

28th February 2021

Morden Street, Cammeray 2062

I object to the Beaches Link and Gore Hill Freeway Connection for the following reasons:

Contamination objections:

1. Contaminants such as heavy metals and PFAS have been detected in Middle Harbour – these contaminants are dangerous to human health - and many of them have been found above 'safe levels' (Table 1, Annexure C, Appendix F). Very limited sampling was conducted, and further testing was not continued when levels of contaminants were found that are harmful to human health.
2. Contaminants have been found in groundwater and surface water around the tip site in Flat Rock Gully and there is a risk identified that these may move down the gully as work proceeds
3. Large amounts of wastewater will be produced from both construction and operational activities. Wastewater will be treated and flushed down creeks for example 117,000 L per day will be released down Flat Rock Creek via Tunks Park and 296, 000 L down Willoughby Creek from the Cammeray Site via Primrose Park. Specific methods regarding how the water will be treated given the contaminants detected and listed as likely ie) asbestos is not clear.
4. 10,000m³ of contaminated sediment will be barged out of Middle Harbour past Clontarf and Balmoral Beaches to be dried out before being trucked to a licenced facility. The drying point is not yet known or the disposal site..
5. There is no remediation plan or budget for compensating for spills or accidents.
6. The risk of workers coming into contact with the contamination is rated as moderate to high and the EIS even states more testing is needed to quantify the risk.
7. 500m³ of stockpiled spoil is permitted outside the shed according to the EIS; 4500m³ is permitted outside the **Cammeray Golf Course Site (right where I live)**. Given that contaminants have been identified and the EIS states that dust is "difficult to contain" even with the best mitigation measures in place this is a considerable risk particularly all people in the area.
8. There was a **Declaration of Remediation Site under the Contaminated Land Management Act in 2003** in relation to part of **Tunks Park** due to contaminated fill material, sediment and groundwater posing a danger to human health and presumably originating upstream from the old tip site in Flat Rock Gully. I strongly object to the risk of downstream environments becoming contaminated again.
9. Silt curtains don't go all the way to the seabed so there is a risk of contamination release into Middle Harbour and sedimentation diagrams show a wide spread of sedimentation deposits. The Western HarbourTunnels conditions allowed for a 50 metre spill zone. Middle Harbour plays host to many children's and people activities at Northbridge Baths, Clontarf and multiple sailing and foreshore clubs. The release of contaminants is not an option.
10. The Northbridge Peninsular and Northbridge Baths have not been marked as receptor points when assessing human health. Given that Northbridge is placed between the Flat Rock contaminated dive site (where up to 7 roadheaders will be in operation) and the Middle Harbour contaminated site during construction and between 3 unfiltered emissions stacks when operational, it would be appropriate for a specific health assessment to be completed.
11. The Health risk assessment has been completed on the basis of a best case scenario of all going to plan. Health risks (and risk assessments in general performed in the real world) should be reassessed to account for human error and the probability of a spill of contaminated spoil and/ or sediment.
12. The risk of contaminants moving down from the tip site as the capping is disturbed and pockets of leachate are released has not been assessed in terms of risks to Human Health and the EIS

acknowledges the risk of run off to surrounding waterways and Middle Harbour. The EIS also acknowledges the risk of workers coming into contact with contamination but does not or chose not to assess the potential of bushwalkers, sporting groups, sailing clubs etc coming into contact with contaminants. This is unacceptable.

I ask for the following conditions:

1. A reissue of the EIS following Phase 2 assessment: All further testing mentioned in the EIS should be done now and the results plus the results of all testing already complete, released. The revised EIS should be exhibited so that people can comment on the adequacy of proposed management strategies and the likely impact to the community based on use of the area.
2. A full risk assessment prior to approval and sign off. Health risks associated with run off, spills and risk to Northbridge should be included ie worst case scenario not best case health assessment as currently assessed.
3. Abandonment of the immersed tube construction method at Middle Harbour and its replacement with a tunnel through bedrock which would not disturb the contaminated sediment
4. Real time/ Alert Style Air Quality Monitors at Bicentennial Reserve to alert the community to air quality risks born from dust, disturbance or diesel.
5. Real time/ Alert Style Monitoring at Northbridge Baths.
6. Silt curtains which go to the seafloor and are not permeable rather than part of the way.
7. Restriction of project related shipping movements to an agreed schedule of times when the tides ensure that the sand bar at the entrance to Middle Harbour will not be disturbed by such movements.
8. Wastewater to be treated via a method other, or in addition to, sedimentation only to ensure that the full range of dangerous chemicals identified are carefully and thoroughly removed.
9. A landfill gas study in compliance with Hazardous Ground Gas Guidelines for construction and operation of tunnel (PDF page 78 Appendix M). It is noted the nominated guidelines have been superseded and the updated guidelines should be used.
10. The EPA to be formally notified, as required under the Contaminated Lands Act, of the possibility of contaminated land (at Flat Rock Reserve and surrounds) contaminating neighbouring land ie North Sydney Council - Tunks Park and Middle Harbour.

Spoil objections:

1. Over 3 Million Tonnes of ground-based spoil will be removed as part of the Beaches Link Project, trucked through our area and dumped at an unknown location.
2. 153, 000 cubic meters of sediment from Middle Harbour will be dumped at sea.
3. 10,000 cubic meters of contaminated sediment will be barged out under the Spit Bridge, past beaches and dried out at an unknown location.
4. 900 additional vehicle movements per day will service the Flat Rock Drive site and 590 at Cammeray.
5. **500m3 of spoil is permitted under the EIS to be stored outside of sheds at Flat Rock and 4500m3 at Cammeray - this presents a significant dust risk to the area.**
6. The EIS estimates that the drawdown in Northbridge as a result of the project will be 28m, in Flat Rock reserve 21m and at Willoughby Leisure Centre 22m, resulting in water stress/death for plants and trees and potential settlement issues.
7. Groundwater dependent ecosystems are located at the upper reaches of Flat Rock Creek & Quarry Creek such as **the rare turpentine scrub** and these will be impacted.

