

1 March 2021

To NSW Department of Planning, Industry & Environment

Major Projects assessment

Objection in response to the Beaches Link & Gore Hill Freeway connection EIS SSI-8862

Dear Sirs,

I wish to lodge my objection to the above project being approved in the design as detailed in the above EIS on the following basis:

1. Despite many previous thoughtful responses from the community to the Northconnex, Western Harbour Tunnel and now the Beaches Link tunnels **there has been no improvement to the poor unfiltered ventilation design proposed for this Beaches link tunnel**. At least TransportNSW no longer says in its submissions "World's Best Practice" as it is clearly not.

Transport NSW have gone to the lowest quality ventilation system, longitudinal unfiltered end stack design that they can get away with using modelling of air pollution that is based on assumptions that must absolutely hold to meet those limits and for which no supporting data is available as there are no unfiltered tunnels of this lengths in the world operating to provide data to be compared. In fact, the Beaches Link tunnel ventilation design is a worse design than Northconnex which at least has an Emergency Smoke (includes exhaust) release stack at Thornleigh halfway along its 9 km length that can be used, especially in peak hours, to reduce the load of pollutants in the tunnel and the quantity released at the unfiltered stacks at the end of the tunnel (Wahroonga for Northbound and Pennant Hills for Southbound. **The design for Beaches Link which will be around 8 km when exiting at Seaforth should have at least a halfway emergency release stack**. There is no reason not to do this if Transport NSW still insist on not filtering the exhaust stacks or banning diesel heavy vehicles from the tunnel. The air exchange at Cammeray only puts fresh air in at the end of 8 kms to enable drivers to go a further 7.5 kms underground in the Western Harbour Tunnel to Rozelle without danger of exhaust fumes. The schoolchildren and residents at Cammeray/North Sydney will receive the full southbound exhaust of the Beaches Link main tunnel and the full Northbound exhaust of all lanes of the Western Harbour Tunnel.

This is entirely unacceptable and easily fixed if the design of Northconnex was followed providing half way stack on each leg or, less intrusive, simply add condition that fine particle (ESP filters) and noxious gases (NOx filters) must be installed to clean the exhaust prior to its dispersal over the community in high density residential and school areas and operate until low emission vehicles are over 50% of the Sydney vehicle fleet.

2. **The NSW Chief Scientist report quoted by TransportNSW in all community documents and the EIS that there is no problem with "well designed road tunnels" that have unfiltered ventilation (exhaust) stacks and also quoted to the Department of Planning in its response**

to the objections to the Western Harbour Tunnel, was prepared in 2014, updated 2017 and based on data only from road tunnels then operating in Sydney. NONE of those road tunnels are as long or heavily trafficked as the Beaches Link or the other recently approved long Sydney road tunnels (Northconnex, WestConnex and Western Harbour Tunnel) are designed to be. The longest road tunnel then was the 4km M5 East and the 3.6km Lane Cove Tunnel.

The longitudinal ventilation system does not become problematic until the 4km mark which is when the French, Spanish, Japanese, and others either add (filtration – the Mont Blanc 12km tunnel) or ban heavy diesel vehicles from the tunnel (the Paris Duplex tunnel).

The Beaches Link is objectively NOT a “well designed road tunnel”. The NSW Chief Scientist ACTAQ committee technical report of December 2019, handed out by TransportNSW on ventilation systems in overseas road tunnels also contains clear errors. This is surprising as though a desktop analysis, the correct answers are easily found on line from the relevant road authorities. That technical paper states it is “unknown if air treatment is used” in the Hong Kong CWB tunnel, however that tunnel opened in April 2019 has both particle (ESP) and gas (NOx) filters installed and the design with the approval of these systems had been publicly available on line at least since 2016. The E4 Stockholm longitudinal road tunnel (18km – 17km in tunnels, still under construction) described in that paper does not have exhaust air filtration systems but the author fails to mention that the ventilation system design in fact has 10 air exchange outlets plus 1 emergency smoke release along its length making the ventilation design much more analogous to our current Sydney Harbour Tunnel where the tunnel length of 2.3 km is served by single end stacks and nothing like the single end stack after 7.5 and 8km lengths of the Beaches Link main tunnels.

