



9 February 2021

Jim Betts
Secretary
NSW Department of Planning, Industry and Environment

By email: jim.betts@planning.nsw.gov.au; Belinda.Scott@planning.nsw.gov.au.

Dear Mr Betts and Ms Scott

Re: Critical State Significant Infrastructure Application for Beaches Link and Gore Hill Freeway Connection.

We write to express our concerns and objections regarding the application seeking a declaration that the Beaches Link and Gore Hill Freeway Connection is a critical state infrastructure project.

We believe that the human health and health economic impacts of this project during its construction require further consideration and further measures to mitigate or reduce entirely human exposures to pollution.

This project will disproportionately affect children and young people during its construction and into the future.

Whilst car engines and fuels are becoming cleaner, the increase in diesel engines and diesel fuel means an increase in ultrafine particles. Fine particles (less than PM2.5) are of particular concern for a person's health because they can be inhaled deep into the lungs where they can be absorbed into the bloodstream or remain embedded for long periods.

Nitrogen Dioxide (NO₂), generated from road traffic and other fuel combustion processes, can cause inflammation of the respiratory system and increase susceptibility to respiratory infection.¹ Exposure to elevated levels of NO₂ has also been associated with increased mortality,² particularly related to respiratory disease, and increased hospital admissions for asthma and heart disease patients.³

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We note that 21 – 32% of the population in the affected suburbs; Cammeray, Artarmon, Naremburn, Northbridge, Seaforth, Balgowlah, and Killarney Heights are children and young people aged between 0-19. **There are 32 primary and high schools, 32 pre-schools and 15 hospitals and nursing homes in this area.**

It is not disputed that the project and the use of the tunnels and roads will produce air pollution, including NO₂ and SO₂ and dust.

It is well established that children are particularly vulnerable to air pollution due to the large surface area of their lungs compared to the rest of their body, reduced ability to excrete toxins, higher respiratory rate, and larger proportion of time spent outdoors.

School children in comparison to other community members have been shown to have higher cumulative black carbon exposures.⁴ School hours and in particular the commute to and from school are a key periods of exposure to pollutants.⁵

Motor vehicle pollution has also been shown to be associated with childhood asthma, in particular:

- increased exposure to NO₂ is positively associated with new-onset asthma
- increased exposure to sulphur dioxide is positively associated with a higher prevalence of wheeze in children
- increased exposure to particulate matter is positively associated with a higher incidence of wheeze in children.⁶

Lung cancer is another long-term consequence of exposure to traffic pollution.

Lung cancer is Australia's leading cause of cancer related mortality⁷. Reductions in cigarette smoking have reduced the incidence of squamous-cell lung cancer; however lung adenocarcinoma is increasing and affecting a growing proportion of 'never smokers'. Approximately twenty per cent of lung adenocarcinoma cases in Australia occur in 'never smokers'.

Lung cancer contributes 21 per cent of the health burden attributable to Australian urban air pollution. Given the lag time from exposure to presentation of disease (15-30 years) lung cancer cannot be considered a short-term impact. The most recent available systematic review and quantitative summary of the relationship between outdoor PM and lung cancer reports a relative life-time risk for lung cancer of 1.09. The meta -relative risk for the specific sup-type of lung cancer most associated with air pollution (adenocarcinoma) is 1.40 (95% CI 1.07 – 1.83). Put simply, this equates to **a 40% increased risk (relative to the current risk) of developing lung adenocarcinoma over the course of 60 years⁸.**

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Diesel exhaust is particularly carcinogenic and there is evidence that the DNA damage and mutations caused by diesel pollution also occur in sperm, which may give rise to subsequent generations inheriting the mutagenic impacts of diesel vehicle emissions⁹.

Living in close proximity to high traffic volume is associated with a range of adverse health outcomes including;

“mortality, myocardial infarction, sudden cardiac death, cardiovascular disease, atherosclerosis, hypertension, diabetes, asthma hospitalisation, respiratory symptoms, reduced lung function, lung cancer, arthritis, childhood cancer, autism, low birth weight and, cognitive performance in children (Boothe and Shendell 2008, Hart et al. 2009, Hoffmann et al. 2009, HEI 2010a, Nuvolone et al. 2011, Volk et al. 2011, WHO 2013c, Grahame et al. 2014, Hart et al. 2014).”(Hime et al. 2015)

Most people cannot easily change the location of their homes, workplaces, schools or childcare centres, so when large road projects such as this one have the ability to significantly alter a community's air pollution exposure every possible mitigation strategy should be comprehensively considered in terms of the net benefit to the community and associated health savings and then weighed up against the practicalities and costs of implementation¹⁰.