8. The EIS states that “tunnelling works could potentially lower the groundwater table within poorly consolidated fill .. FRG - at this location, the tunnelling works could drain the groundwater, currently ‘ponded’ within landfill in the former creek” (23.2.3 p 23-14).
9. Pfautsch’s (2015) study notes the implications of changing groundwater levels owing to mining can potentially extend beyond the boundaries of mine - “Where the water table had fallen to 19 metres below the surface, water use of trees was much lower compared to trees where the water table remained unchanged at around six metres below ground level. The tight connection between water use and the growth of trees implies that a reduction in water use will lead to a reduction in growth. In extreme cases trees can die of thirst”.
10. **The changes in the groundwater level, because there is a tunnel underneath, has the potential to spread contamination around and downstream from the site.** (Appendix N page 88 lists potential for further contamination as works can create contaminated plumes etc)
11. **39% reduction in creek flow in Flat Rock Gully - impacts identified for fauna and flora ecosystems**
12. 117,000 kL from the tunneling will be flushed down Flat Rock Creek each day during construction. Each year this is equivalent to 200 Olympic sized swimming pools (500 megalitres). It is not clear if the water will be adequately treated for the full range of chemicals detected in the area.
13. Water drawdown is estimated to flow into tunnel at a rate of 1.39L/s/km – during construction.
14. Naremburn is described as medium to high density in Chapter 20 “Land use and property”. **This fails to recognise the large conservation area of Naremburn which has many examples of the earliest built history on the North Shore, homes that are generally more sensitive to land movement and slippage.** The homes are also built on clay which presents further risk related to subsidence. The tunnels pass directly under this area and **the EIS confirms a high level of drawdown is to be expected.**
15. Potential cracks in property due to settlement - definition of slight is 50mm (building and structure settlement classification chapter 16 page 29). This definition in the EIS needs to change.
16. Settlement induced by groundwater drawdown (table 50-75mm is moderate, greater than 75cm is severe). Settlement at Flat Rock Reserve is considered category 5 and up to 85cm which is categorised as severe settlement (p29-32 Chpt 16). see table 16-9 page 30, lists all max total settlement predictions for identified sites.
17. **fig 16-1 (Chapter 16) shows the Luna Park fault zone going through Northbridge and Middle Harbour. More definition on this fault zone required. The EIS admits that geological uncertainty may have an impact on the project’s final design.**
18. Disturbance of the water table can lead to instability because of the fault zone, which may alter the tunnel route and depth. When there is a change proposed that change is analysed and stakeholders consulted before the change proceeds.
19. Risks to heritage sites have been identified at Clive Park (incl. Aboriginal), Flat Rock Gully (1 Aboriginal), Cammeray (1 Built) and Artarmon due to vibration.
20. Residents around the Northbridge peninsular (around Clive Park) will experience vibration above screening levels as a result of the Middle Harbour crossing works.
21. Widespread substratum acquisition is intended according to the EIS, 50mtr’s either side of the twin tunnel route and ramps. The route can however change after approval due to the uncertain geology of the area.
22. **The flood study fails to recognise that water and sediment may be from a contaminated source.**
23. “The Flat Rock Creek catchment drains in an easterly direction from the Pacific Highway in Artarmon and has a total catchment area of about 3.9 square kilometres (390 hectares) at Willoughby Road”. The proposed dive site is within the Creek area where flooding occurs which then continues to downstream habitats. There appears to be little assessment of flooding impact on the Flat Rock dive site and downstream habitats, parks and waterways. The flood study limits the Flat Rock Creek assessment to the upper reaches around Gore Freeway. **Given the size of the catchment, the location of the dive site**

in and around the diverted creek and in a flood zone it would be appropriate to continue the flood study around Flat Rock Gully and down into Tunks. This information should inform the heath risk and waterways assessment.

I ask for the following conditions:

1. **Flat Rock Gully not to be used as the primary dive for the Beaches Link due to changes in groundwater levels and water quality impacting on ecosystems in the short and long term both at FRG and Middle Harbour, known contaminants in former tip site that will be disturbed, predicted severe settlement at site (see other chapters for further reasons).**
2. Contaminated spoil not to be stored onsite in Flat Rock Gully or Cammeray. The spoil should be immediately be sealed and carried away from residential areas or stored underground.
3. Improve the site, remediate better than before, to compensate for pain and suffering during the 5 years of construction and restore ecosystems. This was done at Bangaroo. No contaminated soil to remain on site, site rehabilitated back to bushland in FRG, improved walking tracks and bicycle paths and ecosystems restored.
4. Silica dust created by tunnelling sandstone more adequately dealt with than just a water cart and covering the load.
5. Real time monitoring and alerts around air quality at The Baseball Diamond and Netball courts at Flat Rock Gully as they do in the Hunter Valley near mine sites for recreational users of adjoining ovals, recreation fields, towns etc.
6. Groundwater Dependent Ecosystem –provide an additional study to confirm the importance of the ecosystem to local community in the EIS. The argument that it is in an area that is contaminated therefore not worth keeping has lots of examples where residents have managed to show importance of ecosystems in disturbed areas. The regeneration of the area in the past 30 years is proof this argument is redundant.
7. Groundwater contamination as confirmed in the EIS, including Flat Rock Gully, Quarry Creek, Tunks Park – there should be ongoing ground water quality monitoring and not just during the early operation of the tunnel.
8. Contaminants from Flat Rock Reserve, Willoughby Leisure Centre etc may be mobilised with change in groundwater (through drawdown or surface water). The EIS assumes a shallower depth of fill than the historic record shows and leachate/ landfill can permeate fissures underground.
9. Water monitoring station results to be made publicly available and placed downstream of the dive site, around the Baseball Diamond and in Long Bay to assess run off. Run off modelling should be completed once an expanded flood study is done.
10. 16-63 - In the EIS Chapter 16 it is stated further investigations are required to determine the potential for impact to gw 02 3150 and to identify appropriate mitigation and rectification for implementation as required. Complete and publish mitigation and rectification.
11. Groundwater improvement strategies over the long term implemented. Suggested in EIS Chapter 16 - modelling of tunnel lining for a 300m section under FRG reduces the drawdown by 8m, this lining could extend along the route of the tunnel and especially around Flat Rock Gully and under the Conservation Area of Naremburn where properties are at greater risk of subsidence.
12. There should be a resident review/consultation ongoing review forum – e.g. regular meetings, with key stakeholders, including residents to discuss results from monitoring and mitigation. There should be a portal where information can be accessed in real time.
13. The method of wastewater treatment needs clarification - where will they be placed, how long will they be there, what level will they treat the water to.

14. Tunnelling induced movement - compensation for house cracking and settlement even if slight - currently up to 50mm which means a 5cm crack in houses not repaired. This criteria is unacceptable for the majority of homeowners in the area.
15. all properties above the tunnel route to be offered a free and **independent** pre-construction property condition survey providing a clear record of a property's condition before work starts. If any damage is found to be directly related to the project, the damage will be addressed at no cost to the property owner.
16. Further investigation needed on the definition of the Luna Park fault zone required and instability toward Clive Park.