The UK and USA do not even have any road tunnels of greater than 5km. They put trains in such tunnels. NSW is building a network of very long longitudinal ventilated tunnels without sufficient air flow or filters despite having one of the worse air pollution vehicle fleets in the OECD. The approvals have been given based on modelling that cannot be validated as there is no real world data against which to do so (as noted in the Chief Scientist review document by Dr Longley) submitted with the EIS. **There is no real world data as no other comparable country now risks building urban heavily trafficked long (over 5km) road tunnels to this second rate design – all use filters (Spain, Italy, France, Japan, Hong Kong), or ban heavy diesel vehicles using the tunnel (France, Turkey) or add more exhaust stacks along the route (Sweden) to make them behave like the short road tunnels (4km and under) that we have operated successfully in Sydney without filters.**

Please go back to Transport NSW, and the NSW Chief Scientist, and ask for the Technical report to be updated and corrected and for data from the Northconnex tunnel to be collected for a full 12 months and then used to validate or invalidate the modelling on the Beaches Link unfiltered stack air pollution impacts. Transport NSW has a representative on that ACTAQ committee so not hard to ask for the work to be done. The independent air quality expert for the Beaches Link project, Dr Ian Longley of NIWA, also sits on that committee, although I find it very unusual that an expert working for the same organisation (RMS and TransportNSW) on a succession of similar projects can be regarded as still “Independent”.

There is no safe level of PM2.5 particulate pollution (WHO 2017 Air pollution and deaths report) and the main source of that pollution in Sydney is vehicle pollution. It is unconscionable for a Government agency (TransportNSW) to propose a design that will deliberately increase the air pollution burden on local communities (Seaforth, Balgowlah, Artarmon and Cammeray) when technology is readily available to clean the exhaust air before release. It is not good enough that in the health impacts section and air pollution section of the EIS it is stated that the increase is negligible because as a percentage of increase over the background it is not above 10% as the background level. Especially at Cammeray and Balgowlah regularly hits the maximum allowed ambient limit of PM2.5 8mcg/cubic metre under the Australian NEPM national air quality goals, to which NSW is a signatory. Therefore, any increase as a result of the unfiltered design of this project should be regarded as significant and mitigated as the technology is readily available and used overseas. Hong Kong's CWB road tunnel is the most recent to instal. Lend Lease (Asia) who installed the ventilation system from FiltronTEC could be consulted.

3. **Beautiful complete areas of Northern Sydney are to be shaken with construction and left polluted for the benefit of some arterial connectivity and profit of the already built operations of a private monopoly toll road operator, Transurban.** The Beaches Link tunnel exit to Gore Hill makes some sense as on TransportNSW (RMS) own analysis of Northern Beaches commuter vehicle journeys some 40% go East west to Chatswood or Macquarie Park areas, however Beaches commuters heading south want to go to the Sydney CBD not to Rozelle or to join a traffic queue on Anzac Bridge back into the Sydney CBD. Only occasionally do individuals need to travel to the airport and air travel for work purposes will be significantly curtailed even post COVID , as businesses have realised most of that work can be done by video conference. The Beaches Link connection at that point seems to be simply hoovering up a few extra percent of vehicles to feed into Westconnex southwards or westwards into the M2 motorway system. All tolls from both go to Transurban under operating arrangements **The project does not meet the transport needs of the drivers of the Northern Beaches**
4. **Department of Planning - the circumstances have changed** and surely the objection to the lack of sufficient air exhaust or installation of filtration as an alternative cannot be ignored this time as the presumptions underlying the air quality modelling, that the emissions from motor vehicles will continue to improve through technology and emission standards, have been completely dashed by the recent Federal Govt action. **The Federal Govt "Future Fuels" paper (Feb 2021) that confirms that (a) The Federal Govt will NOT be introducing the Euro 6 and Euro VI vehicle emission and fuel standards despite nearly all other OECD countries doing so. This leaves Australia with the worst standards in the OECD.; and (b) That there will be NO encouragements provided for electric cars or trucks but that incentives for large diesel fuel vehicles, such as the diesel fuel rebate will remain. In particular, the absence of the expected Euro6/VI standards, diesel vehicles will contribute, as noted in the air quality appendix some 40% more nitrous dioxide than assumed if the standard was in place some years before the Beaches Link tunnel opens to enable the vehicle mix to change as more modern vehicles enter the Sydney fleet.** The NSW Govt, including the Chief Scientist ACTAQ Committee relied on by TransportNSW for not installing filtration on the Exhaust stacks or in the tunnel, was relying on Euro6 being in place and in April 2016the ACTAQ wrote to urge the Federal Government to adopt the new standards as a matter of urgency to enable the maintenance of air quality in these planned longer road

