

Submission – Beaches link Tunnel EIS

I write to express my strong objection to the Beaches Link Tunnel.

I am a property owner and previous resident of Balgowlah and currently reside in Seaforth.

My objections are based on the extremely negative impact the tunnel construction and operations will have on the local communities near all the tunnel entrances and ventilation stacks, on all tunnel users, the environment and the resulting impacts on the whole Northern Beaches in general. Current information and experience globally shows that there will be many negative impacts during and after construction once the tunnel toll road is built, including increased air pollution, increase in cars on the road and no benefits to the community.

This submission lists some of my objections. Evidence supporting my views is widely available to all and has been presented by many people already

I object to the following:

- This is not an environmental project. It will have an adverse impact on greenhouse gas emissions and contribute to climate change. The tunnel will encourage more people to drive cars instead of using more environmental means of transport and destroy our local environment. Other cities around the world are aiming to reduce emissions, providing better public transport and cycling/walking options, while NSW/Sydney is encouraging more cars onto the road = more pollution
- It has not looked at alternative public transport solutions properly and not considered more localised centres for future working patterns
- It will bring enormous overdevelopment and increase in population in the Northern Beaches, making it an undesirable place for residents to live.
- It will increase traffic in the Northern Beaches, especially on weekends, bringing up to 40000 extra cars a day. The local traffic in the Northern Beaches is already a heavy on weekdays and weekends and car parks, especially at the beaches, are already overcrowded.
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- It does not address adequately, the real impacts this project will have on the community, especially noise, air quality and health impacts for local residents, particularly those closest to the construction sites and unfiltered exhaust stacks.
- The health of the community is being compromised for the benefit of others. This project places public health at great risk with increased air pollution. The construction sites, ventilation stacks and tunnel entrances are very close to homes, schools, day care centres and there is no mandate for “best practice” filtration of ventilation stacks. Any change to air pollution levels, no matter how

small, is not “negligible” as stated in the EIS when it comes to public health. There is no safe level of air pollution. Air pollution kills.

- The ongoing health and safety of school students is at risk. There are many schools, families and thousands of students situated within 500 metres of the proposed unfiltered ventilation stack locations. (Seaforth PS, Balgowlah Boys PS, St Cecelias, North Balgowlah PS and many pre schools). The ventilation stack located on Balgowlah Golf course is within 100m of homes, 300m of schools, childcare facilities and aged care. The Seaforth Ventilation stack near Kirkwood Ave, Seaforth is within 300m of homes and at in Cammeray the stacks are within 100m of homes and 300m of Anzac Park Public School. These ventilation stacks at all tunnel portals across the entire proposed Beaches Link network MUST be filtered and if they cannot be filtered, the tunnel should not be built. with regard to the impact of pollution on the local residents from the exhaust stack in BGC. The exhaust stacks in BGC MUST be filtered, if it cannot be filtered the tunnel should not be built.
- Balgowlah Boys High School was not included in the EIS as a community receptor for modelling, despite being within 300m and overlooking the exhaust stack. Construction impacts will affect Balgowlah Boys High School for the entire school tenure of some students. This has a large potential to negatively affect their future. The Maritimo and Sydney Road intersection is packed with students before and after school. Truck movements here make it extremely unsafe considering how many students already run straight across the road here to catch buses at the beginning/end of the day
- The Balgowlah exhaust stack is located at a low point in the valley, which is a problem, so exhaust emissions will be distributed over homes and schools on the hills around it. This includes the tall apartments at Stockland Balgowlah, homes in Ellery Pde Seaforth, Woodbine St North Balgowlah, Maretimo St Balgowlah and everyone in between. Thousands of residents will be exposed to increased pollution levels and many will be able to see the stack from their home. The Seaforth stack sits on top of a ridge and will affect Seaforth, North Balgowlah, Killarney Heights, Allambie Heights, castle Cove. Many residents in these areas have not been informed about this impact on them.
- The community are concerned that pollution exposure figures modelled in the EIS for particulate matter (PM10 and PM2.5) are averaged over a 24-hour period. This hides high exposure times (i.e. during peak hour) by averaging them with low exposure times when there is little traffic.