Pollution objections:

1. Particulate Matter is already higher than what is recommended or considered "safe" - PM2.5 and PM10 levels are already above the guidelines for both the 24-hour average and the annual average (including the 2025 goal set by NEPC (2016)). However there is no local data for this and data from the temporary monitor put in place to establish our background levels at Naremburn was not used. Only long term monitoring has occurred in Chullora, Earlwood and Liverpool away from the project footprint.
2. Lost opportunity in not filtering/ treating stack pollution – although the EIS suggests PM2.5 levels will not be significantly changed with the construction and operation of unfiltered stacks, **we are already living in an environment where levels of PM2.5 and PM10 is above the level of what is considered safe and the EIS demonstrates that this will continue well past the tunnel opening. Would filtering stacks reduce PM 2.5 levels to acceptable levels? Or could a public transport alternative address our growing PM levels. The government has a duty of care to do what it can to reduce these levels now that it has monitored and confirmed the issue.**
3. The Chief Health Officer is only required to comment on the contribution of the stacks and not the contribution of the project overall to our air quality. Transport for NSW's conclusion that the air quality across the area on average will not be substantially worse is predicated on the assertion that surface level traffic will reduce. This assertion is contradicted many times in the EIS however via data which demonstrates increased intersection delays, the potential of additional toll avoidance, slower bus times, intersection failures, the admission that rat running will be required to access changed access arrangements to the freeway, an increased proportion of trucks through the area and several other factors. Both Willoughby Council and North Sydney Council have modelled poorer local traffic conditions resulting from the project and the operational model used did not include many key local corridors in order to verify findings ie) Eastern Valley Way and Military Rd. More work needs to be done to accurately model surface level changes as part of the project and an assessment of the project's contribution to air quality overall should be made on this basis. If in fact local traffic is made worse by the project this will have the net effect of far poorer air quality, with the additional pollution load delivered to our most vulnerable receivers at schools, parks, homes and hospitals in the area via dispersion from stacks.
4. Regardless of surface level changes modelling shows that pollution is redistributed as a result of the project. Some key corridors receive less pollution ie) Military Rd but sensitive receivers such as schools and sports fields receive more. Children are particularly susceptible to the health impacts of pollution and so this redistribution is unacceptable. The Western Harbour and Beaches Link program of works cuts through the largest school corridor in Sydney with 500-1000 pupils at approx. 26 schools. The precautionary principle must be applied to ensure the health of children across the project footprint. Some examples of schools, pre-schools and parks that receive higher pollution levels are as follows (please note these points are indicative of the pollution expected in the nearby area):

- CR10 Neutral Bay Public School – 24 hr PM2.5 increases by 2037 if all projects proceed.
- CR16 Anzac Park School – largest increase in 1 hr mean NO2 if Beaches Link and WF only proceed, Increase in PM10 if all projects go ahead, PM10 24hr mean goes up by 2037, Annual Mean 2.5 will be increased by 2037 if all projects proceed.
- CR17 KU Pre-School Green Park – 24hr mean PM 10 goes up by 2037 if all projects proceed, 24hr PM 2.5 goes up by 2037 if all projects proceed,
- CR18 Cammeray Public School – increase in 1 hr NO2 by 2037 in all projects proceed, Annual Mean 2.5 will be increased by 2037 if all projects proceed.
- CR20 Berry Cottage Naremburn – increase in annual average PM10 if all projects proceed.
- CR25 Artarmon Sues Childcare: (Closest point to Willoughby Leisure Centre/ Bicentennial Reserve) – Max 24hr PM2.5 increases if all projects go ahead. This represents the largest increase of 24hr PM2.5 across the project.
- CR 26 Northside Baptist Preschool (only point assessed in Northbridge)– slight increase NO2 1 hr mean by 2037 if both go ahead, slight increase 24hr mean PM10 by 2037 if all projects go ahead.

Given PM2.5 pollution levels are over limits already and WHO states that there is no safe level of PM2.5 any increase no matter how small is unacceptable.

5. Modelling has been done for buildings at height 300 mtrs from the stack. This is initial modelling only but unacceptable levels have been detected for buildings at height and the EIS flags that further modelling is required and notes that restrictions to development may be needed. In the case of Northconnex a report was issued to council on completion outlining restrictions on buildings at certain heights more than 2km away from the stack. This has major implications for development across an area which is currently planning to densify. Full modelling should be completed of each pollutant and various heights at a distance from the stacks and a cost/ benefit analysis completed. This should not be limited to a 300mtr circumference given that the Chief Scientists states that ground level pollution can be at it's highest 1km+ from stacks.
6. Air quality monitoring around St Peter's following the Westconnex opening are showing regular exceedances of air quality standards and there has been very limited epidemiologic research across the full burden of disease to substantiate placing more motorways - stacks or no stacks in and around children. In fact the air quality body of research worldwide points toward the need to reduce vehicle pollution around children and vulnerable adults. It is clear that this project will grow vehicle reliance and traffic volumes overall in already congested and polluted areas.
7. No assessment of health impacts of climate change that will be accelerated by continuing to rely on a road network/cars rather than public transport.

Further Contamination objections:

1. The main temporary dive site in the area is earmarked for Flat Rock Reserve which is confirmed as being part of the old tip site at the top of Flat Rock Gully.
2. Currently there is inadequate information in relation to health impacts (secondary to landfill gas and odours) of proposed tunnelling works at Flat Rock Drive. A Phase 2 assessment is needed to check for contaminants and quantify risk. Approval should not proceed until the risks are known and mitigation possibilities scoped. Testing around the freeway and at Cammeray site has also confirmed contamination. Serious consideration of the cost/benefits of the project in light of the risk to residents and children as well as the cost to mitigate and remediate sites should be given.

3. The EIS allows for a considerable amount of spoil to be held outside of sheds during construction which poses both a silica dust risk and contamination risk to nearby parks, residents and bushland.

Noise objections:

1. Flat Rock – highest noise is day-time clearing, excavation, establishing buildings and widening of Alpha Rd and night-time Alpha Rd. estimated 9 months. Ground vibration at a human response level is recognised from Flat Rock Dive Site (P173) affecting 2 houses in Calbina South West. Site will be operational for 5 years.
2. A key concern at Flat Rock Drive is the noise generated from truck air brakes as they slow down the long hill leading to the excavation site entry point at the bottom, and then the exhaust and engine noise from those fully loaded trucks accelerating up the hill from the site. This noise could be suitably attenuated by constructing a permanent acoustic wall along Flat Rock Drive fronting the bush - i.e. an acoustic wall similar to those normally constructed during road infrastructure projects. Noise will also impact wildlife in the area esp. nocturnal species such as bats.
3. Middle Harbour – highest noise during construction of the 2 cofferdams and then when tunnel tubes are immersed and when pilings are driven. The tunnel tubes will need to be placed in a continuous process taking 24-48 hours each. Estimated high impact time is 18 months. Middle Harbour works will continue for 4.5 years with 88 vessel movements per day at peak times generating an ongoing increased level of noise.
4. Northbridge - noise from tunneling Rock Hammering (following road headers) will be at a detectable level for several homes at either end of Northbridge (29 West , 92 East) however this will be less than 45dB so not expected to be intrusive. Vibration levels above screening levels will also be experienced by 295 homeowners around Middle Harbour (Seaforth, Castlecrag and Northbridge) in relation to the crossing works. Noise will be heard around the Flat Rock site esp. during site establishment works. One house in Calbina West (P93) is > 75 dB(A) so actual monitoring is required.
5. Naremburn - 15 buildings will be impacted by roadheader operations and 227 by rock hammering as the tunnels pass below. 11 buildings will reach vibration levels above screening levels. Residents will also be affected by different stages of the project and coinciding works including the Warringah Freeway Works, Punch St and Flat Rock site establishment and briefer stints of night time noise. Please refer to the Appendices for specific information.
6. **Cammeray - the EIS states that the area North of the golf course in Cammeray will experience noise above limits across the duration of the project** . Anzac Park School, Anzac Park, Cammeray Oval and KU Preschool (Green Park) will be noise affected above limits across various stages of the project. Noise from the Warringah Freeway works will impact 1917 receiver buildings between Cammeray and Naremburn during the project.
7. Sporting Grounds - the EIS states that Bicentennial Reserve, the Baseball Diamond, Cammeray Oval and Shore Oval will experience noise impacts across the duration of the project (5 years).