tunnels. Until Euro 6 and ideally Electric or other no emission vehicles become a majority of the vehicle fleet, filtration must be included in the exhaust stacks if the tunnel is approved. The NSW Chief Health officer notes in her review of the design that given the lack of Euro 6 every assumption about surface road pollution levels in the air quality modelling must hold. This is not a ringing endorsement of the unfiltered design and as raised by many in regards to the traffic modelling it is likely that the increase in surface road local traffic caused by road changes proposed for Beaches Link, and already approved for Western Harbour Tunnel/Warringah Freeway upgrade), will generate more congestion and hence high pollution levels on local roads over time than modelled.

5. **The claimed benefits of the project to traffic in Mosman and Military Road are not realistic, and more work needs to be done. Mosman residents and motorists are being misled by the claim that the Beaches Link Tunnel is being done as a by pass to provide a 10 to 11 % reduction in Military Road use.** However, there is no reference and emphasis in the EIS that as planned the Beaches Link Tunnel will act with the Warringah Freeway Upgrade to actually cause new delays and Military Road traffic between Ourimbah Road, Mosman and Ben Boyd, Neutral Bay as the Ourimbah Road route to the Sydney Harbour Bridge is to be blocked by the closure of the Ernest Street ramps to the Harbour Bridge. They will only access the Sydney Harbour Tunnel which gets you to Randwick/Bondi/Woolloomooloo/Airport, not where city bound Beaches and Mosman commuters wish to go every weekday.

Ourimbah Road users coming up Spit Road from the lower Beaches or up Awaba Street from Balmoral will now have to use Military Road or rat run through local streets to access the Harbour Bridge via the Cahill expressway or at Military Rd/Falcon St interchange. This will exacerbate traffic congestion across Mosman and Neutral Bay, including Military Rd.. Those Beaches drivers who need to go to the Sydney CBD will not use the Beaches Link tunnel as they do not want to go where the Western Harbour Tunnel can take them. The Fish Markets and Rozelle are not the central CBD for office workers. They will not use the mooted buses in the Beaches Link tunnel for the same reason – in same or less time they will have been able to use existing B Line bus services, via the Spit Bridge and Military Rd to get to the Sydney CBD for work. **If this project is to work at all the Ernest Street ramps must be able to access the Sydney Harbour Bridge.**

6. **While no doubt with the best of intentions too much of the expert information in the report is based on presumptions which have not been tested with real data.** The actual operating data from the first B Line service has not been collected and factored into the traffic forecast and no allowance has been made for the 2nd B Line bus service (East West Dee Why to Chatswood) announced by the same Department over 18 months ago and now commencing. This will relieve the need for the Beaches Link leg to Artarmon. The approach taken in the presentation of the data has been skewed to be inconsistent to present the most positive view of the project. For example, using a very long GRAL domain to examine air pollution impacts so that a large area is averaged rather than a focus on the areas from Seaforth/Balgowlah to Cammeray where the impact of the project will be. The scales used on the air pollution maps are inconsistent between maps and therefore present a false view to those looking at the maps and simply looking at dispersal cloud range that the difference between doing nothing and doing the project or doing the Western Harbour Tunnel and then adding Beaches Link are only marginal – however if you look at the scale the same

distance reflects a doubled pollution levels. This is not acceptable scientific practice and seems only to get maps to look similar and fit in the document. Similarly narrow areas of maps are shown for areas affected by tunnelling vibration (arguing only 50m either side) when data from projects worldwide shows the dewatering effects of tunnelling can lead to cracking at distances up to 350metres or more. This is a direct effect of the tunnelling activity but as it is not an effect of the equipment itself as it tunnels the damage to land and properties is not discussed in the document. The full maps of the suburbs showing the route of the proposed tunnelling for the Beaches Link project should be prepared and provided to the Department of Planning and the community for consultation before any approval is made..

