

10 September 2014

Director - Infrastructure Projects
 Department of Planning and Environment
 Number: SSI 13_6136
 Major Projects Assessment
 GPO Box 39
 SYDNEY NSW 2001

NorthConnex Application Number: SSI 13_6136

Please find below my submission in response to the exhibition of the EIS for NorthConnex.

Firstly I would like to state I **object** to the project as described in the EIS.

I am a local resident of Wahroonga and live approximately 300m of the proposed exhaust ventilation stack. My wife and I moved to this location a few years ago. We were attracted to this unique area of metropolitan Sydney nested in an elevated and leafy setting while offering multiple rail transport routes, is central to shopping centres and in close proximity to a number of very good schools. We have also taken comfort and pride of our home residing in a heritage conservation area.

Health Concerns

- My primary concern is the health risks due to the air pollution emanating from the northern exhaust stack and portals. I have been aware of a number of large scale studies done that conclude the seriousness of the health risks from air pollution of this nature.
- I am deeply worried that I would be facing higher risk of many decapitating illnesses and premature death from diseases such as **lung and bladder cancer, heart disease, stroke**. Our community of doctors and also warned of increases in autism and complications in pregnancy.
- The World Health Organisation (WHO) classifies **diesel exhaust fumes as carcinogen** and in the same category as asbestos, arsenic and mustard gas. The proposed tunnel, in comparison to other Australian tunnels, will carry an unprecedented concentration of large heavy diesel trucks as the stated purpose of the tunnel is to divert these from Pennant Hills Rd.
- I am highly concerned from the advice I have received from air pollution experts that there is **no safety threshold to the amount of air pollution** that causes health impacts. This is contrary to what NorthConnex have communicated to us in the EIS documentation and their public forum. In fact air pollution and health experts advise that **the smallest amount of air pollution will have a corresponding amount of health impact** and that even **low doses of exposure to particle matter have been demonstrated to have**

significant health risks. I refer to the review of the literature that have been collated and documented in the “Letter of Medical Evidence opposing NorthConnex tunnel portal and stack placement in residential suburb” from Dr Raymond Nassar and Professor Simon Finfer.

Air quality modeling and monitoring concerns

- I am concerned that NorthConnex have not done a serious and honest assessment of the health risks and have ignored evidence that the finer particle matter, PM_{2.5} and less, including ultra-fine particles. As NorthConnex have also explained in their public forum, they have lumped all particle matter at PM₁₀ or less in the same category as they are only modelling and measuring to include this category. They **have not explained how PM_{2.5} and smaller particles have been taken into account**, and particularly the proportion and concentrations of these fine to ultra-fine particles.
- This is of extreme concern as experts advise that the smaller the particles are, the more toxic they are as finer particles travel deeper into the body. It has been explained to me from health professionals that the **ultra-fine particles are greatly absorbed into human tissue and the blood stream**.
- Air quality monitoring should be done locally within approx. one kilometer radius of the exhaust stack and portals. The period stated for monitoring the air quality is severely insufficient as it will not be for many years before the tunnel will reach full capacity and pollution levels will be at their highest.

Design issues

- The proposed height of the Stack is only 15m in a valley setting and may **not be high enough to disperse heavy pollution**. The EIS has not adequately modelled local conditions, in which I term local as meaning of the order of approximately 1 km radius from the proposed exhaust stack.
- The local conditions for Wahroonga is characterised by **low wind speeds** and often foggy conditions in the morning due to an inversion layer and would have the effect of **keeping the plume of mostly invisible pollution from the exhaust stack close to the ground**. This will be the air that we breathe within our local high density residential area.
- There are many design flaws in the tunnel and exhaust stack design. This appears to be due to poor modelling and is likely a result of the rushed nature of this whole project and lack of transparency in the arrival of this proposal over other potentially much safer options. This rushed approach also shows with the inadequate and unconvincing explanation for dismissing an option to employ filtering.

Property value impact

- I am concerned about the negative impact on my property value given the close proximity of the exhaust stack. The EIS does not address property value impacts.

Transparency and options assessment process

- I am concerned that a full and transparent options assessment process was not undertaken to assess alternative designs for the project. Unlike other tunnel projects in Sydney there are alternatives for locating the stack and portals in non-residential areas.
- It is stated by the **NHMRC** (National Health and Medical Research Council) that the **great advantage of tunnels that their portals and stacks can be “deliberately sited away from residential areas”**. In many countries overseas this is also a common recommendation and an established practice.

Suggested alternatives

- Serious consideration should be given to extending the tunnel northerly, together with the ventilation stack, to avoid locating them near residential areas. This may also assist with improving tunnel gradients and noise impacts of the tunnel. There are a number of possible alternatives available in relocation the stack further north that are worthy of serious investigation for their viability given the benefit of providing a reasonable safety buffer from the community.
- One very cost effective alternative would be to extend the northbound tunnel using a “cut and cover” tunnel and possibly using the existing freeway as a tunnel base. The width of the existing freeway north of Wahroonga is a minimum of 36m and the middle aisle could accommodate a 3 lane northbound “cut and cover” tunnel using precast walls and roof structures at a quarter of the cost of tunneling.
- Serious consideration should also be given to filtration. Lessons should be learned from Japan where it has been shown that electrostatic filters are quite effective at removing a significant proportion of the small particle matters. A paper titled **“The treatment of Air in Road Tunnels”** Sept 2010 by the CETU in France states that electrostatic filters can achieve efficiency of 94-99% for PM_{2.5} to PM₁₀ and an efficiency of 54-91% for the more dangerous particles PM_{2.5} and smaller.
- If filtering were to be used it would need to be turned on 24 hours per day and include severe penalties to the operator if this is not complied with. **Filtering could help to form part of the solution** by improving the air quality and lowering health risks, but **moving the source of the pollution further away from the highly residential community is still the primary key for a good solution.**

Concluding remarks

The proposed tunnel will divert heavily freighted route of diesel trucks off from Pennant Hills Rd. With the tunnel proposed for 9 km in length, the shifting of this **high proportion of diesel pollution** to a community close to the tunnel portal or exhaust stack will easily present the **highest possible health risks compared to any other tunnel in Australia**. It follows that greater efforts therefore must be taken to minimise these health risks which can only be practical done by moving the source of the pollution further away from the community.

While I support a tunnel to link the motorways and take heavy traffic off Pennant Hills Rd, I strongly suggest that the Northern Exhaust Stack be relocated out of this highly residential area. Relocation of the stack further to the north at least another 2 km would be a better proposition.

Yours faithfully,

A handwritten signature in dark ink, appearing to read 'D. Gordon', written in a cursive style.

David John GORDON
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