meteorological information from the site of monitors to the validity of information subsequently collected?

- Is the size of the 2-station "network" in the EPA appropriate for ambient air-quality measurements?

- The dispersion modelling is not transparent and does not provide information about how the data analysis had been undertaken except by the Calpuff model. The data should be audited and analysed by independent experts. The modeling of stack pollution ignores background pollution.

- The stack impacts are not interpretable especially in the light of existing flaws in the current models with up to 3-fold errors depending on buildings and terrain.

- The value or use of dispersion modelling is diminished by lack of validation and transparency.

- The RTA fails to acknowledge that carbonaceous soot particles associated with combustion engines, especially diesel, are formed not in the in the engine but instead by gas-to-particle conversion processes form vapour phase particle precursors as the exhaust dilutes and cools in the atmosphere. These processes re extremely non-linear and difficult to simulate in the laboratory.

- The RTA fails to acknowledge the American EPA has proposed tough new ambient standards on fine particles, smaller than 2.5 micro-metre (μm) in aerodynamic diameter.

- To date, EPA and RTA modelling of pollutant concentrations **failed** to predict what is now well established breaches of target concentrations for PM_{10} and $PM_{2.5}$.

- The EPA, RTA and the Health Department have **failed** to evaluate best information currently at hand, but rather have relied on outdated assessments. Thus, exposure to emissions is not merely a tiny increment on a much larger background, but a substantial increment risk on an already-significant problem.

- Each of the regulatory authorities has failed to adopt the Precautionary Principle as recommended by experts, when there is genuine uncertainty.

- The proposed connection of the Gore Hill Freeway to the M2 as well as completed orbital road system will generate more traffic. Increases in traffic far outweigh the benefits from faster continuously moving traffic. This additional traffic will inevitably increase the concentration of emissions in the Lane Cove area. Hence an important case for dealing with tunnel emissions additional to health impacts.

- The RTA and other regulatory authorities fail to acknowledge that it cannot be acceptable to increase health risks to one population (e.g., exposed to emissions from a single 'unfiltered stack') on the grounds that another might correspondingly benefit.

- RTA fails to respond to the expectation that the overwhelming evidence of continuing environmental degradation that environmental standards will be much higher in the future. The same applies to adverse health impacts.

- RTA hotly contests current 'best practice' but fails to have an eye for the future. It suffers a mind-set obsession put by protagonists of existing (and past) practice.

- The RTA's use of dilution control technology to improve ambient air quality has been condemned by overseas experts in respect of the M5 East stack.

- The largest source of direct greenhouse gas emissions by the NSW RTA is not in their road and bridge construction activities, neither is it in the energy use involved in running their vehicle fleet, nor their street lights and traffic lights. The largest direct source of the RTA greenhouse gas emissions is the energy used in their buildings and warehouses.

  (Brown, 2000 – CSIRO Atmospheric Research, Victoria)

- To date, these Authorities seem to select only facts and arguments that tell in their favour. Coloured words and phrases appeal to the emotions rather than to reason, and sometimes mean nothing at all, e.g., "by world standards our air quality is good" Often their language lacks clarity and precision and is **without freedom of over-statements**. They do **not** give the community **all the available facts** to enable them to form an **independent opinion based on cold fact, rather than coloured assertions and feelings**.

Dr Ray Kearney
Chairman,
Lane Cove Tunnel Action Group Inc.

Community Representatives Required to act Honourably but What About NSW Government Bureaucrats?

On 15 June 2004 some 14 boxes of internal documents from the RTA, and Departments of Health, Planning (DIPNR) and Environment (EPA), and related to the Lane Cove, Cross City and the M5 East tunnel projects, were tabled by a Parliamentary Order. The RTA claimed 'commercial or legal privilege' on two further boxes

which will now be examined by an independent arbiter to determine whether or not they should also be released to the public. In all, there are hundreds of individual emails, position papers, studies and reports the contents of which provide good reasons why the NSW Carr Government resisted the Motion to release the papers, carried on the motion of the Hon Sylvia Hale MP of the Greens in the Legislative Council, 31 May 2004. Late 2.005–early 2006, the Independent Legal Arbiter denied privilege on all the documents

Many of the documents disclose that, at all levels, the RTA, in particular, has not responded squarely about the ventilation conditions in the LC tunnel. [redacted]
Political expediency has led to total disregard for the health and well-being of motorists and residents exposed directly and indirectly to the highly toxic emissions from tunnel vehicle exhausts.