Important data has also been included in the EIS in obtuse ways, apparently hiding the information. For example Traffic Volume figures are located in the noise appendix not in Appendix F on Traffic modelling where only intersection performance is provided not the number of vehicles. While volume of traffic is certainly one of a number of factors relevant for assessing operational noise impacts, volume of traffic should also be included in the traffic appendix itself so that the impacts of the proposal on local and arterial roads are clear to readers of the EIS. **The construction and operation of the first long road tunnel in Sydney was long delayed but now that Northconnex is open, please delay approval of Beaches Link until some real information is available of the Northconnex first full year of operation including air pollution levels on surrounding roads and from the unfiltered exhaust stacks and the potential of car user toll avoidance before the huge expense of the Beaches Link Tunnel is underway.** The TransportNSW assumptions about road tunnels may not be validated by the actual data from the operating Northconnex road tunnel. Please delay approval until this can be done – by at least 18 months since November 2020 opening so that a full calendar year of operational data can be used.

7. **If Department of Planning and the Planning Minister cannot delay the assessment and approval for political reasons then please condition the Beaches Link project to add filters where double exhaust stacks will be created by the project.** This is particularly so at Cammeray (where the pollution load from the Western Harbour Tunnel will otherwise be doubled by the Beaches Link exhaust) and at Artarmon where the single unfiltered stack for the Lane Cove tunnel – which function well, will be joined by a stack for a single lane spur of the Beaches Link tunnel, increasing the pollution levels in this area which while previously industrial now has more residential apartment and office worker (old ABC Gore Hill site) within range and thus more people to be affected at work or home by increased in pollution at that point. **At least please obtain quotation estimates from the major filtration provides (CTA from Norway, Aigner from Austria, Panasonic Japan and FiltronTec from German) on the real cost to install and maintain filtration systems at such an exhaust stack site. It is likely that the cost, as a proportion of a scale of a project of an estimated \$8 billion dollars) will be trivial. If you do not wait for the Northconnex data then please insist as a condition that tunnel ventilation system be built with an extra exhaust on the leg from Seaforth/Balgowlah to Cammeray, to match the Northconnex design, (Artarmon stack does not count as it vents a separate spur with the main exhaust traveling and collecting in highest concentration at Cammeray) or require that ESP (particle) and noxious gas (NOx) filters to be installed and to be used.** Air pollution, mainly from road vehicles, causes twice as many preventable deaths in Australia as road accidents (CSIRO and Sydney University research Jan 2021), in the UK the Government has been held responsible for the death of a child in London due to traffic pollution. However, Transport NSW is happy to spend on the

tunnel lighting and wall design systems to prevent road accidents but is willing to do nothing to mitigate the pollution this project will disperse over the communities at Cammeray/North Sydney, Balgowlah, Seaforth and Artarmon. They have not even provided an estimate of the cost of installing and operating filtration technology for the exhaust (ventilation) stacks that they wish to build in the valleys at Balgowlah and Cammeray. There is no safe level of P<M2.5 pollution and it is a known class 1A carcinogen. If Transport NSW wanted to install a pipe at the top of Ernest St pumping out cigarette smoke, or build a factory there in the middle of a dense residential area, you would not allow it. The proposed process by which the EPA will issue and regulate a pollution licence to the tunnel operator for the unfiltered exhaust stacks and the tunnels is flawed – the EPA does not get to set or improve the air quality standards over time, as those standards are tightened. The tunnel will be operated for its entire life with the standard for in tunnel air pollutants designated at approval, this is despite the fact that air pollution standards are tightening worldwide, including in Australia. The Federal NEPM will reduce the maximum limit for ambient PM 2.5 pollution from 8 to 7 mcg per cubic metre before 2025 when the Beaches Link tunnel may open. Any approval that enables that standard to be regularly breached, as will occur at Balgowlah and Cammeray without filters according to the modelling provided in the EIS will breach that already legislated air quality standard to which NSW is a signatory. **Disingenuously in the EIS air quality analysis TransportNSW runs a line at the level of 8 despite knowing, and admitting at the virtual community consultations, that they are aware the standard will be 7 well before this tunnel opens. Please ask the EPA whether including filters would reduce the ambient air pollution in those localities. The EIs modelling and reports clearly shows it will – even if the filters only remove 85% of pollutants, as regularly achieved overseas.**