- Deadly particulate matter PM1 has not been factored into the potential harm from pollution. This particulate matter is so small (is invisible), that it can go deep into your lungs and cause many chronic and deadly health problems.
- Any increase in air pollution, no matter how small will negatively affect people's health. There is no safe level of air pollution. The EIS describes the small increases of air pollution as indistinguishable" and obviously feels its ok for the communities affected. This is simply not the case. Increased exposure from the tunnel, new roads and exhaust stack will negatively affect health. What the government should be doing is trying to improve the existing air pollution levels, as they are already a concern, not add to them at all. Past experience and studies have shown that taking some of the cars of the roads and directing going in the tunnel does not improve air quality for communities around these stacks and tunnel entries.
- The NSW Chief Scientist report reveals all stack designs involve increased air toxins up to a 1200m radius from an exhaust stack. This will affect thousands more residents, including those most vulnerable to effects – children, the elderly, pregnant women and those with compromised immune systems. Government documents recently leaked to the media revealed "plume downwash" is also a concern at the site, where additional toxins are drawn to ground level.
- Electric and hydrogen cars will not solve the problems. They bring their own. If there is an accident, the batteries are highly flammable and toxic when inhaled. Some countries are considering banning electric vehicles in tunnels until these risks can be mitigated.
- Puts homes and businesses in the area at risk of damage from vibrations, settlement and ground movement, with past projects confirming there will be no assistance from contractor or government to rectify or compensate.
- Ineffective dust mitigation.
- **Noise and vibration exposure** – Despite acoustic sheds and noise walls being used to attempt to reduce the noise and dust generated from construction, residents will still be severely impacted. Some functions are excessively loud and the noise cannot be effectively mitigated by sheds or noise walls. Surface road construction cannot be covered and generally needs to be undertaken at night when traffic levels are low. Many residents will be impacted by construction noise as they are located on hills elevated above the site at Balgowlah, or simply too close to the work.

- An example of the noise and disturbance generated by construction at a similar site in St Peters is below (filmed by residents at 1am).
- <https://www.facebook.com/westconnexactiongroup/videos/2052267521751835/>
- The tunnel will not achieve its stated goal of addressing long-term traffic congestion in the Northern Beaches.
- Independent transport expert, Dr Michelle Zeibots, reports traffic problems in the area will be back to the same as existing now within 2 years of the tunnel opening, and that the tunnel should not be built. Short term gains in travel times by the tunnel will be negated by extra delays and congestion on arterial roads leading to the tunnel.

View a presentation from Dr Zeibots about the tunnel to the community here: <https://youtu.be/sql8SPxlzSw>

- The Balgowlah/Seaforth communities (as will other communities in other affected areas) will be destroyed, as we know them. The multi lane developments and 6-7 storey high ventilation stacks will make it an undesirable area to live in.
- The project will place unacceptable stress on and bring unliveable conditions to communities near the construction sites. There will be excessive construction noise for 5+ years. This causes stress and a severe impact on resident's sleep, which is essential for wellness. Sleep deprivation leads to mental health issues and a reduced quality of life.
- Previous tunnel construction projects in Sydney have shown that there is no regard given to residents by contractors in terms of noise at night (or day). Breaches have been big and often. Should the project go ahead, there must be extensive noise monitoring and noise mitigation (eg double glazing) must be offered to all impacted homes, not just those homes as defined in the EIS, but also those where other people are or feel they will be affected by any change to the noise levels. This must be done during the entire period of construction and after completion ongoing.
- There will be a huge number of truck movements, generating 494 heavy vehicle movements (large trucks carrying spoil) and 230 light vehicle movements per day in Balgowlah alone at Golf Course site, which is directly opposite Balgowlah Boys High School. This area is already subject to capacity traffic movements at both Sydney Road and Burnt Bridge Creek Deviation and poses significant safety and noise issues for the school students. St Cecelias School and pre schools are also very close by.

- Large trucks carrying spoil and going through the new traffic lights at the intersection of Maritimo St and Sydney Rd in Balgowlah at a rate of approx once per 87 seconds throughout the whole day will cause safety issues and disturb students in class.
- The project will create many rat runs and consequent safety issues for local traffic which is already a problem. Residents living on the cul de sac streets at the bottom of Wanganella (Westlake, Brighton, Paris), will be virtually trapped in their streets in the mornings. Seaforth residents will have a similar problem trying to leave Seaforth in the morning.
- The project will have huge negative impacts on the environment which is not acceptable.
Local flora and fauna, creeks, waterways, harbour areas will be destroyed, creating knock on effects all the way to other areas eg. Manly Lagoon, Manly Dam, Clontarf

I object to the impacts on the environment to Manly Dam

- The EIS reveals that 1979 mature trees will be removed in Garigal National Park / Bantry Bay and Manly Dam Reserve with replacement planting for only 339 replacing mature trees with only young saplings.

The site is also within the Manly Dam Catchment zone. Many years of construction run-off is a significant risk to the creeks and riparian zones near waterways that flow into Manly Dam, into Burnt Bridge Creek and into Manly Lagoon, a catchment already under considerable strain.