Documents show that the flawed ventilation design of the M5 tunnel is unable to maintain acceptable conditions in the tunnel and that the only way to keep the tunnel operating is to emit large amounts of tunnel exhaust through the tunnel ends, contrary to good practice and the Minister's consent conditions. For some months, over 20% of daytime emissions of particles and carbon monoxide were blown out of the tunnel at ground level, close to the houses of unsuspecting local residents. [redacted]

In April, 2004, former Road's Minister Carl Scully announced a 'filtration trial', coinciding with the release of a misleading RTA Report about Japan's numerous filtered traffic tunnels. At the same time, the RTA delayed the release of the report on international developments in filtration technology carried out by an independent consultant as part of the approval conditions for the M5 tunnel. Among its conclusions, the independent report states that *'significant progress has been made in the field of emission treatment technology, and that mature or established technologies are now available to remove suspended particles, nitrogen dioxide, some portion of other oxides of nitrogen, and hydrocarbon vapours from road tunnel exhaust air.'* **Such information was suppressed from the public while the RTA proceeded to con the public with a 'trial' that was never intended to test proven filtration in a whole tunnel**.

For each of the tunnel projects, Community Liaison Groups and Community Consultative Committees have been established in which all members, including the RTA and its contractors, have the following responsibilities:

- "To act with honesty, integrity, fairness, reasonableness and in good faith".
- "To act in a way which enhances the broader community's confidence in the community consultation process for this project."

Examples, of many, of how these prescribed 'Responsibilities' have been breached or abused by the RTA and/or Thiess John Holland (TJH) on these Committees are as follows:

1. Willful refusal to disclose to the LCT AQCCC that the third ventilation tunnel was deleted in the contract with the Construction Company, TJH. This non-disclosure continued for at least six months after the tunnel construction began. DIPNR, DEC and NSW Health were not advised. The matter was subject to a severe admonition of the RTA by the DEC.
2. Continued failure of the RTA and TJH to disclose the traffic volumes on which the air-quality modeling is bases. The excuse being 'Commercial-in-Confidence'. An independent analysis by Dr Peter Manins disclosed the air-quality modeling is under-estimated by more than 50% and perhaps as high as 85% under some circumstances.

3. Refusal to confirm whether provision for filtration has been made in the tunnel.
4. Failure to incorporate a correction factor in the continuous TEOM measurements for particulates for more accuracy.
5. Refusal to allow health issues to be discussed in the LCT AQCCC meetings.

Dr Ray Kearney
Chairman,
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RTA 'Feelings' Become Evidence of Fact

Coloured words and phrases appeal to the emotions rather than to reason. RTA's catchwords and cant phrases sometimes mean nothing at all e.g., "*By world standards our air quality is good."* Often their language lacks clarity and precision and is without freedom of over-statements. Note how the EPA responded to RTA's supervised air-quality monitoring:
"I've had a quick look at this monitoring report and I have serious concerns about some statements in it. In particular, I would not want to see it published without some significant changes….This sort of soft pedaling of Australian standards and of PM_{10} exceedances…. to put it bluntly, is unacceptable….when exceedances of the NEPM standard are recorded, they cannot be dismissed by referring to the US standard and then say that everything's fine because they are "well within the bound of acceptable limits defined by the US EPA"….So, to say "the measured exceedances of the NEPM PM_{10} goal should not be a cause for alarm", as this report does is utterly misleading and wrong…..As it stands now, the report's conclusion is misleading and quite unacceptable…" (Phil Morgan (EPA) Cross City Air quality Monitoring 4.4.01 – P.O.). Similar criticisms are made by NSW Planning and NSW Health about the LCT EIS Report.

LCTAG is also alarmed to find RTA's "feelings" to carry weight in problems where facts alone are at stake. RTA often, it seems, allow their "feelings" to judge facts. Worse, they seem to treat their "feelings" as evidence of fact.