Safety objections:

1. The sheer volume of additional vehicle movements which will be on the road around a dense area of schools and children's sport presents a significant safety risk. Close to 5000 additional vehicle movements will be required across the route during construction.. Heavy vehicles should not be permitted to marshal or transport loads on residential roads or within school zones.
2. 900 additional vehicle movements will be required on Flat Rock Drive - this is a key transport corridor for children accessing North Shore schools and school sport. Given the site is contaminated the conflict

between spoil trucks and children is even more concerning for the community. Flat Rock Drive/ Brook St is also a key active transport corridor for children accessing Cammeray Schools due to zoning.

Community fragmentation objections:

1. The local area has already been fragmented by the Warringah Freeway and Gore Hill Expressways. Communities have worked hard to regain a sense of place however these projects again create barriers bit during construction and after. Local communities should not be considered in the planning process and the best outcomes for both commuters and local communities found. A mass transit alternative should be considered.

Stress objections:

1. The Health risk assessment acknowledges construction fatigue, increased traffic and uncertainty as significant stress factors for the population. There are a large number of plans yet to be finalised, testing to be completed and known geological challenges across this project. The uncertainty created is and will create stress within the community. Given this is a highly populated residential and school zone all effort should be made to reduce uncertainty and the EIS should be re-issued with more information.
2. Substratum acquisition (uncompensated) is likely to cause financial stress particularly given economic uncertainty following Covid. Both the Westconnex Inquiry and recent reports demonstrate issues with the process as well as pressure on housing prices and the ability to sell homes during the period of construction and sometimes beyond. Given the economic situation post Covid the stress associated with uncertainty and acquisition is likely to be heightened.

I ask for the following conditions:

1. Local background data about current Particulate Matter levels to truly assess impact.
2. An alert style monitor near children's playing fields that sporting groups and parents can subscribe to to determine if playing sport is a safe option given the potential for contaminated dust and heavy vehicle emissions to be high around Artarmon Park, Bicentennial Reserve and Cammeray Oval.
3. **Modelling of levels of particulate matter/other air pollutants in the environment if the stacks were filtered.**
4. Landfill gas investigations should be carried out within these areas to assess the potential presence or absence of gas which could potentially impact upon construction and/or operation of the project if not managed appropriately.
5. For tunnelling works proposed at Flat Rock Reserve, there is a risk of encountering odorous waste material and landfill gases from historical landfill in the locality. Detailed investigations have not been carried out to confirm the presence and extent of potentially odorous materials and landfill gases within the project site at this location.
6. If a short duration noise event during night construction, persons should be offered alternative accommodation for the period or other appropriate mitigation as required. For longer duration noise such as FRG and Cammeray Oval construct an acoustic wall around the site to protect residents and fauna from noise impacts - i.e. an acoustic wall similar to those normally constructed during road infrastructure projects. **This wall would have to be high enough to ensure bird species such as the Powerful Owl do not fly into the trucks attending the site at Flat Rock. An acoustic wall at Anzac Park and one at Cammeray Oval would help to ensure that children have reduced level of noise impact.**

7. Reassess baseline noise level. For instance on Flat Rock Drive was the initial monitoring done when a double truck had their airbrakes on going down the hill? Given the geography of the area and 900 movements a day on a steep hill in a residential area it seems unlikely that noise will be undetectable as stated in documents.
8. Average noise readings pre-construction should be monitored over a 24 period and averaged to be a more indicative measure of current noise levels.
9. **Greenspace - ensure all landfill exposed by tunneling is capped at the end of tunnelling and reinstate crushed sandstone as a contoured base for re-establishment of locally indigenous vegetation and habitat. Remove all temporary structures (including noise mitigation sheds).** Decision making about the future of the dive site at FRG should not be left to the end of the consultation process and should involve the community. The EIS should confirm its rehabilitation and return to bushland.
10. **utility shed at Cammeray Golf Club to be placed underground so that there is no loss of greenspace.** Real time noise and air quality monitoring should be put in place to assure the community regarding the safety of using sports fields esp. for children's sporting activities.
11. **Active transport links between Artarmon, Naremburn, Cammeray and the City should be made seamless and improved as a result of this project to compensate in part for community construction fatigue.. The current active transport links are fragmented at best and construction will make this worse with no clear plan to improve it.** School P&C's should be involved in this planning to ensure the best routes for children accessing local schools.
12. The Brook St/Flat Rock Drive Corridor is a key corridor for children accessing local schools. An active transport overpass or underpass should be put in place to ensure safe passage.
13. Trucks should be fitted with noise and pollution control devices given the highly residential nature of the route and the large proportion of children.

Biodiversity objections:

1. Urban bushland is fast disappearing under Sydney's bulldozers. For the future of the urban environment, we can no longer afford to put construction sites, with all their impacts, in biodiversity rich areas.
2. The proposed project **counteracts the principles of Ecologically Sustainable Development in the Protection of the Environment Administration Act 1991 (NSW) which declares that the conservation of biological diversity and ecological integrity should be of fundamental consideration (PEAA Act Part 3(2)(c)).**
3. Bushland set aside for environmental protection should not be destroyed or disturbed. **Flat Rock Reserve is a declared Wildlife Protection Area as it provides significant habitats that support a wide range of small birds, mammals, reptiles and frogs that are disappearing from our urban areas.**
4. Flat Rock Gully is a key part of the network of wildlife corridors across Sydney required to maintain biodiversity.
5. Around 6.77 hectares (over 16 acres) of bushland will be flattened for the construction footprint (EIS Chapt. 19, p.19.9) at Flat Rock Gully. **Around 54 acres of bushland, which provides important habitat for wildlife in the Willoughby and Manly local government areas, will be destroyed at the combined sites.**
6. **Over 390 trees are targeted for potential destruction at Flat Rock Gully – only two-thirds will be replaced. Willoughby City Council (WCC) tree policy requires that 3 trees be replaced for each removal (WCC, Vegetation Management Strategy 2020). Local tree policies are required by the NSW Government to reflect the needs of different areas for tree canopy and wildlife habitat. These should not be overridden by the NSW State Government.**
7. The bushland at Flat Rock Gully has been targeted for destruction on the basis that it is 'only' regenerated bush. This regeneration is the result of 25 years of work by WCC and bush care volunteers. Most of the plantings were propagated from local indigenous plants. **Wildlife doesn't discriminate between regenerated and remnant indigenous trees and bushland.**