There are many threatened species of fauna in this area, including the Eastern Pygmy-possum, Powerful Owl, Rosenberg's Goanna, Large-eared Pied Bat, Grey-headed Flying-fox, Red-crowned Toadlet, and the rare Galaxias brevipinnis, a climbing fish that is unchanged by evolution since the Gondwana era 60 million years ago. These species must be protected.

I object to the environmental impacts on Burnt Bridge Creek

- The EIS for the Beaches Link project confirms that the Burnt Bridge Creek "is a vital ecological corridor of regenerated habitat that provides a range of important habitats for a diversity of local flora and fauna". (EIS appendix O, page 45)
Construction will involve diverting a section of Burnt Bridge Creek, removing the lake, and removing surrounding vegetation and habitat that is a valuable green corridor for animals, birds and aquatic life.
As a result, up to 96% of the base water flow of Burnt Bridge Creek will be permanently lost with this tunnel construction. This will have a devastating effect

on the plants and animals that currently rely on the creek. It will effectively mean the creek will not exist any more and nor will the flora and fauna that live there. In addition to this, during construction, approximately 400,000 litres of wastewater per day will be discharged into the creek from the site that will run into Queenscliff Lagoon.

The site is categorised as flood-prone and it is unacceptable for any waste water, pollutants or contamination by construction soils to enter the creek system and impact all catchment areas downstream.

The EIS fails to assess the impacts this will have downstream from this on Manly Lagoon, including endangered ecological communities.

There are also critically endangered plant species growing on the site - the Seaforth Mintbush, Magenta Lilly Pilly and endangered birds such as the Australasian Bittern and Red Knot. Bandicoots and echidnas have also been seen there.

- The site is also very close to the iconic threatened Grey-Headed Flying Fox colony in Balgowlah and any disturbance from construction noise, destruction of significant numbers of trees they feed on, or polluted sediment in the creek system poses a severe risk to these animals.
- The EIS has summarised that, whilst only 120 metres from the construction footprint, the flying fox colony is within an urban environment so an “increase in noise and vibration is not expected to have a significant impact”. This is despite predicted noise levels exceeding 75dB(A) – that sounds like a lot – I would be very surprised if the bats were happy about it!.
- The Northern Beaches Council submission also highlights these risks and says “The EIS trivialises what would be significant hydrological and ecological impacts on Burnt Bridge Creek. The Creek would essentially be functioning as a storm water channel.... Other impacts include the effects of ground water draw down on riparian vegetation and other terrestrial flora and fauna (protected Flying Foxes etc) reliant on some degree on available fresh water or aquatic communities”.
- Numerous Aboriginal middens and rock carvings will be impacted by the construction at Seaforth. These sites are of important cultural significance to indigenous people and the area. It is suggested these be excavated and removed. This would be unacceptable to indigenous leaders and I also object to these significant pieces of culture and history being disturbed. Within 50 metres of the footprint of the project, there are 11 sites of Aboriginal cultural heritage including rock art, engravings and rock shelters that are vulnerable to vibration impacts. These must also be protected from vibrations and excavation.

I object to the potential impacts on the environment in Middle Harbour/Spit

- Many people currently use this area for recreational activities - rowing, boating, fishing, kayaking, hiking, dog walking etc.

There is significant risk to the marine environment in Middle Harbour from disturbance of sediment, increased turbidity and potential fuel/oil leaks and spills during construction of the cofferdams and laying the immersed tunnels tubes into the sediment or onto small stilts on the harbour bed.

Sediment samples revealed levels above safe guidelines of heavy metals, mercury, lead and pesticides. Sediment curtains will be used to attempt to restrict sediment spread during construction, but Bill Maher, professor of environmental chemistry and toxicology, has stated "I personally have never seen a sediment curtain that's worked 100 per cent". And according to secret government documents leaked to the media. "Another underwater tunnel...connecting Northbridge to Seaforth could also create a plume of turbid contaminated water".

If released during dredging, these would have devastating impacts upon the seagrass, aquatic life including endangered marine species such as the White's seahorse, and people who swim, boat, row and fish in the surrounding areas of the Spit, Clontarf, Beauty Point and Sailors Bay.

It will essentially pollute our harbour with toxic sediment putting Middle Harbour marine life, including some protected marine species at risk.

- Government informs the community that usage of Spit Reserve West will not be impacted, yet the constructions will involve extensive noise and truck movements for 5 years of construction, severely impacting the amenity of the reserve, marinas, restaurants and surrounding residential areas of both the reserve and the tunnel site.