Harming People by Government and Corporate Corruption

That corporate wealth buys broad influence in law and public policy is well documented and widely acknowledged. Holders of high political office themselves frequently have significant influence, ownership or representation in large corporations. Often working behind a wall of secrecy to protect corporate interests, can these arrangements serve not the interests of humanity but to enrich the few at the expense of the many?

Occupational and environmental diseases are often viewed as isolated and unique failures of science, the government, or industry to protect the best interest of the public. However, they are in fact an outcome of a pervasive system of corporate priority setting, decision making, and influence with political and bureaucratic stakeholders. This 'structure of harm' is based on corporations compelled to maximize profitability while costs to society such as from pollution are largely ignored.

The system in NSW, revealed recently in 'privileged' documents released in NSW Parliament, produces disease because political, economic, regulatory and ideological norms prioritize values of wealth and profit over human health and environmental well-being. In other words, the current economic and political system in NSW privileges corporate actors and actually provides incentives for the production of injury and disease rather than its prevention.

These documents revealed the NSW Government and certain of its bureaucracies appear to have forfeited a legislative and constitutional role as servants of the public and have aligned themselves with corporate stakeholders in the design, construction and operation of traffic tunnels in Sydney. What is now clear is the

social and environmental costs have been ignored by externalizing them, or shifting costs to the government (taxpayers), residents, neighbours, motorists and workers.

Thus, these closely-knit alliances become even more profitable to the extent the financial deals make other people pay for the bills for the impacts on the health of society. For the M5 East, Cross City and the Lane Cove tunnels, the respective companies appear to externalise the cost of air pollution and its associated health and environmental damage onto the taxpayers who get sick from unfiltered tunnel pollutants exhausted into the local precincts. Aided by the alleged abuse of legislative power by the RTA, these companies, in secret contract deeds, avoid paying these true costs. [redacted]

Even more deplorable is that the documents disclose the RTA has agreed to indemnify their bedfellow companies for costs, charges and expenses or for claims or losses should a court find that environmental assessment or determination of the 'Tunnel' including the Ministers Condition of Approval fails to comply with the Law or is invalid in any respect. The RTA has indemnified the respective company in relation to any investigation or 'legal challenge'. It is noteworthy that in September 2004, the NSW Government closed their air-quality monitoring station near the Cross City Tunnel thereby removing evidence of local high pollution levels and thwarting potential litigation by residents affected by pollution from the toxic tunnel exhausts together with that generated by gridlocked surface traffic. The NSW Government's reason that it was unaffordable to maintain the monitor is hardly credible when in June, 2002 the RTA paid $9,110,375 to acquire the land with a market value of $4,520,250 to build the eastern stack for the Lane Cove Tunnel.

The 'secret' Deeds of Contract appear to protect the companies from paying 'restitution' of the injured through the payment of unenforceable compensatory fines, capped by the RTA for the Cross City Motorway Company at $5million, rather than criminal penalties. The failure to impose fines is the experience with the M5 East tunnel debacle where numerous breaches of the Ministers Conditions of Approval are on record. Thus, the costs never approach the economic advantage that accrues to the respective companies that perpetuate these injuries and escape liability. In other words the RTA has made it cheaper for the companies not to install proper filtration and thereby inflict sickness and potential death on the community exposed to toxic stack pollution.

It seems reckless to wilfully discharge additional toxic hazards into Sydney's air-shed that is already exceeding National Standards for harmful fine particles. The interlinked RTA-Corporate goal of profit maximization exceeds any future compensation cost. Twice as many people die from exposure to vehicle exhaust in Sydney than from road accidents. Total health impacts cost $2-3billion annually for Sydney alone.

In girding up the profits of its corporate co-partners, the RTA has over the past few years embarked on an utterly misleading campaign to discredit tunnel filtration. So effective has this campaign been that former Roads Minister Carl Scully has reinforced the RTA propaganda by his refrain that "Tunnel filtration is unproven technology and is only a high-tech placebo". Such false and delusional claims only helped his RTA bureaucrats to embark on a 'structure of harm' with corporate stakeholders to maximize wealth, corporate profit at cost to human health and environmental well-being. The conduct of the RTA, with government and ministerial fanfare, in [redacted] two [redacted] 'filtration trials' to appease community anger is unconscionable.