8. Biodiversity at Manly Dam and adjacent bushland will also be negatively impacted:
<https://viabletransportsolutions.com.au> and <https://www.facebook.com/SaveManlyDamBushland/>
9. **Biodiversity is poorly scoped in the EIS.** The bulk of the biodiversity assessment concentrates and comments on 23 threatened species only. It side-steps the many hundreds of species which will lose their habitat, be driven away or bulldozed under including a wide range of bird species, frogs, reptiles, mammals and aquatic animals.
10. **A full study of wildlife has not been, and will not be, carried out in Flat Rock Gully, Middle Harbour and nearby bushland. Desktop assessments and a few walk-throughs are inadequate to reveal its full biodiversity.**
11. The use of the controversial biodiversity offsetting policy allows for the clearing of bushland in urban communities. This policy, which allows for destruction of biodiversity in one area as long as it is protected somewhere else in NSW, is a recipe for local extinction.
12. **The EIS acknowledges that animals and birds on the construction footprint and nearby bush reserves will be driven away, in some cases permanently, by loss of habitat, food and breeding sites and by the noise, lights, vibration and traffic yet there are few well-developed mitigation plans for the variety of species which will be impacted. (EIS p.19-64).**
13. **The proposed mitigation measures to protect wildlife during construction are weak.** Checking that no animals are in the way 24 hours before construction or having people 'spot' them from barges and remove them during construction seems doomed to failure as it will not be the main focus or within the expertise of most constructors.
14. The health of local creeks, waterways and the marine environments are at risk from scouring, elevated salinity, siltation, contamination by disturbed toxic materials from the tip site and accidental fuel or chemical spills. Groundwater drawdown of more than 20 metres will contribute to trees becoming stressed or dying in other parts of Flat Rock Gully away from the construction footprint, especially in times of drought.
15. Excavation of Middle Harbour sediment has the potential to release heavy metals, pesticides and tributyltin, a chemical used in cleaning boats, which has been banned since 2008 as it causes sex changes in marine organisms.
16. The EIS is inconclusive on the future of the destroyed site which is 5% of the Flat Rock Gully Reserve. Decision-making about its future should not be left to the end of the construction process. The EIS should confirm its rehabilitation and return it to bushland.

I ask for the following conditions:

1. Consider ecologically sustainable alternatives to the car tunnel. Fully scope alternative public transport options.
2. Carry out full assessment of biodiversity in and around area to be destroyed in Flat Rock Gully. Check trees for hollows across the gully area. Carry out fish and macroinvertebrate sampling in creeks and waterways.
3. In consultation with wildlife experts, develop a full suite of mitigation measures to protect the wildlife in local bushland from noise, light and traffic in Flat Rock Gully.
4. Undertake full bush regeneration and provide three for one tree plantings as required by the local vegetation strategy. Biodiversity credits are likely to be applied to areas too far from the construction footprint. We need additional work done before construction to provide nest boxes and rock habitats for displaced wildlife. Biodiversity credits should also be applied long term to weeding and bush regeneration in Flat Rock Gully Reserve.

5. Ensure all landfill exposed by tunnelling is capped at the end of tunnelling and reinstate crushed sandstone as a contoured base for re-establishment of locally indigenous vegetation and habitat. Remove all temporary structures (including noise mitigation sheds).
6. Engage consultants (independent of contractors) to measure water quality in the creek before, during and after construction to check for scouring, contamination from the site and elevated salinity and sediment levels. Make this information publicly available.
7. Include clear strategies in the EIS to counteract the release of contaminants into Middle Harbour following storms or due to silt curtain damage during construction.
8. If the proposal is approved, it is vital that, at the end of the project, the construction site in Flat Rock Gully is restored to bushland consistent with the Environmental Conservation zoning of the site and in accordance with the local Urban Bushland Plan of Management and the Flat Rock Gully Reserve Action Plan.

Tolls and Traffic Objections:

During Construction

1. The burden placed on residents, school children and motorists in Northbridge, Willoughby, Artarmon, Crows Nest, Cammeray, Naremburn, the lower north shore during the estimated 5 years of the construction of the Beaches Link with the cumulative impact of the Western Harbour Tunnel and Warringah Freeway Upgrade extending construction time across the area for upwards of 8 years.
2. A large number of additional construction vehicle movements will be required across the project servicing multiple construction sites. These sites are in and around schools, sporting fields and school transport corridors which increases the safety risk. Heavy/ Light Construction Movements during the project are as follows:

From Table 5-3 Summary of activities proposed at Beaches Link and Gore Hill Freeway Connection construction support sites Daily vehicle movements

BL1 Cammeray Golf Course, Cammeray 305/ 275 = 580

BL2 Flat Rock Drive, Naremburn 355/545 = 900

BL3 Punch Street, Artarmon 580/370 = 900

BL4 Dickson Avenue, Artarmon 500/90 = 590

BL5 Barton Rd, Artarmon 120/35 = 155

BL6 Gore Hill Freeway median 100/10 = 110

Total Artarmon = 1755

BL7 Middle Harbour south cofferdam 60/4

BL8 Middle Harbour north cofferdam combined with above

BL9 Spit West Reserve 200/220 = 420 and vessels 8/16

BL10 Balgowlah Golf Course 1195/ 495= 1290

Total Additional Vehicle Movements Daily = 4950

Total Addition Vessel Movements Daily on Middle Harbour = 88

Note the Western Harbour and Warringah Freeway project which overlaps with this project between 2023 and 2026 requires another 6343 daily movements between Rozelle and Cammeray.