I object to the impact on resident's homes and businesses

- The tunnel project puts resident's homes and businesses in the local area at risk of damage from vibrations, settlement and ground movement/cracking, changed water tables. Past experience with other tunnels built across Sydney demonstrate that many home-owners face financial hardship as a result as contractors do not take responsibility for causing damages to homes and homeowners have subsequently not been properly compensated, if at all and had their homes virtually crumbling around them.

- The proposed tunnel has already negatively impacted the value of properties directly bordering the Balgowlah Golf Course and others close by, affecting resident's financially, along with their mental health.

There is no fair compensation in place from the government for these property owners, despite what the community was told at information sessions. The government is very aware of this.

If the project goes ahead it will have huge financial impacts on many other residents, other than those whose homes have or will be compulsory acquired. This is not acceptable.

Whether or not the tunnel still goes ahead, these residents must be compensated fairly and be given appropriate additional compensation for having to move because of this project, which is a huge upheaval in their lives, through no fault or choice of their own.

If this is not done, it will prevent many residents who no longer wish to live in their homes from being able to sell their property and move elsewhere locally as housing prices are going up everywhere else.

This is not acceptable.

Residents who have already sold recently were forced to take a huge reduction on the price from what their house should have been worth had the tunnel project not been here. These people would not have sold their properties if the tunnel project plans were not released. As far as I'm aware these people have not been compensated at all. This is not acceptable. No resident should suffer financially for this or any other government project or other people's gain .

If the government cannot afford to compensate all residents properly, the tunnel must not be built.
- The tunnel project will greatly reduce the quality of life for many residents during the construction phase and after - noise, dust, ambient light, noise from playing fields, rats runs during, increase of traffic, outlook onto ventilation stack and car parks, lack of sleep and/or sleep quality, mental health etc.
- Increased traffic in Wanganella St both during and after construction will result in local residents being "trapped" in their streets, not being able to exit from cross street runs. Westlake Place, Brighton and Paris Streets will be affected along with many other streets that will experience rat runs. This brings additional safety issues with it also.
- The Balgowlah Golf Course being flattened with "spoil" before any community consultation with council, environmental planners has taken place and decisions made as to what is best for this area after construction
- I object to the fact that the communities most negatively affected by this tunnel have provided extensive feedback/concerns prior to the release of the EIS that has essentially been ignored.

A recent parliamentary inquiry into the WestConnex planning, found that the government had “failed to adequately consider alternative options” and had “weakened the accountability and disclosure rules” resulting in limited transparency to the public. Unfortunately, our community is seeing similar processes occurring in the planning for the Beaches Link Tunnel.

- To date our communities have seen a lack of transparency and minimal, if any, action in regard to consultation. No business case has been presented. Despite the feedback and clear message communicated from this community provided by hundreds of residents, no action has been taken by the government to remove the features of the tunnel, now featured in this EIS final design. I assume this will be similar after the EIS submissions are closed and “viewed”.

I strongly object to Balgowlah Golf Course being demolished and the space used as a construction/tunnel excavation site for 5 + years of construction, then “given back” to the community after.

- Balgowlah Golf course is currently a beautiful, green area with many well established mature trees, shrubs and grasses, its full of birdlife and other native wildlife and is used not only by golfers, but many other local residents exercising and dog walking daily. Areas like this in a city need to be conserved, not destroyed. The destruction of this site will remove the only green area in this locality that residents are able to look at, walk to and will destroy the homes and habitat of all the native animals living there. Any sporting fields that “replace” this will be unusable to many who do not want to exercise anywhere near a ventilation “pollution” stack or have their children play sport in the vicinity. There is too much evidence to know that this is not safe. I would not use this space and would not let my children play on any future facilities in this area with an unfiltered stack. There should be no homes ever built in this area.
- I object to the Balgowlah Golf Course being used as construction site, housing a subsequent Link. Road and the removal of the trees and habitat on and around the site

Should the tunnel still go ahead regardless of resident’s objections and obvious major public health implications, the following must be implemented:

- Residents bordering onto the golf course have paid top prices in the area to purchase their homes and live in a once sought after desirable location, with beautiful views of and access to the Balgowlah Golf Course that they bought into and currently have. These residents will be severely negatively impacted by the construction for 5 plus years and the link road ongoing once complete. Instead of

greenery, mature trees, wildlife and golfers, they will look onto a concrete car park full of cars, a road with traffic and a 6 -7 story high “ventilation” stack. The angst and heartache these people have already endured is seriously heartbreaking, but the Government does not show any remorse or care. Should they wish to leave and be forced to sell their houses, they must be compensated properly for having their lives turned upside down and their homes so that they can afford to buy elsewhere in the area at the same or greater level. This impacts their lives greatly. They would not have chosen to sell had the tunnel not been built. They should not have to sell for a price below what they would have sold it for at another time, which is what is already happening.