A comparative analysis of tabled documents including hand-written notes of one of the RTA delegates who visited Japan in September/October, 2003 to inspect tunnel filtration bore little relationship to the formal fictionalised RTA Report on Japan's Tunnel Filtration. [redacted]

Coupled with this, three independent consultants commissioned by Lane Cove Council unanimously recommended that the negative findings from NSW Health's Study of Residents Affected by the M5 East Stack be rejected on several grounds including a flawed methodology that skewed the results to a 'no risk to health' conclusion.

Lane Cove Tunnel Action Group (LCTAG) believes there is not only an obligation of 'due diligence' by the Regulatory Authorities (RTA, DEC, Health and DIPNR) but also on the respective tunnel consortia to implement proven measures to clean and detoxify the polluted tunnel airstream where the poisonous components are derived almost entirely from the combustion of fossil fuels, mainly petrol and diesel. Such measures would be consistent with the Precautionary Principles.

LCTAG also believes that to date, the NSW RTA and the respective tunnel corporate stakeholders, have failed to exercise such care, skill and foresight that would be expected of a reasonable corporation and helps to remove a defence of 'due diligence' by ignoring such facts. Indeed, the failure of the RTA and the respective companies could be interpreted now as a wilful and pre-meditated decision not to adopt preventive or precautionary measures. Such a decision implies a deliberate intention to discharge untreated toxic waste, knowing it has the potential to harm or be likely to harm the environment, including those 'most at risk' in a community who are already described in documents, known to the RTA and to the Consortia as the **"*most affected receptors*."**

The RTA seem not to exercise 'due diligence' by knowingly and negligently intending to discharge higher levels of toxic waste from the re-designed Lane Cove tunnel in a manner likely to cause harm. To date, LCTAG alleges that neither the RTA nor the Lane Cove Tunnel Company has volunteered the truth about traffic volumes or the real pollution levels. LCTAG also understands that a defence of 'due diligence' is established if a company commissions the offence due to causes over which they had no control; and that they took reasonable precautions and exercised due diligence to prevent the offence.

LCTAG has appealed to former NSW Premier John Fahey, Chairman of the Board of the LCT Consortium, to demonstrate the Company's duty of care to the community by taking the initiative to incorporate world's best in-tunnel filtration technology.

Dr Ray Kearney
Chairman,
Lane Cove Tunnel Action Group Inc.

The role of Government agencies in relation to the negotiation of the contract with the Lane Cove Tunnel Consortium

More of Govt's Filtered Facts and Fiddled Figures

A recent call for papers through NSW Parliament delivered 13 boxes of papers from four government departments (RTA, Health, EPA and DIPNR- formerly Planning NSW) mainly relating to the M5 East, Cross City (CCT) and Lane Cove Tunnels (LCT).

The documents show systematic shifting of responsibility and blame between the different departments, avoidance to own up, let alone address, fundamental errors and deficiencies, [redacted]

LCTAG Inc believes the internal papers reveal widespread negligence in dealing with high levels of toxic exhaust pollution.

What is of major concern is the RTA negotiated MAJOR changes in the Ministers Conditions of Approval for the LCT Project in the Contract with the successful Tenderer (Lane Cove Tunnel Company) without community consultation and without approval from the then Planning Minister (The Hon Andrew Refshauge)

The following excerpts highlight the concerns of LCTAG Inc.

- EPA alleges the RTA submitted the LCT Representations Report (RR) for approval by DIPNR without addressing and resolving major outstanding issues raised by the EPA.
- The EPA declares they could not make a formal determination e.g., on air quality impact assessment and stack emission concentration, because of the absence of proper and complete data.
- RTA fails to provide a copy of their RR to the EPA, before it is sent to the DIPNR for approval.
- Director General of EPA [redacted] and asserts *"It is important these air quality issues be assessed rigorously and transparently prior to submission of the final RR".*
- [redacted]
- EPA warns of alarming health impacts from the stacks and expects action to be implemented to reduce predicted illnesses. [redacted] discloses *"There will be a number of potentially harmful emissions from the tunnel ventilation stacks…"* and introduces 'adjustment factors' whereby the risk to health, claimed by EPA, is reduced to 'insignificance'.
- [redacted]
- Expert internal analysis confirms the RTA's consultant underestimates health risks and identifies flaws in the calculations. DIPNR accepts flawed data.
- EPA [redacted] acknowledge fine particles are more hazardous.
- [redacted]
- EPA defies the recommendations of the national committee and consultants on air-quality standards as well as world's best practice and advise DIPNR that EPA will continue to report and accept flawed monitoring. Documents confirm the Regulatory Authorities know that underestimated pollution effectively invalidates health-risk analysis and are aware that when unadjusted, avoids the detection of exceedances from stack emissions.
- Advice from EPA to DIPNR is not to recommend the use of correction factors to accurately measure the toxic particle pollution associated with the Cross City and Lane Cove Tunnels.