8. **Unbelievably the EIS shows that TransportNSW only proposes to monitor ambient air quality for a maximum of 24months (2years) after the Beaches Link tunnel opens. How can this possibly be sufficient time to tell if the surface road and pollution outlet impacts of the project are correct? That is unacceptable.** The Beaches tunnel will not possibly be carrying its maximum traffic load within 2 years. If it is then the project is a failure. Otherwise, the full impact of tunnel use and the validation of the modelling data will not be possible unless monitors are kept indefinitely or for at least 10 years. Apparently, this month criteria was given to the Northconnex and therefore copied on subsequent projects. An illogical criterion in one project does not mean it should be copied into all others. The error of such a condition should be corrected this time. The Brisbane AirportLink tunnel provides an example where ongoing ambient monitoring is in place at multiple sites and works well.

If measurement of ambient air quality is not ongoing how will the EPA be able to detect major failures in the modelling and expected ambient pollution levels, such as caused by increased surface road traffic, which the Chief Health officer in her review has warned are a major concern for air pollution levels anticipated for the Beaches Link project. I note that the Brisbane AirportLink road tunnel (@6km long) has ongoing real time monitoring of particulate and gas pollution levels at ambient sites, including a number of schools. This continues despite the tunnel opening nearly 10 years ago. The Lane Cove Tunnel also has ongoing monitoring, as has the M5 East. No future health and environment studies as to the impact of the project are going to be possible if there is no ambient monitoring beyond the 24-month mark. The project should also be required to commence monitoring within 6 months of approval as the 12 months before operation mark condition proposed in the EIS

occurs at the height of construction of the project and therefore a point of major dust and exhaust emissions and enables an artificially high ambient air quality bench mark to be set.

If the Beaches Link project is approved it should be a condition that Air quality monitors measuring PM 2.5, PM10 and NO and NO2 gases should also be provided and maintained by Transport NSW at and its data made available in real time and in monthly reports to all school communities within 800 m of the project construction zone. Silica dust is generated from tunnelling through Sydney sandstone and is a disease risk, dust from construction sites where trees and grass have been removed and emissions from diesel trucks and construction equipment all pose a health risk to the staff and students at those schools. At Balgowlah, Balgowlah Boys High, St Cecilia's school and Seaforth Public school should all receive monitors, Artarmon Public school should have one, at Cammeray: Anzac Park Public School, Cammeraygal High School (Ernest St campus), Redland tennis centre (Corner Ernest ST and Park Rd) and Cammeray Public School should all receive one). Arrangements should be made for the schools to be alerted of any breach of in tunnel air quality limits or fire and alerted to keep students inside until the level of pollutants reduces. This is vital as schools such as Anzac Park have no air conditioning and are designed with open atriums in classroom blocks. Transport NSW should be conditioned to provide air conditioning and suitable glazing for the schools to mitigate the air pollution and noise pollution impacts of this project on their students.

Heavy vehicles to and from the construction sites must not be allowed to pass the schools during the hours of 8am to 6pm for both pedestrian safety and air and noise pollution reasons. Conditions should be imposed that during the operation of the tunnel real time levels of pollutants from the stacks and at ambient sensors should be made publicly available (again the Brisbane Airport Link and Clem 7 tunnel both do this –as the GoVia network, now owned by Transurban)

9. **The health cost projected in the health effects volume uses an inappropriate measure. The incidence of asthma or other conditions is to be measured by hospital admissions – most asthma and lung conditions are managed in the community by GPs and do not end up in hospital** so will not count. It does not mean they are not severe, do not cause lung damage/restrict growth and cause lost days at school or work. Please estimate these effects. If no ongoing ambient monitoring occurs there will be no way to do long term health studies on the effect of the project. I note that a longterm data analysis by Prof Hibberd was possible in relation to the M5 East and Lane Cove tunnels as a result of monitoring data being available. Unfortunately, those tunnels are half the length of the proposed Beaches Link so the data and conclusions are not comparable.

Otherwise, it is surely simpler to require filters until diesel vehicles no longer use the tunnel, and the majority can go electric. It will make such a health difference to a generation of children – the Cammeray /North Sydney district, affected by the double stack at Ernest Street, in the largest education precinct in the country with over 12,000 public and private school children plus preschool and university students. The \$1 million-dollar annual operating cost is minor in a \$1 billion per km project cost.

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