Those who choose to stay, will not be able to open their windows due to dust and pollution and noise of trucks rattling past. These residents must be given double glazing at no cost to them.

- All residents bordering the golf course must have all the trees in front of their properties re-categorised to being “to be retained”, so as to help protect local them from construction impacts, light pollution, visual pollution, emissions and will assist in creating a noise barrier both during construction and when operational. Landscaping must be mandated before construction and after, to ensure these residents do not have to look out onto a construction site, car park or road. This should be done in consultation with all these residents. It is essential that landscapers have resident amenity in mind when designing so that the impacts of the proposed carpark, linkroad and ventilation stack, along with noise, are minimised.

These trees will also be the only means of survival for many native fauna life inhabiting this area.

Trees indicated as “possibly impacted” must all be reconsidered in general and reclassified as “to be retained”, as this takes any care factor away from contractors when demolishing/working and opens up the scope for them to take the easy option of bulldozing down more trees than needed, with no concern for the trees, residents or wildlife.

The trees around the scout hall that are labelled in the EIS as “potentially impacted”. Eg. Tree 720 next to the toilet block is currently “potentially impacted”. must also be re-categorised to “retain” so that they can be retained for privacy, a natural noise barrier and reduce the unsightly visual impacts during construction and after with the Link Road for the residents of Pickworth Ave.

- All trees being retained must have appropriate protection in place and inspected ongoing by arborists
- As there are many people, including young families and retirees, who are home during the day and/or who work from home either full or part time, noise during the day must be regulated so that these people can live their lives, complete their

work and run their businesses without disruption. They need to be able to put their children to sleep, make business calls, zoom meetings and be able to think without constant noise distractions

- Construction vehicles must be fitted with noise and pollution control devices such as quackers to reduce the impact of tonal reversing alarms
- All residents who have issues with the noise and/or who cannot open their windows during construction, must be granted double glazing on their windows and/or air conditioning at no cost to them. This should be allocated to all residents that need them, not just a perceived few.
- Dust particles, particularly silica dust, are generated from construction and are dispersed through truck and equipment movements, open construction areas, and fine particles carried through unavoidable air movements. Silica dust is well known to cause respiratory diseases, and long term exposure at close proximity to the site is a significant health risk to residents.

The EIS states that steps will be taken to minimise this exposure by, for example, covering all vehicles or hosing down trucks. These tasks are undertaken by the contractors on the project, and compliance needs to be enforced – many residents on similar projects have reported regular breaches of these type of requirements on construction sites.

- Construction vehicles and trucks must not be allowed to wait or idle on residential streets. This must be managed and monitored
- Construction Worker's vehicles must not be allowed to park in residential streets at all. They must have a special sticker so that they can be easily identified if breaching rules. The contractor must be required to provide parking for 100% of workers on site to protect resident amenity. Local Government must introduce local resident parking zones and monitor all illegal parking.
- Due to large amounts of dust expected to be generated by tunnelling, truck movements, earthworks concrete manufacturing and some of the spoil that is intended to be used to flatten the site for post build reconstruction, many households are likely to not be able to open their doors and windows for the entire construction period (over 5 years). While mitigation measures like watering will be put in place, the EIS admits that they will not be 'effective all the time'. All measures must be enforced to adequately mitigate the impact of construction and excavation dust.
Additionally, during and post completion of the project, residents must be offered regular house cleaning services and installation of fans or air conditioning at the expense of the tunnel builders or local council.

- The visual pollution and impact of removing many trees from the Balgowlah Golf course during and after construction and the is huge. All trees that provide any visual amenity for residents must be retained. These trees marked as being possibly being retained along the fence lines and just further in, must be changed to “will be retained” to help with privacy, noise and general visual amenity. In addition, new mature trees must be planted now where there are gaps, so that this “tree barrier” between residents and construction site can be more established if construction begins and will help with noise and visual pollution.
- The proposal to construct amenity block East within metres the currently open on the existing 8th hole of the golf course obstructing the current view of the trees and golf course is unacceptable.
- The visuals currently presented in the EIS do not correctly portray the visual impact that the motorway facilities build and ventilation stack will have on the golf course and the surrounding properties. Each area must be drawn as a to scale representation so that people can see the real size and scale of these buildings from their specific location, so that for are able to comment properly.
- The NSW Government or tunnel contractor must offer the services of an independent specialist to prepare a dilapidation report of the pre-construction state of all the resident’s property prior to commencement of the project at no cost, to all properties highlighted as having potential impacts from damage as a result of vibrations from tunnelling or other construction impacts, along with any other residents who have not been listed who wish to have this done.