In 2003, Lane Cove Council commissioned an independent consultant from Q'LD to evaluate the LCT air quality assessment. His Report concluded that the background levels of particulate pollution were underestimated by between 11-40%, dependent on meteorological conditions, while incorporating correction factors would demonstrate exceedances of pollution standards. [redacted]

Thus, as LCTAG Inc has consistently maintained, one of the fundamental issues is the inappropriate use of air quality standards and goals, in the face of guidelines from the international tunnel association and compelling medical and scientific evidence about the effects of vehicle exhaust.

[redacted]

If air quality goals are exceeded, filtration is an option for each tunnel. However, the RTA maintains that filtration systems in tunnels do not work, but internal papers reveal a RTA report detailing all tunnels in Japan with filters, why and how they are installed. RTA knows full well that filtration is operational in more than 60 tunnels in Japan, [redacted].

Because of the problems with the M5 East tunnel, instead of filtering the fumes, the RTA has decided to put in a 3rd exhaust tunnel, parallel to the two road tubes in both the CCT and LCT, at a cost exceeding $40 million and $60 million respectively. However, in the contract negotiations in December, 2003, the RTA DELETED the 3rd ventilation tunnel WITHOUT advising Planning (DIPNR), EPA (DEC), NSW Health, Lane Cove Council and least of all the community. Only in May 2004 was the RTA forced to disclose such a major change reluctantly.
Filtration systems would have cost less than half of this, and resulted in better protection for drivers and residents. This 3rd tunnel option was never independently assessed, or ever considered as part of the LCT EIS process.

Former Roads Minister Scully reported to Parliament that the RTA purchased No.5 Sirius Road, Lane Cove and No.16 Marden St., for $4,559,740 and $9,110,375 respectively for exhaust stacks, well above market value. For example, the $9,110,375 is about TWICE the prescribed market value. Such waste could have been put to the cost of tunnel filtration. This RTA purchase was made BEFORE Ministerial approval of the LCT Project.

In early October, a RTA delegation visited Japan to confirm what they already knew privately about tunnel filtration. The same team went to Norway three years ago and came back with a very carefully crafted, sanitized report embarrassing the Norwegian Authorities. Lane Cove Council asked to accompany the delegation to Japan, paying their way, but the RTA refused them.

LCTAG Inc believes the RTA has also misled the public by claiming the recently released NSW Health Report confirms the M5 East tunnel's safety. Internal papers by the RTA establish the M5 East in-tunnel conditions are much worse than the Eastern Distributor, and that electricity costs are over $3.5million per annum (about 5 times what comparable tunnels cost).

In March, 2002, a huge ground–breaking scientific study showed breathing in small particles from vehicle exhaust over many years significantly increases the risk of dying from lung cancer and heart disease. Of special interest were tiny particles of pollution smaller than 2.5 micrometres, or one-thousandth of a millimetre, in diameter called “fine particulate matter” or $PM_{2.5}$. The researchers found that the death rate from lung cancer (controlled for smokers) increased by 8% for every increase of $10\mu g/M^3$ of $PM_{2.5}$. The fine particles of exhaust emissions and stacks are mainly missing from the pollution measurements for the Sydney tunnel projects.