3. 900 Additional vehicle movements will be required on Flat Rock Drive/ Brook St **daily**. This is a narrow local road which services the connection from Northbridge via Naremburn to the city. Dozens of schools on the Lower and Upper North Shore use this route as their school bus route. Brook St is also a significant active transport link from Willoughby to North Shore schools esp Cammeray due to zoning. Keeping kids safe along this corridor will be a challenge. Residents within the many dead end streets along this corridor exiting onto Brook St will also face a higher risk.
4. There is only vague assertions that the thousands of workers (employment of 15,000 has been quoted to service the Western Harbour Tunnel, Warringah Freeway and Beaches Link) will use public transport to access sites. Insufficient parking is provided onsite and not all sites are easily accessible by public transport. The Balgowlah site is a major launching platform for staff who will work at the sites and be bused down to the Spit via Spit Rd. Whilst buses are used from Balgowlah the thousands of workers need to get there and may need to use Military Rd to do so.
5. Marshalling areas will be needed for trucks across all sites but particularly at the Flat Rock site. Marshalling should not be permitted on local streets and particularly not in the Naremburn Conservation Area due to the increased vibration risk. Trucks should not be allowed to idle while marshalling and every load should be tested and inspected to ensure contaminants are fully contained.
6. Trucks accelerating up a steep hill from zero is likely to create a substantial amount of diesel pollution - the health impacts of this have not been fully assessed. An alert style monitor should be placed at bicentennial reserve to alert the community to high levels of pollutants.
7. The noise assessment claimed that the trucks on Flat Rock Drive would not create more noise however the assessment does not appear to account for braking on a very steep hill - the noise assessment should be redone.
8. Spoil will be taken out from the Cammeray site across the bridge to an unknown location. On return the trucks will need to turn around at an undisclosed point - this may add more trucks to roads around Willoughby than currently documented in the EIS.
9. Active transport routes across the route will be fragmented by the project and travel times will increase at Flat Rock, Cammeray and Artarmon.

Operation

1. The EIS confirms the Beaches Link is a Toll Road but there are no costings as yet. Costing and placement of toll gantries is essential to modelling traffic flows and predicting toll avoidance. Toll avoidance could become an issue as per the Inner West - tolling strategy yet to be confirmed however all other contracts have been 40-50 years with min. annual % increase in tolls.
2. A very low level of induced demand has been included in the modelling - research demonstrates that a higher level of induced demand is generally used for new expressways (up to 10%) which calls the modelling into question.
3. The only local entry points for the Beaches Link are via Artarmon and Berry St North Sydney – no local time saved: 10mins to get to entry, 10 mins in tunnel, 10 mins to Dee Why or Manly = 30 min journey time.
4. **The EIS makes it clear that this is not a local congestion solution – several local intersections fail or will experience a worse level of service both during and after construction as a result of the project.**
5. **Does not achieve goals – only 10% reduction in short term on Military Rd based on FUTURE predicted traffic growth not today's levels.** The growth model is not made available in the EIS so the travel time savings and congestion reductions are unable to be verified. Where a road is already at capacity it is self limiting ie) future growth cannot overreach the ceiling capacity of the road and therefore a travel time saving or reduction cannot be claimed on this basis.
6. Traffic differential modelling in the EIS shows increased traffic flows around the Warringah Freeway and on the Beaches exit roads. The project appears to transfer pinch points to alternate locations rather than solving congestion.

7. Confirmed as a capacity solution not a congestion solution – the EIS prioritises freight and through traffic as a goal of the project above local congestion.
8. **No dedicated bus lane in tunnel so is not a public transport solution – express buses aren't express if they are going at the same speed as cars and don't have their own lane.**
9. **No ability to be converted to rail – the project team have confirmed that the gradients are too steep along this alignment for the project to be converted to a rail option.**
10. Prior to Covid TfNSW data shows that the daily average traffic across the Spit Bridge has been decreasing for the last 4 years, while during the same period the traffic on Mona Vale Road through to Macquarie Park has been increasing. The Beaches Link is addressing an ever decreasing problem as less people are travelling to and from the city from the Northern Beaches.
11. There has been no assessment of traffic implications when the tunnel is closed for maintenance which occurs roughly monthly?
12. There has been no assessment of the pollution impact on surrounding neighbourhoods in the event of an emergency involving smoke or gas release (or other toxin). As there is no filtration there is no ability to prevent dispersion over school and residential communities.
13. Build the tunnels and more people use them, it moves the traffic congestion further down the road. Increasing road reliance as the option given in this project is road.
14. **The premise of these projects as we have seen demonstrated in the Westconnex is to see local roads return to local communities. Road tolling is a user paid system and some will spend money to save time, but in reality the continual use of expensive tolls become unavoidable to the vast majority of drivers, even though the state government offers rebates based on tolls and vehicle registration. That amount in tolls far outweighs the rego costs of a family car. There is likely to be an increase of traffic on our local streets as motorists avoid paying the tolls. This is currently the case in Leichhardt, Haberfield, Lilyfield, Ashfield.**

I ask for the following conditions:

1. **Release the business case for the Beaches Link and Gore Hill Freeway connection that has never been made public.** This will tell us whether the Beaches Link is the most efficient, cost effective infrastructure to reduce congestion to and from the Northern Beaches.
2. **A full reassessment of the traffic flows to and from the Northern Beaches needs to include data collected after 2016, data also needs to be collected on the number of Northern Beaches residents who work in the area and how many work from home.**
3. A re-assessment of surface level traffic with all major local roads included in the operational modelling ie) Eastern Valley Way, the full span of Military Rd and Willoughby Rd was not included. The surface road traffic assessment should then inform the pollution impact of the project as the pollution contribution is not only limited to the stacks.
4. A reconsideration of a dive site along Flat Rock Drive due to the conflict between children and trucks and risks associated around safety, noise, dust, traffic etc If this is not reassessed ask for an overpass or underpass on Brook St to allow safe passage of children to school. Exclusion of trucks from the road during school bus times and pollution/ noise mitigation devices.
5. A comparative public transport options analysis to be published (via a reissuance of the EIS for public consultation) that compares the traffic implications both during and after construction of a mass transit solution.

Climate and Sustainability:

1. **The project induces demand and vehicle reliance** - the EIS confirms that vehicle use will increase along the corridor if the project goes ahead ie) it creates induced demand. Measured in Vehicle Kilometers Travelled (VKT) without the project there would be a future predicted 13 633 873 VKT per day, with the project there would be 13 945 836 and with both the Beaches Link and Western Harbour Tunnel there will be 14 584 266 VKT per day by 2037. This was a key criticism of the Federal Economics Reference Committee when looking into Australia's growing toll roads: "Impacts on environment and health policy: To the extent that toll roads increase the amount of car traffic by both increasing the total number of trips and by substituting for public transport, they increase the difficulty of meeting carbon emissions targets. They may also lead to reduced air quality" and "Motorways may also substitute for walking or cycling, or make walking or cycling more difficult. This has been argued with regard to the Westgate Tunnel project. Most governments aim to promote cycling and walking for health reasons."
2. **The project contradicts governments climate change goals:** the councils along the route have all declared a Climate Emergency and the State government has committed to the goal of achieving net zero emissions by 2050. There is a strong economic imperative to do so: "CSIRO has estimated that achieving net-zero emissions before or soon after 2050 will deliver 'higher economic growth' than more moderate trends. NSW is committed to delivering strong economic growth and supporting net-zero emissions is consistent with that commitment." Councils such as Northern Beaches Council have set strong targets around reducing car use in line with this policy. The EIS demonstrates that the reverse will be achieved, and this project increases car dependence and trips. With \$14bn being allocated to a road option rather than a public mass transit option it is unlikely that there will be a significant mode shift to public transport in future "a shift away from private vehicles requires the provision of convenient, efficient, affordable and appealing alternatives that travellers will *choose* to take" There is no dedicated bus lane in the tunnel - research shows that where public transport travels at the same or a slower speed as car traffic motorists will choose to drive. The project team have confirmed that the alignment of the proposed tunnel in the EIS cannot be converted to rail due to gradients. The Dee Why to Chatswood corridor has been assessed as being the most viable corridor for a rail (train, metro or light rail) based alternative. The climate impact and sustainability of this corridor needs to be assessed but given the opportunity to travel along established corridors, better avoid complex and contaminated environs and be a far smaller built it is evident that this would be a far more sustainable option than what is currently proposed in and around Flat Rock Gully, Middle Harbour and Manly Dam.
3. **Road Tunnels have a high resource, waste and emission profile** as they are larger than rail/ metro tunnels, an Immersed Tube Design (crossing of Middle Harbour) increases environmental impacts and the route of this particular tunnel will cut through sensitive habitats, areas of variable foreshore geology and major Middle Harbour and Manly Dam catchments. The transport method chosen, the design and route selected lead to a higher level of impact than alternative options/ routes would ie:
 - Construction and Operation of a road tunnel along this alignment would use a large amount of resources
 - 322,100 cubic meters of ready Mix concrete and 8600 cubic meters of precast concrete will be used alongside other materials during construction - there is a high embodied emissions profile.
 - 19 MVA of power will be needed across the project during construction.
 - 1 422 000 Litres of **water per day** will be sourced from the mains supply during construction (ie potable water)

- Construction and Operation of road tunnel along this alignment would create a very large amount of waste
 - 1, 019, 000 L of wastewater would be flushed down Flat Rock Creek per DAY during construction. 551,000,000 Litres of waste water would be produced in the first year of operations per DAY across the project. Drawdown of water from the environment is a significant issue in catchments and foreshore environs - the project predicts more than 20Mtrs drawdown at Bicentennial Reserve, Flat Rock and Northbridge for example.
 - 12,552 Tonnes of Vegetation waste would be produced (from cleared habitats at Flat Rock, Wakehurst Parkway, Balgowlah and Seaforth)
 - Over 3,000,000 Tonnes of sandstone and spoil waste will be produced and dumped (possibly reused at new Airport). Approximately 10,000m³ is expected to be contaminated and 1000m³ contaminated with asbestos and heavy metals. Again, the risks here are higher because of the route and methods (ie immersed tube) chosen.
 - 10,000 m³ of contaminated waste will be removed from Middle Harbour, barged past beaches and dried out at an unknown location before being driven to Kemps Creek disposal facility. The remaining 153,000 m³ of sediment from Middle Harbour will be dumped at sea.
- Construction and Operation of Road Tunnels have a high emissions profile
 - “The **construction stage** of the project is expected to generate about 724 000 t CO₂-e of greenhouse gas emissions. As shown in Figure 26-1, about 38 per cent of emissions are expected to be contributed from terrestrial electricity consumption, and about 42 per cent by construction materials.” In comparison the average Australian home produces 7 kt CO₂-e per year. The combined total with the Western Harbour Tunnel will be 1,521,365 t CO₂-e. The City and South West Metro Chatswood to Sydenham will only produce emissions of 579,280 t CO₂-e over approximately the same distance
 - The **operational stage** of the tunnel will see emissions of 52,526 t CO₂-e per year and cumulative emissions of 139,363 t CO₂-e per year compared to the metro which will produce 65,835 t CO₂-e per year over a similar distance. Ongoing operational requirements include maintenance, deluge systems, wastewater processing, lights, ventilation fans, air quality monitoring, emergency exit systems, etc
- **The construction and operation of the toll road tunnel will have a significant impact on the environment**
 - **The EIS rates the risk of contamination to environments around Cammeray, Flat Rock, Middle Harbour and Wakehurst Parkway as Moderate to High.**
 - **20.9 Ha of green space will be cleared for the project and over 3000 trees will be removed with 390 removed at Flat Rock. These are mostly offset rather than returned to our local area.**
 - **There is a significant dust risk to Cammeray green spaces, Bicentennial Reserve and Flat Rock Gully**
 - **Many endangered species are put at risk**
 - **The EIS states that areas around Cammeray Golf Course including Cammeray Oval and the Flat Rock Site (including Shore Oval and Bicentennial Reserve) will experience ongoing noise exceedances across the 5 year build timeframe.**
 - **The EIS confirms that green spaces such as Cammeray Oval and Bicentennial Reserve will be more polluted as a result of the project**

- Note: The above figures are compounded when the Western Harbour and Warringah Freeway program of works are added. Some of the statistics from the Western Harbour EIS are as follows: 1M+ Litres of water used per day (majority potable) will be used in construction, \$6M Tonnes of spoil will be trucked through local streets, 600 trees will be destroyed, contaminated spoil will be dried out at White Bay, non-contaminated spoil will be dumped at sea, 1477 ktCO₂e will be produced during construction and 143 ktCO₂e operational emissions will be produced per year by 2037. By 2035 73.7 ktCO₂e will be released due to electricity usage alone required to operate the tunnels. The total emissions add up to more than the cumulative assessment quoted in the Beaches Link EIS and it is not clear why that is - have quoted the lesser figure above in comparison to the Metro.