I strongly object to the proposed Unfiltered Ventilation Stacks at Balgowlah, Seaforth and Cammeray and the proposed In-Tunnel Ventilation Sytem.

- I do not believe that his tunnel can be built with a safe level of air quality for those living around the stacks or for those using the tunnel.
- There will be an increased level of air pollution surrounding the stacks, resulting in a negative impact on the physical and mental health of residents and students who live, study, work and exercise in the local areas surrounding and right on top of the construction site, unfiltered ventilation stack and tunnel entrance, along with people travelling in the tunnel.
- This is an every day exposure to thousands of residents and is especially of concern to children, the elderly, pregnant women and anyone with a compromise immune system. This poses long-term exposure risks for them and everyone else who travels through the tunnel every day to and from work.

- Tunnel users will be exposed to very high levels of pollution in the last kms of the tunnel. Australian guidelines recommend 25mcg/m³, USA is 12mcg/m³, the WHO is 10mcg/m³ and the NorthConnex has a level of 500mcg/m³ in last km sitting in a traffic, which is 50 times the level recommended by the WHO.
- There is overwhelming evidence that traffic related air pollution is bad for health – period. There is no excuse for not knowing this. There is no safe level. The precautionary principle must be adopted and this tunnel not be built. Those people making the decisions are putting peoples lives at risk and must be held personally accountable for their actions.
- Should this tunnel be built regardless of the health impacts, the stacks must be filtered to “worlds best practice” and nothing less, to decrease pollution levels.
- Global health experts agree that pollution from traffic exhaust poses serious health risks. Air pollution causes 1 in 9 deaths and is the biggest environmental health issue we face today. Emissions include nitrous oxides and particulate matter that, when breathed into the lungs, causes respiratory diseases such as asthma emphysema, and cancer. This has been repeatedly proven across numerous independent studies across the world. The number of pollutants known to cause health risks is increasing as the scientific evidence develops. For example, particulate matter with a diameter of less than one micrometre is of increasing health concern. This mostly comes from diesel engines. The smaller these particles are, the further they penetrate into your lungs and there they are absorbed into the blood stream where they will travel around your whole body and have an effect. The WHO has classified Diesel exhaust and all outdoor air pollution as a class 1 carcinogen material – ie. It causes cancer. 1/3 of all deaths from lung cancer, heart disease, stroke and lung disease are caused by air pollution worldwide. Children the elderly, pregnant women and people with chronic disease are most susceptible.
- Children breathe at a faster rate than adults. And when playing outdoors they breathe harder and absorb a lot more pollution. (Hence not a good idea to build playing fields or have schools anywhere near an unfiltered ventilation stack). When these particles enter your blood stream it has an inflammatory response meaning it makes your blood more sticky, predisposing you to heart attacks and strokes.
- It is estimated that air pollution costs us \$8 billion a year in Sydney alone.
- Medical experts universally state that **there is no safe level of exposure to these types of cancer-causing emissions**. Doctors have already been specifically concerned with levels of airborne toxins from other similar tunnel projects around Sydney, such as the NorthConnex, Lane Cove and M5 tunnel.
- Alarming, people who generally have issues with exposure are those who have experienced it at a “safe” level, where air quality is within the guidelines.
- There are both short and long term effects of exposure to air pollution., with long term effects ranging from respiratory illnesses and impaired lung development,

to cancer, obesity, dementia, cardiovascular disease, diabetes and autism. Air pollution can stay around for days or weeks after it's created. You can't see it and you can't smell it. One type of chemical can interact with others in the atmosphere and cause worse pollution. Some heavy metals and particles PM_{2.5} can cross the placenta barrier and have the potential to cause damage. PM₁ is smaller and can get in further

- When there is doubt about something, and there definitely should be in this instance, the precautionary principle must be adopted/implemented!

"There's overwhelming international evidence now from organisations like WHO [World Health Organisation] that shows that that sort of pollution – if you look at what happens across big cities – it increases the number of heart attacks people have, strokes, it increases deaths from heart disease, deaths from respiratory disease, and there is some new evidence in the most recent WHO publication which says it probably impairs lung growth in children and it makes a contribution to diabetes, so these things on a population basis have a big impact on health.