Internal papers disclose that the RTA refused, on legal grounds, to heed NSW Health's advice to install warning signs for drivers to put their windows up to protect themselves against ill-effects of pollution in the tunnel. [redacted]

RTA assures us, for example, that an 80% reduction of particle load, if the windows are closed, should put us at ease. However, a fall in levels of soluble, toxic, respirable particles from >500µg to $100\mu g/M^3$ $PM_{2.5}$ is still 4-times the national guideline ($25\mu g/M^3$ $PM_{2.5}$) for background air quality. The RTA also failed to disclose that a study in Stockholm, in April 2000, showed that short-term exposure to in-tunnel air pollution significantly enhances asthma. These effects were found at levels of $PM_{2.5}$, that were equivalent to those recorded (i.e., $100\mu g/M^3$) in the M5 East Health study, when the vehicle windows were **closed**.
The NSW Health study establishes that current air-quality standards and monitoring systems are inappropriate and inadequate while potential legal implications, under the NSW Occupational Health and Safety Act, 2001 are implied.

The Carr Government should take note of a historic ruling in the US Supreme Court, February 2001. In a unanimous decision, nine judges ruled that health benefits should be the sole criterion in setting air pollution standards. The most important lesson for the NSW Regulatory Authorities to learn from this bleak period is their extraordinary capacity for self-delusion.
Dr Ray Kearney
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Lane Cove Tunnel Action Group Inc.

NSW's Government's Answer to Cancer - Blow it in the Wind!

The autocratic NSW Government has given planning approval to discharge from the 3.7 km Lane Cove twin tunnel, highly toxic emissions, **untreated**, via two proposed stacks in residential/ commercial areas. Crucial lessons have not been learnt from the M5 East tunnel debacle, or from three separate Parliamentary Inquiries into the M5East Tunnel Ventilation Stack.

Noxious pollutants from the proposed stacks will impact adversely not only upon local amenity and health but also upon property values (up to 20-25%) of the "worst affected receptors" as disclosed in documents tabled by Parliamentary Order. The severity of impact on health will depend also on conditions such as wind direction, stagnation and temperature inversions as well as on susceptibility of the exposed population. People suffering from respiratory conditions such as asthma, both young and old, are particularly at risk.

Stack pollution consisting of dust, gases and smoke, similar to the haze in the M5 East tunnel, affects the lung and respiratory tract but can also be taken up and transported by the bloodstream throughout the body. Through deposition in the environment, vehicle pollutants can also contaminate food and water as well as damage plant and animal life.

The fine particles, formed by condensation of the gases from the combustion of fuel contain known cancer-causing chemicals, as disclosed in the 'Conditions of Approval'. These 'secondary' particles, unlike those swept from the road surface, are mainly soluble in the moisture of the respiratory tract and cause acute respiratory inflammation. When absorbed, they contribute to proven cumulative toxicity.

Recent research involving 500,000 Americans has shown one in five lung cancer deaths is associated with exposure to ultra-fine particles of vehicle exhaust.

A major flaw in the RTA's supervised monitoring of pollution from tunnel stacks is that the fine particulate matter of less than one micrometre ($<PM_1$), representing 90% of particulate pollution from vehicle exhaust is mostly excluded by the measuring devices used, to date, in the monitoring and modelling. By analogy, if a professional fisherman plans to catch harbour prawns then a net of appropriate mesh size is used. In ignorance, the RTA supervise the use of a shark net and what is caught bears no relationship in composition, size and numbers to the professional's catch. The flawed air quality assessment as well as the health-risk analysis of the tunnel emissions have consistently ignored independent professional advice, (e.g., Dr Lidia Morawska (Q'land), air quality expert and adviser to WHO), that PM_{10} measurements, unlike PM_1, provide no information regarding vehicle emissions that constitute the tunnel haze. Thus, standards set for the emissions e.g., of the western stack ($1600\mu g/M^3$/ 30min.) relate **only** to PM_{10} and **grossly under-estimate** the actual particulate pollution. Planning NSW has also ignored the fact that the national standards of regional air quality **do not** apply to point source emissions (stacks) or to tunnels as the standards do not measure the most harmful fine particles in vehicle exhaust.

Last year, in the Upper House, a 'Filtration Bill' was passed on the basis of compelling evidence of proven technology and documented health impacts of particulates. Independent medically qualified politicians contributed to the debate. However, in the Lower House, the NSW Government has consistently used its voting power and untested information to thwart not only such a Bill but to reject the recommendations of three separate M5 East Parliamentary Inquiries calling for the installation of realistic, proven, cost-effective filtration systems.