In particular, there is now very strong data demonstrating the immediate and long-term adverse effects of traffic related air pollution, highlighting a greater magnitude of impact than previously thought, and showing that there is no safe lower limit of exposure Therefore health impact assessments should aim at ensuring the cleanest air possible¹¹.

We note the 2018 report of the New South Wales Public Accountability Committee, *The impact of the WestConnex Project*, and the recommendations of that report. In particular, we note Recommendation 13 of the report, “That the NSW Government install, on all current and future motorway tunnels, filtration systems in order to reduce the level of pollutants emitted from ventilation stacks”, and recommendations pertaining to the capture and real-time publication of air quality data.

As a matter of principle, we support transport and associated infrastructure for communities that is clean and green. We believe that in the 21st Century our governments must consider and support policies and projects that use technology to create a cleaner future.

We have concerns about this project, not only regarding its viability as a method of 21st Century transport but, as the New South Wales Government has determined, its construction phase.

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We encourage the NSW Department of Planning, Industry and Environment to conduct further enquires and analysis to ensure the best possible strategies are in place to protect the respiratory health of workers and residents. This includes measuring air quality, not in accordance with the current industry standards, but in accordance with health-based standards¹².

At a minimum, we consider that filtration systems, ongoing dust suppression measures, capping of loads, halting activities during certain weather events, and ongoing air quality monitoring at schools and child care centres, are necessary for the health of the population residing by or engaging in activities alongside motorways, particularly for people with asthma, young children and those with respiratory conditions. We call for the implementation of such measures with respect to the development of all new motorway infrastructure projects.

Additionally, we support calls that:

- no spoil should be allowed to be stockpiled outside the acoustic shed, during day or overnight,
- contaminated spoil should not be retained on the construction site; it should be immediately taken away after excavation,
- there should be a limit on the use of diesel vehicles; non-diesel powered trucks should be used instead; and trucks from the Project should be banned from roads adjoining schools (with fines imposed for non-compliance).

In terms of measures to ensure compliance, there should be regular and ongoing monitoring of compliance with dust suppression and contamination measures by an independent person, and the project proponent should be required to consult with an occupational health and safety expert from the beginning of the project, and throughout the project's lifecycle, concerning the design and implementation of the project.

Consideration should also be given to moving the dive site at Flat Rock Gully away from children, and especially out of the Long Bay Catchment area (ie Bicentennial Reserve/ Flat Rock Reserve and Gully), due to the high level contamination risks and proximity to children's activities (including a Netball Club, with 10,000 members adjacent to the dive site).

We welcome further constructive dialogue between the Department and our experts on this matter.

Yours sincerely,

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¹ Jerrett et al, 2008. *Traffic-Related Air Pollution and Asthma Onset in Children: A Prospective Cohort Study with Individual Exposure Measurement Environmental Health Perspectives.*

² Fung et al., 2005. Air pollution and daily hospital admissions for cardiovascular diseases in Windsor, Ontario. *Canadian Journal of Public Health* 96:29–33.

³ Dockery et al., 1993. An Association between Air Pollution and Mortality in Six U.S. Cities. *The New England Journal of Medicine.*

⁴ See: <https://environment-health.ac.uk/>.

⁵ Mazaheri et al., 2014. School Children's Personal Exposure to Ultrafine Particles in the Urban Environment. *Environmental Science & Technology* 2014 48(1), 113-120.

⁶ Gasana et al., 2012. Motor vehicle air pollution and asthma in children: A meta-analysis. *Environmental Research* 117, 36–45.

⁷ Australian Institute of Health and Welfare 2020. Cancer data in Australia. Cat. no. CAN 122. Canberra: AIHW. <https://www.aihw.gov.au/reports/cancer/cancer-data-in-australia>. Also see: [Lung cancer in Australia statistics | Cancer Australia](#)

⁸ See Lung Health Research Centre (Clare Walter) Melbourne University submission to the West Gate Tunnel Project.

⁹ *Ibid.*

¹⁰ *Ibid.*

¹¹ *Ibid.*

¹² Please see Health-based standards for Australian regulated thresholds of nitrogen dioxide, sulfur dioxide and ozone. [Expert Position Statement 2019.](#)

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