"...these health effects occur both with long term exposure, and with repeated short term exposure. Again, the most recent WHO evidence suggests that repeated short term exposure has definitely got a health consequence. And the last thing that's important is there's no evidence about a "safe" lower level of any of these things. So less is better, but less isn't safe. So almost all the important agency reports talk about "mitigating health effects". The commonest word that you see in any of these reports is the word "mitigate".

Professor Paul Torzillo, Executive Clinical Director of the Royal Prince Alfred Hospital in Sydney and a specialist in respiratory health 2015, in relation to the Westconnex Tunnel

- Unfortunately there appears to be a functional 'disconnect' in general in many areas between air quality regulators and public health authorities. It appears that the focus on reducing air pollution may not always be on the forefront despite the large body of evidence on the adverse health effects of poor air quality on human health, but rather the consideration of economic impacts is given priority over these.
- Some residents in the Seaforth, North Balgowlah area would be in the 1200m radius zone for both the unfiltered ventilation stacks in Balgowlah and Seaforth, which would mean they have pollution from both stacks compounded.
- Again I reiterate, there is no safe level of air pollution!
- People living in the vicinity of tunnels and their stacks have every right to be concerned about the likely impacts on their health. They have been led to believe that 'monitoring' will be able to detect any harmful impacts.

- As Prof Torzillo noted, the true question that should be asked is not ‘will there be any measurable impact’ but ‘will the emissions cause me any harm’.
- There have been reports from residents living near the M5 East stack, that monitoring failed to signal problems with pollutants even when they could clearly smell the stack emissions; that many residents have reported health problems that began only after the tunnel became operational; and that some have been forced to sell their homes and leave the area due to ill health.

Mark Curran, President of Residents Against Polluting Stacks (RAPS) and resident of Earlwood, provided this personal statement as part of his submission to the Westconnex project:

"I am sometimes asked why, after 15 years of campaigning about tunnels, I am still motivated to continue. The answer is fairly simple. Prior to the M5East stack starting operations, I, always the technological optimist, had assured my neighbours that all would be well and that there would be no impact from the stack.

I have an ineradicable memory of walking around streets in Undercliffe, close to the stack, soon after the tunnel opened and passing into and out of patches of air which stank of stack emissions.

Almost immediately I started getting reports of people getting ill, of people with controlled asthma reverting to an acute state, of people finding it impossible to tolerate the impacts and putting their houses up for sale.

All this occurred in an area which air quality modeling suggested there would be low but acceptable impacts of less than 0.5µg/m³ PM10."

- Many requests have been made across Sydney for government to filter exhaust stacks, in line with tunnels of similar length in Europe and Asia being filtered. However the NSW government has refused, claiming that it is inefficient and too costly. To do so would also concede that filtration reduces air toxins for public health and should be implemented in tunnels all over Sydney – but in the government’s view, it is too expensive and the health benefits are insufficient.
- The design of unfiltered ventilation stacks for the Beaches Link tunnel is not world’s “best practice”.
- In Sydney, as elsewhere in cities all over the world, high traffic areas need more air purification measures and systems in place in general, not increased road/tunnel unfiltered pollution. It is well known in the medical community and now also the general public, that air pollution kills!
- Health risks must be reduced if the Beaches Link tunnel is to be built, in every way that is available, at no matter what cost. If we cannot afford to do this in NSW, the tunnel should not be built.
- People’s health must be the number one priority. If the Government does decide to go ahead with this un-environmental, tunnel, the ventilation stacks must be

filtered with the world's best practice as standard and consideration must be given to all potential pollutants in the tunnel and ventilation stacks, no matter what type and size and all literature available at the time on these.

- Stacks must be built with a state of the art filtration system/air purifying system or not at all. People's health cannot be put at risk for the benefit of others.
- State of the art air quality monitors must be installed at numerous locations, including all school in the area and operated 24/7. Reports must be available to schools and the public at all times and text notification given when dangerous levels are breached and incur penalties if exceeded. However it must be remembered that these are not always a reliable source of all information - but I think would be better than having no monitoring at all.

I strongly object to the proposed Balgowlah unfiltered Ventilation Stack on Balgowlah Golf Course, as already mentioned close to homes and schools

I strongly object to the proposed Seaforth Ventilation Stack.

- near Kirkwood Ave, Seaforth, which is within 300m of homes. The map on the EIS shows impacts to homes surrounding the Seaforth exhaust stack which, due to the ventilation's stack's location on the top of a ridge, will be impacting homes surrounding the stack covers and further away areas of Seaforth, North Balgowlah, Killarney Heights, Allambie Heights and Castle Cove.

I strongly object to the proposed unfiltered Ventilation Stacks at Cammeray.