The NSW Government stands utterly condemned for its arrogance and abject failure to adopt a duty of care in response to such recommendations.

Of equal concern is when Regulatory Authorities that now serve Government, rather than the community, increasingly show absolute contempt for due process, accountability, enforcement of conditions as well as for open and meaningful community consultation. Such anomalous conduct appears to persist under the jurisdiction of Ministers of the respective portfolios. Surely, it is time for change to correct an out-of-control crisis among the Regulatory Authorities. [redacted]

Unfortunately, the unsuspecting public is largely unaware of the misleading information in the RTA glossy brochures prepared by the 'spin doctors' whose job it seems is to obscure the truth and influence the thinking of the community by with-holding essential information. Not only what is said seems misleading but also, of more importance, is the failure to disclose all the facts. [redacted] **The Conditions of Approval make no mention of a 'ventilation shaft'. Yet, the RTA, for the first time and without a shred of detail, incorporate it in the project design as their answer to filtration as recorded in their post-conditions brochure distributed to the community. Based on the concept of a ventilation shaft for the Cross City Tunnel, it will be a parallel tunnel of about 6m in diameter costing at least $40-70million (est.) as opposed to $15million (est.) for in-tunnel filtration. The 'shaft' will function, it seems, as an experimental 'air-pollution sump' into which is transferred the twin tunnel's toxic air-stream before the noxious contents are exhausted, untreated, from the stacks.**

[redacted] **former Road's Minister Scully has also resorted to adopting another principle of persuasion by labeling events and people with distinctive phrases or slogans e.g., when he regularly states "Tunnel filtration is a placebo".** [redacted] **his audience will reject the idea on the basis of the negative symbol, instead of looking at the available evidence.**

The electorate is urged to send a powerful message back to the Carr Government as it did with the proposed closure of Hunters Hill High School. The continued arrogance and the utter contempt, by the NSW Government and its bureaucracies, should not be tolerated in a democracy. Government has a constitutional obligation to serve the people, not the party. Use the ballot box to express your protest. You are also invited to visit LCTAG's Information Centre in the Community Aid Centre, opposite the Lane Cove Library.
Dr Ray Kearney
Chairman,
Lane Cove Tunnel Action Group Inc.

The Lane Cove Tunnel Action Group Inc (LCTAG)

LCTAG is a coalition of 16 groups drawn from the residential, commercial and industrial sectors of Lane Cove. The Action Group was formed over ten years ago to seek the construction of a 3.7km, bore-driven, twin three-lane tunnel with the installation of air-cleaning technologies (electrostatic precipitators and activated carbon beds) that also negate the need for unsightly ventilation stacks.

It was indeed the LCTAG who **proposed**:

- The continuous long bore-driven tunnel as the most acceptable alternative to RTA's proposal to widen Epping Road or to construct a short 'cut and cover' tunnel.
- The current route of the present LCT.

- The most suitable and recommended site for the western tunnel exit/entrance or portal being on the RTA land at the intersection of Mowbray Road and Epping Road. However, in typical spite, to thwart the proposal, the RTA sold its land and in arrangements with the City of Willoughby Council had the site re-zoned to 'residential' to make way for a chosen developer to build townhouses on the site. The naivety of the RTA in its fit of pique was realized when the LCTAG tunnel proposal was independently published, by us, in the *North Shore Times* that forced the former Roads Minister Carl Scully to finally accept the LCTAG proposal. Today, the RTA is left with the only option to carve into the middle of Epping Road to build the western portal. By doing so the RTA had to compromise a needed 3-lane entry with only 2-lanes as they had already sold their land for townhouses. Thus, the RTA today has compromised surface traffic on Epping road by destroying more lanes from the surface road. Therein is the truth to the background of why the east-bound tunnel carriage-way begins with a compromised 2-lane entry, rather than the 3-lane entry, originally recommended by LCTAG on expert engineering advice?

The LCTAG is also part of a coalition with the M5-East Residents Against Polluting Stacks (RAPS) as well as those affected by the Cross City Tunnel i.e., Sydneysiders Against Polluting Stacks (SAPS) and the Cross City Tunnel Action Group (CCTAG). This coalition of concerned communities continue to campaign under the name of Groups Against Stack Pollution (GASP).