4. **Sydney already has a significant transport emissions problem:** Pre-Covid figures showed a steady increase in transport emissions over time and whilst there was an obvious dip due to Covid 19 in 2020 - road use has returned to regular levels. Covid-19 should not be an excuse however to build more roads and build in more emissions and the associated pollution, Sydney's PM_{2.5} (a pollutant closely associated with diesel engines in particular) are already at the national criteria levels in our urban centres - any increase to this has significant health implications. Analysts are expecting a rebound to public transport and a higher uptake of active transport once Covid-19 has passed as has happened after similar events overseas. At pre-Covid levels Sydney has shown a very strong mode shift to public and active transport. The government should be providing more services which will encourage socially distanced travel and encourage that trend to continue rather than falling back into a pattern of radial road building and car reliance that has been the hallmark of past generations.
5. **Sydney is out of space, tunnels to congested centres don't fix that, they create more parking pressure and pressure on our green spaces.** Trading our green space and natural environments for the sake of parking and tunnel entries is not an option. Cars need to come out of tunnels at some point and increasing the number of cars travelling to our city centres simply puts more pressure on urban centres. It is likely that rather than finding parking in the city (which is becoming increasingly impossible) commuters will disembark the Beaches Link onto the North Shore to access mass transit hubs at St Leonards, Crows Nest, Artarmon and North Sydney. These areas are already at capacity in terms of parking space. A tunnel will make our space issue worse by encouraging a faster trip time for car users who then need to park in areas that are already highly space constrained.
6. **The EIS does not benchmark the project against a public transport alternative** or external standards. The assessment relies on self assessment against a worse case scenario for the project and focuses on the margin of emissions before and after the project rather than demonstrating that it is the best option to address our growing transport emissions problem. The need to contribute to overall improved climate outcomes with major infrastructure is dealt with via the claim that there will be less start stop traffic however the data reveals higher emissions and considerable sustainability issues. The EIS makes vague assertions that materials will be reused where possible and solar panels might be installed. A more robust climate and sustainability assessment with external benchmarking and strong mitigations is needed. Transport for NSW states that rail is more sustainable: "A train line can move 50,000 people an hour. Compare this with a freeway lane which can move 2500 people an hour" and requires far less parking spaces in the city centre.
7. **Embodied Emissions are a significant issue:** building and construction are responsible for 39% of all carbon emissions in the world and this project demonstrates a considerable use of resources and transport as part of the construction of the project.

8. **Government legislation is not met by the project:** The principles of ecologically sustainable development are not met by the project. Ecologically sustainable development is defined under the ***Protection of the Environment Administration Act 1991 (NSW)*** - these definitions are not met by the project in the following ways:
- **Intergenerational equity** has not been achieved as the project proposes more private cars without consideration of the more environmentally sound alternatives provided by public transport. Future generations in our community will experience rapidly expanding car usage and there will be less green space for them. The quality of the air they breathe on a daily basis will be worsened by the inevitable increase in car usage.
 - There is little within the EIS to suggest that **the conservation of biological diversity and ecological integrity**, particularly of threatened species will be enhanced by the limited mitigation processes described in the documents.
 - Finally, the EIS provides evidence to the contrary about the principle of encompassing **improved valuation and pricing of environmental resources** as it threatens those resources with unfiltered stacks and increased car traffic which further and permanently undermines the health and amenity of our local communities.
9. **No accounting for loss of major carbon capture ecosystems:** No consideration has been made of **impact of loss of, or harm to, sea grasses and mangroves from increases in marine pollution**, nor the harm/destruction to trees and vegetation where there is a material change in groundwater level through drawdown. There is a material drawdown of more than 20 metres in Northbridge (28m), Flat Rock Reserve (21m) and Willoughby Leisure Centre (22m). Mangroves are carbon capture powerhouses and any loss will have a significant impact on carbon exchange across the project footprint.
10. **Toll road tunnel contracts incentivise car use:** all previous toll road contracts in Sydney have included (at least) annual increases over a period of 40-50 years. The government “guarantees” the toll road revenue which acts as a disincentive to encourage commuter mode shift to public transport. In other words, it is not in the government’s interest to encourage less car usage, the opposite is true. The only incentive that the government could support to make a difference is the reduction of emissions from private vehicles, trucks and buses ie) mandate electric buses only, proportional tolling to reward cleaner vehicles, ban diesel engines from the tunnels, improve our poor fuel standards etc.
11. **Transport emissions our second fastest growing emission sector after energy and EV uptake alone won’t fix the problem:** The climate council reviewed Australia’s transport emissions and concluded along with other analysts that transport emissions are our fastest growing sector and there is little being done to arrest the trend. EV uptake will go some way to help but it is not the fix all solution. Australia has a very poor regulatory framework when it comes to transport emissions: we have some of the poorest new car fuel standards worldwide, no real incentives in place toward cleaner sources and we have increasing diesel reliance when other countries are banning it due to the proven carcinogenic link and PM2.5 impact. We also have a burgeoning second hand car market and a long retention rate when it comes to our cars. Analysts believe that due to population growth, current planning practices and poor EV policies we won’t see a change to the emissions curve for decades. A multifaceted approach is needed in terms of regulation, options and incentives - there is no doubt we need to start now however relying on a road only solution will take many decades to see the results. The fastest and most effective way of addressing our transport emissions is by converting large numbers of road users to mass transit whilst employing these changes in tandem.

I ask for the following conditions:

Prior to Approval

1. Reassess the project design and methods to ensure the project complies with the following protocols and legislation. Reassessment should include reconsideration of the Dive Site at Flat Rock due to contamination and ground risks, reconsideration of the Immersed Tube Design and any other design issues that may reduce the projects high ecological footprint. Re-publish the EIS with amendments for public consultation demonstrating that the amended project would meet:

Kyoto Protocol to the United Nations Framework Convention on Climate Change (the Kyoto Protocol) (UNFCCC, 1998), Doha Amendment to the Kyoto Protocol (UNFCCC, 2012), Paris Agreement (UNFCCC, 2015), National Greenhouse and Energy Reporting Act 2007 (Cwlth), Direct Action Plan (Australian Government, 2014), NSW Climate Change Policy Framework (OEH, 2016a), Environmental Sustainability Strategy 2019-2023 (Roads and Maritime Services, 2019) and Protection of the Environment Administration Act 1991 (NSW)

2. Within the re-issued EIS provide a comprehensive alternatives analysis which clearly demonstrates it's superiority over the Dee Why to Chatswood mass transit alternative or other viable mass transit option detailing all sustainability and climate impacts for comparison.

If Approved

Ensure **Conditions of Consent** which:

1. Mandates renewable energy usage
2. Mandates a minimum level of recycled material
3. Mandates the full lining of the tunnels to prevent water ingress and wastewater
4. Mandates the incentivising of electric vehicles
5. Provides for electrical vehicle charging at construction sites
6. Requires Diesel vehicles to be fitted with pollution control devices
7. **Does not allow a "conflict" clause in toll road contracts preventing the development of public transport**
8. **Returns the same number of trees and green spaces to local areas (not offset locations)**
9. **Fully rehabilitate the Flat Rock Gully Reserve tip site and return it to a better condition than currently with contaminated spoil and leachate removed. Ensure the Reserve is returned to bushland to support biodiversity and proper containment of the upstream tip.**
10. Ensures wastewater is treated for or known contaminants before release
11. Provides for alert style monitoring at local sports fields
12. **Ensures a dedicated bus lane in the tunnel**
13. Provides for operational parking solutions that do not encroach on green spaces
14. **Provides for guaranteed protection of mangroves and seagrasses ie) full length silt curtains, real time water quality monitoring and offsets any losses.**
15. Ensures consultation with key groups in the community ie) The Bicentennial Reserve and Flat Rock Gully Committee, Save Flat Rock Gully committee, WEPA, local school P&C's and Progress Associations as well as Middle Harbour environment and community groups.