- that are within 100m of homes, 300m from Anzac Park Public School and less than 600m from Cammeraygal Senior Campus.
- Please watch this video from Dr Ray Nassar explaining the health impacts from exposure to traffic exhaust here: <https://vimeo.com/278243564>
- Remember there is no safe level of air pollution!

I object to the In-Tunnel Ventilation System proposed

- The potential for a tunnel to cause harm exists both inside and outside of the tunnel. Major harmful impacts can occur inside the tunnel to all tunnel users, which I'm sure most people who would potentially use this tunnel are not aware of.
- The design of the ventilation stacks and in tunnel ventilation system for the Beaches Link project are promoted to residents and tunnel users as being 'world's best practice', however looking at other tunnels from around the world this is clearly not so.
- As far as I'm aware, there are no tunnels of the same length in the world that are comparable that have unfiltered ventilation stacks and use the same in-tunnel ventilation system as the proposed Beaches Link tunnel. Others are either filtered or have a different in-tunnel system or many outlets along the length of the tunnel
- The Calle30 tunnel in Madrid is 40km long and carries up to 120000 vpd, however it has 30 ventilation stations (stacks), all of which are filtered.
- Leightons, who was a contractor for another tunnel construction in Sydney, has installed "a state-of-the-art air purification system (APS) and tunnel ventilation system (TVS)" in its tunnel project in 3.5km long Central - Wan Chai Bypass
- Leighton's claim that "Hong Kong's planners and our Leighton Asia JV have spared no effort to ensure the city's latest major road and tunnel project leaves residents breathing easy". If this system is good enough for Hong Kong and Madrid, then why is it not good enough for the residents of Sydney?
- Although the system there has had some hiccups since completion, the point is that other countries are prioritising public health when building new infrastructure – NSW is clearly not. I object to this. It is not acceptable. In Stockholm, the E4 Tunnel has been carefully designed to combat vehicle emissions building up. It has 240 fans embedded into its roof to keep air circulating and three air exchangers stations along the tunnel in each direction will replace polluted air with fresh air. At the tunnel mouths, four exhaust air stations will be built in order to vent air at height instead of allowing it to concentrate at ground level.
- This is not what is proposed for the Beaches Link Tunnel so cannot be used as a "similar" tunnel for comparison.
- The potential negative health impacts of the tunnels for regular users must be communicated to the public and investigated properly, to ensure that they implement a system that is very safe for all users – again "world's best practice" must be standard.

- Sydney is currently having a tunnel building boom and residents travelling will soon find it difficult to avoid tunnels and tolls at all, so they must be safe for all users.
- I do not believe that the in tunnel ventilation system proposed for the Beaches Link Tunnel is world's best practice. The tunnel is longer than all others with this type of ventilation only and I believe it will put all users health at risk.
- I understand that all tunnels in Sydney are using longitudinal ventilation systems (air in one end, out the other – through a stack), where all polluted air produced in the tunnel travels along it, increasing in concentration all the way, until it reaches the exhaust point (the stack) close to the end of the tunnel. So the longer the tunnel, the more pollution (in particular particulate matter) build up, which is not safe if you are idling in traffic for any length of time in the tunnel or even just travelling through normally. I also understand that particulate matter cannot be kept out of your car when using these tunnels, even with all windows up and air conditioning on recycle. These new tunnels are probably the longest ventilation 'pathways' of any urban road tunnel in the world. How can we then compare them with other countries for world's best practice if there are none to compare with?
- In Sydney, the west end of the existing M5 East tunnel is approx 5km in total length. This is the part of the tunnel that has been well known for its extreme pollution. The Beaches Link will be longer so should we expect to see the same build up of pollution if not more, when there is a lot of traffic?
- Longer tunnels overseas are mostly in mountainous regions and if they carry heavy traffic, they usually use transverse ventilation systems or have multiple stacks to reduce pollution build-up along the length of the tunnel.
- The E4 Stockholm tunnel is still even now looking into the long and short term health impacts for tunnel users and also still refining their in tunnel ventilation system to ensure safety.
- I question why NSW is not paying more attention to this and doing the same?
- Many requests have been made across Sydney for government to filter exhaust stacks, in line with tunnels of similar length in Europe and Asia being filtered. However the NSW government has refused; with the claim that it is inefficient and too costly. To do so would concede filtration reduces air toxins for public health and should be implemented in tunnels all over Sydney – but in the government's view, it is too expensive and the health benefits are insufficient.

- In addition to increased air toxins from exhaust stacks, exposure to vehicle exhaust will increase significantly for residents within a short distance of the tunnel entrances, with increases in traffic travelling to the tunnel, new roads being built and idling traffic queuing at new traffic lights.